

1	Room temperature and climate control / Hydronic balancing at the radiator Thermostats, radiator fittings, actuators, controllers
2	Surface heating and cooling "Cofloor" Systems, "Copipe", "Copex" and "Copert" pipes, "Unidis", "Unibox", distributors/collectors, valves, controls, accessories
3	Hydronic balancing in heating and cooling systems Double regulating and commissioning valves and isolating and orifice valves ("Hycocn", "Hydrocontrol"), differential pressure and flow regulators ("Hydromat"), pressure independent control valves for automatic hydronic balancing ("Cocon") and measuring systems
5	Isolating and other pipe fittings Valves, ball valves, gate valves, strainers, check valves
6	Stations for heating, cooling, potable water for dwellings/buildings Stations for the connection of heat generators to the heating heating circuit ("Regumat"), dwelling stations ("Regudis W"), fresh water stations ("Regumaq"), cooling stations ("Regumaq WK")
7	Local and district heating technology Stations ("Regudis H"), valves and accessories
8	Potable water technology "Aquanova-System" Isolating valves, valves for static or automatic thermal regulation, filters, distribution and flushing systems for the efficient operation of hygienic potable water installations
9	Solar thermal energy Stations "Regusol", collectors "OKP" / "OKF", systems "Solcos", valves and accessories
10	Storage cylinders Storage cylinders ("Hydrocor"), energy storage centres ("Regucor"), "power to heat"
11	Connection system "Combi-System" "Cofit" fittings, "Copipe", "Copex" and "Copert" pipes, accessories
12	Smart Home, centralised building control systems and other electronic controls Smart Home "DynaTemp HA", centralised building control systems "DynaTemp BA", "OVgateway", actuators, valves and accessories
14	Heating oil technology Filters, deaerators, tank equipment and fittings
17	Different system applications Application for air conditioning, heat pumps, geothermics, combined heat and power (CHP), photovoltaics/Smart Grid, district heating/biomass systems, solar cooling, large solar plants
19	Service Software, data (BIM, ETIM), measuring gauges, catalogues and service
20	General information Indices, Standard Terms and Conditions, Imprint

1	Room temperature and climate control / Hydronic balancing at the radiator	
	Content	1.01
1.a	Thermostats	1.08
1.b	Room thermostats	1.20
1.c	Actuators	1.26
1.d	"i-Tronic" Climate display device	1.32
1.e	"R-Tronic" Climate display device/control "OVgateway" and hydronic balancing	1.34
1.f	Valves with "Q-Tech" for automatic hydronic balancing	1.44
1.g	Valves for manual hydronic balancing	1.52
1.h	Valves for large flow rates	1.64
1.i	Thermostatic valve sets	1.70
1.j	Exclusive radiator valves	1.74
1.k	"Multiblock T/ T-RTL" Fittings for radiators with centre connection	1.80
1.l	Valve sets, components and accessories for for two pipe heating systems	1.90
1.m	Valve sets, components and accessories for one pipe heating systems	1.94
1.n	"Unofix" Refurbishment of one pipe heating systems	1.105
1.o	Valve inserts for radiators with integrated distributor	1.108
1.p	Valve inserts	1.114
1.q	Return temperature limiters	1.118
1.r	Manual radiator valves	1.122
1.s	"Q-Tech" Fittings for automatic hydronic balancing	1.124
1.t	Fittings for radiators with integrated distributor	1.126
1.u	Lockshield valves for conventional radiators	1.132
1.v	Distributors/collectors	1.136
1.w	Conversion fittings/Accessories for radiators	1.140
1.x	Connection system	1.144
2	Surface heating and cooling "Cofloor"	
	Content	2.01
2.a	System summary	2.06
2.b	"Unidis" Surface heating system with local flow distribution	2.10
2.c	"Unibox" Room temperature control with "Q-Tech" for automatic hydronic balancing	2.16
2.d	"Unibox" Room temperature control	2.18
2.e	Room thermostats	2.28
2.f	Room thermostats with wireless transmitter, wireless receivers	2.33
2.g	Actuators	2.38
2.h	"Cofloor" Systems, "Copex" Pipes and accessories	2.40
2.i	"Multidis Fix" Distributor/collector systems	2.56
2.j	"Multidis SFQ" distributor/collector with "Q-Tech" for automatic hydronic balancing	2.58
2.k	"Multidis SF/SFB/SFI" Distributors/collectors for surface heating and cooling systems	2.60
2.l	"Regufloor" Control units	2.70
2.m	Single components for distributors/collectors	2.80
2.n	Regulating sets for surface heating systems	2.84
2.o	Return temperature limiter set	2.88
2.p	Components for concrete core activation	2.92
3	Hydronic balancing in heating and cooling systems	
	Content	3.01
3.a	System summary	3.06
3.b	"Hycococon" Control, regulating and isolating valves	3.12
3.c	"Hydrocontrol" Regulating and isolating valves	3.26
3.d	"Hydromat" Differential pressure and flow regulators	3.38
3.e	Accessories for "Hydrocontrol", "Hydromat", "Hycococon"	3.44
3.f	"Hycoflow" Double regulating and commissioning valves with flow display	3.54
3.g	"Cocon" Regulating valves	3.56
3.h	"Optibal W6" Six-way ball valve	3.68
3.i	"Flypass" Connection systems, valves and fittings	3.73
3.j	"Tri-M", "Tri-D", "Tri-CTR" Two-way valves, three-way valves, temperature controllers	3.82
3.k	"KTB" Thermostatic valves for cooling systems	3.88
3.l	Room thermostats, actuators	3.90
3.m	"OV-DMC 3" Measuring system	3.98
3.n	Products for air conditioning and ventilation	3.104
3.o	Products for radiant and chilled ceiling systems	3.108

	Page
3.p	3.112
5	Isolating and other pipe fittings
	5.01
5.a	5.04
5.b	5.14
5.c	5.18
5.d	5.22
5.e	5.26
5.f	5.30
5.g	5.32
5.h	5.36
6	Stations for heating, cooling, potable water for dwellings/buildings
	6.01
6.a	6.06
6.b	6.32
6.c	6.40
6.d	6.50
6.e	6.56
6.f	6.60
6.g	6.64
6.h	6.85
6.i	6.110
6.j	6.128
6.k	6.130
7	Local and district heating technology
	7.01
7.a	7.08
8	Potable water technology "Aquanova-System"
	8.01
8.a	8.06
8.b	8.10
8.c	8.22
8.d	8.24
8.e	8.28
8.f	8.32
8.g	8.36
8.h	8.46
8.i	8.48
8.j	8.52
8.k	8.56
8.l	8.61
8.m	8.66
8.n	8.68
8.o	8.70
8.p	8.74
8.q	8.78
8.r	8.82
8.s	8.84
9	Solar thermal energy
	9.01
9.a	9.07
9.b	9.30
9.c	9.40
9.d	9.52
9.e	9.56
9.f	9.58
9.g	9.62
9.h	9.70

	Page
10 Storage cylinders	
Content	10.01
10.a "Regucor WHS" Energy storage centres	10.06
10.b "Regucor WHP" Energy storage centre ("Power to heat")	10.17
10.c "Hydrocor" Storage cylinders	10.20
11 Connection system "Combi-System"	
Content	11.01
11.a "Copipe", "Copex" and "Copert" pipes	11.06
11.b "Cofit P" Press connection system (bronze)	11.14
11.c "Cofit PD" Press connection system (bronze, pressing must be carried out to tighten the connection)	11.24
11.d "Cofit PDK" Press connection system (plastic, pressing must be carried out to tighten the connection)	11.32
11.e "Cofit S" Screwed connection system	11.34
11.f Fixing material and accessories for pipes	11.40
11.g Tools	11.42
11.h "Copex HT" PE-Xc Plastic pipe	11.50
11.i "Cofit PD-HT" Press connection system	11.52
12 Smart Home, centralised building control systems and other electronic controls	
Content	12.01
12.a "DynaTemp" Home and Building automation	12.06
12.b "DynaTemp HA" Home Automation	12.10
12.c "DynaTemp BA" Building Automation	12.14
12.d "DynaTemp BA" Building Automation Local individual room temperature control via bus system "CR-BS"	12.19
12.e "DynaTemp BA" Building Automation Central individual room temperature control via bus system "CR-BX"	12.27
12.f "DynaTemp BA" Building Automation Local and central individual room temperature control via bus system "CR-BSX"	12.33
12.g "DynaTemp BA" Building Automation Automatic thermal balancing and thermal disinfection in potable water circulation systems "CW-BS"	12.41
12.h "DynaTemp BA" Building Automation Network of stations for heat generator/heating circuit and solar thermal energy "CS-BS"	12.45
12.i Actuators, sensors, valves and fittings	12.56
14 Heating oil technology	
Content	14.01
14.a General information	14.04
14.b Deaerators, filters	14.08
14.c Tank equipment	14.22
14.d Heating oil valves in the pipework	14.36
14.e Fittings	14.43
14.f Heating oil kits for export	14.50
17 Different system applications	
Content	17.01
17.a Different system applications	17.04
19 Service	
Content	19.01
19.a Software, data, data sets	19.04
19.b Measuring gauges	19.06
19.c Service	19.08
20 General information	
Content	20.01
20.a Indices	20.04
20.b General conditions	20.52
20.c Imprint	20.54



1.a Thermostats

Content	1.07
Thermostat "Uni XH" (M 30 x 1.5)	1.08
Thermostat "Uni XHM" (M 30 x 1.5)	1.08
Thermostat "Uni XHT" (M 30 x 1.5)	1.08
Thermostat "Uni LH" (M 30 x 1.5)	1.09
Thermostat "Uni LGH" (M 30 x 1.5)	1.09
Thermostat "Uni LHB" (M 30 x 1.5)	1.10
Thermostat "Uni SH" (M 30 x 1.5)	1.10
Thermostat "pinox H" (M 30 x 1.5)	1.11
Thermostat "vindo TH" (M 30 x 1.5)	1.11
Thermostat "Uni CH" (M 30 x 1.5)	1.11
Thermostat with remote control "Uni FH" (M 30 x 1.5)	1.12
Thermostat "Uni XD" (squeeze connection)	1.13
Thermostat "Uni LD" (squeeze connection)	1.13
Thermostat "pinox D" (squeeze connection)	1.14
Thermostat "vindo TD" (squeeze connection)	1.14
Thermostat "vindo RTD"	1.14
Thermostat with remote control "Uni FD" (squeeze connection)	1.15
Thermostat "Uni LDV" (squeeze connection)	1.15
Thermostat "Uni LDVL" (squeeze connection)	1.15
Thermostat "Uni L" M 30 x 1.0	1.16
Special thermostats	1.16
Accessories for thermostats	1.17
Manual heads	1.18

1.b Room thermostats



Content	1.19
Room thermostats (heating)	1.20
Room thermostats (heating/cooling)	1.21
Room thermostats (heating/cooling) with fan drive	1.22

1.c Actuators



Content	1.23
Combination possibilities of valves and actuators	1.24
"Aktor T" Electrothermal actuators	1.26
"Aktor M" Electromotive actuators	1.28
"Aktor M ST EIB" Electromotive actuators	1.29
"Aktor M ST LON@" Electromotive actuators	1.29
"Aktor MH CON B" (ENOCEAN) Wireless actuator	1.29

1.d "i-Tronic" Climate display device

Content	1.31
"i-Tronic TFC"	1.32

**1.e "R-Tronic" Climate display device/control
"OVgateway" and hydronic balancing**

Content	1.33
"R-Tronic RT B" Wireless thermostat	1.34
"R-Tronic RTF B" Wireless thermostat with humidity display	1.35
"R-Tronic RTFC K" Wireless thermostat with humidity and CO ₂ display	1.35
"Aktor MH CON B" Wireless actuator (M 30 x 1.5)	1.36
"Aktor MD CON B" Wireless actuator (squeeze connection)	1.36
"R-Con" Wireless receiver	1.37
Accessories	1.38
"FK-C F" Wireless window contact	1.38
"RP-S F" Wireless repeater	1.38
"R-Con 2P" Wireless receiver (1 channel)	1.38
Automatic presetting with the "OVgateway" and automatic hydronic balancing with "Q-Tech"	1.39
"OVbalance Home" Basic Set	1.39
"R-Tronic RT B"(ENOCEAN) Wireless thermostat for Smart Home applications	1.41
"R-Tronic RTF B" (ENOCEAN) Wireless thermostat for Smart Home applications	1.41
"Aktor MH CON B" (ENOCEAN) Wireless actuator for Smart Home applications	1.41
Accessories	1.42
"FK-C F" Wireless window contact	1.42
"RP-S F" Wireless repeater	1.42

1.f Valves with "Q-Tech" for automatic hydronic balancing

Content	1.43
Thermostatic valves "AQ"	1.44
Thermostatic valves "RFQ"	1.45
Exclusive radiator valves "EQ"	1.46
"Multiblock TQ" Two pipe fitting	1.47
"Multiblock TQ-RTL"	1.48
"Demo-Bloc"	1.49

1.g Valves for manual hydronic balancing



Content	1.51
Thermostatic valves "AV 9"	1.52
Thermostatic valves "AV 9" (press connection)	1.52
Thermostatic valves "AV 9" (male thread)	1.53
Thermostatic valves "CV 9"	1.54
Thermostatic valves "AF"	1.55
Accessories	1.57
Thermostatic valves "ADV 9"	1.58
Thermostatic valves "RFV 9"	1.59
"Uniset" Radiator valve sets	1.61
Radiator lockshield valve "Combi 3G"	1.61
"Demo-Bloc"	1.62

1.h Valves for large flow rates



Content	1.63
Thermostatic valves "A"	1.64
Thermostatic valves "A" (male thread)	1.65
Thermostatic valves "AZ V"	1.66
Thermostatic valves "AZ H"	1.66
Thermostatic valves "RF"	1.67

1.i Thermostatic valve sets



Content	1.69
Thermostatic valve sets with thermostat "vindo TH"	1.70
Thermostatic valve sets with thermostat "Uni LH"	1.71
Connection sets "Multiflex F" with thermostat "vindo TH"	1.71

1.j Exclusive radiator valves



Content	1.73
Thermostatic valves "E"	1.74
Design handgrips	1.75
Radiator lockshield valves "Combi E"	1.76
Sets of compression fittings (1-fold)	1.76
T-pieces	1.76
Wall connection sets (1-fold)	1.77
Thermostatic valve sets "E"	1.78

1.k "Multiblock T/ T-RTL" Fittings for radiators with centre connection



Content	1.79
"Multiblock T" Two pipe fitting	1.80
"Multiblock TU" One/two pipe fitting convertible	1.81
Design covers	1.82
Connection sets "Multiblock T"/"Uni SH" for towel radiators (radiators with G 1/2 female thread)	1.83

Connection sets "Multiblock T"/"pinox H" for towel radiators (radiators with G ½ female thread)	1.83
"Multiblock TFU" One/two pipe fitting convertible	1.84
Connection sets "Multiblock TFU"/"Uni SH" for towel radiators (radiators with G ½ female thread)	1.84
"Multiblock T-RTL"	1.85
Connection sets "Multiblock T-RTL"/"Uni SH"	1.87
Connection sets "Multiblock T-RTL"/"pinox H"	1.87

1.l Valve sets, components and accessories for for two pipe heating systems

Content	1.89
"Bypass-Combi Duo" two pipe with shut off	1.90
"Duo" Two pipe connection piece with shut off	1.90
Connection pieces	1.91
"Duo" Two pipe connection piece without shut off	1.92
Two pipe radiator valve with insertion tube with shut off	1.92
Valve for "TKM" system	1.92
Angle pattern fitting	1.92



1.m Valve sets, components and accessories for one pipe heating systems

Content	1.93
"Bypass-Combi Uno" one pipe	1.94
"Uno" One pipe connection piece	1.94
"Uno" One pipe connection piece M 24 x 1.5	1.96
"Ofix" Compression fittings M 24 x 1.5	1.96
"Cofit S" Compression fittings M 24 x 1.5	1.96
Plastic rosette cover	1.96
One pipe radiator valve with insertion tube with fixed bypass and shut off	1.97
Valve for "TKM" system	1.97
Angle pattern fitting	1.97
Three-way conversion valves	1.98
Accessories	1.98
Isolation fittings	1.100
S-connection fitting, flat sealing	1.101
Tailpipe sets	1.101



1.n "Unofix" Refurbishment of one pipe heating systems

Content	1.103
System illustrations	1.104
"Cocon QTZ" Pressure independent control valves PN 16	1.105
"Aktor T" Electrothermal actuators	1.105
Accessories	1.106



1.o Valve inserts for radiators with integrated distributor



Content	1.107
Valves inserts with "Q-Tech"	1.108
Valve inserts (M 30 x 1.5)	1.110
Valve inserts (squeeze connection)	1.112

1.p Valve inserts



Content	1.113
Valve inserts for valves with connection thread M 30 x 1.5	1.114
Valve inserts for valves with connection thread M 30 x 1.0 (for valves manufactured up to 1998)	1.116

1.q Return temperature limiters



Content	1.117
Return temperature limiter valves for thermostat "Uni RTLH"	1.118
Thermostat "Uni RTLH"	1.118
Thermostat "Uni RTL"	1.118
Valve inserts	1.119
Extension	1.119
Gland nut	1.119
Return temperature limiter sets	1.120

1.r Manual radiator valves



Content	1.121
Manual radiator valves "HRV"	1.122
Manual radiator valves "HR"	1.122

1.s "Q-Tech" Fittings for automatic hydronic balancing



Content	1.123
"Multiflex FQ" Fittings for G 1/2 female thread	1.124
"Multiflex FQ" Fittings for G 3/4 male thread	1.124

1.t Fittings for radiators with integrated distributor



Content	1.125
"Multiflex F" Fittings for G 1/2 female thread	1.126
"Multiflex F" Fittings for G 3/4 male thread	1.128
Radiator connection	1.129
Inversion fittings	1.129
Connection fittings	1.130
Plastic rosette cover, white	1.130

1.u Lockshield valves for conventional radiators

Content	1.131
"Combi 4"	1.132
"Combi C"	1.132
"Combi 3"	1.133
"Combi 2"	1.134
"Combi LR"	1.134

1.v Distributors/collectors

Content	1.135
"Multidis SH" Stainless steel distributor/collector	1.136
Ball valves	1.136
Flush-mounted cabinets	1.137
Ring spanner	1.137
Floor distributor/collector	1.137

1.w Conversion fittings/Accessories for radiators

Content	1.139
Conversion fittings	1.140
Strainer inserts	1.141
Accessories for radiators	1.142

1.x Connection system




Content	1.143
"Ofix" Compression fittings	1.144
"Ofix" Compression fittings (2-fold)	1.146
"Cofit S" Compression fittings	1.147
Summary	1.148
Installation examples	1.149
"Ofix" for the connection of standard pipes to Oventrop valves and controls	1.150
Brass reinforcing sleeves	1.147



1.a Thermostats

Content

Thermostat "Uni XH" (M 30 x 1.5)	1.08
Thermostat "Uni XHM" (M 30 x 1.5)	1.08
Thermostat "Uni XHT" (M 30 x 1.5)	1.08
Thermostat "Uni LH" (M 30 x 1.5)	1.09
Thermostat "Uni LGH" (M 30 x 1.5)	1.09
Thermostat "Uni LHB" (M 30 x 1.5)	1.10
Thermostat "Uni SH" (M 30 x 1.5)	1.10
Thermostat "pinox H" (M 30 x 1.5)	1.11
Thermostat "vindo TH" (M 30 x 1.5)	1.11
Thermostat "Uni CH" (M 30 x 1.5)	1.11
Thermostat with remote control "Uni FH" (M 30 x 1.5)	1.12
Thermostat "Uni XD" (squeeze connection)	1.13
Thermostat "Uni LD" (squeeze connection)	1.13
Thermostat "pinox D" (squeeze connection)	1.14
Thermostat "vindo TD" (squeeze connection)	1.14
Thermostat "vindo RTD"	1.14
Thermostat with remote control "Uni FD" (squeeze connection)	1.15
Thermostat "Uni LDV" (squeeze connection)	1.15
Thermostat "Uni LDVL" (squeeze connection)	1.15
Thermostat "Uni L" M 30 x 1.0	1.16
Special thermostats	1.16
Accessories for thermostats	1.17
Manual heads	1.18

Article	Control range	Packing unit	Article-No.	Hint
Thermostat "Uni XH" (M 30 x 1.5) with liquid sensor marking "Uni XH" on lower side				Temperature setting may be limited or locked by using the limiting elements. With setting device for visually handicapped persons. Marking of a set value by using the memo disk. Max. heating water temperature: 120 °C
	white	7-28 °C	(10) 1011365	
	white	7-28 °C	(10) 1011364	<u>with '0' setting</u> <u>without '0' setting</u>
Thermostat "Uni XHM" (M 30 x 1.5) with liquid sensor marking "Uni XHM" on lower side with higher specific piston stroke				In combination with valves, the specific piston stroke and thus the k_v -value is higher compared to the other Oventrop valves. Especially suitable for the valve design with 1K P-deviation.
	white	7-28 °C	(10) 1011360	
Thermostat "Uni XHT" (M 30 x 1.5) with liquid sensor marking "Uni XHT" on lower side				Max. heating water temperature: 90 °C
	transparent	7-28 °C	(10) 1011300	<u>with '0' setting</u>

Awards:

Interclima Paris
Trophée du DesignIndustrial Design Forum Hanover
Award iFwith '0' settingwithout '0' settingwith '0' settingwith '0' settingFor further information see
"Technical information":

Article	Control range	Packing unit	Article-No.	Hint
---------	---------------	--------------	-------------	------

Thermostat "Uni LH" (M 30 x 1.5)
 with liquid sensor
 marking "Uni LH" on lower side

Temperature setting may be limited or locked by using the concealed limiting elements. With setting device for visually handicapped persons. Marking of a set value by using the memo disk.
 Max. heating water temperature: 120 °C
[with '0' setting](#)
[without '0' setting](#)
 For indoor swimming pools and health spa.



white	7-28 °C	(10)	1011465
white	7-28 °C	(10)	1011464
white	8-38 °C	(10)	1011488

 Busse Design Ulm
 Longlife Design Award



signal grey with collar nut cover (RAL 7004)	7-28 °C	(25)	1011461
anthracite with collar nut cover (RAL 7016)	7-28 °C	(25)	1011467
gold plated with collar nut cover	7-28 °C	(25)	1011468
chrome plated with collar nut cover	7-28 °C	(25)	1011469

[with '0' setting](#)



white, with remote sensor			
capillary 2 m long	7-28 °C		1011665
capillary 5 m long	7-28 °C	(75)	1011666
capillary 10 m long	7-28 °C	(75)	1011667
capillary 2 m long	7-28 °C	(75)	1011682

[with '0' setting](#)

[without '0' setting](#)



capillary 2 m long	8-38 °C	(10)	1011688
--------------------	---------	------	----------------

For indoor swimming pools and health spa.

[without '0' setting](#)

For further information see "Technical information":



Thermostat "Uni LGH" (M 30 x 1.5)
 with liquid sensor

white		(100)	1018561
-------	--	-------	----------------



Article	Control range	Packing unit	Article-No.	Hint
Thermostat "Uni LHB" (M 30 x 1.5) with liquid sensor marking "Uni LHB" underneath the memo disk				
	white	7-28 °C	(10) 1011410	Lockshield configuration, lockable, with integrated anti-theft device and increased flexional strength. Max. heating water temperature: 120 °C Award:  universal design award <u>without '0' setting</u>
	Setting key for thermostat "Uni LHB"		1011497	For nominal temperature setting at the thermostat.
Thermostat "Uni SH" (M 30 x 1.5) with liquid sensor marking "Uni SH" on lower side				
	white/chrome plated	7-28 °C	(10) 1012065	<u>with '0' setting</u> With mounted design cover "SH-Cap" With mounted design cover "SH-Cap"
	white	7-28 °C	(10) 1012066	
	chrome plated	7-28 °C	(10) 1012069	
	stainless steel finish	7-28 °C	(10) 1012085	
	"SH-Cap" Design covers			Awards:
	anthracite (RAL 7016)		(25) 1012080	 International Design Award Baden Württemberg
	chrome plated		(25) 1012081	DESIGN PLUS ISH Frankfurt
	white		(25) 1012082	 Design Award of the Federal Republic of Germany Nominated
				 Good Design Award Japan
				 universal design award
				 The Chicago Athenaeum: Museum of Architecture and Design GOOD DESIGN Award
				"Uni SH" in combination with "Multiblock T" in stainless steel finish:
				 Design Centre Essen reddot design award
				 Design Award of the Federal Republic of Germany Nominated
				For further information see "Technical information".



Article	Control range	Packing unit	Article-No.	Hint
---------	---------------	--------------	-------------	------

Thermostat "pinox H" (M 30 x 1.5)
 with liquid sensor
 marking "pinox H" on lower side

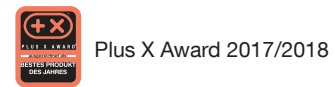
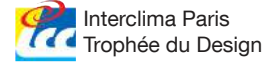


chrome plated (12) **1012165**
 white (12) **1012166**

Single-lever thermostat.
 This thermostat can be fitted to all thermostatic radiator valves with connection thread M 30 x 1.5. Design similar to that of single-lever taps.
 Max. heating water temperature: 120 °C

without '0' setting
 The thermostat "pinox H" has features which are protected by patent.

Awards:
 DESIGN **PLUS** ISH Frankfurt 2013



Thermostat "vindo TH" (M 30 x 1.5)
 with liquid sensor

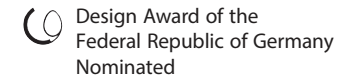


white 7-28 °C (10) **1013066**

Temperature setting may be limited or locked by using the limiting elements. With setting device for visually handicapped persons.
 Max. heating water temperature: 120 °C

with '0' setting

The thermostat "vindo TH" has features which are protected by patent.



Thermostat "Uni CH" (M 30 x 1.5)
 Design *Colanni*
 with liquid sensor
 marking "Uni CH" on lower side



white 7-28 °C (10) **1011265**

The thermostat "Uni CH" features a moveable collar not cover.
 Max. heating water temperature: 120 °C

without '0' setting

Article	Control range	Article-No.	Hint
---------	---------------	-------------	------

Thermostat with remote control "Uni FH" (M 30 x 1.5)

Thermostats with remote control and with remote transmission are especially suitable for trench heaters, encased radiators and surface heating systems.
Max. heating water temperature: 120 °C

**Thermostat with remote control "Uni FH"**
white

capillary 2 m long	7-28 °C	1012295
capillary 5 m long	7-28 °C	1012296
capillary 10 m long	7-28 °C	1012297

with '0' setting

white,
with additional remote sensor

capillary 2 m long	7-28 °C	1012395
capillary 5 m long	7-28 °C	1012396

with '0' setting

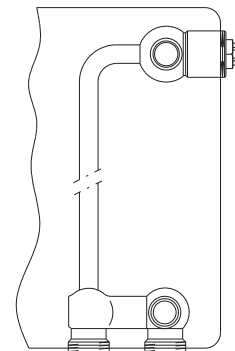
For further information see
"Technical information":

The thermostats "Uni XH", "Uni XHM", "Uni XHT", "Uni LH", "Uni LHB", "Uni LHZ", "Uni FH", "Uni SH", "Uni CH", "vindo TH" and "pinox H" can be fitted without adapter to the radiators with integrated distributor of the following manufacturers:

- ACOVA	- Delta	- Kampmann
- Alarko	- Demrad	- Kermi
- Arbonia	- DiaNorm	- Korado
- Baufa	- Dia-therm	- Purmo
- Baykan	- Dunafer	- Radson
- boki	- DURA	- Rettig
- Bemm	- Emco	- Runtal
- Borer	- Heatline	- Starpan
- Bremo	- Henrad	- Superia
- Brugman	- HM-Heizkörper	- Terrotechnik
- Caradon-Stelrad	- Hoval	- US-Steel
- Celikpan	- IMAS	- Vasco
- Cöskünöz	- Jaga	- VEHA
- Concept	- Jugotherm	- Zehnder
- DEF	- Kalor	- Zenith

(Subject to change without notice)

Example of an integrated distributor for two pipe heating systems. G 3/4 male thread, distance between pipe centres 50 mm.



Article	Control range	Packing unit	Article-No.	Hint
---------	---------------	--------------	-------------	------

Thermostat "Uni XD" (squeeze connection)
 with liquid sensor
 marking "Uni XD" on lower side

These thermostats can be fitted without adapter to the integrated distributors and thermostatic radiator valves with squeeze connection of the company Danfoss, series RA. Squeeze connection with collar nut:
 – easy installation
 – close connection
 Temperature setting may be limited or locked by using the limiting elements.
 With setting device for visually handicapped persons.
 Marking of a set value by using the memo disk.
 Max. heating water temperature: 120 °C
with '0' setting
without '0' setting



white	7-28 °C	(10)	1011375
white	7-28 °C	(10)	1011374



white, with remote sensor			
capillary 2 m long	7-28 °C	(10)	1011575

with '0' setting

Thermostat "Uni LD" (squeeze connection)
 with liquid sensor
 marking "Uni LD" on lower side

Temperature setting may be limited or locked by using the concealed limiting elements.
 With setting device for visually handicapped persons.
 Marking of a set value by using the memo disk.
 Max. heating water temperature: 120 °C
without '0' setting
with '0' setting



white	7-28 °C	(10)	1011472
white	7-28 °C	(10)	1011475



signal grey with collar nut cover (RAL 7004)	7-28 °C	(25)	1011470
anthracite with collar nut cover (RAL 7016)		(25)	1011478
chrome plated with collar nut cover		(25)	1011479
gold plated with collar nut cover		(25)	1011480

with '0' setting








white, with remote sensor			
capillary 2 m long	7-28 °C	(75)	1011685

with '0' setting

For further information see "Technical information":



Article	Control range	Packing unit	Article-No.	Hint
Thermostat "pinox D" (squeeze connection)				
with liquid sensor marking "pinox D" on lower side				
	chrome plated white	(12) (12)	1012175 1012176	<p>Single-lever thermostat. The thermostat can be fitted without adapter to the integrated distributors and thermostatic radiator valves of the company Danfoss, series RA. Design similar to that of single-lever taps.</p> <p>Max. heating water temperature: 120 °C</p> <p><u>without '0' setting</u> The thermostat "pinox D" has features which are protected by patent.</p>
Thermostat "vindo TD" (squeeze connection)				
with liquid sensor				
	white	7-28 °C	(10) 1013076	<p>The thermostat can be fitted without adapter to the integrated distributors and thermostatic radiator valves of the company Danfoss, series RA.</p> <p>Temperature setting may be limited or locked by using the limiting elements. With setting device for visually handicapped persons.</p> <p>Max. heating water temperature: 120 °C</p> <p><u>with '0' setting</u></p> <p>The thermostat "vindo TD" has features which are protected by patent.</p> <p>Awards:  German Designer Club Good Design 08  Design Award of the Federal Republic of Germany Nominated</p>
Thermostat "vindo RTD"				
with liquid sensor for RTD valves of the company Danfoss				
	white		(10) 1613066	<p>The thermostat can be fitted without adapter to the integrated distributors and thermostatic radiator valves with connection thread M 30 x 1.5 of the company Danfoss, series RTD.</p> <p><u>Cannot</u> be used with Oventrop valves with connection thread M 30 x 1.5.</p> <p>Temperature setting max be limited or locked by using the limiting elements. With setting device for visually handicapped persons. Max. heating water temperature: 120 °C</p> <p><u>With '0' setting</u></p> <p>The thermostat "vindo RTD" has features which are protected by patent.</p>

Article	Control range	Packing unit	Article-No.	Hint
---------	---------------	--------------	-------------	------

Thermostat with remote control "Uni FD" (squeeze connection) Max. heating water temperature: 120 °C

white



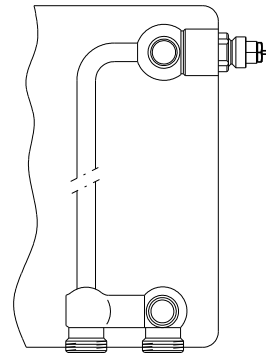
capillary 2 m long 7-28 °C **1012275** with '0' setting

The thermostats "Uni XD", "Uni LD", "Uni FD", "vindo TD" and "pinox D" can be fitted without adapter to the radiators with integrated distributor of the following manufacturers:

- Agis
- Arbonia
- Brötje
- Brugman
- Buderus
- De'Longhi
- Hudevad
- Ribe/Rio
- Thor
- Vasco
- Vogel & Noot

(Subject to change without notice)

Example of an integrated distributor for one and two pipe heating systems. G 3/4 male thread, distance between pipe centres 50 mm.



Fittings for the connection of these radiators to the pipework: pages 1.120-1.124 and 1.128-1.130.

Thermostat "Uni LDV" (squeeze connection)
with liquid sensor



white 7-28 °C (10) **1616575**

These thermostats can be fitted without adapter to the integrated distributors and thermostatic radiator valves with squeeze connection of the company Danfoss, series RAV (thermostat connection Ø 34 mm). Temperature setting may be limited or locked by using the concealed limiting elements. With setting device for visually handicapped people. Marking of a set value by using the memo disk.

Max. heating water temperature: 120 °C

with '0' setting

Thermostat "Uni LDVL" (squeeze connection)
with liquid sensor



white 7-28 °C (10) **1616675**

These thermostats can be fitted without adapter to the integrated distributors and thermostatic radiator valves with squeeze connection of the company Danfoss, series RAVL (thermostat connection Ø 26 mm). Temperature setting may be limited or locked by using the concealed limiting elements. With setting device for visually handicapped people. Marking of a set value by using the memo disk.

Max. heating water temperature: 120 °C

with '0' setting

Article	Control range	Packing unit	Article-No.	Hint
Thermostat "Uni L" M 30 x 1.0				
with liquid sensor marking "Uni L" on lower side				
	white	7-28 °C	(10) 1011401	For Oventrop valves manufactured until 1998. Award: Thermostat "Uni L"  Busse Design Ulm Longlife Design Award <u>with '0' setting</u>
	white, with remote sensor capillary 2 m long	7-28 °C	(75) 1011651	<u>with '0' setting</u>
Special thermostats with liquid sensor				
Thermostat "Uni LK" (M 28 x 1.0)				
	white	7-28 °C	(10) 1613501	<u>with '0' setting</u>
Thermostat "Uni LA" (M 28 x 1.5)				
	white	7-28 °C 7-28 °C	(10) 1613401 1613465	Suitable for Herz thermostatic radiator valve bodies. <u>with '0' setting</u> <u>without '0' setting</u>
Thermostat "Uni LI" (M 32 x 1.0)				
	white	7-28 °C	(10) 1616200	Suitable for Ista thermostatic radiator valve bodies manufactured since 1985. <u>with '0' setting</u>
Thermostat "Uni LR" (M 33 x 2.0)				
	white	7-28 °C	(10) 1616301	Suitable for Rosswein thermostatic radiator valve bodies. <u>with '0' setting</u>
Thermostat "Uni LM" (M 38 x 1.5)				
	white	7-28 °C	(10) 1616100	Suitable for Meges thermostatic radiator valve bodies. <u>with '0' setting</u>
Thermostat "Uni LO" (M 38 x 1.5)				
	white	7-28 °C	(10) 1616500	Suitable for Oreg (Ondal) thermostatic radiator valve bodies. <u>with '0' setting</u>
Thermostat "Uni LV" (squeeze connection)				
	white	7-28 °C	(10) 1616001	Suitable for Vaillant thermostatic radiator valve bodies manufactured since 1981. <u>with '0' setting</u>
Thermostat only for "maxi/mini" thermostatic radiator valves manufactured up to 1974 (M 40 x 1.5)				
	anthracite/white		(10) 1015500	The valves of this series are no longer produced. <u>with '0' setting</u>

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

Accessories for thermostats



Angle pattern adapter
M 30 x 1.5/ M 30 x 1.5

white (25) **1011450**
anthracite model (25) **1641451**

Connection to the valve: M 30 x 1.5
Connection to the thermostat: M 30 x 1.5



squeeze connection/squeeze connection

white (10) **1011452**

Connection to the valve: squeeze connection
Connection to the thermostat: squeeze connection

For the connection of thermostats at a right angle to the operating direction of the valve; especially suitable for radiators with integrated distributor; connection at the left and right hand side of the radiator.



Adapter, nickel plated
for the conversion of connection thread

M 30 x 1.0 to M 30 x 1.5 (10) **1011445**
M 32 x 1.0 to M 30 x 1.5 (50) **1661445**

For Oventrop valves manufactured up to 1998. For Ista valves.



"Uni-Clip" Graduated collar for "Uni XH", "Uni XHM" and "Uni XD"

right hand model, 50 pieces **1011396**
left hand model, 50 pieces **1011397**

Due to the vertical position of the figures, the set values can be easily read off in case of lateral connection of the thermostat (for thermostats with '0' setting).



Collar nut cover
Set = 5 pieces

anthracite (10) **1011380**
chrome plated (10) **1011381**
gold plated (10) **1011382**
stainless steel finish (10) **1011383**
white (10) **1011393**

For the collar nuts of the thermostats "Uni XH", "Uni XHM", "Uni LH", "Uni LHZ", "Uni LA", "Uni SH", "vindo TH" and "pinox H".



white
set = 5 pieces (10) **1011493**

"Uni L"



Anti-threft ring
for thermostats "Uni XH", "Uni XHM", "Uni LH", "Uni LHZ", "Uni SH", "Uni L", "Uni LA" and "vindo TH"

white (10) **1011766**
set = 5 pieces

For the stabilisation and protection of the thermostatic control head from theft.



for thermostats "Uni XD", "Uni LD" and "vindo TD"
set = 5 pieces (10) **1011775**

For further information see "Technical information":








	Article	Packing unit	Article-No.	Hint
	Reinforcing cap white			The reinforcing caps are delivered with an Allen key.
	for thermostats "Uni LH", "Uni LHZ" and "Uni LA"			
	not lockable	(10)	1011865	
	lockable	(10)	1011866	
	for thermostat "Uni L"			
	not lockable	(10)	1011801	
	lockable	(10)	1011811	
	for thermostat "Uni LD"			
	not lockable	(10)	1011875	
	Reinforcing cap made of brass			
	connection thread M 30 x 1.5	(10)	1189381	
	Combined cap Open/Close with Allen screw			
	connection thread M 30 x 1.5	(5)	1627965	
	Tool for thermostats "Uni LH", "Uni LHZ", "Uni LD", "Uni LDV", "Uni LDVL", "Uni L" and special thermostats			To release the graduation cap and clips.
	bag of 5 pieces	(10)	1989100	
	Setting key for thermostat "Uni LHB"		1011497	For nominal temperature setting at the thermostat.
	Universal tool for thermostat "Uni LHB", "Uni LH" and thermostatic valves "AV 9" and "AQ"	(50)	1011489	For setting of the nominal temperature value at the thermostat "Uni LHB", presetting at the valve as well as releasing of the graduation cap of the thermostats "Uni LH", "Uni LHZ", "Uni LD", "Uni LDV", "Uni LDVL", "Uni L" and special thermostats. With additional Allen key (2.5 mm) to secure the thermostat "Uni LHB".
	Extensions L = 20 mm			
	for thermostatic valves	(10)	1022698	For "Unibox T", "Unibox plus", "Unibox TQ" and "Unibox Q plus".
	Cover for all remote sensors			
	Set = 5 pieces	(10)	1011698	
	Manual heads white			
	connection thread M 30 x 1.5	(10)	1012565	The manual head allows the subsequent conversion to actuators or thermostats without the necessity to drain the system.
	connection squeeze connection	(10)	1012575	



1.b Room thermostats

Content

Room thermostats (heating)	1.20
Room thermostats (heating/cooling)	1.21
Room thermostats (heating/cooling) with fan drive	1.22

Article	Packing unit	Article-No.	Hint	
Room thermostats (heating)				
Room thermostat-clock - surface mounting (heating)				
Heating two point control				
with daily setting				
	230 V	(78) 1152551°	<p>The electric room thermostat-clock is required for individual room temperature control of heating systems in combination with the electrothermal actuators (two point) "Aktor T 2P". Output signal pulse-width modulation.</p> <p>Temperature range: 5 °C up to 30 °C</p> <p>Heating: Use electrothermal actuators (two point) "closed with current off". Central temperature setback is carried out according to a timed programme. Limitation of the control range by using the concealed limiting elements.</p>	
with weekly setting				
	230 V	1152552		
	24 V	1152554°		
Room thermostat - surface mounting (heating)				
Heating two point control				
	230 V	(25) 1152051	<p>The electric thermostat is used for individual room temperature control in combination with the electrothermal actuators (two point) "Aktor T 2P".</p> <p>Temperature range: 5 °C up to 30 °C</p> <p>Heating: Use electrothermal actuators (two point) "closed with current off". As for item no. 1152051/52/55/71/72, the temperature may be set back by use of an external time switch (item no. 1152551/52 for 230 V, item no. 1152554 for 24 V).</p> <p>Cooling: Use electrothermal actuators (two point) "open with current off". Limitation of the control range of item no. 1152051/52/71/72 by using the concealed limiting elements.</p>	
	24 V	(25) 1152052		
	230 V	(25) 1152055		
with concealed temperature setting				
Room thermostat - flush mounting (heating)				
Heating two point control				
	230 V	(128) 1152071		
	24 V	(10) 1152072°		
Room thermostat - flush mounting (heating)				
with display				
Heating two point control				
	230 V	(40) 1152561	<p>With LCD display and adjustable timed programme.</p> <p>Temperature range: 5 °C up to 35 °C</p> <p>Operating current range (item no. 1152561): 100 up to 230 V AC</p> <p>Heating: Use electrothermal actuators (two point) "closed with current off" (terminal "NC") or "open with current off" (terminal "NO").</p>	
	24 V	(40) 1152562		

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

Room thermostats (heating/cooling)







Room thermostat - surface mounting (heating and cooling)
 Heating 0 - 10 V control
 Cooling 0 - 10 V control

24 V

(25) **1152151**

The room thermostat is used for individual room temperature control in combination with the electrothermal actuator (0- 10 V) "Aktor T ST L NC", item no. 1012953, page 1.27, or the electromotive actuator "Aktor M ST L", item no. 1012705/06, page 1.28 (may also be used in three- or four-pipe systems). With one analogue output 0–10 V each for heating and cooling as well as adjustable neutral zone (0.5–7.5 K).
 Temperature range: 5 °C up to 30 °C
 For further information see "Technical information":



Article	Packing unit	Article-No.	Hint
Room thermostats (heating/cooling) with fan drive			
		Room thermostat - surface mounting (heating and cooling) Heating 0 - 10 V control Cooling 0 - 10 V control with fan drive	The room thermostat does not only feature analogue outlets 0-10 V for heating and cooling, but also a 3-stage ventilator switch (24 V - 240 V) for the activation of fan convectors (fan coil units). The room thermostat is used for individual room temperature control in combination with the electrothermal actuator (0-10 V) "Aktor T ST L NC", item no. 1012953, page 1.27 or the electromotive actuator "Aktor M ST L", item no. 1012705/06, page 1.28 (may also be used in three- or four-pipe systems). Temperature range: 5 °C up to 30 °C
24 V	(25)	1152153°	
		Room thermostat - surface mounting (heating or cooling) Heating two point control Cooling two point control with fan drive	The room thermostat is used for heating or cooling in combination with electrothermal actuators (two point) "Aktor T 2P" and fan convectors (fan coil units). The room temperature is maintained at the chosen level. With switch for "Heating-Off-Cooling" and fan switch. Temperature range: 5 °C up to 30 °C Heating/cooling: Use electrothermal actuators (two point) "closed with current off". For further information see "Technical information":
230 V		1152351°	
		Room thermostat - surface mounting (heating or cooling) with display Heating two point control Cooling two point control with fan drive	With LCD display and adjustable timed programme. Temperature range: 5 °C up to 35 °C Heating or cooling: Use electrothermal actuators (two point) closed with current "off". For further information see "Technical information":
230 V		1152451	
		Room thermostat - surface mounting (heating and cooling) with display Heating two point control Cooling 0 - 10 V control with fan drive	Electronic room thermostat with digital display for ventilation systems with heating and cooling function.
24 V		1152065	
		Room thermostat - surface mounting (heating or cooling) with display Heating or cooling 0 - 10 V control with fan drive	
24 V		1152064	



1.c Actuators

Content



Combination possibilities of valves and actuators	1.24
"Aktor T" Electrothermal actuators	1.26
"Aktor M" Electromotive actuators	1.28
"Aktor M ST EIB" Electromotive actuators	1.29
"Aktor M ST LON®" Electromotive actuators	1.29
"Aktor MH CON B" (ENOCEAN) Wireless actuator	1.29

- ① Can also be connected to valves with different connections using Oventrop valve adapters (for instance company Danfoss, series RA)
- ② Valid for sum resulting from pipework and valve
- ③ In combination with Oventrop extension, item no. 1022698
- ④ Piston stroke actuator \geq effective valve lift
- ⑤ k_{VS} value can be reduced

Standard values without considering tolerances. With due consideration of the valve parameters, the combination with actuators of other manufacturers is possible on consultation.

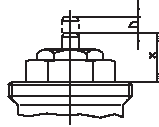




Illustration		Ratings actuators		Characteristic parameters for CBC										Valve characteristic line			Actuator characteristic line		
		Item no.	Model	Operating current	Operating behaviour (same signal at the controller)	Interface	Lower lift position [mm]	Upper lift position [mm]	Piston stroke [mm]	Operating power [W]	Medium floating time	Protection	Max. fluid temperature [°C]	Permissible installation position	Flow rate	Effective piston stroke	Flow rate	Effective piston stroke	Flow rate
A		①	10124..	electrothermal, closed with current "off"	24 V / 230 V	2 point	digital	11.2	15.8	-	> 90	~5 min	IP54	+100	In vertical to horizontal position, not suspended.		•	•	•
B		①	10124..	electrothermal, open with current "off"	24 V / 230 V	2 point	digital	11.2	15.8	-	> 90	~5 min	IP54	+100			•	•	•
C		①	1012953	electrothermal, closed with current "off"	24 V	steady (0-10 V)	analogue	11.2	15.8	4.0	> 90	~40 s/mm	IP54	+100			•	•	•
D			1012705	modulating electroconvective	24 V	steady (0-10 V)	analogue	11.2	15.8	0.5 - 4.0	> 90	~15 s/mm	IP40	+100			•	•	•
E			1012706	mod. electroconvective, with position feedback	24 V	steady (0-10 V)	analogue	11.2	15.8	0.5 - 4.0	> 90	~15 s/mm	IP40	+100			•	•	•
F			1012717	electromotive, emergency function	24 V	steady (0-10 V)	analogue	11.2	15.8	4.0	> 90	~15 s/mm	IP 40	+100			•	•	•
G			1012708	electromotive	24 V	3 point	digital	11.2	15.8	-	> 90	~15 s/mm	IP40	+100			•	•	•
H			1012709	electromotive	230 V	3 point	digital	11.2	15.8	-	> 90	~15 s/mm	IP40	+100			•	•	•
I			1012710/11	electromotive, open with current "off"	230 V/24 V	2 point	digital	11.2	17.0	-	> 90	~3 s	IP54	+100			•	•	•
J			11580..	electromotive, system "EB / KNX"	24 V	steady	EIB / KNX	11.2	15.2	2.6 - 4.0	> 90	~30 s/mm	IP44	+100			•	•	•
K			1157065	electromotive, system "LON"	nom. 48 V	steady	LON	11.2	15.2	2.6 - 4.0	> 90	~30 s/mm	IP44	+100			•	•	•
L			1150865	electromotive	Mignon (2x)	steady	EnOcean (Controller integrated)	11.0	15.4	2	> 80	~3 s/mm	IP20	+90			•	•	⑤
M			1150785	electromotive	Mignon (2x)	steady	EnOcean (EEP AS-20-01)	11.0	15.4	2	> 80	~3 s/mm	IP20	+90			•	•	⑤

4	5	6	7	8	9	10	11	12	13	14
"AZ V"	"AZ H"	"AQ"	"E"	"EQ"	"Multiblock T-RTL" "Multiblock T/TU/TFU"	"Multiblock TQ-RTL" "Multiblock TQ"	Valves with insertion tube	Three-way conversion valves	Valve inserts for radiators with integrated distributor	Valve inserts "GHQ" for radiators with integrated distributor
1187...	11884...	1183...	1163...	1163...	11840...	11840...	11835../16435..	11805..	10180..	101908.
15 20 25	20 25	10 15 20	15	15	15	15	15	15 20	-	-
11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8
5	0.2	0.6 (1.5)	0.2	0.6 (1.5)	0.2	0.6 (1.5)	0.2	0.2	0.2	0.6 (1.5)
3.0	3.2	1.6	2.2	1.6	2.2	1.6	2.9	1.6	2.2	1.6
14.8 or higher	15.0 or higher	13.4 or higher	14.0 or higher	13.4 or higher	14.0 or higher	13.4 or higher	14.7 or higher	13.4 or higher	14.0 or higher	13.4 or higher
11.3 or lower	11.3 or lower	11.3 or lower	11.3 or lower	11.3 or lower	11.3 or lower	11.3 or lower	11.3 or lower	11.3 or lower	11.3 or lower	11.3 or lower
90 / 150	90 / 150	90 / 150	90 / 150	90 / 150	90 / 150	90 / 150	90 / 150	90 / 150	90 / 150	90 / 150
•	•	•	•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•	•	•	•
• ④	• ④	• ④	• ④	• ④	• ④	• ④	• ④	• ④	• ④	• ④
•	•	•	•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•	•	•	•
• ④	• ④	• ④	• ④	• ④	• ④	• ④	• ④	• ④	• ④	• ④
• ④	• ④	• ④	• ④	• ④	• ④	• ④	• ④	• ④	• ④	• ④
•	•	•	•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	• ⑤	•	•	•
•	•	•	•	•	•	•	• ⑤	•	•	•

Article	Article-No.	Hint	
"Aktor T" Electrothermal actuators			
	"Aktor T 2P" Electrothermal actuators (two point) connection thread M 30 x 1.5		
	"H NC", closed with current "off", 230 V	1012415	<p>Oventrop electrothermal actuators are used for heating, ventilation and air conditioning. The actuators serve to control the room temperature and can be used e. g. with conventional radiators, radiators with integrated distributor, distributors/collectors for surface heating, radiant ceiling panels, chilled ceiling systems and induction air systems in combination with two point room thermostats. Further applications in bivalent heating installations.</p> <p>For zone and room temperature control.</p> <p>Connecting cable 1 m. With "First-Open" function (except for actuators "open with current off") and stroke index. Simple plug-in connection with valve adapter.</p> <p>Actuators can be installed in any position.</p> <p>As for the model with auxiliary switch, a pump can for instance be switched via the integrated volt free contact.</p> <p>Due to their construction, the electrothermal actuators are secured against overvoltage which could occur when switching on neon tubes. A varistor is thus not necessary.</p> <p># NRTL approval according to UL-specification. May only be installed in approved countries outside the EU.</p> <p>These actuators can be fitted without adapter to the integrated distributors and thermostatic radiator valves with squeeze connection of the company Danfoss, series RA.</p> <p>Connecting cable 1 m. With "First-Open" function and stroke index. Simple plug-in connection with valve adapter.</p> <p>Actuators can be installed in any position.</p> <p>Due to their construction, the electrothermal actuators are secured against overvoltage which could occur when switching on neon tubes. A varistor is thus not necessary.</p> <p>For further information see "Technical information":</p>
	"H NO", open with current "off", 230 V	1012425	
	"L NC", closed with current "off", 24 V	1012416	
	"L NO", open with current "off", 24 V	1012426	
	"H NC", closed with current "off", 230 V with mounted auxiliary switch	1012435	
	"L NC", closed with current "off", 24 V cable 2 m long	1012442	
	"H NC", closed with current "off", 230 V cable 2 m long	1012452	
	"H NC", closed with current "off", 230 V cable 5 m long	1012455	
	"H NC", closed with current "off", 230 V cable 10 long	1012459	
	"M NC", closed with current "off", 120 V only in approved countries outside the EU	1012420#	
	"Aktor T 2P" Electrothermal actuators (two point) squeeze connection		
	"H NC", closed with current "off", 230 V	1012418	
	"L NC", closed with current "off", 24 V	1012419	





"Aktor T ST" Electrothermal actuator (0-10 V)
Proportional actuator
connection thread M 30 x 1.5

"L NC", closed with current "off", 24 V **1012953**
with automatic recognition of neutral point and valve travel

The actuator (0-10 V) can be used in centralised building control systems in combination with the electronic room thermostat, item no. 1152151/1152153, or with a central controller.
Plug-in connecting cable 1 m.
With "First-Open" function and stroke index.
Easy plug-in connection with valve adapter.
Due to their construction, the electrothermal actuators are secured against overvoltage which could occur when switching on fluorescent tubes. A varistor is thus not necessary.

Accessories electrothermal actuators

For electrothermal actuators, item no. 1012415/25/16/26/35/42/52/55/59/20 and 1012953



Valve adapter
connection thread M 30 x 1.5 (5) **1012461**

Replacement valve adapter for electrothermal actuators.



high model
connection thread M 30 x 1.5 (5) **1012462**

The high model is required when using the actuators, item no. 10124.. and 1012953, in combination with the regulating valves "Hycocoon ETZ/HTZ" as well as the fittings "Multiblock T/TU/TFU/TQ" and the design cover (11 mm higher than standard).





connection thread M 30 x 1.0 (5) **1012890**

The adapter is required for Oventrop valves with connection thread M 30 x 1.0 (up to 1998) in combination with the electrothermal actuators.



Reinforcing cap
for electrothermal actuators (two point) and (0-10 V) **1012450**

To protect electrothermal actuators against vandalism.
The special valve adapter with connection thread M 30 x 1.5 for fixing of the reinforcing cap is included.

Article	Article-No.	Hint
"Aktor M" Electromotive actuators		
"Aktor M" Electromotive actuators connection thread M 30 x 1.5 with manual setting, adjustable mode of operation		
	"ST L", 24 V, modulating proportional actuator, 0-10 V, automatic anti-blocking function and recognition of neutral point, multiple characteristic lines adjustable	1012705
	"ST L", 24 V, modulating proportional actuator, 0-10 V, with position feedback, automatic anti-blocking function and recognition of neutral point, multiple characteristic lines adjustable	1012706
	"3P L", 24 V, three point actuator, without anti-blocking function	1012708
	"3P H", 230 V, three point actuator, without anti-blocking function, mode of operation not adjustable	1012709
	"ST L NC", 24 V modulating proportional actuator, 0 - 10 V, with electric emergency control function and automatic recognition of neutral point	1012717
	"2P H", 230 V, two point actuator, without anti-blocking function	1012710
	"2P L", 24 V, two point actuator, without anti-blocking function	1012711

Oventrop electromotive actuators are used for heating, ventilation and air conditioning. The actuators serve to control the room temperature and can be used e. g. with conventional radiators, radiators with integrated distributor, distributors/collectors for surface heating (except for item no. 1012710/11), radiant ceiling panels, chilled ceiling systems and induction air systems. Further application in bivalent heating installations.






The actuators (0-10 V) can be used in centralised building control systems in combination with the electronic room thermostat, item no. 1152151/53, or with a central controller.

Anti-blocking function:

The actuator opens and closes the valve completely once every 24 hours. Connecting cable 1.5 m.

With the appropriate control, the actuator, item no. 1012708, can also be used for two point operation.

Short operating time (about 3 sec.).
Connecting cable 1.5 m.

Article	Article-No.	Hint	
"Aktor M ST EIB" Electromotive actuators System "KNX/EIB"			
with integrated bus coupling			
	"Uni EIB H" connection thread M 30 x 1.5	The electromotive actuator "KNX/EIB" is suitable for a direct connection to the European installation bus control system. The power absorption is extremely low, so that a separate power supply is not needed. The actuator is equipped with one or two integrated binary entries to which a window contact and a movement sensor may for instance be connected. The connection of the bus and the binary entry is made via a 4- or 6-core cable (1 m).	
	with one binary entry 1156065 with two binary entries 1156066		
	„Uni EIB D“ with adapter for squeeze connection		
	with one binary entry 1156075 with two binary entries 1156076		
"Aktor M ST LON®" Electromotive actuators System "LON®"			
	"OVLONH" connection thread M 30 x 1.5		The electromotive actuator "LON" is suitable for the direct connection to LonWorks® networks. The power absorption is extremely low, so that a separate power supply is not needed when using the Link-Power-Technology. The actuator is equipped with an integrated binary entry to which a window contact may for instance be connected. The connection of the bus and the binary entry is made via a 4-core cable (1 m). The data to be read in the ETS data bank or the LonTalk®-Software can be downloaded from the internet under www.oventrop.de (category "Software") free of charge.
	with one binary entry 1157065°		
	„OVLOND“ with adapter for squeeze connection		
	with one binary entry 1157075°		
Product data bank "KNX/EIB" and application programmes "LON"			
	1156051		
	"Aktor MH CON B" (ENOCEAN) Wireless actuator Connection thread M 30 x 1.5 1150765# Electronic actuator with bi-directional wireless communication, battery operated traffic white (RAL 9016)	Electronic actuator for room temperature control. The actuator supports the EnOcean profile A5-20-01 and can be connected to communication centres/gateways or room thermostats supporting the profile.	



Only functions in combination with communication centres/gateways (e.g. "OVbalance Home" basic set) supporting the respective EEP (EnOcean Equipment Profile).

System	Oventrop actuators	Item no.	The Oventrop actuators can e.g. be used with the following bus systems:
KNX/EIB	"Uni EIB H" with one binary entry with two binary entries	1156065 1156066	– GIRA Instabus KNX/EIB – ABB i-bus KNX – Busch-Jäger installation bus – Jung KNX-System – Merten KNX
	"Uni EIB D" with one binary entry with two binary entries	1156075 1156076	– Siemens GAMMA instabus – Woertz Building Control Systems – and others
LON	"OVLONH" with one binary entry	1157065	– Gesytec – SVEA Building Control Systems – Echelon
	"OVLOND" with one binary entry	1157075	– ELKA Electronics – Kieback & Peter – t.a.c. TAC Vista – Regulex – and others
EnOcean (wireless)	"Aktor MH CON B" (ENOCEAN) with wireless module	1150765	– iEXERGY (wibutler) – and others





1.d "i-Tronic" Climate display device

Content



"i-Tronic TFC"

1.32

Article	Article-No.	Hint
<p>"i-Tronic TFC" Climate meter displaying the temperature, humidity and CO₂ content in the ambient air traffic white (RAL 9016)</p> 		Climate meter for monitoring the important room climate variables: temperature, humidity and CO ₂ content. These values will supply information on the beginning and end of a necessary room airing (e.g. window opening). Furthermore, the min./max. values of the last 24 hours are displayed.
<p>for wall attachment with power pack for flush sockets (power supply 100-240 V ~/ 50-60 Hz) with wall bracket</p> 	1150683	The climate meter can not only be fixed onto the wall with the help of a wall bracket and a flush-mounted power pack but it is also suitable for mobile use. Two table stand solutions are offered for mobile use: One with a power pack for mains power supply and another with two rechargeable batteries with integrated charging electronics.
<p>for mobile use with wired power supply, table stand and mains adaptor (power supply: 100-240 V ~/ 50-60 Hz)</p> 	1150685	
<p>for mobile use with rechargeable batteries, integrated charging electronics in the table stand and power pack for battery charging</p> 	1150688	Two integrated rechargeable batteries (2 x AA NiMH) allow for the mobile monitoring of the important room climate variables temperature, humidity and CO ₂ content. Operation of rechargeable batteries: approx. 6 days



1.e "R-Tronic" Climate display device/control "OVgateway" and hydronic balancing

Content

"R-Tronic RT B" Wireless thermostat	1.34
"R-Tronic RTF B" Wireless thermostat with humidity display	1.35
"R-Tronic RTFC K" Wireless thermostat with humidity and CO ₂ display	1.35
"Aktor MH CON B" Wireless actuator (M 30 x 1.5)	1.36
"Aktor MD CON B" Wireless actuator (squeeze connection)	1.36
"R-Con" Wireless receiver	1.37
Accessories	1.38
"FK-C F" Wireless window contact	1.38
"RP-S F" Wireless repeater	1.38
"R-Con 2P" Wireless receiver (1 channel)	1.38
Automatic presetting with the "OVgateway" and automatic hydronic balancing with "Q-Tech"	1.39
"OVbalance Home" Basic Set	1.39
"R-Tronic RT B" (ENOCEAN) Wireless thermostat for Smart Home applications	1.41
"R-Tronic RTF B" (ENOCEAN) Wireless thermostat for Smart Home applications	1.41
"Aktor MH CON B" (ENOCEAN) Wireless actuator for Smart Home applications	1.41
Accessories	1.42
"FK-C F" Wireless window contact	1.42
"RP-S F" Wireless repeater	1.42

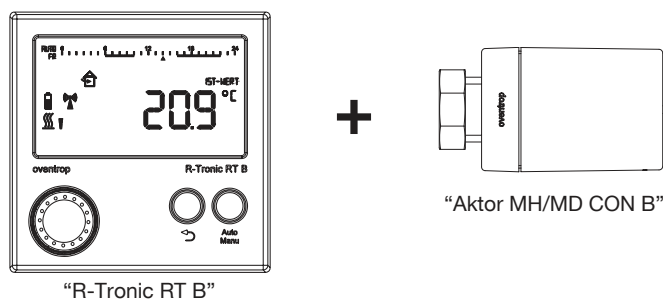
"R-Tronic" Climate display device/control

The system "R-Tronic" consists of a battery operated actuator for wireless thermostats "Aktor MH/MD CON B" and the wireless thermostat "R-Tronic". The wireless thermostat can be battery or mains operated. During battery operation, a maximum of three actuators "Aktor MH/MD CON B" can be connected to one "R-Tronic" and up to 8 actuators during mains operation.

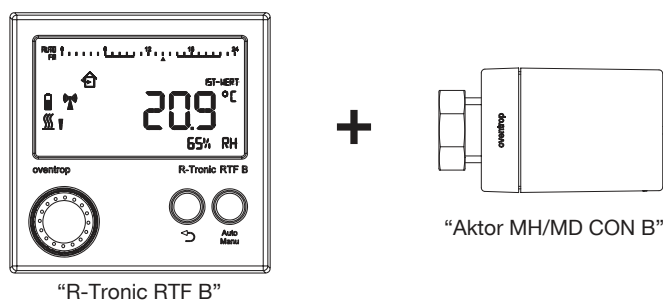
During mains operation, window contacts and the one channel wireless receiver "R-Con 2P" can be connected additionally. The wireless receiver transmits a switching signal depending on a CO₂ threshold for one fan.

Options

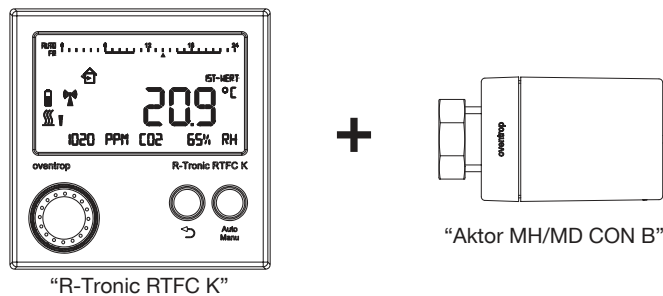
1.



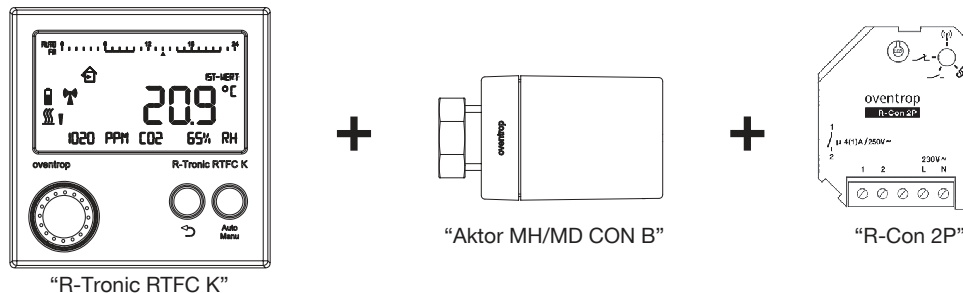
2.



3.



4.

Option 1: **"R-Tronic RT B"**

Wireless thermostat for room temperature control with timer functions (battery operated, flush-mounted power pack or mains adaptor available as accessories)

Option 2: **"R-Tronic RTF B"**

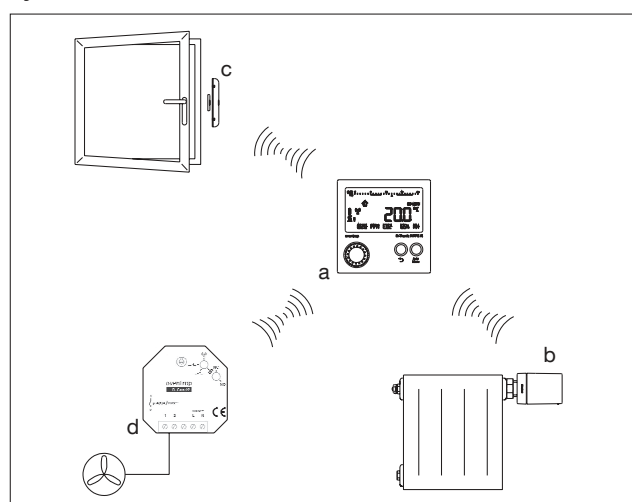
As option 1, but with integrated humidity sensor and display of the relative humidity RH in % (battery operated, flush-mounted power pack or mains adaptor available as accessories)

Option 3: **"R-Tronic RTFC K"**

As option 2, but with additional sensor for measurement of the CO₂ content and display of the CO₂ concentration in ppm (no battery operation, power supply via external flush-mounted power pack or mains adaptor).

Option 4: **"R-Tronic RTFC K" with "R-Con 2P"**

As option 3, but additionally with one channel wireless receiver "R-Con 2P" for the activation of a fan depending on a CO₂ threshold for fresh air supply.

System illustrations





Options 1, 2, 3, 4 (climate display device/control)

a "R-Tronic RT B / RTF B / RTFC K" Wireless thermostat

b "Aktor MH/MD CON B" Actuator for wireless thermostats

c "FK-C F" Wireless window contact

d "R-Con 2P" Wireless receiver (1 channel) for CO₂ dependent fan activation (only in combination with "R-Tronic RTFC K")

Article	Article-No.	Hint
<p>"R-Tronic RT B" Wireless thermostat</p>  <p>Wireless thermostat with bi-directional wireless communication, battery operated, surface mounting</p> <p>traffic white (RAL 9016)</p>	<p>1150680</p>	<p>Electronic wireless thermostat "R-Tronic RT B" for room temperature control according to adjustable timed programmes. The nominal and actual temperature of the room can be displayed.</p> <p>Up to 3 participants (such as actuators for wireless thermostats "Aktor MH/MD CON B" and wireless receivers "R-Con") can be connected during battery operation . A supply via the network is an alternative, see accessories page 1.38.</p> <p>During mains operation, the number of participants can be increased to 8 which allows, for instance, for an integration of window contacts for room temperature setback.</p>
<p>"R-Tronic RTF B" Wireless thermostat with humidity display</p>  <p>Wireless thermostat with bi-directional wireless communication and integrated humidity sensor, battery operated, surface mounting</p> <p>traffic white (RAL 9016)</p>	<p>1150681</p>	<p>Electronic wireless thermostat "R-Tronic RTF B" for room temperature control according to adjustable timed programmes. The nominal and actual temperature of the room can be displayed. An integrated humidity sensor supplies information on the relative humidity RH in %. The value is displayed in the text line.</p> <p>Up to 3 participants (such as actuators for wireless thermostats "Aktor MH/MD CON B" and wireless receivers "R-Con") can be connected during battery operation . A supply via the network is an alternative, see accessories page 1.38.</p> <p>During mains operation, the number of participants can be increased to 8 which allows, for instance, for an integration of window contacts for room temperature setback.</p>
<p>"R-Tronic RTFC K" Wireless thermostat with humidity and CO₂ display</p>  <p>Wireless thermostat with bi-directional wireless communication and integrated humidity and CO₂ sensor</p> <p>traffic white (RAL 9016)</p>	<p>1150682</p>	<p>Electronic wireless thermostat "R-Tronic RTFC K" for room temperature control according to adjustable timed programmes. The nominal and actual temperature of the room can be displayed. An integrated humidity sensor supplies information on the relative humidity RH in % and an integrated CO₂ sensor on the CO₂ content in ppm in the room air. Both values are displayed in the text line.</p> <p>If preset limits are exceeded, a symbol asking for fresh air supply is displayed.</p> <p>Up to 8 participants (such as actuators for wireless thermostats "Aktor MH/MD CON B", wireless receivers "R-Con" and wireless window contacts for room temperature setback) can be connected to the "R-Tronic RTFC K".</p> <p>Power is supplied by a flush-mounted power pack or a mains adaptor with table stand.</p>
<p>Power supply: Flush-mounted power pack (100-240 V ~/ 50-60 Hz) with wall bracket</p> 	<p>1150684</p>	
<p>Power supply: Mains adaptor (100-240 V ~/ 50-60 Hz) with table stand</p>		

Article

Article-No.

Hint

"Aktor MH CON B" Wireless actuator (M 30 x 1.5)

Connection thread M 30 x 1.5
Electronic actuator for wireless thermostats
with bi-directional wireless communication,
battery operated

traffic white (RAL 9016)

Only functions in combination with the
wireless thermostats "R-Tronic RT B/ RTF B/ RTFC K".

1150665

Electronic actuator for wireless thermostats
for room temperature control according to
adjustable timed programmes at the wireless
thermostats "R-Tronic RT B/ RTF B/ RTFC K".
Heating operation and the position of the valve
(OPEN/CLOSED) of the "Aktor MH/MD CON B"
are shown on the display of the wireless
thermostat.
Operation via the menu-driven wireless
thermostat.

Awards:



ICONIC AWARDS 2016



ICONIC AWARDS 2017
Interior Innovation - Winner



GERMAN DESIGN AWARD
2016 German Design Award 2016

"Aktor MD CON B" Wireless actuator (squeeze connection)

Squeeze connection
Electronic actuator for wireless thermostats
with bi-directional radio communication,
battery operated

traffic white (RAL 9016)

Only functions in combination with the wireless
thermostats "R-Tronic RT B/ RTF B/ RTFC K".

1150675

These actuators for wireless thermostats can
be fitted without adapter to the integrated
distributors and thermostatic radiator valves
with squeeze connection of the company
Danfoss, series RA.

Article	Article-No.	Hint
---------	-------------	------

"R-Con" Wireless receiver



230 V, without plug, wiring on site, mounting rail installation according to DIN 60715

- | | |
|---------------------------------|----------------|
| 4 channels with logic module | 1150770 |
| 4 channels without logic module | 1150771 |
| 8 channels with logic module | 1150772 |
| 8 channels without logic module | 1150773 |

Electronic multichannel wireless receiver for room temperature control of up to 8 independent heating zones (surface heating) according to adjustable timed programmes at the wireless thermostats "R-Tronic RT B", "R-Tronic RTF B" and "R-Tronic RTFC K". Operation via the menu-driven wireless thermostat.

Additional functions (direct selection via the rotary switches at the wireless receiver):
 -Pump logic with adjustable lead time and follow-up time (only item no. 1150770/ 72)
 -Burner logic for heat demand (only item no. 1150770/ 72)
 -Two point control
 -PWM control for surface heating

Electrothermal actuators "Aktor T 2P" 24 V or 230 V can be connected to the channels (closing contact with 4A/250 V AC each).

The wireless receiver "R-Con" has to be installed in a cabinet (surface/flush mounting). The protective housing, item no. 1150776, is to be used alternatively.

An external transformer is required for the power supply of 24 V actuators.

"R-Con T 2P"



4 channel extension module for "R-Con", mounting rail installation according to DIN 60715

1150775*

The 4 channel extension module is connected to the wireless receiver "R-Con". It serves the extension by 4 channels which allows for the control of further heating zones (12, 16 ...) with one wireless receiver "R-Con".

"R-Con HC"



Extension module heating/cooling for wireless receiver "R-Con", mounting rail installation according to DIN 60715

1150774






The extension module is connected to the wireless receiver "R-Con" and is used for switching between heating and cooling operation via a C/O signal (change-over input). The C/O signal is provided by a reversible heat pump (volt free). Furthermore, the "R-Con HC" module features an input for dew point monitoring which interrupts cooling when the dew point is exceeded.

Protective housing for "R-Con" surface mounting



1150776*

The wireless receiver "R-Con" is mounted onto the rail (included in the delivery) to avoid direct contact with live parts (230 V).

Article	Article-No.	Hint
Accessories		
 <p>Flush-mounted power pack (100-240 V ~ /50-60 Hz) with wall bracket</p>	1150692	For the conversion of battery operated wireless thermostats "R-Tronic RT B/ RTF B" to an external power supply (100-240 V ~/ 50-60 Hz).
 <p>Mains adaptor (100-240 V ~/ 50-60 Hz) with table stand, white for stationary use, suitable for "i-Tronic TFC" and "R-Tronic RT B/RTF B"</p>	1150694	
 <p>"FK-C F" Wireless window contact solar powered, white (similar to RAL 9003)</p>	1153070	<p>A radio signal is transmitted when opening or closing the window. The solar powered energy storage ensures a maintenance-free operation.</p> <p>Compatible with: - "R-Tronic" Wireless thermostats ("DynaTemp HA") - Wireless room modules ("DynaTemp BA")</p> <p>Note: The wireless thermostats "R-Tronic" require the software version 01-06-02 or higher and have to be mains-operated.</p>
 <p>"RP-S F" Wireless repeater with switching function for installation into an earthed plug (230 V) white (similar to RAL 9003)</p>	1150699	<p>The wireless repeater "RP-S F" serves to amplify the signal between the wireless thermostat "R-Tronic" and the "OVgateway" as well as the wireless receiver "R-Con"/ "R-Con 2P". Switching of electrical appliances (230 V) and registration of the current consumption data can be carried out with the help of the intermediate plug.</p>
 <p>"R-Con 2P" Wireless receiver (1 channel) 230 V, flush mounting, cabling on site Switching output (volt free): "NC" closed with current "off" "NO" open with current "off"</p>	1150710	<p>For activation and deactivation of fans and ventilation systems. The switching signal is generated by the wireless thermostat "R-Tronic RTFC K" if a set CO₂ value is exceeded or undercut. Two rotary switches at the "R-Con 2P" allow for</p> <ol style="list-style-type: none"> the configuration of the switching output "NC" closed with current "off" "NO" open with current "off" a manual setting of the switching output to AUTO, ON, OFF or TEACH IN. <p>Maximum switching capacity of the volt free output: 4(1)A/ 250 V AC</p>

Hydronic balancing with "OVgateway" and "Q-Tech" in detached and semi-detached houses

Automatic presetting with "OVgateway":

Automatic presetting of thermostatic radiator valves, for instance in detached or semi-detached houses, can be carried out via a smartphone, tablet or PC with the help of the "OVgateway" and the wireless actuators "Aktor MH CON B" (ENOCEAN). Manual presetting at each radiator on the spot is thus not required.

The user may carry out automatic presetting within a few steps via his smartphone, tablet or PC with the help of the setup assistant.

Apart from room temperature control, the "OVgateway" allows for the calculation of the maximum required volume flow for each radiator. The "OVgateway" is preloaded with the calculation procedure (procedure according to "VdZ specialist rules for heating optimisation – procedure A").

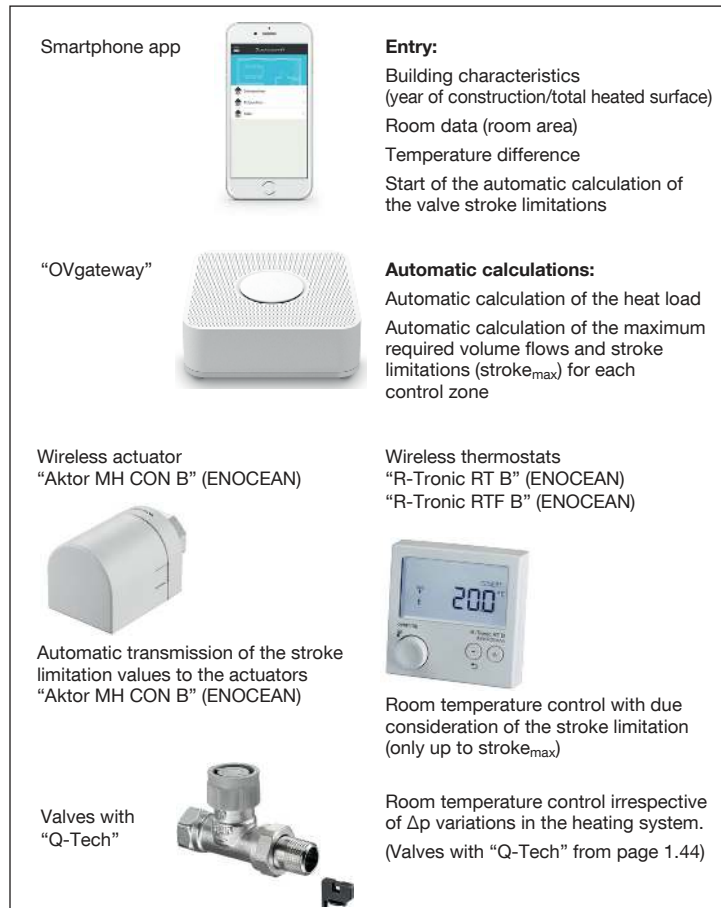
The valve characteristic line of the thermostatic valves with "Q-Tech" which allows for the conversion of the detected volume flows for the stroke limitation of the actuators "Aktor MH CON B" (ENOCEAN) is integrated in the "OVgateway".

Automatic balancing with "Q-Tech":

Irrespective of differential pressure variations in the heating system, the radiator volume flow required for room temperature control is constantly maintained by the control and regulating valve with "Q-Tech". After having carried out the automatic presetting described above, the volume flow is limited to a maximum value by the "OVgateway" and the actuator "Aktor MH CON B" (ENOCEAN) mounted onto the thermostatic valve with "Q-Tech".

Advantages:

- Automatic calculation of the required volume flow for each radiator and automatic presetting of the thermostatic valves with "Q-Tech" via the actuator "Aktor MH CON B" (ENOCEAN)
- Manual setting of the thermostatic valves at the radiator is not required
- Pipework calculation and regulation of the risers are not required
- Presetting of the valves in the riser is not required
- Hydronically balanced heating system during full and low demand periods
- Long battery life span as the "Aktor MH CON B" (ENOCEAN) only carries out control commands for room temperature control



Sequence of automatic presetting and balancing with "OVgateway" and "Q-Tech"

Article

Article-No.

Hint

"OVbalance Home" Basic Set

consisting of:

- "OVgateway"
- 1 x "R-Tronic RT B" (ENOCEAN) Wireless thermostat
- 1 x "Aktor MH CON B" (ENOCEAN) Wireless actuator

1150790*



App

"Aktor MH CON B"
(ENOCEAN)"R-Tronic RT B"
(ENOCEAN)

The intelligent "OVgateway" is the heart of the solution. The EnOcean radio standard allows for a simple networking of products, a trouble-free combination of appliances of different standards and trades and the operation via smartphone, tablet or PC. The integral Smart Home solution with open system character is installed by qualified tradesmen.

Furthermore, automatic hydronic balancing is supported with the help of the valves with "Q-Tech" (see page 1.44). For this purpose, the heat load, the maximum required volume flows for each radiator as well as the required maximum stroke limitations at the actuators "Aktor MH CON B" (ENOCEAN) are calculated by the "OVgateway" after having entered the building and room data. The stroke limitations at the valves with "Q-Tech" are carried out automatically.

Access options:

- Local access in the building
- Worldwide mobile remote access via Internet

User interfaces:

- App for iOS and Android terminals

Type of installation:

- Wall attachment

Article	Article-No.	Hint
---------	-------------	------



"R-Tronic RT B"(ENOCEAN) Wireless thermostat for Smart Home applications

Wireless thermostat with 5 selectable EnOcean profiles, battery operated, surface mounting

traffic white (RAL 9016)

1150780*#

Electronic wireless thermostat for room temperature control. The wireless thermostat supports the EnOcean Equipment profiles (EEP) A5-10-02, A5-10-03, A5-10-04, A5-10-06 and RPS telegrams and can be connected to communication centres/gateways (e.g. "OVbalance Home" basic set) via the menu navigation. The nominal and actual temperature of the room are displayed. A supply via the network is an alternative, see accessories.



Individual control not only of the heating system but also of other appliances can be carried out via the plus/minus buttons (RPS telegram) with the help of configurations in the "OVgateway". This way, the light can, for instance, be switched on and off with the help of the wireless thermostat.



"R-Tronic RTF B" (ENOCEAN) Wireless thermostat for Smart Home applications

Wireless thermostat with integrated humidity sensor and 5 selectable EnOcean profiles, battery operated, surface mounting

traffic white (RAL 9016)

1150781*#

Electronic wireless thermostat for room temperature control. The wireless thermostat supports the EnOcean Equipment profiles (EEP) A5-10-11, A5-10-12, A5-10-22, A5-10-23 and RPS telegrams and can be connected to communication centres/gateways (e.g. "OVbalance Home" basic set) via the menu navigation. The nominal and actual temperature of the room are displayed. An integrated humidity sensor supplies information on the relative humidity RH in %. A supply via the network is an alternative, see accessories.



Individual control not only of the heating system but also of other appliances can be carried out via the plus/minus buttons (RPS telegram) with the help of configurations in the "OVgateway". This way, the light can, for instance, be switched on and off with the help of the wireless thermostat.



"Aktor MH CON B" (ENOCEAN) Wireless actuator for Smart Home applications

Connection thread M 30 x 1.5
Electronic actuator with bi-directional wireless communication, battery operated






traffic white (RAL 9016)

1150765#

Electronic actuator for room temperature control. The actuator supports the EnOcean profile A5-20-01 and can be connected to communication centres/gateways or room thermostats supporting the profile.



Only functions in combination with communication centres/gateways (e.g. "OVbalance Home" basic set) supporting the respective EEP (EnOcean Equipment Profile).






Article	Packing unit	Article-No.	Hint
Accessories			
		1150692	For the conversion of battery operated wireless thermostats "R-Tronic RT B/ RTF B" to an external power supply (100-240 V ~ / 50-60 Hz).
		1150694	For the conversion of battery operated wireless thermostats "R-Tronic RT B/ RTF B" to an external power supply (100-240 V ~ / 50-60 Hz).
		1153070	A radio signal is transmitted when opening or closing the window. The solar powered energy storage ensures a maintenance-free operation. Compatible with: - "R-Tronic" Wireless thermostats ("DynaTemp HA") - Wireless room modules ("DynaTemp BA") Note: The wireless thermostats "R-Tronic" require the software version 01-06-02 or higher and have to be mains-operated.
		1150699	The wireless repeater "RP-S F" serves to amplify the signal between the wireless thermostat "R-Tronic" and the "OVgateway" as well as the wireless receiver "R-Con" / "R-Con 2P". Switching of electrical appliances (230 V) and registration of the current consumption data can be carried out with the help of the intermediate plug.
	(50)	1150693*	For panelling flush sockets (milling holes Ø 83 mm, e.g. in Switzerland) for surface-mounted installation of the wireless thermostats "R-Tronic".

1.f Valves with "Q-Tech" for automatic hydronic balancing

Content



Thermostatic valves "AQ"	1.44
Thermostatic valves "RFQ"	1.45
Exclusive radiator valves "EQ"	1.46
"Multiblock TQ" Two pipe fitting	1.47
"Multiblock TQ-RTL"	1.48
"Demo-Bloc"	1.49

Article	Packing unit	Article-No.	Hint
Thermostatic valves "AQ" with "Q-Tech" for automatic hydronic balancing, infinitely adjustable presetting			Valves for thermostats with valve insert "QA" connection thread M 30 x 1.5 brass, nickel plated Application: Central heating and cooling systems with closed circuits, for operation with non- aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195). Max. operating pressure p_s : 10 bar (PN 10) Operating temperature t_s : 2 °C up to 110 °C Flow range: 10 - 170 l/h Function: The valves with "Q-Tech" are combined control and regulating valves which are used for room temperature control in combination with thermostats with liquid sensor or actuators. The max. flow rate is set to the required nominal value and is constantly maintained within the necessary proportional band. Presetting is carried out by using the presetting key supplied with the valves. The thermostatic valves "AQ" and "RFQ" are not suitable for steam installations. All valve inserts are replaceable by using the special tool "Demo-Bloc" and the coupling set, page 1.62, without draining the system. All valves are suitable for the installation with copper pipes. Compression fittings page 1.144, reinforcing sleeves page 1.147. All thermostatic valves "AQ" and "RFQ" have a <u>light grey</u> protection cap.
Angle pattern valve			
	DN 10	(10) 1183063	
	DN 15	(10) 1183064	
	DN 20	(10) 1183066	
	DN 25	(10) 1183068	
Straight pattern valve			
	DN 10	(10) 1183163	
	DN 15	(10) 1183164	
	DN 20	(10) 1183166	
	DN 25	(10) 1183168	
Reversed angle pattern valve			
	DN 10	(10) 1183263	
	DN 15	(10) 1183264	
	DN 20	(10) 1183266	
Double angle pattern valve Left hand side connection			
	DN 10	(10) 1183360	
	DN 15	(10) 1183362	
Right hand side connection			
	DN 10	(10) 1183361	
	DN 15	(10) 1183363	

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

Thermostatic valves "RFQ"
with "Q-Tech" for automatic hydronic balancing,
infinitely adjustable presetting

Reduced dimensions compared with
thermostatic valves "AQ".

Angle pattern valve

Thermostatic valves "RFQ" not suitable for use
in combination with female threaded
compression fittings "Cofit S".





DN 10	(10)	1185503
DN 15	(10)	1185504
DN 20	(10)	1185506



Compression fittings page 3.49, reinforcing
sleeves page 1.147.



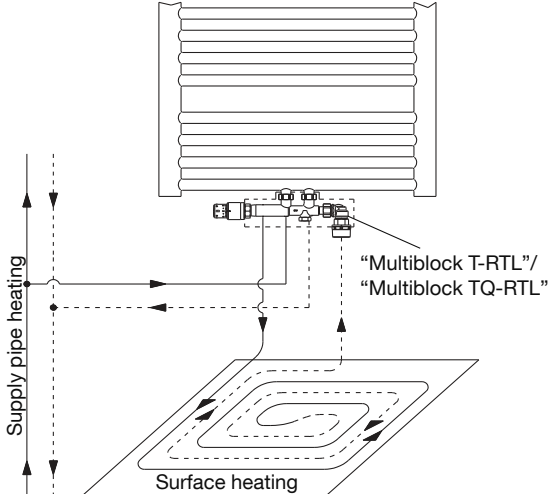



Straight pattern valve



DN 10	(10)	1185603
DN 15	(10)	1185604
DN 20	(10)	1185606

Article	Article-No.	Hint
<p>Exclusive radiator valves "EQ" with "Q-Tech" for automatic hydronic balancing, infinitely adjustable presetting</p>		
<p>Exclusive radiator valves</p>		
<p>Valves for thermostats with valve insert "QA" connection thread M 30 x 1.5 brass</p>		
<p>Application: Central heating and cooling systems with closed circuits, for operation with non- aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195). Max. operating pressure p_s: 10 bar (PN 10) Operating temperature t_s: 2 °C up to 110 °C (chrome plated) 2 °C up to 90 °C (white) Flow range: 10 - 170 l/h</p>		
<p>Angle pattern valve DN 15</p> <p>chrome plated white (RAL 9016)</p> 	<p>1163552 1163562</p>	
<p>Application: The valves with "Q-Tech" are combined control and regulating valves which are used for room temperature control in combination with thermostats with liquid sensor or actuators. The max. flow rate is set to the required nominal value and is constantly maintained within the necessary proportional band.</p>		
<p>Presetting is carried out by using the presetting key supplied with the valves.</p>		
<p>The thermostatic valves "EQ" are not suitable for steam installations.</p>		
<p>All valves inserts are replaceable by using the special tool "Demo-Bloc" and the coupling set, page 1.62, without draining the system.</p>		
<p>All valves are suitable for the installation with copper pipes.</p>		
<p>All thermostatic valves "EQ" have a <u>light grey</u> protection cap.</p>		
<p>Straight pattern valve DN 15</p> <p>chrome plated white (RAL 9016)</p> 	<p>1163652 1163662</p>	

Article	Packing unit	Article-No.	Hint
<p>"Multiblock TQ" Two pipe fitting with "Q-Tech" for automatic hydronic balancing Fitting with infinitely adjustable presetting and isolating and draining facility brass, nickel plated, with soft seal</p>			<p>"Multiblock TQ" for use on radiators with supply and return pipe connection. Distance between pipe centres 50 mm. Marking "OV 2" on valve body. With valve insert "QA".</p>
<p>for the connection to radiators with G ½ female thread</p>			<p>To be used:</p>
<p>Straight pattern</p>		<p>(5) 1184073</p>	<ul style="list-style-type: none"> -for two pipe operation -as thermostatic valve -as isolating fitting -for draining -for filling
			<p>Application:</p>
<p>Angle pattern</p>		<p>(5) 1184074</p>	<p>Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).</p>
			<p>Max. operating pressure p_s: 10 bar (PN 10) Operating temperature t_s: 2 °C up to 110 °C Flow range: 10 - 170 l/h</p>
<p>Suitable design covers: page 1.82</p>			<p>Function:</p>
			<p>The fittings with "Q-Tech" are combined control and regulating fittings which are used for room temperature control in combination with thermostats with liquid sensor or actuators. The max. flow rate is set to the required nominal value and is constantly maintained within the necessary proportional band.</p>
			<p>Presetting is carried out by using the presetting key supplied with the valves.</p>
			<p>The "Multiblock TQ" is not suitable for steam installations.</p>
			<p>The fittings "Multiblock TQ" have a <u>light grey</u> protection cap.</p>
			<p>For the connection of copper, precision steel, stainless steel and plastic pipes as well as Oventrop composition pipe "Copipe", the Oventrop compression fittings are to be used, page 1.146.</p>
			<p>Alternatively, the compression fittings of other manufacturers which are suitable for the connection to male thread G ¾ according to DIN EN 16313 (cone "Euro") may also be used.</p>
			<p>The supply and return pipe connections must be strictly observed. The direction of flow must be observed!</p>

Article	Packing unit	Article-No.	Hint
<p>"Multiblock TQ-RTL" with "Q-Tech" for automatic hydronic balancing Connection fitting for the combination of radiator and surface temperature balance, two pipe fitting, with infinitely adjustable presetting, isolating facility and integrated return temperature limiter, with soft seal, angle pattern, brass, nickel plated, including mounting aid</p>  <p>for the connection to radiators with G 1/2 female thread</p>		1184076	<p>"Multiblock TQ-RTL" for simultaneous connection of radiators with supply and return connection and 50 mm distance between pipe centres as well as surface temperature balance. For the separate control of the room temperature and the return temperature (limitation). With valve insert "QA".</p> <p>To be used:</p> <ul style="list-style-type: none"> - for two pipe operation - as thermostatic valve at the radiator - as isolating fitting at the radiator - for surface temperature balance by use of a return temperature limiter
<p>Design cover</p>  <p>for "Multiblock T-RTL" and "Multiblock TQ-RTL"</p> <p>chrome plated white</p>		1184077 1184087	<p>Application: Central heating systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195). Max operating pressure: p_g: 10 bar (PN 10) Operating temperature t_s: 2 °C up to 70 °C</p> <p>Function: The fittings with "Q-Tech" are combined control and regulating fittings which are used for room temperature control in combination with thermostats with liquid sensor or actuators. The max. flow rate is set to the required nominal value and is constantly maintained within the necessary proportional band.</p> <p>Presetting is carried out by using the presetting key supplied with the valves.</p> <p>The fitting "Multiblock TQ-RTL" is not suitable for steam installations.</p> <p>For the connection of copper, precision steel, stainless steel and plastic pipes as well as the Oventrop composition pipe "Copipe", the Oventrop compression fittings are to be used, page 1.146.</p> <p>Alternatively, the compression fittings of other manufacturers which are suitable for the connection to G 3/4 male thread according to DIN EN 16313 (cone "Euro") may also be used.</p> <p>The supply and return connections must be strictly observed to guarantee a perfect function of the fitting.</p> <p>The surface circuit can be filled, drained, bled and leak tested with installed block for initial operation.</p>
<p>System illustration:</p>  <p>Supply pipe heating</p> <p>Surface heating</p> <p>"Multiblock T-RTL"/ "Multiblock TQ-RTL"</p>			
<p>Rosette cover</p>  <p>for "Multiblock T-RTL" and "Multiblock TQ-RTL"</p> <p>chrome plated white</p>		1189077 (50) 1189087	
<p>Block for initial operation</p>  <p>for "Multiblock T-RTL" and "Multiblock TQ-RTL"</p>		1184094	
<p>Mounting aid</p>  <p>for "Multiblock T-RTL" and "Multiblock TQ-RTL"</p>		(5) 1189094	Used for the pre-assembly and fixing of the pipes of the heating circuit and the surface heating.

Article	Packing unit	Article-No.	Hint
	Valve inserts	(25) 1187065#	# These valve inserts are suitable for all valve bodies with connection thread M 30 x 1.5 of all sizes of the thermostatic valves "A, AV 9, AQ, AV 6, ADV 9, ADV 6, CV 9, E, EQ, AF, RF, RFV 9, RFQ and RFV 6".
	Replacement filter mesh for valve insert "QA"	1187090	
	Set = 10 replacement filter meshes "Demo-Bloc" special tool for replacing valve inserts <u>without draining the system</u>	1188051	The "Demo-Bloc" is supplied in a handy bag. Max. operating pressure p_s : 10 bar (PN 10)
	connection thread M 30 x 1.5	1188094	Including coupling set for valve insert "QA".
	Coupling set for replacement of the valve insert "QA"	1188093	The differential pressure above the valve seat can be measured with the "Demo-Bloc" and the differential pressure measuring stem.
	Differential pressure measuring stem		

1.g Valves for manual hydronic balancing

Content



Thermostatic valves "AV 9"	1.52
Thermostatic valves "AV 9" (press connection)	1.52
Thermostatic valves "AV 9" (male thread)	1.53
Thermostatic valves "CV 9"	1.54
Thermostatic valves "AF"	1.55
Accessories	1.57
Thermostatic valves "ADV 9"	1.58
Thermostatic valves "RFV 9"	1.59
"Uniset" Radiator valve sets	1.61
Radiator lockshield valve "Combi 3G"	1.61
"Demo-Bloc"	1.62

Article	kv at 1K P-dev.	kv at 2K P-dev.	kvs	Packing unit	Article-No.
---------	-----------------------	-----------------------	-----	-----------------	-------------

Hint

Thermostatic valves "AV 9"
infinitely adjustable presetting

Angle pattern valve



DN 10	0.36	0.67	1.10	(25)	1183703
DN 15	0.36	0.67	1.20	(25)	1183704
DN 20	0.36	0.67	1.30	(25)	1183706
DN 25	0.36	0.67	1.30	(10)	1183708

Straight pattern valve



DN 10	0.36	0.67	0.90	(25)	1183803
DN 15	0.36	0.67	1.00	(25)	1183804
DN 20	0.36	0.67	1.20	(25)	1183806
DN 25	0.36	0.67	1.20	(10)	1183808

Reversed angle pattern valve



DN 10	0.36	0.67	0.90	(25)	1183903
DN 15	0.36	0.67	1.00	(25)	1183904
DN 20	0.36	0.67	1.20	(25)	1183906

Double angle pattern valve
Left hand side connection

DN 10	0.36	0.67	0.90	(25)	1183470
DN 15	0.36	0.67	1.00	(25)	1183472

Right hand side connection



DN 10	0.36	0.67	0.90	(25)	1183471
DN 15	0.36	0.67	1.00	(25)	1183473

Thermostatic valves "AV 9" (press connection)infinitely adjustable presetting
with press connection for copper, stainless steel and
C-steel pipe Ø 15 mm

Angle pattern valve



DN 15	0.36	0.67	1.20	(25)	1183775
-------	------	------	------	------	----------------

Straight pattern valve



DN 15	0.36	0.67	1.00	(25)	1183875
-------	------	------	------	------	----------------

Valves for thermostatsconnection thread M 30 x 1.5
brass, nickel plated

Oventrop valves

Test according to EN 215

Reg.-no. 011-6 T 002

Keymark - The Oventrop thermostatic valves "A, AV 9, RF, AF und AZ H" (angle and straight pattern valves DN 10 - DN 20) with the thermostats "Uni XH", "Uni LH", "Uni LH" with remote sensor, "Uni SH", "vindo TH" and "pinox H" are Keymark tested and certified.

All materials used are silicone free.

Application:

Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ ÖNORM 5195).

Max. operating pressure p_s : 10 bar (PN 10)Operating temperature t_s : 2 °C up to 120 °C
(for short periods up to 130 °C)

Presetting is carried out by using the presetting key, item no. 1183962, or a spanner 13 mm or the Heimeier presetting key.

The thermostatic valves "AV 9" are not suitable for steam installations.

All valve inserts are replaceable by using the special tool "Demo-Bloc", page 1.62, without draining the system.

All valves DN 10 up to DN 20 are suitable for the installation with copper pipes.

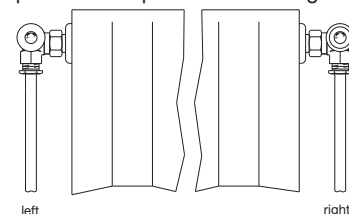
Compression fittings page 1.144, reinforcing sleeves page 1.147.

Attention: Filling and draining of the system before the valves are preset and the thermostat is mounted.








Press connection:

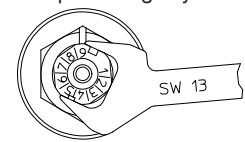
For the direct connection of copper pipes according to DIN EN 1057/ DVGW GW 392, stainless steel pipes according to DIN EN 10088/ DVGW GW 541 and thin-walled C-steel pipe (material no. E195/1.0034) according to DIN EN 10305-3. Pressing must be carried out to tighten the connection. Only use press jaws with the original contours SANHA (SA), Geberit-Mapress (MM) or Viega (Profipress) in corresponding size. Processing must be carried out according to the installation instructions.

All thermostatic valves "AV 9" have a white protection cap with 3 frontal lugs.



Thermostats from page 1.08.

Article	kv at 1K P-dev.	kv at 2K P-dev.	kvs	Packing unit	Article-No.	Hint	
Thermostatic valves "AV 9" (male thread) infinitely adjustable presetting, with G ¼ male threaded pipe connection and R ½ male threaded radiator connection							
Angle pattern valve							
	DN 15	0.36	0.67	1.20	(25) 1183747	<p>Especially suitable as flow and return valve for distributors of heating circuits.</p> <p>The G ¼ male thread of the valves allows for the connection to copper, precision steel and plastic pipes as well as the Oventrop composition pipe "Copipe" by using the corresponding fittings.</p> <p>Fittings page 1.140, compression fittings page 1.144, reinforcing sleeves page 1.147.</p> <p>Attention: Filling and draining of the system before the valves are preset and the thermostat is mounted.</p> <p>All thermostatic valves "AV 9" have a <u>white</u> protection cap with 3 frontal lugs.</p> <p>Thermostats from page 1.08.</p> <p>For setting of the nominal temperature value at the thermostat "Uni LHB", presetting at the valve as well as releasing of the graduation cap of the thermostats "Uni LH", "Uni LHZ", "Uni LD", "Uni LDV", "Uni LDVL", "Uni L" and special thermostats. With additional Allen key (2.5 mm) to secure the thermostat "Uni LHB".</p> <p>The presetting value can be adjusted with the help of the marking on the hexagon of the valve insert. The presetting key fits only in one position.</p> <p>Alternatively, presetting can also be carried out with a spanner sized 13 mm.</p>	
Straight pattern valve							
	DN 15	0.36	0.67	1.00	(25) 1183847		
Reversed angle pattern valve							
	DN 15	0.36	0.67	1.00	(25) 1183942		
Double angle pattern valve Left hand side connection							
	DN 15	0.36	0.67	1.00	(25) 1183446		
Right hand side connection							
	DN 15	0.36	0.67	1.00	(25) 1183447		
Universal tool							
	for thermostat "Uni LHB", "Uni LH" and thermostatic valves "AV 9" and "AQ"				(50) 1011489		
	Presetting key for thermostatic valves "AV 9, ADV 9, RFV 9, CV 9, E" and fittings "Multiblock T/TU/TFU/T-RTL" (manufactured since 2016)				(10) 1183962		



Article	kv at 1K P-dev.	kv at 2K P-dev.	kvs	Packing unit	Article-No.
---------	-----------------------	-----------------------	-----	-----------------	-------------

Hint

Thermostatic valves "CV 9"
infinitely adjustable presetting
chrome plated

Angle pattern valve



DN 15	0.36	0.67	1.20	(25)	1162054
-------	------	------	------	------	----------------

Straight pattern valve



DN 15	0.36	0.67	1.00	(25)	1162154
-------	------	------	------	------	----------------

Double angle pattern valve
Left hand side connection



DN 15	0.36	0.67	1.00	(25)	1162472
-------	------	------	------	------	----------------

Right hand side connection



DN 15	0.36	0.67	1.00	(25)	1162473
-------	------	------	------	------	----------------

Chrome plated valves for thermostats
connection thread M 30 x 1.5
brass, chrome plated

Application:

Central heating and cooling systems with
closed circuits, for operation with non-
aggressive, harmless fluids (e.g. water or
suitable water and glycol mixtures according
to VDI 2035/ÖNORM 5195).

Max. operating pressure p_s : 10 bar (PN 10)
Operating temperature t_s : 2 °C up to 120 °C
(for short periods up to 130 °C)

Presetting is carried out by using the presetting
key, item no. 1183962, or a spanner 13 mm
or the Heimeier presetting key.

The thermostatic valves "CV 9" are not suitable
for steam installations.

All valve inserts are replaceable by using the
special tool "Demo-Bloc", page 1.49, without
draining the system.

All valves are suitable for the installation with
copper pipes.

Compression fittings page 1.144, reinforcing
sleeves, page 1.147.

Attention: Filling and draining of the system
before the valves are preset and the thermostat
is mounted.

All thermostatic valves "CV 9" have a white
protection cap with 3 frontal lugs.

Thermostats from page 1.08.

For further information see
"Technical information":



Article	kv at 1K P-dev.	kv at 2K P-dev.	kvs	Packing unit	Article-No.	Hint
---------	-----------------	-----------------	-----	--------------	-------------	------

Thermostatic valves "AF"
infinitely adjustable fine presetting

Angle pattern valve



DN 10	0.20	0.32	0.37	(25)	1180603
DN 15	0.20	0.32	0.37	(25)	1180604
DN 20	0.20	0.32	0.37	(25)	1180606

Straight pattern valve



DN 10	0.20	0.32	0.37	(25)	1180703
DN 15	0.20	0.32	0.37	(25)	1180704
DN 20	0.20	0.32	0.37	(25)	1180706

Reversed angle pattern valve



DN 10	0.20	0.32	0.37	(25)	1180903
DN 15	0.20	0.32	0.37	(25)	1180904

Especially suitable for panel radiators and for the replacement of KOSMOS fine adjustment valves type 52 F1 - F7 with vertically pointing handwheel.

Double angle pattern valve
Left hand side connection



DN 10	0.20	0.32	0.37	(25)	1181460
DN 15	0.20	0.32	0.37	(25)	1181462

Right hand side connection



DN 10	0.20	0.32	0.37	(25)	1181461
DN 15	0.20	0.32	0.37	(25)	1181463

Presetting key
for thermostatic valves "AF" and valve inserts GHF



with pocket **1180791**

Measuring device **1180793**



Valves for thermostats
connection thread M 30 x 1,5
bronze/brass, nickel plated

Application:
Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).
Especially suitable for direct or indirect connection to district heating circuits.
Max. operating pressure p_s : 16 bar (PN 16)
Operating temperature t_s : 2 °C up to 120 °C (for short periods up to 140 °C)

Central heating systems with a high temperature differential and systems requiring setting of low flow rates (low flow tolerances) for instance up to a maximum kv value of 0.32 at 2 K P-deviation, max. differential pressure 3.0 bar, against which the valves close.

All valves DN 10 up to DN 20 are suitable for the installation with copper pipes.

Compression fittings page 1.145, reinforcing sleeves page 1.147.

All valve inserts are replaceable by using the special tool "Demo-Bloc", page 1.49, without draining the system.

Attention: Filling and draining of the system before the valves are preset and the thermostat is mounted.

All thermostatic valves "AF" have a red protection cap, the gland nut of the valves manufactured since end of 1993 has a red mark.

Thermostats from page 1.08.

For the exact control of the presetting of the thermostatic valves "AF".

For further information see "Technical information":



Article	kv at 1K P-dev.	kv at 2K P-dev.	kvs	Packing unit	Article-No.
---------	-----------------------	-----------------------	-----	-----------------	-------------

Hint

Thermostatic valves "AF"

infinitely adjustable fine presetting
by using the valve insert (except for item no. 1180957)

Straight pattern valve
both ports flat sealing with collar nut G 3/4 female thread
(length 66 mm)



DN 15	0.20	0.32	0.37	(25)	1180955
DN 15	0.55	1.05	1.80	(25)	1180957

Set 5 = 2 weldable tailpipes



for valve DN 15 (10) **1060592**

As conversion valve G 3/4 male thread, flat sealing,
without weldable tailpipes and without collar nuts
for PRUSS regulating valves no. 120 - 1/2"



	0.20	0.32	0.37	(25)	1180964
--	------	------	------	------	----------------

Angle pattern valve

	0.20	0.32	0.37	(25)	1180965
--	------	------	------	------	----------------

Straight pattern valve (length 80 mm)

	0.20	0.32	0.37	(25)	1180967
--	------	------	------	------	----------------

Straight pattern valve (length 70 mm)

**Valves for thermostats**

connection thread M 30 x 1.5
brass, nickel plated

Application:

Central heating and cooling systems with
closed circuits, for operation with non-
aggressive, harmless fluids (e.g. water or
suitable water and glycol mixtures according
to VDI 2035/ÖNORM 5195).

Especially suitable for direct or indirect
connection to district heating circuits.

Max. operating pressure p_s : 20 bar (PN 20)

Operating temperature t_s : 2 °C up to 120 °C
(for short periods up to 130 °C)

These conversion valves (except for
thermostatic valve "A", item no. 1180957) have
the same regulation characteristics as the
thermostatic valves "AF".

Item no. 1180957 is equipped with a valve
insert "A".

All valve inserts are replaceable by using the
special tool "Demo-Bloc", page 1.49, without
draining the system.

Attention: Filling and draining of the system
before the valves are preset and the thermostat
is mounted.

All thermostatic valves "AF" have a red
protection cap.

Thermostats from page 1.08.

For further information see
"Technical information":



Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

Accessories

Fittings and cap for straight pattern and conversion valves
item no.: **1180964/65/67**

	Weldable nipple (steel)		
	DN 10	(10)	1010989
	DN 15	(10)	1010990
	Solder nipple (brass)		
	12 mm	(10)	1010991
	15 mm	(10)	1010992
	Screwed nipple (brass)		
	R ½ DIN EN 10 226-1	(10)	1010993
	Collar nut (brass)		
	G ¾ female thread	(10)	1010994
	Threaded tailpipe (brass)		
	G ¾ male thread x 12 mm	(5)	1010995
	G ¾ male thread x 15 mm	(5)	1010996
	Threaded tailpipe (weldable nipple – steel)		
	G ¾ male thread x 15 mm	(10)	1010988
	G ¾ male thread x 15 mm	(10)	1010998
	Cap (brass)		
	G ¾ female thread	(10)	1010997

Article	kv at 1K P-dev.	kv at 2K P-dev.	Packing unit	Article-No.
---------	-----------------------	-----------------------	-----------------	-------------

Hint

Thermostatic valves "ADV 9"
with double function and infinitely adjustable presetting

Angle pattern valve



DN 10	0.36	0.67	(25)	1188363
DN 15	0.36	0.67	(25)	1188364
DN 20	0.36	0.67	(25)	1188366

Straight pattern valve



DN 10	0.36	0.67	(25)	1188463
DN 15	0.36	0.67	(25)	1188464
DN 20	0.36	0.67	(25)	1188466

All other thermostatic valves "A, AV 9, AF, CV 9, E, RF and RFV 9" can also be equipped with the valve insert with double function and presetting, item no. 1186002, page 1.115.

Valves for thermostats
connection thread M 30 x 1.5
brass, nickel plated

Application:

Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).

Max. operating pressure p_s : 10 bar (PN 10)
Operating temperature t_s : 2 °C up to 120 °C
(for short periods up to 130 °C)

The thermostatic valves "ADV 9" are not suitable for steam installations.

The double function of these valves provokes an automatic closing of the valve to 5 % of the nominal flow (frost protection) should the thermostat be removed or destroyed.

Not suitable for use with electric actuators.

All valve inserts are replaceable by using the special tool "Demo-Bloc", page 1.62, without draining the system.

All valves DN 10 up to DN 20 are suitable for the installation with copper pipes.

Compression fittings: page 1.144, reinforcing sleeves: page 1.147.

Attention: Before filling and draining the system, the protection cap has to be opened by one turn starting from the shut position.

All thermostatic valves "ADV 9" have a grey-green protection cap with 3 frontal lugs and a grey-green coloured marking on the bonnet.

Thermostats from page 1.08.

For further information see
"Technical information":



Article	kv at 1K P-dev.	kv at 2K P-dev.	kvs	Packing unit	Article-No.	Hint
---------	-----------------	-----------------	-----	--------------	-------------	------

Thermostatic valves "RFV 9"
reduced dimensions, infinitely adjustable presetting

Angle pattern valve



DN 10	0.36	0.67	1.10	(25)	1185003
DN 15	0.36	0.67	1.20	(25)	1185004
DN 20	0.36	0.67	1.30	(25)	1185006

Straight pattern valve



DN 10	0.36	0.67	0.90	(25)	1185103
DN 15	0.36	0.67	1.00	(25)	1185104
DN 20	0.36	0.67	1.20	(25)	1185106

Valves for thermostats
connection thread M 30 x 1.5
brass, nickel plated

Application:

Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).

Max. operating pressure p_s : 10 bar (PN 10)
Operating temperature t_s : 2 °C up to 120 °C (for short periods up to 130 °C)

The thermostatic valves "RFV 9" are not suitable for steam installations.

Reduced dimensions compared with "AV 9".

Thermostatic valves "RFV 9" are not suitable for use in combination with female threaded compression fittings "Cofit S".

Compression fittings page 3.49, reinforcing sleeves page 1.147.

Attention: Filling and draining of the system before the valves are preset and the thermostat is mounted.

All thermostatic valves "RFV 9" have a light green protection cap with 3 frontal lugs.

Thermostats from page 1.08.

For further information see "Technical information":



Article	kv at 1K P-dev.	kv at 2K P-dev.	kvs	Packing unit	Article-No.
---------	-----------------------	-----------------------	-----	-----------------	-------------

Hint

Return flow valvesThermostatic valves "AV 9"
infinitely adjustable presetting

Reversed angle pattern valve for the return pipe



DN 10	0.36	0.67	1.10	(25)	1183793
DN 15	0.36	0.67	1.20	(25)	1183794

Straight pattern valve for the return pipe



DN 10	0.36	0.67	0.90	(25)	1183893
DN 15	0.36	0.67	1.00	(25)	1183894

Valves for thermostatsconnection thread M 30 x 1.5
brass, nickel plated

Application:

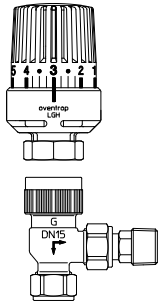
Central heating and cooling systems with
closed circuits, for operation with non-
aggressive, harmless fluids (e.g. water or
suitable water and glycol mixtures according
to VDI 2035/ÖNORM 5195).Max. operating pressure p_s : 10 bar (PN 10)Operating temperature t_s : 2 °C bis 120 °C

(for short periods up to 130 °C)

Especially suitable for installations with
reversed supply and return pipe and for upright
radiators.**Attention:** Reversed supply and return pipe at
the radiator might reduce the capacity.Compression fittings page 3.49, reinforcing
sleeves page 1.147.Presetting is carried out by using the presetting
key, item no. 1183962, or a spanner 13 mm
or the Heimeier presetting key.The return flow valves are not suitable for
use in combination with female threaded
compression fittings "Cofit S".All return flow valves are suitable for the
installation with copper pipes.The return flow valves "AV 9" have a white
protection cap with 3 frontal lugs.**Thermostats from page 1.08.**

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

"Uniset" Radiator valve sets



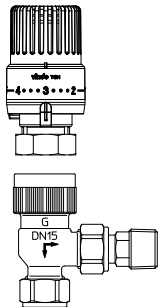
"Uniset Pro" - Bi-directional
 Thermostatic valve body, liquid ("Uni LGH") thermostat and
 Combi 3G lockshield valve

15 mm x 1/2" BSP tail (50) **1188585**

For pumped 2 pipe systems
 PN 10 at 120 °C max.
 Angle nickel plated body having
 compression x 1/2" BSP union tail to suit copper
 pipe only.

Fully bi-directional.

Certified to EN 215.



"Uniset Pro" - Bi-directional
 Thermostatic valve body, liquid (Vindo TGH) thermostat and
 Combi 3G lockshield valve

15 mm x 1/2" BSP tail (50) **1189785**









Radiator lockshield valve "Combi 3G"



"Combi 3G"

15 mm x 1/2" BSP tail (50) **1098362**

Angle pattern nickel plated body having
 compression x 1/2" BSP union tail to suit copper
 pipe only. Pumped 2 pipe systems.
 PN 10 at 120 °C max.

Article	Packing unit	Article-No.	Hint
 <p>"Demo-Bloc" special tool for replacing valve inserts <u>without draining the system</u></p>			<p>The "Demo-Bloc" is supplied in a handy bag.</p> <p>Max. operating pressure p_s: 10 bar (PN 10)</p> <p>Including coupling set for valve insert "QA".</p>
<p>connection thread M 30 x 1.5</p>		1188051	
 <p>Cleaning head for all valves</p>	(100)	1188400	The valve seat can be cleaned by use of the "Demo-Bloc" and the cleaning head.
 <p>Coupling set for replacement of the valve insert "HRV"</p>		1188092°	
 <p>Coupling set for replacement of the valve insert "QA"</p>		1188094	
 <p>Differential pressure measuring stem</p>		1188093	The differential pressure above the valve seat can be measured with the "Demo-Bloc" and the differential pressure measuring stem.
 <p>Coupling set for valves with connection thread M 30 x 1.0</p>		1188089*	
 <p>Coupling set for valves with connection thread M 30 x 1.5</p>		1188091*	Not suitable for the replacement of the valve insert "QA".
 <p>Coupling set for replacement of the valve inserts "HRV" and "Combi LR"</p>		1188095*	The coupling set can also be used for the replacement of the isolating insert of the fitting "Multiflex FQ".

1.h Valves for large flow rates

Content



Thermostatic valves "A"	1.64
Thermostatic valves "A" (male thread)	1.65
Thermostatic valves "AZ V"	1.66
Thermostatic valves "AZ H"	1.66
Thermostatic valves "RF"	1.67

Article	kv at 1K P-dev.	kv at 2K P-dev.	kvs	Packing unit	Article-No.
---------	-----------------------	-----------------------	-----	-----------------	-------------

Hint

Thermostatic valves "A"

Angle pattern valve



DN 10	0.50	0.95	1.20	(25)	1181003
DN 15	0.50	0.95	1.20	(25)	1181004
DN 20	0.55	1.10	3.50	(25)	1181006
DN 25	0.55	1.10	3.50	(10)	1181008
DN 32	0.55	1.10	4.10	(10)	1181010

Straight pattern valve



DN 10	0.50	0.95	1.20	(25)	1181103
DN 15	0.50	0.95	1.20	(25)	1181104
DN 20	0.55	1.10	2.50	(25)	1181106
DN 25	0.55	1.10	3.30	(10)	1181108
DN 32	0.55	1.10	4.10	(10)	1181110

Reversed angle pattern valve



DN 10	0.50	0.95	1.20	(25)	1181403
DN 15	0.50	0.95	1.20	(25)	1181404
DN 20	0.55	1.10	2.20	(25)	1181406

Double angle pattern valve
Left hand side connection

DN 10	0.50	0.95	1.20	(25)	1181390
DN 15	0.50	0.95	1.20	(25)	1181392

Right hand side connection



DN 10	0.50	0.95	1.20	(25)	1181391
DN 15	0.50	0.95	1.20	(25)	1181393

Valves for thermostats

connection thread M 30 x 1.5
brass, nickel plated

Application:

Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).

Max. operating pressure p_s : 10 bar (PN 10)
Operating temperature t_s : 2 °C up to 120 °C
(for short periods up to 130°C)

Valves DN 20 up to DN 32, with high kvs value, to be used also for zone control as well as in one pipe, two pipe and gravity heating systems. Steam 0.5 bar at 110 °C.

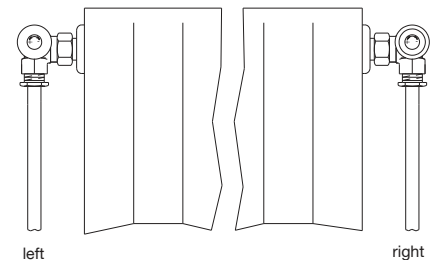
All valve inserts are replaceable by using the special tool "Demo-Bloc", page 1.62, without draining the system.

All valves DN 10 up to DN 20 are suitable for the installation with copper pipes.

All valves sized DN 15 can also be connected to the Oventrop composition pipe "Copipe".

Compression fittings page 1.144, reinforcing sleeves page 1.147.

All thermostatic valves "A" have a black protection cap.

Thermostats from page 1.08.

For further information see
"Technical information":



Article	kv at 1K P-dev.	kv at 2K P-dev.	kvs	Packing unit	Article-No.	Hint
---------	-----------------	-----------------	-----	--------------	-------------	------

Thermostatic valves "A" (male thread)

with G 3/4 male threaded pipe connection and R 1/2 male threaded radiator connection

Angle pattern valve



DN 15	0.50	0.95	1.20	(25)	1181097
-------	------	------	------	------	----------------

Straight pattern valve



DN 15	0.50	0.95	1.20	(25)	1181197
-------	------	------	------	------	----------------

Reversed angle pattern valve



DN 15	0.50	0.95	1.20	(25)	1181492
-------	------	------	------	------	----------------

Double angle pattern valve
Left hand side connection



DN 15	0.50	0.95	1.20	(25)	1181396
-------	------	------	------	------	----------------

Right hand side connection



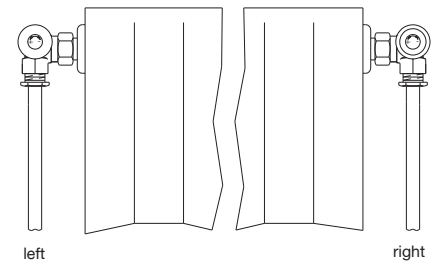
DN 15	0.50	0.95	1.20	(25)	1181397
-------	------	------	------	------	----------------

The G 3/4 male thread of the valves allows for the connection to copper, precision steel and plastic pipes as well as the Oventrop composition pipe "Copipe" by using the corresponding fittings.

Fittings page 1.140, compression fittings page 1.144, reinforcing sleeves page 1.147.

All thermostatic valves "A" have a black protection cap.

Thermostats from page 1.08.



For further information see "Technical information":



Article	kv at 1K P-dev.	kv at 2K P-dev.	kvs	Packing unit	Article-No.
---------	-----------------------	-----------------------	-----	-----------------	-------------

Hint

Thermostatic valves "AZ V"

infinitely adjustable presetting

Angle pattern valve



DN 15	0.47	0.92	3.00	(25)	1187504
DN 20	0.47	0.92	3.00	(25)	1187506

Straight pattern valve



DN 15	0.47	0.92	1.70	(25)	1187604
DN 20	0.47	0.92	2.30	(25)	1187606
DN 25	0.47	0.92	3.00	(10)	1187608

Valves for thermostats

connection thread M 30 x 1.5
brass, nickel plated

Application:

Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).

Max. operating pressure p_s : 16 bar (PN 16)
Operating temperature t_s : -10 °C up to 120 °C

With infinitely adjustable valve insert for high flow rates.

The thermostatic valves "AZ V" are, amongst others, used for the zone control in combination with thermostats or actuators in central heating and cooling systems.

All valve inserts are replaceable by using the special tool "Demo-Bloc", page 1.62, without draining the system.

All valves DN 15 up to DN 20 are suitable for the installation with copper pipes.

Compression fittings page 1.144, reinforcing sleeves page 1.147.

Presetting key, item no. 1068585, page 3.18.

All thermostatic valves "AZ V" have a green protection cap.

Thermostatic valves "AZ H"

Straight pattern valve



DN 20	0.68	1.35	4.00	(25)	1188406
DN 25	0.68	1.35	4.90	(10)	1188408

Application:

Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).

Max. operating pressure p_s : 10 bar (PN 10)
Operating temperature t_s : 2 °C up to 120 °C

Valves with high flow capacity, especially suitable for zone control as well as one pipe, two pipe and gravity heating systems.

Not suitable for the installation with compression fittings.

The valve insert of the thermostatic valves "AZ H" can not be replaced by using the special tool "Demo-Bloc".

All thermostatic valves "AZ H" have an orange protection cap.

Article	kv at 1K P-dev.	kv at 2K P-dev.	kvs	Packing unit	Article-No.	Hint
---------	-----------------	-----------------	-----	--------------	-------------	------

Thermostatic valves "RF"
reduced dimensions

Valves for thermostats
connection thread M 30 x 1.5
brass, nickel plated

Application:
Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).
Max. operating pressure p_s : 10 bar (PN 10)
Operating temperature t_s : 2 °C up to 120 °C (for short periods up to 130 °C)

Reduced dimensions compared with thermostatic valves "A".

Compression fittings page 3.49, reinforcing sleeves page 1.147.

Thermostatic valves "RF" are not suitable for use in combination with female threaded compression fittings "Cofit S".

All valves are suitable for the installation with copper pipes.

All thermostatic valves "RF" have a blue protection cap.

Thermostats from page 1.08.

Angle pattern valve



DN 10	0.50	0.95	1.20	(25)	1184703	49 mm
DN 15	0.50	0.95	1.20	(25)	1184704	54 mm
DN 20	0.55	1.10	3.50	(25)	1184706	63 mm

Straight pattern valve









DN 10	0.50	0.95	1.20	(25)	1184803	75 mm
DN 15	0.50	0.95	1.20	(25)	1184804	83 mm
DN 20	0.55	1.10	2.50	(25)	1184806	98 mm









1.i Thermostatic valve sets

Content

Thermostatic valve sets with thermostat "vindo TH"	1.70
Thermostatic valve sets with thermostat "Uni LH"	1.71
Connection sets "Multiflex F" with thermostat "vindo TH"	1.71

Article	Packing unit	Article-No.	Hint
Thermostatic valve sets with thermostat "vindo TH"			Application: Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195). Max. operating pressure p_g : 10 bar (PN 10) Thermostatic valves "AQ": Operating temperature t_s : 2 °C up to 110 °C Thermostatic valves "AV 9", RFV 9", "RF", "A" and radiator lockshield valve "Combi 2": Operating temperature t_s : 2 °C up to 120 °C (for short periods up to 130 °C)
Angle pattern			
consisting of: Thermostatic valve "AQ" with "Q-Tech" for automatic hydronic balancing, radiator lockshield valve "Combi 2", thermostat "vindo TH"			
	DN 10	(10) 1713063	
	DN 15	(10) 1713064	
consisting of: Thermostatic valve "AV 9" with infinitely adjustable presetting, radiator lockshield valve "Combi 2", thermostat "vindo TH"			
	DN 10	(10) 1673703	
	DN 15	(10) 1673704	
consisting of: Thermostatic valve "A", radiator lockshield valve "Combi 2", thermostat "vindo TH"			
	DN 10	(10) 1671003	
	DN 15	(10) 1671004	
Straight pattern			
consisting of: Thermostatic valve "AQ" with "Q-Tech" for automatic hydronic balancing, radiator lockshield valve "Combi 2", thermostat "vindo TH"			
	DN 10	(10) 1713163	
	DN 15	(10) 1713164	
consisting of: Thermostatic valve "RFV 9" with infinitely adjustable presetting, radiator lockshield valve "Combi 2", thermostat "vindo TH"			
	DN 10	(10) 1675103	
	DN 15	(10) 1675104	
consisting of: Thermostatic valve "RF", radiator lockshield "Combi 2", thermostat "vindo TH"			
	DN 10	1672003	
	DN 15	1672004	

Article	Packing unit	Article-No.	Hint
<p>Thermostatic valve sets with thermostat "Uni LH"</p> <p>Angle pattern</p> <p>consisting of: Thermostatic valve "AQ" with "Q-Tech" for automatic hydronic balancing, radiator lockshield valve "Combi 2", thermostat "Uni LH"</p>  <p>DN 10 (10) 1703063 DN 15 (10) 1703064</p> <p>consisting of: Thermostatic valve "AV 9" with infinitely adjustable presetting, radiator lockshield valve "Combi 2", thermostat "Uni LH"</p>  <p>DN 10 (10) 1683703 DN 15 (10) 1683704</p> <p>Straight pattern</p> <p>consisting of: Thermostatic valve "AQ" with "Q-Tech" for automatic hydronic balancing, radiator lockshield valve "Combi 2", thermostat "Uni LH"</p>  <p>DN 10 (10) 1703163 DN 15 (10) 1703164</p> <p>consisting of: Thermostatic valve "AV 9" with infinitely adjustable presetting, radiator lockshield valve "Combi 2", thermostat "vindo TH"</p>  <p>DN 10 (10) 1683803 DN 15 (10) 1683804</p>			<p>Application: Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).</p> <p>Max. operating pressure p_s: 10 bar (PN 10)</p> <p>Thermostatic valves "AQ": Operating temperature t_s: 2 °C up to 110 °C</p> <p>Thermostatic valves "AV 9" and radiator lockshield valve "Combi 2": Operating temperature t_s: 2 °C up to 120 °C (for short periods up to 130 °C)</p>
<p>Connection sets "Multiflex F" with thermostat "vindo TH"</p> <p>Angle pattern</p> <p>consisting of: "Multiflex F" ZB angle pattern isolating fitting and thermostat "vindo TH"</p>  <p>for G ¾ male thread (10) 1715814 for G ½ female thread (10) 1715884</p> <p>Straight pattern</p> <p>consisting of: "Multiflex" ZB isolating fitting, thermostat "vindo TH"</p>  <p>for G ¾ male thread (10) 1715813 for G ½ female thread (10) 1715883</p>			<p>Application Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).</p> <p>Max. operating pressure p_s: 10 bar (PN 10) Operating temperature t_s: 2 °C up to 120 °C (for short periods up to 130 °C)</p>

1.j Exclusive radiator valves

Content



Thermostatic valves "E"	1.74
Design handgrips	1.75
Radiator lockshield valves "Combi E"	1.76
Sets of compression fittings (1-fold)	1.76
T-pieces	1.76
Wall connection sets (1-fold)	1.77
Thermostatic valve sets "E"	1.78

Article	kv at 1K P- dev.	kv at 2K P- dev.	kvs	Packing unit	Article-No.	Hint
---------	---------------------------	---------------------------	-----	-----------------	-------------	------

Thermostatic valves "E"

infinitely adjustable presetting

Angle pattern valve DN 15



anthracite (RAL 7016)	0.36	0.67	1.20	(10)	1163032
sand blasted and nickel plated	0.36	0.67	1.20	(10)	1163042
chrome plated	0.36	0.67	1.20	(10)	1163052
white (RAL 9016)	0.36	0.67	1.20	(10)	1163062
gold plated	0.36	0.67	1.20	(10)	1163072
stainless steel finish	0.36	0.67	1.20	(10)	1163082

Straight pattern valve DN 15



anthracite (RAL 7016)	0.36	0.67	1.00	(10)	1163132
sand blasted and nickel plated	0.36	0.67	1.00	(10)	1163142
chrome plated	0.36	0.67	1.00	(10)	1163152
white (RAL 9016)	0.36	0.67	1.00	(10)	1163162
gold plated	0.36	0.67	1.00	(10)	1163172
stainless steel finish	0.36	0.67	1.00	(10)	1163182

Reversed angle pattern valve DN 15



anthracite (RAL 7016)	0.36	0.67	1.00	(10)	1163232
chrome plated	0.36	0.67	1.00	(10)	1163252
white (RAL 9016)	0.36	0.67	1.00	(10)	1163262

Double angle pattern valve

Left hand side connection DN 15



anthracite (RAL 7016)	0.36	0.67	1.00	(10)	1163432
chrome plated	0.36	0.67	1.00	(10)	1163452
white (RAL 9016)	0.36	0.67	1.00	(10)	1163462
stainless steel finish	0.36	0.67	1.00	(10)	1163482

Right hand side connection DN 15




anthracite (RAL 7016)	0.36	0.67	1.00	(10)	1163433
chrome plated	0.36	0.67	1.00	(10)	1163453
white (RAL 9016)	0.36	0.67	1.00	(10)	1163463
stainless steel finish	0.36	0.67	1.00	(10)	1163483

**Exclusive radiator valves
Valves for thermostats**connection thread M 30 x 1.5
brass

Application:

Central heating and cooling systems with
closed circuits, for operation with non-
aggressive, harmless fluids (e.g. water or
suitable water and glycol mixtures according
to VDI 2035/ÖNORM 5195).Max. operating pressure p_g : 10 bar (PN 10)
Operating temperature t_g : 2 °C up to 120 °C
(for short periods up to 130 °C),
2 °C up to 90 °C for the white models
and in stainless steel finish.Oventrop exclusive thermostatic radiator and
lockshield valves for an elegant home interior.
Technical data and nominal flow rate as
thermostatic valves "AV 9", page 1.52.All valve inserts are replaceable by using the
special tool "Demo-Bloc", page 1.62, without
draining the system.All valves are suitable for the installation with
copper pipes.**Attention:** Filling and draining of the system
before the valves are preset and the thermostat
is mounted.


Awards:

 Design Award of
North Rhine Westphalia,
Award of Honour for Industrial Products

 Industrial Design Forum Hanover
Award iF

 Design-Innovation of
Design Centre Essen
Award of High Quality of Design

 Pragothem Prague

 German Institute for Copper Berlin
Award "Product and Brass"
Admission to "The New Collection"
for exemplary Design Munich,
"Design Laboratory" Museum of Art
and Commerce Hamburg and
Design Museum London
Thermostats from page 1.08.

Article	Article-No.	Hint
---------	-------------	------

Design handgrips
for thermostatic valves "E", chrome plated
connection thread M 30 x 1.5

For the manual, infinitely adjustable control of the room temperature. They do not contain a thermostatic sensor element.



TARA ◊ **1168052**

Consisting of handgrip and adapter.

May be fitted onto the chrome plated thermostatic valves "E".
Max. flow temperature: 75 °C











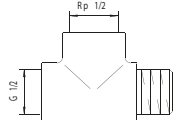
◊ Product and trademark of the company
Alois F. Dornbracht GmbH & Co. KG
Armaturenfabrik.



MADISON ◊ **1168152**

For further information see
"Technical information":



Article	Packing unit	Article-No.	Hint
Radiator lockshield valves "Combi E"			Technical data as "Combi 4", page 1.132.
Angle pattern DN 15			Service tool, item no. 1090551, page 1.133.
	anthracite (RAL 7016)	(10) 1166032	
	sand blasted and nickel plated	(10) 1166042	
	chrome plated	(10) 1166052	
	white (RAL 9016)	(10) 1166062	
	gold plated	(10) 1166072	
	stainless steel finish	(10) 1166082	
Straight pattern DN 15			
	anthracite (RAL 7016)	(10) 1167032	
	sand blasted and nickel plated	(10) 1167042	
	chrome plated	(10) 1167052	
	white (RAL 9016)	(10) 1167062	
	gold plated	(10) 1167072	
	stainless steel finish	(10) 1167082	
Sets of compression fittings (1-fold)			
for copper pipe according to DIN EN 1057 consisting of: compression ring, compression nut, cap			
	G 1/2 M x 12 mm sand blasted and nickel plated	1169392	
	G 1/2 M x 15 mm sand blasted and nickel plated	1169393	
	G 1/2 M x 16 mm sand blasted and nickel plated	1169394	
	G 1/2 M x 12 mm chrome plated	1169092	
	G 1/2 M x 15 mm chrome plated	1169093	
	G 1/2 M x 16 mm chrome plated	1169094	
	G 1/2 M x 12 mm white (RAL 9016)	1169192	
	G 1/2 M x 15 mm white (RAL 9016)	1169193	
	G 1/2 M x 16 mm white (RAL 9016)	1169194	
	G 1/2 M x 12 mm gold plated	1169292	
	G 1/2 M x 15 mm gold plated	1169293	
	G 1/2 M x 16 mm gold plated	1169294	
	G 1/2 M x 12 mm anthracite (RAL 7016)	1169492	
	G 1/2 M x 15 mm anthracite (RAL 7016)	1169493	
	G 1/2 M x 12 mm stainless steel finish	1169592	
	G 1/2 M x 15 mm stainless steel finish	1169593	
T-pieces			
R 1/2 M x Rp 1/2 F, connection of heating element G 1/2 F			
	chrome plated	1167552	
	white	1167562	
			Attention: When installing copper pipes with a wall thickness of ≤ 1 mm it is necessary to use reinforcing sleeves for the additional stabilisation of the pipe. Should the wall thickness exceed 1 mm, please contact the pipe manufacturer. Reinforcing sleeves for wall thickness = 1 mm, page 1.147. Note: The pipes are not held by the soft sealing fitting, they have to be fixed additionally. Regarding stretching of the pipe ends, the instructions of the pipe manufacturers have to be observed.
			For further information see "Technical information":
			
			For the installation of heating elements in towel radiators.
			
			Item no. 1167552/62

Article	Article-No.	Hint
---------	-------------	------

Wall connection sets (1-fold)



chrome plated
DN 15





1169553

For the wall installation of the exclusive radiator valves.
Consisting of: pipe Ø 15 mm white or chrome plated, L = 150 mm, R ½ male thread EN 10226-1 connection for the wall installation and compression fittings for the exclusive radiator valves.



white
DN 15

1169563

Article	Article-No.	Hint
<p>Thermostatic valve sets "E" chrome plated, DN 15</p> <p>Angle pattern consisting of:</p>  <p>Angle pattern valve, angle pattern lockshield valve, thermostat "Uni SH"</p>	1164052	<p>Exclusive radiator valves</p> <p>Application: Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195). Max. operating pressure p_s: 10 bar (PN 10) Operating temperature t_s: 2 °C up to 120 °C (for short periods up to 130 °C)</p> <p>Oventrop exclusive radiator and lockshield valves for an elegant home interior.</p>
<p>Straight pattern consisting of:</p>  <p>Straight pattern valve, straight pattern lockshield valve, thermostat "Uni SH"</p>	1164152	<p>Technical data and nominal flow rate as thermostatic valves "AV 9", page 1.52.</p> <p>All valve inserts are replaceable by using the special tool "Demo-Bloc", page 1.62, without draining the system.</p> <p>All valves are suitable for the installation with copper pipes.</p>
<p>Double angle pattern left hand side connection consisting of:</p>  <p>Double angle pattern valve (left hand side connection), angle pattern lockshield valve, thermostat "Uni SH"</p>	1164352	<p>Compression fittings page 1.76.</p> <p>Attention: Filling and draining of the system before the valves are preset and the thermostat is mounted.</p>
<p>Double angle pattern right hand side connection consisting of:</p>  <p>Double angle pattern valve (right hand side connection), angle pattern lockshield valve, thermostat "Uni SH"</p>	1164452	

1.k "Multiblock T/ T-RTL" Fittings for radiators with centre connection

Content



"Multiblock T" Two pipe fitting	1.80
"Multiblock TU" One/two pipe fitting convertible	1.81
Design covers	1.82
Connection sets "Multiblock T"/"Uni SH" for towel radiators (radiators with G 1/2 female thread)	1.83
Connection sets "Multiblock T"/"pinox H" for towel radiators (radiators with G 1/2 female thread)	1.83
"Multiblock TFU" One/two pipe fitting convertible	1.84
Connection sets "Multiblock TFU"/"Uni SH" for towel radiators (radiators with G 1/2 female thread)	1.84
"Multiblock T-RTL"	1.85
Connection sets "Multiblock T-RTL"/"Uni SH"	1.87
Connection sets "Multiblock T-RTL"/"pinox H"	1.87

Article	kv at 1K P-dev.	kv at 2K P-dev.	kvs	Packing unit	Article-No.	Hint
---------	-----------------------	-----------------------	-----	-----------------	-------------	------

"Multiblock T" Two pipe fitting

Fitting with infinitely adjustable presetting and isolating and draining facility

brass, nickel plated, with soft seal

Installation irrespective of the position of the supply and return pipe

for the connection to radiators with G $\frac{3}{4}$ male thread
according to DIN EN 16313 (cone "Euro")



0.34	0.57	0.81	(5)	1184013
------	------	------	-----	----------------

Straight pattern



0.34	0.57	0.81	(5)	1184014
------	------	------	-----	----------------

Angle pattern

for the connection to radiators with G $\frac{1}{2}$ female thread



0.34	0.57	0.81	(5)	1184083
------	------	------	-----	----------------

Straight pattern



0.34	0.57	0.81	(5)	1184084
------	------	------	-----	----------------

Angle pattern

"Multiblock T" for use on radiators with supply and return pipe connection.

Distance between pipe centres 50 mm.

Marking "OV 2" on valve body.

To be used:

- for two pipe operation
- as thermostatic valve
- as isolating fitting
- for draining
- for filling

Application:

Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).

Max. operating pressure p_s : 10 bar (PN 10)

Operating temperature t_s : 2 °C up to 120 °C (for short periods up to 130 °C)

Technical data as thermostatic valves "AV 9". For the connection of copper, precision steel, stainless steel and plastic pipes as well as the Oventrop composition pipe "Copipe", the Oventrop compression fittings are to be used, page 1.146.

Alternatively, the compression fittings of other manufacturers which are suitable for the connection to male thread G $\frac{3}{4}$ according to DIN EN 16313 (cone "Euro") may also be used.

Article	kv at 1K P-dev.	kv at 2K P-dev.	kvs	Packing unit	Article-No.	Hint
---------	-----------------	-----------------	-----	--------------	-------------	------

"Multiblock TU" One/two pipe fitting convertible
Fitting with infinitely adjustable presetting, convertible, with isolating facility
brass, nickel plated, with soft seal
Installation irrespective of the position of the supply and return pipe

for the connection to radiators with G 3/4 male thread according to DIN EN 16313 (cone "Euro")



0.34	0.57	0.81	(5)	1184023
------	------	------	-----	----------------

Straight pattern



0.34	0.57	0.81	(5)	1184024
------	------	------	-----	----------------

Angle pattern

for the connection to radiators with G 1/2 female thread



0.34	0.57	0.81	(5)	1184033
------	------	------	-----	----------------

Straight pattern



0.34	0.57	0.81	(5)	1184034
------	------	------	-----	----------------

Angle pattern

"Multiblock TU" for use on radiators with supply and return pipe connection. Distance between pipe centres 50 mm. Supplied for two pipe operation. Conversion to one pipe operation see installation instructions.

Marking "OV 1+2" on valve body.

- To be used:
- for one or two pipe operation
 - as thermostatic valve
 - as isolating fitting

Application:

Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).

Max. operating pressure p_s : 10 bar (PN 10)
Operating temperature t_s : 2 °C up to 120 °C (for short periods up to 130 °C)
Technical data as thermostatic valves "AV 9". kv-/kvs values valid for two pipe operation. Values for one pipe operation see "Technical information".

For the connection of copper, precision steel, stainless steel and plastic pipes as well as Oventrop composition pipe "Copipe", the Oventrop compression fittings are to be used, page 1.146.

Alternatively, the compression fittings of other manufacturers which are suitable for the connection to male thread G 3/4 according to DIN EN 16313 (cone "Euro") may also be used.

Award:

"Multiblock T" in combination with "Uni SH" in stainless steel finish



Article	kv at 2K P-dev.	Packing unit	Article-No.	Hint
---------	-----------------------	-----------------	-------------	------

Design covers
for "Multiblock T/TU/TQ"

Straight pattern



anthracite		(5)	1184088	
stainless steel finish		(5)	1184090	
white		(5)	1184095	
chrome plated		(5)	1184097	

Angle pattern



anthracite		(5)	1184089	
stainless steel finish		(5)	1184091	
white		(5)	1184096	
chrome plated		(5)	1184098	



Special valve insert for reversed supply and return pipe
with infinitely adjustable presetting







"AV9U"	0.57	(100)	1187078	
--------	------	-------	----------------	--






As replacement for:

- "Multiblock T/TU/TFU"
- "Unibox E T"
- "Unibox E plus"
- "Unibox E vario"
- "Unibox E BV"

In case of reversed direction of flow for:

- "Unibox T"
- "Unibox TQ"
- "Unibox plus" (connection for room temperature control)
- "Unibox vario" (connection for room temperature control)
- "Unibox Q plus" (connection for room temperature control)

Article	Packing unit	Article-No.	Hint
Connection sets "Multiblock T"/"Uni SH" for towel radiators (radiators with G ½ female thread)			
Straight pattern			
			
consisting of:			
"Multiblock T", connection fitting with infinitely adjustable presetting, two pipe fitting			
Design cover			
"Uni SH" Thermostat with liquid sensor			
"SH-Cap"			
white	(12)	1184183	"Multiblock T" for use on radiators with supply and return pipe connection. Distance between pipe centres 50 mm. Marking "OV 2" on valve body. To be used: -for two pipe operation -as thermostatic valve -as isolating fitting -for draining -for filling Application: Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195). Max. operating pressure p_s : 10 bar (PN 10) Operating temperature t_s : 2 °C up to 120 °C (for short periods up to 130 °C) Technical data as thermostatic valves "AV 9". "Uni SH": with 'O' setting, temperature range 7–28 °C graduation on cap 0 ☼ 1-5 White set: Thermostat "Uni SH" white/chrome plated "Multiblock T" also available as one/two pipe fitting (convertible): page 1.80 Marking "OV 1+2" on valve body. Awards: "Multiblock T" in combination with "Uni SH" in stainless steel finish:  Design Centre Essen reddot design award  Design Award of the Federal Republic of Germany Nominated 2009 "pinox H": without 'O' setting Temperature range: 7 - 28 °C Graduation on cap: ☼ 1 - 5
chrome plated	(12)	1184283	
stainless steel finish	(12)	1184383	
Angle pattern			
			
consisting of:			
"Multiblock T", connection fitting with infinitely adjustable presetting, two pipe fitting			
Design cover			
"Uni SH" Thermostat with liquid sensor			
"SH-Cap"			
white	(12)	1184184	
chrome plated	(12)	1184284	
stainless steel finish	(12)	1184384	
Connection sets "Multiblock T"/"pinox H" for towel radiators (radiators with G ½ female thread)			
Straight pattern			
			
consisting of:			
"Multiblock T", connection fitting with infinitely adjustable presetting, two pipe fitting			
Design cover			
"pinox H" Thermostat with liquid sensor			
white		1184185	
chrome plated		1184285	
Angle pattern			
			
consisting of:			
"Multiblock T", connection fitting with infinitely adjustable presetting, two pipe fitting			
Design cover			
"pinox H" Thermostat with liquid sensor			
white		1184186	
chrome plated		1184286	

Article	kv at 1K P-dev.	kv at 2K P-dev.	kvs	Packing unit	Article-No.	Hint
"Multiblock TFU" One/two pipe fitting convertible						
Fitting with infinitely adjustable presetting, pivoting supply/return pipe connection with isolating and draining facility brass, nickel plated, with soft seal Installation irrespective of the position of the supply and return pipe						
for the connection to radiators with G 3/4 male thread according to DIN EN 16313 (cone "Euro")						
	0.31	0.47	0.60	(5)	1184025	"Multiblock TFU" for use on radiators with supply and return pipe connection. Distance between pipe centres 50 mm. To be used: - for one or two pipe operation - as thermostatic valve - as isolating fitting - for draining - for filling - as angle or straight pattern model (pivoting) allowing the connection of the thermostat on the right or left hand side
for the connection to radiators with G 1/2 female thread						
	0.31	0.47	0.60	(5)	1184035	Application: Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195). Max. operating pressure p _s : 10 bar (PN 10) Operating temperature t _s : 2 °C up to 120 °C (for short periods up to 130 °C) Technical data as thermostatic valves "AV 9". kv-/kvs values valid for two pipe operation. Values for one pipe operation see "Technical information". For the connection of copper, precision steel, stainless steel and plastic pipes as well as Oventrop composition pipe "Copipe", the Oventrop compression fittings are to be used, page 1.146. Alternatively, the compression fittings of other manufacturers which are suitable for the connection to male thread G 3/4 according to DIN EN 16313 (cone "Euro") may also be used.
Design covers for "Multiblock TFU"						
	white			(5)	1184092	For further information see "Technical information": 
	chrome plated			(5)	1184093	
Connection sets "Multiblock TFU"/"Uni SH" for towel radiators (radiators with G 1/2 female thread)						
Swivelling supply/return pipe connection						
consisting of:						
	"Multiblock TFU" connection fitting with infinitely adjustable presetting, one/two pipe fitting Design cover "Uni SH" Thermostat with liquid sensor "SH-Cap"					Application: Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195). Max. operating pressure: p _s : 10 bar (PN 10) Operating temperature t _s : 2 °C up to 120 °C (for short periods up to 130 °C)
	white				1184135	"Uni SH": with '0' setting, temperature range 7–28 °C graduation on cap 0 ☼ 1-5
	chrome plated				1184235	White set: Thermostat "Uni SH" white/chrome plated

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

"Multiblock T-RTL"

Connection fitting for the combination of radiator and surface temperature balance, two pipe fitting, with infinitely adjustable presetting, isolating facility and integrated return temperature limiter, with soft seal, angle pattern, brass, nickel plated, including mounting aid

"Multiblock T-RTL" for simultaneous connection of radiators with supply and return connection and 50 mm distance between pipe centres as well as surface temperature balance.

For separate control of room and return temperature (limitation).

for the connection to radiators with G 3/4 male thread according to DIN EN 16313 (cone "Euro")

To be used:

- for two pipe operation
- as thermostatic valve at the radiator
- as isolating fitting at the radiator
- for surface temperature balance by use of a return temperature limiter



1184016

for the connection to radiators with G 1/2 female thread

Application:

Central heating systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).

Max. operating pressure p_s : 10 bar (PN 10)
 Operating temperature t_s : 2 °C up to 70 °C



1184086

Technical data as thermostatic valves "AV 9".

For the connection of copper, precision steel, stainless steel and plastic pipes as well as the Oventrop composition pipe "Copipe", the Oventrop compression fittings are to be used, page 1.146.

Design cover

for "Multiblock T-RTL" and "Multiblock TQ-RTL"

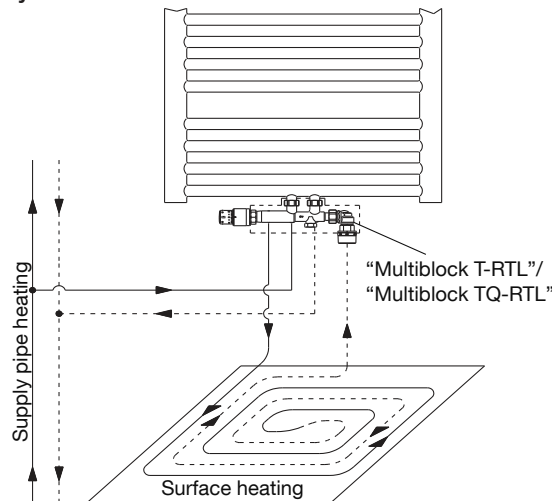
Alternatively, the compression fittings of other manufacturers which are suitable for the connection to G 3/4 male thread according to DIN EN 16313 (cone "Euro") may also be used.



chrome plated
 white

1184077
 1184087

System illustration:



The supply and return connections must be strictly observed to guarantee a perfect function of the fitting.



Rosette cover

for "Multiblock T-RTL" and "Multiblock TQ-RTL"



chrome plated
 white

1189077
 (50) 1189087

Article	Packing unit	Article-No.	Hint
		Block for initial operation for "Multiblock T-RTL" and "Multiblock TQ-RTL" 1184094	The surface circuit can be filled, drained, bled and leak tested with installed block for initial operation.
		Mounting aid for "Multiblock T-RTL" and "Multiblock TQ-RTL" (5) 1189094	Used for the pre-assembly and fixing of the pipes of the heating circuit and the surface heating.

Article	Article-No.	Hint
---------	-------------	------

Connection sets "Multiblock T-RTL"/"Uni SH" for the combination of towel radiators (with G ½ female thread) and surface heating



Angle pattern

consisting of:

"Multiblock T-RTL" connection fitting with infinitely adjustable presetting, isolating facility and integrated return temperature limiter, two pipe fitting, including mounting aid
 Design cover
 "Uni SH" Thermostat with liquid sensor
 "SH-Cap"

white	1184188
chrome plated	1184288

"Multiblock T-RTL" for simultaneous connection of radiators with supply and return connection and 50 mm distance between pipe centres as well as surface heating. For separate control of room and return temperature (limitation).

To be used:
 - for two pipe operation
 - as thermostatic valve at the radiator
 - as isolating fitting at the radiator
 - for surface temperature balance by use of a return temperature limiter

Application:
 Central heating systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).
 Max. operating pressure p_s : 10 bar (PN 10)
 Operating temperature t_s : 2 °C up to 70 °C
 Technical data as thermostatic valves "AV 9".

"Uni SH":
with '0' setting
 Temperature range: 7 - 28 °C
 Graduation on cap: 0 ☼ 1 - 5

Connection sets "Multiblock T-RTL"/"pinox H" for the combination of towel radiators (with G ½ female thread) and surface heating




Angle pattern

consisting of:

"Multiblock T-RTL" connection fitting with infinitely adjustable presetting, isolating facility and integrated return temperature limiter, two pipe fitting, including mounting aid
 Design cover
 "pinox H" Thermostat with liquid sensor

white	1184189
chrome plated	1184289

"pinox H":
without '0' setting
 Temperature range: 7 - 28 °C
 Graduation on cap: ☼ 1 - 5

Award:
 **ICONIC AWARDS 2017 winner**



1.1 Valve sets, components and accessories for for two pipe heating systems

Content

"Bypass-Combi Duo" two pipe with shut off	1.90
"Duo" Two pipe connection piece with shut off	1.90
Connection pieces	1.91
"Duo" Two pipe connection piece without shut off	1.92
Two pipe radiator valve with insertion tube with shut off	1.92
Valve for "TKM" system	1.92
Angle pattern fitting	1.92

Article	kv at 1K P-dev.	kv at 2K P-dev.	kvs	Packing unit	Article-No.
---------	-----------------------	-----------------------	-----	-----------------	-------------

Hint

"Bypass-Combi Duo" two pipe with shut off
comprising the following components:

Thermostatic valves "A"

Reversed angle pattern valve

DN 15	0.50	0.95	1.20	(25)	1181404
-------	------	------	------	------	----------------



Double angle pattern valve
Left hand side connection

DN 15	0.50	0.95	1.20	(25)	1181392
-------	------	------	------	------	----------------



Right hand side connection

DN 15	0.50	0.95	1.20	(25)	1181393
-------	------	------	------	------	----------------



or
straight pattern valve with pipe elbow DN 15

"A"	0.50	0.95	1.20	(25)	1181304
-----	------	------	------	------	----------------



"AV 9"	0.36	0.67	1.00	(25)	1184005
--------	------	------	------	------	----------------

Connecting pipe
steel, chrome plated

15 x 560 mm long	1016951
15 x 1120 mm long	1016953
15 x 2000 mm long	1016954



"Ofix CEP" Compression fittings
2-fold, for connecting pipe, metal to metal sealing

G 1/2 x 15 mm	(50)	1016853
---------------	------	----------------

**"Duo" Two pipe connection piece with shut off**

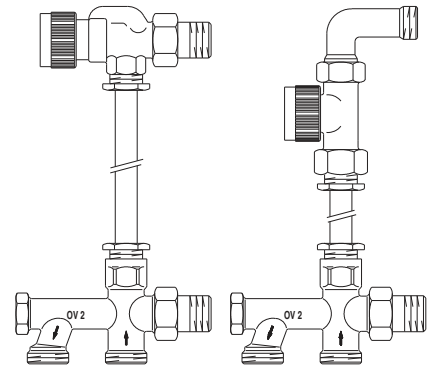
Valves / Valves for two pipe heating systems
connection thread M 30 x 1.5
brass, nickel plated

Application:

Two pipe central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).

Max. operating pressure p_s : 10 bar (PN 10)

Operating temperature t_s : 2°C up to 120°C
(for short periods up to 130°C)



The male threads G 3/4 according to DIN EN 16313 (cone "Euro") of the two pipe connection pieces "Duo" allow for the connection to copper, precision steel and plastic pipes as well as the Oventrop composition pipe "Copipe" by using the corresponding fittings, page 1.146.

Distance between pipe centres 50 mm.



Article: DN 15 G 3/4 male thread
Packing unit: (25)
Article-No.: 1013361

Hint

Connection pieces
nickel plated

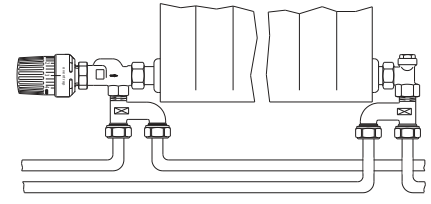


"h" fitting without collar nut
G 1/2 M x G 3/4 M x G 3/4 M
(10) 1028750

The "h" fitting G 1/2 x G 3/4 x G 3/4 is suitable for the installation of plastic, precision steel, copper and Oventrop composition pipe "Copipe" in combination with all Oventrop thermostatic radiator and lockshield valves DN 15 (Rp 1/2 F), distance between pipe centres 50 mm.









with collar nut
G 3/4 F x G 3/4 M x G 3/4 M
(10) 1028851



Item no. 1028851 for the connection of valves with male thread G 3/4.

Thermostats from page 1.08.

Article	kv at 2K P-dev.	Packing unit	Article-No.	Hint
"Duo" Two pipe connection piece without shut off or with shut off and infinitely adjustable presetting with brass fitting				
DN 15 M 24 x 1.5 M				
	without shut off	(25)	1182551	Application: Two pipe central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195). Max. operating pressure p_s : 10 bar (PN 10) Operating temperature t_s : 2 °C up to 120 °C (for short periods up to 130 °C) Distance between pipe centres 35 mm.
	with shut off and infinitely adjustable presetting	(25)	1182651	
Compression fittings "Ofix" M 24 x 1.5: page 1.96.				
Two pipe radiator valve with insertion tube with shut off				
Application: Two pipe central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195). Max. operating pressure p_s : 10 bar (PN 10) Operating temperature t_s : 2 °C up to 120 °C (for short periods up to 130 °C) The insertion tube is 150 mm long, Ø 11 mm, distance between pipe centres 50 mm.				
with vertical insertion tube				
	DN 15 G ¼ M 0.90		1183581	Marking: 2 grooves on the front face of the lateral isolating stem.
with horizontal insertion tube				
	DN 15 G ¼ M 0.90		1643561	Marking "OV 2" on valve body.
Valve for "TKM" system				
Two pipe valve				
	DN 15 G ¼ M 0.90	(20)	1183661	These valves are required for the connection of radiators of the "TKM" system. The two pipe valve has an <u>anthracite</u> protection cap. Characteristic: 2 grooves on front face of the lateral isolating stem.
Angle pattern fitting				
	G ¼ c/nut x G ¼ M	(10)	1189361	For the connection to G ¼ male thread according to DIN EN 16313 (cone "Euro"). Thermostats from page 1.08.



1.m Valve sets, components and accessories for one pipe heating systems

Content

"Bypass-Combi Uno" one pipe	1.94
"Uno" One pipe connection piece	1.94
"Uno" One pipe connection piece M 24 x 1.5	1.96
"Ofix" Compression fittings M 24 x 1.5	1.96
"Cofit S" Compression fittings M 24 x 1.5	1.96
Plastic rosette cover	1.96
One pipe radiator valve with insertion tube with fixed bypass and shut off	1.97
Valve for "TKM" system	1.97
Angle pattern fitting	1.97
Three-way conversion valves	1.98
Accessories	1.98
Isolation fittings	1.100
S-connection fitting, flat sealing	1.101
Tailpipe sets	1.101

Article	kv at 1K P-dev.	kv at 2K P-dev.	kvs	Packing unit	Article-No.
---------	-----------------------	-----------------------	-----	-----------------	-------------

Hint

"Bypass-Combi Uno" one pipe with infinitely adjustable bypass and shut off comprising the following components:

Thermostatic valves "A"

Reversed angle pattern valve

DN 15	0.50	0.95	1.20	(25)	1181404
-------	------	------	------	------	----------------



Double angle pattern valve
Left hand side connection

DN 15	0.50	0.95	1.20	(25)	1181392
-------	------	------	------	------	----------------



Right hand side connection

DN 15	0.50	0.95	1.20	(25)	1181393
-------	------	------	------	------	----------------



or
straight pattern valve with pipe elbow DN 15

"A"	0.50	0.95	1.20	(25)	1181304
-----	------	------	------	------	----------------



Connecting pipe
steel, chrome plated

15 x 560 mm long	1016951
15 x 1120 mm long	1016953
15 x 2000 mm long	1016954



"Ofix CEP" Compression fittings
2-fold, for connecting pipe, metal to metal sealing

G 1/2 x 15 mm	(50)	1016853
---------------	------	----------------



"Uno" One pipe connection piece with infinitely adjustable bypass and shut off

Valves / Valves for one pipe heating systems
connection thread M 30 x 1.5
brass, nickel plated

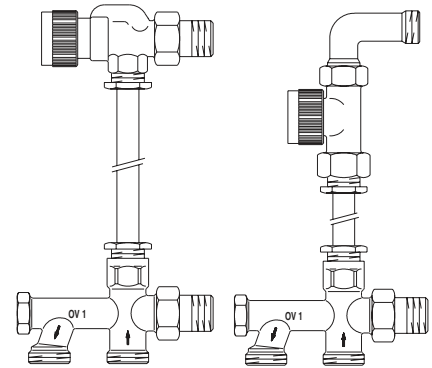
Application:

One pipe central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).

One pipe heating systems with outputs up to 8.000 Watt per circuit.

Max. operating pressure p_s : 10 bar (PN 10)

Operating temperature t_s : 2 °C up to 120 °C (for short periods up to 130 °C)



The male threads G 3/4 according to DIN EN 16313 (cone "Euro") of the one pipe connection pieces "Uno" allow for the connection to copper, precision steel and plastic pipes as well as Oventrop composition pipes "Copipe" by using the corresponding fittings, page 1.145.




Distance between pipe centres 50 mm.







A special radiator isolating fitting at the distributor, item no. 1013161, prevents even small capacity radiators from self convection heating.

Radiator share: 35 % (factory setting), adjustable between 20 and 50%.

Marking "OV 1" on valve body.

"Unofix" System for refurbishment of one pipe heating systems: Pages 1.105, 3.58
Single fittings: Page 1.145

Article	Packing unit	Article-No.	Hint
with radiator isolating fitting			
	DN 15 G 3/4 male thread	(25) 1013161	
with brass fitting			
	DN 15 G 3/4 male thread	(25) 1013162	
	reversed direction of flow with radiator isolating fittings DN 15 G 3/4 male thread	(25) 1013164	<p>With reversed direction of flow (return radiator side) compared with item no. 1013161 and 1013162. Marking "OV 1-U" on valve body. Thermostats from page 1.08.</p>

Article	Packing unit	Article-No.	Hint
<p>"Uno" One pipe connection piece M 24 x 1.5 without shut off with fixed bypass or with shut off and infinitely adjustable bypass with brass fitting</p> <p>DN 15 M 24 x 1.5 male thread</p> <p>without shut off with fixed bypass</p> 	(25)	1182051	<p>Application:</p> <p>One pipe central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).</p> <p>One pipe heating systems with outputs up to 8.000 Watt per circuit.</p> <p>Max. operating pressure p_s: 10 bar (PN 10)</p> <p>Operating temperature t_s: 2 °C up to 120 °C (for short periods up to 130 °C)</p> <p>Distance between pipe centres 35 mm.</p> <p>Radiator share: 50 %</p>
<p>with shut off and infinitely adjustable bypass</p> 	(25)	1182151	
<p>"Ofix" Compression fittings M 24 x 1.5 brass, collar nut nickel plated</p> <p>"Ofix CEP" 2-fold for copper pipes according to DIN EN 1057, metal to metal sealing</p> 	15 mm	(50) 1016813	<p>Attention: When installing copper pipes with a wall thickness of ≤ 1 mm, it is necessary to use reinforcing sleeves for the additional stabilisation of the pipe. Should the wall thickness exceed 1 mm, please contact the pipe manufacturer. Reinforcing sleeves for wall thickness = 1 mm, see page 1.147.</p> <p>Note: The pipes are not held by the soft sealing fitting, they have to be fixed additionally. Regarding stretching of the pipe ends, the instructions of the pipe manufacturers have to be observed.</p>
<p>"Ofix K" 2-fold for plastic pipes according to DIN 4726, PE-X according to DIN 16892/16893, PB according to DIN 16968, PP according to DIN 8078 A1, metal to metal sealing plus O-ring</p> 	14 x 2 mm 16 x 2 mm	(10) 1016823 (10) 1016824	
<p>"Cofit S" Compression fittings M 24 x 1.5 universal application for composition pipe and, provided similar preparation is used, for plastic pipes (PE-X pipes), 2-fold, metal to metal sealing plus O-ring, brass, collar nut nickel plated</p> 	14 x 2 mm 16 x 2 mm	(10) 1507854 (10) 1507855	<p>The permissible operating pressures and operating temperatures depend on the application classes of the respective standards of the plastic pipework systems (e.g. PE-X, DIN EN ISO 15875).</p>
<p>Plastic rosette cover flat, distance between pipe centres 35 mm</p> 	14 - 16 mm	(25) 1016684	

Article	kv at 1K P-dev.	kv at 2K P-dev.	kvs	Packing unit	Article-No.	Hint
---------	-----------------	-----------------	-----	--------------	-------------	------

One pipe radiator valve with insertion tube with fixed bypass and shut off

with horizontal insertion tube



DN 15	1.50	1.80	2.60		1183561	
G 3/4 male thread						

Application:
 One pipe central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).
 Max. operating pressure p_s : 10 bar (PN 10)
 Operating temperature t_s : 2 °C up to 120 °C (for short periods up to 130 °C)

The fixed bypass of the radiator valves with insertion tube is adjusted to a radiator flow share of 35 % (factory setting) at 2K P-deviation.
 The insertion tube is 150 mm long, Ø 11 mm, distance between pipe centres 50 mm.

with vertical insertion tube



DN 15	1.50	1.80	2.20		1183571	
G 3/4 male thread						

The one pipe radiator valve with vertical insertion tube is especially suitable for towel radiators. (The technical instructions of the radiator manufacturers have to be observed.)

Valve for "TKM" system

One pipe valve



DN 15	1.22	1.50	1.80	(20)	1183671	
G 3/4 male thread						

Radiator share: 50 %
 The valves are required for the connection of radiators of the "TKM" system.
 The one pipe valve has an orange protection cap.

Angle pattern fitting



G 3/4 c/nut x G 3/4 M				(10)	1189361	
-----------------------	--	--	--	------	----------------	--

For the connection to G 3/4 male thread according to DIN EN 16313 (cone "Euro").

Thermostats from page 1.08.

Article	Packing unit	Article-No.	Hint
Three-way conversion valves connection thread M 30 x 1.5 bronze/brass, nickel plated, with presetting			Three-way conversion valves and accessories for the conversion of vertical one pipe heating systems to thermostatic systems. The Oventrop three-way conversion valves have the same dimensions as the manual radiator valves according to TGL 43191 (models A, B, C, D). Application: One pipe entral heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195). Max. operating pressure p_g : 16 bar (PN 16) Operating temperature t_g : 2 °C up to 120 °C (for short periods up to 130 °C) One pipe systems with top and bottom connection at the radiator may experience a slight warming up of the radiator even with the valves being closed, all depending on the size of the radiator, the type of radiator and the flow temperature. This warming up is system related and cannot be eliminated by using thermostatic radiator valves. Isolation fittings to reduce this warming up: page 1.100. All three-way conversion valves have a <u>yellow</u> protection cap, the gland nut has a <u>yellow</u> marking since end of 1993. For further information see "Technical information": 
	DN 15 Left hand side connection	(25) 1180584	
	DN 15 Right hand side connection	(25) 1180585	
	DN 20 Left hand side connection	(25) 1180586	
	DN 20 Right hand side connection	(25) 1180587	
Accessories			
	Presetting key with pocket		
	for three-way conversion valve with presetting	1010599	
	Fittings, flat sealing - to the radiator -		
	DN 15 (R 1/2 male / collar nut G 3/4 female)	(25) 1019394	
	DN 20 (R 1/2 male / collar nut G 1 female)	(25) 1019396	
	- to the bypass pipe -		
	DN 15 (G 1/2 female / collar nut G 7/8 female)	(25) 1019384	
	DN 20 (G 3/4 female / collar nut G 1 1/4 female)	(25) 1019386	
	- to the pipework -		
	DN 15 (weldable tailpipe / collar nut G 3/4 female)	(25) 1019374	
	DN 20 (weldable tailpipe / collar nut G 1 female)	(25) 1019376	
	Isolating fitting, flat sealing 45 mm		
	DN 15 (G 3/4 male / collar nut G 3/4 female)	(25) 1016194	
	DN 20 (G 1 male / collar nut G 1 female)	(25) 1016196	

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

Compensating fittings, flat sealing

45 mm



DN 15 (25) **1016394**
(G 3/4 male / collar nut G 3/4 female)

79 mm



DN 15 (25) **1019194**
(G 1/2 male / collar nut G 3/4 female)
DN 20 (25) **1019196**
(G 1/2 male / collar nut G 1 female)

Connection sets

The connection set with bypass consists of a full exchange pack of all the fittings required in front of the radiator. These components are required in combination with the three-way conversion valves and isolating fittings.



Centre distance 552 mm DN 15 **1010558**
Centre distance 552 mm DN 20 **1010559**
Centre distance 992 mm DN 15 **1010568**
Centre distance 992 mm DN 20 **1010569**

Valve insert with presetting

Old model.



suitable for three-way conversion valves with connection thread M 30 x 1.0 (25) **1017056**

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

Isolation fittings

to reduce heat transfer between valve/T-piece and radiators of vertical one pipe installations.

The isolation fittings are supplied as a set for the top and the bottom connection of the radiator.

Isolation loop and shut off set

DN 15 (25) **1016284**

(G 3/4 collar nut x G 3/4 male thread)

DN 20 (25) **1016286**

(G 1 collar nut x G 1 male thread)

The isolation loop and shut off set are suitable for radiators with welded fitting.

Isolation tailpipe (set)

(reduced dimension – tailpipe and collar nut)



DN 15 (25) **1016295**

(G 3/4 collar nut x G 1/2 male thread)

DN 20 (25) **1016297**

(G 1 collar nut x G 1/2 male thread)

Isolation-compensation-shut off set

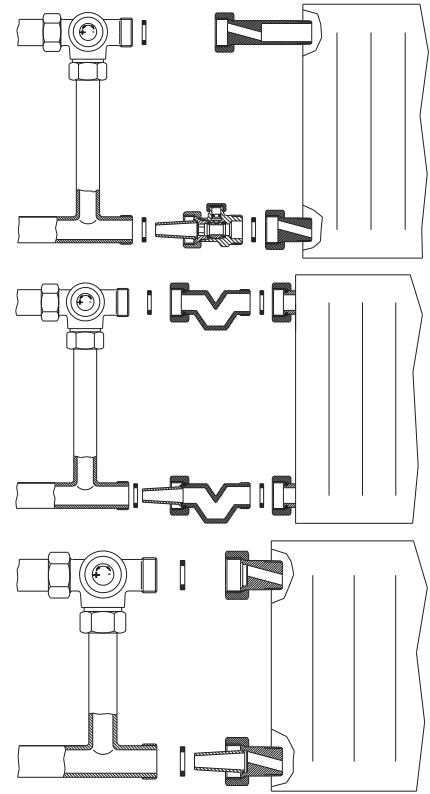
DN 15 (25) **1016254**

(G 3/4 collar nut x G 1/2 male thread)

DN 20 (25) **1016256**

(G 1 collar nut x G 1/2 male thread)

Refer to installation instructions.



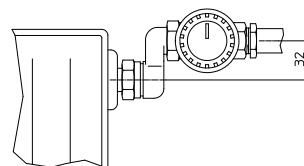
The conversion from manual to thermostatic radiator valves and the installation of all a. m. components should be supervised by a qualified design engineer or plumber.

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

S-connection fitting, flat sealing
including radiator tailpipe (G 3/4 collar nut x R 1/2 male thread)



DN 15 (G 3/4 male thread x G 3/4 collar nut)	(10)	1019497	
DN 20 (G 3/4 male thread x G 1 collar nut)	(10)	1019498	



The S-connection fitting is suitable for the replacement of radiators using existing pipework. The max. distance between pipe centres is 2 x 32 mm = 64 mm.

Tailpipe sets
(2 pieces each)



Set 5 = 2 weldable tailpipes			
for valve DN 15	(10)	1060592	
for valve DN 20	(10)	1060593	



Set 7 = 2 male threaded tailpipes			
R 1/2 for valve DN 15	(10)	1061492	
R 3/4 for valve DN 20	(10)	1061493	



Set 8 = 2 female threaded tailpipes			
Rp 1/2 for valve DN 15	(10)	1061392	
Rp 3/4 for valve DN 20	(10)	1061393	

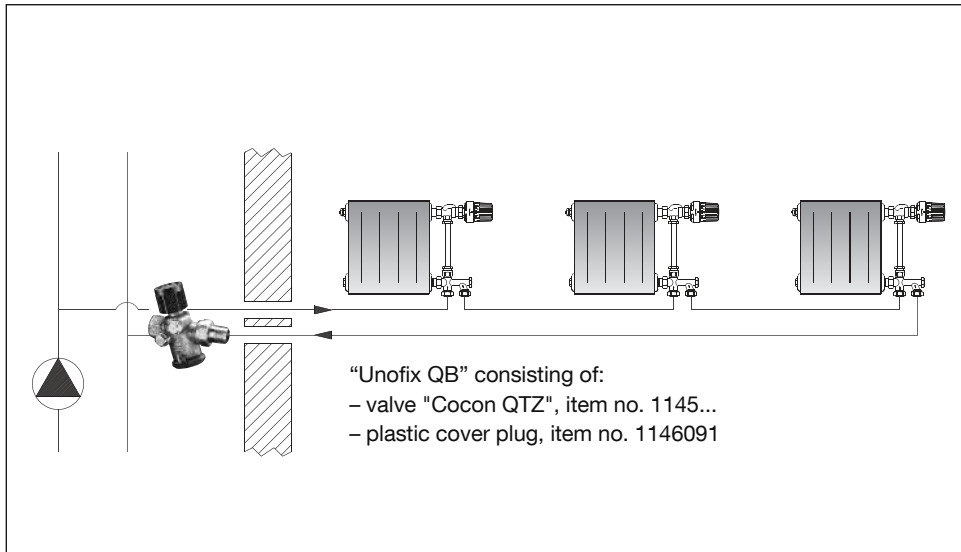


1.n "Unofix" Refurbishment of one pipe heating systems

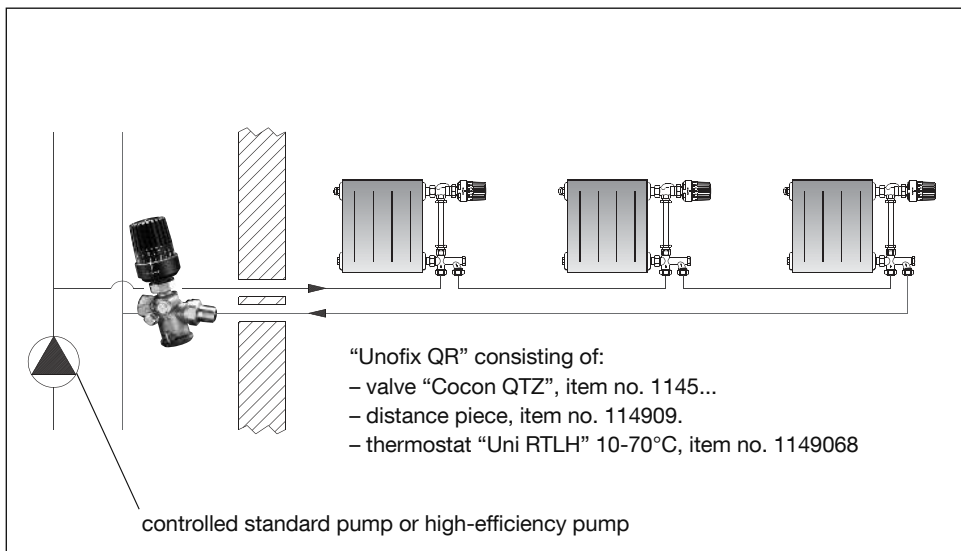
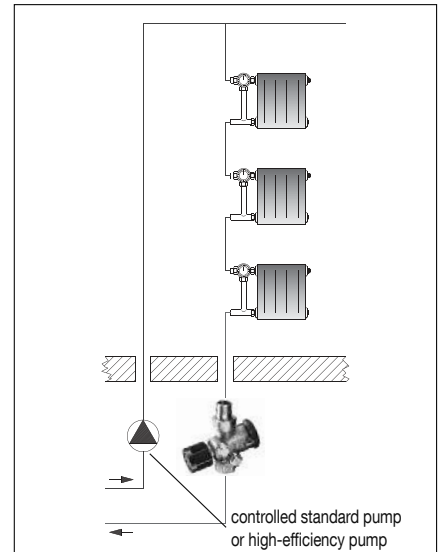
Content

System illustrations	1.104
"Cocon QTZ" Pressure independent control valves PN 16	1.105
"Aktor T" Electrothermal actuators	1.105
Accessories	1.106

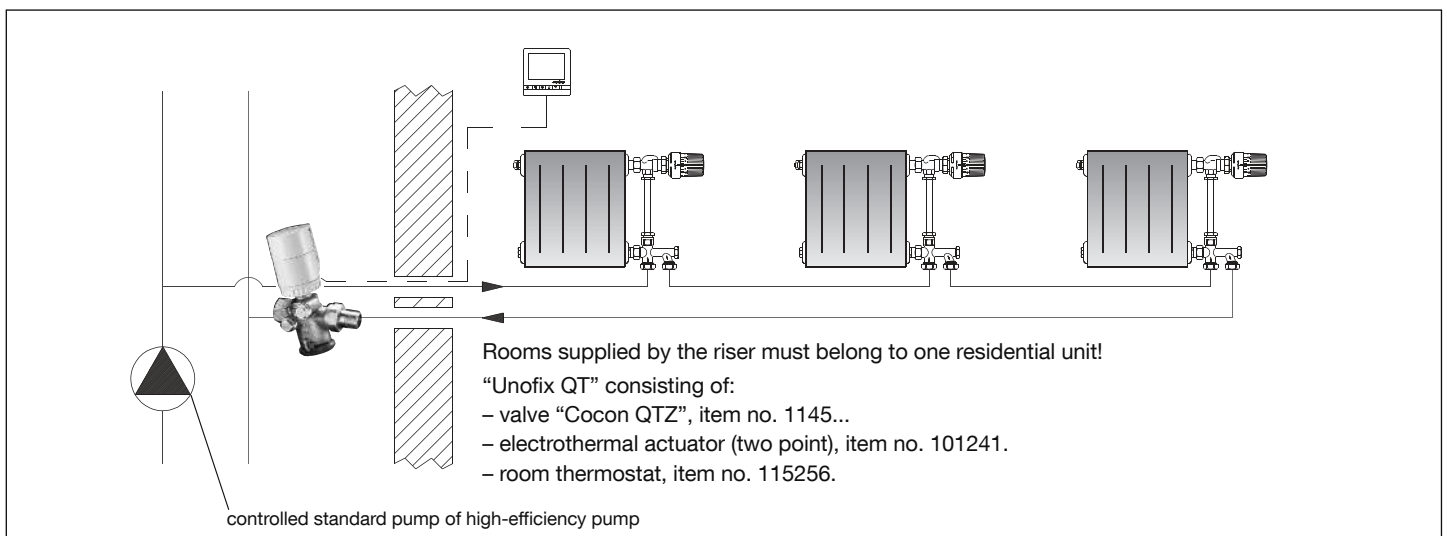
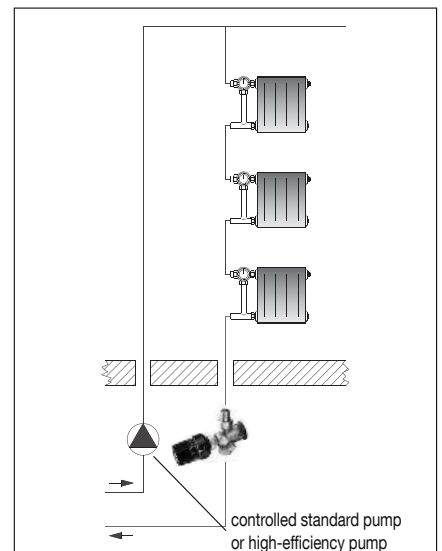
System illustrations



System illustration "Unofix QB"



System illustration "Unofix QR"



System illustration "Unofix QT"

Article	Control range	Packing unit	Article-No.	Hint
---------	---------------	--------------	-------------	------

"Cocon QTZ" Pressure independent control valves PN 16
connection thread M 30 x 1.5
both ports connections for measuring technique "classic"
(closed with blind plugs)

Inlet port: coupling, outlet port: female thread



DN 15	30 - 210 l/h	(10)	1145504°
DN 15	90 - 450 l/h	(10)	1145604°
DN 15	150 - 1050 l/h	(10)	1145704°
DN 20	150 - 1050 l/h	(10)	1145506°
DN 20	180 - 1300 l/h	(10)	1145606°

both ports with connections for "classic" measuring technique
(closed with blind plugs)
both ports male thread



DN 10	30 - 210 l/h	(10)	1145563°
DN 10	90 - 450 l/h	(10)	1145663°
DN 15	30 - 210 l/h	(10)	1145564°
DN 15	90 - 450 l/h	(10)	1145664°
DN 15	150 - 1050 l/h	(10)	1145764°
DN 20	150 - 1050 l/h	(10)	1145566°
DN 20	180 - 1300 l/h	(10)	1145666°

The system is used for the refurbishment of one pipe heating systems with horizontal or vertical heating circuits.

Application:

Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).

Max. operating pressure p_s : 16 bar (PN 16)
Operating temperature t_s : -10 °C up to +120 °C

Oventrop pressure independent control valves "Cocon QTZ" control the room temperature with the help of actuators or limit the return temperature with the help of the thermostat "Uni RTLH" (with distance piece item no. 114909.) The max. flow rate is set to the required nominal value and is constantly maintained within the necessary proportional band.

All valves DN 15 and DN 20 are suitable for the installation with copper pipes.

Model one port with coupling, one port with female thread:

Compression fittings page 1.144, reinforcing sleeves page 1.147.

Model both ports male thread:

DN 10: G 1/2 male threaded connection, flat sealing

DN 15: G 3/4 male threaded connection for compression fittings "Ofix", pages 1.144, 1.145 and 1.147.

With insert item no. 1661100 (page 1.130) suitable for flat sealing tailpipes.

DN 20: G 1 male threaded connection for compression fittings, page 9.31.

With insert item no. 1650793 (page 3.63) suitable for flat sealing tailpipes.

Further models page 3.58.

"Aktor T" Electrothermal actuators

"Aktor T 2P" Electrothermal actuators (two point)
connection thread M 30 x 1.5



"H NC", closed with current "off", 230 V	1012415
"L NC", closed with current "off", 24 V	1012416

Oventrop electrothermal actuators are used for heating, ventilation and air conditioning. The actuators serve to control the room temperature and can be used e. g. with conventional radiators, radiators with integrated distributor, radiant ceiling panels, chilled ceiling systems and induction air systems in combination with two point room thermostats.

Further applications in bivalent heating installations.

Connecting cable 1 m.

With "First-Open" function and stroke index. Simple plug-in connection with valve adapter.






Actuators can be installed in any position.

Due to their construction, the electrothermal actuators are secured against overvoltage which could occur when switching on neon tubes. A varistor is thus not necessary.

Tailpipe sets: Page 3.62

Flexible hoses: Page 3.66

Combination possibilities of valves and actuators: Page 3.08

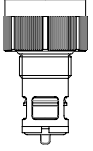
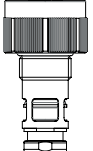
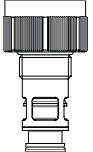
Article	Packing unit	Article-No.	Hint
"Uni RTHL" Thermostat connection thread M 30 x 1.5			
	anthracite	(10) 1149068	With '0' setting, may be limited or locked. Temperature range: 10° C - 70 °C The thermostats "Uni RTLH" may also be used in combination with the pressure independent control valves "Cocon QTZ" (with distance piece 114909.) for the limitation of the return temperature in one pipe risers.
	Room thermostat - flush mounting digital		With LCD display and adjustable timed programme. Temperature range: 5 °C up to 35 °C Operating current range (item no. 1152561): 100 up to 230 V AC Heating: Use electrothermal actuators (two point) "closed with current off" (terminal "NC") or "open with current off" (terminal "NO").
	230 V	(40) 1152561	
	24 V	(40) 1152562	
Accessories			
	Plastic cap connection thread M 30 x 1.5	(10) 1146091	Cap for the protection of the control unit at full lift position. Is required if no actuator has been mounted.
	Distance piece with fixed minimum piston stroke	(10) 1149090	Distance piece for the optimisation of the return temperature in one pipe heating systems. Especially advantageous when using condensing appliances or for district heating systems. The distance piece is installed between the "Cocon QTZ" DN 10 up to DN 32 and the thermostat "Uni RTLH". A minimum flow rate of about 20% of the max. adjustable nominal value is maintained.
	Distance piece with adjustable minimum piston stroke	(10) 1149091	Minimum piston stroke infinitely adjustable, with recognition of the closing dimension. The required minimum flow rate can be set with the help of the scale. Can be used for "Cocon QTZ" DN 10 up to DN 20.

1.o Valve inserts for radiators with integrated distributor

Content



Valves inserts with "Q-Tech"	1.108
Valve inserts (M 30 x 1.5)	1.110
Valve inserts (squeeze connection)	1.112

Article	Packing unit	Article-No.	Hint																																								
<p>Valves inserts with "Q-Tech" for automatic hydronic balancing, infinitely adjustable presetting, with G ½ male thread and thermostat connection M 30 x 1.5 (in preparation)</p>			<p>Application: Central heating systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195). Max operating pressure: p_g: 10 bar (PN 10) Operating temperature t_s: 2 °C up to 110 °C Flow range: 10 - 170 l/h</p> <p>Function: The valve inserts with "Q-Tech" are combined control and regulating inserts which are used for room temperature control in combination with thermostats with liquid sensor or actuators. The max. flow rate is set to the required nominal value and is constantly maintained within the necessary proportional band.</p> <p>The valve inserts are designed for the installation into the valve bodies of integrated distributors (e.g. panel radiators).</p> <p>Presetting is carried out by using the presetting key supplied with the valve inserts.</p> <p>The valve inserts "GHQ" are not suitable for steam installations.</p> <p>All valve inserts "GHQ" have a <u>light grey</u> protection cap.</p> <p>Please observe installation instructions!</p> <p>The valve insert item no. 1019080 is suitable for the radiator types, e.g.:</p> <table border="0"> <tr> <td>- Arbonia</td> <td>- DiaNorm¹</td> <td>- Purmo¹</td> </tr> <tr> <td>(up to 2002)</td> <td></td> <td></td> </tr> <tr> <td>- Baufa</td> <td>- Dia-therm</td> <td>- Radson¹</td> </tr> <tr> <td>- bremono</td> <td>- HM-radiator</td> <td>- Rettig¹</td> </tr> <tr> <td>- DEF</td> <td>- Hoval</td> <td>- Runtal</td> </tr> <tr> <td>- Demrad</td> <td>- Manaut</td> <td></td> </tr> <tr> <td colspan="3">¹(up to end of 2010)</td> </tr> </table> <p>The valve insert item no. 1019083 is suitable for the radiator types, e.g.:</p> <table border="0"> <tr> <td>- Caradon</td> <td>- Henrad</td> <td>- Schäfer</td> </tr> <tr> <td>- DURA</td> <td>- Korado</td> <td>- Superia (since 2005)</td> </tr> <tr> <td>- Ferroli/IMA</td> <td>- Brugman</td> <td>- Thor (since 2005)</td> </tr> <tr> <td></td> <td>(since 2013)</td> <td></td> </tr> <tr> <td>- Vasco</td> <td></td> <td></td> </tr> </table> <p>The valve insert item no. 1019082 is suitable for the radiator types, e.g.:</p> <table border="0"> <tr> <td>- De Longhi</td> <td>- Ribe</td> </tr> <tr> <td>- Veha</td> <td>- Brugman (up to 2013)</td> </tr> </table> <p>(Subject to technical modifications of the radiator manufacturers)</p>	- Arbonia	- DiaNorm ¹	- Purmo ¹	(up to 2002)			- Baufa	- Dia-therm	- Radson ¹	- bremono	- HM-radiator	- Rettig ¹	- DEF	- Hoval	- Runtal	- Demrad	- Manaut		¹ (up to end of 2010)			- Caradon	- Henrad	- Schäfer	- DURA	- Korado	- Superia (since 2005)	- Ferroli/IMA	- Brugman	- Thor (since 2005)		(since 2013)		- Vasco			- De Longhi	- Ribe	- Veha	- Brugman (up to 2013)
- Arbonia	- DiaNorm ¹	- Purmo ¹																																									
(up to 2002)																																											
- Baufa	- Dia-therm	- Radson ¹																																									
- bremono	- HM-radiator	- Rettig ¹																																									
- DEF	- Hoval	- Runtal																																									
- Demrad	- Manaut																																										
¹ (up to end of 2010)																																											
- Caradon	- Henrad	- Schäfer																																									
- DURA	- Korado	- Superia (since 2005)																																									
- Ferroli/IMA	- Brugman	- Thor (since 2005)																																									
	(since 2013)																																										
- Vasco																																											
- De Longhi	- Ribe																																										
- Veha	- Brugman (up to 2013)																																										
	(25)	1019080																																									
	(25)	1019083																																									
	(25)	1019082																																									

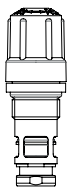


Article: Thermostat connection: squeeze connection
Packing unit: (25) Article-No.: **1019099**
GDQ with front connection

Hint: Please observe installation instructions!
The valve insert item no. 1019099 is suitable for the radiator types, e.g.:

- Arbonia
- DiaNorm¹ - Baufa (up to 2002)
- bremo
- Dia-therm- Radson¹
- HM-Heizkörper- Rettig¹
- DEF
- Hoval
- Runtal
- Demrad
- Manaut
- Purmo¹

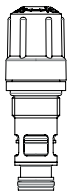
¹(up to end of 2010)



Article: GDQ with internal O-ring
Packing unit: (25) Article-No.: **1019084**

Hint: The valve insert item no 1019084 is suitable for the radiator types, e.g.:

- Brötje (since 2003)-Ferroli/IMA-Schäfer
- Caradon
- Henrad
- Superia
- DURA
- Korado
- Brugmann (since 2013)
- Vasco
- De Longhi (since 2016)








Article: GDQ with seat diameter 16 H 11
Packing unit: (25) Article-No.: **1019086**

Hint: The valve insert item no. 1019086 is suitable for the radiator types, e.g.:

- De Longhi (up to 2016)
- Thor
- Brugmann (up to 2013)
- Ribe
- VEHA
- Brötje (since approx. 1994 up to approx. 2003)

(Subject to technical modifications of the radiator manufacturers)

Article	kv at 1K P-dev.	kv at 2K P-dev.	kvs	Packing unit	Article-No.	Hint																		
Valve inserts (M 30 x 1.5)																								
	<p>GH with 6 presetting positions with G ½ male thread and thermostat connection M 30 x 1.5 with front connection Protection cap: white</p>																							
	0.35	0.70	1.05	(25)	1018080																			
	Brass																							
	<p>GHF with fine presetting with G ½ male thread and thermostat connection M 30 x 1.5 with front connection Protection cap: red</p>																							
	0.20	0.32	0.37	(25)	1018090																			
	<p>GH with 6 presetting positions with G ½ male thread and thermostat connection M 30 x 1.5 with front connection Protection cap: white</p>																							
	0.35	0.63	1.00	(25)	1648077																			
	<p>GH with 6 presetting positions with G ½ male thread and thermostat connection M 30 x 1.5 with seat diameter 16 H 11 Protection cap: white</p>																							
	0.35	0.70	1.05	(25)	1018082																			
	Brass																							
	<p>GHF with fine presetting with G ½ male thread and thermostat connection M 30 x 1.5 with seat diameter 16 H 11 Protection cap: red</p>																							
	0.20	0.32	0.37	(25)	1018097																			
<p>Application: Central heating systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195). Max. operating pressure p_g: 10 bar (PN 10) Operating temperature 2 °C bis 120 °C (for short periods up to 130 °C) Flow temperature up to 120 °C. The valve inserts are designed for the installation into the valve bodies of integrated distributors (e. g. panel radiators). The valve inserts are presettable to suit the hydronic requirements of the heating system. The hydronic values of the valve inserts GH correspond to the values of the inserts of the company Heimeier. The valve inserts are suitable for the thermostats "Uni XH", "Uni XHM", "Uni XHT", "Uni LH", "Uni LHB", "Uni LHZ", "Uni SH", "Uni CH", "vindo TH" and "pinox H" (pages 1.08 - 1.11). Attention: Filling and draining of the system before the valves are preset and the thermostat is mounted. Please observe installation instructions!</p> <p>The valve inserts item no. 1018080, 1018280, 1018090 and 1648077 are suitable for the radiator types, e.g.:</p> <table border="0"> <tr> <td>-Arbonia (up to 2002)-DiaNorm¹</td> <td>-Purmo¹</td> </tr> <tr> <td>-Baufa</td> <td>-Dia-therm</td> </tr> <tr> <td>-bremo</td> <td>-HM-Heizkörper-Rettig¹</td> </tr> <tr> <td>-DEF</td> <td>-Hoval</td> </tr> <tr> <td>-Demrad</td> <td>-Manaut</td> </tr> <tr> <td></td> <td>-Radson¹</td> </tr> <tr> <td></td> <td>-Runtal</td> </tr> </table> <p>¹(up to end of 2010)</p> <p>Is used for reversed supply and return pipe. Attention: The radiator output can be reduced when using this insert.</p> <p>The valve inserts item no. 1018082, 1018282 and 1018097 are suitable for the radiator types, e.g.:</p> <table border="0"> <tr> <td>-De Longhi</td> <td>-VEHA</td> </tr> <tr> <td>-Ribe</td> <td></td> </tr> </table> <p>(Subject to technical modifications of the radiator manufacturers)</p>							-Arbonia (up to 2002)-DiaNorm ¹	-Purmo ¹	-Baufa	-Dia-therm	-bremo	-HM-Heizkörper-Rettig ¹	-DEF	-Hoval	-Demrad	-Manaut		-Radson ¹		-Runtal	-De Longhi	-VEHA	-Ribe	
-Arbonia (up to 2002)-DiaNorm ¹	-Purmo ¹																							
-Baufa	-Dia-therm																							
-bremo	-HM-Heizkörper-Rettig ¹																							
-DEF	-Hoval																							
-Demrad	-Manaut																							
	-Radson ¹																							
	-Runtal																							
-De Longhi	-VEHA																							
-Ribe																								

Article	kv at 1K P-dev.	kv at 2K P-dev.	kvs	Packing unit	Article-No.	Hint
---------	-----------------	-----------------	-----	--------------	-------------	------



GH
with 6 presetting positions
with G 1/2 male thread
and thermostat connection M 30 x 1.5
with internal O-ring
Protection cap: white

	0.35	0.70	1.05	(25)	1018083
--	------	------	------	------	----------------

Brass

The valve inserts item no. 1018083, 1018283 and 1018098 are suitable for the radiator types, e.g.:

- Caradon
- DURA
- Ferroli/IMA
- Henrad
- Korado
- Brugman (since 2013)
- Schäfer
- Superia (since 2005)
- Thor (since 2005)
- Vasco

(Subject to technical modifications of the radiator manufacturers)



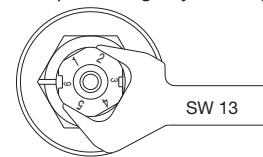
GHF
with fine presetting
with G 1/2 male thread
and thermostat connection M 30 x 1.5
with internal O-ring
Protection cap: red

	0.20	0.32	0.37	(25)	1018098
--	------	------	------	------	----------------



Presetting key (10) **1183961**
for valves "AV 6, ADV 6, RFV 6, E", fittings "Multiblock T/TU/TFU/T-RTL" (manufactured up to 2015) and valve inserts GH

The presetting value can be adjusted with the help of the marking on the hexagon of the valve insert.
The presetting key fits only in one position.



Alternatively, presetting can also be carried out with a spanner sized 13 mm.



Presetting key
for thermostatic valves "AF" and valve inserts GHF
with pocket **1180791**



Valve insert
with thread M 20 x 1.0
and thermostat connection M 30 x 1.5
Replacement for item no. 1879800 (M 30 x 1.0)

e. g. Buderus/Brötje 1982 - 1986 (25) **1879850**

Further valve inserts for other types of radiators are prepared or are available on request.

Attention: Filling and draining of the system before the valves are preset and the thermostat is mounted.

Article	kv at 1K P-dev.	kv at 2K P-dev.	kvs	Packing unit	Article-No.
---------	-----------------------	-----------------------	-----	-----------------	-------------

Hint

Valve inserts (squeeze connection)

GD
with 8 presetting positions
with G ½ male thread
and squeeze connection
with front connection
Protection cap: white

0.32	0.63	1.05	(25)	1018099
------	------	------	------	----------------



GD
with 8 presetting positions
with G ½ male thread
and squeeze connection
with external O-ring
with seat diameter 16 H 11
Protection cap: white

0.32	0.63	1.05	(25)	1018086
------	------	------	------	----------------



GDF
with 8 fine presetting positions
with G ½ male thread
and squeeze connection
with external O-ring
with seat diameter 16 H 11
Protection cap: red

0.14	0.24	0.47	(25)	1018096
------	------	------	------	----------------



GD
with 8 presetting positions
with G ½ male thread
and squeeze connection
with internal O-ring
Protection cap: white

0.32	0.63	1.05	(25)	1018084
------	------	------	------	----------------



GDF
with 8 fine presetting positions
with G ½ male thread
and squeeze connection
with internal O-ring
Protection cap: red

0.14	0.24	0.47	(25)	1018094
------	------	------	------	----------------

Application:

Central heating systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).

Max. operating pressure p_s : 10 bar (PN 10)
Operating temperature 2 °C bis 120 °C
(for short periods up to 130 °C)

The valve inserts are designed for the installation into the valve bodies of integrated distributors (e.g. panel radiators).

The valve inserts are presettable to suit the hydronic requirements of the heating system.

The hydronic values of the valve inserts GD correspond to the values of the inserts of the competitors.

The valve inserts are suitable for the thermostats "Uni XD", "Uni LD", "vindo TD" and "pinox D" (pages 1.13 - 1.14).

Presetting of the valve inserts GD and GDF is carried out by hand.

Attention: Filling and draining of the system before the valves are preset and the thermostat is mounted.

Please observe installation instructions!

The valve insert item no. 1018099 is suitable for the radiator types, e.g.:

-Arbonia (up to 2002)	-DiaNorm ¹	-Purmo ¹
-Baufa	-Dia-therm	-Radson ¹
-bremono	-HM-Heizkörper-Rettig ¹	
-DEF	-Hoval	-Runtal
-Demrad	-Manaut	

¹(up to end of 2010)

The valve inserts item no. 1018086 and 1018096 are suitable for the radiator types, e.g.:

-De Longhi (up to 2016)	-Thor	-Brugmann (up to 2013)
-Ribe	-VEHA	
-Brötje (since approx. 1994 up to approx. 2003)		

The valve inserts item no. 1018084 and 1018094 are suitable for the radiator types, e.g.:

-Brötje (since 2003)	-Ferroli/IMA-Schäfer	
-Caradon	-Henrad	-Superia (since 2005)
-DURA	-Korado	-Brugmann (since 2013)
-Vasco	-De Longhi (since 2016)	








(Subject to technical modifications of the radiator manufacturers)













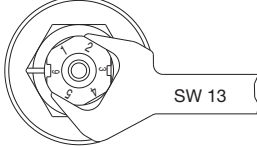




1.p Valve inserts

Content

Valve inserts for valves with connection thread M 30 x 1.5	1.114
Valve inserts for valves with connection thread M 30 x 1.0 (for valves manufactured up to 1998)	1.116

Article	kv at 2K P-dev.	Packing unit	Article-No.	Hint																																	
Valve inserts for valves with connection thread M 30 x 1.5																																					
	"AV 9, CV 9, RFV 9, E" and "Multiblock T-RTL" (manufactured since 2016)	0.67	(100) 1187047#	All valve inserts are replaceable with the help of the special tool "Demo-Bloc" without draining the system. Valve inserts for radiators with integrated distributors page 1.110. Also for "Hycocoon ETZ" (manufactured since 2016).																																	
	"AV 6, RFV 6, E" and "Multiblock T-RTL" (manufactured up to 2015)	0.65	(100) 1187057#	Also for "Hycocoon ETZ" (manufactured up to 2015 inclusive). #These valve inserts are suitable for all valve bodies with connection thread M 30 x 1.5 of all sizes of the thermostatic valves "A, AV 9, AQ, AV 6, ADV 9, ADV 6, CV 9, E, EQ, AF, RF, RFV 9, RFQ and RFV 6".																																	
	"A, RF" (DN 10 - DN 15, manufactured since 2015)	0.95	(100) 1187059#																																		
	"A" (manufactured since 2013) and "RF" (manufactured since 2014)	1.00 - 1.10	(100) 1187049#																																		
	"AF"	0.32	(100) 1187352#																																		
Distinctive features of the valves:																																					
<table border="1"> <thead> <tr> <th>Series</th> <th>Protection cap</th> <th>Gland nut (since end of 1993)</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>black</td> <td>unplated brass</td> </tr> <tr> <td>ADV 6</td> <td>grey-green</td> <td>grey-green</td> </tr> <tr> <td>ADV 9</td> <td>grey-green (3 frontal lugs)</td> <td>grey-green</td> </tr> <tr> <td>AF</td> <td>red</td> <td>red</td> </tr> <tr> <td>AQ/ EQ/ RFQ</td> <td>light grey</td> <td></td> </tr> <tr> <td>AV 9/ CV 9/ E</td> <td>white (3 frontal lugs)</td> <td></td> </tr> <tr> <td>AZ H</td> <td>orange</td> <td></td> </tr> <tr> <td>AZ V</td> <td>green</td> <td></td> </tr> <tr> <td>RF</td> <td>blue</td> <td>unplated brass</td> </tr> <tr> <td>RFV 9</td> <td>light green (3 frontal lugs)</td> <td></td> </tr> </tbody> </table>					Series	Protection cap	Gland nut (since end of 1993)	A	black	unplated brass	ADV 6	grey-green	grey-green	ADV 9	grey-green (3 frontal lugs)	grey-green	AF	red	red	AQ/ EQ/ RFQ	light grey		AV 9/ CV 9/ E	white (3 frontal lugs)		AZ H	orange		AZ V	green		RF	blue	unplated brass	RFV 9	light green (3 frontal lugs)	
Series	Protection cap	Gland nut (since end of 1993)																																			
A	black	unplated brass																																			
ADV 6	grey-green	grey-green																																			
ADV 9	grey-green (3 frontal lugs)	grey-green																																			
AF	red	red																																			
AQ/ EQ/ RFQ	light grey																																				
AV 9/ CV 9/ E	white (3 frontal lugs)																																				
AZ H	orange																																				
AZ V	green																																				
RF	blue	unplated brass																																			
RFV 9	light green (3 frontal lugs)																																				
	for thermostatic valves "AQ, RFQ, EQ", fittings "Multiblock TQ, TQ-RTL", and "Unibox TQ, Q plus"		(25) 1187065#																																		
	Replacement filter mesh for valve insert "QA"		Set = 10 replacement filter meshes	1187090																																	

Article	kv at 2K P-dev.	Packing unit	Article-No.	Hint
 "ADV 6"	0.65		1186001#	The double function of the "ADV 6" and "ADV 9" inserts provokes an automatic closing of the valve to 5 % of the nominal flow (frost protection) should the thermostat be removed or destroyed. Presetting as "AV 6" and "AV 9".
 "ADV 9"	0.67	(100)	1186002#	
 "PTB" and "Cocon 2TZ"	kvs = 0.45 P1 kvs = 1.0 P2 kvs = 1.8 P3	(100)	1186052# 1186053# 1186054	
 with stainless steel seat (especially for steam installations)		(100)	1186200#	
 Valve insert for three-way conversion valve with presetting		(100)	1187056	For three-way conversion valve item no. 1180584/85/86/87.
 "Combi LR" with cap		(100)	1187071	
 Special valve insert for reversed supply and return pipe for thermostatic valves "A, AV 9, AV 6, ADV 6, ADV 9, CV 9, E, AF, RF, RFV 9, RFV 6" without presetting	0.45	(100)	1187070#	
 Special valve insert for reversed supply and return pipe with infinitely adjustable presetting "AV9U"	0.57	(100)	1187078	As replacement for: - "Multiblock T/TU/TFU" - "Unibox E T" - "Unibox E plus" - "Unibox E vario" - "Unibox E BV" In case of reversed direction of flow for: - "Unibox T" - "Unibox TQ" - "Unibox plus" (connection for room temperature control) - "Unibox vario" (connection for room temperature control) - "Unibox Q plus" (connection for room temperature control)






Article	kv at 2K P-dev.	Packing unit	Article-No.	Hint
				Suitable for M 30 x 1.5 and M 30 x 1.0.
Gland nut for all valves (except for "AV 9, AV 6, CV 9, E, RFV 9, RFV 6, ADV 9, ADV 6, AQ, RFQ, EQ, A (manufactured since 2013), RF (manufactured since 2014) GH and GD")				
Wrench size 14 mm Set = 5 pieces		(10)	1017501	
				The presetting value can be adjusted with the help of the marking on the hexagon of the valve insert. The presetting key fits only in one position.
Presetting key (10) 1183961				
for valves "AV 6, ADV 6, RFV 6, E", fittings "Multiblock T/TU/TFU/T-RTL" (manufactured up to 2015) and valve inserts GH				
				
Alternatively, presetting can also be carried out with a spanner sized 13 mm.				
Valve inserts for valves with connection thread M 30 x 1.0 (for valves manufactured up to 1998)				
	"AZ"	1.10	(100) 1017060+	Also suitable for Ista radiator valves. Illustration of distinctive features: page 1.144.
+ These valve inserts are suitable for all valve bodies with connection thread M 30 x 1.0 of all sizes of the valves "A, AV 6, ADV 6, AZ, E, RF and RFV 6".				
	"A, E and RF"	0.95	(50) 1017069+	
	"AV 6 and RFV 6"	0.65	(25) 1017057+	
	"F"	0.32	(10) 1017351	

1.q Return temperature limiters

Content



Return temperature limiter valves for thermostat "Uni RTLH"	1.118
Thermostat "Uni RTLH"	1.118
Thermostat "Uni RTL"	1.118
Valve inserts	1.119
Extension	1.119
Gland nut	1.119
Return temperature limiter sets	1.120

Article	kv at 2K P-dev.	Packing unit	Article-No.	Hint
Return temperature limiter valves for thermostat "Uni RTLH"				
connection thread M 30 x 1.5 brass, nickel plated				
Reversed angle pattern valve for the return pipe				
	0.30	(25)	1024363	Application: Central heating systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ ÖNORM 5195). Combined radiator/surface heating. Max. operating pressure p_g : 10 bar (PN 10)
	0.30	(25)	1024364	
Straight pattern valve for the return pipe				
	0.30	(25)	1024463	Valve insert with double disc prevents inadvertent overheating, with frost protection. Compression fittings page 1.144, reinforcing sleeves page 1.147.
	0.30	(25)	1024464	
Thermostat "Uni RTLH"				
connection thread M 30 x 1.5				
	white	(25)	1027165	With '0' setting, may be limited or locked. Temperature range: 10 °C–40 °C factory setting (return temperature), may be increased to 50 °C by cancelling the limitation (40 °C).
	chrome plated	(25)	1027172	
	anthracite	(10)	1149068	With '0' setting, may be limited or locked. Temperature range: 10° C - 70 °C The thermostats "Uni RTLH" may also be used in combination with the pressure independent control valves "Cocon QTZ" (with distance piece 114909.) for the limitation of the return temperature in one pipe risers.
Thermostat "Uni RTL"				
connection thread M 30 x 1.0				
	white	(25)	1027100	With '0' setting, may be limited or locked. RTL valves with connection thread M 30 x 1.0 are no longer produced.

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

Valve inserts



for return flow valves
connection thread M 30 x 1.5

(100) **1026981**

Valve insert with double disc.
Prevents inadvertent overheating,
with frost protection.

Extension
L = 20 mm



for RTLH valves

(10) **1022699**

For "Unibox RTL", "Unibox vario", "Unibox TQ"
and "Unibox Q plus".

Gland nut
for all RTLH valves



Set = 5 pieces

(10) **1026986**

Article	kv at 2K P-dev.	Article-No.	Hint
---------	-----------------------	-------------	------

Return temperature limiter sets

Reversed angle connection
consisting of:



Reversed angle pattern valve for the return pipe and
thermostat "Uni RTLH"

DN 15 0.30 **1028364**

Packed as a set.
Valve and thermostat RTLH.
Temperature range:
10 °C–40 °C factory setting (return
temperature), may be increased to 50 °C by
cancelling the limitation (40 °C).

Straight pattern connection
consisting of:



Straight pattern valve for the return pipe and
thermostat "Uni RTLH"

DN 15 0.30 **1028464**

For further information see
"Technical information":










1.r Manual radiator valves

Content



Manual radiator valves "HRV"	1.122
Manual radiator valves "HR"	1.122







Article	kvs	Packing unit	Article-No.	Hint
Manual radiator valves "HRV" presetting by using the stem manual head white				<p>Application: Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).</p> <p>Max. operating pressure p_s: 10 bar (PN 10) Operating temperature t_s: 2 °C up to 120 °C (for short periods up to 130 °C) Steam 0.5 bar, 110 °C.</p> <p>Lengths according to DIN EN 215. The protection cap (as delivered) protects the handwheel against damages. The manual radiator valve is suitable for subsequent conversion to thermostatic operation by replacing the manual head.</p> <p>The valves are suitable for installation with copper pipes.</p> <p>Compression fittings page 1.144, compression fittings for valves with reduced dimensions page 3.49, reinforcing sleeves page 1.147.</p> <p>Valves with reduced dimensions are not suitable in combination with the female threaded compression fittings "Cofit S".</p>
Angle pattern valve				
	DN 10	3.20	(25) 1191503	
	DN 15	3.20	(25) 1191504	
	DN 20	3.20	(25) 1191506	
reduced dimensions, as thermostatic valves "RF"				
	DN 10	3.20	(25) 1194503	
	DN 15	3.20	(25) 1194504	
	DN 20	3.20	(25) 1194506	
Straight pattern valve				
	DN 10	1.70	(25) 1191603	
	DN 15	1.70	(25) 1191604	
	DN 20	2.30	(25) 1191606	
reduced dimensions, as thermostatic valves "RF"				
	DN 10	1.70	(25) 1194603	
	DN 15	1.70	(25) 1194604	
	DN 20	2.30	(25) 1194606	
Manual radiator valves "HR" white handwheel				<p>No subsequent conversion to thermostatic operation.</p> <p>Lengths according to DIN 3842. Protection cap (as delivered) protects the handwheel against damages.</p> <p>For further information see "Technical information":</p> 
Angle pattern valve				
	DN 10	1.45	(25) 1190503	
	DN 15	1.45	(25) 1190504	
	DN 20	1.45	(25) 1190506	
Straight pattern valve				
	DN 10	1.20	(25) 1190603	
	DN 15	1.20	(25) 1190604	
	DN 20	1.20	(25) 1190606	

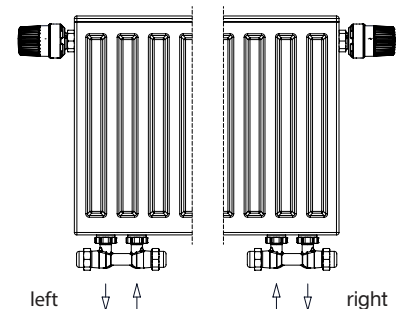
1.s "Q-Tech" Fittings for automatic hydronic balancing

Content



"Multiflex FQ" Fittings for G 1/2 female thread	1.124
"Multiflex FQ" Fittings for G 3/4 male thread	1.124

Article	Packing unit	Article-No.	Hint
<p>"Multiflex FQ" Fittings for G 1/2 female thread brass connection fitting with "Q-Tech" for automatic hydronic balancing, soft sealing, flat sealing, nickel plated, for radiators with integrated distributor G 1/2 female thread</p>			
<p>Straight pattern</p>			
	G 1/2 male x G 3/4 male	(5) 1015873	<p>Fitting with "Q-Tech" and isolating facility for radiators with integrated distributor.</p> <p>Application: Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195). Max. operating pressure p_s: 10 bar (PN 10) Operating temperature t_s: 2 °C up to 110 °C Flow range: 10 - 170 l/h</p>
<p>Angle pattern Left hand side connection</p>			
	G 1/2 male x G 3/4 male	(5) 1015874	<p>The volume flow for the radiator determined in the heat demand calculation can be set directly at the fitting. The volume flow is automatically limited to the set value (automatic hydronic balancing). Even if differential pressure variations occur in the heating system, the flow rate is constantly maintained within the necessary proportional band.</p>
<p>Angle pattern Right hand side connection</p>			
	G 1/2 male x G 3/4 male	(5) 1015875	<p>Setting is carried out by using the presetting key supplied with the fittings. Isolation is carried out with the help of an Allen key.</p>
<p>"Multiflex FQ" Fittings for G 3/4 male thread brass connection fitting with "Q-Tech" for automatic hydronic balancing, soft sealing, flat sealing, nickel plated, for radiators with integrated distributor G 3/4 male thread</p>			
<p>Straight pattern</p>			
	G 3/4 c/nut x G 3/4 M	(5) 1015803	<p>The nipples supplied with the fittings are self sealing.</p> <p>The fittings are not suitable for steam installations.</p> <p>For further information see chapter "Fittings for radiators with integrated distributor": page 1.126</p>
<p>Angle pattern Left hand side connection</p>			
	G 3/4 c/nut x G 3/4 M	(5) 1015804	<p>An existing angle pattern fitting for left hand side connection can be converted to a "Multiflex FQ" fitting for right hand side connection by swapping the valve insert and the isolating insert and vice versa.</p>
<p>Angle pattern Right hand side connection</p>			
	G 3/4 c/nut x G 3/4 M	(5) 1015805	<p>For the connection of copper, precision steel, stainless steel and plastic pipes as well as the Oventrop composition pipe "Copipe", the Oventrop compression fittings are to be used, page 1.144.</p> <p>Alternatively, the compression fittings of other manufacturers which are suitable for the connection to G 3/4 male thread according to DIN EN 16313 (cone "Euro") may also be used.</p>












1.t Fittings for radiators with integrated distributor

Content



"Multiflex F" Fittings for G 1/2 female thread	1.126
"Multiflex F" Fittings for G 3/4 male thread	1.128
Radiator connection	1.129
Inversion fittings	1.129
Connection fittings	1.130
Plastic rosette cover, white	1.130

Article	Packing unit	Article-No.	Hint
"Multiflex F" Fittings for G ½ female thread brass connection fittings, soft sealing , flat sealing, nickel plated, for radiators with integrated distributor G ½ female thread			The connection of the fitting to the radiator is soft sealing. Self sealing nipples are supplied with each fitting. Application: Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195). Max. operating pressure p_s : 10 bar (PN 10) Operating temperature t_s : 2 °C up to 120 °C (for short periods up to 130 °C) The counterpart (thread of the distributor) of the self sealing nipple has to be equipped with a bevel (without burrs) in order not to damage the ring gasket. Soft seal between connection fitting and nipple. The connection fittings for G ½ female thread are suitable for radiators with integrated distributor of the following manufacturers: Agis, Alarko, Arbonia, Baykan, Bemm, Biasi, Borer, Bremono, Caradon-Stelrad, Celikpan, Concept, Cöskünöz, DEF, Delta, Demrad, DiaNorm, Dia-therm, Dunafer, DURA, Ferroli, HM-Galant, Henrad, Hoval, Hudevad, IMAS, Itemar, Jugoterm, Korado, Manaut, Quinn, Purmo, Radson, Runtal, Schäfer, Starpan, Stelrad, Superia, TermoTeknik, Thor, US-Steel, Vasco, VEHA, Zehnder, Zenith. (Subject to change without notice). The ZB fittings (two pipe block) are used for radiators with integrated distributor for two pipe systems.
Combinations distance between pipe centres 50 mm			
	ZB isolating fitting for two pipe systems	G ½ male x G ¾ male (10) 1015883#	
	ZB angle pattern isolating fitting for two pipe systems	G ½ male x G ¾ male (10) 1015884#	
	Design cover for ZB isolating and angle pattern isolating fittings, item no. 1015813/14/83/84, white	(5) 1015896	
	ZB isolating fitting for two pipe systems, pivoting	G ½ male x G ¾ male (10) 1015781	
	ZBU preset isolating fitting for two pipe systems for filling and draining	G ½ male x G ¾ male (10) 1015993	
	ZBU angle pattern preset isolating fitting for two pipe systems for filling and draining	G ½ male x G ¾ male (10) 1015994	
	CEW preset isolating fitting for one pipe systems for filling and draining	G ½ male x G ¾ male (10) 1015933	
	CEW angle pattern preset isolating fitting for one pipe systems for filling and draining	G ½ male x G ¾ male (10) 1015934	
	Single fittings Isolating fitting "Combi 3"	G ½ male x Rp ½ female (25) 1016175 G ½ male x G ¾ male (25) 1016177	

Isolation with limit stop

The ZBU fittings (two pipe block, convertible) can be used for two pipe systems (**as supplied**) or for one pipe systems. If used in one pipe systems, the bypass stem has to be adjusted according to the enclosed installation instructions.

The CEW fittings can be used for one pipe operation (like ZBU fittings but preset to one pipe operation with a radiator share of 35 %) or for two pipe operation.

The Oventrop compression fittings are to be used, page 1.146.

Alternatively, the compression fittings of other manufacturers which are suitable for the connection to male thread G ¾ according to DIN EN 16313 (cone "Euro") may also be used.

"Combi 3" for presetting, isolating, filling and draining.

Service tool item no. 1090551, page 1.128.

Fittings with Rp ½ female thread are not suitable for compression fittings (only for threaded pipes).

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------










Angle pattern isolating fitting "Combi 3"

G 1/2 male x Rp 1/2 female	(25)	1016575	
G 1/2 male x G 3/4 male	(25)	1016577	

Article	Packing unit	Article-No.	Hint
"Multiflex F" Fittings for G 3/4 male thread brass connection fittings, soft sealing , flat sealing, nickel plated, for radiators with integrated distributor G 3/4 male thread according to DIN EN 16313 (cone "Euro")			The connection of the fitting to the radiator is soft sealing. Self sealing inserts are supplied with each fitting. Application: Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195). Max. operating pressure p_s : 10 bar (PN 10) Operating temperature t_s : 2 °C up to 120 °C (for short periods up to 130 °C) The connection fittings for G 3/4 male thread are suitable for radiators with integrated distributor of the following manufacturers: Baufa, Brötje, Brugman, Buderus, De 'Longhi, Kermi, Radel, Ribe, Vogel + Noot. (Subject to change without notice). The ZB fittings (two pipe block) are used for radiators with integrated distributor for two pipe systems. # Isolation with limit stop The ZBU fittings (two pipe block, convertible) can be used for two pipe systems (as supplied) or for one pipe systems. If used in one pipe systems, the bypass stem has to be adjusted according to the enclosed installation instructions. The Oventrop compression fittings are to be used, page 1.146. Alternatively, the compression fittings of other manufacturers which are suitable for the connection to male thread G 3/4 according to DIN EN 16313 (cone "Euro") may also be used. The presetting of the fittings is carried out with the help of a 4 mm Allen key. "Combi 3" for presetting, isolating, filling and draining. Fittings with Rp 1/2 female thread are not suitable for compression fittings (only for threaded pipes). For further information see "Technical information":
Combinations distance between pipe centres 50 mm			
ZB isolating fitting for two pipe systems			
	G 3/4 collar nut x G 3/4 male	(10) 1015813#	
ZB angle pattern isolating fitting for two pipe systems			
	G 3/4 collar nut x G 3/4 male	(10) 1015814#	
Design cover for ZB isolating and angle pattern isolating fittings, item no. 1015813/14/83/84, white			
		(5) 1015896	
ZB isolating fitting for two pipe systems, pivoting			
	G 3/4 collar nut x G 3/4 male	(10) 1015711	
ZBU preset isolating fitting for two pipe systems for filling and draining			
	G 3/4 collar nut x G 3/4 male	(10) 1015943	
ZBU angle pattern preset isolating fitting for two pipe systems for filling and draining			
	G 3/4 collar nut x G 3/4 male	(10) 1015944	
Single fittings Isolating fitting "Combi 3"			
	G 3/4 collar nut x Rp 1/2 female	(25) 1016166	
	G 3/4 collar nut x G 3/4 male	(25) 1016168	
Angle pattern isolating fitting "Combi 3"			
	G 3/4 collar nut x Rp 1/2 female	(25) 1016567	
	G 3/4 collar nut x G 3/4 male	(25) 1016569	
Service tool		1090551	
			



Article	Packing unit	Article-No.	Hint
Radiator connection			
"Multimodul" Radiator connection			
		1015651	<p>The radiator connection module "Multimodul" allows for the installation and operation of the heating system without radiators during the construction period. The module is suitable for one and two pipe heating systems and has isolating, draining, filling and presetting facilities.</p> <p>The module is supplied with a wall installation box with white cover (RAL 9010), connecting pipes, compression fittings and a protection cover made of Styrofoam.</p>
Inversion fittings			
brass, nickel plated, for reversed supply and return pipe, for two pipe heating systems, for radiators with integrated distributor			
with isolating facility distance between pipe centres 50 mm			
		(10) 1016363	
angle pattern, with isolating facility distance between pipe centres 50 mm			
		(10) 1016463	
with isolating facility distance between pipe centres 50 mm			
		(10) 1016362	
with isolating facility upper distance between pipe centres 50 mm lower distance between pipe centres 40 mm			
		(10) 1016372	Two nipples G 1/2 M x G 3/4 M are included in the delivery.
angle pattern, with isolating facility distance between pipe centres 50 mm			
		(10) 1016462	
Bridging fitting distance between pipe centres 50 mm			
		(10) 1016452	For bridging-over the supply and the return pipe in case of subsequent installation of radiators.









Article	Packing unit	Article-No.	Hint
Connection fittings brass			For "Multiflex V" fittings. Effective length: 15.5 mm
	Insert as set = 2 pieces for cone according to DIN EN 16313 (cone "Euro")	(50) 1661100	For "Multiflex F", "Multiblock T/TU/TFU/TQ/T-RTL/TQ-RTL", "Cocon QTZ" and "Optibal W6" DN 15 with G 3/4 male threaded connection. Suitable for flat sealing tailpipes.
	Distance piece, nickel plated Set = 2 pieces G 3/4 female x G 3/4 male	(100) 1681650	For fittings "Multiflex F". Useable length: 15.5 mm Compression fittings, 2-fold, page 1.146. G 3/4 male thread side with tapered sealing according to DIN EN 16313 (cone "Euro").
	Nipple, unplated one port self sealing Set = 10 pieces		
	G 1/2 male x G 3/4 male	(10) 1028252	For "Multiflex F", "Multiblock T/TU/TFU/TQ/T-RTL/TQ-RTL". Port G 3/4 flat sealing.
	G 1/2 male x G 3/4 male	(10) 1028253	For "Multiflex V", port G 3/4 with tapered sealing according to DIN EN 16313 (cone "Euro").
	Nipple, nickel plated G 1/2 male x G 3/4 male	(10) 1028161	Port G 3/4 with tapered sealing according to DIN EN 16313 (cone "Euro"). Port G 1/2 self sealing.
	Double nipple, brass, nickel plated G 3/4 male x G 3/4 male	(10) 1028263	Port G 3/4 with tapered sealing according to DIN EN 16313 (cone "Euro").
Plastic rosette cover, white flat, distance between pipe centres 50 mm			For "Bypass-Combi" distributors, valves with insertion tube, two pipe connection pieces from page 1.91, "Multiblock T/TU/TFU/TQ" from page 1.80 and "Multiflex" fittings from page 1.126.
	Distance between pipe centres 50 mm Perforation		
	12 mm	(25) 1016671	
	14 mm	(25) 1016672	
	15 mm	(25) 1016673	
	16 mm	(25) 1016674	
	18 mm	(25) 1016675	
	for pipe diameters 10, 12, 15, 16, 18, 20 mm, distance between pipe centres 50 mm	(25) 1016662	
Single fitting			Fittings with Rp 1/2 female thread are not suitable for compression fittings (only for threaded pipes).
	Fitting G 3/4 collar nut x Rp 1/2 female	(25) 1016304	







1.u Lockshield valves for conventional radiators







Content



"Combi 4"	1.132
"Combi C"	1.132
"Combi 3"	1.133
"Combi 2"	1.134
"Combi LR"	1.134

Article	kvs	Packing unit	Article-No.	Hint
"Combi 4" presetting with memory lock, isolating, filling and draining				
Bronze/brass model, female thread according to EN 10226-1 Angle pattern nickel plated				
	DN 10	1.70	(25) 1090661	Application: Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195). Max. operating pressure p_g : 10 bar (PN 10) Operating temperature t_g : 2 °C up to 120 °C (for short periods up to 130 °C) Lengths according to DIN 3842 (except for item no. 1090672 und 1090772). All lockshield valves are also suitable for the installation with copper pipes.
	DN 15	1.70	(25) 1090662	
	DN 20	1.70	(10) 1090663	
	DN 15	1.70	(25) 1090672	The lockshield valves DN 15 may be connected to the Oventrop composition pipe "Copipe". Compression fittings page 1.144, reinforcing sleeves page 1.147.
	G 3/4 male thread x G 1/2 male thread			
Straight pattern nickel plated				
	DN 10	1.70	(25) 1090761	The lockshield valves item no. 1090662 and 1090762 are self sealing.
	DN 15	1.70	(25) 1090762	
	DN 20	1.70	(10) 1090763	
	DN 15	1.70	(25) 1090772	For further information see "Technical information": 
	G 3/4 male thread x G 1/2 male thread			
"Combi C" presetting with memory lock, isolating, filling and draining				
Angle pattern chrome plated				
	DN 15	1.70	(25) 1164554	Application: Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195). Max. operating pressure p_g : 10 bar (PN 10) Operating temperature t_g : 2 °C up to 120 °C (for short periods up to 130 °C) Technical data as "Combi 4". Lengths according to DIN 3842.
Straight pattern chrome plated				
	DN 15	1.70	(25) 1165554	All lockshield valves are suitable for the installation with copper pipes. Compression fittings page 1.144, reinforcing sleeves page 1.147.
	Service tool		1090551	

Article	kvs	Packing unit	Article-No.	Hint
<p>"Combi 3" presetting, isolating, filling and draining bronze/brass model, female thread according to EN 10226-1 with female threaded pipe connection</p>				<p>Application: Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195). Max. operating pressure p_s: 10 bar (PN 10) Operating temperature t_s: 2 °C up to 120 °C (for short periods up to 130 °C) Lengths according to DIN 3842.</p> <p>All lockshield valves are also suitable for the installation with copper pipes.</p> <p>The lockshield valves DN 15 may be connected to the Oventrop composition pipe "Copipe".</p> <p>Compression fittings page 1.144, reinforcing sleeves page 1.147.</p> <p>Press connection: For the direct connection of copper pipes according to DIN EN 1057/DVGW GW 392, stainless steel pipes according to DIN EN 10088/DVGW GW 541 and thin-walled C-steel pipe (material no. E 195/1.0034) according to DIN EN 10305-3. Pressing must be carried out to tighten the connection. Only use press jaws with the original contours SANHA (SA), Geberit- Mapress (MM) or Viega (Profipress) in corresponding size. Processing must be carried out according to the installation instructions.</p> <p>For further information see "Technical information":</p> 
<p>Angle pattern nickel plated</p>				
	DN 10	1.70	(25) 1090361	
	DN 15	1.70	(25) 1090362	
	DN 20	1.70	(10) 1090363	
<p>Straight pattern nickel plated</p>				
	DN 10	1.70	(25) 1090461	
	DN 15	1.70	(25) 1090462	
	DN 20	1.70	(10) 1090463	
<p>with press connection for copper, stainless steel and C-steel pipe Ø 15 mm Angle pattern nickel plated</p>				
	DN 15	1.70	(25) 1090374	
<p>Straight pattern nickel plated</p>				
	DN 15	1.70	(25) 1090474	
	Service tool		1090551	

Article	kvs	Packing unit	Article-No.	Hint
"Combi 2" presetting, isolating brass model, female thread according to EN 10226-1				<p>Application: Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195). Max. operating pressure p_s: 10 bar (PN 10) Operating temperature t_s: 2 °C up to 120 °C (for short periods up to 130 °C)</p> <p>Lengths according to DIN 3842 (except for item no. 1091072 and 1091172) .</p> <p>All lockshield valves are also suitable for the installation with copper pipes.</p> <p>The lockshield valves DN 15 may be connected to the Oventrop composition pipe "Copipe".</p> <p>Compression fittings page 1.144, reinforcing sleeves page 1.147.</p> <p>The lockshield valves item no. 1091072 and 1091172 are self sealing.</p>
Angle pattern nickel plated				
	DN 10	1.70	(25) 1091061	
	DN 15	1.70	(25) 1091062	
	DN 20	1.70	(10) 1091063	
DN 15 1.70 (25) 1091072 G 3/4 male thread x G 1/2 male thread				
				
Straight pattern nickel plated				
	DN 10	1.70	(25) 1091161	
	DN 15	1.70	(25) 1091162	
	DN 20	1.70	(10) 1091163	
DN 15 1.70 (25) 1091172 G 3/4 male thread x G 1/2 male thread				
				
"Combi LR" presetting, isolating brass model, female thread according to EN 10226-1				
Angle pattern nickel plated				
	DN 10	3.50	(25) 1027562	
	DN 15	4.50	(25) 1027564	
	DN 20	4.50	(10) 1027566	
	DN 25	4.50	(10) 1027568	
Straight pattern				
	DN 10	1.80	(25) 1027662	
	DN 15	1.80	(25) 1027664	
	DN 20	2.40	(10) 1027666	
	DN 25	3.20	(10) 1027668	



1.v Distributors/collectors

Content

"Multidis SH" Stainless steel distributor/collector	1.136
Ball valves	1.136
Flush-mounted cabinets	1.137
Ring spanner	1.137
Floor distributor/collector	1.137

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

"Multidis SH" Stainless steel distributor/collector for radiator connection
flat sealing



for 2 circuits		1407152	
for 3 circuits		1407153	
for 4 circuits		1407154	
for 5 circuits		1407155	
for 6 circuits		1407156	
for 7 circuits		1407157	
for 8 circuits		1407158	
for 9 circuits		1407159	
for 10 circuits		1407160	
for 11 circuits		1407161	
for 12 circuits		1407162	

Application:

Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).

Max. operating pressure p_s : 10 bar (PN 10)

Max. operating temperature t_s : 100 °C

Description:

Pre-assembled distributor/collector.

Flow distributor and supply collector with vent plugs and terminal caps.

Heating circuit connections G $\frac{3}{4}$ male thread according to DIN EN 16313 (cone "Euro") for Oventrop compression fittings.

Brackets (loosely added) sound-absorbing as per DIN 4109 standard.

Ball valves

flat sealing



G $\frac{3}{4}$ F x G 1 M	(10)	1406383
G 1 F x G 1 M	(10)	1406384

flat sealing, with thermometer (0–80°C)
with red T-handle



G $\frac{3}{4}$ F x G 1 M		1406483
G 1 F x G 1 M		1406484

flat sealing, with thermometer (0–80°C)
with blue T-handle



G $\frac{3}{4}$ F x G 1 M		1406583
G 1 F x G 1 M		1406584

flat sealing,
with sensor connection M 10 x 1.0

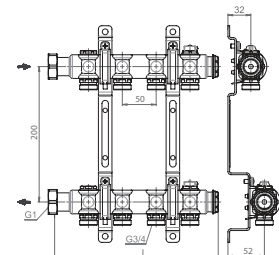


G 1 F x G 1 M	(10)	1406708
---------------	------	----------------

with cone "Euro"



G $\frac{3}{4}$ male x G $\frac{3}{4}$ collar nut	(50)	1406504
---	------	----------------



Circuits	Length (L)	Length (L) with ball valve	Length (L) with ball valve 1406384
2	142 mm	197 mm	222 mm
3	192 mm	247 mm	272 mm
4	242 mm	297 mm	322 mm
5	292 mm	347 mm	372 mm
6	342 mm	397 mm	422 mm
7	392 mm	447 mm	472 mm
8	442 mm	497 mm	522 mm
9	492 mm	547 mm	572 mm
10	542 mm	597 mm	622 mm
11	592 mm	647 mm	672 mm
12	642 mm	697 mm	722 mm

For further information see
"Technical information".

Ball valve for the isolation of the heating circuits at the distributor/collector. Heating circuit connection G $\frac{3}{4}$ male thread according to DIN EN 16313 (cone "Euro") for Oventrop compression fittings. Distributor/collector connection with collar nut G $\frac{3}{4}$ and O-ring seal.

Article Article-No. Hint

Flush-mounted cabinets

steel, galvanised, frame and doors white lacquered
removable screen



No. 1: inner width: 560 mm **1401151**
No. 2: inner width: 700 mm **1401152**
No. 3: inner width: 900 mm **1401153**
No. 4: inner width: 1200 mm **1401154**

Depth: 115 - 180 mm
Height: 760 - 885 mm
To be used for the following distributors/collectors:

S	No. °°	S + B	No. °°
8 circuits	1	7 circuits	1
11 circuits	2	10 circuits	2
12 circuits	3	12 circuits	3

°° No. of the cabinets

Distributor/collector for radiator connection:
S = stainless steel distributor/collector without ball valves
S + B = stainless steel distributor/collector with ball valves

Ring spanner



Spanner size 30/32 **1401091**

For the installation of the compression fittings.

Floor distributor/collector with heat meter connections



for 2 dwelling units **1408652**
for 3 dwelling units **1408653**
for 4 dwelling units **1408654**
for 5 dwelling units **1408655**

Application:
The floor distributor/collector with heat meter connections is used for the distribution and isolation of the volume flows on each floor to the individual dwelling units.

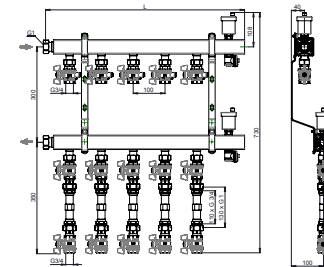
The heat meter connection sets allow for the installation of heat meters for the registration of the heat consumption of the individual dwellings.

consisting of:

- Flow distributor and return collector with G 1 and G ¾ connections (flat sealing with collar nuts)
- Airvent, fill and drain valves, ring gaskets
- Heat meter connection sets
- Double bracket

The components have to be assembled on site.

Dimensions/connection sizes:



Lengths of the floor distributors/collectors:
























Item no.	No. of dwelling units	Length (L)
1408652	2	325 mm
1408653	3	425 mm
1408654	4	525 mm
1408655	5	625 mm

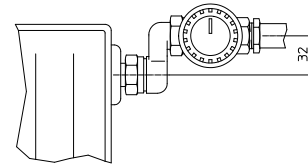
1.w Conversion fittings/Accessories for radiators

Content



Conversion fittings	1.140
Strainer inserts	1.141
Accessories for radiators	1.142

Article	Packing unit	Article-No.	Hint
Conversion fittings brass, nickel plated, with tapered sealing for thermostatic and manual valves			
S-connection fitting			
	(G 3/4 male thread x G 3/4 collar nut)	(10) 1019204	
Length compensating tail (short)			
	DN 10 G 3/8 male thread	(25) 1019003	
	DN 15 G 1/2 male thread	(25) 1019004	
	DN 20 G 3/4 male thread	(25) 1019006	
Length compensating tail (medium)			
	DN 15 R 1/2 male thread	(25) 1019052	
Length compensating tail (long)			
	DN 10 G 3/8 male thread	(20) 1019103	
	DN 15 G 1/2 male thread	(20) 1019104	
	DN 20 G 3/4 male thread	(10) 1019106	
Reducer			
	G 1 F x G 1/2 M	(10) 1019251	
	G 1 F x G 3/4 M	(10) 1019252	
	G 1 1/4 F x G 1/2 M	(10) 1019253	
	G 1 1/4 F x G 3/4 M	(10) 1019254	
Reducing coupling			
	DN 10 (G 3/8 c/nut x R 1/2 M)	(25) 1019351	
Reducing tail			
	DN 20 (G 1/2 male thread)	(25) 1019352	
	DN 25 (G 1/2 male thread)	(25) 1019353	
Coupling			
	DN 10 (G 3/8 c/nut x R 3/8 M)	(50) 1019303	
	DN 15 (G 3/4 c/nut x R 1/2 M)	(50) 1019304	
	DN 20 (G 1 c/nut x R 3/4 M)	(50) 1019306	
	DN 25 (G 1 1/4 c/nut x R 1 M)	(50) 1019308	
self sealing, with threaded ring gasket			
	DN 15 (G 3/4 c/nut x G 1/2 M)	(50) 1019362	
self sealing with O-ring			
	DN 15 (G 3/4 c/nut x G 1/2 M)	(25) 1019372	
Elbow			
	DN 15 (G 1/2 M x G 3/4 c/nut)	(25) 1019365	
Compensation fitting for lower connection			
	G 3/4 c/nut x G 3/4 M	(10) 1019451	



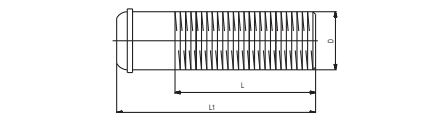
The S-connection fittings (protection of registered design) are suitable for the replacement of radiators using existing pipework. The max. distance between pipe centres is $2 \times 32 \text{ mm} = 64 \text{ mm}$ (no sealing required).

In combination with double angle pattern valves, the coupling item no. 1019304 has to be used in addition.

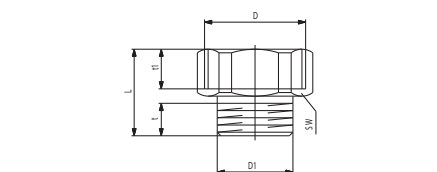


	D	L	L ₁
G 3/8	9	21	
G 1/2	10	23	
G 3/4	11	25	

	D	L	L ₁
R 1/2	13.2	43	
DIN EN 10 226-1			



	D	L	L ₁
G 3/8	55	75	
G 1/2	55	75	
G 3/4	50	70	












Dim.	D	D ₁	L	t	t ₁	SW*
1" x 1/2"	G 1	G 1/2	26	9	11	38
1" x 3/4"	G 1	G 3/4	27	10	11	38
1 1/4" x 1/2"	G 1 1/4	G 1/2	28	9	13	46
1 1/4" x 3/4"	G 1 1/4	G 3/4	29	10	13	46

* SW = spanner size

Especially suitable for "Bypass-Combi" (pages 1.90 and 1.92) if a straight pattern valve shall be used instead of an angle pattern valve.

Axle distance 11.5 mm, H = 43 mm, both ports with tapered sealing.

Article	Packing unit	Article-No.	Hint
Strainer inserts			
plastic			
			For the conversion of old installations in order to avoid a malfunction due to coarse impurity (deposits).
DN 10	($\frac{3}{8}$)	(50) 1019903	
DN 15	($\frac{1}{2}$)	(50) 1019904	
DN 20	($\frac{3}{4}$)	(25) 1019906	
DN 25	(1)	(25) 1019908	
Cap with washer and fixing loop			
			Female thread of the cap
DN 10		(10) 1010999	G $\frac{5}{8}$, without fixing chain
DN 15		(50) 1034052	G $\frac{3}{4}$, also for "Optiflex" DN 10
DN 20		(25) 1034053	G 1
DN 25		(25) 1034008	G 1 $\frac{1}{4}$



Article	Packing unit	Article-No.	Hint
Accessories for radiators			Application: Central heating systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195). Max. operating pressure p_s : 10 bar (PN 10) Operating temperature t_s : 2 °C up to 120 °C
	Vent plug brass, nickel plated		
	for panel radiators with rotating water outlet self sealing		
	G 3/8 male thread	(100) 1101603	
	G 1/2 male thread	(10) 1101604	
	Blind plugs brass		
	G 1/8 male thread	(100) 1100101	
	G 1/4 male thread	(100) 1100102	
	G 3/8 male thread	1100103	
	G 1/2 male thread	(50) 1100104	
	brass, nickel plated self sealing		Max. operating pressure p_s : 10 bar (PN 10) Operating temperature t_s : 2 °C up to 100 °C
	G 3/8 male thread	(100) 1101703	
	G 1/2 male thread	(10) 1101704	
	G 3/4 male thread	(50) 1101706	
	Keys suitable for item no. 10376.. and 10380.. (6 mm square)		
	for all sizes	(10) 1103051	
	suitable for item no. 1101603 and 1101604 (5 mm square)		
	for all sizes	(10) 1103151	
	Venting screw brass		
	G 1/8 male thread	(25) 1109001	
	G 1/4 male thread	(25) 1109002	
	G 3/8 male thread	(25) 1109003	
	Drain valve self sealing, with rotating outlet made of brass resistant to dezincification Set = 10 pieces Handwheel and outlet anthracite		Max. operating pressure: p_s : 10 bar (PN 10) Max. operating temperature t_s : 100 °C With nipple for 3/8 hose. Seal made of EPDM. For filling and deaeration, for use at radiators. Also suitable for valves and components of surface heating and potable water systems.
	G 1/4 male thread	(10) 1102002	
	G 3/8 male thread	(10) 1102003	
	G 1/2 male thread	(10) 1102004	











1.x Connection system



Content

"Ofix" Compression fittings	1.144
"Ofix" Compression fittings (2-fold)	1.146
"Cofit S" Compression fittings	1.147
Summary	1.148
Installation examples	1.149
"Ofix" for the connection of standard pipes to Oventrop valves and controls	1.150
Brass reinforcing sleeves	1.147

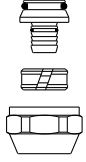
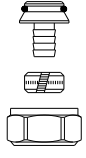
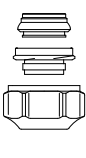
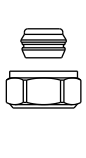

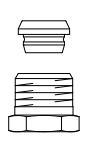
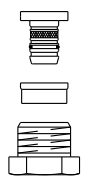
Article	Packing unit	Article-No.	Hint
"Ofix" Compression fittings brass			For the connection of Oventrop radiator fittings (except for single fittings "Multiflex" with female thread Rp 1/2) to the pipework.
for female thread "Ofix CEP" for copper pipes according to DIN EN 1057 compression nut nickel plated, metal to metal sealing			
		G 3/8 x 10 mm (10) 1027151	Application: Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195). Max. operating pressure p _s : 10 bar (PN 10) Operating temperature t _s : 2 °C up to 120 °C
		G 3/8 x 12 mm (10) 1027152	
		G 3/4 x 18 mm (10) 1027157	
		G 3/4 x 22 mm (10) 1027158	
		G 1/2 x 10 mm (10) 1028152	Compression fittings for female thread (item no. 1028152 up to 56) not suitable for thermostatic valves "RF/RFV 6/RFV 9/RFQ", manual valves "HRV" with reduced dimensions and return temperature limiter valves. Compression fittings for above valves: page 3.49
		G 1/2 x 12 mm (10) 1028153	
		G 1/2 x 14 mm (10) 1028154	
		G 1/2 x 15 mm (10) 1028155	
		G 1/2 x 16 mm (10) 1028156	Attention: When installing copper pipes with a wall thickness of ≤ 1 mm, it is necessary to use reinforcing sleeves for the additional stabilisation of the pipe. Should the wall thickness exceed 1 mm, please contact the pipe manufacturer. Reinforcing sleeves for wall thickness = 1 mm: page 1.147. Exception: Reinforcing sleeves are not required for soft sealing compression fittings. Note: The pipes are not held by the soft sealing fitting, they have to be fixed additionally. Regarding stretching of the pipe ends, the instructions of the pipe manufacturers have to be observed.

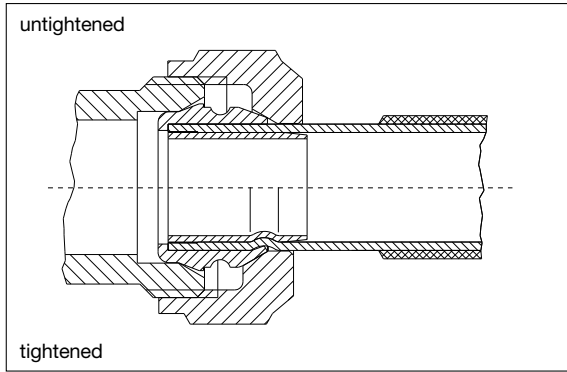
Article	Packing unit	Article-No.	Hint
	for G 3/4 male thread according to DIN EN 16313 (cone "Euro") "Ofix CEP" for copper pipes according to DIN 1057 collar nut nickel plated, metal to metal sealing		For the connection of radiator fittings with male thread G 3/4 according to DIN EN 16313 (cone "Euro") to the pipework. Application: Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195). Max. operating pressure p _s : 10 bar (PN 10) Operating temperature t _s : 2 °C up to 120 °C
	10 mm	(10) 1027472	
	12 mm	(10) 1027473	
	14 mm	(10) 1027474	
	15 mm	(10) 1027475	
	16 mm	(10) 1027476	
	"Ofix CEP" – Snap & Seal – for copper pipes according to DIN EN 1057, precision steel pipes according to DIN EN 10305-1/2 and stainless steel pipes, collar nut nickel plated, with double compression ring function, one-piece pre-assembled, soft sealing (no reinforcing sleeves required)		Max. operating pressure p _s : 10 bar (PN 10) Operating temperature t _s : 2 °C up to 95 °C The "Ofix CEP" compression fittings - Snap & Seal - can also be used with galvanised steel pipes (DIN EN 10305-3): – Geberit, Mapress C-steel system pipe (galvanised from outside) – Seppelfricke, XPress C-steel pipe (galvanised from outside) – Simplex, VSH C-steel pipe (galvanised from outside) – Viega, Prestabo steel pipe (galvanised from outside)
	10 mm	(10) 1027440	
	12 mm	(10) 1027441	
	14 mm	(10) 1027442	
	15 mm	(10) 1027443	
	16 mm	(10) 1027444	
	"Ofix K" for plastic pipes according to DIN 4726, PE-X according to DIN 16892/16893, PB according to DIN 16968, PP according to DIN 8078 A1, collar nut nickel plated , metal to metal sealing plus O-ring		The permissible operating pressures and operating temperatures depend on the application classes of the respective standards of the plastic pipework systems (e.g. PE-X, DIN EN ISO 15875).
	12 x 1.1 mm	(10) 1027768	
	12 x 2 mm	(10) 1027752	
	14 x 2 mm	(10) 1027755	
	16 x 1.5 mm	(10) 1027767	
	16 x 2 mm	(10) 1027757	
	17 x 2 mm	(10) 1027759	
	18 x 2 mm	(10) 1027761	
20 x 2 mm	(10) 1027763		
	"Ofix K" for plastic pipes according to DIN 4726, PE-X according to DIN 16892/16893, PB according to DIN 16968, PP according to DIN 8078 A1, collar nut unplated , metal to metal sealing plus O-ring		
	12 x 1.1 mm	(10) 1027788	
	12 x 2 mm	(10) 1027772	
	14 x 2 mm	(10) 1027775	
	16 x 1.5 mm	(10) 1027787	
	16 x 2 mm	(10) 1027777	
	17 x 2 mm	(10) 1027779	
	20 x 2 mm	(10) 1027783	
18 x 2 mm	(10) 1027781		

Article	Packing unit	Article-No.	Hint
"Ofix" Compression fittings (2-fold) brass			
for female thread			
			
"Ofix CEP" Compression fittings 2-fold, for connecting pipe, metal to metal sealing			
G ½ x 15 mm	(50)	1016853	Compression fittings for female thread: For the connection of Oventrop radiator fittings (except single fittings "Multiflex" with female thread Rp ½) to the pipework. Compression fittings for G ¾ male thread: For the connection of "Multiblock T/TU/TFU/TQ/T-RTL and TQ-RTL" and "Multiflex" fittings as well as radiator valves with insertion tube to the pipework. Application: Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195). Item no. 1016853 and 101686.: Max. operating pressure p _s : 10 bar (PN 10) Operating temperature t _s : 2 °C up to 120 °C Item no. 101684.: Max. operating pressure p _s : 10 bar (PN 10) Operating temperature t _s : 2 °C up to 95 °C The "Ofix CEP" compression fittings - Snap & Seal - can also be used with galvanised steel pipes (DIN EN 10305-3): – Geberit, Mapress C-steel system pipe (galvanised from outside) – Seppelfricke, XPress C-steel pipe (galvanised from outside) – Simplex, VSH C-steel pipe (galvanised from outside) – Viega, Prestabo steel pipe (galvanised from outside)
for G ¾ male thread according to DIN EN 16313 (cone "Euro") collar nut nickel plated			
			
"Ofix CEP" – Snap & Seal – 2-fold for copper pipes according to DIN EN 1057, precision steel pipes according to DIN EN 10305-1/2 and stainless steel pipes, with double compression ring function, one-piece pre-assembled, soft sealing (no reinforcing sleeves required)			
10 mm	(50)	1016840	The "Ofix CEP" compression fittings - Snap & Seal - can also be used with galvanised steel pipes (DIN EN 10305-3): – Geberit, Mapress C-steel system pipe (galvanised from outside) – Seppelfricke, XPress C-steel pipe (galvanised from outside) – Simplex, VSH C-steel pipe (galvanised from outside) – Viega, Prestabo steel pipe (galvanised from outside)
12 mm	(50)	1016841	
14 mm	(50)	1016842	
15 mm	(50)	1016843	
16 mm	(50)	1016844	
18 mm	(50)	1016845	
			
"Ofix CEP" 2-fold for copper pipes according to DIN EN 1057, metal to metal sealing			
10 mm	(50)	1016860	Attention: When installing copper pipes with a wall thickness of ≤ 1 mm, it is necessary to use reinforcing sleeves for the additional stabilisation of the pipe. Should the wall thickness exceed 1 mm, please contact the pipe manufacturer. Reinforcing sleeves for wall thickness = 1 mm: page 1.147. Exception: Reinforcing sleeves are not required for soft sealing compression fittings. Note: The pipes are not held by the soft sealing fitting, they have to be fixed additionally. Regarding stretching of the pipe ends, the instructions of the pipe manufacturers have to be observed.
12 mm	(50)	1016861	
14 mm	(50)	1016862	
15 mm	(50)	1016863	
16 mm	(50)	1016864	
18 mm	(50)	1016865	
			
"Ofix K" 2-fold for plastic pipes according to DIN 4726, PE-X according to DIN 16892/16893, PB according to DIN 16968, PP according to DIN 8078 A1, metal to metal sealing plus O-ring			
12 x 1.1 mm	(10)	1016883	The permissible operating pressures and operating temperatures depend on the application classes of the respective standards of the plastic pipework systems (e.g. PE-X, DIN EN ISO 15875).
12 x 2 mm	(10)	1016870	
14 x 2 mm	(10)	1016873	
15 x 2.5 mm	(10)	1016885	
16 x 1.5 mm	(10)	1016882	
16 x 2 mm	(10)	1016874	
17 x 2 mm	(10)	1016876	
18 x 2 mm	(10)	1016877	
20 x 2 mm	(10)	1016879	

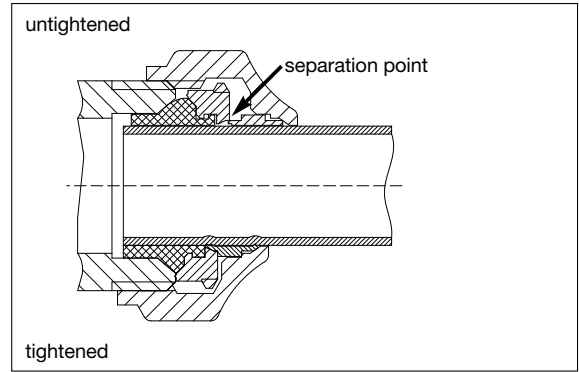
Article	Packing unit	Article-No.	Hint
<p>"Cofit S" Compression fittings for G 3/4 male thread according to DIN EN 16313 (cone "Euro") universal application for composition pipe and, provided similar preparation is used, for plastic pipe (PE-X-pipe) 2-fold, metal to metal sealing plus O-ring, outlet made of bronze, compression ring and collar nut made of brass, collar nut nickel plated</p>			<p>Application: Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).</p> <p>The permissible operating pressures and operating temperatures depend on the application classes of the respective standards of the plastic pipework systems (e.g. PE-X, DIN EN ISO 15875).</p>
	14 x 2.0 mm x G 3/4 collar nut	(10) 1507934	
	16 x 2.0 mm x G 3/4 collar nut	(10) 1507935	
	17 x 2.0 mm x G 3/4 collar nut	(10) 1507937	
	18 x 2.0 mm x G 3/4 collar nut	(10) 1507938	
	20 x 2.0 mm x G 3/4 collar nut	(10) 1507939	
	20 x 2.5 mm x G 3/4 collar nut	(10) 1507940	
<p>Brass reinforcing sleeves</p>			
	6 mm	(100) 2083951	Is required for the installation of soft pipes with a wall thickness of 1 mm.
	8 mm	(100) 2083952	
	10 mm	(100) 1029651	
	12 mm	(100) 1029652	
	14 mm	(100) 1029653	
	15 mm	(50) 1029654	
	16 mm	(50) 1029655	
	18 mm	(50) 1029656	
	22 mm	(50) 1029657	Diameters are related to the outer diameter of the pipe.

Connection of pipes, valves, radiators, distributors etc. for heating, sanitary and air conditioning by use of compression fittings

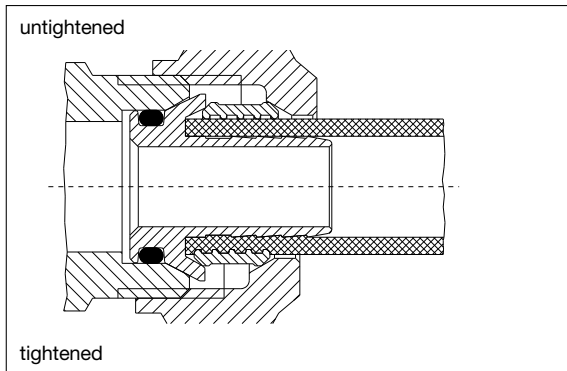
			Oventrop composition pipe "Copipe" and composition pipes of other manufacturers Ø 14 – Ø 20	Plastic pipe to DIN 4726, PE-X to DIN 16 892/16 893, PB to DIN 16 968, PP to DIN 80 78 A1 Ø 12 – Ø 20	Copper pipe DIN EN 1057 (DIN 1786) Ø 10 – Ø 18	Precision steel pipe DIN EN 10305-1 (DIN 2391) DIN EN 10305-2 (DIN 2393) Ø 10 – Ø 18	Stainless steel pipe Ø 10 – Ø 18	Brass reinforcing sleeves
Compression fittings for male threaded connection G ¾ according to DIN EN 16313 (cone "Euro")	"Cofit S" outlet brass resistant to de-zincification compression ring brass 	Ø 14 – Ø 20 page 11.34	Ø 14 – Ø 20 page 11.34 (only PE-X pipe)					
	"Ofix K" outlet and compression ring brass 		Ø 12 – Ø 20 pages 1.145					
	"Ofix CEP" soft seal "Snap & Seal" 			Ø 10 – Ø 18 page 1.145	Ø 10 – Ø 18 page 1.145	Ø 10 – Ø 18 page 1.145		
	"Ofix CEP" compression ring brass 				Ø 10 – Ø 18 page 1.145			
Compression fittings for female threaded connection Rp ½	"Ofix CEP" compression ring brass 			Ø 10 – Ø 16 page 1.145				for wall thickness = 1 mm page 1.147
	"Cofit S" outlet brass resistant to de-zincification compression ring brass 	Ø 14 + Ø 16 Page 11.34						



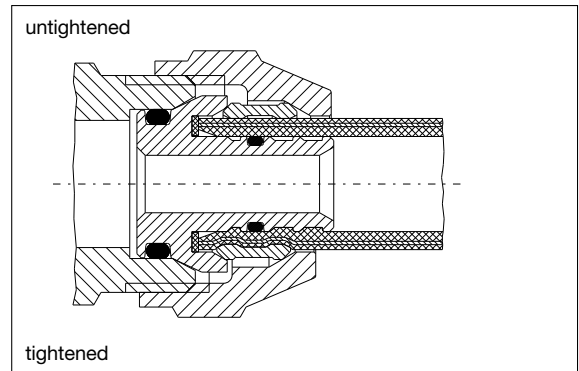
"Ofix CEP" compression fitting for copper pipe, metal to metal sealing, male threaded connection



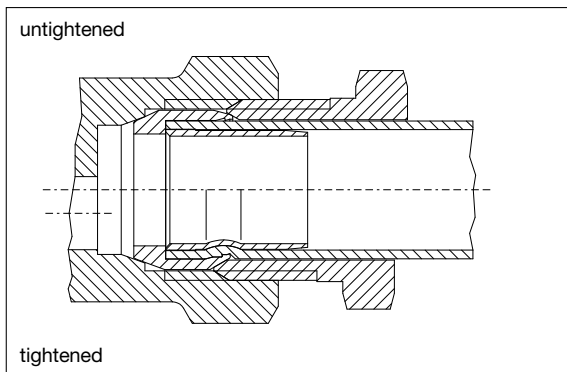
"Ofix CEP" compression fitting "Snap & Seal" for copper, precision steel and stainless steel pipe, soft sealing, male threaded connection



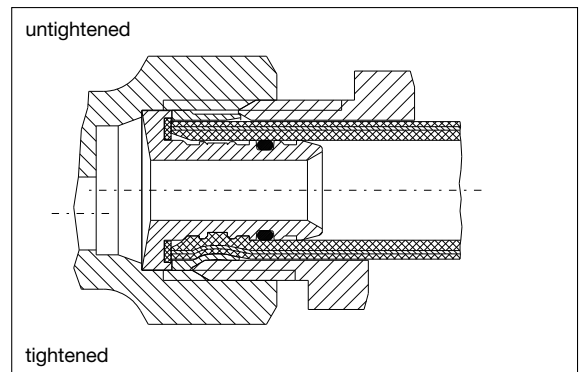
"Ofix K" compression fitting for plastic pipe, male threaded connection



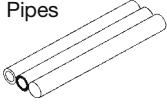
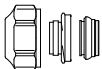
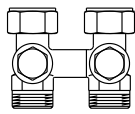


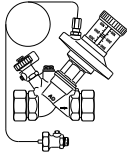


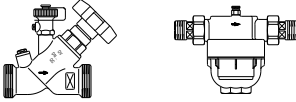

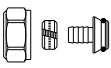










"Cofit S" compression fitting, universal application for "Copipe" composition pipe, and, in case of identical processing, also for PE-X plastic pipe, male threaded connection



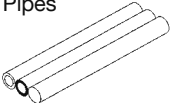

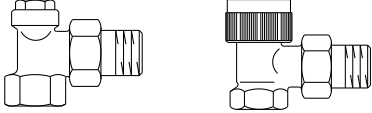



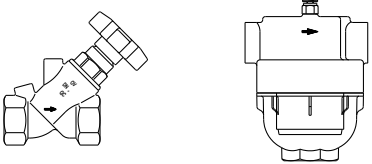

"Ofix CEP" compression fitting for copper pipe, metal to metal sealing, female threaded connection



"Cofit S" compression fitting for composition pipe, female threaded connection

Pipes 	Connection method	Connection system		Male threaded connection
		Connection fitting	Additional fitting	Oventrop valves (examples)
Copper pipe, stainless steel pipe, precision steel pipe 1)	Screwed connection	 for G 3/4 M according to DIN EN 16313 (cone "Euro"), soft sealing Item no. 102744. Page 1.145	—	Radiator valves 
		 for G 3/4 M according to DIN EN 16313 (cone "Euro"), metal to metal sealing Item no. 102747. Page 1.145	Connection piece  Item no. 15030.. Page 11.34	Valves for hydronic balancing 
Copper pipe 1)	Soldering connection	 Item no. 10610.. Page 3.49	—	Valves for hydronic balancing
		 Item no. 42020.. Page 8.66	—	Valves for water distribution 
Stainless steel pipe 1)	Press connection	 Item no. 42015.. Page 8.69	—	Valves for hydronic balancing and valves for water distribution
PE pipe	Screwed connection	 for G 3/4 M according to DIN EN 16313 (cone "Euro") Item no. 10277.., Page 1.145	—	Radiator valves
		 Item no. 15030.. Page 11.34	—	Valves for hydronic balancing and valves for water distribution
Steel pipe as well as screwed fittings	Screwed connection	 Item no. 1016304 Page 1.130	—	Radiator valves
		 Item no. 10693.. Page 1.98 only three-way conversion valves	—	
		 Item no. 10613.. Page 3.49	—	Valves for hydronic balancing
	Welding connection	 Item no. 10614.. Page 3.49	—	Valves for water distribution
		 Item no. 42013.. Page 8.66	—	
		 Item no. 42014.. Page 8.66	—	Valves for water distribution
		 Item no. 10193.. Page 1.98 only three-way conversion valves	—	Radiator valves
 Item no. 10605.. Page 3.49	—	Valves for hydronic balancing		
 Item no. 42005.. Page 8.66	—	Valves for water distribution		
Other pipes e. g. stainless steel pipe, thick walled plastic pipe	All other pipes - with their special connection - may be connected with flat sealing tailpipes (with ring gaskets and collar nuts) to Oventrop flat sealing and male threaded valves.			

1) Pipes with a wall thickness of ≤ 1 mm will need reinforcing sleeves, except when the soft sealing fitting 102744. is used! Page 1.145.

Pipes 	Connection method	Connection system		Female threaded connection
		Connection fitting	Additional fitting	Oventrop valves (examples)
Copper pipe 1)	Screwed connection	Compression nut and compression ring  Item no. 10281.. for Rp 1/2 F Page 1.144 Exception: Single fittings "Multiflex", thermostatic valves "RF/RFV6", manual valves "HRV" with reduced dimensions and return temperature limiter valves	-	Radiator valves 
		Compression nut and compression ring  Item. no. 10271.. for Rp 3/8 - Rp 3/4 F, Page 1.144 Exception: "Multiflex" single fittings		
Collar nut, compression ring and ring gasket  for G 3/4 M according to DIN EN 16313 (cone "Euro"), soft sealing Item. no. 102744. Page 1.145		Double nipple  Item. no. 15031.. Page 11.34	Valves for water distribution 	
Collar nut, compression ring and outlet  for G 3/4 M according to DIN EN 16313 (cone "Euro") Item. no. 10277.. Page 1.145				
Copper pipe, stainless steel pipe, precision steel pipe 1)	Screwed connection	Seal directly		
PE pipe thin walled plastic pipe		Seal directly		
Steel pipe as well as screwed fittings		Seal directly		
Other pipes e. g. stainless steel pipe, thick walled plastic pipe		All other pipes - with their special connection - may be connected with nipples to Oventrop female threaded valves.		

1) Pipes with a wall thickness of ≤ 1 mm will need reinforcing sleeves, except when the soft sealing fitting 102744. is used! Page 1.145.

2.a System summary

Content	2.05
System summary	2.06



2.b "Unidis" Surface heating system with local flow distribution

Content	2.09
"Unibox E BV" Room temperature control with bypass (exclusive)	2.10
"Unibox RLA" Flush-mounted box for isolation	2.10
"Unibox E T" Room temperature control (exclusive)	2.10
"Unibox T" Room temperature control	2.10
"Floorbox U"	2.11
Fixing channel	2.12
Fixing channel with isolating facility	2.13
"Unibox E BV" Room temperature control with bypass (exclusive)	2.13
Pipe connection press T-piece	2.14
Pipe connection press elbow	2.14



2.c "Unibox" Room temperature control with "Q-Tech" for automatic hydronic balancing

Content	2.15
"Unibox TQ" Room temperature control	2.16
"Unibox Q plus" Room temperature and return temperature control	2.16

2.d "Unibox" Room temperature control



Content	2.17
"Unibox E BV" Room temperature control with bypass (exclusive)	2.18
"Unibox RLA" Flush-mounted box for isolation	2.18
"Unibox E T" Room temperature control (exclusive)	2.18
"Unibox T" Room temperature control	2.18
"Unibox TSH" Room temperature control with "Uni SH"	2.19
"Unibox E plus" Room and return temperature control (exclusive)	2.20
"Unibox E vario" Room and return temperature control (exclusive, closed)	2.20
"Unibox E RTL" Return temperature control (exclusive)	2.20
"Unibox plus" Room and return temperature control	2.21
"Unibox RTL" Return temperature control	2.21
Conversion set "Unibox T"	2.22
Accessories	2.22
Valve inserts	2.24
Gland nut	2.25
Duo connection piece	2.25



2.e Room thermostats

Content	2.27
Room thermostats (heating)	2.28
Room thermostats (heating/cooling)	2.29



2.f Room thermostats with wireless transmitter, wireless receivers

Content	2.31
"R-Tronic RT B" Wireless thermostat	2.33
"R-Tronic RTF B" Wireless thermostat with humidity display	2.33
"R-Tronic RTFC K" Wireless thermostat with humidity and CO ₂ display	2.33
Accessories	2.34
"FK-C F" Wireless window contact	2.34
"RP-S F" Wireless repeater	2.34
"RP-C F" Wireless repeater	2.34
"R-Con" Wireless receiver	2.35



2.g Actuators

Content	2.37
"Aktor T" Electrothermal actuators	2.38
Accessories	2.38

2.h "Cofloor" Systems, "Copex" Pipes and accessories



Content	2.39
"Cofloor" Base mat system	2.40
"Cofloor" Base mat system NP-R	2.43
"Cofloor" Tacker system	2.44
"Cofloor" Clamping rail system	2.45
"Cofloor" Hook and loop system	2.46
"Cofloor" Dry-build system	2.47
Accessories	2.48
PE-Xc "Copex" Plastic pipes	2.50
PE-RT/AL/PE-RT "Copipe HSC" Composition pipes	2.50
PE-RT "Copert" Plastic pipes	2.52
"Ofix K" Compression fittings	2.53
"Cofit S" Compression fittings	2.53
Double nipples	2.54
"Cofit P" Press couplings	2.54

2.i "Multidis Fix" Distributor/collector systems

Content	2.55
"Multidis Fix B" Pre-assembled stainless steel distributor/collector fixed in a cabinet	2.56

2.j "Multidis SFQ" distributor/collector with "Q-Tech" for automatic hydronic balancing



Content	2.57
"Multidis SFQ" Stainless steel distributor/collector	2.58

2.k "Multidis SF/SFB/SFI" Distributors/collectors for surface heating and cooling systems



Content	2.59
"Multidis SF" Stainless steel distributor/collector	2.60
"Multidis SFB" Stainless steel distributor/collector	2.61
"Multidis SFI" Brass distributor/collector for industrial surface heating and cooling systems	2.61
Accessories	2.62
"Optiflex" Ball valve	2.62
"Cofit S" Compression fittings	2.62
Valve insert for stainless steel distributors/collectors "Multidis SF"	2.63
Ball valves	2.63
Flush-mounted cabinets	2.64
Surface-mounted cabinets	2.64
Cylinder lock	2.65
Heat meter connection sets	2.66
Differential pressure relief device	2.68
Angle pattern connection set	2.68
"Hycococon VTZ" Double regulating and commissioning valve	2.68
"Hycococon DTZ" Differential pressure regulator	2.68

2.l "Regufloor" Control units



Content	2.69
"Regufloor H"	2.70
"Regufloor HW"	2.70
"Regufloor HN"	2.70
System components	2.71
"Regtronic RH" Heating circuit controller	2.72
"Regtronic RH" Heating circuit controller	2.73
"Regtronic EM" Extension module	2.74
Accessories	2.74
"Regufloor HC"	2.75
System components for "Regufloor HC"	2.75
"Tri-D TR" Three-way diverting valves PN 16	2.76
"Tri-CTR" Three-way diverting and mixing valves PN 16	2.76
"Regufloor HX"	2.77

2.m Single components for distributors/collectors

Content	2.79
Individual components for distributor systems	2.80
Accessories	2.82



2.n Regulating sets for surface heating systems

Content	2.83
Regulating sets for surface heating systems	2.84



2.o Return temperature limiter set

Content	2.87
Return temperature limiter set	2.88
Return temperature limiters	2.88
Thermostat "Uni RTLH"	2.88
Thermostat "Uni RTL"	2.88
Valve inserts	2.89
Gland nut	2.89



2.p Components for concrete core activation

Content	2.91
"Multidis SF" Stainless steel distributor/collector	2.92
PE-Xc "Copex" Plastic pipes	2.92
"Cofit S" Compression fittings	2.92
"Multidis SFI" Brass distributor/collector for industrial surface heating/concrete core activation	2.93
PE-Xc "Copex" Plastic pipes	2.93
"Cofit S" Compression fittings	2.93
"Optiflex" Ball valve	2.94

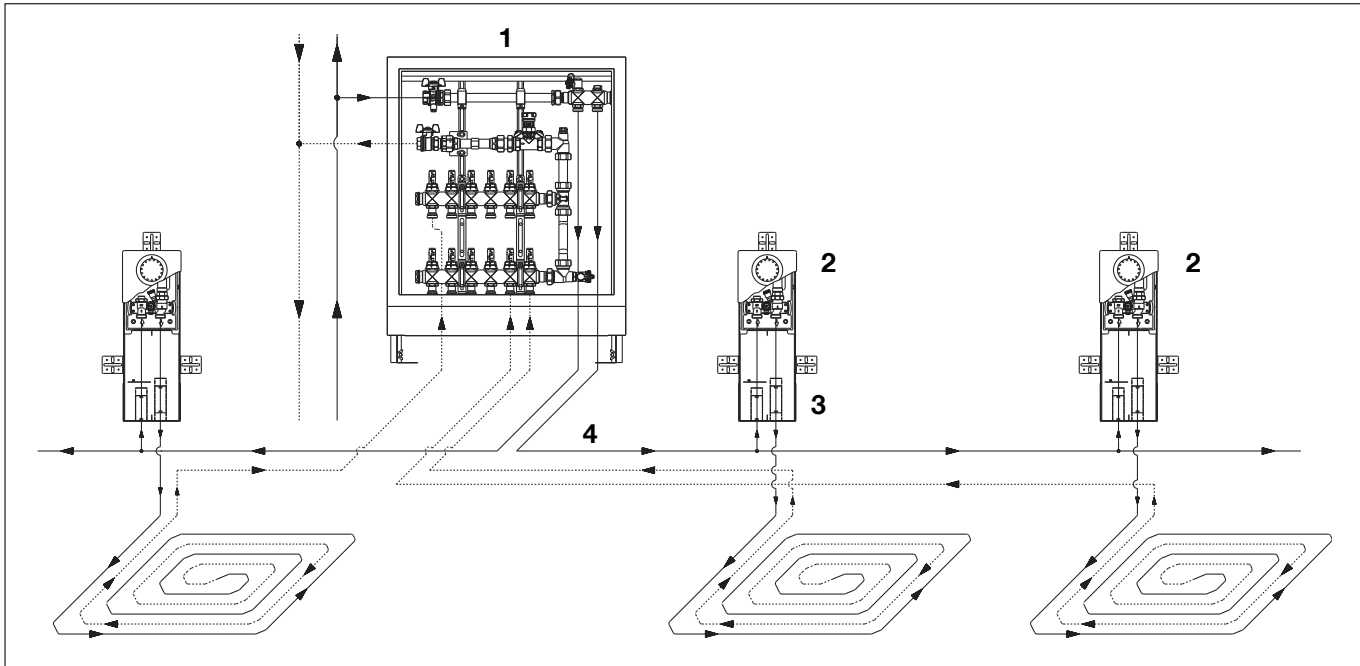


Page

2.a System summary

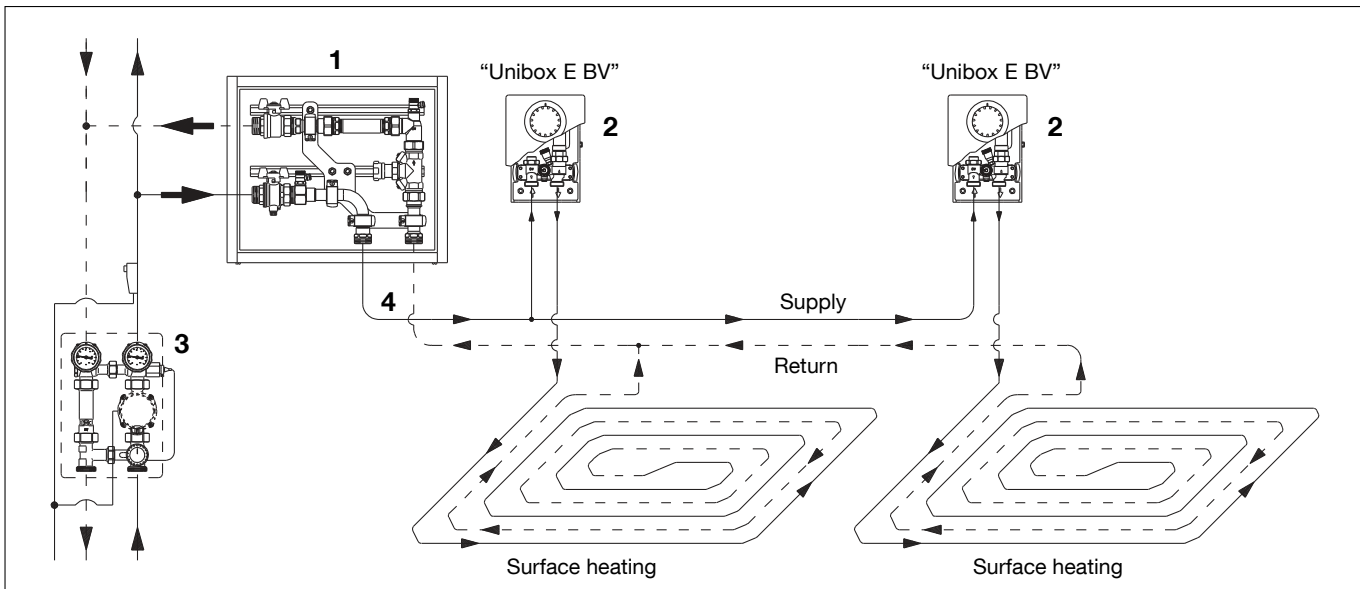
Content

System summary	2.06
----------------	------



System illustration: "Unidis" Surface heating with return collector "Floorbox MH", "Unibox E BV" and fixing channel

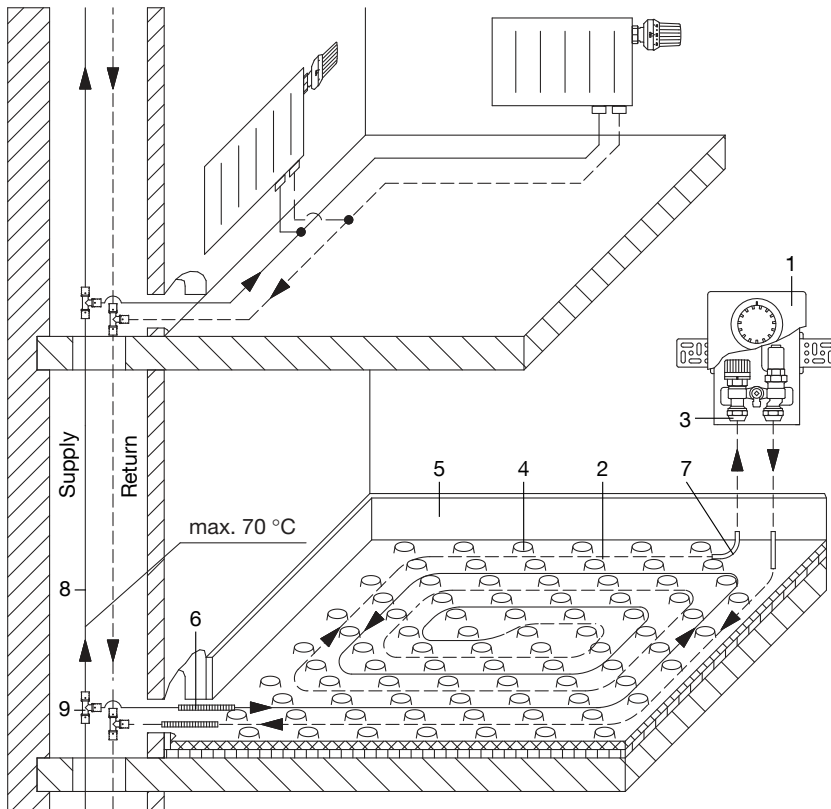
- 1 "Floorbox MH" Return collector
- 2 "Unibox E BV"
- 3 Fixing channel
- 4 "Copipe" Composition pipe
"Copex" PE-Xc pipe
"Copert" PE-RT pipe



System illustration: "Unidis" Surface heating with "Floorbox UH" and "Unibox E BV"

- 1 "Floorbox UH"
- 2 "Unibox E BV"
- 3 "Regumat F-130/180" Fixed value control unit
- 4 "Copipe" Composition pipe
"Copex" PE-Xc pipe
"Copert" PE-RT pipe

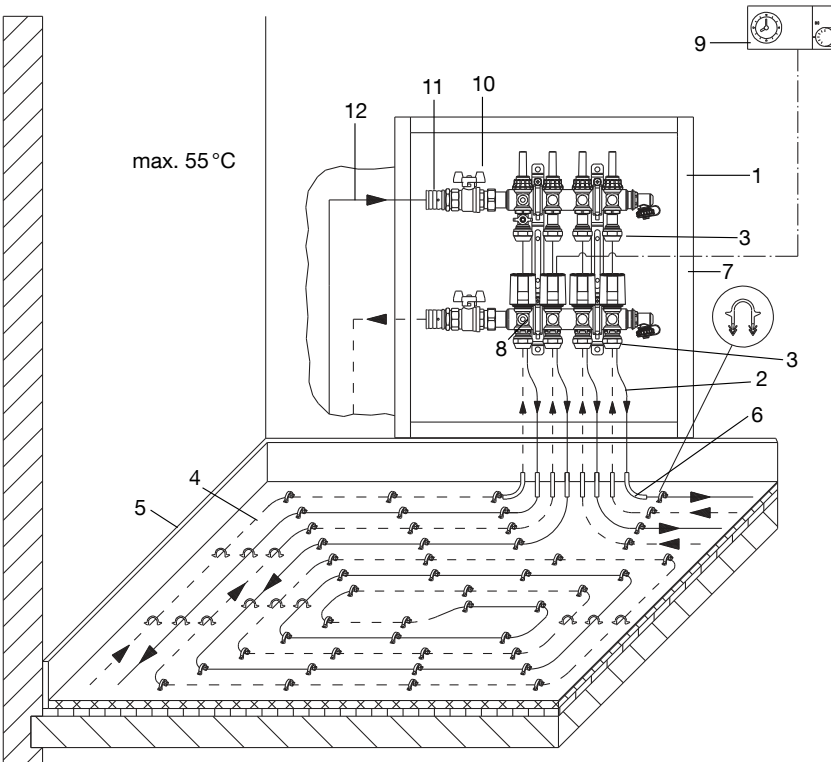
Examples of the application (further examples see product ranges "Unibox", "Multidis" stainless steel distributors/collectors and "Combi-System")



"Cofloor" Surface heating with "Unibox E plus" individual room temperature control

consisting of the Oventrop components:

- 1 "Unibox E plus" Installation set
- 2 "Copex" PE-Xc pipe
- 3 "Ofix K" Compression fittings
- 4 Base mat
- 5 Edge insulating strip
- 6 Protection pipe, slit
- 7 Pipe guiding elbow
- 8 "Copipe HSC" Composition pipe
- 9 "Cofit P" Press T-piece



"Cofloor" Surface heating and cooling with stainless steel distributor/collector "Multidis SF"

consisting of the Oventrop components:

- 1 "Multidis SF" Stainless steel distributor/collector
- 2 "Copex" PE-Xc pipe
- 3 "Ofix K" Compression fitting
- 4 Tacker board
- 5 Edge insulating strip
- 6 Pipe guiding elbow
- 7 Cabinet
- 8 Electrothermal actuator
- 9 Room thermostat – clock
- 10 "Optibal" Ball valve
- 11 "Cofit P" Press connection
- 12 "Copipe HSC" Composition pipe



2.b "Unidis" Surface heating system with local flow distribution

Content

"Unibox E BV" Room temperature control with bypass (exclusive)	2.10
"Unibox RLA" Flush-mounted box for isolation	2.10
"Unibox E T" Room temperature control (exclusive)	2.10
"Unibox T" Room temperature control	2.10
"Floorbox U"	2.11
Fixing channel	2.12
Fixing channel with isolating facility	2.13
"Unibox E BV" Room temperature control with bypass (exclusive)	2.13
Pipe connection press T-piece	2.14
Pipe connection press elbow	2.14

Article	kvs	kv at 1K P-dev.	kv at 2K P-dev.	Article-No.	Hint
---------	-----	-----------------------	-----------------------	-------------	------



"Unibox E BV" Room temperature control with bypass (exclusive)
 Combination room temperature control and presettable bypass
 Depth: 57 mm

0.81	0.34	0.57	1022662
------	------	------	----------------

Application:
For installations with flow temperatures suitable for surface heating systems according to DIN EN 1264.
 Installation set consisting of:
 Wall box unit with thermostatic valve with integrated bypass stem and regulating insert, working without auxiliary energy. Venting and flushing valve, valve insulation, cover plate and thermostat with '0' setting. Valve connection G 3/4 for Oventrop compression fittings. For the division of the heating water volume flow into a thermostatically controlled volume flow and a bypass volume flow. The bypass volume flow allows for the setting of a basic heat load (no cooling down).



"Unibox RLA" Flush-mounted box for isolation
 Combination isolating and regulating function

white			1022663
-------	--	--	----------------

Installation set for the isolation of surface heating circuits in combination with "Uniboxes".

Page 2.18.



"Unibox E T" Room temperature control (exclusive)
 Room temperature control

white	0.81	0.34	0.57	1022632
-------	------	------	------	----------------

Installation set consisting of:
 Wall box unit with presettable thermostatic valve, venting and flushing valve.

Page 2.18.



"Unibox T" Room temperature control
 Room temperature control with thermostat "Uni LH"

white	1.10	0.36	0.67	1022636
-------	------	------	------	----------------

Installation set consisting of:
 Wall box unit with presettable thermostatic valve, venting and flushing valve, cover plate and thermostat "Uni LH".

Page 2.18.

Article	Article-No.	Hint
---------	-------------	------

"Floorbox U"
Connection without distributor/collector
for surface heating systems

The "Floorbox" serves to connect each dwelling to the surface heating system together with the installation sets "Unibox".



"Floorbox UH" lateral riser connection **1022668**

Installation set consisting of:

Supply:
- Ball valve G 1 with temperature sensor connection

Return:
- "Hycoccon VTZ" Double regulating and commissioning valve
- Meter stool piece
- Ball valve with coupling
- Venting and flushing valve
- Flat seals

Depth: 110 - 145 mm
Width: 400 mm
Height: 350 mm

System illustration: page 2.06

For further information see "Technical information":



"Floorbox UV" lower riser connection **1022669**

Article	Article-No.	Hint
---------	-------------	------

Fixing channel

for "Unibox", depth: 57 mm

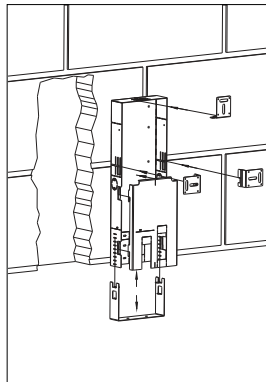
1022653



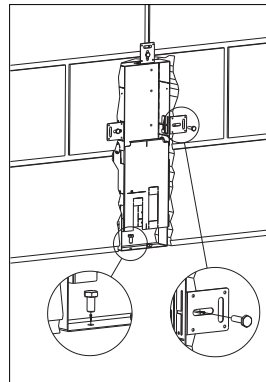
For heavyweight and lightweight walls, made of galvanised steel sheet for pipework installation out of the ground into the wall to the "Unibox". An additionally required installation set of the "Unibox" range has to be ordered separately and has to be installed in the fixing channel. Assembly without screws or rivets. Adaptation to the installation height via an adjustable bracket. The adaptation to the installation depth for heavyweight walls is carried out by use of elbows. The fixing channel of lightweight walls is screwed directly onto the profiles. Additional cut-outs in the reverse side of the fixing channel allow the connection of the "Unibox" even from an adjoining room. The "Unibox" has to be mounted in the fixing channel only shortly before plastering commences. An exact installation of the "Unibox" is guaranteed by the variable installation options. The connection openings (rated break points) of the fixing channel allow the connection of all remote controls, remote sensors (mechanical or electric).

Height: 440 - 490 mm (extendible)
Width: 160 mm

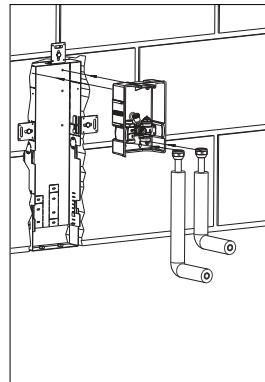
Sequence of installation (summary):



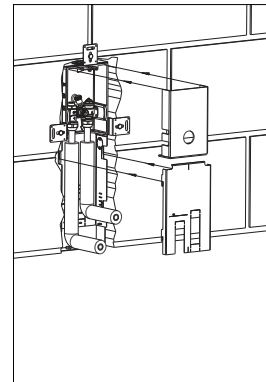
1 Adjust depth and height, align with wall recess



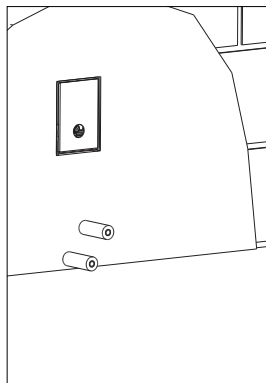
2 Place fixing channel into the wall



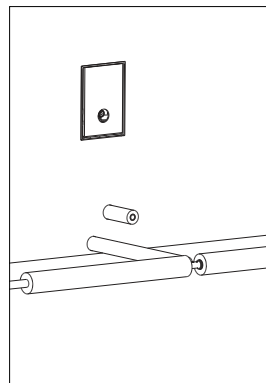
3 Mount "Unibox" and both supply connection pieces



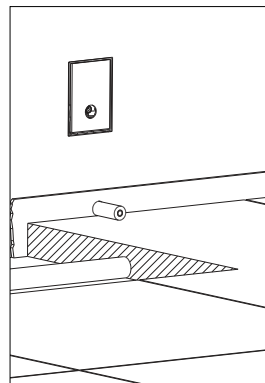
4 Mount protection cover of the "Unibox" and of the fixing channel



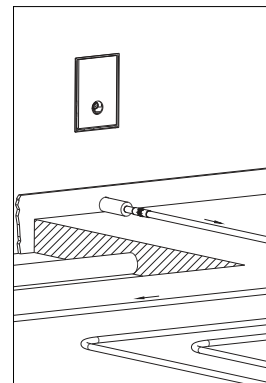
5 Carry out wall plastering



6 Lay supply pipe from the heat generator on the bare floor and insulate



7 Lay edge insulating strip and system board



8 Lay heating circuit, connect to supply connection piece and feed return to return collector

Article	Article-No.	Hint
---------	-------------	------

Fixing channel with isolating facility
 with cover plate and thermostat with remote control

for "Unibox", depth: 57 mm **1022654**



For heavyweight and lightweight walls, made of galvanised steel sheet for pipework installation out of the ground into the wall to the "Unibox".

An additional installation set of the "Unibox" programme has to be ordered separately and has to be fit into the fixing channel.

For this purpose, the "Unibox E BV" is available without cover plate (see item no. 1022676).

For the connection without distributors/collectors and the room to room isolation of surface heating circuits.

Isolating facility consisting of:
 Isolating valve, venting and flushing valve.
 Valve connection G 3/4 for Oventrop compression fittings.

Assembly without screws or rivets. Adaptation to the installation height via an adjustable extension. The adaptation to the installation depth for heavyweight walls is carried out by use of elbows. In case of of lightweight walls, the fixing channel is screwed directly onto the profiles. Additional cut-outs in the reverse side of the fixing channel allow the connection of the "Unibox" even from an adjoining room.

The "Unibox" has to be mounted in the fixing channel only shortly before plastering commences. A special cover plate for the "Unibox" is supplied with the fixing channel. An exact installation of the "Unibox" is guaranteed by the variable installation options. The connection openings (rated break points) of the fixing channel allow for the connection of all remote controls, remote sensors (mechanical or electric).
 Height: 440 - 490 mm (extendible)
 Width: 160 mm

"Unibox E BV" Room temperature control with bypass (exclusive) without cover plate and thermostat

Combination room temperature control and presettable bypass **1022676**



Application:
For installations with flow temperatures suitable for surface heating systems according to DIN EN 1264.
 Installation set for use in the fixing channel with heating circuit isolation (item no. 1022654).

Installation set consisting of:
 Wall box unit without cover plate, with thermostatic valve with integrated bypass stem and regulating insert, working without auxiliary energy. Venting and flushing valve and valve insulation. Valve connection G 3/4 for Oventrop compression fittings.

For the division of the heating water volume flow into a thermostatically controlled volume flow and a bypass volume flow. The bypass volume flow allows for the setting of a basic heat load (no cooling down).

Article	Article-No.	Hint
---------	-------------	------

Pipe connection press T-piece



Pipe made of stainless steel, fitting made of brass for composition pipe "Copipe", with "Ofix CEP" - Snap & Seal - compression fitting for male thread G 3/4 according to DIN EN 16313 (cone "Euro")

16 x 2.0 mm **1515153**
 20 x 2.5 mm **1515156**

Height: 321 mm
 Stainless steel pipe: Ø 15 x 1.0 mm

For a simple connection of the "Unibox" to the supply pipe or the heating loop via the fixing channel.

The pipes have to be shortened according to the required installation height.

Pipe connection press elbow



Pipe made of stainless steel, fitting made of brass for composition pipe "Copipe", with "Ofix CEP" - Snap & Seal - compression fitting for male thread G 3/4 according to DIN EN 16313 (cone "Euro")

16 x 2.0 mm **1515353**
 20 x 2.5 mm **1515356**

**2.c "Unibox" Room temperature control with "Q-Tech"
for automatic hydronic balancing**



Content

"Unibox TQ" Room temperature control	2.16
"Unibox Q plus" Room temperature and return temperature control	2.16

Article	Article-No.	Hint
---------	-------------	------



"Unibox TQ" Room temperature control
with "Q-Tech" for automatic hydronic balancing
Room temperature control
with thermostat "Uni LH"
Depth: 57 mm

white **1022686**

Application:
For installations with flow temperatures suitable for surface heating systems according to DIN EN 1264.

Installation set consisting of:
Wall box unit with presettable thermostatic valve with valve insert "QA", venting and flushing valve, cover plate and thermostat "Uni LH" with '0' setting. Valve connection G 3/4 for Oventrop compression fittings.
For room temperature control.

"Q-Tech" function:
The valve insert "QA" is a combined control and regulating insert which is used for room temperature control in combination with thermostats with liquid sensor or actuators. The max. flow rate is set to the required nominal value and is constantly maintained within the necessary proportional band.

Temperature range: 7 - 28 °C
(room temperature)
Flow range: 10 - 170 l/h

Presetting is carried out by using the presetting key supplied with the "Unibox".



"Unibox Q plus" Room temperature and return temperature control
with "Q-Tech" for automatic hydronic balancing
Combination thermostat "Uni LH"
and thermostat "Uni RTLH"
Depth: 57 mm

white **1022684**

"Unibox" individual room temperature control and limitation of return temperature for surface heating systems.

Application:
In combination with heating systems with radiator operation.

Installation set consisting of:
Wall box unit with presettable thermostatic valve with valve insert "QA", RTLH valve, venting and flushing valve, cover plate and thermostats "Uni LH" and "Uni RTLH" with '0' setting. Valve connection G 3/4 for Oventrop compression fittings.

The RTLH valve insert with double disc prevents inadvertent overheating, with frost protection.

For room temperature control and return temperature limitation.

Temperature range: 7-28 °C
(room temperature)

Temperature range: 10-40 °C factory setting
(return temperature) may be increased to 50 °C by cancelling the limitation (40 °C).

Flow range: 10 - 170 l/h

Presetting is carried out by using the presetting key supplied with the "Unibox".

2.d "Unibox" Room temperature control

Content



"Unibox E BV" Room temperature control with bypass (exclusive)	2.18
"Unibox RLA" Flush-mounted box for isolation	2.18
"Unibox E T" Room temperature control (exclusive)	2.18
"Unibox T" Room temperature control	2.18
"Unibox TSH" Room temperature control with "Uni SH"	2.19
"Unibox E plus" Room and return temperature control (exclusive)	2.20
"Unibox E vario" Room and return temperature control (exclusive, closed)	2.20
"Unibox E RTL" Return temperature control (exclusive)	2.20
"Unibox plus" Room and return temperature control	2.21
"Unibox RTL" Return temperature control	2.21
Conversion set "Unibox T"	2.22
Accessories	2.22
Valve inserts	2.24
Gland nut	2.25
Duo connection piece	2.25

Article	kvs	kv at 1K P-dev.	kv at 2K P-dev.	Article-No.	Hint
---------	-----	-----------------------	-----------------------	-------------	------

"Unibox E BV" Room temperature control with bypass (exclusive)
 Combination room temperature control
 and presettable bypass
 Depth: 57 mm



white	0.81	0.34	0.57	1022662	
-------	------	------	------	---------	--

"Unibox E" (exclusive model) and "Unibox" individual room temperature control for surface heating systems

Application:
For installations with flow temperatures suitable for surface heating systems
 according to DIN EN 1264.
 Installation set consisting of:
 Wall box unit with thermostatic valve with integrated bypass stem and regulating insert, working without auxiliary energy. Venting and flushing valve, valve insulation, cover plate and thermostat with '0' setting. Valve connection G 3/4 for Oventrop compression fittings. For the division of the heating water volume flow into a thermostatically controlled volume flow and a bypass volume flow. The bypass volume flow allows for the setting of a basic heat load (no cooling down).

"Unibox RLA" Flush-mounted box for isolation
 Combination isolating and regulating function
 Depth: 57 mm



white				1022663	
-------	--	--	--	---------	--

Installation set consisting of:
 Wall box unit with isolating valve, venting and flushing valve and closed cover plate. Valve connection G 3/4 for Oventrop compression fittings. For the isolation of surface heating circuits in combination with the installation sets "Unibox".

"Unibox E T" Room temperature control (exclusive)
 Room temperature control
 Depth: 57 mm



white	0.81	0.34	0.57	1022632	
-------	------	------	------	---------	--

Installation set consisting of:
 Wall box unit with presettable thermostatic valve, venting and flushing valve, valve insulation, cover plate and thermostat with '0' setting. Valve connection G 3/4 for Oventrop compression fittings.
 For room temperature control.

Temperature range: 7 - 28 °C
 (room temperature)

"Unibox T" Room temperature control
 Room temperature control
 with thermostat "Uni LH"
 Depth: 57 mm



white	1.10	0.36	0.67	1022636	
-------	------	------	------	---------	--

Installation set consisting of:
 Wall box unit with presettable thermostatic valve, venting and flushing valve, cover plate and thermostat "Uni LH" with '0' setting. Valve connection G 3/4 for Oventrop compression fittings.
 For room temperature control.

Temperature range: 7 - 28 °C
 (room temperature)

The models "Unibox E T", "Unibox T" and "Unibox TSH" comply with the requirements of the German Energy Saving Directive (EnEV § 14).

Article	kvs	kv at 1K P-dev.	kv at 2K P-dev.	Article-No.	Hint
---------	-----	-----------------------	-----------------------	-------------	------

"Unibox TSH" Room temperature control with "Uni SH"
 Room temperature control
 with thermostat "Uni SH"
 Depth: 57 mm



white

0.81	0.34	0.57	1022612
------	------	------	----------------

Application:

For installations with flow temperatures suitable for surface heating systems according to DIN EN 1264.

Installation set consisting of:

Wall box unit with presettable thermostatic valve, venting and flushing valve, angle pattern adapter, frame, cover plate and thermostat "Uni SH" with '0' setting. Valve connection G 3/4 for Oventrop compression fittings.

For room temperature control.

Temperature range: 7-28 °C (room temperature)

The models "Unibox E T", "Unibox T" and "Unibox TSH" comply with the requirements of the German Energy Saving Directive (EnEV § 14).

For further information see "Technical information":



Article	kvs	kv at 1K P-dev.	kv at 2K P-dev.	Article-No.	Hint
---------	-----	-----------------------	-----------------------	-------------	------



"Unibox E plus" Room and return temperature control (exclusive)
 Combination room temperature control and limitation of return temperature
 Depth: 57 mm

white	0.81	0.34	0.57	1022633
chrome plated	0.81	0.34	0.57	1022643
stainless steel finish	0.81	0.34	0.57	1022673

"Unibox E" (exclusive model) individual room temperature control and limitation of return temperature for surface heating systems

Application:
In combination with heating systems with radiator operation.
 Installation set consisting of:
 Wall box unit with presettable thermostatic valve and integrated return temperature limiter, venting and flushing valve, valve insulation, cover plate and thermostat with '0' setting. Valve connection G 3/4 for Oventrop compression fittings.
 For the control of the room temperature and limitation of the return temperature.
 Temperature range: 7-28 °C (room temperature)
 20-40 °C (return temperature)



"Unibox E vario" Room and return temperature control (exclusive, closed)
 Basic model for limitation of return temperature (concealed)
 Depth: 57 mm

white	0.81	0.34	0.57	1022634
chrome plated	0.81	0.34	0.57	1022644

Room temperature control is possible by mounting the following thermostats (to be ordered separately):

- **Thermostat with remote control "Uni FH"** (page 2.82)

or:

- **room thermostat (page 2.28) and actuator** (page 3.93)

Installation set consisting of:
 Wall box unit with presettable thermostatic valve and integrated return temperature limiter, venting and flushing valve and closed cover plate. Valve connection G 3/4 for Oventrop compression fittings.
 For the control of the room temperature and limitation of the return temperature.
 Temperature range: 20-40 °C (return temperature)
 Room temperature depending on the used control.

For further information see "Technical information":



"Unibox E RTL" Return temperature control (exclusive)
 Limitation of return temperature (concealed)
 Depth: 57 mm

white				1022631
chrome plated				1022641

Limitation of the return temperature from the outside:
 page 2.21, item no. 1022635

Installation set consisting of:
 Wall box unit with integrated return temperature limiter, venting and flushing valve and closed cover plate. Valve connection G 3/4 for Oventrop compression fittings.
 For return temperature limitation.
 Temperature range: 20-40 °C (return temperature).

The models
 - "Unibox E plus"
 - "Unibox E vario"
 comply with the requirements of the German Energy Saving Directive (EnEV § 14).

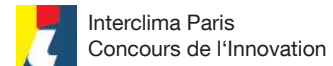


"Unibox plus" Room and return temperature control
 Combination thermostat "Uni LH"
 and thermostat "Uni RTLH"
 Depth: 57 mm

white 1.10 0.67 **1022637**

„Unibox" individual room temperature control and limitation of return temperature for surface heating systems.

Application:
 In combination with heating systems with radiator operation.
 Installation set consisting of:
 Wall box unit with presettable thermostatic valve and RTLH valve, venting and flushing valve, cover plate and thermostats "Uni LH" and "Uni RTLH" with '0' setting. Valve connection G 3/4 for Oventrop compression fittings.
 The RTLH valve insert with double disc prevents inadvertent overheating, with frost protection.
 For the control of the room temperature and limitation of the return temperature.
 Temperature range: 7–28 °C (room temperature)
 Temperature range: 10–40 °C factory setting (return temperature) may be increased to 50 °C by cancelling the limitation (40 °C) .
 Awards "Unibox Plus":



"Unibox RTL" Return temperature control
 with thermostat "Uni RTLH"
 Depth: 57 mm

white **1022635**









Installation set consisting of:
 Wall box unit with RTLH valve, venting and flushing valve, cover plate and thermostat "Uni RTLH" with '0' setting. Valve connection G 3/4 for Oventrop compression fittings.
 The RTLH valve insert with double disc prevents inadvertent overheating, with frost protection.
 For return temperature limitation.
 Temperature range: 10–40 °C factory setting (return temperature) may be increased to 50 °C by cancelling the limitation (40 °C).








The models
 – "Unibox plus"
 – "Unibox vario"
 comply with the requirements of the German Energy Saving Directive (EnEV § 14).

For further information see "Technical information":



Article	Article-No.	Hint
Conversion set "Unibox T"		
 <p>for "Unibox E RTL" consisting of: 1 Presettable thermostatic valve 2 Thermostat "Uni LH" 3 Spacer, screws 4 White cover plate 5 Wall box unit 6 Bracket 7 Protection cover plate</p>	1022639	<p>Position 1 - 4 are used for the conversion of a "Unibox E RTL" to a "Unibox T".</p> <p>A "Unibox E RTL" can be re-assembled by use of the valve dismantled before and positions 5 - 7.</p>
Accessories		
Fixing channel		
 <p>for "Unibox", depth: 57 mm</p>	1022652	<p>Made of galvanised steel sheet, with cover made of gypsum plaster board. Height: extendible between 275 and 350 mm Width: 130 mm</p>
 <p>for "Unibox", depth: 57 mm</p>	1022653	<p>Made of galvanised steel sheet Height: extendible between 440 and 490 mm Width: 160 mm</p>
Pipe conduit unit		
 <p>for "Unibox", depth: 57 mm</p>	1022650	<p>Suitable for the wall box units. For a simple installation of the pipe into the wall. May be easily reduced to other dimensions. L = 1 m.</p>
Cover plates		
 <p>white (RAL 9016)</p>	1022687	For "Unibox E BV", "Unibox E plus", and "Unibox E T" with depth 57 mm.
 <p>chrome plated</p>	1022688	
closed		
 <p>white (RAL 9016)</p>	1022679	For "Unibox E vario" with depth 57 mm.

Article	Packing unit	Article-No.	Hint
		1022689	For "Unibox E RTL" with depth 57 mm.
		1022690	
white (RAL 9016)		1022693	For "Unibox RTL", "Unibox T", "Unibox plus", "Unibox TQ" and "Unibox Q plus" with depth 57 mm.
chrome plated		1022694	
	(2)	1022691	For "Unibox RTL", "Unibox T" and "Unibox plus" with depth 110 mm.
chrome plated		1022692	
Cover plate with thermostat with remote control			
		1022697	
Thermostat "Uni RTLH"			With '0' setting, may be limited or locked. Temperature range: 10 °C - 40 °C factory setting (return temperature) may be increased to 50 °C by cancelling the limitation (40 °C).
white	(25)	1027165	
		(25) 1027172	
Thermostat "Uni LH"			
white	(10)	1011465	with '0' setting  Busse Design Ulm Longlife Design Award
			
chrome plated with collar nut cover	(25)	1011469	
			

Article	kv at 2K P-dev.	Packing unit	Article-No.	Hint
Valve inserts				
	"AV 9, CV 9, RFV 9, E" and "Multiblock T-RTL" (manufactured since 2016)	0.67	(100) 1187047#	Also for "Hycocoon ETZ" (manufactured since 2016).
	for return flow valves connection thread M 30 x 1.5		(100) 1026981	Valve insert with double disc. Prevents inadvertent overheating, with frost protection.
	"AV 6, RFV 6, E" and "Multiblock T-RTL" (manufactured up to 2015)	0.65	(100) 1187057#	Also for "Hycocoon ETZ" (manufactured up to 2015 inclusive). #These valve inserts are suitable for all valve bodies with connection thread M 30 x 1.5 of all sizes of the thermostatic valves "A, AV 9, AQ, AV 6, ADV 9, ADV 6, CV 9, E, EQ, AF, RF, RFV 9, RFQ and RFV 6".
	Valve insert RTLH		(100) 1026970	Special valve insert for reversed supply and return pipe for "Unibox RTL".
	Special valve insert for reversed supply and return pipe with infinitely adjustable presetting "AV9U"	0.57	(100) 1187078	As replacement for: - "Multiblock T/TU/TFU" - "Unibox E T" - "Unibox E plus" - "Unibox E vario" - "Unibox E BV" In case of reversed direction of flow for: - "Unibox T" - "Unibox TQ" - "Unibox plus" (connection for room temperature control) - "Unibox vario" (connection for room temperature control) - "Unibox Q plus" (connection for room temperature control)
Extensions				
	L = 20 mm for thermostatic valves		(10) 1022698	For "Unibox T", "Unibox plus", "Unibox TQ" and "Unibox Q plus".
	for RTLH valves		(10) 1022699	For "Unibox RTL", "Unibox vario", "Unibox TQ" and "Unibox Q plus".

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

Gland nut



Set = 5 pieces (10) **1026986**

Duo connection piece



1 x G 3/4 collar nut 2 x G 3/4 male thread **1022655**

For the connection of two heating circuits.



2.e Room thermostats

Content

Room thermostats (heating)	2.28
Room thermostats (heating/cooling)	2.29

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

Room thermostats (heating)

Room thermostat-clock - surface mounting (heating)



with daily setting			
230 V	(78)	1152551°	

with weekly setting			
230 V		1152552	
24 V		1152554°	

The electric room thermostat-clock is required for individual room temperature control of heating systems in combination with the electrothermal actuators (two point) "Aktor T 2P". Output signal pulse-width modulation.
Temperature range: 5 °C up to 30 °C
Heating:
Use electrothermal actuators (two point) "closed with current off".
Central temperature setback is carried out according to a timed programme.
Limitation of the control range by using the concealed limiting elements.

Room thermostat - surface mounting (heating)



Heating two point control			
230 V	(25)	1152051	
24 V	(25)	1152052	



with concealed temperature setting	(25)	1152055	
------------------------------------	------	----------------	--

The electric thermostat is used for individual room temperature control in combination with the electrothermal actuators (two point) "Aktor T 2P".
Temperature range: 5 °C up to 30 °C
Heating:
Use electrothermal actuators (two point) "closed with current off". As for item no. 1152051/52/55/71/72, the temperature may be set back by use of an external time switch (item no. 1152551/52 for 230 V, item no. 1152554 for 24 V).
Cooling:
Use electrothermal actuators (two point) "open with current off".
Limitation of the control range of item no. 1152051/52/71/72 by using the concealed limiting elements.

Room thermostat - flush mounting (heating)



Heating two point control			
230 V	(128)	1152071	
24 V	(10)	1152072°	

Room thermostat - flush mounting (heating)



with display			
Heating two point control			
230 V	(40)	1152561	
24 V	(40)	1152562	

With LCD display and adjustable timed programme.
Temperature range: 5 °C up to 35 °C
Operating current range (item no. 1152561): 100 up to 230 V AC
Heating:
Use electrothermal actuators (two point) "closed with current off" (terminal "NC") or "open with current off" (terminal "NO").

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

Room thermostats (heating/cooling)



Room thermostat - surface mounting (heating and cooling)
 Heating 0 - 10 V control
 Cooling 0 - 10 V control

24 V (25) **1152151**

The room thermostat is used for individual room temperature control in combination with the electrothermal actuator (0- 10 V) "Aktor T ST L NC", item no. 1012953, page 1.27, or the electromotive actuator "Aktor M ST L", item no. 1012705/06, page 1.28 (may also be used in three- or four-pipe systems). With one analogue output 0–10 V each for heating and cooling as well as adjustable neutral zone (0.5–7.5 K).
 Temperature range: 5 °C up to 30 °C
 For further information see "Technical information":

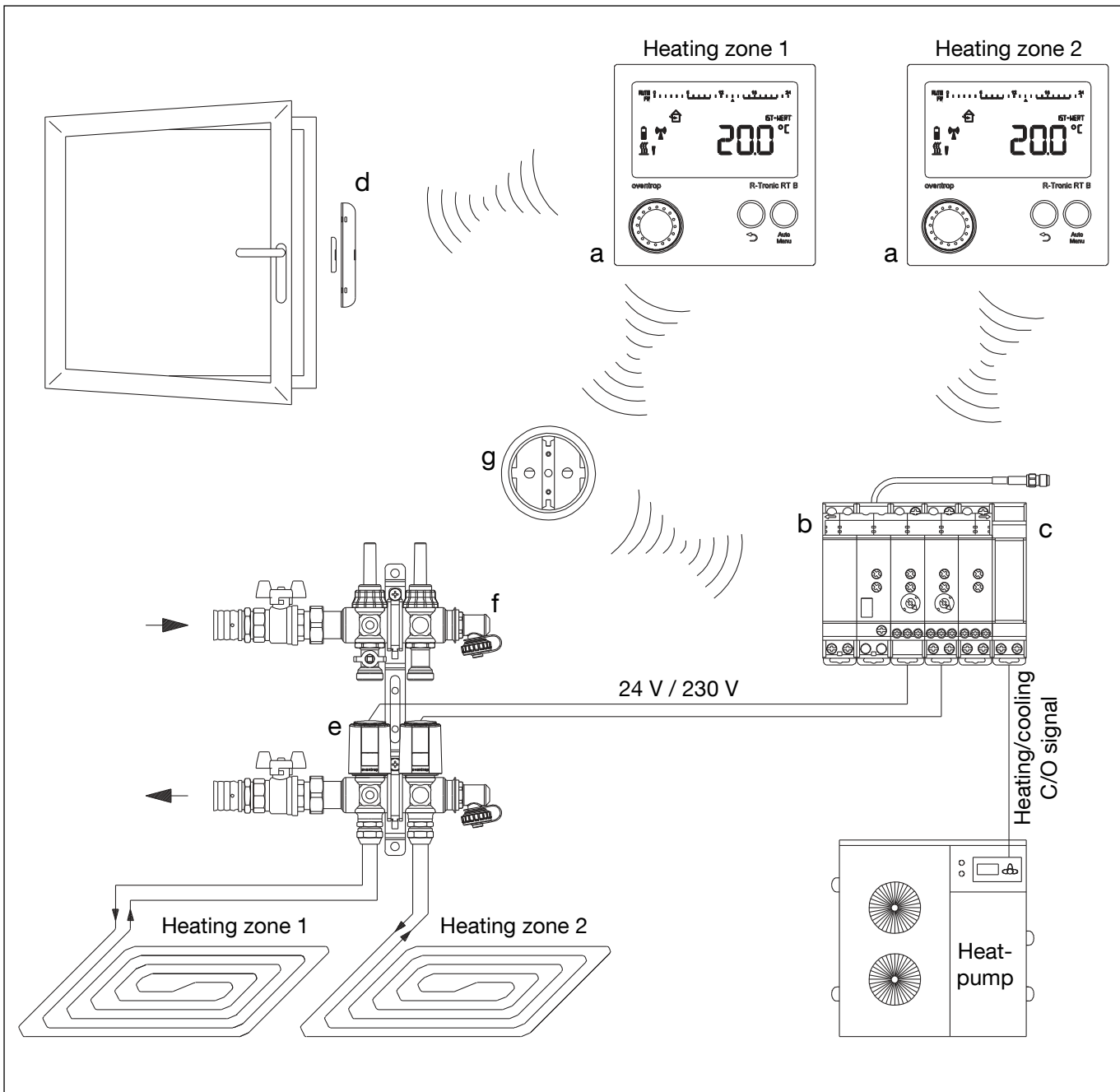


2.f Room thermostats with wireless transmitter, wireless receivers





Content



"R-Tronic RT B" Wireless thermostat	2.33
"R-Tronic RTF B" Wireless thermostat with humidity display	2.33
"R-Tronic RTFC K" Wireless thermostat with humidity and CO ₂ display	2.33
Accessories	2.34
"FK-C F" Wireless window contact	2.34
"RP-S F" Wireless repeater	2.34
"RP-C F" Wireless repeater	2.34
"R-Con" Wireless receiver	2.35



- a "R-Tronic RT B" / "R-Tronic RTF B" / "R-Tronic RTFC K" Wireless thermostat
- b "R-Con" Wireless receiver
- c "R-Con HC" Extension module heating/cooling
- d "FK-C F" Wireless window contact
- e "Aktor T 2P" (two point) Electrothermal actuator
- f "Multidis SF" Stainless steel distributor/collector
- g "RP-S F" Wireless repeater

Article	Article-No.	Hint
	<p>"R-Tronic RT B" Wireless thermostat</p> <p>Wireless thermostat with bi-directional wireless communication, battery operated, surface mounting</p> <p>traffic white (RAL 9016)</p>	<p>Electronic wireless thermostat "R-Tronic RT B" for room temperature control according to adjustable timed programmes. The nominal and actual temperature of the room can be displayed.</p> <p>Up to 3 participants (such as actuators for wireless thermostats "Aktor MH/MD CON B" and wireless receivers "R-Con") can be connected during battery operation . A supply via the network is an alternative, see accessories page 1.38.</p> <p>During mains operation, the number of participants can be increased to 8 which allows, for instance, for an integration of window contacts for room temperature setback.</p>
<p>1150680</p>		
	<p>"R-Tronic RTF B" Wireless thermostat with humidity display</p> <p>Wireless thermostat with bi-directional wireless communication and integrated humidity sensor, battery operated, surface mounting</p> <p>traffic white (RAL 9016)</p>	<p>Electronic wireless thermostat "R-Tronic RTF B" for room temperature control according to adjustable timed programmes. The nominal and actual temperature of the room can be displayed. An integrated humidity sensor supplies information on the relative humidity RH in %. The value is displayed in the text line.</p> <p>Up to 3 participants (such as actuators for wireless thermostats "Aktor MH/MD CON B" and wireless receivers "R-Con") can be connected during battery operation . A supply via the network is an alternative, see accessories page 1.38.</p> <p>During mains operation, the number of participants can be increased to 8 which allows, for instance, for an integration of window contacts for room temperature setback.</p>
<p>1150681</p>		
	<p>"R-Tronic RTFC K" Wireless thermostat with humidity and CO₂ display</p> <p>Wireless thermostat with bi-directional wireless communication and integrated humidity and CO₂ sensor</p> <p>traffic white (RAL 9016)</p>	<p>Electronic wireless thermostat "R-Tronic RTFC K" for room temperature control according to adjustable timed programmes. The nominal and actual temperature of the room can be displayed. An integrated humidity sensor supplies information on the relative humidity RH in % and an integrated CO₂ sensor on the CO₂ content in ppm in the room air. Both values are displayed in the text line.</p> <p>If preset limits are exceeded, a symbol asking for fresh air supply is displayed.</p>
<p>1150682</p>		
	<p>Power supply: Mains adaptor (100-240 V ~/ 50-60 Hz) with table stand</p>	<p>Up to 8 participants (such as actuators for wireless thermostats "Aktor MH/MD CON B", wireless receivers "R-Con" and wireless window contacts for room temperature setback) can be connected to the "R-Tronic RTFC K".</p> <p>Power is supplied by a flush-mounted power pack or a mains adaptor with table stand.</p>
<p>1150684</p>		

Article	Packing unit	Article-No.	Hint
Accessories			
		1150692	For the conversion of battery operated wireless thermostats "R-Tronic RT B/ RTF B" to an external power supply (100-240 V ~ / 50-60 Hz).
		1150694	
Flush-mounted power pack (100-240 V ~ /50-60 Hz) with wall bracket			
Mains adaptor (100-240 V ~/ 50-60 Hz) with table stand, white for stationary use, suitable for "i-Tronic TFC" and "R-Tronic RT B/RTF B"			
"FK-C F" Wireless window contact			
		1153070	A radio signal is transmitted when opening or closing the window. The solar powered energy storage ensures a maintenance-free operation.
solar powered, white (similar to RAL 9003)			Compatible with: - "R-Tronic" Wireless thermostats ("DynaTemp HA") - Wireless room modules ("DynaTemp BA")
Note: The wireless thermostats "R-Tronic" require the software version 01-06-02 or higher and have to be mains-operated.			
"RP-S F" Wireless repeater			
		1150699	The wireless repeater "RP-S F" serves to amplify the signal between the wireless thermostat "R-Tronic" and the "OVgateway" as well as the wireless receiver "R-Con"/ "R-Con 2P".
with switching function for installation into an earthed plug (230 V) white (similar to RAL 9003)			Switching of electrical appliances (230 V) and registration of the current consumption data can be carried out with the help of the intermediate plug.
"RP-C F" Wireless repeater			
	(50)	1153060	The repeater serves to amplify the EnOcean radiograms and is for instance used to increase the radio range between wireless window contacts and the wireless room modules.
for EnOcean wireless technology, flush mounting, 230 V/ 50 Hz			
	(50)	1150693*	For panelling flush sockets (milling holes Ø 83 mm, e.g. in Switzerland) for surface-mounted installation of the wireless thermostats "R-Tronic".
Cover frame 88 x 88 mm traffic white (RAL 9016)			

Article	Article-No.	Hint
---------	-------------	------

"R-Con" Wireless receiver



230 V, without plug, wiring on site, mounting rail installation according to DIN 60715

4 channels with logic module	1150770
4 channels without logic module	1150771
8 channels with logic module	1150772
8 channels without logic module	1150773

Electronic multichannel wireless receiver for room temperature control of up to 8 independent heating zones (surface heating) according to adjustable timed programmes at the wireless thermostats "R-Tronic RT B", "R-Tronic RTF B" and "R-Tronic RTFC K". Operation via the menu-driven wireless thermostat.

Additional functions (direct selection via the rotary switches at the wireless receiver):
 -Pump logic with adjustable lead time and follow-up time (only item no. 1150770/ 72)
 -Burner logic for heat demand (only item no. 1150770/ 72)
 -Two point control
 -PWM control for surface heating

Electrothermal actuators "Aktor T 2P" 24 V or 230 V can be connected to the channels (closing contact with 4A/250 V AC each).

The wireless receiver "R-Con" has to be installed in a cabinet (surface/flush mounting). The protective housing, item no. 1150776, is to be used alternatively.

An external transformer is required for the power supply of 24 V actuators.

"R-Con T 2P"



4 channel extension module for "R-Con", mounting rail installation according to DIN 60715

1150775*

The 4 channel extension module is connected to the wireless receiver "R-Con". It serves the extension by 4 channels which allows for the control of further heating zones (12, 16 ...) with one wireless receiver "R-Con".

"R-Con HC"



Extension module heating/cooling for wireless receiver "R-Con", mounting rail installation according to DIN 60715

1150774

The extension module is connected to the wireless receiver "R-Con" and is used for switching between heating and cooling operation via a C/O signal (change-over input). The C/O signal is provided by a reversible heat pump (volt free). Furthermore, the "R-Con HC" module features an input for dew point monitoring which interrupts cooling when the dew point is exceeded.

Protective housing for "R-Con" surface mounting



1150776*

The wireless receiver "R-Con" is mounted onto the rail (included in the delivery) to avoid direct contact with live parts (230 V).

2.g Actuators

Content



"Aktor T" Electrothermal actuators	2.38
Accessories	2.38



"Aktor T 2P" Electrothermal actuators (two point connection thread M 30 x 1.5)

"H NC", closed with current "off", 230 V **1012415**
 "L NC", closed with current "off", 24 V **1012416**

Oventrop electrothermal actuators are used for heating, ventilation and air conditioning. The actuators serve to control the room temperature and can be used e. g. with conventional radiators, radiators with integrated distributor, radiant ceiling panels, chilled ceiling systems and induction air systems in combination with two point room thermostats.
 Further applications in bivalent heating installations.
 Connecting cable 1 m.
 With "First-Open" function and stroke index.
 Simple plug-in connection with valve adapter.
 Actuators can be installed in any position.
 Due to their construction, the electrothermal actuators are secured against overvoltage which could occur when switching on neon tubes. A varistor is thus not necessary.

Accessories

Connecting block (6 control zones) for room thermostats and actuators



24 V/ 230 V, heating (25) **1400980**

Connecting block (10 control zones) for room thermostats and actuators



230 V, heating/cooling, pump control (25) **1400981**





24 V, heating/cooling, pump control (25) **1400982**

230 V, heating/cooling, pump and boiler control, time switch (25) **1400983***

Casing cover with integrated time switch.

2.h "Cofloor" Systems, "Copex" Pipes and accessories**Content**

"Cofloor" Base mat system	2.40
"Cofloor" Base mat system NP-R	2.43
"Cofloor" Tacker system	2.44
"Cofloor" Clamping rail system	2.45
"Cofloor" Hook and loop system	2.46
"Cofloor" Dry-build system	2.47
Accessories	2.48
PE-Xc "Copex" Plastic pipes	2.50
PE-RT/AL/PE-RT "Copipe HSC" Composition pipes	2.50
PE-RT "Copert" Plastic pipes	2.52
"Ofix K" Compression fittings	2.53
"Cofit S" Compression fittings	2.53
Double nipples	2.54
"Cofit P" Press couplings	2.54

Article	Packing unit	Article-No.	Hint
<p>"Cofloor" Base mat system for fixing 14 and 16 mm pipes with the possibility of 45° diagonal laying without auxiliary material</p> <p>Laying distances 5, 10, 15, 20, 25, 30 cm</p>			Suitable for concrete and liquid screed complying with standards.
 <p>Base mat NP-35 1.0 x 1.0 m = 1.0 m² with thermal and sound insulation made of expanded polystyrene, thermal conductivity group 040, thickness: 35-2 mm, covered with polystyrene foil, building material class B2 according to DIN 4102</p>			Thermal resistivity: R = 0.85 (m ² K)/W.
Max. load: 5 kN/m ²	(10)	1402210°	Only sold in units of 10 base mats per box.
 <p>Base mat NP-30 1.0 x 1.0 m = 1.0 m² with thermal and sound insulation made of expanded polystyrene, thermal conductivity group 040, thickness: 30-2 mm, covered with polystyrene foil, building material class B2 according to DIN 4102</p>			Thermal resistivity: R = 0.75 (m ² K)/W.
Max. load: 5 kN/m ²	(10)	1402410°	Only sold in units of 10 base mats per box.
 <p>Base mat NP-11 1.0 x 1.0 = 1.0 m² with thermal insulation made of expanded polystyrene, thermal conductivity group 035, thickness: 11 mm, covered with polystyrene foil, building material class B2 according to DIN 4102</p>			Thermal resistivity: R = 0.314 (m ² K)/W.
Max. load: 50 kN/m ²	(10)	1402310°	Only sold in units of 10 base mats per box.
 <p>Base mat NP 1.0 x 1.0 m = 1.0 m² without thermal insulation made of made of moulded polystyrene foil</p>			
	(18)	1402110°	Only sold in units of 18 base mats per box.
 <p>Compensation element 35 1.0 x 1.0 m folded, made of expanded polystyrene, thermal conductivity group 040, thickness: 35-2 mm,</p>			For fixing of the connection pipes in front of the distributor/collector and for laying in doorways.
covered with foil	(5)	1402290°	
 <p>Compensation element 30 1.0 x 1.0 m folded made of expanded polystyrene, thermal conductivity group 040, thickness: 30-2 mm</p>			
covered with foil	(5)	1402490°	

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------



Compensation element 11
1.0 x 1.0 m folded,
made of expanded polystyrene,
thermal conductivity group 035,
thickness: 11 mm,

covered with foil (5) **1402390°**



Connection element for
base mat

(10) **1402391**

For the connection of butt-jointed base mats.



Door and distributor/collector
connection element

(10) **1402392**

For use in doorways and the distributor/
collector area.



Fixing hook set for base mats
plastic
for 14 and 16 mm pipes

1 bag = 200 pieces **1409082**

For fixing heating pipes onto insulation boards
> 30 mm, for instance in front of the distributor/
collector.

For further information see
"Technical information":



Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

"Cofloor" Base mat system
with foil overlap on two sides,
for fixing 14, 16 and 17 mm pipes
with the possibility of 45° diagonal laying
without auxiliary material

Suitable for concrete and liquid screed
complying with standards.

Laying distances 6, 12, 18, 24, 30 cm

Base mat NP-30
1.44 x 0.84 m = 1.2 m²
with thermal and sound insulation
made of expanded polystyrene,
thermal conductivity group 040, thickness: 30-2 mm,
covered with polystyrene foil, building material class B2
according to DIN 4102

Thermal resistivity:
R = 0.75 (m² K)/W.



Max. load: 5 kN/m² (8) **1402430**

Only sold in units of 8 base mats per box.

Base mat NP-11
1.44 x 0.84 = 1.2 m²
with thermal insulation made of expanded polystyrene,
thermal conductivity group 035, thickness: 11 mm,
covered with polystyrene foil, building material class B2
according to DIN 4102

Thermal resistivity:
R = 0.314 (m² K)/W.



Max. load: 45 kN/m² (8) **1402330**

Only sold in units of 8 base mats per box.

Base mat NP
1.44 x 0.84 m = 1.2 m²
made of moulded polystyrene foil (14) **1402130**

Only sold in units of 14 base mats per box.



Connection element for
base mat (10) **1402393**

For the connection of butt-jointed base mats.



Door and distributor/collector
connection element (10) **1402394**

For use in doorways and the distributor/
collector area.



Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

**"Cofloor" Base mat system NP-R
Thin layered system**

Pre-punched base mat without thermal insulation with foil overlap on two sides, for fixing 12 mm pipes with the possibility of 45° diagonal laying without auxiliary material

Laying distances 5, 10, 15 cm

The perforation of the base mats allows for a simple application and a safe bonding of the levelling compound and the existing ground.

Tested minimum construction heights:
 - Knauf N 430 min. 17 mm
 - PCI periplan extra min. 18 mm
 - Weber-Maxit weber.floor min. 18 mm
 - Knauf N 440 min. 21 mm
 - Mapei Novoplan-Maxi min. 18 mm
 - Sopro filler FS 15 plus (FS 15 550) min. 18 mm

Further products on request!

The laying advice must be observed.

Only sold in units of 10 base mats per box.



Base mat NP-R

1.0 x 1.0 m = 1.0 m²
 without thermal insulation
 made of moulded polystyrene foil,
 with adhesive layer on reverse

(10) 1402010

Edge insulating strip

with adhesive edge
 and integrated fleece back
 height: 50 mm, thickness: 5 mm

length per roll 20 m

(5) 1401990

Only sold in units of 5 rolls per bag.



PE-RT "Copert" Plastic pipe
with oxygen barrier

rolls

Dimension 12 x 2.0 mm

length per roll 200 m

(200) 1401952

Application:
 Surface heating and cooling.
 Pipes according to
 DIN 16833 / DIN 16834.
 Oxygen tight according to DIN 4726.

Max. operating pressure p_s: 6 bar at 70 °C



Duo connection piece

1 x G 3/4 collar nut 2 x G 3/4 male thread 1022655

For the connection of two heating circuits.



"Ofix K" compression fittings

"Ofix K" for plastic pipes according to DIN 4726, PE-X according to DIN 16892/16893, PB according to DIN 16968, PP according to DIN 8078 A1, collar nut **unplated**, metal to metal sealing plus O-ring

12 x 2 mm

(10) 1027772



Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

"Cofloor" Tacker system
for fixing 14, 16 and 17 mm pipes

Suitable for concrete and liquid screed complying with standards.

Base mat roll and folded board with laminated tissue foil, with imprinted laying screen (screen distance 5 cm), with foil overlap on one side and adhesive strip on the opposite

Laying distances 5, 10, 15, 20, 25, 30 cm

Base mat roll

10.0 x 1.0 m = 10.0 m²
with thermal and sound insulation
made of expanded polystyrene according to DIN EN 13163, building material class B2 according to DIN 4102



Thickness 20-2 mm	1402515
Thickness 35-3 mm	1402500
Thickness 30-3 mm	1402505
Thickness 25-2 mm	1402510
Thickness 30-2 mm	1402507
Thickness 20-2 mm	1402520

Thermal resistivity	Thermal conductivity group	Max. load
R = 0.50 (m ² K)/W	040	5 kN/m ²
R = 0.78 (m ² K)/W	045	4 kN/m ²
R = 0.67 (m ² K)/W	045	4 kN/m ²
R = 0.56 (m ² K)/W	045	4 kN/m ²
R = 0.75 (m ² K)/W	040	5 kN/m ²
R = 0.44 (m ² K)/W	045	4 kN/m ²

Folded board

2.0 x 1.0 m = 2.0 m²
with thermal and sound insulation
made of expanded polystyrene according to DIN EN 13163, building material class B2 according to DIN 4102



Thickness 35-3 mm	(5)	1402600
Thickness 30-3 mm	(5)	1402605
Thickness 30-2 mm	(5)	1402607
Thickness 25-2 mm	(5)	1402610
Thickness 20-2 mm	(5)	1402620

Thermal resistivity	Thermal conductivity group	Max. load
R = 0.78 (m ² K)/W	045	4 kN/m ²
R = 0.67 (m ² K)/W	045	4 kN/m ²
R = 0.75 (m ² K)/W	040	5 kN/m ²
R = 0.56 (m ² K)/W	045	4 kN/m ²
R = 0.44 (m ² K)/W	045	4 kN/m ²

Only sold in units of 5 boards per foil bag.

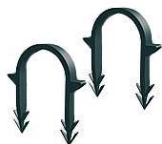
Tacker machine **1402597**



For fixing the heating pipes onto the base mat roll or folded board by use of tacker hooks.

Tacker hooks

plastic
for 14, 16, 17 and 20 mm pipes



1 magazine = 30 pieces	(10)	1402591
10 magazines = 300 pieces	(20)	1402592

For fixing the heating pipes onto the base mat roll or folded board by use of the tacker machine.
Only sold in packing units.

For further information see "Technical information":



Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------



Tacker machine 1402596

For fixing the heating pipes onto the base mat roll or folded board by use of tacker hooks.



Tacker hooks
heat-welded, plastic,
for 14, 16, 17 and 20 mm pipes
10 magazines = 300 pieces (20) 1402594

For fixing the heating pipes onto the base mat roll or folded board by use of the tacker machine.
Only sold in packing units.



Tape gun
for tapes
with a width of 50 mm 1402598

For bonding the linings of the base mat rolls or insulation boards.



Adhesive tape
50 mm x 66 m (36) 1402599

For bonding the linings of the base mat rolls or insulation boards to prevent penetration of screed water.

"Cofloor" Clamping rail system










Self-adhesive clamping rail made of polypropylene,
clamping distance 5 cm, length 1 m
for 14 mm pipe (100) 1402580

For fixing the heating pipes onto the insulation.



for 16 mm pipe (100) 1402581

Article	Packing unit	Article-No.	Hint									
<p>"Cofloor" Hook and loop system for fixing 16 x 2 mm pipes with hook and loop fixing</p> <p>Base mat roll with laminated velour foil with hook and loop fixing with imprinted laying screen (screen distance 5 cm), with foil overlap on one side and adhesive strip on the opposite</p> <p>Laying distances 5, 10, 15, 20, 25, 30 cm</p>			Suitable for concrete and liquid screed complying with standards.									
	<p>Base mat roll with hook and loop fixing 10.0 x 1.0 m = 10.0 m² with thermal and sound insulation, made of expanded polystyrene according to DIN EN 13163, building material class B2 according to DIN 4102</p>		<table border="1"> <thead> <tr> <th>Thermal resistivity</th> <th>Thermal conductivity group</th> <th>Max. load</th> </tr> </thead> <tbody> <tr> <td>R = 0.44 (m²K)/W</td> <td>045</td> <td>4 kN/m²</td> </tr> <tr> <td>R = 0.75 (m²K)/W</td> <td>040</td> <td>5 kN/m²</td> </tr> </tbody> </table>	Thermal resistivity	Thermal conductivity group	Max. load	R = 0.44 (m ² K)/W	045	4 kN/m ²	R = 0.75 (m ² K)/W	040	5 kN/m ²
	Thermal resistivity	Thermal conductivity group		Max. load								
R = 0.44 (m ² K)/W	045	4 kN/m ²										
R = 0.75 (m ² K)/W	040	5 kN/m ²										
Thickness 30-2 mm		1403507*										
Thickness 20-2 mm		1403520*										
	<p>PE-RT "Copert" Plastic pipe with hook and loop fixing with oxygen barrier</p> <p>rolls</p> <p>Dimension 16 x 2 mm</p> <p>length per roll 240 m</p>		<p>Application: Surface heating and cooling. Pipe according to DIN 16833 / DIN 16834. Oxygen tight according to DIN 4726. Max. operating pressure p_s: 6 bar at 70 °C</p>									
				1402162*								
	<p>PE-RT/AL/PE-RT Composition pipe with hook and loop fixing</p> <p>rolls</p> <p>Dimension 16 x 2 mm</p> <p>length per roll 200 m</p>		<p>Application: Surface heating and cooling.</p> <p>Max. operating pressure p_s: 6 bar at 60 °C</p>									
				1540355*								
	<p>Tape gun for tapes</p> <p>with a width of 50 mm</p>		<p>For bonding the linings of the base mat rolls or insulation boards.</p>									
				1402598								
	<p>Adhesive tape</p> <p>50 mm x 66 m</p>		<p>For bonding the linings of the base mat rolls or insulation boards to prevent penetration of screed water.</p>									
		(36)		1402599								
	<p>Pipe guiding eye for coil unwinder for pipes with hook and loop fixing</p>		<p>Adapter and pipeguiding eye with telescopic extension to be connected to the coil unwinders, item no. 1402096/98. Protects the pipe with hook and loop fixing from direct contact with the floor during laying.</p>									
				1402070*								
	<p>Pipe guiding eye for walls for pipes with hook and loop fixing</p>		<p>For use, e.g. in lintel areas. Protects the pipe with hook and loop fixing from direct contact with the floor during laying.</p>									
				1402071*								

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

"Cofloor" Dry-build system
for fixing 14 mm "Copipe" composition pipes

Laying distances 12.5, 25 cm

For laying of surface heating systems on solid or timber beam floors as a dry-build system (reduced overall thickness, for instance renovation of existing buildings) or with heating screed according to DIN 18560 on a membrane made of polystyrene. Taking certain installation conditions into consideration, the dry-build system is also suitable for wall heating and cooling systems.

Dry-build element
1000 x 500 x 25 mm
made of expanded polystyrene according to DIN EN 13163, thermal conductivity group 035, building material class B1 according to DIN 4102



Max. load: 60 kN/m² (10) **1402800**

Element for serpentine or spiral laying of the heat conducting strips and elbows. For "Copipe HSC" composition pipe 14 x 2 mm. Thermal resistivity: R = 0.5 (m²K)/W.

Only sold in units of 10 boards wrapped up in a plastic foil.

Heat conducting strip
998 x 122 x 0.4 mm
made of galvanised sheet steel



with pre-punched break points in the grooves (48) **1402850**

For laying "Copipe HSC" composition pipe 14 x 2 mm and for improvement of the heat transmission by a large surface covering of the dry-build elements.

Only sold in units of 48 strips per box.

Heat conducting elbow
110 x 245 x 0.5 mm



made of galvanised sheet steel (25) **1402855**

For serpentine laying of the "Copipe HSC" composition pipe 14 x 2 mm in the edge areas.

Only sold in units of 25 elbows per box.

Infill panel
1000 x 500 x 25 mm
made of expanded polystyrene according to DIN EN 13163, thermal conductivity group 035, max. load 60 kN/m², building material class B1 according to DIN 4102



(19) **1402857**

Only sold in units of 19 panels wrapped up in a plastic foil.

Membrane
made of polyethylene 0.2 mm



Dimensions of roll 25 m x 4 m **1402895**

As separation layer between dry-build system and concrete or liquid screed.








Hot cutting machine **1402891**



Manual tool for cutting individual pipe ducts into the infill panel.







For further information see "Technical information":



Article	Packing unit	Article-No.	Hint
Accessories			
 <p>Edge insulating strip with bonded foil and perforation, height: 150 mm, thickness: 10 mm, made of polyethylene foam</p>	length per roll 25 m	(8) 1402090	Suitable for concrete and liquid screed complying with DIN EN 1264-4/ DIN 18560 T2.
 <p>Edge insulating strip with perforation self-adhesive on the wall side, with self-adhesive polyethylene flap, height: 150 mm, thickness: 10 mm, made of polyethylene foam</p>	length per roll 25 m	(8) 1402191	The self-adhesive polyethylene flap allows sealing of the junction between the base mat and the edge insulating strip when laying liquid screed.
 <p>Expansion strip with adhesive edge, height: 120 mm, thickness: 10 mm, made of polyethylene foam</p>	length: 1.20 m	(20) 1402091	To provide screed joints according to DIN EN 1264-4 / DIN 18560 T2.
 <p>Protective tube made of LDPE</p>	Length: 300 mm, slotted, for 14, 16 and 17 mm pipes	(20) 1501184	<p>For protecting the pipe</p> <ul style="list-style-type: none"> - at junction points of screed joints according to DIN EN 1264-4 / DIN 18560 T 2 - at the entry points when set in concrete - at the exit points when set in concrete <p>Only sold in units of 20 protective tubes per bag.</p>
 <p>Round profile made of polystyrene foam Ø 20 mm</p>	Dispenser of 150 m	1402092	<p>Serves as sealing between base mat and edge insulating strip when using concrete screed.</p> <p>Only sold in units = 1 dispenser.</p>
 <p>Pipe guiding elbow plastic</p>	<p>for 14 - 16 mm pipes Set = 10 pieces (50) 1409085</p> <p>for 20 mm pipe Set = 10 pieces (10) 1409086</p> <p>for 26 mm pipe Set = 10 pieces (10) 1409087</p>		For the inversion and fixing of the "Copert" and "Copex" pipes in case of 90 ° bends, for instance in front of the distributor/collector and in screed passages.
 <p>Marker point for measuring screed humidity plastic</p>	Set = 5 pieces	(10) 1409090	To mark the points of measurement of humidity of the screed.



Article	Article-No.	Hint
Screed additive Additional component to produce concrete screed for heated underfloor constructions	1409095	For homogenization and improvement of the workability as well as for increase of the concrete screed density.
Content of canister 10 l		

Article	Packing unit	Article-No.	Hint
PE-Xc "Copex" Plastic pipes with oxygen barrier			Application: Surface heating and cooling.
rolls			Pipes according to DIN 16892 / DIN 16893 / DIN EN ISO 15 875 / EN1264-4 (except for dimension 26). Oxygen tight according to DIN 4726 (all dimensions).
	Dimension 14 x 2 mm		Max. operating pressure p _s : 6 bar at 90 °C 10 bar at 60 °C
	length per roll 120 m	(120) 1400051	
	length per roll 240 m	(240) 1400052	
	length per roll 600 m	(600) 1400054	
	Dimension 16 x 2 mm		Max. operating pressure p _s : 6 bar at 90 °C 10 bar at 60 °C
	length per roll 120 m	(120) 1400151	
	length per roll 240 m	(240) 1400152	
	length per roll 600 m	(600) 1400154	
	Dimension 17 x 2 mm		Max. operating pressure p _s : 6 bar at 90 °C 10 bar at 60 °C
	length per roll 120 m	(120) 1400251	
	length per roll 240 m	(240) 1400252	
	length per roll 600 m	(600) 1400254	
	Dimension 20 x 2 mm		Max. operating pressure p _s : 6 bar at 90 °C 8 bar at 70 °C
	length per roll 240 m	(240) 1400352	
	length per roll 600 m	(600) 1400354	
	Dimension 26 x 3 mm		Max. operating pressure p _s : 6 bar at 90 °C 10 bar at 60 °C
	length per roll 50 m	(50) 1400560	
	length per roll 200 m	(200) 1400562	
	length per roll 300 m	(300) 1400563	
PE-RT/AL/PE-RT "Copipe HSC" Composition pipes			Application: Central heating systems with circulation pump, surface heating and cooling systems as well as sanitary installations.
rolls			DVGW tested (dimensions 14 x 2.0 mm and 17 x 2.0 mm). DVGW approved (dimensions 16 x 2.0 mm and 20 x 2.5 mm). DVGW reg.-no.: DW-8501 AT2407
	Dimension 14 x 2 mm		Max. operating pressure p _s : 6 bar at 90 °C 10 bar at 70 °C
	length per roll 50 m	(50) 1541054	
	length per roll 100 m	(100) 1540154	
	length per roll 200 m	(200) 1540254	
	Dimension 16 x 2 mm		Oxygen tight three-layered composition pipe – inner layer made of PE-RT – aluminium pipe welded end to end – outer coating made of PE-RT bonded by adhesive layers
	length per roll 50 m	(50) 1541055	
	length per roll 100 m	(100) 1540155	
	length per roll 200 m	(200) 1540255	
	length per roll 500 m	(500) 1540555	

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------










Dimension 17 x 2 mm

length per roll 200 m	(200)	1540257
length per roll 500 m	(500)	1540557



Dimension 20 x 2.5 mm

length per roll 50 m	(50)	1541060
length per roll 100 m	(100)	1540160
length per roll 200 m	(200)	1540260

Article	Packing unit	Article-No.	Hint
<p>PE-RT "Copert" Plastic pipes with oxygen barrier</p>			<p>Application: Surface heating and cooling.</p>
<p>rolls</p>			<p>Pipes according to DIN 16833/DIN 16834. Oxygen tight according to DIN 4726.</p>
<p>Dimension 14 x 2 mm</p>			<p>Max. operating pressure p_s: 6 bar at 70 °C</p>
	length per roll 240 m	(240) 1402052	
	length per roll 600 m	(600) 1402054	
<p>Dimension 16 x 2 mm</p>			
	length per roll 240 m	(240) 1402152	
	length per roll 600 m	(600) 1402154	
<p>Dimension 17 x 2 mm</p>			
	length per roll 240 m	(240) 1402252	
	length per roll 600 m	(600) 1402254	
<p>Dimension 20 x 2 mm</p>			
	length per roll 240 m	(240) 1402352	
<p>Other sizes, for instance for the installation of risers: page 13.06.</p>			
<p>Press and screwed fittings: from page 13.09.</p>			
<p>Tools, e. g. pipe cutter, pipe shears, universal tool for deburring and calibrating: from page 13.35.</p>			
<p>Coil unwinder for pipes</p>			<p>For rolls up to 600 m. Completely dismountable and collapsible.</p>
	fixed	1402096	
	mobile	1402098	
			
	Transport chart	1402099	

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

"Ofix K" Compression fittings
 for G 3/4 male thread according to DIN EN 16313 (cone "Euro")

"Ofix K" for plastic pipes according to DIN 4726, PE-X according to DIN 16892/16893, PB according to DIN 16968, PP according to DIN 8078 A1, collar nut **nickel plated**, metal to metal sealing plus O-ring



14 x 2 mm	(10)	1027755
16 x 2 mm	(10)	1027757
17 x 2 mm	(10)	1027759
20 x 2 mm	(10)	1027763

For the connection of the "Copex" PE-Xc pipes and the "Copert" PE-RT pipes to the distributor/collector and for couplings.

The permissible operating pressures and operating temperatures depend on the application classes of the respective standards of the plastic pipework systems (e.g. PE-X, DIN EN ISO 15875).

"Ofix K" for plastic pipes according to DIN 4726, PE-X according to DIN 16892/16893, PB according to DIN 16968, PP according to DIN 8078 A1, collar nut **unplated**, metal to metal sealing plus O-ring



14 x 2 mm	(10)	1027775
16 x 2 mm	(10)	1027777
17 x 2 mm	(10)	1027779
20 x 2 mm	(10)	1027783

"Cofit S" Compression fittings
 for G 3/4 male thread according to DIN EN 16313 (cone "Euro"),
 for "Copipe" composition pipes and, provided similar preparation is used, for plastic pipes,
 metal to metal sealing plus O-ring,
 outlet made of bronze,
 compression ring and collar nut made of brass

For the connection of the pipes to the distributor/collector and for couplings.
 (Interior of plastic pipes must be deburred.)

Collar nut nickel plated



14	x 2.0 mm	x G 3/4 c/nut	(10)	1507954
16	x 2.0 mm	x G 3/4 c/nut	(10)	1507955
17	x 2.0 mm	x G 3/4 c/nut	(10)	1507959

Collar nut unplated



14	x 2.0 mm	x G 3/4 c/nut	(10)	1507974
16	x 2.0 mm	x G 3/4 c/nut	(10)	1507975

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

"Cofit S" Compression fittings

for G 3/4 male thread according to DIN EN 16313 (cone "Euro"),
 for "Copipe" composition pipes and, provided similar
 preparation is used, for plastic pipes,
 2-fold, metal to metal sealing plus O-ring,
 outlet made of bronze,
 compression ring and collar nut made of brass,
 collar nut **nickel plated**



14 x 2.0 mm x G 3/4 collar nut	(10)	1507934	
16 x 2.0 mm x G 3/4 collar nut	(10)	1507935	
17 x 2.0 mm x G 3/4 collar nut	(10)	1507937	
18 x 2.0 mm x G 3/4 collar nut	(10)	1507938	
20 x 2.0 mm x G 3/4 collar nut	(10)	1507939	
20 x 2.5 mm x G 3/4 collar nut	(10)	1507940	

Double nipples

Double nipple, brass, nickel plated



G 3/4 male x G 3/4 male	(10)	1028263	
-------------------------	------	----------------	--

Port G 3/4 with tapered sealing according to
 DIN EN 16313 (cone "Euro").

Double nipple, bronze, unplated



G 3/4 male thread x G 3/4 male thread	(25)	1504054	
--	------	----------------	--

"Cofit P" Press couplings

for "Copipe HSC" composition pipes and, provided
 similar preparation is used, for plastic pipes,
 dimension 16 and 20 x 2.5 mm made of bronze,
 dimension 14, 17 and 20 x 2.0 mm made of brass resistant
 to dezincification, casing made of stainless steel

(Interior of plastic pipes must be deburred.)

Further sizes see page 11.14.

Press coupling



14 x 2 mm	x 14 x 2 mm	(10)	1512542	
16 x 2 mm	x 16 x 2 mm	(10)	1512543	
17 x 2 mm	x 17 x 2 mm	(10)	1512544	
20 x 2.5 mm	x 20 x 2.5 mm	(10)	1512545	
20 x 2 mm	x 20 x 2 mm	(10)	1512541	

Suitable press bits:

Item no. 1519489 (Ø 14 x 2 mm)
 Item no. 1519491 (Ø 16 x 2 mm)
 Item no. 1519488 (Ø 17 x 2 mm)
 Item no. 1519492 (Ø 20 x 2.5 mm)
 Item no. 1519481 (Ø 20 x 2 mm)

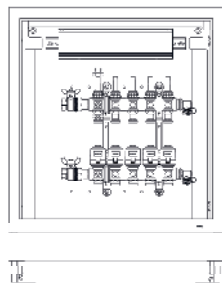
2.i "Multidis Fix" Distributor/collector systems

Content

"Multidis Fix B" Pre-assembled stainless steel distributor/collector fixed in a cabinet 2.56

Article	Article-No.	Hint
---------	-------------	------

"Multidis Fix B" Pre-assembled stainless steel distributor/collector fixed in a cabinet
 for surface heating and cooling systems (basic configuration)



Pre-assembled and ready for connection with stainless steel distributor/connector "Multidis SF", ball valves, actuators, connecting block for actuators, fixed in a flush-mounted cabinet

for 2 circuits	1406152
for 3 circuits	1406153
for 4 circuits	1406154
for 5 circuits	1406155
for 6 circuits	1406156
for 7 circuits	1406157
for 8 circuits	1406158
for 9 circuits	1406159
for 10 circuits	1406160
for 11 circuits	1406161
for 12 circuits	1406162

Application:
 Stainless steel distributor/collector for surface heating and cooling systems.
 Max. operating pressure p_g : 6 bar (PN 6)
 Max. operating temperature t_g : 80 °C

Installation set consisting of:

- Flush-mounted cabinet
- Stainless steel distributor/collector "Multidis SF" with integrated flow measuring and regulating devices 0 - 5 l/min in the flow distributor
- Ball valves DN 20
- "Aktor T 2P" electrothermal actuators, closed with current "off", 230 V
- Connecting block



2.j "Multidis SFQ" distributor/collector with "Q-Tech" for automatic hydronic balancing

Content

"Multidis SFQ" Stainless steel distributor/collector	2.58
--	------

Article	Article-No.	Hint
---------	-------------	------

"Multidis SFQ" Stainless steel distributor/collector for surface heating and cooling systems with integrated isolating facilities in the flow distributor with "Q-Tech" for automatic hydronic balancing flat sealing, with valve inserts M 30 x 1.5 for thermostatic and electronic control



for 2 circuits	1404752
for 3 circuits	1404753
for 4 circuits	1404754
for 5 circuits	1404755
for 6 circuits	1404756
for 7 circuits	1404757
for 8 circuits	1404758
for 9 circuits	1404759
for 10 circuits	1404760
for 11 circuits	1404761
for 12 circuits	1404762

Application:
 Stainless steel distributor/collector for surface heating and cooling systems.

Max. operating pressure p_s : 6 bar (PN 6)
 Max. operating temperature t_s : 80° C
 Flow range: 0.5 - 5 l/min

Description:
 Distributor/collector pre-assembled. With fill and drain valves. Heating circuit connections G 3/4 male thread for Oventrop compression fittings.
 Flow distributor with integrated isolating facilities. Return collector with integrated valve inserts. Brackets (loosely added) soundabsorbing according to DIN 4109.

Cabinets and dimension chart: page 2.64

"Multidis SFQ" Stainless steel distributor/collector for surface heating and cooling systems with integrated flow indicators in the flow distributor with "Q-Tech" for automatic hydronic balancing flat sealing, with valves inserts M 30 x 1.5 for thermostatic and electronic control



for 2 circuits	1404852*
for 3 circuits	1404853*
for 4 circuits	1404854*
for 5 circuits	1404855*
for 6 circuits	1404856*
for 7 circuits	1404857*
for 8 circuits	1404858*
for 9 circuits	1404859*
for 10 circuits	1404860*
for 11 circuits	1404861*
for 12 circuits	1404862*

Application:
 Stainless steel distributor/collector for surface heating and cooling systems.

Max. operating pressure p_s : 6 bar (PN 6)
 Max. operating temperature t_s : 70° C

Description:
 Distributor/collector pre-assembled. With fill and drain valves. Heating circuit connections G 3/4 male thread for Oventrop compression fittings.
 Flow distributor with integrated flow indicators. Return collector with integrated valve inserts. Bracket (loosely added) sound-absorbing according to DIN 4109.



2.k "Multidis SF/SFB/SFI" Distributors/collectors for surface heating and cooling systems

Content

"Multidis SF" Stainless steel distributor/collector	2.60
"Multidis SFB" Stainless steel distributor/collector	2.61
"Multidis SFI" Brass distributor/collector for industrial surface heating and cooling systems	2.61
Accessories	2.62
"Optiflex" Ball valve	2.62
"Cofit S" Compression fittings	2.62
Valve insert for stainless steel distributors/collectors "Multidis SF"	2.63
Ball valves	2.63
Flush-mounted cabinets	2.64
Surface-mounted cabinets	2.64
Cylinder lock	2.65
Heat meter connection sets	2.66
Differential pressure relief device	2.68
Angle pattern connection set	2.68
"Hycocon VTZ" Double regulating and commissioning valve	2.68
"Hycocon DTZ" Differential pressure regulator	2.68

Article	Article-No.	Hint
---------	-------------	------

"Multidis SF" Stainless steel distributor/collector for surface heating and cooling systems with integrated regulating inserts in the flow distributor
flat sealing, with valve inserts M 30 x 1.5
for thermostatic and electronic control



for 2 circuits	1405552
for 3 circuits	1405553
for 4 circuits	1405554
for 5 circuits	1405555
for 6 circuits	1405556
for 7 circuits	1405557
for 8 circuits	1405558
for 9 circuits	1405559
for 10 circuits	1405560
for 11 circuits	1405561
for 12 circuits	1405562

Application:
Stainless steel distributor/collector for surface heating and cooling systems.
Max. operating pressure p_g : 6 bar (PN 6)
Max. operating temperature t_s : 80° C

Description:
Distributor/collector pre-assembled. With fill and drain valves. Heating circuit connections G 3/4 male thread for Oventrop compression fittings.
Flow distributor with integrated regulating inserts. Return collector with integrated valve inserts. Brackets (loosely added) sound-absorbing according to DIN 4109.

Cabinets and dimension chart: page 2.64

"Multidis SF" Stainless steel distributor/collector for surface heating and cooling systems with integrated flow measuring and regulating devices 0-5 l/min. in the flow distributor
flat sealing, with valve inserts M 30 x 1.5
for thermostatic and electronic control



for 2 circuits	1405352
for 3 circuits	1405353
for 4 circuits	1405354
for 5 circuits	1405355
for 6 circuits	1405356
for 7 circuits	1405357
for 8 circuits	1405358
for 9 circuits	1405359
for 10 circuits	1405360
for 11 circuits	1405361
for 12 circuits	1405362

Article	Article-No.	Hint
---------	-------------	------

"Multidis SFB" Stainless steel distributor/collector for surface heating and cooling systems with heating circuit valves with presettable bypass and integrated regulating inserts in the flow distributor

flat sealing, with valve inserts M 30 x 1.5 for thermostatic and electronic control



for 2 circuits	1405452
for 3 circuits	1405453
for 4 circuits	1405454
for 5 circuits	1405455
for 6 circuits	1405456
for 7 circuits	1405457
for 8 circuits	1405458
for 9 circuits	1405459
for 10 circuits	1405460
for 11 circuits	1405461
for 12 circuits	1405462

Application:
 Stainless steel distributor/collector for surface heating and cooling systems.
 Max. operating pressure p_s : 6 bar (PN 6)
 Max. operating temperature t_s : 80°C
 Setting of a minimum volume flow via the bypass at the heating circuit valve guaranteeing a perfect operation of heat pumps and a basic heat load of the underfloor heating (no cooling down).

Description:
 Distributor/collector pre-assembled. With fill and drain valves. Heating circuit connections G 3/4 male thread for Oventrop compression fittings.
 Flow distributor with integrated regulating inserts. Return collector with integrated valve inserts with presettable bypass. Brackets (loosely added) sound-absorbing according to DIN 4109.

Cabinets and dimension chart: page 2.64

"Multidis SFI" Brass distributor/collector for industrial surface heating and cooling systems

flat sealing distributor/collector modules, flow distributor with ball valves and return collector with regulating valves, extension to max. 20 circuits by connecting the distributor/collector modules








for 2 circuits	1414452
for 3 circuits	1414453
for 4 circuits	1414454
for 5 circuits	1414455
for 6 circuits	1414456

Application:
 Central heating systems with circulation pump and cooling systems.
 Max. operating pressure p_s : 6 bar (PN 6)
 Max. operating temperature t_s : 90 °C

Description:
 Pre-assembled distributor/collector modules, one port G 2 male thread, one port G 2 collar nut, with G 1/2 blind plug.
 Flow distributor with ball valves. Return collector with regulating valves.
 Heating circuit connections with G 1 male thread for Oventrop compression fittings.

For further information see "Technical information":



Article	Packing unit	Article-No.	Hint
Accessories			
Console			
	for "Multidis SFI" brass distributor/collector 2-fold, steel galvanised, adjustable height and depth	1414490	Consoles with 2 pipe clamps each including sound insulation supports and quick acting lock. Wall attachment included.
Cap G 2 female thread			
	for brass distributor/collector "Multidis SFI" 2-fold, brass	1414493	For closing the ends of the distributor/collector.
Ball valve flat sealing			
	DN 50 G 2 F x G 2 M	1406586	For the isolation of the flow distributors and return collectors.
"Optiflex" Ball valve			
	brass, handle with stop		For filling and venting.
	self sealing, with couternut, with hose connection (soft seal) and cap		
	DN 15	(50) 1033314	
"Cofit S" Compression fittings			
	for "Copex" PE-Xc plastic pipes, 2-fold, metal to metal sealing plus O-ring, outlet bronze / brass resistant to dezincification, brass compression ring, brass collar nut, unplated		For the connection of the "Copex" PE-Xc plastic pipes to the distributor as well as for couplings.
	20 x 2.0 mm x G 1 collar nut	(10) 1507969	
	26 x 3.0 mm x G 1 collar nut	(10) 1507979	

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

Valve insert for stainless steel distributors/collectors "Multidis SF"

Brass (25) **1404091**



Coupling

nickel plated

G 3/4 male x G 1 male (50) **1407206**



For the connection of two stainless steel distributors/collectors "Multidis SF" (do not exceed a maximum of 12 heating circuits in total).

Ball valves

flat sealing

DN 20 G 3/4 F x G 1 M (10) **1406383**
DN 25 G 1 F x G 1 M (10) **1406384**



flat sealing, with thermometer (0–80°C)
with red T-handle

DN 20 G 3/4 F x G 1 M **1406483**
DN 25 G 1 F x G 1 M **1406484**



flat sealing, with thermometer (0–80°C)
with blue T-handle

DN 20 G 3/4 F x G 1 M **1406583**
DN 25 G 1 F x G 1 M **1406584**



flat sealing,
with sensor connection M 10 x 1.0

DN 25 G 1 F x G 1 M (10) **1406708**



Ball valve

for "Multidis SF/SFB" stainless steel distributor/collector

with cone "Euro"

G 3/4 male x G 3/4 collar nut (50) **1406504**



Ball valve for the isolation of the heating circuits at the distributor/collector. Heating circuit connection G 3/4 male thread according to DIN EN 16313 (cone "Euro") for Oventrop compression fittings. Distributor/collector connection with collar nut G 3/4 and O-ring seal.

Article Article-No. Hint

Flush-mounted cabinets

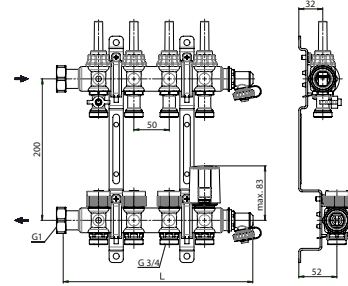
steel, galvanised, frame and doors white lacquered
removable screen



- No. 1: inner width: 560 mm **1401151**
- No. 2: inner width: 700 mm **1401152**
- No. 3: inner width: 900 mm **1401153**
- No. 4: inner width: 1200 mm **1401154**

Depth: 115 – 180 mm
Height: 760 – 885 mm

When using heat meter connection sets, the sum of the installation length and the length of the distributor have to be taken into consideration.



Outlet	Length (L)	No. ^{oo}	Length (L) with ball valve 1406384	No. ^{oo}
2	168 mm	1	248 mm	1
3	218 mm	1	298 mm	1
4	268 mm	1	348 mm	1
5	318 mm	1	398 mm	1
6	368 mm	1	448 mm	1
7	418 mm	1	498 mm	2
8	468 mm	2	548 mm	2
9	518 mm	2	598 mm	3
10	568 mm	2	648 mm	3
11	618 mm	3	698 mm	3
12	668 mm	3	748 mm	3

^{oo}No. of cabinets

Surface-mounted cabinets

Surface-mounted model
steel, galvanised, frame and doors white lacquered



- No. 1: inner width: 600 mm **1401171**
- No. 2: inner width: 750 mm **1401172**
- No. 3: inner width: 1000 mm **1401173**
- no. 4: inner width: 1250 mm **1401174**

Depth: 160 mm
Height: 760 – 870 mm

When using heat meter connection sets, the sum of the installation length and the length of the distributor have to be taken into consideration.

Article	Article-No.	Hint
---------	-------------	------



"Regubox" Exclusive cabinet
 with white, frameless, opaque and lockable glass door
 Frame surface made of brushed stainless steel, without rear wall
 Surface-mounted model **1341098** for dwelling stations "Regudis W-HTU" and "Regudis W-HTF" with constant temperature heating circuit and for stainless steel distributors/collectors "Multidis SF" with a maximum of 6 heating circuit connections (angle pattern connection set, item no. 1404780, taken into account)

Dimensions (W x H x D):
 630 mm x 900 mm x 170 mm
 The mounting set for installation during construction for floor-standing installation (item no. 1341099) or wall attachment (item no. 1341199) is to be ordered separately.

- Awards:
-  DESIGN PLUS ISH Frankfurt 2015
 -  ICONIC AWARDS 2015
 -  GERMAN DESIGN AWARD SPECIAL 2016
 -  iF Design Award 2016



Mounting set for installation during construction for "Regubox" steel sheet, galvanised
 Floor-standing installation, adjustable height **1341099**

Only for "Regubox", item no. 1341098.



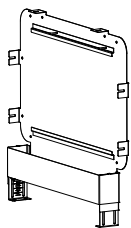
Wall attachment **1341199**

With screen for covering the lower connection channel of the "Regubox" in case of wall attachment.



Surface-mounted model **1341298** for dwelling station "Regudis W-HTE" and stainless steel distributor/collector "Multidis SF" with a maximum of 9 heating circuit connections (angle pattern connection set, item no. 1404780, taken into account)

Dimensions (W x H x D):
 900 mm x 600 mm 170 mm
 The mounting set for installation during construction for floor-standing installation (item no. 1341099) is to be ordered separately.



Mounting set for installation during construction for "Regubox" steel sheet, galvanised
 Floor-standing installation adjustable height **1341299***

Only for "Regubox", item no. 1341298.

Cylinder lock
 with key

for surface-mounted cabinets **1401190** (1401171-74)
 for flush-mounted cabinets **1401191** (1401151-54)

Only suitable for surface-mounted cabinets manufactured since November 2011.



Article	Article-No.	Hint
---------	-------------	------

Heat meter connection sets
for "Multidis SF/SFB" stainless steel distributors/collectors for surface heating and cooling systems as well as for "Multidis SH" stainless steel distributors/collectors for radiator connection

Heat meter connection sets are suitable for left and right hand side connection to the distributor/collector.

Set with double regulating and commissioning valve "Hycococon VTZ"

Set consisting of:
Supply
- Ball valve with temperature sensor connection M 10 x 1.0, for sensor Ø 5.0 / 5.2 mm directly immersing



Angle pattern:

with ball valves DN 20 **1404578**
with ball valves DN 25 **1404580**

Return
- "Hycococon VTZ" Double regulating and commissioning valve
- Meter stool piece
- Ball valve with temperature sensor connection M 10 x 1.0, for sensor Ø 5.0 / 5.2 mm directly immersing
- Flat seals

Straight pattern:

with ball valves DN 20 **1404579**
with ball valves DN 25 **1404581**



Set with differential pressure regulator "Hycococon DTZ"

Set consisting of:
Supply
- Ball valve with temperature sensor connection M 10 x 1.0, for sensor Ø 5.0 / 5.2 mm directly immersing
- Measuring adapter



Angle pattern:

with ball valves DN 25 **1404680**
with ball valves DN 25 **1404682**

Return
- "Hycococon DTZ" Differential pressure regulator
- Capillary
- Meter stool piece
- Ball valve with temperature sensor connection M 10 x 1.0, for sensor Ø 5.0 / 5.2 mm directly immersing
- Flat seals

Straight pattern:

with ball valves DN 25 **1404681**
with ball valves DN 25 **1404683***



Article	Article-No.	Hint
---------	-------------	------



Set with pressure independent control valve "Cocon QTZ"

Angle pattern:

DN 25, 150 - 1050 l/h	1404880
DN 25, 180 - 1300 l/h	1404882

Set consisting of:
Supply
- Ball valve with temperature sensor connection M 10 x 1.0, for sensor Ø 5.0 / 5.2 mm directly immersing
Return
- "Cocon QTZ" Pressure independent control valve
- Meter stool piece
- Ball valve with temperature sensor connection M 10 x 1.0, for sensor Ø 5.0 / 5.2 mm directly immersing
- Flat seals

Straight pattern:



DN 25, 150 - 1050 l/h	1404881
DN 25, 180 - 1300 l/h	1404883

Set with pressure independent control valve "Cocon QTZ" and connection fitting G 1 male x G 1 collar nut

Angle pattern



DN 25, 150 - 1050 l/h	1694890
DN 25, 180 - 1300 l/h	1694892

Set consisting of:
Supply
-Ball valve with temperature sensor connection M 10 x 1.0 for sensor Ø 5.0 / 5.2 mm directly immersing
-Connection fitting G 1 male x G 1 collar nut
Return
-"Cocon QTZ" Pressure independent control valve
-Connection fitting G 1 male x G 1 collar nut
-Meter stool piece
-Ball valve with temperature sensor connection M 10 x 1.0 for sensor Ø 5.0 / 5.2 mm directly immersing
-Flat seals

Note:
Not suitable for Oventrop distributors/collectors.

Straight pattern:



DN 25, 150 - 1050 l/h	1694891
DN 25, 180 - 1300 l/h	1694893

Article	kvs	Packing unit	Article-No.	Hint
---------	-----	--------------	-------------	------

Differential pressure relief device
 for "Multidis SF/SFB" stainless steel distributors/collectors

G 3/4 male thread **1404790**



Differential pressure relief device for the right hand side connection to the distributor/collector.
 To avoid flow noises.
 Control range: 50-400 mbar

Angle pattern connection set

for "Multidis SF/SFB" stainless steel distributors/collectors for surface heating and cooling systems as well as for "Multidis SH" stainless steel distributors/collectors for radiator connection



1404780

Angle pattern connection set for a bottom connection to the distributor/collector when using surface-mounted cabinets.

"Hycococon VTZ" Double regulating and commissioning valve with infinitely adjustable presetting
"eco" measuring technique
 both ports with integrated pressure test points and drain valves

both ports male thread, flat sealing

DN 20 2.70 (10) **1061856**



"eco" measuring technique:
 Information: page 3.101.

Operating temperature:
 -10 °C up to +120 °C

General information:
 Body and bonnet made of brass resistant to dezincification.
 Male thread G 1.

"Hycococon DTZ" Differential pressure regulator nominal value: 50 to 300 mbar, infinitely adjustable
"eco" measuring technique
 with integrated pressure test point and drain valve

both ports male thread without collar nut

DN 20 2.70 **1062156**



"eco" measuring technique:
 Information: page 3.101.

Operating temperature:
 -10 °C up to +120 °C




General information:
 Body and bonnet made of brass resistant to dezincification.
 Male thread G 1.



2.1 "Regufloor" Control units

Content

"Regufloor H"	2.70
"Regufloor HW"	2.70
"Regufloor HN"	2.70
System components	2.71
"Regtronic RH" Heating circuit controller	2.72
"Regtronic RH" Heating circuit controller	2.73
"Regtronic EM" Extension module	2.74
Accessories	2.74
"Regufloor HC"	2.75
System components for "Regufloor HC"	2.75
"Tri-D TR" Three-way diverting valves PN 16	2.76
"Tri-CTR" Three-way diverting and mixing valves PN 16	2.76
"Regufloor HX"	2.77

Article	Packing unit	Article-No.	Hint
<p>"Regufloor H" Control unit DN 25 Heating for connection to the stainless steel distributor/collector</p>			
	with high-efficiency pump (5)	1151300°	<p>Application ("Regufloor H and HW"): Fixed value control unit for connection to the stainless steel distributor/collector for surface heating systems. Connection of 2 - 12 heating circuits. Length: 315 mm Depth: 145 mm Pump length: 130 mm Max. operating pressure: 6 bar Max. differential pressure: 0.75 bar Max. flow temperature: Primary side: 90 °C Secondary side: 50 °C Control range temperature controller: ("Regufloor H" only): 20–50 °C Control range electric pipe contact safety switch: 20–90 °C</p> <p>Description ("Regufloor H"): Pre-assembled and tested fixed value control unit with electronic pump, three-way diverting valve, check valve, temperature controller with contact sensor. Electric pipe contact safety switch for max. limitation of the flow temperature.</p> <p>Description ("Regufloor HW"): As "Regufloor H" but three-way diverting valve with electromotive actuator (three point), heating circuit controller with outdoor sensor and flow temperature sensor.</p>
	Wilo-Yonos PARA RS 15/6, 130 mm (Energy Efficiency Index EEI ≤ 0.23 according to EC Regulation 641/2009)		
with Wilo pump E15/ 1-5 (export model, only for sales outside the European Union)	1151000		
<p>"Regufloor HW" Control unit DN 25 Heating as above, but with weather guided control for connection to the stainless steel distributor/collector</p>			
	with high-efficiency pump	1151800	<p>Description ("Regufloor HW"): As "Regufloor H" but three-way diverting valve with electromotive actuator (three point), heating circuit controller with outdoor sensor and flow temperature sensor.</p>
	Wilo-Yonos PARA RS 15/6, 130 mm and heating circuit controller "Regtronic RH" (Energy Efficiency Index EEI ≤ 0.23 according to EC Regulation 641/2009)		
with Wilo pump E15/1-5 and heating circuit controller "Regtronic EH" (export model, only for sales outside the European Union)	1151500		
<p>"Regufloor HN" Control unit DN 25 Heating for connection to the stainless steel distributor/collector</p>			
	with high-efficiency pump	1151600	<p>Application: Fixed value control unit for connection to the stainless steel distributor/collector for surface heating systems. Connection of 2 - 12 heating circuits. Length: 195 mm Depth: 100 mm Axial pump housing Max. operating pressure: 6 bar Permissible pressure difference: 200 kPa (2 bar) Max. flow temperature: Primary side: 90 °C Secondary side: 50 °C Control range temperature controller: 20 - 50 °C Control range electric pipe contact safety switch: 20 - 90 °C</p> <p>Description ("Regufloor HN"): Pre-assembled and tested fixed value control unit with electronic pump with axial pump housing, three-way diverting valve, check valve, temperature controller with contact sensor. Electric pipe contact safety switch for max. limitation of the flow temperature.</p>
	Wilo-Yonos PARA RSB 15/6, 130 mm (Energy Efficiency Index EEI ≤ 0.23 according to EC Regulation 641/2009)		

Article	Article-No.	Hint
System components		For the isolation of the supply and return, use Oventrop ball valves item no. 1406383 DN 20 and item no. 1406384 DN 25.
	T-connection piece 1151080	With check valve and sensor point.
	Three-way diverting valve with S-connection fitting 1151081	
	Temperature controllers with contact sensor 1151082	Control range 20–50 °C. Only supplied as replacement.
	Wilo E15/1-5 (export model, only for sales outside the European Union) 1151086	Pump <u>without</u> pump cable. Only supplied as replacement.
	High-efficiency pump Wilo-Yonos PARA with axial pump housing (Energy Efficiency Index $EEI \leq 0.23$ according to EC Regulation 641/2009) 1151089	Only for "Regufloor HN", item no. 1151600. Pump <u>without</u> pump cable. Only supplied as replacement.
	High-efficiency pump Wilo-Yonos PARA (Energy Efficiency Index $EEI \leq 0.23$ according to EC Regulation 641/2009) 1151088	Pump <u>without</u> pump cable. Only supplied as replacement.
	Electric pipe contact safety switch 1151087	Including cabling for Wilo pump E15/1-5.
	Bracket T-connection piece 1151085	



Article	Article-No.	Hint
---------	-------------	------

"Regtronic RH" Heating circuit controller

with 1 outdoor sensor
and 3 additional sensors (PT 1000) **1152093°**

with 1 outdoor sensor,
2 additional sensors (PT 1000)
and remote control including
room temperature sensor (PT 1000) **1152090°**

Weather guided flow temperature control of the heating system via the demand of a heat generator and/or a mixing valve (e.g. "Regumat M3" or "Regufloor HW" with three-way mixing valve). Controller for wall attachment with data bus (S-bus).

Basic functions: 1 variable and 1 constant temperature heating circuit with heat demand. Extendable by "Regtronic EM". The status can be viewed via a full graphic display.

Interfaces: S-bus, SD-card slot for data recording

Inputs: 8 sensor inputs (PT 1000, KTY, switch or remote control), inputs for electronic volume flow sensor/pressure sensor and irradiation sensor

Outputs: 4 solid-state relays (speed controlled), 1 standard relay (voltage free), 2 PWM outputs for the speed controlled activation of high-efficiency pumps. Both PWM outputs can be switched to 0-10 V.

For the connection of high-performance pumps (> 1A) see load relay, page 6.80.

ErP classification heating circuit controller "Regtronic RH"						
Item no.	Controller	Required accessories	Boiler control modulating (0-10 V)		ErP %	Class
				On/Off		
1152093	"Regtronic RH"	Adapter cable 1152086	X		2.0	II
1152093	"Regtronic RH"	-		X	1.5	III
1152090	"Regtronic RH" incl. remote control with room temperature sensor	Adapter cable 1152086	X		4.0	VI
1152090	"Regtronic RH" incl. remote control with room temperature sensor	-		X	3.5	VII
1152090	"Regtronic RH" incl. remote control with room temperature sensor	2 x room temperature sensor 1152095 Adapter cable 1152086	X		5.0	VIII

Article

Article-No.

Hint

"Regtronic RH" Heating circuit controller



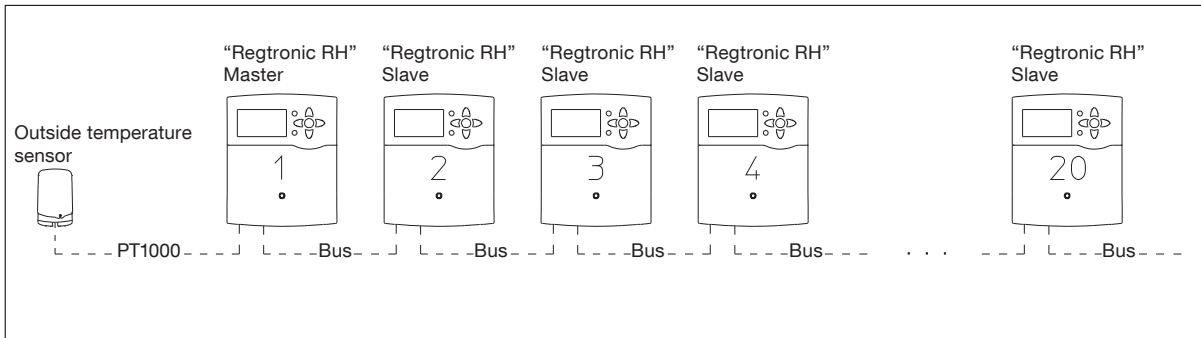
with 1 outdoor sensor (bus-compatible) and 3 additional sensors (PT1000) **1152083***

with 1 outdoor sensor (bus-compatible), 2 additional sensors (PT1000) and remote control including room temperature sensor (PT1000) **1152080***

Weather guided flow temperature control of the heating system via the demand of a heat generator and/or a mixing valve (e. g. "Regumat M3" or "Regufloor HW" with three-way mixing valve). Controller for wall mounting with data bus (S-bus) for the connection to the data logger "CS-BS".
Basic functions: 1 variable and 1 constant temperature heating circuit with heat demand. Extendable by "Regtronic EM". The status can be viewed via a full graphic display.
Interfaces: S-bus (optional connection to the data logger "CS-BS"), SD-card slot for data recording, a central outdoor sensor can also be connected to the heating circuit controller
Inputs: 8 sensor inputs (PT1000, KTY, switch or remote control), 2 inputs for electronic flow sensor VFD (volume flow/temperature)
Outputs: 3 solid-state relays (speed controlled), 2 standard relays, 1 volt free low voltage relay, 2 PWM outputs for the speed controlled activation of high-efficiency pumps. Both PWM outputs can be switched to 0-10 V.

For the connection of high-performance pumps (> 1A) see load relay, page 6.80.

Erp classification heating circuit controller "Regtronic RH"						
Item no.	Controller	Required accessories	Boiler control		ErP %	Class
			modulating (0-10 V)	On/Off		
1152083	"Regtronic RH"	Adapter cable 1152086	X		2.0	II
1152083	"Regtronic RH"	-		X	1.5	III
1152080	"Regtronic RH" incl. remote control with room temperature sensor	Adapter cable 1152086	X		4.0	VI
1152080	"Regtronic RH" incl. remote control with room temperature sensor	-		X	3.5	VII
1152080	"Regtronic RH" incl. remote control with room temperature sensor	2 x room temperature sensor 1152095 Adapter cable 1152086	X		5.0	VIII



Example: Distribution of a temperature sensor (outside temperature sensor, item no. 1152099) up to 20 heating circuit controllers "Regtronic RH" (item no. 1152080/1152083)



"Regtronic EM" Extension module

for the connection to the heating circuit controller "Regtronic RH" **1152098**

"Regtronic EM" for the extension of the heating circuit controller "Regtronic RH" by 6 sensor inputs and 5 relay outputs. This allows the activation of further variable and constant temperature heating circuits. Up to **five** extension modules can be connected to the heating circuit controller "Regtronic RH". 1 sensor attached to the pipe PT 1000 is included.

Accessories



Room temperature sensor PT 1000 **1152095**

Room temperature sensor for fixing on level surfaces (surface mounting).



Remote control with room temperature sensor PT 1000 **1152096**

Remote control with room temperature sensor PT 1000 for the connection to the electronic controllers "Regtronic RH, RM and RS" for a comfortable control of the heating curve of the controller from the living area. When increasing the heating curve, the flow temperature is increased and vice versa. The remote control also features the functions "heating circuit off" and "party position".

Article	Article-No.	Hint
---------	-------------	------



"Regufloor HC"
Control unit DN 25 Heating/Cooling
 for connection to the stainless steel distributor/collector

with high-efficiency pump
 Wilo-Yonos PARA RS 15/6, 130 mm
 (Energy Efficiency Index EEI ≤ 0.23
 according to EC Regulation 641/2009) **1152100**

with Wilo pump E15/1-5
 (export model only for sales outside
 the European Union) **1152000**

Application:
 Control unit for flow temperature control of
 surface heating systems or alternatively of
 surface cooling systems in combination with
 the Oventrop stainless steel distributors/
 collectors. Pre-assembled and tested control
 unit with electronic pump and three-way
 diverting valve.
 Suitable for the connection of 2 - 12 heating
 circuits to two-, three- and four-pipe systems
 Heating and Cooling.

Length: 315 mm
 Max. operating pressure: 6 bar
 Max. differential pressure: 0.75 bar
 Max. flow temperature:
 Primary side: 90 °C
 Secondary side: 50 °C

System components for "Regufloor HC"



"Aktor T 2P" Electrothermal actuators (two point)
 connection thread M 30 x 1.5

"H NC", closed with current "off", 230 V **1012415**
 "L NC", closed with current "off", 24 V **1012416**

Oventrop electrothermal actuators are used for
 heating, ventilation and air conditioning. The
 actuators serve to control the room
 temperature and can be used e. g. with
 conventional radiators, radiators with
 integrated distributor, radiant ceiling panels,
 chilled ceiling systems and induction air
 systems in combination with two point room
 thermostats.
 Further applications in bivalent heating
 installations.
 Connecting cable 1 m.
 With "First-Open" function and stroke index.
 Simple plug-in connection with valve adapter.
 Actuators can be installed in any position.
 Due to their construction, the electrothermal
 actuators are secured against overvoltage
 which could occur when switching on neon
 tubes. A varistor is thus not necessary.



Electric pipe contact safety switch **1151087**

Including cabling for Wilo pump E15/1-5.



"Sensor GA FD" Dew point control 24 V
 with alternating contact **1141951**

Is required in combination with room
 thermostats to protect chilled ceilings against
 condensation.
 An actuator interrupting the cooling water flow
 is for instance activated in combination with
 the "Regufloor HC".
 Connection to the cooling water supply.
 Connecting cable 1 m.

Article	kvs	Packing unit	Article-No.	Hint
---------	-----	--------------	-------------	------

System components

"Aktor M" Electromotive actuators

connection thread M 30 x 1.5
with manual setting, adjustable mode of operation



"ST L", 24 V, modulating proportional actuator, 0-10 V, automatic anti-blocking function and recognition of neutral point, multiple characteristic lines adjustable **1012705**

"ST L", 24 V, modulating proportional actuator, 0-10 V, with position feedback, automatic anti-blocking function and recognition of neutral point, multiple characteristic lines adjustable **1012706**

"3P L", 24 V, three point actuator, without anti-blocking function **1012708**

"3P H", 230 V, three point actuator, without anti-blocking function, mode of operation not adjustable **1012709**

Oventrop electromotive actuators are used for heating, ventilation and air conditioning. The actuators serve to control the room temperature and can be used e. g. with conventional radiators, radiators with integrated distributor, distributors/collectors for surface heating (except for item no. 1012710/11), radiant ceiling panels, chilled ceiling systems and induction air systems. Further application in bivalent heating installations.

The actuators (0-10 V) can be used in centralised building control systems in combination with the electronic room thermostat, item no. 1152151/53, or with a central controller.

Anti-blocking function:
The actuator opens and closes the valve completely once every 24 hours.
Connecting cable 1.5 m.

With the appropriate control, the actuator, item no. 1012708, can also be used for two point operation.

"Tri-D TR" Three-way diverting valves PN 16

bronze

connection thread M 30 x 1.5
with collar nuts, flat sealing



DN 20	4.50	1130206°
DN 25	6.50	1130208°
DN 40	9.50	1130212°

Application:

Max. operating pressure p_g : 16 bar (PN 16)
Operating temperature t_s : 0 °C up to 120 °C

Diverting or changing-over of volume flows in heating and cooling systems in combination with thermostatic or electric actuators.

"Tri-CTR" Three-way diverting and mixing valves PN 16

bronze

connection thread M 30 x 1.5
with collar nuts, flat sealing




DN 15	2.50	(10)	1131204
DN 20	4.40	(10)	1131206
DN 25	5.70	(10)	1131208
DN 32	7.20	(5)	1131210
DN 40	8.50	(5)	1131212
DN 50	10.00	(5)	1131216

Function:

For use as diverting valve, the three-way valve has one inlet port (AB) and two outlet ports (A and B). Depending on the position of the valve disc, the direction of flow is diverted from one to the other outlet port.

For use as mixing valve, the three-way valve has two inlet ports (A and B) and one outlet port (AB). Depending on the position of the valve disc, the cold and hot water is mixed.

The three-way valves "Tri-CTR" can be used for high differential pressures.

Article	Article-No.	Hint
<p>"Regufloor HX" Control unit DN 25 Heating for connection to the stainless steel distributor/collector For flow temperature control of surface heating systems, with heat exchanger.</p>		<p>Application: Fixed value control unit for the operation of open vented surface heating systems in heating systems (separate circuits). Installation on the left hand side of the distributor/collector.</p>
	<p>1151065</p>	<p>with high-efficiency pump Wilo-Yonos PARA RS Ku 15/6, 130 mm (Energy Efficiency Index EEI ≤ 0.23 according to EC Regulation 641/2009)</p> <p>Connection of 2-12 heating circuits. Max. operating pressure: Primary side: 6 bar Secondary side: 3 bar</p>
<p>with Wilo pump E15/1-5 (export model, only for sales outside the European Union)</p>	<p>1151060</p>	<p>Max. flow temperature: Primary side: 90 °C Secondary side: 50 °C Control range temperature controller: 20–50 °C</p> <p>Description: Pre-assembled and tested fixed value control unit with electronic pump (plastic body).</p> <p>Heat exchanger, diaphragm expansion tank (3 l), pressure gauge, safety valve.</p>

2.m Single components for distributors/collectors

Content



Individual components for distributor systems	2.80
Accessories	2.82

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

Individual components for distributor systems

Distributor systems for central heating systems.

If not stated otherwise, all products are made of brass.



Brass automatic airvent with automatic shut off

G 3/8 (10) **1088303**

Vent plug G 3/8

self sealing, set = 10 pieces **1400392**



self sealing, with couternut, with hose connection (soft seal) and cap

DN 10 (50) **1033313**



Flow valve "AZ" for thermostatic control

Valve for the flow distributor of surface heating systems.

DN 15 G 3/8 M x G 3/8 F (25) **1400164**



Return flow lockshield valve "Combi 2" with presetting and isolating facility

Lockshield valve for the return collector of underfloor heating systems.

DN 15 G 3/8 M x G 3/8 F (25) **1401194**



Brass terminal distributor/collector G 1 female thread G 3/8 male thread for circuit connection G 3/8 female thread for airvent connection






4 outlets (2) **1400554**



Brass distributor/collector G 1 female thread x G 1 male thread G 3/8 male thread for circuit connection

2 outlets (2) **1400652**



Article	Packing unit	Article-No.	Hint
	(2)	1400653	
	(2)	1400654	
<p>Terminal cap G 1 female thread (10) 1400691 G 3/8 female thread for airvent connection G 1/2 female thread for fill and drain ball valve connection</p>			
			
<p>Ball valve DN 25 with coupling flat sealing</p>	(10)	1406394	
			
<p>Bracket steel, galvanised</p>	(25)	1401061	<p>Bracket with mounting clip. For the installation of the distributor/collector into the cabinet or onto the wall. Sound absorbing as per DIN 4109.</p>
			

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

Accessories

Thermostats with remote control and with remote transmission are especially suitable for trench heaters, encased radiators and surface heating systems.
Max. heating water temperature: 120 °C

Thermostat with remote control "Uni FH"
white



capillary 2 m long	1012295
capillary 5 m long	1012296
capillary 10 m long	1012297

with '0' setting

white,
with additional remote sensor



capillary 2 m long	1012395
capillary 5 m long	1012396

with '0' setting
For further information see
"Technical information":



Manual heads
white



connection thread M 30 x 1.5	(10)	1012565
------------------------------	------	---------

The manual head allows the subsequent conversion to actuators or thermostats without the necessity to drain the system.

Contact thermometer



for distributors/collectors	(50)	1404095
-----------------------------	------	---------

Coupling



DN 15 (G 3/4 c/nut x R 1/2 M)	(50)	1019304
-------------------------------	------	---------

Blind plug G 1/2



self sealing	(100)	1401704
--------------	-------	---------

Cap G 3/4 female thread
(not illustr.)



	(10)	1400692
--	------	---------

To close outlets not in use.

Cap G 1 female thread
(not illustr.)



	(10)	1400693
--	------	---------

Can be used instead of the cap, but does not allow the connection of an airvent or a fill and drain ball valve.

Ring spanner



Spanner size 30/32	1401091
--------------------	---------

For the installation of the compression fittings.

2.n Regulating sets for surface heating systems

Content



Regulating sets for surface heating systems

2.84

Article	Article-No.	Hint
---------	-------------	------

Regulating sets for surface heating systems with bypass valve

Set no. 1

for surfaces up to 85 m²

1144251



consisting of:

Valve DN 15, brass, nickel plated straight pattern
item no. 1180104 (M 30 x 1.5)

Bypass valve DN 20, brass, nickel plated straight pattern
item no. 1027666

Temperature controller with contact sensor and heat transfer unit capillary 2 m long control range 20–50 °C
item no. 1142861 (M 30 x 1.5)

Electric pipe contact safety switch with concealed temperature setting control range 20–90 °C
item no. 1143000

Set no. 2

for surfaces up to 120 m²

1144252



consisting of:

Valve DN 20, brass, nickel plated straight pattern
item no. 1187106 (M 30 x 1,5)

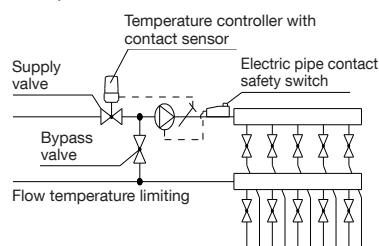
Bypass valve DN 25, brass, nickel plated straight pattern
item no. 1027668

Temperature controller with contact sensor and heat transfer unit capillary 2 m long control range 20–50 °C
item no. 1142861 (M 30 x 1.5)

Electric pipe contact safety switch with concealed temperature setting control range 20–90 °C
item no. 1143000

Application:
The regulating set with bypass valve is required for the control of the flow temperature of a surface heating system, for instance in combined radiator/surface heating systems. The required flow temperature is set at the temperature controller. The electric pipe contact safety switch switches the circulation pump off as soon as the set flow temperature is exceeded due to a malfunction. The bypass valve serves to regulate the flow rate of the surface heating circuit.

Example:



For further information see "Technical information":



Article	Article-No.	Hint
---------	-------------	------

Regulating set for surface heating systems with "Tri-D TR" three-way diverting valve

Set no. 3

for surfaces up to 200 m² 1144253



consisting of:

Three-way diverting valve „Tri-D TR“
DN 20 bronze
item no. 1130206 (M 30 x 1.5)

Temperature controller
with contact sensor
and heat transfer unit
capillary 2 m long
control range 20–50 °C
item no. 1142861 (M 30 x 1.5)

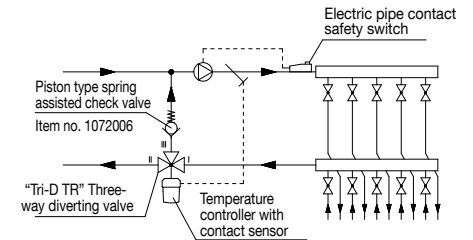
Electric pipe contact safety switch
with concealed temperature setting
control range 20–90 °C
item no. 1143000

Piston type spring assisted check valve DN 20
bronze/brass
item no. 1072006

Application:

The regulating set with "Tri-D TR" three-way diverting valve is required for the control of the flow temperature of a surface heating system, for instance in combined radiator/surface heating systems. The required flow temperature is set at the temperature controller. The electric pipe contact safety switch switches the pump off as soon as the set flow temperature is exceeded due to a malfunction. Depending on the setting of the temperature controller, the three-way diverting valve divides the volume flow into a return flow and a bypass flow. The piston type spring assisted check valve installed in the bypass prevents a wrong flow against the three-way diverting valve.

Example:



2.o Return temperature limiter set

Content



Return temperature limiter set	2.88
Return temperature limiters	2.88
Thermostat "Uni RTLH"	2.88
Thermostat "Uni RTL"	2.88
Valve inserts	2.89
Gland nut	2.89

Article	kv at 2K P-dev.	Packing unit	Article-No.	Hint
---------	-----------------------	-----------------	-------------	------

Return temperature limiter set

Reversed angle connection
consisting of:



Reversed angle pattern valve for the return pipe and
thermostat "Uni RTLH"

0.30 1028364

Straight pattern connection
consisting of:



Straight pattern valve for the return pipe and
thermostat "Uni RTLH"

DN 15 0.30 1028464

Application:
Central heating systems,
combined radiator/surface heating.
Max. operating pressure p_g : 10 bar (PN 10)

Valve insert with double disc prevents
inadvertent overheating, with frost protection.
Thermostat "Uni RTLH" with '0' setting,
may be limited or locked.

Control range:
10 °C-40 °C factory setting
(return temperature) may be increased
to 50 °C by cancelling the limitation (40 °C).

For further information see
"Technical information":



Return temperature limiters

Valves for thermostats "Uni RTLH"
connection thread M 30 x 1.5
brass, nickel plated

Reversed angle pattern valve for the return pipe



DN 10 0.30 (25) 1024363
DN 15 0.30 (25) 1024364

Straight pattern valve for the return pipe



DN 10 0.30 (25) 1024463
DN 15 0.30 (25) 1024464

Application:
Central heating systems,
combined radiator/surface heating systems.
Max. operating pressure p_g : 10 bar (PN 10)

Valve insert with double disc prevents
inadvertent overheating, with frost protection.

Thermostat "Uni RTLH"
connection thread M 30 x 1.5



white (25) 1027165
chrome plated (25) 1027172

With '0' setting,
may be limited or locked.
10-40 °C factory setting
(return temperature) may be increased
to 50 °C by cancelling the limitation (40 °C).

Thermostat "Uni RTL"
connection thread M 30 x 1.5



white (25) 1027100

With '0' setting,
may be limited or locked.
RTL valves with connection thread M 30 x 1.0
are no longer produced.

Article	Packing unit Article-No.	Hint
---------	--------------------------	------

Valve inserts



for return flow valves
connection thread M 30 x 1.5

(100) **1026981**

Valve insert with double disc.
Prevents inadvertent overheating,
with frost protection.

Gland nut
for all RTLH valves



Set = 5 pieces




(10) **1026986**

2.p Components for concrete core activation

Content



"Multidis SF" Stainless steel distributor/collector	2.92
PE-Xc "Copex" Plastic pipes	2.92
"Cofit S" Compression fittings	2.92
"Multidis SFI" Brass distributor/collector for industrial surface heating/concrete core activation	2.93
PE-Xc "Copex" Plastic pipes	2.93
"Cofit S" Compression fittings	2.93
"Optiflex" Ball valve	2.94

Article	Packing unit	Article-No.	Hint
<p>"Multidis SF" Stainless steel distributor/collector for surface heating systems/concrete core activation with integrated regulating inserts (flow distributor) flat sealing, with valve inserts M 30 x 1.5 for thermostatic and electronic control</p>			<p>Application: Stainless steel distributor/collector for surface heating and cooling systems. Max. operating pressure p_s: 6 bar (PN 6) Max. operating temperature t_s: 80 °C</p>
	for 2 circuits	1405552	<p>Description: Distributor/collector pre-assembled. With fill and drain valves. Heating circuit connections G 3/4 male thread for Oventrop compression fittings. Flow distributor with integrated regulating inserts. Return collector with integrated valve inserts. Bracket (loosely added) sound-absorbing according to DIN 4109.</p> <p>Further distributors/collectors for surface heating systems: page 2.60</p>
	for 3 circuits	1405553	
	for 4 circuits	1405554	
	for 5 circuits	1405555	
	for 6 circuits	1405556	
	for 7 circuits	1405557	
	for 8 circuits	1405558	
	for 9 circuits	1405559	
	for 10 circuits	1405560	
	for 11 circuits	1405561	
	for 12 circuits	1405562	
	<p>PE-Xc "Copex" Plastic pipes with oxygen barrier</p>		
rolls			
	Dimension 17 x 2 mm		
	length per roll 120 m	(120) 1400251	
	length per roll 240 m	(240) 1400252	
	length per roll 600 m	(600) 1400254	
<p>"Cofit S" Compression fittings for "Copex" Pe-Xc plastic pipes, 2-fold, metal to metal sealing plus O-ring, outlet made of bronze, brass compression ring and collar nut, collar nut nickel plated</p>			<p>For the connection of the "Copex" PE-Xc plastic pipes to the distributor/collector and for couplings.</p>
	17 x 2.0 mm x G 3/4 collar nut	(10) 1507937	

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

"Multidis SFI" Brass distributor/collector for industrial surface heating/concrete core activation

Distributor/collector modules flat sealing, flow distributor with ball valves, return collector with regulating valves, extension to max. 20 circuits by connecting the distributor/collector modules



for 2 circuits		1414452
for 3 circuits		1414453
for 4 circuits		1414454
for 5 circuits		1414455
for 6 circuits		1414456

Application:
 Brass distributor/collector for surface heating and cooling systems.
 Max. operating pressure p_s : 6 bar (PN 6)
 Max. operating temperature t_s : 90 °C

Description:
 Distributor/collector modules pre-assembled. One port G 2 male thread, one port G 2 collar nut with G 1/2 blind plug. Flow distributor with ball valves. Return collector with regulating valves. Heating circuit connections with G 1 male thread for Oventrop compression fittings.

PE-Xc "Copex" Plastic pipes with oxygen barrier

rolls

Dimension 20 x 2 mm



length per roll 240 m	(240)	1400352
length per roll 600 m	(600)	1400354

Application:
 Surface heating and cooling.
 Pipes according to DIN 16892/DIN 16893/
 DIN EN ISO 15875/EN 1264-4 (except for dimension 26).

Oxygen tight according to DIN 4726 (all dimensions).

Max. operating pressure p_s :

6 bar at 90 °C
 8 bar at 70 °C

Dimension 26 x 3 mm



length per roll 50 m	(50)	1400560
length per roll 200 m	(200)	1400562
length per roll 300 m	(300)	1400563

Max. operating pressure p_s :

6 bar at 90 °C
 10 bar at 60 °C

Dimension 32 x 3 mm



length per roll 50 m	(50)	1400660
----------------------	------	----------------

Max. operating pressure p_s :

6 bar at 90 °C
 8 bar at 60 °C
 10 bar at 20 °C





"Cofit S" Compression fittings

for "Copex" PE-Xc plastic pipes, 2-fold, metal to metal sealing plus O-ring, outlet bronze / brass resistant to dezincification, brass compression ring, brass collar nut, unplated



20 x 2.0 mm x G 1 collar nut	(10)	1507969
26 x 3.0 mm x G 1 collar nut	(10)	1507979

For the connection of "Copex" PE-Xc plastic pipes to the distributor/collector and for couplings.

Article	Packing unit	Article-No.	Hint
	Console	1414490	Consoles with 2 pipe clamps each including sound insulation supports and quick acting lock. Wall attachment included.
	Cap G 2 female thread	1414493	For closing the ends of the distributor/collector.
	Ball valve flat sealing	1406586	For the isolation of the flow distributors and return collectors.
	"Optiflex" Ball valve brass, handle with stop	(50) 1033314	For filling and venting.
<td>DN 15</td> <td>self sealing, with couternut, with hose connection (soft seal) and cap</td>	DN 15	self sealing, with couternut, with hose connection (soft seal) and cap	

3.a System summary

Content	Page
Functions, constructions etc.	3.05
Combinations of the components/Integration into systems	3.06
	3.08

3.b "Hycococon" Control, regulating and isolating valves



Content	Page
"Hycococon VTZ" Double regulating and commissioning valves PN 16	3.11
"Hycococon VPZ" Double regulating and commissioning valves PN 16	3.12
"Hycococon ATZ" Isolating and orifice valves PN 16	3.12
"Hycococon APZ" Isolating and orifice valves PN 16	3.13
"Hycococon ETZ" Regulating valves PN 16	3.13
"Hycococon HTZ" Regulating valves PN 16	3.14
"Hycococon DTZ" Differential pressure regulators PN 16	3.14
Insulation shells	3.15
Accessories	3.16
Valve inserts suitable for "Hycococon" valves	3.17
Measuring and draining unit	3.19
"Hycococon" Combination summary connection thread M 30 x 1.5	3.20
"Hycococon" System illustration of examples / Conversion possibilities	3.22
"Demo-Bloc"	3.23

3.c "Hydrocontrol" Regulating and isolating valves



Content	Page
"Hydrocontrol VTR" Double regulating and commissioning valves PN 25 / PN 16	3.25
"Hydrocontrol VPR" Double regulating and commissioning valves PN 16	3.26
"Hydrocontrol VFC" Double regulating and commissioning valves PN 16	3.28
"Hydrocontrol VFC" Double regulating and commissioning valves PN 6	3.29
"Hydrocontrol VFR" Double regulating and commissioning valves PN 16	3.31
"Hydrocontrol VFN" Double regulating and commissioning valves PN 25	3.31
"Hydrocontrol VGC" Double regulating and commissioning valves PN 25	3.33
"Hydrocontrol STR" Double regulating and commissioning valves PN 25	3.33
"Hydrocontrol MTR" Double regulating and commissioning valves PN 25	3.34
"Hydrocontrol MPR" Double regulating and commissioning valves PN 16	3.34
"Hydrocontrol MFC" Double regulating and commissioning valves PN 16	3.34
"Hydrocontrol ATR" Isolating and orifice valves PN 25 / PN 16	3.35
"Hydrocontrol APR" Isolating and orifice valves PN 16	3.36
"Hydrocontrol AFC" Isolating and orifice valves PN 16	3.36

3.d "Hydromat" Differential pressure and flow regulators



Content	3.37
"Hydromat QTR" Flow regulators PN 16	3.38
"Hydromat DTR" Differential pressure regulators PN 16	3.39
"Hydrocontrol"/ "Hydromat" System examples	3.41
"Hydromat DFC" Differential pressure regulators PN 16	3.40

3.e Accessories for "Hydrocontrol", "Hydromat", "Hycococon"



Content	3.43
Connection sets	3.44
Stem extensions	3.46
Bonnets	3.46
Diaphragm actuators	3.46
Insulation shells	3.47
Accessories	3.47
Tailpipe sets	3.49
"Ofix" Compression fittings	3.49
Metering stations	3.50

3.f "Hycoflow" Double regulating and commissioning valves with flow display



Content	3.53
"Hycoflow VTB"	3.54

3.g "Cocon" Regulating valves



Content	3.55
"Cocon QTZ" Pressure independent control valves PN 25	3.56
"Cocon QTZ" Pressure independent control valves PN 16	3.58
"Cocon QTR" Pressure independent control valves PN 25 / PN 16	3.60
"Cocon QFC" Pressure independent control valves PN 16	3.60
"Cocon QFC" Pressure independent control valves PN 25	3.61
"Cocon QGC" Pressure independent control valves PN 16	3.61
Accessories for "Cocon QTZ" PN 25 and "Cocon 2TZ"	3.62
Accessories for "Cocon QTZ" PN 16 and "Cocon QTR"	3.62
Accessories for "Cocon QTR" and "Cocon QFC"	3.63
Tailpipe sets	3.64
"Cocon 2TZ" Regulating valves PN 10	3.65
Measuring devices for "Cocon 2TZ" regulating valves	3.65
„OV-Flex HC“ Flexible hoses	3.66
Accessories	3.66



3.h "Optibal W6" Six-way ball valve

Content	3.67
System illustrations	3.68
"Optibal W6" Six-way ball valve	3.68
Tailpipe sets	3.69



3.i "Flypass" Connection systems, valves and fittings

Content	3.71
"Flypass" System illustration	3.72
"Flypass" Connection sets	3.73
"Flypass 4TZ" Connection fitting	3.76
Valves for combination with the "Flypass 4TZ"	3.76
Accessories	3.78



3.j "Tri-M", "Tri-D", "Tri-CTR" Two-way valves, three-way valves, temperature controllers

Content	3.81
"Tri-M plus TR" Four-port mixing valves PN 10	3.82
"Tri-D TB" Three-way diverting valve PN 16	3.82
"Tri-D TR" Three-way diverting valves PN 16	3.83
"Tri-CTR" Three-way diverting and mixing valves PN 16	3.83
Accessories sets for three-way valves "Tri-D TR", "Tri-M TR" and "Tri-CTR"	3.84
Temperature controllers	3.85
"Combi LR" Radiator lockshield valves	3.85
Two-way valve PN 16	3.85
Two-way valve PN 16	3.86



3.k "KTB" Thermostatic valves for cooling systems

Content	3.87
Thermostatic valves "KTB"	3.88
Thermostats for thermostatic valves "KTB"	3.88



3.l Room thermostats, actuators

Content	3.89
Room thermostats	3.90
"Sensor GA FD" Dew point control	3.92
"Aktor T" Electrothermal actuators	3.93
"Aktor M" Electromotive actuators	3.94
Accessories	3.95
"Aktor M ST EIB" Electromotive actuators	3.96
"Aktor M ST LON®" Electromotive actuators	3.96
"Aktor MH CON B" (ENOCEAN)	3.96



3.m "OV-DMC 3" Measuring system

Content	3.97
"OV-DMC 3"	3.98
"OV-DMC 3", "OV-DMC 2", "OV-DMPC" Accessories	3.99
"OV-Connect" Differential pressure transmitter	3.100
"classic" measuring technique	3.101
Accessories "eco" measuring technique	3.101

3.n Products for air conditioning and ventilation



Content	3.103
Products for air conditioning and ventilation	3.104

3.o Products for radiant and chilled ceiling systems



Content	3.107
Products for radiant and chilled ceiling systems	3.108

3.p Connection system

Content	3.111
Summary of the product groups and connection systems with male thread	3.112
Summary of the product groups and connection systems with female thread	3.113

3.a System summary

Content







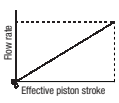
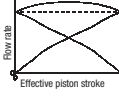
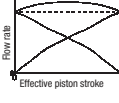
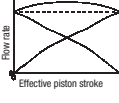
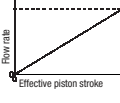
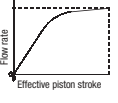
Functions, constructions etc.	3.06
Combinations of the components/Integration into systems	3.08

Product group	"Hycocon"					"Hydrocontrol"									
	"Hycocon VTZ/VPZ"	"Hycocon ATZ/APZ"	"Hycocon ETZ"	"Hycocon HTZ"	"Hycocon DTZ"	"Hydrocontrol VTR/VPR"	"Hydrocontrol VFC"	"Hydrocontrol VFR"	"Hydrocontrol VFN"	"Hydrocontrol VGC"	"Hydrocontrol STR"	"Hydrocontrol MTR/MPR"	"Hydrocontrol MFC"	"Hydrocontrol ATR/APR"	"Hydrocontrol AFC"
Nominal pressure	PN16	PN16	PN16	PN16	PN16	PN16 PN25	PN6 PN16	PN16	PN25	PN16 PN25	PN25	PN16 PN25	PN16	PN16 PN25	PN16
Main function	•					•	•	•	•	•	•	•	•		
Double regulating and commissioning valve															
Isolating and orifice valve		•												•	•
Regulating valve			•	•											
Differential pressure regulator					•										
Flow regulator															
Mixing valve															
Diverting valve															
Pattern	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Straight pattern															
Angle pattern															
Reversed angle pattern															
Three-way valve															
Connection	•	•	•	•	•	•					•	•		•	
Female thread															
Male thread	•	•	•	•	•	•								•	
Female/male thread															
Press connection	•	•				•						•		•	
Compression connection											•				
Flange							•	•	•				•		•
Groove										•					
kvs-value	DN 10					2.88								2.88	
	DN 15	1.7	1.7	0.9	1.7	1.7	3.88					0.55 / 1.15 / 2.1		3.88	
	DN 20	2.7	2.7	0.9	2.7/ 5.0	2.7	5.71	4.77				1.04/ 2.6	3.7	5.71	
	DN 25	3.6	3.6	0.9	3.6	3.6	8.89	8.38				6.1	8.89		
	DN 32	6.8	6.8		6.8	6.8	19.45	17.08				12.5	19.45		
	DN 40	10	10		10	10	27.51	26.88				18.1	27.51		
	DN 50	18	18			23	38.78	36	36			30.5	38.78		
	DN 65						50	98	98	98	98		86.7	50	98
	DN 80							122.2	122.2	122.2	122.2		102		122.2
	DN 100							201	201	201	201		198		201
	DN 125							293	293	293	293		271		293
	DN 150							404.3	404.3	404.3	404.3		400		404.3
	DN 200							814.5	814.5	814.5	814.5		750		
	DN 250							1200		1200	1200		1090		
	DN 300							1600		1600	1600		1600		
	DN 350							2250							
	DN 400							3750							
Permissible fluid temperature															
-20 °C															
-10 °C															
0 °C															
100 °C															
120 °C															
150 °C															
200 °C															
Connection possibility			•	•											
Actuator															
Further information	Page 3.12	Page 3.13	Page 3.14	Page 3.14	Page 3.15	Page 3.26	Page 3.29	Page 3.31	Page 3.33	Page 3.33	Page 3.34	Page 3.34	Page 3.35	Page 3.36	Page 3.36

"Hydromat"			"Hyco-flow"	"Cocon"							"Tri-M", "Tri-D", "Tri-CTR", "KTB", two-way valves and temperature controllers						
"Hydromat QTR"	"Hydromat DTR"	"Hydromat DFC"	"Hycoflow VTB"	"Cocon 2TZ"	"Cocon QTZ"	"Cocon QTZ"	"Cocon QTR"	"Cocon QFC"	"Cocon QGC"	"Tri-M plus TR"	"Tri-D TB"	"Tri-D TR"	"Tri-CTR"	"KTB"	"Two-way valve"		
PN16	PN16	PN16	PN10	PN10	PN16	PN25	PN16 PN25	PN16 PN25	PN16	PN10	PN16	PN16	PN16	PN10	PN16	Nominal pressure	
			•													Main function	
																Double regulating and commissioning valve	
																Isolating and orifice valve	
	•	•		•	•	•	•	•	•					•	•	Regulating valve	
																Differential pressure regulator	
•					•	•	•	•	•							Flow regulator	
										•			•			Mixing valve	
											•	•	•			Diverting valve	
•	•	•	•	•	•	•	•	•	•					•	•	Pattern	
														•		Straight pattern	
														•		Angle pattern	
														•		Reversed angle pattern	
										•	•	•	•		•	Three-way valve	
•	•															Connection	
•	•		•	•	•	•	•	•		•	•	•	•			Female thread	
				•	•	•	•	•						•		Male thread	
					•	•	•	•								Female/male thread	
																Press connection	
		•							•							Compression connection	
															•	Flange	
									•							Groove	
																DN 10 k_{vs}-value	
	2.5			0.45 / 1/1.8	0.45 / 1/1.8	0.6 / 1.8/2.2				0.45 / 1/1.8	2.5			1	1 1.6/2.5	DN 15	
	5		2.7	4.5	1.8/2.5	2.9						4.5		1	4/6.3	DN 20	
	7.5		5.5/8.3		4	4.0						6.5		1	10	DN 25	
	10		13.7		6	7.6									16	DN 32	
	15						11.5	11.5				9.5			25	DN 40	
	34						15/18.5	12							35	DN 50	
		52						36	36						63	DN 65	
		75						56	56						100	DN 80	
		110						80	80						160	DN 100	
		145						150							220	DN 125	
		170						220							320	DN 150	
								270								DN 200	
																DN 250	
																DN 300	
																DN 350	
																DN 400	
																Permissible fluid temperature	
																-20 °C	
																-10 °C	
																0 °C	
																100 °C	
																120 °C	
																150 °C	
																200 °C	
				•	•	•	•	•	•	•	•	•	•	•	•	Connection possibility	
																Actuator	
Page 3.38	Page 3.39	Page 3.40	Page 3.54	Page 3.65	Page 3.58	Page 3.56	Page 3.60	Page 3.60	Page 3.61	Page 3.82	Page 3.82	Page 3.83	Page 3.83	Page 3.88	Page 3.85	Further information	

Ratings actuators		Characteristic parameters for (BC)										Valve characteristic line	Actuator characteristic line				
Illustration (examples)	Item no.	Model	Operating current	Operating behaviour	Interface	Lower lift position [mm]	Upper lift position [mm]	Piston stroke [mm]	Operating power [mm]	Medium loading	Protection	Max. fluid temperature [°C]	Permissible install. position	Flow rate	Flow rate	Flow rate	Flow rate
<p>1. Oventrop valves and actuators: see table</p> <p>2. Oventrop valves with actuators of other manufacturers: With due consideration of the valve parameters, the combination with actuators of other manufacturers is possible on consultation. h = valve x = lower stroke of the valve</p> <p>3. Oventrop actuators with valves of other manufacturers: on consultation</p> <p>4. Integration into the centralised building control system (CBC): The four most important characteristic parameters are shown in the table.</p> <p>① NC = closed with current "off" NO = open with current "off" EM = electromotive ET = electrothermal</p> <p>② Operating behaviour: additionally 4-20 mA / 2-10 V</p> <p>③ Valve adapter "Hycococon" (item no. 1012992) required.</p> <p>④ k_{vs}-value can be reduced</p> <p>⑤ Piston stroke \geq effective valve lift</p> <p>⑥ Valve adapter 1012462 required.</p>																	
<p>Illustration (examples)</p> <p>1 "Hycococon ETZ" 2 "Hycococon HTZ" 3 "Cocon 2TZ" 4 "Cocon QTZ"</p> <p>Item no. 10683-10684.. 10685-10686.. 11450-11454.. 11455-11462..</p> <p>DN 15-25 15-25/32/40 15/20 10/15/20/25/32</p> <p>Connection M 30 x 1.5 M 30 x 1.5 M 30 x 1.5 M 30 x 1.5</p> <p>Closing dimension x [mm] 11.8 11.8 11.8 11.8</p> <p>Δp max. [bar] 1 5/3/2 1 4</p> <p>Valve lift h [mm] 2.2 3/4/4 2.5/3.5 2.8/2.8/2.8/3.5/4/4</p> <p>PN 16 16 10 16</p> <p>Demands on actuators</p> <p>Upper lift position [mm] 14.0 or higher 15.8 or higher 14.3 or higher 14.6/15.8 or higher</p> <p>Lower lift position [mm] 11.3 or lower 11.3 or lower 11.3 or lower 11.3 or lower</p> <p>Closing press. [N] min/max. 90 / 150 90 / 150 90 / 150 90 / 150</p>																	
A	10124..	ET NC	24 V / 230 V	2 point	digital	11.2	15.8	-	> 90	-5 min	IP54	+100	any	●	●	●	●
B	10124..	ET NO	24 V / 230 V	2 point	digital	11.2	15.8	-	> 90	-5 min	IP54	+100	any	●	●	●	●
C	1012953	ET NC	24 V	steady (0-10V)	analogue	11.2	15.8	4.0	> 90	-40 s/mm	IP54	+100	any	●	●	●	●
D	1012705/85	EM	24 V	steady (0-10V)	analogue	11.2	15.8	0.5-4.0	> 90	-15 s/mm	IP40	+100	any	●	●	●	●
E	1012706/36	EM	24 V	steady (0-10V)	analogue	11.2	15.8	0.5-4.0	> 90	-15 s/mm	IP40	+100	any	●	●	●	●
F	1012717	EM	24 V AC/DC	steady (0-10V)	analogue	11.2	15.8	4.0	> 90	-22 s/mm	IP 40	+100	any	●	●	●	●
G	1012708	EM	24 V	3 point	digital	11.2	15.8	-	> 90	-15 s/mm	IP40	+100	any	●	●	●	●
H	1012709	EM	230 V	3 point	digital	11.2	15.8	-	> 90	-15 s/mm	IP40	+100	any	●	●	●	●
I	1012710/11	EM NO	230V/24 V	2 point	digital	11.2	17.0	-	> 90	-3 s	IP54	+100	any	●	●	●	●
J	11560..	EM	24 V	steady	EIB / KNX	11.2	15.2	2.6-4.0	> 90	-30 s/mm	IP44	+100	any	●	●	●	●
K	1157065	EM	nom. 48 V	steady	LON	11.2	15.2	2.6-4.0	> 90	-30 s/mm	IP44	+100	any	●	●	●	●
L	1150685	EM	Mignon (2x)	steady	EnOcean (EP AS 2007) (V wireless (EnOcean))	11.0	15.4	2	> 90	-3 s/mm	IP20	+90	any	●	●	●	●
M	1150785	EM	Mignon (2x)	steady	EnOcean (EP AS 2007) (V wireless (EnOcean))	11.0	15.4	2	> 90	-3 s/mm	IP20	+90	any	●	●	●	●

All values are standard values without tolerances.

5	6	7	8	9	10
					
"Cocon QTZ"	"Tri-M plus TR"	"Tri-D TR"	"Tri CTR"	Two-way straight pattern valve	"KTB"
11431-11494..	11427..	11302	11312..	11307..	11417 - 11419..
10/15/20/25/32	15	20/25/40	15-50	20/25/40	15/20/25
M 30 x 1.5	M 30 x 1.5	M 30 x 1.5	M 30 x 1.5	M 30 x 1.5	M 30 x 1.5
11.8	11.8	11.8	11.8	11.8	12.8
6	1	0.75/0.5/0.2		0.75/0.5/0.2	0.5
30-210 l/h: 2.8/4	2.5	2.8	2.8	3	2.5
25	10	16	16	16	10
14.6/15.8 or higher	14.3 or higher	14.6 or higher	14.6 or higher	14.8 or higher	13.3 or higher
11.3 or lower	11.3 or lower	11.3 or lower	11.3 or lower	11.3 or lower	10.8 or lower
90 / 150	90 / 150	90 / 150	90 / 150	90 / 150	90 / 150
					
•	•	•	•	•	
•	•	•	•	•	• (4)
• (5)	• (5)	• (5)	• (5)	• (5)	
• (1012735)	•	•	•	•	
• (1012736)	•	•	•	•	
	•	•	•	•	•
•	•	•	•	•	
•	•	•	•	•	
•	•	•	•	•	• (4)
•	•	•	•	•	
•	•	•	•	•	

Ratings actuators				Characteristic parameters for (C)							Valve characteristic line									
Illustration (examples)	Item no.	Model	Operating current	Interface	Lower lift position [mm]	Upper lift position [mm]	Piston stroke [mm]	Operating power [mm]	Medium fitting	Protection	Max. fluid temperature [°C]	Permissible install. position	Valve characteristic line	Actuator characteristic line						
A	1158010	EM		24V steady 0-10 V/2 point/3 point analogue / digital / digital	72.5	82.5	10	500	7.5 s/mm	IP54	+120	In vertical to horizontal position, not suspended	Adjustable at the actuator	•	•					
B	1158011	EM			72.5	82.5	10	500	7.5 s/mm	IP54	+120		Adjustable at the actuator							•
C	1158030	EM			72.5	112.5	40	2500	2 s/mm	IP66	+120		Adjustable at the actuator			•	•			•
D	1158031	EM			72.5	112.5	40	2000	2 s/mm	IP66	+120		Adjustable at the actuator			•	•			•
E	1158032	EM			72.5	112.5	40	2000	2 s/mm	IP66	+120		Adjustable at the actuator			•	•			•
F	1158022	EM with spring return					20	1000	2 s/mm	IP54	+120				Drive	•	•			•
G	1158021	EM with spring return					20	1000	2 s/mm	IP54	+120				Drive	•	•			•
H	1158020	EM					20	800	9 s/mm	IP54	+120				Drive	•	•			•

All values are standard values without tolerances

3.b "Hycococon" Control, regulating and isolating valves

Content



"Hycococon VTZ" Double regulating and commissioning valves PN 16	3.12
"Hycococon VPZ" Double regulating and commissioning valves PN 16	3.12
"Hycococon ATZ" Isolating and orifice valves PN 16	3.13
"Hycococon APZ" Isolating and orifice valves PN 16	3.13
"Hycococon ETZ" Regulating valves PN 16	3.14
"Hycococon HTZ" Regulating valves PN 16	3.14
"Hycococon DTZ" Differential pressure regulators PN 16	3.15
Insulation shells	3.16
Accessories	3.17
Valve inserts suitable for "Hycococon" valves	3.19
Measuring and draining unit	3.20
"Hycococon" Combination summary connection thread M 30 x 1.5	3.22
"Hycococon" System illustration of examples / Conversion possibilities	3.23
"Demo-Bloc"	3.21

Article	kvs	Packing unit	Article-No.	Hint
---------	-----	--------------	-------------	------

"Hycococon VTZ" Double regulating and commissioning valves PN 16 (presettable, threaded connection, dezincification resistant brass) with infinitely adjustable presetting "eco" measuring technique

both ports with integrated pressure test points and drain valves as well as insulation shells

both ports female thread according to EN 10226



DN 15	1.70	(10)	1061704
DN 20	2.70	(10)	1061706
DN 25	3.60	(10)	1061708
DN 32	6.80	(5)	1061710
DN 40	10.00	(5)	1061712
DN 50	18.00	(5)	1061716

both ports male thread with collar nut



DN 15	1.70	(10)	1061804
DN 20	2.70	(10)	1061806
DN 25	3.60	(10)	1061808
DN 32	6.80	(5)	1061810
DN 40	10.00	(5)	1061812
DN 50	18.00	(5)	1061816

"Hycococon VPZ" Double regulating and commissioning valves PN 16 (presettable, press connection, dezincification resistant brass) with infinitely adjustable presetting "eco" measuring technique

both ports with integrated pressure test points and drain valves as well as insulation shells

both ports press connection



DN 15 Ø 15 mm	1.70	(10)	1061751°
DN 15 Ø 18 mm	1.70	(10)	1061752°
DN 20 Ø 22 mm	2.70	(10)	1061754°
DN 25 Ø 28 mm	3.60	(10)	1061756°
DN 32 Ø 35 mm	6.80	(5)	1061758°
DN 40 Ø 42 mm	10.00	(5)	1061760°

Application:
 Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).

Measuring method:
 Determination of the flow rate by measuring the differential pressure and taking the presetting values into consideration.

Measuring system "OV-DMC 3": page 3.98
 Connection thread M 30 x 1.5.

All functioning components are located in one plane which is especially advantageous where space is limited. Different possibilities of conversion of "Hycococon" valves see summary: page 3.22.

Function: "Hycococon" double regulating and commissioning valves serve to achieve a hydronic balance between the various risers or different sections of the system. Installation is possible in either the supply or the return pipe.

Description "Hycococon VTZ/VPZ":

Max. operating pressure p_g : 16 bar (PN 16)
 Operating temperature t_s : -10 °C up to +120 °C
 Body and bonnet made of brass resistant to dezincification.

Oventrop double regulating and commissioning valves with reproducible, infinitely adjustable presetting controllable at any time. Lockable and lead sealable presetting (accessories set). Under working conditions and without draining the system (only DN 15 - DN 40):

- conversion to differential pressure regulator "Hycococon DTZ" (diaphragm actuator for the conversion: page 3.17)
- conversion to thermostatic operation (thermostats "Uni XH/LH": e.g. page 1.08, temperature controllers: page 3.85)
- can be used with electromotive and electrothermal actuators as well as electromotive actuators "EIB" or "LON" (actuators: page 1.26)
- bonnet may be replaced with the help of the "Demo-Bloc" for subsequent conversion of sizes DN 15 - DN 25

The "Hycococon" valves are supplied with insulation shells (max. temperature 110 °C/not diffusion tight).

The valves DN 15 and DN 20 (female thread) are suitable for use with compression fittings, item no. 10271..., page 3.49.

Press connection:

For the direct connection of copper pipes according to DIN EN 1057/DVGW GW 392, stainless steel pipes according to DIN EN 10088/DVGW GW 541 and thin-walled C-steel pipe (material no. E195/1.0034) according to DIN EN 10305-3. Pressing must be carried out to tighten the connection. Only use press jaws with the original contours SANHA (SA), Geberit-Mapress (MM) or Viega (Profipress) in corresponding size. Processing must be carried out according to the installation instructions.

Awards "Hycococon":

DESIGN PLUS ISH Frankfurt
 "Design plus"

Design Award Switzerland

Industrial Design Forum Hanover
 Award iF

Article	kvs	Packing unit	Article-No.	Hint
---------	-----	--------------	-------------	------

"Hycococon ATZ" Isolating and orifice valves PN 16 (with isolating facility, threaded connection, dezincification resistant brass) "eco" measuring technique

both ports with integrated pressure test points and drain valves as well as insulation shells

both ports female thread according to EN 10226



DN 15	1.70	(10)	1067304
DN 20	2.70	(10)	1067306
DN 25	3.60	(10)	1067308
DN 32	6.80	(5)	1067310
DN 40	10.00	(5)	1067312
DN 50	18.00	(5)	1067316

both ports male thread with collar nut



DN 15	1.70	(10)	1067404
DN 20	2.70	(10)	1067406
DN 25	3.60	(10)	1067408
DN 32	6.80	(5)	1067410
DN 40	10.00	(5)	1067412
DN 50	18.00	(5)	1067416

"Hycococon APZ" Isolating and orifice valves PN 16 (with isolating facility, press connection, dezincification resistant brass) "eco" measuring technique

both ports with integrated pressure test points and drain valves as well as insulation shells

both ports press connection



DN 15 Ø 15 mm	1.70	(10)	1067351°
DN 15 Ø 18 mm	1.70	(10)	1067352°
DN 20 Ø 22 mm	2.70	(10)	1067354°
DN 25 Ø 28 mm	3.60	(10)	1067356°
DN 32 Ø 35 mm	6.80	(5)	1067358°
DN 40 Ø 42 mm	10.00	(5)	1067360°

Application:
 Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).

Connection thread M 30 x 1.5.

All functioning components are located in one plane which is especially advantageous where space is limited.

Description "Hycococon ATZ/APZ":
 Max. operating pressure p_s : 16 bar (PN 16)
 Operating temperature t_s : -10 °C up to +120 °C
 Body and bonnet made of brass resistant to dezincification.

Under working conditions and without draining the system:

- conversion to double regulating and commissioning valve (handwheel for conversion: page 3.17)

The "Hycococon" valves are supplied with insulation shells (max. temperature 110 °C/not diffusion tight).

The valves DN 15 - DN 20 (female thread) are suitable for use with compression fittings, item no. 10271..., page 3.49.

For further information see "Technical information":



Article	kv at 1K P-dev.	kv at 2K P-dev.	kvs	Packing unit	Article-No.	Hint
---------	-----------------------	-----------------------	-----	-----------------	-------------	------

"Hycococon ETZ" Regulating valves PN 16
(can be motorised, threaded connection,
dezincification resistant brass)
with infinitely adjustable presetting (AV 9 technique)
"eco" measuring technique

both ports with integrated pressure test points and drain valves

both ports female thread according to EN 10226



DN 15	0.36	0.67	1.00	(10)	1068364
DN 20	0.36	0.67	1.20	(10)	1068366
DN 25	0.36	0.67	1.20	(10)	1068368

both ports male thread with collar nut



DN 15	0.36	0.67	1.00	(10)	1068464
DN 20	0.36	0.67	1.20	(10)	1068466
DN 25	0.36	0.67	1.20	(10)	1068468

"Hycococon HTZ" Regulating valves PN 16
(high kv-value, threaded connection,
dezincification resistant brass)
with infinitely adjustable presetting
"eco" measuring technique

both ports with integrated pressure test points and drain valves

both ports female thread according to EN 10226



DN 15	0.52	0.95	1.70	(10)	1068564
DN 20	0.52	1.04	2.70	(10)	1068566
DN 25	0.52	1.08	3.60	(10)	1068568
DN 32	0.70	1.39	6.80	(5)	1068570
DN 40	0.84	1.58	10.00	(5)	1068572

both ports male thread with collar nut



DN 15	0.52	0.95	1.70	(10)	1068664
DN 20	0.52	1.04	2.70	(10)	1068666
DN 20	0.63	1.30	5.00	(10)	1068667
DN 25	0.52	1.08	3.60	(10)	1068668
DN 32	0.70	1.39	6.80	(5)	1068670
DN 40	0.84	1.58	10.00	(5)	1068672

Application:

Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e. g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).

Measuring method:

Determination of the flow rate by measuring the differential pressure and taking the presetting values into consideration.

Measuring system "OV-DMC 3": page 3.98
 Connection thread M 30 x 1.5.

All functioning components are located in one plane which is especially advantageous where space is limited.

Different possibilities of conversion of "Hycococon" valves see summary: page 3.22.

Function:

"Hycococon" regulating valves allow the regulation of sections of the system or an individual room temperature control when combined with actuators or thermostats. Installation is possible in either the supply or the return pipe.

Description "Hycococon ETZ":

Max. operating pressure p_s : 16 bar (PN 16)
 Operating temperature t_s : -10 °C up to +120 °C
 Body and bonnet made of brass resistant to dezincification.

With infinitely presettable valve insert "AV 9". Under working conditions and without draining the system:

- conversion to thermostatic operation (thermostats "Uni XH/LH": e. g. page 1.08, temperature controllers: page 3.85)
 - can be used with electromotive and electrothermal actuators as well as electrothermal actuators "EIB" or "LON" (actuators: page 3.93)
 - bonnet may be replaced with the help of the "Demo-Bloc" for subsequent conversion
- With white protection cap with 3 frontal lugs.
 Presetting key: page 1.116

Description "Hycococon HTZ":

Max. operating pressure p_s : 16 bar (PN 16)
 Operating temperature t_s : -10 °C up to +120 °C
 Body and bonnet made of brass resistant to dezincification.

With infinitely presettable valve insert for high flow rates.

Under working conditions and without draining the system:

- conversion to differential pressure regulator "Hycococon DTZ" (diaphragm actuator for the conversion: page 3.17)
- conversion to thermostatic operation (thermostats "Uni XH/LH": e. g. page 1.08, temperature controllers: page 3.85)
- can be used with electromotive and electrothermal actuators as well as electrothermal actuators "EIB" or "LON" (actuators: page 3.94)
- conversion to double regulating and commissioning valve "Hycococon VTZ"

With green protection cap.

Set for presetting: page 3.18

Article	kvs	Packing unit	Article-No.	Hint
---------	-----	--------------	-------------	------

"Hycococon DTZ" Differential pressure regulators PN 16 (differential pressure control, threaded connection, dezincification resistant brass) "eco" measuring technique

both ports with integrated pressure test points and drain valves as well as insulation shells

both ports female thread according to EN 10226
Nominal value: 50 to 300 mbar, infinitely adjustable



DN 15	1.70	(10)	1062004
DN 20	2.70	(10)	1062006
DN 25	3.60	(10)	1062008
DN 32	6.80	(5)	1062010
DN 40	10.00	(5)	1062012
DN 50	23.00		1062016

both ports female thread according to EN 10226
Nominal value: 250 to 600 mbar, infinitely adjustable



DN 15	1.70	(10)	1062204
DN 20	2.70	(10)	1062206
DN 25	3.60	(10)	1062208
DN 32	6.80	(5)	1062210
DN 40	10.00	(5)	1062212
DN 50	23.00		1062216

both ports male thread with collar nut
Nominal value: 50 to 300 mbar, infinitely adjustable



DN 15	1.70	(10)	1062104
DN 20	2.70	(10)	1062106
DN 25	3.60	(10)	1062108
DN 32	6.80	(5)	1062110
DN 40	10.00	(5)	1062112
DN 50	23.00		1062116

both ports male thread with collar nut
Nominal value: 250 to 600 mbar, infinitely adjustable



DN 15	1.70	(10)	1062304
DN 20	2.70	(10)	1062306
DN 25	3.60	(10)	1062308
DN 32	6.80	(5)	1062310
DN 40	10.00	(5)	1062312
DN 50	23.00		1062316

Application:
Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e. g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).

Connection thread M 30 x 1.5.

All functioning components are located in one plane which is especially advantageous where space is limited.

Different possibilities of conversion of "Hycococon" valves see summary: page 3.22.

Description:
"Hycococon DTZ" differential pressure regulators can be used for a local or central regulation of the differential pressure. They are proportional regulators working without auxiliary energy and are equipped with a pressure balanced valve disc.

The "Hycococon DTZ" differential pressure regulators are installed in the **return pipe**.



Max. operating pressure p_s : 16 bar (PN 16)
Operating temperature t_s : -10 °C up to +120 °C
Body and bonnet made of brass resistant to dezincification.










The "Hycococon DTZ" differential pressure regulators are supplied complete with the connection set and the drain valve as well as insulation shells (max. temperature 110 °C / not diffusion tight).

Capillary length 1 m.

For further information see "Technical information":



Article	Article-No.	Hint
Insulation shells for higher temperatures		
	DN 15	1061771
	DN 20	1061772
	DN 25	1061773
	DN 32	1061774
	DN 40	1061775
<p>Insulation, consisting of two shells. Comply with the specifications of the German Energy Saving Directive (EnEV), appendix 5, table 1, line 5. Not suitable for item no. 1068667 and "Hycococon DTZ". Building material class B2 according to DIN 4102. Max. operating temperature t_s: +120 °C</p>		
additionally required for cooling systems		
	DN 15	1061781
	DN 20	1061782
	DN 25	1061783
	DN 32	1061784
	DN 40	1061785
<p>Not suitable for item no. 1068667 and "Hycococon DTZ". For "Hycococon ETZ/HTZ" only suitable in combination with item no. 1061771-75. Building material class B1 according to DIN 4102. Operating temperature t_s: -10 °C up to +120 °C Cold insulation: Min. fluid temperature: +6 °C The insulation shells have to be bonded hermetically (restricted diffusion tightness at low fluid temperature and at high ambient temperature and/or humidity).</p>		

Article	Nominal value	Packing unit	Article-No.	Hint	
Accessories					
	Handwheel for double regulating commissioning valves "Hycococon VTZ/VPZ"			For the conversion of isolating and orifice valves "Hycococon ATZ/APZ" to double regulating and commissioning valves "Hycococon VTZ/VPZ".	
	DN 15	(10)	1061793		
	DN 20	(10)	1061794		
	DN 25	(10)	1061795		
	DN 32	(10)	1061796		
	DN 40	(10)	1061797		
	Locking pin with locking wire for double regulating and commissioning valves "Hycococon VTZ/VPZ" as well as for "Aquaström T plus" for differential pressure regulator "Hycococon DTZ"		(50)	1061792	For locking the set nominal values. For double regulating and commissioning valves "Hycococon VTZ/VPZ" as well as item no. 42055/56/65/66..
	Fill and drain tool for valves with "eco" measuring technique			1061791	"eco" measuring technique: For draining, venting and filling the installation.
	Measuring adapter		(50)	1060297	Measuring adapter with quick-coupling technic to be screwed onto the fill and drain tool.
	Set = 2 measuring needles for valves with "eco" measuring technique		(25)	1061799	For measurement with measuring systems "OV-DMC 3", "OV-DMC 2" and "OV-DMPC".
	Diaphragm actuators Nominal values infinitely adjustable				Used for the conversion of "Hycococon VTZ/VPZ" or "Hycococon HTZ" valves to differential pressure regulators "Hycococon DTZ".
	DN 15 - DN 25	(10)	1062082		
	DN 32 / DN 40	(10)	1062085		
	DN 15 - DN 25	(10)	1062282		The valve insert required for the conversion of "Hycococon VTZ/VPZ" DN 15 - DN 25 is supplied with the diaphragm actuators.
	DN 32 / DN 40	(10)	1062285		
	Adapter G 1/4 male thread		(50)	1609302	Adapter for the connection of the "Hycococon DTZ" capillary to the "classic" measuring technique connection G 1/4 female thread.
	Adapter G 3/4 female thread		(50)	1062090	Adapter for the connection of the "Hycococon DTZ" capillary to a G 3/4 male thread (flat sealing).
	Capillary 2 m long for "Hycococon DTZ" and "Hydromat DTR"		(10)	1062095	The capillary can also be used for "Hydromat DTR" manufactured since 2012.
	Capillary 5 m long for "Hycococon DTZ" and "Hydromat DTR"		(10)	1062097	



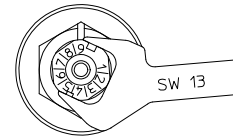
Article	Packing unit	Article-No.	Hint
Set for presetting for series "Hycocon HTZ"	(10)	1068585	



Presetting key (10) **1183962**
for thermostatic valves "AV 9, ADV 9, RFV 9, CV 9, E"
and fittings "Multiblock T/TU/TFU/T-RTL"
(manufactured since 2016)

The presetting value can be adjusted with the help of the marking on the hexagon of the valve insert.

The presetting key fits only in one position.



Alternatively, presetting can also be carried out with a spanner sized 13 mm.

Article	kv at 2K P-dev.	Packing unit	Article-No.	Hint
---------	-----------------	--------------	-------------	------

Valve inserts suitable for "Hycoco" valves sizes DN 15 - DN 25
(except for 1068667)

All valve inserts DN 15 - DN 25 (except for item no. 1026981 and 1187071) are replaceable by using the special tool "Demo-Bloc" without draining the system.



"AV 9, CV 9, RFV 9, E" and "Multiblock T-RTL" (manufactured since 2016)
0.67 (100) **1187047#**

Also for "Hycoco ETZ" (manufactured since 2016).



for return flow valves connection thread M 30 x 1.5 (100) **1026981**

Valve insert with double disc. Prevents inadvertent overheating, with frost protection.



"AV 6, RFV 6, E" and "Multiblock T-RTL" (manufactured up to 2015)
0.65 (100) **1187057#**

Also for "Hycoco ETZ" (manufactured up to 2015 inclusive).

#These valve inserts are suitable for all valve bodies with connection thread M 30 x 1.5 of all sizes of the thermostatic valves "A, AV 9, AQ, AV 6, ADV 9, ADV 6, CV 9, E, EQ, AF, RF, RFV 9, RFQ and RFV 6".



"AF"
0.32 (100) **1187352#**

Distinctive features of the valves:

Series	Protection cap	Gland nut (since end of 1993)
A	black	unplated brass
ADV 6	grey-green	grey-green
ADV 9	grey-green (3 frontal lugs)	grey-green
AF	red	red
AQ/ EQ/ RFQ	light grey	
AV 9/ CV 9/ E	white (3 frontal lugs)	
AZ H	orange	
AZ V	green	
RF	blue	unplated brass
RFV 9	light green (3 frontal lugs)	









for thermostatic valves "AQ, RFQ, EQ", fittings "Multiblock TQ, TQ-RTL", and "Unibox TQ, Q plus"
"QA" (25) **1187065#**

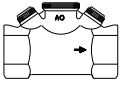

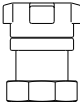
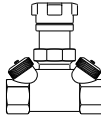
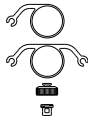


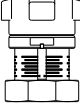
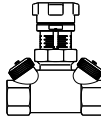

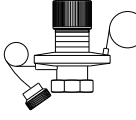
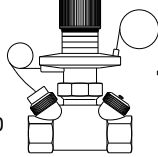


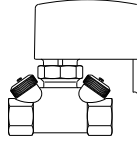
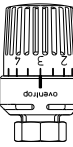
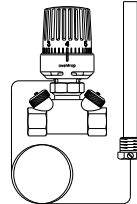





"ADV 6"
0.65 **1186001#**

The double function of the "ADV 6" and "ADV 9" inserts provokes an automatic closing of the valve to 5 % of the nominal flow (frost protection) should the thermostat be removed or destroyed. Presetting as "AV 6" and "AV 9".

Article	kv at 2K P-dev.	Packing unit	Article-No.	Hint
 <p>"PTB" and "Cocon 2TZ"</p> <p>kvs = 0.45 P1 kvs = 1.0 P2 kvs = 1.8 P3</p>			(100) 1186052# (100) 1186053# (100) 1186054	#These valve inserts are suitable for all valve bodies with connection thread M 30 x 1.5 of all sizes of the thermostatic valves "A, AV 6, ADV 6, AZ, E, F, RF and RFV 6".
 <p>with stainless steel seat (especially for steam installations)</p>			(100) 1186200#	
 <p>"Combi LR" with cap</p>			(100) 1187071	
 <p>Special valve insert for reversed supply and return pipe for thermostatic valves "A, AV 9, AV 6, ADV 6, ADV 9, CV 9, E, AF, RF, RFV 9, RFV 6" without presetting</p>	0.45		(100) 1187070#	
 <p>Thermostatic valves "KTB" Valve inserts</p>			(100) 1147169	
 <p>for "Hycococon HTZ/DTZ"</p> <p>DN 15 - DN 25</p>	0.95 - 1.08		(10) 1067085	
 <p>for "Hycococon HTZ", "Hycococon DTZ", "Hycococon VTZ/VPZ"</p> <p>DN 32 DN 40</p>	1.39 1.58		(10) 1067066 (10) 1067067	The valve insert 1067066 is also suitable for item no. 1068867 ("Hycococon HTZ", DN 20 with kvs value 5.0).
 <p>for "Hycococon VTZ/VPZ" and "Hycococon ATZ/APZ"</p> <p>DN 15 - DN 25</p>			(10) 1067065	
 <p>for "Hycococon ATZ/APZ"</p> <p>DN 32 DN 40</p>			(10) 1067068 (10) 1067069	
<p>Measuring and draining unit for valves with "eco" measuring technique</p>				"eco" measuring technique: Information: page 3.101
 <p>DN 15 - DN 40</p>			(10) 1061790	
 <p>Plug for valves with "eco" measuring technique</p> <p>DN 15 - DN 40</p>			(10) 1061798	

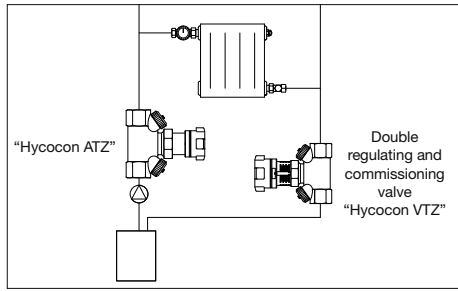
Article	Packing unit	Article-No.	Hint
<p>"Demo-Bloc" special tool for replacing the valve inserts, suitable for "Hycococon" DN 15, 20 and 25 (except for "Hycococon DTZ" and item no. 1068667) <u>without draining the system</u> Basic tool also suitable for all Oventrop thermostatic radiator valves</p>			<p>The "Demo-Bloc" is supplied in a handy bag.</p>
<p>connection thread M 30 x 1.5</p>		<p>1188051</p>	<p>Including coupling set for valve insert "QA".</p>
	<p>(100)</p>	<p>1188400</p>	<p>The valve seat can be cleaned by use of the "Demo-Bloc" and the cleaning head.</p>
<p>Cleaning head for all valves</p>			
	<p>Differential pressure measuring stem</p>	<p>1188093</p>	<p>The differential pressure above the valve seat can be measured with the "Demo-Bloc" and the differential pressure measuring stem.</p>
			

Body	Inserts	Control unit	Valves (examples)	Accessories	
 <p>DN 15–DN 40</p>	 <p>Valve insert item no. 1067065 for "Hycococon VTZ/VPZ/ATZ/APZ", DN 15–DN 25</p> <p>Valve insert item no. 1067068 for "Hycococon ATZ/APZ", DN 32</p> <p>Valve insert item no. 1067069 for "Hycococon ATZ/APZ", DN 40</p> <p>Valve insert item no. 1067066 for "Hycococon VTZ/VPZ/HTZ/DTZ", DN 32</p> <p>Valve insert item no. 1067067 for "Hycococon VTZ/VPZ/HTZ/DTZ", DN 40</p>	 <p>Handwheel for isolation DN 15–DN 25 DN 32–DN 40</p>	 <p>"Hycococon ATZ" DN 15–DN 25</p>	 <p>Measuring and draining unit Item no. 1061790</p>  <p>Plug Item no. 1061798</p>	
	 <p>Valve insert item no. 1067085 for "Hycococon HTZ", DN 15–DN 25</p> <p>Valve insert item no. 1067066 for "Hycococon VTZ/VPZ/HTZ/DTZ", DN 32</p> <p>Valve insert item no. 1067067 for "Hycococon VTZ/VPZ/HTZ/DTZ", DN 40</p>	 <p>Handwheel for control DN 15–DN 25 Item no. 1061793–95 DN 32–DN 40 Item no. 106196–97</p>	 <p>"Hycococon VTZ" DN 15–DN 40</p>		
	 <p>Valve insert item no. 1067085 for "Hycococon HTZ", DN 15–DN 25</p> <p>Valve insert item no. 1067066 for "Hycococon VTZ/VPZ/HTZ/DTZ", DN 32</p> <p>Valve insert item no. 1067067 for "Hycococon VTZ/VPZ/HTZ/DTZ", DN 40</p>	 <p>Diaphragm actuator DN 15–DN 25 Item no. 1062082/ 1062282 (including valve insert) Item no. 1067085) DN 32–DN 40 Item no. 1062085/ 1062285</p>	 <p>"Hycococon DTZ" DN 15–DN 40</p>		
	<p>other valve inserts DN 15–DN 25</p> <p>"A" Item no. 1187069</p> <p>"AZ" Item no. 1187066</p> <p>P1 kvs 0.45 Item no. 1186052</p> <p>P2 kvs 1.0 Item no. 1186053</p> <p>Reversed supply/return Item no. 1187070</p> <p>"AF" Item no. 1187352</p> <p>"KTB" Item no. 1147169</p> <p>"ADV 9" Item no. 1186002</p> <p>"Hycococon ETZ" and "AV 9" Item no. 1187047</p> <p>Steam insert Item no. 1186200</p> <p>Valve insert "QA" Item no. 1187065</p>	 <p>Thermostats and actuators DN 15–DN 40 e.g. item no. 1011365</p>	 <p>"Hycococon ETZ/HTZ" thermostatic operation DN 15–DN 40</p>		
		<p>Electrothermal actuators</p> <p>Electromotive actuators</p> <p>Two point Item no. 10124..</p> <p>24 V/0–10 V Item no. 1012952</p> <p>230 V/two point Item no. 1012710</p> <p>24 V/0–10 V Item no. 1012705</p> <p>24 V/three point Item no. 1012708</p> <p>230 V/three point Item no. 1012709</p>	<p>Manual heads</p> <p>Electromotive actuators</p> <p>System EIB Item no. 1156065</p> <p>Item no. 1156066</p> <p>System LON Item no. 1157065</p>		 <p>"Hycococon ETZ/HTZ" with actuator DN 15–DN 40</p>
		<p>Further thermostats: page 1.08 and onwards</p> <p>Further actuators: page 1.26 and onwards</p>	 <p>"Uni RTLH" DN 15–DN 25 Item no. 1027165</p>		 <p>"Hycococon ETZ/HTZ" with temperature controller DN 15–DN 40</p>
		 <p>Valve insert for return temperature limitation DN 15–DN 25 Item no. 1026981</p>			
		 <p>"Combi LR" DN 15–DN 25 Item no. 1187071</p>	 <p>Spanner Control unit inside the insert</p>		

The combination summary is not valid for item no. 1068667 (DN 20 – "Hycococon HTZ" with kvs value 5.0)

Further examples can be found in the product range "Flow, pressure and temperature balancing".

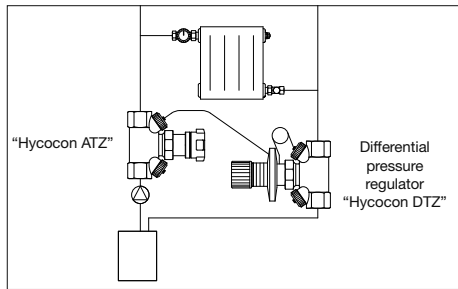
Note: The connection thread of all "Hycococon" valves sized DN 15 to DN 40 is M 30 x 1.5.



Hydronic balancing

Standard installation:

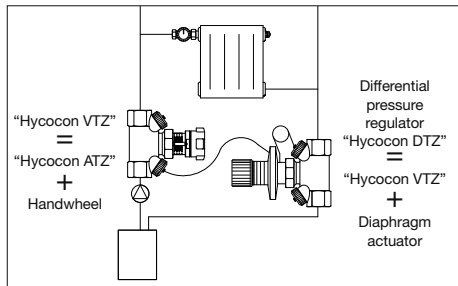
The valves "Hycococon VTZ/VPZ" and "Hycococon ATZ/APZ" allow a subsequent conversion as illustrated below.



Differential pressure regulation:

for instance consisting of the differential pressure regulators "Hycococon DTZ" and the isolating and orifice valve "Hycococon ATZ" for installations with presettable thermostatic valves.

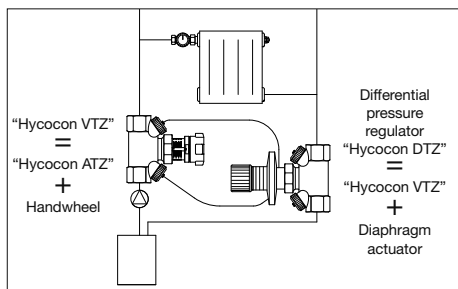
A subsequent conversion of the "Hycococon VTZ" (DN 15 – DN 40) with diaphragm actuator to differential pressure regulator "Hycococon DTZ" is possible.



Differential pressure regulation with flow limitation:

for instance consisting of the differential pressure regulator "Hycococon DTZ" and the double regulating and commissioning valve "Hycococon VTZ" for installations without presettable thermostatic valves or radiator lockshield valves in which the flow rate shall additionally be limited to the calculated value (capillary connection at the inlet nipple of the "Hycococon VTZ").

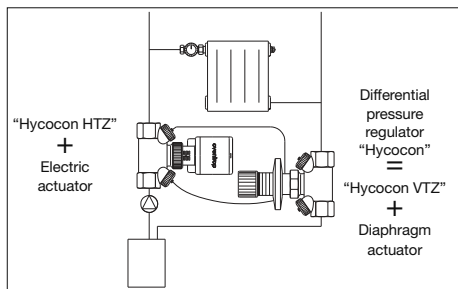
A subsequent conversion of the "Hycococon VTZ" (DN 15 – DN 40) with diaphragm actuator and use of the dismantled handwheel of the "Hycococon ATZ" is possible.



Flow regulation (DN 15 – DN 40):

for instance consisting of the differential pressure regulator "Hycococon DTZ" and the double regulating and commissioning valve "Hycococon VTZ" for installations without presettable thermostatic valves and radiator lockshield valves or for one pipe systems (capillary connection at the inlet and outlet nipple of the "Hycococon VTZ").

A subsequent conversion of the "Hycococon VTZ" with diaphragm actuator and use of the dismantled handwheel of the "Hycococon ATZ" is possible.



Flow regulation (DN 15 – DN 40):

for instance consisting of the regulating valve "Hycococon HTZ" and the differential pressure regulator "Hycococon DTZ" for electronically controlled installations (capillary connection at inlet and outlet nipple of the "Hycococon HTZ").

A subsequent conversion of the "Hycococon VTZ" with diaphragm actuator is required.

3.c "Hydrocontrol" Regulating and isolating valves

Content



"Hydrocontrol VTR" Double regulating and commissioning valves PN 25 / PN 16	3.26
"Hydrocontrol VPR" Double regulating and commissioning valves PN 16	3.28
"Hydrocontrol VFC" Double regulating and commissioning valves PN 16	3.29
"Hydrocontrol VFC" Double regulating and commissioning valves PN 6	3.31
"Hydrocontrol VFR" Double regulating and commissioning valves PN 16	3.31
"Hydrocontrol VFN" Double regulating and commissioning valves PN 25	3.33
"Hydrocontrol VGC" Double regulating and commissioning valves PN 25	3.33
"Hydrocontrol STR" Double regulating and commissioning valves PN 25	3.34
"Hydrocontrol MTR" Double regulating and commissioning valves PN 25	3.34
"Hydrocontrol MPR" Double regulating and commissioning valves PN 16	3.34
"Hydrocontrol MFC" Double regulating and commissioning valves PN 16	3.35
"Hydrocontrol ATR" Isolating and orifice valves PN 25 / PN 16	3.36
"Hydrocontrol APR" Isolating and orifice valves PN 16	3.36
"Hydrocontrol AFC" Isolating and orifice valves PN 16	3.36

Article	kvs	Packing unit	Article-No.	Hint
---------	-----	--------------	-------------	------

"Hydrocontrol VTR" Double regulating and commissioning valves PN 25 / PN 16 (presettable, threaded connection, bronze) "classic" measuring technique

PN 25 with mounted accessories set no. 3 = 1 pressure test point G ¼ and 1 fill and drain ball valve G ¼
both ports female thread according to EN 10226



DN 10	2.88	(10)	1060303
DN 15	3.88	(10)	1060304
DN 20	5.71	(10)	1060306
DN 25	8.89	(10)	1060308
DN 32	19.45	(5)	1060310
DN 40	27.51	(5)	1060312
DN 50	38.78	(5)	1060316

PN 25 with mounted accessories set no.2=2 pressure test points G ¼
both ports female thread according to EN 10226



DN 10	2.88	(10)	1060203
DN 15	3.88	(10)	1060204
DN 20	5.71	(10)	1060206
DN 25	8.89	(10)	1060208
DN 32	19.45	(5)	1060210
DN 40	27.51	(5)	1060212
DN 50	38.78	(5)	1060216

PN 25 both ports with connection for "classic" measuring technique (closed with blind plugs)
both ports female thread according to EN 10226



DN 10	2.88	(10)	1060103
DN 15	3.88	(10)	1060104
DN 20	5.71	(10)	1060106
DN 25	8.89	(10)	1060108
DN 32	19.45	(5)	1060110
DN 40	27.51	(5)	1060112
DN 50	38.78	(5)	1060116

PN 16
both ports female thread according to EN 10226



DN 65	50.00		1060120
-------	-------	--	----------------

PN 16 both ports with connection for "classic" measuring technique (closed with blind plugs)
both ports male thread with collar nut



DN 10	2.88	(10)	1060503
DN 15	3.88	(10)	1060504
DN 20	5.71	(10)	1060506
DN 25	8.89	(10)	1060508
DN 32	19.45	(5)	1060510
DN 40	27.51	(5)	1060512
DN 50	38.78	(5)	1060516

Application:
Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids, (e. g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).

Measuring method:
Determination of the flow rate by measuring the differential pressure and taking the presetting values into consideration.

Measuring system "OV-DMC 3": page 3.98

Function:

Oventrop double regulating and commissioning valves are installed in the pipework of central heating and cooling systems and serve to achieve the hydronic balance between the various circuits of the system. The double regulating and commissioning valves may be installed in either the supply or the return pipe. The valves DN 10 - DN 20 are suitable for use with compression fittings, item no. 10271..., page 3.49.

Body and bonnet made of bronze, stem and disc made of brass resistant to dezincification (DZR), disc with PTFE seal, fill and drain ball valve, blind plug and pressure test point made of brass resistant to dezincification (DZR). Colour rings to mark the supply (red) and return pipe (blue) are supplied with each valve (except for item no. 1060120).

Description "Hydrocontrol VTR":

Max. operating pressure p_s : 25 bar (PN 25), 362,5 psi
or 16 bar (PN 16), 232 psi for DN 65
Operating temperature t_s : -20 °C up to +150 °C

10601:

The sizes DN 40 and DN 50 are ACS (France) certified for installation in potable water systems.

Male thread:

DN 10 - G 5/8
DN 15 - G 3/4
DN 20 - G 1
DN 25 - G 1 1/4
DN 32 - G 1 1/2
DN 40 - G 1 3/4
DN 50 - G 2 3/4

Awards:

 International Design Award
Baden Württemberg

 Good Design Award Japan

 Industrial Design Forum Hanover
Award iF

For further information see "Technical information":



Accessories: Page 3.44
Bonnetts: Page 3.46
Insulation shells: Page 3.47
Tailpipe sets: Pages 1.56, 1.101, 3.49

Article	kvs	Packing unit	Article-No.	Hint
PN 25 with mounted accessories set no.2=2 pressure test points G ¼ <u>both ports female thread according to EN 10226</u>				16887...: Type approval for shipbuilding (DNV-GL).
DN 10	2.88	(10)	1688703	
DN 15	3.88	(10)	1688704	
DN 20	5.71	(10)	1688706	
DN 25	8.89	(10)	1688708	
DN 32	19.45	(5)	1688710	
DN 40	27.51	(5)	1688712	
DN 50	38.78	(5)	1688716	



Article	kvs	Packing unit	Article-No.	Hint
---------	-----	--------------	-------------	------

"Hydrocontrol VPR" Double regulating and commissioning valves PN 16 (presettable, press connection, bronze) "classic" measuring technique



PN 16 both ports with connections for "classic" measuring technique (closed with blind plugs)
both ports press connection

DN 15 Ø 15 mm	3.88	(10)	1060151°
DN 15 Ø 18 mm	3.88	(10)	1060152°
DN 20 Ø 22 mm	5.71	(10)	1060154°
DN 25 Ø 28 mm	8.89	(10)	1060156°
DN 32 Ø 35 mm	19.45	(5)	1060158°
DN 40 Ø 42 mm	27.51	(5)	1060160°
DN 50 Ø 54 mm	38.78	(5)	1060162°

Application:
Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).

Measuring method:
Determination of the flow rate by measuring the differential pressure and taking the presetting values into consideration.

Measuring system "OV-DMC 3": page 3.98
Function:

Oventrop double regulating and commissioning valves are installed in the risers of central heating and cooling systems and serve to achieve the hydronic balance between the various circuits of the system. Installation is possible in either the supply or the return pipe.

Body and bonnet made of bronze, stem and disc made of brass resistant to dezincification (DZR), disc with PTFE seal, blind plug made of brass resistant to dezincification (DZR). Colour rings to mark the supply (red) and return pipe (blue) are supplied with each valve.

Description "Hydrocontrol VPR":
Max. operating pressure p_s : 16 bar (PN 16)
Operating temperature t_s : -20 °C up to +120 °C
Press connection:

For the direct connection of copper pipes according to DIN EN 1057 / DVGW GW 392, stainless steel pipes according to DIN EN 10088 / DVGW GW 541 and thin-walled C-steel pipe (material no. E195/1.0034) according to DIN EN 10305-3. Pressing must be carried out to tighten the connection. Only use press jaws with the original contours SANHA (SA), Geberit-Mapress (MM) or Viega (Profipress) in corresponding size. Processing must be carried out according to the installation instructions.

Awards:



For further information see "Technical information":



Accessories: Page 3.44
Bonnets: Page 3.46
Insulation shells: Page 3.47

Article kvs Article-No. Hint

"Hydrocontrol VFC" Double regulating and commissioning valves PN 16 (presettable, flanged connection, cast iron) "classic" measuring technique

both ports flanged according to **DIN EN 1092-2** with mounted accessories set no. 2 = 2 pressure test points G ¼



DN 20	4.80	1062646
DN 25	8.40	1062647
DN 32	17.10	1062648
DN 40	26.90	1062649
DN 50	36.00	1062650



DN 65	98.00	1062651
DN 80	122.20	1062652
DN 100	201.00	1062653
DN 125	293.00	1062654
DN 150	404.30	1062655



DN 200	814.50	1062656
DN 250	1,200.00	1062657
DN 300	1,600.00	1062658
DN 350	2,250.00	1062659
DN 400	3,750.00	1062660

Larger sizes on demand.

both ports flanged with hole circle according to **ANSI*** with mounted accessories set no. 2 = 2 pressure test points G ¼



DN 20	4.80	1062946
DN 25	8.40	1062947
DN 32	17.10	1062948
DN 40	26.90	1062949
DN 50	36.00	1062950



DN 65	98.00	1062951
DN 80	122.20	1062952
DN 100	201.00	1062953
DN 125	293.00	1062954
DN 150	404.30	1062955



DN 200	814.50	1062956
DN 250	1,200.00	1062957
DN 300	1,600.00	1062958
DN 350	2,250.00	1062959
DN 400	3,750.00	1062960

Application:
Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e. g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).

For cooling systems: Please provide frost protection and diffusion tight insulation!

Measuring method:
Determination of the flow rate by measuring the differential pressure and taking the presetting values into consideration.
Measuring system "OV-DMC 3": page 3.98


Oventrop double regulating and commissioning valves with secured infinitely adjustable presetting controllable at any time by use of the flow limiting device.
Lengths according to DIN EN 558-1, basic series 1.
All functioning components in one plane.

The double regulating and commissioning valves may be installed in either the supply or the return pipe.

Function:
Oventrop double and regulating commissioning valves are installed in the pipework of central heating and cooling systems and serve to achieve the hydronic balance between the various circuits of the system.
Further additional functions:
Regulation, isolation.
Infinitely adjustable presetting.
The pressure loss can be controlled exactly by using the pressure test points.

Description "Hydrocontrol VFC":
Max. operating pressure p_s : 16 bar (PN 16)
Operating temperature t_s : -10 °C up to +150 °C

Body (DN 20 - DN 300) made of cast iron (EN-GJL - 250 DIN EN 1561), DN 350 and DN 400 made of nodular cast iron (EN-GJS-500 DIN EN 1563).
Disc with PTFE or EPDM seal.
Maintenance-free stem seal due to double O-ring made of EPDM.

Award "Hydrocontrol VFC":
 Pragothem Prague

*US standard, class 150

For further information see "Technical information":





Article	kvs	Article-No.	Hint
both ports flanged according to DIN EN 1092-2 with mounted accessories set no. 2 = 2 pressure test points G ¼			16887...: Type approval for shipbuilding (DNV-GL).
DN 20	4.80	1688746	
DN 25	8.40	1688747	
DN 32	17.10	1688748	
DN 40	26.90	1688749	
DN 50	36.00	1688750	

Article	kvs	Article-No.	Hint
---------	-----	-------------	------

"Hydrocontrol VFC" Double regulating and commissioning valves PN 6
 both ports flanged according to **DIN EN 1092-2**
 with mounted accessories set no. 2 = 2 pressure test points G ¼



DN 20	4.80	1062676
DN 25	8.40	1062677
DN 32	17.10	1062678
DN 40	26.90	1062679
DN 50	36.00	1062680



DN 65	98.00	1062681
DN 80	122.20	1062682
DN 100	201.00	1062683
DN 125	293.00	1062684
DN 150	404.30	1062685



DN 200	814.50	1062686
--------	--------	----------------

"Hydrocontrol VFR" Double regulating and commissioning valves PN 16
 (presettable, flanged connection, bronze)
 "classic" measuring technique
 both ports flanged according to **DIN EN 1092-2**
 with mounted accessories set no. 2 = 2 pressure test points G ¼



DN 50	36.00	1062350
-------	-------	----------------



DN 65	98.00	1062351
DN 80	122.20	1062352
DN 100	201.00	1062353
DN 125	293.00	1062354
DN 150	404.30	1062355



DN 200	814.50	1062356
--------	--------	----------------

Application:
 Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e. g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).
 Measuring method:
 Determination of the flow rate by measuring the differential pressure and taking the presetting values into consideration.
 Measuring system "OV-DMC 3": page 3.98

Oventrop double regulating and commissioning valves with secured infinitely adjustable presetting controllable at any time by use of the flow limiting device.
 Lengths according to DIN EN 558-1, basic series 1.
 All functioning components in one plane.

Function:
 Oventrop double regulating and commissioning valves are installed in the pipework of central heating and cooling systems and serve to achieve the hydronic balance between the various circuits of the system.
 Further additional functions:
 Regulation, isolation.
 Infinitely adjustable presetting.
 The pressure loss can be controlled exactly by using the pressure test points.
 Lead lockable presetting.
 The double regulating and commissioning valves may be installed in either the supply or the return pipe.

Description "Hydrocontrol VFC":
 Max. operating pressure p_s : 16 bar (PN 6)
 Operating temperature t_s : -10 °C up to +150 °C

Body made of cast iron (EN-GJL - 250 DIN EN 1561).
 Disc with PTFE seal.
 Maintenance-free stem seal due to double O-ring made of EPDM.

Description "Hydrocontrol VFR":
 Max. operating pressure p_s : 16 bar (PN 16)
 Operating temperature t_s : -20 °C up to +150 °C
 Body, bonnet and disc made of bronze, stainless steel stem, disc with PTFE seal.
 Maintenance-free stem seal due to double O-ring made of EPDM.

The bronze double regulating and commissioning valves "Hydrocontrol VFR" may also be used for cold salt water (max. 38 °C) and domestic water.

For further information see "Technical information":





Article	kvs	Article-No.	Hint
---------	-----	-------------	------

both ports flanged according to **DIN EN 1092-2**
 with mounted accessories set no. 2 = 2 pressure test points G ¼

DN 50	36.00	1688350	
DN 200	814.50	1688356	

16883...:
 Type approval for shipbuilding (DNV-GL).

Article kvs Article-No. Hint

"Hydrocontrol VFN" Double regulating and commissioning valves PN 25 (presettable, flanged connection, nodular cast iron) "classic" measuring technique
both ports flanged according to DIN EN 1092-2
 with mounted accessories set no. 2 = 2 pressure test points G 1/4



DN 65	98.00	1062451
DN 80	122.20	1062452
DN 100	201.00	1062453
DN 125	293.00	1062454
DN 150	404.30	1062455



DN 200	814.50	1062456
DN 250	1,200.00	1062457
DN 300	1,600.00	1062458

"Hydrocontrol VGC" Double regulating and commissioning valves PN 25 (presettable, groove connection, cast iron) "classic" measuring technique
both ports groove connection for couplings
 with mounted accessories set no. 2 = 2 pressure test points G 1/4



DN 65	98.00	1063051
DN 65	98.00	1064051
DN 80	122.20	1063052
DN 100	201.00	1063053
DN 125	293.00	1063054
DN 125	293.00	1064054
DN 150	404.30	1063055
DN 150	404.30	1064055



DN 200	814.50	1063056
DN 250	1,200.00	1063057
DN 300	1,600.00	1063058

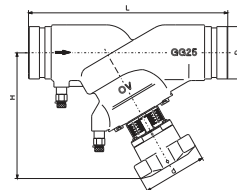
Suitable for couplings of the systems Victaulic and Grinell and similar.

Application:
 Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e. g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).
 Measuring method:
 Determination of the flow rate by measuring the differential pressure and taking the presetting values into consideration.
 Measuring system "OV-DMC 3": page 3.98





Function:
 Oventrop double regulating and commissioning valves are installed in the pipework of central heating and cooling systems and serve to achieve the hydronic balance between the various circuits of the system.
 Further additional functions:
 Regulation, isolation.
 Infinitely adjustable presetting.
 The pressure loss can be controlled exactly by using the pressure test points.
 Lead lockable presetting.
 The double regulating and commissioning valves may be installed in either the supply or the return pipe.

Description "Hydrocontrol VFN":
 Max. operating pressure p_s : 25 bar (PN 25)
 Operating temperature t_s : -20 °C up to +150 °C
 Body made of nodular cast iron (EN-GJS - 500 DIN EN 1563), stem made of brass resistant to dezincification. Disc with PTFE seal.
 Maintenance-free stem seal due to double O-ring made of EPDM.

Description "Hydrocontrol VGC":
 Max. operating pressure p_s : 25 bar (PN 25)
 Operating temperature t_s : -10 °C up to +150 °C
 Body made of cast iron (EN-GJL - 250 DIN EN 1561), stem made of brass resistant to dezincification.
 Disc with PTFE seal. Maintenance-free stem seal due to double O-ring made of EPDM.



Item no.	DN	L	D	H	d
1063051	65	290	73.0	200	160
1064051	65	290	76.1	200	160
1063052	80	310	88.9	215	160
1063053	100	350	114.3	244	160
1064054	125	400	139.7	289	160
1063054	125	400	141.3	289	160
1064055	150	480	165.1	293	160
1063055	150	480	168.3	293	160
1063056	200	600	219.1	467	300
1063057	250	730	273.0	480	300
1063058	300	850	323.9	515	300

Article	kvs	Packing unit	Article-No.	Hint	
"Hydrocontrol STR" Double regulating and commissioning valves PN 25 (solar, threaded connection, bronze)					
with integrated metering station, quick-coupling measuring technique, <u>both ports compression connection for compression fittings "Regusol"</u>					
	DN 20 LF	1.04	(10) 1369050	Application "Hydrocontrol STR": Solar plants with closed circuits, for operation with non-aggressive, harmless fluids (e. g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195). Measuring method: Determination of the flow rate by measuring the differential pressure via the metering station. Description "Hydrocontrol STR": Max. operating pressure p_s : 25 bar (PN 25) Operating temperature t_s : -20 °C up to +200 °C Especially for solar plants. As the valve has no isolation function, a minimum flow rate is guaranteed. It is used for the hydronic balancing of collector fields. Accessories: Compression fittings "Regusol": page: 9.31	
	DN 20 MF	2.60	(10) 1369055		
<u>both ports female thread according to EN 10226</u>					
	DN 20 LF	1.04	(10) 1369062		
	DN 20 MF	2.60	(10) 1369065		
"Hydrocontrol MTR" Double regulating and commissioning valves PN 25 (metering station, threaded connection, bronze)					
with integrated metering station, "classic" measuring technique					
<u>both ports female thread according to EN 10226</u>					
	DN 15 LF	0.55	(10) 1060464	Application "Hydrocontrol MTR/MPR": Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195). Measuring method: Determination of the flow rate by measuring the differential pressure via the metering station. Modification of the flow rates irrespective of the presetting values can be read off directly with the help of the measuring gauges "OV-DMC 3"/"OV-DMC 2"/"OV-DMPC". Description "Hydrocontrol MTR": Max. operating pressure p_s : 25 bar (PN 25), 362,5 psi Operating temperature t_s : -20 °C up to +150 °C Colour rings to mark the supply (red) and the return pipe (blue) are supplied with each valve.	
	DN 15 MF	1.15	(10) 1060434		
	DN 15 HF	2.10	(10) 1060404		
	DN 20	3.70	(10) 1060406		
	DN 25	6.10	(10) 1060408		
	DN 32	12.50	(5) 1060410		
	DN 40	18.10	(5) 1060412		
	DN 50	30.50	(5) 1060416		
"Hydrocontrol MPR" Double regulating and commissioning valves PN 16 (metering station, press connection, bronze)					
with integrated metering station, "classic" measuring technique					
<u>both ports press connection</u>					
	DN 15 LF	Ø 15 mm	0.55	(10) 1060651	Description "Hydrocontrol MPR": Max. operating pressure p_s : 16 bar (PN 16), 232 psi Operating temperature t_s : -20 °C up to +120 °C Colour rings to mark the supply (red) and the return pipe (blue) are supplied with each valve. Press connection: For the direct connection of copper pipes according to DIN EN 1057 / DVGW GW 392, stainless steel pipes according to DIN EN 10088 / DVGW GW 541 and thin-walled C-steel pipe (material no. E195/1.0034) according to DIN EN 10305-3. Pressing must be carried out to tighten the connection. Only use press jaws with the original contours SANHA (SA), Geberit-Mapress (MM) or Viega (Profipress) in corresponding size. Processing must be carried out according to the installation instructions.
	DN 15 MF	Ø 15 mm	1.15	(10) 1061651	
	DN 15 HF	Ø 15 mm	2.10	(10) 1060451	
	DN 15 HF	Ø 18 mm	2.10	(10) 1060452°	
	DN 20	Ø 22 mm	3.70	(10) 1060454	
	DN 25	Ø 28 mm	6.10	(10) 1060456	
	DN 32	Ø 35 mm	12.50	(5) 1060458	
	DN 40	Ø 42 mm	18.10	(5) 1060460	
	DN 50	Ø 54 mm	30.50	(5) 1060462	

Article	kvs	Article-No.	Hint
---------	-----	-------------	------

"Hydrocontrol MFC" Double regulating and commissioning valves PN 16 (metering station, flanged connection, cast iron) "classic" measuring technique

both ports flanged according to **DIN EN 1092-2**
 with mounted accessories set no. 2 = 2 pressure test points G ¼



DN 65	86.70	1065851
DN 80	102.00	1065852
DN 100	198.00	1065853
DN 125	271.00	1065854
DN 150	400.00	1065855



DN 200	750.00	1065856
DN 250	1,090.00	1065857
DN 300	1,500.00	1065858

Application:
 Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).

For cooling systems: Please provide frost protection and diffusion tight insulation!

Measuring method:
 Determination of the flow rate by measuring the differential pressure via the metering station.
 Measuring system "OV-DMC 3": page 3.98

Oventrop double regulating and commissioning valves, with secured infinitely adjustable presetting controllable at any time by use of the flow limiting device.
 Lengths according to DIN EN 558-1, basic series 1.

All functioning components in one plane.

The double regulating and commissioning valves may be installed in either the supply or the return pipe.

Function:
 Oventrop double regulating and commissioning valves are installed in the pipework of central heating and cooling systems and serve to achieve a hydronic balance between the various circuits of the system.

Further additional functions:
 Regulation, isolation.
 Infinitely adjustable presetting.

Description "Hydrocontrol MFC":
 Max. operating pressure p_s : 16 bar (PN 16)
 Operating temperature t_s : -10 °C up to +150 °C

Body made of cast iron (EN-GJL - 250 DIN EN 1561).
 Disc with PTFE or EPDM seal.
 Maintenance-free stem seal due to double EPDM O-ring.

Article	kvs	Packing unit	Article-No.	Hint
---------	-----	--------------	-------------	------

"Hydrocontrol ATR" Isolating and orifice valves PN 25 / PN 16 (with isolating facility, threaded connection, bronze)
 with two threaded ports for "classic" measuring technique (closed with blind plugs) without presetting

PN 25 both ports female thread according to EN 10226



DN 10	2.88	(10)	1067503
DN 15	3.88	(10)	1067504
DN 20	5.71	(10)	1067506
DN 25	8.89	(10)	1067508
DN 32	19.45	(5)	1067510
DN 40	27.51	(5)	1067512
DN 50	38.78	(5)	1067516

PN 16 both ports female thread according to EN 10226



DN 65		50.00	1067520
-------	--	-------	----------------

PN 16 both ports male thread with collar nut



DN 10	2.88	(10)	1067603
DN 15	3.88	(10)	1067604
DN 20	5.71	(10)	1067606
DN 25	8.89	(10)	1067608
DN 32	19.45	(5)	1067610
DN 40	27.51	(5)	1067612
DN 50	38.78	(5)	1067616

"Hydrocontrol APR" Isolating and orifice valves PN 16 (with isolating facility, press connection, bronze)

with two threaded ports for "classic" measuring technique (closed with blind plugs) without presetting

PN 16 both ports press connection



DN 15 Ø 15 mm	3.88	(10)	1067551°
DN 15 Ø 18 mm	3.88	(10)	1067552°
DN 20 Ø 22 mm	5.71	(10)	1067554°
DN 25 Ø 28 mm	8.89	(10)	1067556°
DN 32 Ø 35 mm	19.45	(5)	1067558°
DN 40 Ø 42 mm	27.51	(5)	1067560°
DN 50 Ø 54 mm	38.78	(5)	1067562°

"Hydrocontrol AFC" Isolating and orifice valves PN 16 (with isolating facility, flanged connection, cast iron)

with two threaded ports for "classic" measuring technique (closed with blind plugs) without presetting

both ports flanged according to DIN EN 1092-2



DN 65		98.00	1062051
DN 80		122.00	1062052
DN 100		201.00	1062053
DN 125		293.00	1062054
DN 150		404.30	1062055

Application:

Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e. g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).

Description "Hydrocontrol ATR":

Max. operating pressure p_s : 25 bar (PN 25) or 16 bar (PN 16)

Operating temperature t_s : -20 °C up to +150 °C

Body and bonnet made of bronze, stem and disc made of brass resistant to dezincification (DZR), disc with PTFE seal, blind plugs made of brass resistant to dezincification (DZR).

Colour rings to mark the supply (red) and the return pipe (blue) are supplied with each valve.

Male thread

DN 10 - G $\frac{5}{8}$

DN 15 - G $\frac{3}{4}$

DN 20 - G 1

DN 25 - G $1\frac{1}{4}$

DN 32 - G $1\frac{1}{2}$

DN 40 - G $1\frac{3}{4}$

DN 50 - G $2\frac{3}{8}$

Description "Hydrocontrol APR":

Max. operating pressure p_s : 16 bar (PN 16)

Operating temperature t_s : -20 °C up to +120 °C

Press connection:

For the direct connection of copper pipes according to DIN EN 1057 / DVGW GW 392, stainless steel pipes according to DIN EN 10088 / DVGW GW 541 and thin-walled C-steel pipe (material no. E195/1.0034) according to DIN EN 10305-3. Pressing must be carried out to tighten the connection. Only use press jaws with the original contours SANHA (SA), Geberit-Mapress (MM) or Viega (Profipress) in corresponding size. Processing must be carried out according to the installation instructions.

For further information see "Technical information":



Description "Hydrocontrol AFC":

Max. operating pressure p_s : 16 bar (PN 16)

Operating temperature t_s : -10 °C up to +150 °C

Body made of cast iron.

3.d "Hydromat" Differential pressure and flow regulators

Content



"Hydromat QTR" Flow regulators PN 16	3.38
"Hydromat DTR" Differential pressure regulators PN 16	3.39
"Hydrocontrol"/ "Hydromat" System examples	3.41
"Hydromat DFC" Differential pressure regulators PN 16	3.40

Article	Flow range	Article-No.	Hint
---------	------------	-------------	------

"Hydromat QTR" Flow regulators PN 16 (flow control, threaded connection, bronze) with draining facility

both ports female thread according to EN 10226



DN 15	100 - 800 kg /h	1061504°
DN 20	100 - 1,200 kg /h	1061506°
DN 25	200 - 1,900 kg /h	1061508°
DN 32	300 - 3,000 kg /h	1061510°
DN 40	400 - 4,000 kg /h	1061512°

both ports male thread with collar nuts



DN 15	100 - 800 kg /h	1061604°
DN 20	100 - 1,200 kg /h	1061606°
DN 25	200 - 1,900 kg /h	1061608°
DN 32	300 - 3,000 kg /h	1061610°
DN 40	400 - 4,000 kg /h	1061612°

Application:
Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e. g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).

Function:
Oventrop flow regulators for a local or central regulation of the flow in existing or new buildings. Installation is possible in either the supply or the return pipe. The flow rate is set to the required nominal value. Oventrop flow regulators are proportional regulators working without auxiliary energy. With the flow in the installation increasing, the valve disc closes down to maintain a constant flow within a necessary proportional band.

Description "Hydromat QTR":
Max. operating pressure p_s : 10 bar (PN 16)
Operating temperature t_s : -10 °C up to +120 °C
Body and bonnet made of bronze.
The regulators DN 15 and DN 20 with female thread are suitable for use with the compression fittings, item no. 10271..., page 3.49.

Male thread:
DN 15 - G 3/4
DN 20 - G 1
DN 25 - G 1 1/4
DN 32 - G 1 1/2
DN 40 - G 1 3/4

For further information see "Technical information":



Awards:



Industrial Design Forum Hanover
Award iF



Interclima Paris
Trophée du Design



Aqua-Therm Prague



Design Award Switzerland

Accessories: Page 3.44
Bonnets: Page 3.46
Tailpipe sets: Pages 1.56, 1.101, 3.49
r_1069278 Page 3.98

Article	kvs	Article-No.	Hint
---------	-----	-------------	------

"Hydromat DTR" Differential pressure regulators PN 16 (differential pressure control, threaded connection, bronze) with connection set and draining facility

both ports female thread according to EN 10226
Nominal value: 50 to 300 mbar, infinitely adjustable



DN 15	2.50	1064504
DN 20	5.00	1064506
DN 25	7.50	1064508
DN 32	10.00	1064510
DN 40	15.00	1064512
DN 50	34.00	1064516

both ports female thread according to EN 10226
Nominal value: 250 to 700 mbar, infinitely adjustable



DN 15	2.50	1064704
DN 20	5.00	1064706
DN 25	7.50	1064708
DN 32	10.00	1064710
DN 40	15.00	1064712
DN 50	34.00	1064716

both ports male thread with collar nut
Nominal value: 50 to 300 mbar, infinitely adjustable



DN 15	2.50	1064604
DN 20	5.00	1064606
DN 25	7.50	1064608
DN 32	10.00	1064610
DN 40	15.00	1064612
DN 50	34.00	1064616

both ports male thread with collar nut
Nominal value: 250 to 700 mbar, infinitely adjustable



DN 15	2.50	1064804
DN 20	5.00	1064806
DN 25	7.50	1064808
DN 32	10.00	1064810
DN 40	15.00	1064812
DN 50	34.00	1064816

Application:
Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e. g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).
All functioning components in one plane.
Function:
Oventrop differential pressure regulators are proportional regulators working without auxiliary energy. They are used in existing or new buildings for a local or central regulation of the differential pressure.
With the differential pressure in the installation increasing, the valve disc closes down to maintain a constant differential pressure within a necessary proportional band.
The differential pressure is set to the desired nominal value. The nominal value is infinitely adjustable and lockable.
The differential pressure regulators are designed for installation in the return pipe.
Further additional functions: Isolating, filling and draining.
The regulators are supplied complete with connection set (capillary length 1 m).
Male thread:
DN 15 - G 3/4
DN 20 - G 1
DN 25 - G 1 1/4
DN 32 - G 1 1/2
DN 40 - G 1 3/4
DN 50 - G 2 3/8
Description "Hydromat DTR":
Max. operating pressure p_s : 10 bar (PN 16), 232 psi
Operating temperature t_s : -10 °C up to +120 °C
Body and bonnet made of bronze. Disc and stem made of brass resistant to dezincification (DZR), disc with EPDM seal.
Maintenance-free stem seal due to double O-ring made of EPDM.
The regulators DN 15 and DN 20 are suitable for use with the compression fittings, item no. 10271..., page 3.49.

For further information see "Technical information":



Article	kvs	Article-No.	Hint
---------	-----	-------------	------

"Hydromat DFC" Differential pressure regulators PN 16 (differential pressure control, flanged connection, cast iron) with connection set and draining facility

both ports flanged according to EN 1092-2
Nominal value: 200 to 1000 mbar, infinitely adjustable



DN 65	52.00	1064651
DN 80	75.00	1064652
DN 100	110.00	1064653
DN 125	145.00	1064654
DN 150	170.00	1064655

both ports flanged according to EN 1092-2
Nominal value: 400 to 1800 mbar, infinitely adjustable



DN 65	52.00	1064751
DN 80	75.00	1064752
DN 100	110.00	1064753
DN 125	145.00	1064754
DN 150	170.00	1064755
DN 200	420.00	1064756

both ports flanged with hole circle according to ANSI
Nominal value: 400 to 1800 mbar, infinitely adjustable



DN 65	52.00	1064951
DN 80	75.00	1064952
DN 100	110.00	1064953
DN 125	145.00	1064954
DN 150	170.00	1064955

Application:
Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).

All functioning components in one plane.

Function:

Oventrop differential pressure regulators are proportional regulators working without auxiliary energy. They are used in existing or new buildings for a local or central regulation of the differential pressure. With the differential pressure in the installation increasing, the valve disc closes down to maintain a constant differential pressure within a necessary proportional band.

The differential pressure is set to the required nominal value.

The nominal value is infinitely adjustable and lockable.

The differential pressure regulators are designed for installation in the return pipe.

Further additional functions:

Isolation, filling and draining

The regulators are supplied complete with connection set (capillary length 1 m).

Description "Hydromat DFC":

Max. operating pressure p_s : 16 bar (PN 16)

Operating temperature t_s : -10 °C up to +120 °C

Body made of cast iron (EN-GJL-250 DIN EN 1561).

Lengths according to DIN EN 558-1, basic series 1.

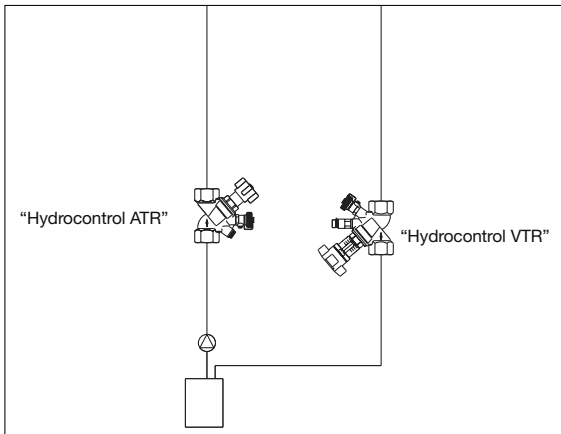
Bonnet made of bronze, stem made of brass resistant to dezincification (DZR), disc made of stainless steel with EPDM seal.

Maintenance-free stem seal due to double O-ring made of EPDM.

For further information see "Technical information":

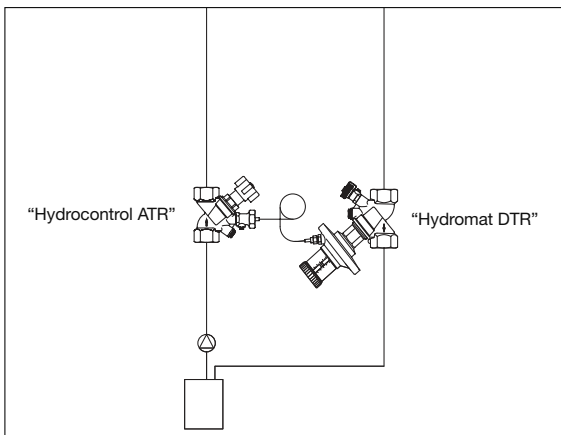


Further examples can be found in the product range "Flow, pressure and temperature balancing".



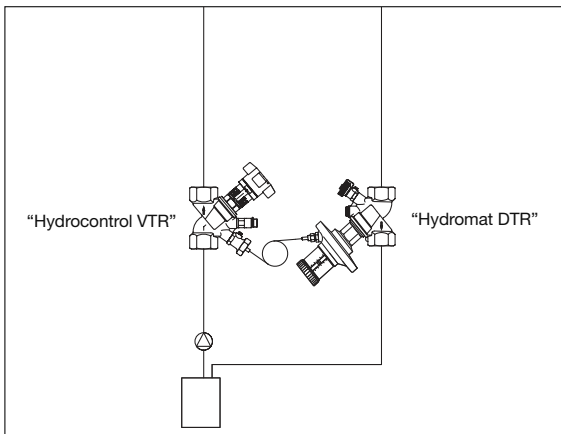
Standard installation:

for instance consisting of the double regulating and commissioning valve "Hydrocontrol VTR" and the isolating and orifice valve "Hydrocontrol ATR" for installations in which a hydronic balancing between the individual supply risers is required.



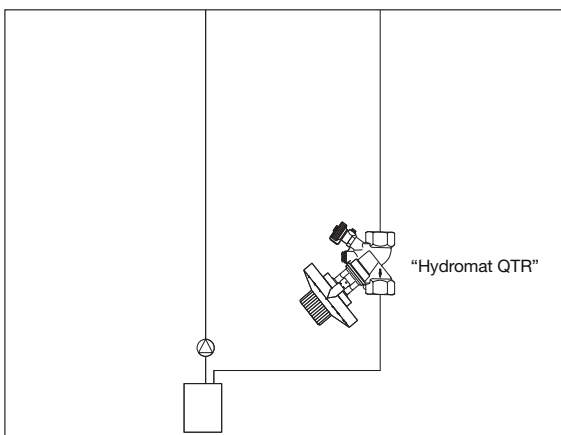
Differential pressure regulation:

for instance consisting of the differential pressure regulator "Hydromat DTR" and the isolating and orifice valve "Hydrocontrol ATR" for installations with presettable thermostatic valves.



Differential pressure regulation with flow limitation:

for instance consisting of the differential pressure regulator "Hydromat DTR" and the double regulating and commissioning valve "Hydrocontrol VTR" for installations without presettable thermostatic valves or radiator lockshield valves in which the flow rate shall additionally be limited to the calculated value.



Flow regulation:

for instance consisting of the flow regulator "Hydromat QTR" for installations in which the rate in the individual supply risers shall be constantly maintained.

3.e Accessories for "Hydrocontrol", "Hydromat", "Hycocoon"









Content







Connection sets	3.44
Stem extensions	3.46
Bonnets	3.46
Diaphragm actuators	3.46
Insulation shells	3.47
Accessories	3.47
Tailpipe sets	3.49
"Ofix" Compression fittings	3.49
Metering stations	3.50

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

Connection sets for subsequent conversion of double regulating and commissioning valves "Hydrocontrol" and for valves with "classic" measuring technique

	Set 1 = 1 fill and drain ball valve G 1/4	(50)	1060191	
	Set 2 = 2 pressure test point G 1/4, "classic" measuring technique	(50)	1060281	Pressure test points made of brass resistant to dezincification (DZR).
	Set 3 = 1 pressure test point G 1/4, "classic" measuring technique 1 fill and drain ball valve G 1/4	(50)	1060381	
	Measuring adapter, "classic" measuring technique	(50)	1060298	
	Set 13 = measuring adapter, "classic" measuring technique with fill and drain ball valve G 1/4	(50)	1060296	Extended measuring adapter.
	2 measuring adapters, "classic" measuring technique	(10)	1060299	For differential pressure measurement at the differential pressure regulators "Hydromat DTR/DFC".
	Extension pressure test point (L = 80 mm) with T-piece connection	(50)	1688290	For differential pressure measurement, for instance at the double regulating and commissioning valve, and simultaneous connection of the capillary of the differential pressure regulator.
	Set 9 = 2 measuring needles for "classic" measuring technique	(50)	1069199	
	Set 10 = 2 pressure test points G 1/4 quick-coupling technic	(50)	1060291	

Article	Packing unit	Article-No.	Hint
	(50)	1060391	Quick-coupling technic.
Set 11 = 1 pressure test point G 1/4 1 fill and drain ball valve G 1/4			
	(50)	1060295	Pressure test point extension, can only be mounted after having drained the system.
L = 80 mm (1 extension) L = 40 mm (1 extension)	(40)	1688295	
	(50)	1060282	The pressure test point extensions can be mounted without draining the system.
L = 100 mm (2 pressure test points with extensions)			
	(50)	4209090	Set = 2 pressure test points G 1/4
Bronze pressure test points "classic" measuring technique			

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

Stem extensions

For double regulating and commissioning valves "Hydrocontrol VTR/ VPR/ MTR/ VFR/ VFC/ VFN/ VGC/ AFC".



DN 10 - DN 50		1688296
DN 65 - DN 150		1688297

L = 35 mm.
For valve insulation with standard insulation material. Not suitable for use with Oventrop insulation shells.



Capillary 2 m long for "Hycoccon DTZ" and "Hydromat DTR"	(10)	1062095
Capillary 5 m long for "Hycoccon DTZ" and "Hydromat DTR"	(10)	1062097

The capillary can also be used for "Hydromat DTR" manufactured since 2012.

Bonnets

for bronze double regulating and commissioning valves "Hydrocontrol VTR/VPR", "Hydrocontrol MTR/MPR" and cast iron double regulating and commissioning valves "Hydrocontrol VFC"



DN 10		1069003
DN 15		1069004
DN 20		1069006
DN 25		1069008
DN 32		1069010
DN 40		1069012
DN 50		1069016

The bonnets are required for replacement purposes or for the conversion of e. g. orifice and isolating valves to double regulating and commissioning valves.
Bonnets item no. 4208192 (page 8.33) only for "Hydrocontrol MTR/MPR" DN 15 LF.



for flow regulator "Hydromat QTR"		
DN 15		1061592°
DN 20		1061593°
DN 25		1061594°
DN 32		1061595°
DN 40		1061596°

Diaphragm actuators

for differential pressure regulator "Hydromat DTR", complete with connection set

Nominal value: 50 to 300 mbar, infinitely adjustable



DN 15		1064592
DN 20		1064593
DN 25		1064594
DN 32		1064595
DN 40		1064596
DN 50		1064597

Nominal value: 250 to 700 mbar, infinitely adjustable



DN 15		1064792
DN 20		1064793
DN 25		1064794
DN 32		1064795
DN 40		1064796
DN 50		1064797

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

Insulation shells



Insulation shells made of polyethylene flexible foam for "Hydrocontrol VTR/VPR", "Hydrocontrol ATR/APR", "Hydromat QTR" and "Hydromat DTR" Operating temperature t_s : +100 °C

Meet the requirements of the German Energy Saving Directive (EnEV) according to appendix 5, table 1, line 5.

Only for heating systems.

DN 10 - DN 15	(100)	1060481
DN 20	(100)	1060482
DN 25	(125)	1060483
DN 32	(100)	1060484
DN 40	(100)	1060485
DN 50	(100)	1060486

Building material class B1 according to DIN 4102.



Insulation shells made of polyurethane rigid foam for "Hydrocontrol VTR/VPR", "Hydrocontrol ATR/APR", "Hydromat QTR", "Hydromat DTR", as well as for free-flow valves "Aquaström F" and "Aquaström KFR" valves Operating temperature t_s : +130°C (for short periods up to +150°C)

Insulation shells (two-part) made of polyurethane with tongue-and-groove fitting. Meet the requirements of the German Energy Saving Directive (EnEV), appendix 5, table 1, line 5.

Building material class B2 according to DIN 4102.

DN 10 - DN 15		1060081
DN 20		1060082
DN 25		1060083
DN 32		1060084
DN 40		1060085
DN 50		1060086

Insulation shells made of polyurethane rigid foam with polystyrene shell



for double regulating and commissioning valves "Hydrocontrol VFC", "Hydrocontrol VFR", "Hydrocontrol VFN", "Hydrocontrol VGC" and "Hydrocontrol AFC" Operating temperature t_s : -10 °C up to +130 °C

For heating and cooling systems. Building material class B2 according to DIN 4102.

Meet the requirements of the German Energy Saving Directive (EnEV) according to appendix 5, table 1, line 5.

Cold insulation:

Min. fluid temperature: +6 °C

The insulation shells have to be bonded hermetically (restricted diffusion tightness at low fluid temperature and at high ambient temperature and/or humidity).

DN 20		1062581
DN 25		1062582
DN 32		1062583
DN 40		1062584
DN 50		1062585
DN 65		1062586
DN 80		1062587
DN 100		1062588
DN 125		1062589
DN 150		1062590

Accessories

for the double regulating and commissioning valves "Hydrocontrol VTR/VPR" (up to DN 50), "Hydrocontrol VFC" (up to DN 50) and "Hydrocontrol MTR/MPR"



Lead sealing set (10 fold) (10) **1089091**

Consisting of lead seal and locking wire.



Locking set (1 fold) (25) **1060180**

Consisting of locking cap, lead seal and locking wire.



Article	Packing unit	Article-No.	Hint
Marking ring			Colour rings for marking the risers to be clipped onto the handwheel.
blue	(50)	1069650	
red	(50)	1069651	
violet	(50)	1069652	
green	(50)	1069653	

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

Tailpipe sets
for "Hycoccon", "Hydrocontrol" and "Hydromat"

Application:
Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e. g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).

Max. operating pressure p_s : 16 bar (PN 16)
Operating temperature t_s : -20 °C up to +150 °C



Set 5 = 2 weldable tailpipes

for valve DN 10	(10)	1060591
for valve DN 15	(10)	1060592
for valve DN 20	(10)	1060593
for valve DN 25	(10)	1060594
for valve DN 32	(5)	1060595
for valve DN 40	(5)	1060596
for valve DN 50	(5)	1060597

Set 6 = 2 solder tailpipes



18 mm for valve DN 15	(10)	1061091
15 mm for valve DN 15	(10)	1061092
18 mm for valve DN 20	(10)	1061093
22 mm for valve DN 20	(10)	1061094
28 mm for valve DN 25	(10)	1061095
35 mm for valve DN 32	(5)	1061096
42 mm for valve DN 40	(5)	1061097
54 mm for valve DN 50	(5)	1061098

Set 7 = 2 male threaded tailpipes



R 3/8 for valve DN 10	(10)	1061491
R 1/2 for valve DN 15	(10)	1061492
R 3/4 for valve DN 20	(10)	1061493
R 1 for valve DN 25	(10)	1061494
R 1 1/4 for valve DN 32	(5)	1061495
R 1 1/2 for valve DN 40	(5)	1061496
R 2 for valve DN 50	(5)	1061497

Set 8 = 2 female threaded tailpipes



Rp 1/2 for valve DN 15	(10)	1061392
Rp 3/4 for valve DN 20	(10)	1061393
Rp 1 for valve DN 25	(10)	1061394
Rp 1 1/4 for valve DN 32	(5)	1061395

"Ofix" Compression fittings
brass
for female thread

Application:
Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e. g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).

Max. operating pressure p_s : 25 bar (PN 25)
Operating temperature t_s : -20 °C up to +150 °C

"Ofix CEP" for copper pipes according to DIN EN 1057
compression nut nickel plated, metal to metal sealing



G 3/8 x 10 mm	(10)	1027151
G 3/8 x 12 mm	(10)	1027152
G 1/2 x 10 mm	(10)	1027150
G 1/2 x 12 mm	(10)	1027153
G 1/2 x 14 mm	(10)	1027154
G 1/2 x 15 mm	(10)	1027155
G 1/2 x 16 mm	(10)	1027156
G 3/4 x 18 mm	(10)	1027157
G 3/4 x 22 mm	(10)	1027158

The "Ofix" compression fittings for female thread are **not** supplied as a set of 2 pieces.

Article	kvs	Packing unit	Article-No.	Hint
---------	-----	--------------	-------------	------

Metering stations

PN 25 with 2 pressure test points "classic" measuring technique



made of brass resistant to dezincification (DZR)

inlet port female thread, outlet port male thread

DN 15 LF	0.55	(10)	1060644
DN 15 MF	1.20	(10)	1060634
DN 15	2.20	(10)	1060604
DN 20	4.25	(10)	1060606
DN 25	8.60	(10)	1060608
DN 32	15.90	(10)	1060610
DN 40	23.70	(10)	1060612
DN 50	48.00	(10)	1060616

Wafer type to fit between two flanges "classic" measuring technique



made of stainless steel PN 16 with 2 extended pressure test points

DN 65	102.00		1060751°
DN 80	120.00		1060752°
DN 100	234.00		1060753
DN 125	335.00		1060754
DN 150	522.00		1060755
DN 200	780.00		1060756
DN 250	1,197.00		1060757
DN 300	1,810.00		1060758
DN 350	2,050.00		1060759
DN 400	2,650.00		1060760
DN 450	3,400.00		1060761
DN 500	4,200.00		1060762
DN 600	6,250.00		1060763
DN 700	10,690.00		1060764
DN 800	14,000.00		1060765
DN 900	17,577.00		1060766
DN 1,000	22,540.00		1060767

made of stainless steel PN 25 with 2 extended pressure test points



DN 100	234.00		1060853
DN 125	335.00		1060854
DN 150	522.00		1060855
DN 200	780.00		1060856
DN 250	1,197.00		1060857
DN 300	1,810.00		1060858
DN 350	2,050.00		1060859
DN 400	2,650.00		1060860
DN 450	3,400.00		1060861
DN 500	4,200.00		1060862
DN 600	6,250.00		1060863

made of cast iron (EN-GJL-250 DIN EN 1561) PN 16 with 2 extended pressure test points (L = 32 mm)



DN 65 °	93.00		1060771
DN 80 °	126.00		1060772
DN 100	244.00		1060773
DN 125	415.00		1060774
DN 150	540.00		1060775
DN 200	1,010.00		1060776
DN 250	1,450.00		1060777
DN 300	2,400.00		1060778

Application:

Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e. g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).

The metering stations DN 15 and DN 20 are suitable for use with "Ofix" compression fittings, item no. 10271..., page 3.49 and 1028155, page 1.144.

Measuring method:

Determination of the flow rate by measuring the differential pressure via the metering station. Modification of the flow rates irrespective of the presetting values can be read off directly with the help of the measuring gauges "OV-DMC 3"/"OV-DMC 2"/"OV-DMPC".

Measuring system "OV-DMC 3": page 3.98

Description:

Metering stations made of brass resistant to dezincification.

Max. operating pressure: p_s 25 bar (PN 25)

Operating temperature t_s : -20 °C up to +150 °C

The metering stations made of brass resistant to dezincification (DZR) can be combined with any valves with female thread according to EN 10226, e. g.

"Hydrocontrol ATR"

item no.. 10675..

"Hycococon ATR"

item no. 10673..

Gate valves

item no.. 10400/30..

Oblique pattern globe valves

item no.. 10502/03.. and 10520/21..

"Aquastrom" valves

item no. 420....

Double regulating and commissioning valves "Hydrocontrol MTR/MPR/MFC" with integrated metering station: pages 3.34 and 3.35

Description:

Metering stations for installation between flanges.

Max. operating pressure p_s : 16 bar/ 25 bar (PN 16/ PN 25)

Operating temperature t_s : -10 °C up to +150 °C (1060771 - 78: t_s : -10 °C up to +120 °C)

The metering stations for installation between flanges can be combined with any flanged valves according to DIN EN 1092, e. g.

"Hydrocontrol VFR" (PN 16)

item no. 10626..

"Hydrocontrol VFC" (PN 16)

item no. 10623..

"Hydrocontrol VFN" (PN 25)

item no.: 10624..

Larger sizes on demand.

°Metering stations DN 65 and DN 80 are also suitable for flanges PN 25.

Article	Packing unit	Article-No.	Hint
Pressure test point extension			For wafer type metering stations made of cast iron item no. 1060771-78.
L = 80 mm (2 extensions)	(50)	1688291	



3.f "Hycoflow" Double regulating and commissioning valves with flow display

Content

"Hycoflow VTB"	3.54
----------------	------



Article	Control-range	kvs	Packing unit	Article-No.	Hint
---------	---------------	-----	--------------	-------------	------

"Hycoflow VTB"

Double regulating and commissioning valve with flow display PN 10

both ports male thread, flat sealing



DN 20	4 - 17 l/min	3.00	(10)	1060906
DN 25	10 - 40 l/min	8.30	(10)	1060908
DN 32	20 - 70 l/min	13.70	(5)	1060910

Inlet port: collar nut, outlet port: male thread



DN 25	5 - 40 l/min	5.50		1060925
-------	--------------	------	--	----------------

Application:

Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e. g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).

Measuring method:

Direct reading of the set volume flow.

Function:

Double regulating and commissioning valves with isolating facility and flow display. They facilitate the hydronic balancing of circuits or parts of the system and can be installed in the supply as well as in the return pipe either horizontally or vertically.

Description:

Max. operating pressure p_s : 10 bar (PN10)
Operating temperature t_s : up to 100 °C

Thread:






DN 20: G ¾
DN 25: G 1
DN 32: G 1¼

3.g "Cocon" Regulating valves



Content

"Cocon QTZ" Pressure independent control valves PN 25	3.56
"Cocon QTZ" Pressure independent control valves PN 16	3.58
"Cocon QTR" Pressure independent control valves PN 25 / PN 16	3.60
"Cocon QFC" Pressure independent control valves PN 16	3.60
"Cocon QFC" Pressure independent control valves PN 25	3.61
"Cocon QGC" Pressure independent control valves PN 16	3.61
Accessories for "Cocon QTZ" PN 25 and "Cocon 2TZ"	3.62
Accessories for "Cocon QTZ" PN 16 and "Cocon QTR"	3.62
Accessories for "Cocon QTR" and "Cocon QFC"	3.63
Tailpipe sets	3.64
"Cocon 2TZ" Regulating valves PN 10	3.65
Measuring devices for "Cocon 2TZ" regulating valves	3.65
„OV-Flex HC“ Flexible hoses	3.66
Accessories	3.66

Article	Control range	Packing unit	Article-No.	Hint
"Cocon QTZ" Pressure independent control valves PN 25 (flow control, threaded connection, dezincification resistant brass)				Application: Central heating and cooling systems (like fan convectors (fan coil units), chilled ceiling modules, induction air systems, cooling and heating zones) with closed circuits, for operation with non-aggressive, harmless fluids (e. g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195). Max. operating pressure p_g : 25 bar (PN 25) Operating temperature t_g : -10 °C up to +120 °C
connection thread M 30 x 1.5 both ports with connections for "classic" measuring technique (closed with blind plugs)				
Inlet port: coupling, outlet port: female thread				Function: Oventrop pressure independent control valves "Cocon QTZ" serve the automatic flow control (hydronic balancing) and the control of another variable (e.g. room temperature) by modifying the flow rate with the help of actuators, thermostats or temperature controllers. The max. flow is set to the required nominal value and is constantly maintained within the necessary proportional band. The installation can be drained, filled, bled and flushed via the measuring connections. Fill and drain ball valve: page 3.44 Model both ports male threaded: DN 10: G ½ male threaded connection, flat sealing DN 15: G ¾ male threaded connection for compression fittings "Ofix", pages 1.144, 1.145 and 1.147. With insert item no. 1661100 (page 1.130) suitable for flat sealing tailpipes. DN 20: G 1 male threaded connection for compression fittings, page 9.31. With insert item no. 1650796 (page 3.63) suitable for flat sealing tailpipes. DN 25: G 1¼ male threaded connection, flat sealing DN 32: G 1¾ male threaded connection, flat sealing
	DN 15	30 - 210 l/h	(10) 1143504	
	DN 15	150 - 700 l/h	(10) 1143604	
	DN 15	200 - 1300 l/h	(10) 1143704	
	DN 20	250 - 1800 l/h	(10) 1143606	
	DN 25	400 - 2500 l/h	(10) 1143608	
	DN 32	600 - 4800 l/h	(5) 1143610	
with pressure test points "classic" measuring technique Inlet port: coupling, outlet port: female thread				
	DN 15	30 - 210 l/h	(10) 1143104	
	DN 15	150 - 700 l/h	(10) 1143204	
	DN 15	200 - 1300 l/h	(10) 1143304	
	DN 20	250 - 1800 l/h	(10) 1143206	
	DN 25	400 - 2500 l/h	(10) 1143208	
	DN 32	600 - 4800 l/h	(5) 1143210	
both ports with connections for "classic" measuring technique (closed with blind plugs) both ports male thread				
	DN 10	30 - 210 l/h	(10) 1143563	
	DN 10	150 - 700 l/h	(10) 1143663	
	DN 15	30 - 210 l/h	(10) 1143564	
	DN 15	150 - 700 l/h	(10) 1143664	
	DN 15	200 - 1300 l/h	(10) 1143764	
	DN 20	250 - 1800 l/h	(10) 1143666	
	DN 25	400 - 2500 l/h	(10) 1143668	
	DN 32	600 - 4800 l/h	(5) 1143670	
with pressure test points "classic" measuring technique both ports male thread				
	DN 10	30 - 210 l/h	(10) 1143163	
	DN 10	150 - 700 l/h	(10) 1143263	
	DN 15	30 - 210 l/h	(10) 1143164	
	DN 15	150 - 700 l/h	(10) 1143264	
	DN 15	200 - 1300 l/h	(10) 1143364	
	DN 20	250 - 1800 l/h	(10) 1143266	
	DN 25	400 - 2500 l/h	(10) 1143268	
	DN 32	600 - 4800 l/h	(5) 1143270	
both ports with connections for "classic" measuring technique (closed with blind plugs) both ports female thread				
	DN 15	30 - 210 l/h	(10) 1147204	
	DN 15	150 - 700 l/h	(10) 1147304	
	DN 15	200 - 1300 l/h	(10) 1147404	
	DN 20	250 - 1800 l/h	(10) 1147306	
	DN 25	400 - 2500 l/h	(10) 1147308	
	DN 32	600 - 4800 l/h	(5) 1147310	

Tailpipe sets: Page 3.62
 Flexible hoses: Page 3.66
 Combination possibilities of valves and actuators: Page 3.08

Article	Control range	Packing unit	Article-No.	Hint
---------	---------------	--------------	-------------	------



both ports with connections for "classic" measuring technique
 both ports female thread

DN 15	30 - 210 l/h	(10)	1149204	
DN 15	150 - 700 l/h	(10)	1149304	
DN 15	200 - 1300 l/h	(10)	1149404	
DN 20	250 - 1800 l/h	(10)	1149306	
DN 25	400 - 2500 l/h	(10)	1149308	
DN 32	600 - 4800 l/h	(5)	1149310	



with mounted metering station and pressure test points "classic" measuring technique
 both ports male thread

DN 15	30 - 210 l/h	(10)	1144864	
DN 15	150 - 700 l/h	(10)	1144964	
DN 15	200 - 1300 l/h	(10)	1145064	
DN 20	250 - 1800 l/h	(10)	1144966	

Article	Control range	Packing unit	Article-No.	Hint
---------	---------------	--------------	-------------	------

"Cocon QTZ" Pressure independent control valves PN 16 (flow control, threaded connection, brass resistant to dezincification)

connection thread M 30 x 1.5
both ports with connections for "classic" measuring technique (closed with blind plugs)

Inlet port: coupling, outlet port: female thread



DN 15	30 - 210 l/h	(10)	1145504°
DN 15	90 - 450 l/h	(10)	1145604°
DN 15	150 - 1050 l/h	(10)	1145704°
DN 20	150 - 1050 l/h	(10)	1145506°
DN 20	180 - 1300 l/h	(10)	1145606°
DN 25	300 - 2000 l/h	(5)	1145608°
DN 32	600 - 3600 l/h	(5)	1145610°

with pressure test points "classic" measuring technique
Inlet port: coupling, outlet port: female thread



DN 15	30 - 210 l/h	(10)	1146004°
DN 15	150 - 1050 l/h	(10)	1146204°
DN 15	90 - 450 l/h	(10)	1146104°
DN 20	150 - 1050 l/h	(10)	1146006°
DN 20	180 - 1300 l/h	(10)	1146106°
DN 25	300 - 2000 l/h	(5)	1146108°
DN 32	600 - 3600 l/h	(5)	1146110°

both ports with connections for "classic" measuring technique (closed with blind plugs)
both ports male thread



DN 10	30 - 210 l/h	(10)	1145563°
DN 10	90 - 450 l/h	(10)	1145663°
DN 15	30 - 210 l/h	(10)	1145564°
DN 15	90 - 450 l/h	(10)	1145664°
DN 15	150 - 1050 l/h	(10)	1145764°
DN 20	150 - 1050 l/h	(10)	1145566°
DN 20	180 - 1300 l/h	(10)	1145666°

with pressure test points "classic" measuring technique
both ports male thread



DN 10	30 - 210 l/h	(10)	1146063°
DN 10	90 - 450 l/h	(10)	1146163°
DN 15	30 - 210 l/h	(10)	1146064°
DN 15	90 - 450 l/h	(10)	1146164°
DN 15	150 - 1050 l/h	(10)	1146264°
DN 20	150 - 1050 l/h	(10)	1146066°
DN 20	180 - 1300 l/h	(10)	1146166°
DN 25	300 - 2000 l/h	(5)	1146168°
DN 32	600 - 3600 l/h	(5)	1146170°

both ports with connections for "classic" measuring technique (closed with blind plugs)
both ports female thread



DN 15	30 - 210 l/h	(10)	1147504°
DN 15	90 - 450 l/h	(10)	1147604°
DN 20	150 - 1050 l/h	(10)	1147506°
DN 15	150 - 1050 l/h	(10)	1147704°
DN 20	180 - 1300 l/h	(10)	1147606°
DN 25	300 - 2000 l/h	(5)	1147608°
DN 32	600 - 3600 l/h	(5)	1147610°

Tailpipe sets: Page 3.62

Flexible hoses: Page 3.66

"Unofix" Refurbishment of one pipe heating systems Page 1.104

Combination possibilities of valves and actuators: Page 3.08

Application:

Central heating and cooling systems (like fan convectors (fan coil units), chilled ceiling modules, induction air systems, cooling and heating zones) with closed circuits, for operation with non-aggressive, harmless fluids (e. g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).

Max. operating pressure p_s : 16 bar (PN 16), 232 psi

Operating temperature t_s : -10 °C up to +120 °C

Function:

Oventrop pressure independent control valves "Cocon QTZ" serve the automatic flow control (hydronic balancing) and the control of another variable (e.g. room temperature) by modifying the flow rate with the help of actuators, thermostats or temperature controllers. The maximum flow is set to the required nominal value and is constantly maintained within the necessary proportional band.

All valves DN 15 and DN 20 are suitable for the installation with copper pipes.

Model one port coupling, one port female thread:

Compression fittings page 1.144, reinforcing sleeves page 1.147.

Model both ports male threaded:

DN 10: G ½ male threaded connection, flat sealing

DN 15: G ¾ male threaded connection for compression fittings "Ofix", pages 1.144, 1.145 and 1.147.

With insert item no. 1661100 (page 1.130) suitable for flat sealing tailpipes.

DN 20: G 1 male threaded connection for compression fittings, page 9.31.

With insert item no. 1650793 (page 3.63) suitable for flat sealing tailpipes.

DN 25: G 1¼ male threaded connection, flat sealing

DN 32: G 1¾ male threaded connection, flat sealing

Award:



The Chicago Athenaeum:
Museum of Architecture and Design
GOOD DESIGN Award



Design Award of the
Federal Republic of Germany
Nominated

For further information see "Technical information":



Article	Control range	Packing unit	Article-No.	Hint
---------	---------------	--------------	-------------	------

with pressure test points "classic" measuring technique
both ports female thread




DN 15	30 - 210 l/h	(10)	1148504°	
DN 15	90 - 450 l/h	(10)	1148604°	
DN 15	150 - 1050 l/h	(10)	1148704°	
DN 20	150 - 1050 l/h	(10)	1148506°	
DN 20	180 - 1300 l/h	(10)	1148606°	
DN 25	300 - 2000 l/h	(5)	1148608°	
DN 32	600 - 3600 l/h	(5)	1148610°	

with mounted metering station
and pressure test points "classic" measuring technique
both ports male thread



DN 15	30 - 210 l/h	(10)	1144564°	
DN 15	90 - 450 l/h	(10)	1144664°	
DN 15	150 - 1050 l/h	(10)	1144764°	
DN 20	150 - 1050 l/h	(10)	1144566°	
DN 20	180 - 1300 l/h	(10)	1144666°	

Article	Control range	Article-No.	Hint
<p>"Cocon QTR" Pressure independent control valves PN 25 / PN 16 (flow control, threaded connection, bronze) "classic" measuring technique</p>			
<p>both ports female thread according to EN 10226, PN 25</p>			
DN 40	1.5 - 7.5 m³/h	1146112	<p>Application: Central heating and cooling systems (like fan convectors (fan coil units), chilled ceiling modules, induction air systems, cooling and heating zones) with closed circuits, for operation with non-aggressive, harmless fluids (e. g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).</p> <p>Max operating pressure p_s: 16 bar (PN 16), 232 psi or 25 bar (PN 25), 362.5 psi Operating temperature t_s: -10 °C up to +120 °C Male thread: DN 40: Connection G 1¼, flat sealing DN 50: Connection G 2¾, flat sealing</p>
DN 50	3.5 - 14 m³/h	1143116	
<p>both ports male thread, PN 16</p>			
DN 40	1.5 - 7.5 m³/h	1146172	<p>Function: Oventrop pressure independent control valves "Cocon QTZ" serve the automatic flow control (hydronic balancing) and the control of another variable (e.g. room temperature) by modifying the flow rate with the help of actuators, thermostats or temperature controllers. The maximum flow is set to the required nominal value and is constantly maintained within the necessary proportional band.</p> <p>Description "Cocon QTR": Body made of bronze.</p> <p>Description "Cocon QFC" (11461..., 16761...): Body made of cast iron (EN-GJL-250 DIN EN 1561)</p> <p>Description "Cocon QFC (11466...): Body made of nodular cast iron (EN-GJS-500 DIN EN 1563), DN 40 and DN 50 made of cast iron (EN-GJL-250 DIN EN 1561)</p> <p>Actuators: page 3.95</p> <p>For further information see "Technical information":</p> 
DN 50	2.5 - 10.0 m³/h	1146174	
<p>"Cocon QFC" Pressure independent control valves PN 16 (flow control, flanged connection, cast iron) "classic" measuring technique</p>			
<p>both ports flanged according to EN 1092-2</p>			
DN 40	1.5 - 7.5 m³/h	1146149	<p>High-flow model</p>
DN 50	2.0 - 8.0 m³/h	1146150	
DN 65	5.0 - 20.0 m³/h	1146151	
DN 80	7.5 - 30.0 m³/h	1146152	
DN 100	12.5 - 50.0 m³/h	1146153	
DN 125	27.0 - 108.0 m³/h	1146154	
DN 150	36.0 - 150.0 m³/h	1146155	
DN 200	55.0 - 190.0 m³/h	1146156	
<p>both ports flanged with hole circle according to ANSI</p>			
DN 40	1.5 - 7.5 m³/h	1676149	<p>High-flow model</p>
DN 50	2.0 - 8.0 m³/h	1676150	
DN 65	5.0 - 20.0 m³/h	1676151	
DN 80	7.5 - 30.0 m³/h	1676152	
DN 100	12.5 - 50.0 m³/h	1676153	
DN 125	27.0 - 108.0 m³/h	1676154	
DN 150	36.0 - 150.0 m³/h	1676155	
DN 200	55.0 - 190.0 m³/h	1676156	

Article	Control range	Article-No.	Hint
---------	---------------	-------------	------

**"Cocon QFC" Pressure independent control valves PN 25
 (flow control, flanged connection, cast iron)
 "classic" measuring technique**



both ports flanged according to DIN EN 1092-2

DN 40	1.5 - 7.5 m³/h	1146649
DN 50	2.0 - 8.0 m³/h	1146650
DN 65	5.0 - 20.0 m³/h	1146651
DN 80	7.5 - 30.0 m³/h	1146652
DN 100	12.5 - 50.0 m³/h	1146653
DN 125	27.0 - 108.0 m³/h	1146654
DN 150	36.0 - 150.0 m³/h	1146655
DN 200	55.0 - 190.0 m³/h	1146656

**"Cocon QGC" Pressure independent control valves PN 16
 (flow control, flanged connection, cast iron)
 "classic" measuring technique**



both ports groove connection for couplings

DN 65	5.0 - 20.0 m³/h	1676251
DN 80	7.5 - 30.0 m³/h	1676252
DN 100	12.5 - 50.0 m³/h	1676253

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

Accessories for "Cocon QTZ" PN 25 and "Cocon 2TZ"
Tailpipe sets, flat sealing/tapered sealing,
with collar nut and O-ring



Set = 2 female threaded tailpipes			DN 15 and DN 20 with tapered sealing.
Rp 1/2 for valve DN 15	(10)	1141292	
Rp 3/4 for valve DN 20	(10)	1141293	
Rp 1 for valve DN 25	(10)	1141294	
Rp 1 1/4 for valve DN 32	(5)	1141295	



Set = 2 male threaded tailpipes			DN 15 and DN 20 with tapered sealing.
R 3/8 for valve DN 10	(10)	1140281	
R 1/2 for valve DN 15	(10)	1140282	
R 3/4 for valve DN 20	(10)	1140284	
R 1 for valve DN 25	(10)	1140285	
R 1 1/4 for valve DN 32	(5)	1140286	

Accessories for "Cocon QTZ" PN 16 and "Cocon QTR"
Tailpipe sets, flat sealing
with collar nut and ring gasket



Set = 2 weldable tailpipes			DN 15 and DN 20: Supplied with insert (change-over from tapered to flat sealing).
for valve DN 10	(10)	1140591	
for valve DN 15	(10)	1140592	
for valve DN 20	(10)	1140593	
for valve DN 25	(10)	1140594	
for valve DN 32	(5)	1140595	
for valve DN 40	(5)	1140596	
for valve DN 50	(5)	1140597	



Set = 2 solder tailpipes			
18 mm for valve DN 15	(10)	1140691	
15 mm for valve DN 15	(10)	1140692	
18 mm for valve DN 20	(10)	1140693	
22 mm for valve DN 20	(10)	1140694	
28 mm for valve DN 25	(10)	1140695	
35 mm for valve DN 32	(5)	1140696	
42 mm for valve DN 40	(5)	1140697	
54 mm for valve DN 50	(5)	1140698	



Set = 2 male threaded tailpipes			
R 3/8 for valve DN 10	(10)	1140791	
R 1/2 for valve DN 15	(10)	1140792	
R 3/4 for valve DN 20	(10)	1140793	
R 1 for valve DN 25	(10)	1140794	
R 1 1/4 for valve DN 32	(5)	1140795	
R 1 1/2 for valve DN 40	(5)	1140796	
R 2 for valve DN 50	(5)	1140797	



Set = 2 female threaded tailpipes			
Rp 1/2 for valve DN 15	(10)	1140892	
Rp 3/4 for valve DN 20	(10)	1140893	
Rp 1 for valve DN 25	(10)	1140894	
Rp 1 1/4 for valve DN 32	(5)	1140895	

Tailpipe sets: Pages 3.64, 3.69
Flexible hoses: Page 3.66

Article	Packing unit	Article-No.	Hint
Insulation shells for "Cocon QTZ" PN 16			Insulation, consisting of two shells. For heating and cooling systems. Meet the requirements of the German Energy Saving Directive (EnEV) according to appendix 5, table 1, line 5. Operating temperature ts: -10 °C up to +120 °C Cold insulation: Min. fluid temperature: +6 °C The insulation shells have to be bonded hermetically (restricted diffusion tightness at low fluid temperature and at high ambient temperature and/or humidity).
	DN 15 - DN 20	1149104	
	DN 20 (model: 180 - 1300 l/h)	1149106	
	DN 25 - DN 32	1149108	
	Insert	(100) 1650793	For "Cocon QTZ" and "Optibal W6" DN 20 with male threaded connection G 1. Suitable for flat sealing tailpipes.
	Adapter for "Cocon QTZ" For the conversion of the rotary movement of the actuator (90°) into a stroke lift required for the valve	(25) 1149095	
	Adapter with stem for "Cocon QTZ", thermostatic valves Extension = 25 mm	(10) 1149190	Is required if the "Cocon QTZ" valves shall be equipped with insulation shells and actuators.
Accessories for "Cocon QTR" and "Cocon QFC"			Actuator types: 1149011: DN 40 - 100 SAX 61.03 DN 65 - 200 SKC 60 1149021: DN 65 - 100 ML 7421 A3004 DN 65 - 100 ML 7420 A6009 DN 125 - 200 ML 7421 B3003 (restricted flow in combination with DN 150/ 200) 1149031: DN 65 - 100 VA 7810-GGA-12 DN 125 - 200 VA 1125-GGA-1 1149041: DN 40 - 200 AV24-MFT
Adapter set for the adaptation of actuators of other manufacturers to Oventrop "Cocon QTR/QFC" valves			
	Adapter (Siemens)	(10) 1149011	
	Adapter (Honeywell)	(10) 1149021	
	Adapter (Johnson Controls)	(10) 1149031	
	Adapter (Belimo)	(10) 1149041	

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

Tailpipe sets
with tapered sealing, with O-ring,
for "Cocon 2TZ" and "Cocon QTZ"



Solder tailpipe, 2-fold

12 mm DN 15	(10)	1140181	
15 mm DN 15	(10)	1140182	
18 mm DN 20	(10)	1140183	
22 mm DN 20	(10)	1140184	



Plug-in tailpipe, 2-fold

10 mm DN 15	(10)	1140380	
12 mm DN 15	(10)	1140381	
15 mm DN 15	(10)	1140382	
18 mm DN 20	(10)	1140383	
22 mm DN 20	(10)	1140384	

Article	kvs	Packing unit	Article-No.	Hint
---------	-----	--------------	-------------	------

"Cocon 2TZ" Regulating valves PN 10 (two-way valve, threaded connection, brass resistant to dezincification)



"eco" measuring technique
 Components in contact with water are made of brass resistant to dezincification (DZR), both ports with mounted pressure test points and drain valves, with linear flow characteristic line at kvs values 0.45 and 1.0
 connection thread M 30 x 1.5

Inlet port: coupling, outlet port: female thread

DN 15	0.45	(10)	1145004
DN 15	1.00	(10)	1145104
DN 15	1.80	(10)	1145204

Application:
 Central heating and cooling systems (like fan convectors (fan coil units), chilled ceiling modules, induction air systems, cooling and heating zones) with closed circuits, for operation with non-aggressive, harmless fluids (e. g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).

Max. operating pressure p_s : 10 bar (PN 10)
 Operating temperature t_s : -10 °C up to +120 °C

General information:
 DN 15: G 3/4 male threaded connection for compression fittings "Ofix", page 3.49. With insert item no. 1661100 (page 3.69) suitable for flat sealing tailpipes.

DN 20: G 1 male threaded connection for compression fittings, page 9.31.

"classic" measuring technique
 both ports with mounted pressure test points, with linear flow characteristic line at kvs values 0.45 and 1.0
 connection thread M 30 x 1.5



Inlet port: coupling, outlet port: female thread

DN 15	0.45	(10)	1145074
DN 15	1.00	(10)	1145174
DN 15	1.80	(10)	1145274

both ports male thread

DN 15	0.45	(10)	1145371
DN 15	1.00	(10)	1145372
DN 15	1.80	(10)	1145373
DN 20	4.50	(10)	1145475

Tailpipe sets: page 3.64

"Cocon 2TZ":
 Oventrop regulating valves "Cocon 2TZ" control the room temperature with the help of actuators and thermostats. Regarding the measuring procedure, the technical information "Cocon 2TZ" has to be observed.

The valves are installed in the return pipe. Presettable, determination of the flow rate by measuring the differential pressure via the integrated metering station.

Modification of the flow rates irrespective of the presetting values can be read off directly with the help of the measuring systems "OV-DMC 3"/"OV-DMC 2".

Measuring systems: page 3.98 to 3.100

- Advantages:**
- presetting
 - with draining, filling and isolating facility
 - measuring
 - regulating
 - exact control of the flow rate/differential pressure via the pressure test points

Valve inserts: page 3.19

Measuring devices for "Cocon 2TZ" regulating valves with "eco" measuring technique
 for measurement with measuring gauge "OV-DMC 2"


Measuring devices



Straight pattern	(10)	1145099
------------------	------	----------------



Angle pattern	(10)	1145085
---------------	------	----------------

Award:
 Interclima Paris
 Concours de l'Innovation

For further information see "Technical information":



Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

„OV-Flex HC“ Flexible hoses for heating an cooling systems



one port G 3/4 collar nut with tapered sealing,
one port plug-in fitting for copper pipe according to EN 1057

for 12 mm copper pipe (100) **1140351**
for 15 mm copper pipe (100) **1140352**



one port G 3/4 collar nut, flat sealing,
one port plug-in fitting for copper pipe according to EN 1057

for 12 mm copper pipe (100) **1140551**
for 15 mm copper pipe (100) **1140552**

Diffusion impeding, flexible hose made of EPDM with outer sleeve made of stainless steel wire mesh.
Length: 500 mm

Application:
Heating and cooling systems (e. g. for the connection of radiant and chilled ceilings) with closed circuits, for operation with non-aggressive, harmless fluids (e. g. water or water and glycol mixtures according to VDI 2035/ÖNORM 5195).

Max. operating pressure p_s : 10 bar (PN 10)
Operating temperature t_s : 0 °C up to 70 °C

Tapered sealing connection:
Suitable for "Cocon QTZ/2TZ" with G 3/4 male thread.

Accessories



Fill and drain tool (1061791)
for valves with "eco" measuring technique

"eco" measuring technique:
For draining, venting and filling the installation.



Set = 2 measuring needles for (25) **1061799**
valves with "eco" measuring technique

For measurement with measuring systems "OV-DMC 3", "OV-DMC 2" and "OV-DMPC".



Measuring adapter, (50) **1060298**
"classic" measuring technique



Set 9 = 2 measuring needles for (50) **1069199**



"FSA" Filling and isolation device
for chilled ceilings
DN 15 (10) **1149004**

Max. operating pressure p_s : 16 bar (PN 16)
Operating temperature t_s : -10 °C up to +120 °C

Function:
Filling and isolation device "FSA" for filling, draining and isolating by turning the handle by 90°.



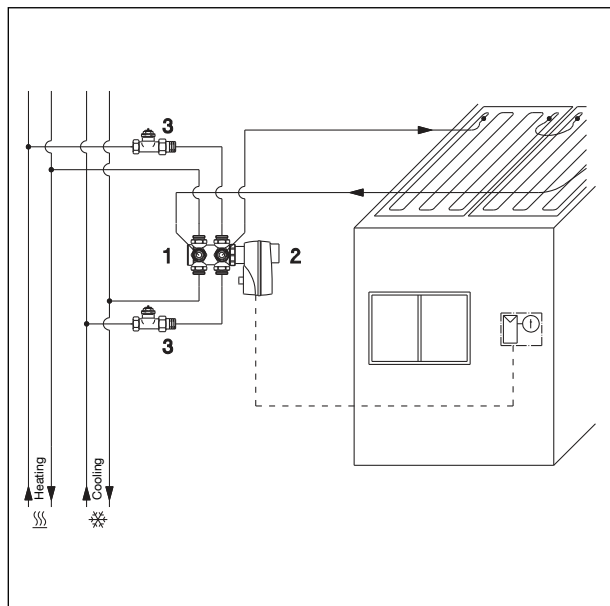
Service tool **1090551**



3.h "Optibal W6" Six-way ball valve

Content

System illustrations	3.68
"Optibal W6" Six-way ball valve	3.68
Tailpipe sets	3.69



Six-way ball valve with rotary actuator and thermostatic valves "AQ" in the supply of the heating and cooling circuit.

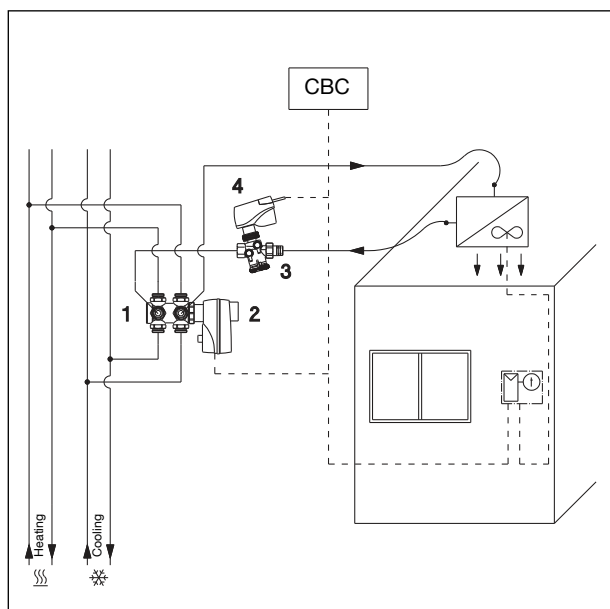
Automatic hydronic balancing is carried out by the thermostatic radiator valves "AQ" with combined control and regulating function in any position of the six-way ball valve during heating and cooling operation. The infinitely adjustable presetting of the maximum permissible volume flow can be carried out separately for both types of operation.

In case of larger volume flows, the pressure independent control valves "Cocon QTZ" can be installed instead of the thermostatic valves "AQ".

As the volume flow is constantly maintained in the terminal unit "chilled/radiant ceiling" by the valve combination, the terminal unit is not affected by differential pressure variations in the heating or cooling system.

Example:

- 1 Six-way ball valve, item no. 1132004
- 2 Rotary actuator, item no. 1132030
- 3 Thermostatic valve "AQ", item no. 1183164

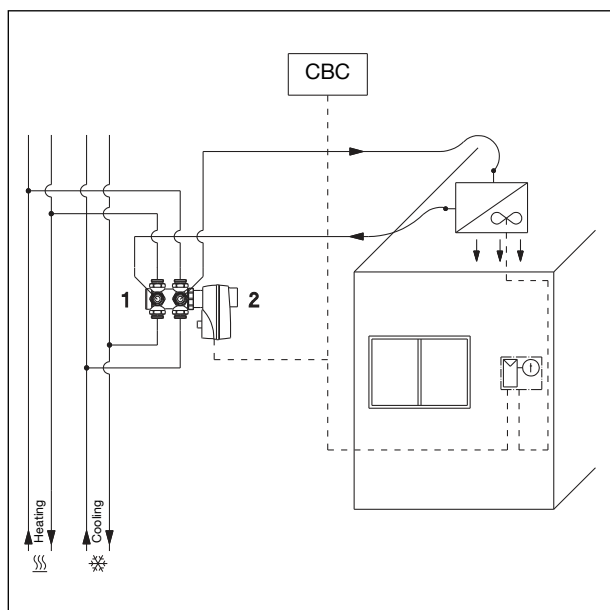


Six-way ball valve with rotary actuator, pressure independent control valve "Cocon QTZ" and stroke actuator in the return of the terminal unit.

Contrary to the application with the thermostatic valves "AQ" in the supply of the heating and cooling circuit, automatic hydronic balancing is guaranteed by the pressure independent control valve "Cocon QTZ" in the return of the terminal unit. The different volume flows which are required for the operating conditions heating/cooling can be realised with the help of the different characteristic lines of the actuator and stroke limitations.

Example:

- 1 Six-way ball valve, item no. 1132004
- 2 Rotary actuator, item no. 1132030
- 3 Pressure independent control valve "Cocon QTZ", item no. 1143264
- 4 Electromotive actuator "Aktor M", item no. 1012705










Six-way ball valves with rotary actuator as change-over and control ball valve with kvs orifice.

Integration option into a centralised building control system.

Example:

- 1 Six-way ball valve, item no. 1132004 with mounted kvs orifices of set item no. 1132020
- 2 Rotary actuator, item no. 1132030

Article	Packing unit	Article-No.	Hint
<p>"Optibal W6" Six-way ball valve for switching between heating and cooling in a four-pipe system</p>			<p>Application: Four-pipe heating and cooling systems for the connection of radiant/chilled ceilings and fan coils.</p>
	DN 15, G 3/4 with inner taper	1132004	<p>PN 16 Max. differential pressure: 2 bar Operating temperature t_s: 0 °C up to +90°C</p> <p>Body made of dezincification resistant brass. Kvs value (without orifice): 3.2 Distance between pipe centres: 50 mm</p> <p>Connections: DN 15: G 3/4 male thread with cone "Euro" according to EN 16313 DN 20: G 1 male thread with taper</p>
	DN 20, G 1 with inner taper	(10) 1132006	
	<p>Kvs orifice set with integrated control contour Kvs values: 0.25/ 0.4/ 0.63/ 1,0/ 1.6 and 2.5 The set consists of 2 Kvs orifices.</p>		<p>Kvs orifices for the supply pipes for flow limitation. High quality plastic. The orifices feature a control contour which allows for a linear up to equal percentage flow control via the rotary actuator.</p>
		(10) 1132020	
	<p>"Aktor R ST L" Rotary actuator for six-way ball valve, 24 V, proportional rotary atuator 0 - 10 V (or two point via forced control 24 V) with position feedback signal 0 - 10 V</p>		<p>Rotary actuator for Oventrop six-way ball valve Torque: 5 Nm Angle of rotation: 90 ° With manual setting</p>
	For DN 15 and DN 20	1132030	
<p>Tailpipe sets with tapered sealing with O-ring</p>			
	<p>Solder tailpipe, 2-fold</p>		
	12 mm DN 15	(10) 1140181	
	15 mm DN 15	(10) 1140182	
	18 mm DN 20	(10) 1140183	
	22 mm DN 20	(10) 1140184	
	<p>Plug-in tailpipe, 2-fold</p>		
	10 mm DN 15	(10) 1140380	
	12 mm DN 15	(10) 1140381	
	15 mm DN 15	(10) 1140382	
	18 mm DN 20	(10) 1140383	
	22 mm DN 20	(10) 1140384	
<p>Inserts</p>			
	Insert	(100) 1650793	<p>For "Cocon QTZ" and "Optibal W6" DN 20 with male threaded connection G 1. Suitable for flat sealing tailpipes.</p>
	 <p>Insert as set = 2 pieces for cone according to DIN EN 16313 (cone "Euro")</p>	(50) 1661100	<p>For "Multiflex F", "Multiblock T/TU/TFU/TQ/T-RTL/TQ-RTL", "Cocon QTZ" and "Optibal W6" DN 15 with G 3/4 male threaded connection. Suitable for flat sealing tailpipes.</p>

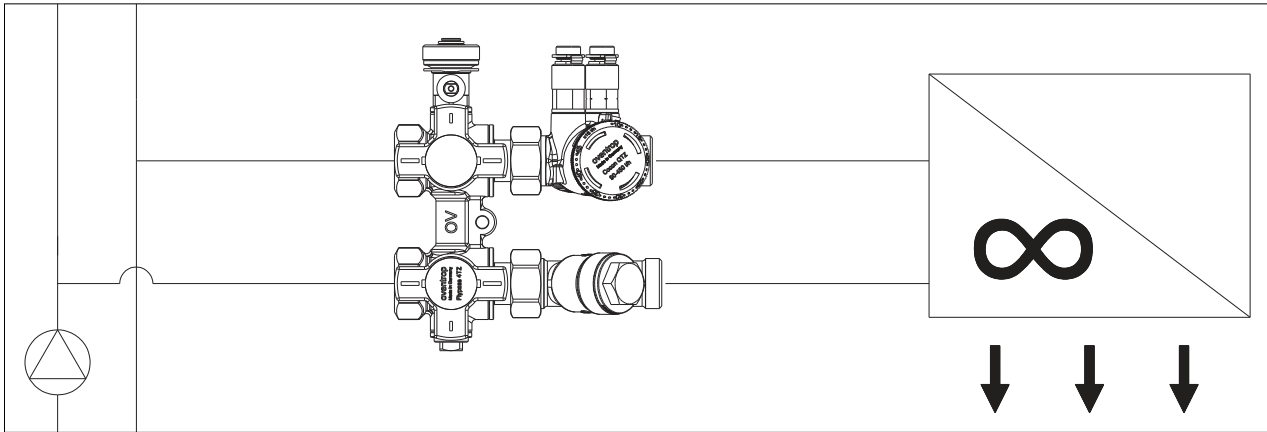
3.i "Flypass" Connection systems, valves and fittings

Content

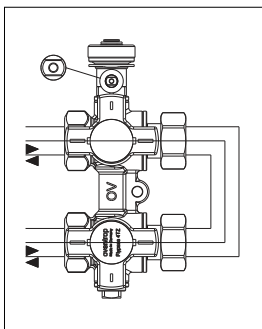


"Flypass" System illustration	3.72
"Flypass" Connection sets	3.73
"Flypass 4TZ" Connection fitting	3.76
Valves for combination with the "Flypass 4TZ"	3.76
Accessories	3.78

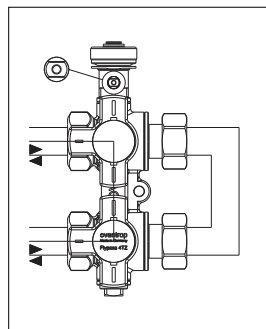
System example with "Flypass set 1":



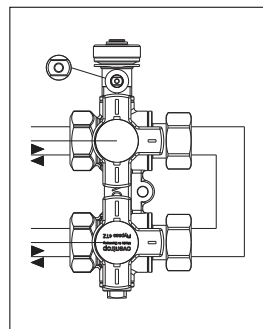
Functions "Flypass 4TZ", connection fitting/installation example:



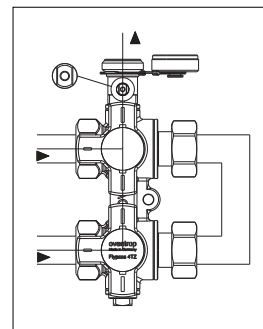
Normal operation



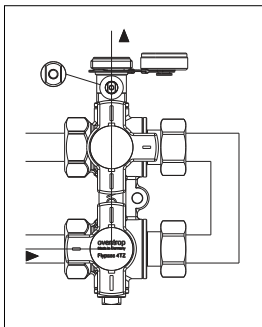
Bypass operation



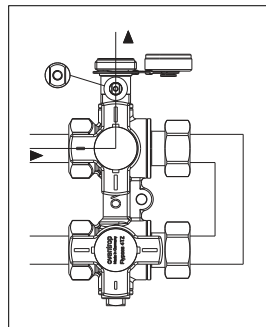
Isolation



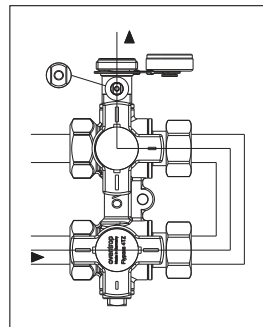
Filling and bleeding the system side



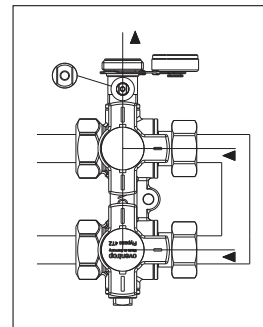
Draining of the system and appliance side and bleeding and flushing the system side



Draining, bleeding and flushing the system side

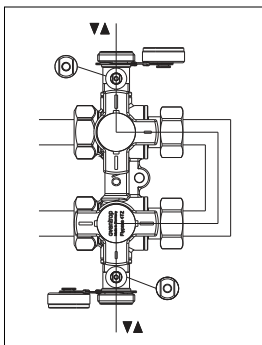


Filling, bleeding and flushing the appliance side (1)

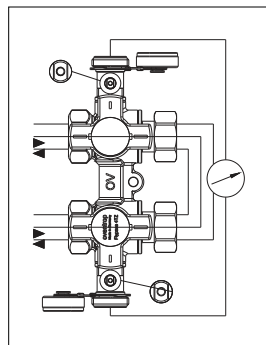


Isolating and draining the appliance side

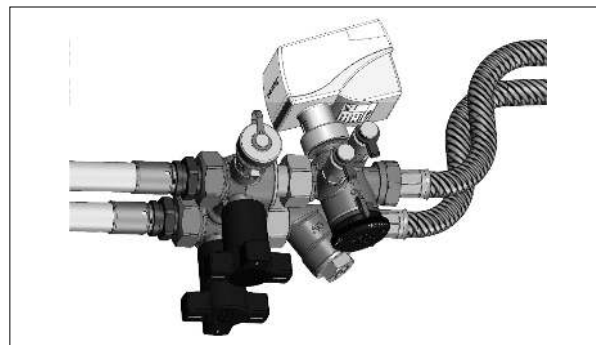
Functions "Flypass 4TZ" with accessories (fill and drain ball valve 1060191)



Re-filling, bleeding and flushing appliance side (1) (2)



Differential pressure measurement (3)



Installation example "Flypass" connection system consisting of: "Flypass 4TZ" and accessories (to be ordered separately)

- (1) If required, open all components on the appliance side completely.
- (2) Accessory fill and drain valve required
- (3) Accessory fill and drain valve as well as measuring system "OV-DMC2" or "OV-DMPC" required

Article	Article-No.	Hint
---------	-------------	------

"Flypass" Connection sets

"Flypass set 1"

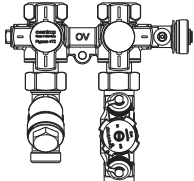


DN 15	1149450	
consisting of:		
1 x "Flypass 4TZ"	1149504	
1x Strainer	1141004	
1x "Cocon QTZ", PN 16 (30 - 210 l/h)	1146064	
1x Insert set (2 pces.)	1661100	
DN 15	1149550	
consisting of:		
1x "Flypass 4TZ"	1149504	
1x Strainer	1141004	
1x "Cocon QTZ", PN 16 (90 - 450 l/h)	1146164	
1x Insert set (2 pces.)	1661100	
DN 15	1149650	
consisting of:		
1x "Flypass 4TZ"	1149504	
1x Strainer	1141004	
1x "Cocon QTZ", PN 16 (150 - 1050 l/h)	1146264	
1x Insert set (2 pces.)	1661100	
DN 15	1149553	
consisting of:		
1x "Flypass 4TZ"	1149504	
1x Strainer	1141004	
1x "Cocon QTZ", PN 16 (30 - 210 l/h)	1144564	
with mounted metering station		
1x Female threaded tailpipe set (2 pces.)	1140892	
DN 20	1149551	
consisting of		
1x "Flypass 4TZ"	1149506	
1x Strainer	1141006	
1x "Cocon QTZ", PN 16 (150 - 1050 l/h)	1146066	
2x Insert	1650793	
DN 20	1149651	
consisting of:		
1x "Flypass 4TZ"	1149506	
1x Strainer	1141006	
1x "Cocon QTZ", PN 16 (180 - 1300 l/h)	1146166	
2x Insert	1650793	
DN 20	1149554	
consisting of:		
1x "Flypass 4TZ"	1149506	
1x Strainer	1141006	
1x "Cocon QTZ", PN 16 (180 - 1300 l/h)	1144666	
mit mounted metering station		
1x Female threaded tailpipe set (2 pces.)	1140893	
DN 25	1149552	
consisting of:		
1x "Flypass 4TZ"	1149506	
1x Strainer	1141006	
1x "Cocon QTZ", PN 16 (300 - 2000 l/h)	1146168	



Article	Article-No.	Hint
"Flypass set 2"		
DN 15	1149560	
consisting of:		
1x "Flypass 4TZ"	1149504	
1x Strainer	1141004	
1x "Hydrocontrol VTR"	1060564	
DN 15	1149562	
consisting of:		
1x "Flypass 4TZ"	1149504	
1x Strainer	1141004	
1x "Hydrocontrol MTR"	1061964	
1x Female threaded tailpipe set (2 pces.)	1140892	
DN 15	1149563	
consisting of:		
1x "Flypass 4TZ"	1149504	
1x Strainer	1141004	
1x "Hydrocontrol MTR"	1061904	
1x Female threaded tailpipe set (2 pces.)	1140892	
DN 20	1149561	
consisting of:		
1x "Flypass 4TZ"	1149506	
1x Strainer	1141006	
1x "Hydrocontrol VTR"	1060566	
DN 20	1149564	
consisting of:		
1x "Flypass 4TZ"	1149506	
1x Strainer	1141006	
1x "Hydrocontrol MTR"	1061906	
1x Female threaded tailpipe set (2 pces.)	1140893	

Further connection sets

	Exemplary valve sets:	Components:	Item no.	
			DN 15	DN 20
	<p>"Flypass set 3" consisting of "Flypass" fitting with strainer and double regulating and commissioning valve with flow display "Hycoflow VTB"</p>	<p>1x "Flypass 4TZ" 1x Strainer 1x "Hycoflow VTB" Double regulating and commissioning valve with flow display</p>	<p>1149504 1141004 1060906</p>	<p>1149506 1141006 1060908</p>
	<p>"Flypass set 4" consisting of "Flypass" fitting with strainer and regulating valve "Hycocon ETZ"</p>	<p>1x "Flypass 4TZ" 1x Strainer 1x "Hycocon ETZ" Regulating valve</p>	<p>1149504 1141004 1063964</p>	<p>1149506 1141006 1063966</p>
	<p>"Flypass set 5" consisting of fitting "Flypass" with strainer and double regulating and commissioning valve "Hycocon VTZ"</p>	<p>1x "Flypass 4TZ" 1x Strainer 1x "Hycocon VTZ" Double regulating and commissioning valve</p>	<p>1149504 1141004 1061854</p>	<p>1149506 1141006 1061855</p>
	<p>"Flypass Set 6" consisting of "Flypass" fitting with strainer and double regulating and commissioning valve "Hydrocontrol MTR"</p>	<p>1x "Flypass 4TZ" 1x Strainer 1x "Hydrocontrol MTR" Double regulating and commissioning valve</p>	<p>1149504 1141004 10619..</p>	<p>1149506 1141006 1061906</p>
	<p>"Flypass Set 7" consisting of "Flypass" fitting with double nipple and double regulating and commissioning valve "Hydrocontrol MTR"</p>	<p>1x "Flypass 4TZ" 1x Double nipple 1x "Hydrocontrol MTR" Double regulating and commissioning valve</p>	<p>1149504 1149070 10619..</p>	<p>1149506 1149071 1061906</p>

Article	Control range	kvs	Packing unit	Article-No.	Hint
---------	---------------	-----	--------------	-------------	------

"Flypass 4TZ" Connection fitting
 PN 16

one port female thread,
 one port collar nut
 (flat sealing with enclosed ring gasket)



DN 15		22.00		1149504	
DN 20		34.00		1149506	

Application:
 Central heating and cooling systems (like fan convectors (fan coil units), chilled ceiling modules, induction air systems, cooling and heating zones) with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).

Max. operating pressure p_s : 16 bar (PN 16)
 Operating temperature t_s : -10 °C up to 120 °C
 Function:

The Oventrop connection fitting "Flypass 4TZ" is used for the isolation, flushing, draining and bleeding of the supply and return pipe installed in the flow direction in front of the fitting or of the succeeding sections of the system. The connection fitting can be converted to bypass operation. The ball positions and thus the flow directions are displayed by the shape of the handle.

Valves for combination with the "Flypass 4TZ"

Strainer PN 25

both ports male thread, flat sealing
 with double wire basket 250 µm



DN 15		2.70	(10)	1141004	
DN 20		4.80	(10)	1141006	

On principle, all flat sealing Oventrop valves in corresponding size with male thread $\frac{3}{4}$ (DN 15) or male thread 1 (DN 20) can be combined with the connection fitting "Flypass 4TZ".

The adapter 1149075/76 is required when using female threaded valves.

"Cocon QTZ" Pressure independent control valve PN 16

both ports with connections for "classic" measuring technique
 (closed with blind plugs)
 both ports male thread



DN 15	30 - 210 l/h	(10)	1145564°	
DN 15	90 - 450 l/h	(10)	1145664°	
DN 15	150 - 1050 l/h	(10)	1145764°	
DN 20	150 - 1050 l/h	(10)	1145566°	
DN 20	180 - 1300 l/h	(10)	1145666°	

"Cocon QTZ"

DN 15: G $\frac{3}{4}$ male threaded connection for compression fittings "Ofix", pages 1.144, 1.145 and 1.147.

With insert item no. 1661100 (page 3.79) suitable for flat sealing tailpipes.

DN 20: G 1 male threaded connection for compression fittings, page 9.31.

With insert item no. 1650793 (page 3.79) suitable for flat sealing tailpipes.

with pressure test points "classic" measuring technique
 both ports male thread



DN 15	30 - 210 l/h	(10)	1146064°	
DN 15	90 - 450 l/h	(10)	1146164°	
DN 15	150 - 1050 l/h	(10)	1146264°	
DN 20	150 - 1050 l/h	(10)	1146066°	
DN 20	180 - 1300 l/h	(10)	1146166°	

"Hydrocontrol VTR"

Bronze double regulating and commissioning valves PN 16

both ports male thread, flat sealing



DN 15		3.88	(10)	1060564°	
DN 20		5.71	(10)	1060566°	

Spare parts for strainers: Page 5.34

"Unofix" Refurbishment of one pipe heating systems Page 1.104

Accessories: Page 3.44

Article	Control range	kvs	Packing unit	Article-No.	Hint
---------	---------------	-----	--------------	-------------	------



"Hydrocontrol MTR" with integrated metering station
"classic" measuring technique
 both ports male thread, flat sealing

DN 15 LF		0.55	(10)	1061964	
DN 15 MF		1.15	(10)	1061934	
DN 15 HF		2.10	(10)	1061904	
DN 20		3.70	(10)	1061906	

Article	Control-range	kvs	Packing unit	Article-No.	Hint
---------	---------------	-----	--------------	-------------	------

"Hycococon VTZ"
Double regulating and commissioning valves PN 16



both ports male thread, flat sealing

DN 15		1.70	(10)	1061854°
DN 20		2.70	(10)	1061856

"Hycococon VTB"
Double regulating and commissioning valves with flow display PN 10



both ports male thread, flat sealing

DN 20	4 - 17 l/min	3.00	(10)	1060906
DN 25	10 - 40 l/min	8.30	(10)	1060908

"Hycococon ETZ" Regulating valves PN 16



both ports male thread, flat sealing

DN 15		0.90	(10)	1063964
DN 20		0.90	(10)	1063966

"Hycococon HTZ" Regulating valves PN 16



both ports male thread, flat sealing

DN 15		1.70	(10)	1064264
DN 20		2.70	(10)	1064266
DN 20		5.00	(10)	1064267

Accessories






Adapter
one port male thread (valve connection),
one port male thread, flat sealing



DN 15		(10)	1149075
DN 20		(10)	1149076

For the connection of female threaded valves to the connection fitting "Flypass 4TZ". The adapter has to be screwed into the female threaded connection of the valve.

Accessories: Page 3.44
Tailpipe sets:
Flexible hoses: Page 3.66







Article	Packing unit	Article-No.	Hint
 <p>Double nipple both ports male thread, flat sealing</p>	(10)	1149070	<p>For the direct connection of flat sealing pipes or valves with collar nut to the connection fitting "Flypass 4TZ" . Both ports male thread.</p>
<p>DN 15 DN 20</p>	(10)	1149071	
 <p>Insert</p>	(100)	1650793	<p>For "Cocon QTZ" and "Optibal W6" DN 20 with male threaded connection G 1. Suitable for flat sealing tailpipes.</p>
 <p>Insert as set = 2 pieces for cone according to DIN EN 16313 (cone "Euro")</p>	(50)	1661100	<p>For "Multiflex F", "Multiblock T/TU/TFU/TQ/T-RTL/TQ-RTL", "Cocon QTZ" and "Optibal W6" DN 15 with G 3/4 male threaded connection. Suitable for flat sealing tailpipes.</p>
 <p>Insulation shell made of polyurethane rigid foam with polystyrene shell for connection sets "Flypass"</p>			<p>Insulation, consisting of two shells. For heating and cooling systems. Meet the requirements of the German Energy Saving Directive (EnEV) according to appendix 5, table 1, line 5. Building material class B2 according to DIN 4102. Operating temperature t_g: -10 °C up to +120 °C</p>
<p>DN 15 - DN 20 (LF)</p>		1149581	<p>Cold insulation: Min. fluid temperature: +6 °C The insulation shells have to be bonded hermetically (restricted diffusion tightness at low fluid temperature and at high ambient temperature and/or humidity). Suitable for "Flypass set 1" (except for item no. 1149651, 1149552, 1149553, 1149554 and 1149564) and "Flypass sets 3 - 7".</p>
 <p>Adapter with stem for "Cocon QTZ", thermostatic valves Extension = 25 mm</p>	(10)	1149190	<p>Is required if the "Cocon QTZ" valves shall be equipped with insulation shells and actuators.</p>



3.j "Tri-M", "Tri-D", "Tri-CTR"
Two-way valves, three-way valves, temperature controllers

Content

"Tri-M plus TR" Four-port mixing valves PN 10	3.82
"Tri-D TB" Three-way diverting valve PN 16	3.82
"Tri-D TR" Three-way diverting valves PN 16	3.83
"Tri-CTR" Three-way diverting and mixing valves PN 16	3.83
Accessories sets for three-way valves "Tri-D TR", "Tri-M TR" and "Tri-CTR"	3.84
Temperature controllers	3.85
"Combi LR" Radiator lockshield valves	3.85
Two-way valve PN 16	3.85
Two-way valve PN 16	3.86

Article	kvs	Packing unit	Article-No.	Hint	
"Tri-M plus TR" Four-port mixing valves PN 10 with integrated T-piece (mixing valve, threaded connection, bronze)					
connection thread M 30 x 1.5 G 1/2 male thread, flat sealing					
	DN 15	0.45	(10) 1142751	Application: Central heating and cooling systems (like fan convectors (fan coil units), chilled ceiling modules, induction air systems, cooling and heating zones) with closed circuits, for operation with non-aggressive, harmless fluids (e. g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195). Max. operating pressure p _s : 10 bar (PN 10) Operating temperature t _s : -10 °C up to +120 °C	
	DN 15	1.00	(10) 1142752		
	DN 15	1.80	(10) 1142753		
"Tri-D TB" Three-way diverting valve PN 16 (diverting valve, threaded connection, brass)					
tapered sealing connection thread M 30 x 1.5 G 3/4 male thread, tapered connection					
	DN 15	2.50	(10) 1142504	"Tri-M plus TR": Function: The Oventrop four-port mixing valves "Tri-M plus TR" control the room temperature by changing the volume flow to the terminal unit by use of actuators whilst maintaining an almost constant volume flow within the distribution circuit. Description: Body made of bronze, seals made of EPDM or PTFE, bonnet made of brass resistant to dezincification (DZR), valve stem made of stainless steel with double seal.	
Tailpipe sets (for item no.1142504) with tapered sealing, with O-ring Solder tailpipe 3-fold					
	12 mm		(10) 1140191	"Tri-D TB": Function: The Oventrop three-way diverting valve "Tri-D TB" with T-piece as single component controls the room temperature with the help of actuators by diverting or changing-over the volume flow. Description: Body and bonnet made of brass, seal made of EPDM, valve stem made of stainless steel with double seal.	
	15 mm		(10) 1140192		
Threaded tailpipe, 3-fold					
	DN 15		(10) 1140292	G 3/4 male threaded connection for compression fittings "Ofix", pages 1.144, 1.145 and 1.147. With insert item no.1661100 (page 1.130) suitable for flat sealing tailpipes. Isolating fittings: Item no. 1016166/68: page 1.128 Award: DESIGN PLUS „light + building“ Frankfurt	
Plug-in tailpipe, 3-fold					
	10 mm		(10) 1140390		
	12 mm		(10) 1140391		
	15 mm		(10) 1140392		
T-piece					
			(10) 1142561		

Article	kvs	Packing unit	Article-No.	Hint
---------	-----	--------------	-------------	------

"Tri-D TR" Three-way diverting valves PN 16 (diverting valve, threaded connection, bronze)

connection thread M 30 x 1.5 with collar nuts, flat sealing



DN 20	4.50		1130206°
DN 25	6.50		1130208°
DN 40	9.50		1130212°

Application:
Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e. g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).
Max. operating pressure p_s : 16 bar (PN 16)
Operating temperature t_s : 0 °C up to 120 °C
Diverting or changing-over of volume flows in heating and cooling systems in combination with thermostatic or electric actuators.

"Tri-CTR" Three-way diverting and mixing valves PN 16 (three-way valve, threaded connection, bronze)

connection thread M 30 x 1.5 with collar nuts, flat sealing



DN 15	2.50	(10)	1131204
DN 20	4.40	(10)	1131206
DN 25	5.70	(10)	1131208
DN 32	7.20	(5)	1131210
DN 40	8.50	(5)	1131212
DN 50	10.00	(5)	1131216

Application, for instance for storage cylinder loading function or heating installations with two heat generators, for instance in solar plants or heat pump systems (bivalent heating systems).

Male thread:
DN 20: G 1
DN 25: G 1¼
DN 40: G 2

The valves can be used in combination with Oventrop temperature controllers or actuators. For further information see "Technical information":



Item no.	kvs	Δp max.
11302/07/1706	4.5	0.75 bar
11302/07/1708	6.5	0.5 bar
11302/07/1712	9.5	0.2 bar

"Tri-CTR":

Function:
For use as diverting valve, the three-way valve has one inlet port (AB) and two outlet ports (A and B). Depending on the position of the valve disc, the direction of flow is diverted from one to the other outlet port.
For use as mixing valve, the three-way valve has two inlet ports (A and B) and one outlet port (AB). Depending on the position of the valve disc, the cold and hot water is mixed.
Operating temperature t_s : -10 °C up to +120 °C

The three-way valves "Tri-CTR" can be used for high differential pressures.

For further information see "Technical information".

Award "Tri-CTR":



ICONIC AWARDS 2018
Innovative Interior

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

Accessories sets for three-way valves "Tri-D TR", "Tri-M TR" and "Tri-CTR"

Weldables tailpipe 3-fold



for valve DN 15	(10)	1130091	
for valve DN 20	(10)	1130093	
for valve DN 25	(10)	1130094	
for valve DN 32	(5)	1130095	
for valve DN 40	(5)	1130096	
for valve DN 50	(5)	1130098	

Solder tailpipes 3-fold



15 mm for valve DN 15	(10)	1130191	
15 mm for valve DN 20	(10)	1130192	
18 mm for valve DN 20	(10)	1130193	
22 mm for valve DN 20	(10)	1130194	
28 mm for valve DN 25	(10)	1130195	
35 mm for valve DN 32	(5)	1130199	
35 mm for valve DN 40	(5)	1130196	
42 mm for valve DN 40	(5)	1130197	
54 mm for valve DN 50	(5)	1130198	

Threaded tailpipes 3-fold



R ½ for valve DN 15	(10)	1130291	
R ½ for valve DN 20	(10)	1130292	
R ¾ for valve DN 20	(10)	1130293	
R 1 for valve DN 25	(10)	1130294	
R 1¼ for valve DN 32	(5)	1130299	
R 1¼ for valve DN 40	(5)	1130295	
R 1½ for valve DN 40	(5)	1130296	
R 2 for valve DN 50	(5)	1130298	

Article	kv s	Packing unit	Article-No.	Hint
---------	---------	-----------------	-------------	------

Temperature controllers

connection thread M 30 x 1.5
Temperature controller with immersion sensor
Immersion pocket G 1/2 connection

Control range	Capillary length		
20 - 50 °C	2 m	1140561	
40 - 70 °C	2 m	1140562	
50 - 80 °C	2 m	1140563	
70 - 100 °C	2 m	1140564	
20 - 50 °C	5 m	1140571	
40 - 70 °C	5 m	1140572	
70 - 100 °C	5 m	1140574	
Immersion pocket only		1141091	



Application:
Water, max. sensor temperature 30 K above the set value.
For industrial installations, water heaters, air heaters, hot cabinets, dish-washers, surface heating systems or similar.
The control range can be limited or locked.

For further information see
"Technical information":



Temperature controller with contact sensor and heat transfer unit

Control range	Capillary length		
20 - 50 °C	2 m	1142861	
30 - 60 °C	2 m	1142862	
40 - 70 °C	2 m	1142863	
50 - 80 °C	2 m	1142864	



"Combi LR" Radiator lockshield valves

Presetting, isolating
brass, nickel plated

Straight pattern

10 DN	1.80	(25)	1027662
15 DN	1.80	(25)	1027664
20 DN	2.40	(10)	1027666
25 DN	3.20	(10)	1027668



Acts as throttling valve in combination with the temperature controller to limit the flow temperature of surface heating installations.
Selection of valves:
up to 85 m² DN 15 straight DN 20 "Combi LR"
up to 120 m² DN 20 straight DN 25 "Combi LR"

Two-way valve PN 16 (can also be used as three-way valve)

Flanged connections AB, A and B according to DIN EN 1092-2

DN 15	1.00	1130875
DN 15	1.60	1130865
DN 15	2.50	1130845
DN 20	4.00	1130866
DN 20	6.30	1130846
DN 25	10.00	1130847
DN 32	16.00	1130848
DN 40	25.00	1130849
DN 50	35.00	1130850
DN 65	63.00	1130851
DN 80	100.00	1130852
DN 100	160.00	1130853
DN 125	220.00	1130854
DN 150	320.00	1130855



Application:
Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).

Description:
Max. operating pressure p_s: 16 bar (PN 16)
Operating temperature t_s: 0 °C up to 130 °C
Body made of cast iron, disc made of brass and stem made of stainless steel.
DN 15 up to DN 50 metal to metal seal between disc and seat.
DN 65 up to DN 150 soft sealing with EPDM seal between disc and seat.
The central nipple is closed with a cap. The valve can be used as three-way valve after removal of the cap.



Article	kvs	Article-No.	Hint
Two-way valve PN 16			<p>Application: Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).</p> <p>Description: Max. operating pressure ps: 16 bar (PN 16) Operating temperature ts: 0 °C up to 130 °C Body made of cast iron, disc made of brass and stem made of stainless steel. DN 15 up to DN 50 metal to metal seal between disc and seat. DN 65 up to DN 150 soft sealing with EPDM seal between disc and seat. The central nipple is closed with a blind flange (flanged connection according to DIN).</p> <p>*US-American standard.</p>
Flanged connections AB and A with hole circle according to ANSI*			
DN 65	63.00	1670851	
DN 80	100.00	1670852	
DN 100	160.00	1670853	
DN 125	220.00	1670854	
DN 150	320.00	1670855	



3.k "KTB" Thermostatic valves for cooling systems

Content

Thermostatic valves "KTB"	3.88
Thermostats for thermostatic valves "KTB"	3.88

Article	kv at 1K P-dev.	kv at 2K P-dev.	kvs	Packing unit	Article-No.	Hint
---------	-----------------	-----------------	-----	--------------	-------------	------

Thermostatic valves "KTB"
(cooling, threaded connection, brass)
with reversed closing function

Angle pattern valve



DN 15	0.25	0.50	1.00	(25)	1141704
DN 20	0.25	0.50	1.00	(25)	1141706
DN 25	0.25	0.50	1.00	(10)	1141708

Straight pattern valve



DN 15	0.25	0.50	1.00	(25)	1141804
DN 20	0.25	0.50	1.00	(25)	1141806
DN 25	0.25	0.50	1.00	(10)	1141808

Reversed angle pattern valve



DN 15	0.25	0.50	1.00	(25)	1141904
DN 20	0.25	0.50	1.00	(25)	1141906

Thermostatic valves "KTB"
Valve inserts (100) **1147169**



Valves for thermostats
brass, nickel plated
connection thread M 30 x 1.5

Application:
Cooling systems (like fan convectors (fan coil units), chilled ceiling modules, induction air systems, cooling zones) with closed circuits, for operation with non-aggressive, harmless fluids (e. g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).

Max. operating pressure p_s : 10 bar PN 10
Max. differential pressure: 0.5 bar
Operating temperature t_s : -20 °C up to +120 °C

Valve opens with the temperature at the sensor rising.

Marking of the glands of the valve inserts: "K".
The valves can be used in combination with the thermostats "Uni XH", "Uni LH", "vindo TH" and "Uni SH", page 1.08.

For further information see
"Technical information":



Thermostats for thermostatic valves "KTB"
Temperature range 7 - 28 °C

Thermostat "Uni LH"
connection thread M 30 x 1.5
Thermostat with remote sensor
white

white,
with remote sensor



capillary 2 m long	1011665	
capillary 5 m long	(75) 1011666	
capillary 10 m long	(75) 1011667	

with '0' setting

capillary 2 m long	(75) 1011682	
--------------------	---------------------	--

without '0' setting

Thermostat with remote control "Uni FH"
white



capillary 2 m long	1012295	
capillary 5 m long	1012296	
capillary 10 m long	1012297	

with '0' setting

white,
with additional remote sensor



capillary 2 m long	1012395	
capillary 5 m long	1012396	

with '0' setting
For further information see
"Technical information":











3.I Room thermostats, actuators

Content

Room thermostats	3.90
"Sensor GA FD" Dew point control	3.92
"Aktor T" Electrothermal actuators	3.93
"Aktor M" Electromotive actuators	3.94
Accessories	3.95
"Aktor M ST EIB" Electromotive actuators	3.96
"Aktor M ST LON®" Electromotive actuators	3.96
"Aktor MH CON B" (ENOCEAN)	3.96

Article	Packing unit	Article-No.	Hint
Room thermostats			
Room thermostat - surface mounting (heating and cooling)			
			The room thermostat is used for individual room temperature control in combination with the electrothermal actuator (0- 10 V) "Aktor T ST L NC", item no. 1012953, page 1.27, or the electromotive actuator "Aktor M ST L", item no. 1012705/06, page 1.28 (may also be used in three- or four-pipe systems). With one analogue output 0–10 V each for heating and cooling as well as adjustable neutral zone (0.5–7.5 K). Temperature range: 5 °C up to 30 °C For further information see "Technical information":
24 V	(25)	1152151	
Room thermostat - surface mounting (heating and cooling)			
			The room thermostat does not only feature analogue outlets 0-10 V for heating and cooling, but also a 3-stage ventilator switch (24 V - 240 V) for the activation of fan convectors (fan coil units). The room thermostat is used for individual room temperature control in combination with the electrothermal actuator (0-10 V) "Aktor T ST L NC", item no. 1012953, page 1.27 or the electromotive actuator "Aktor M ST L", item no. 1012705/06, page 1.28 (may also be used in three- or four-pipe systems). Temperature range: 5 °C up to 30 °C
24 V	(25)	1152153°	
Room thermostat-clock - surface mounting (heating)			
			The electric room thermostat-clock is required for individual room temperature control of heating systems in combination with the electrothermal actuators (two point) "Aktor T 2P". Output signal pulse-width modulation. Temperature range: 5 °C up to 30 °C Heating: Use electrothermal actuators (two point) "closed with current off". Central temperature setback is carried out according to a timed programme. Limitation of the control range by using the concealed limiting elements.
			
230 V	(78)	1152551°	
			Heating: Use electrothermal actuators (two point) "closed with current off". Central temperature setback is carried out according to a timed programme. Limitation of the control range by using the concealed limiting elements.
			
230 V		1152552	
24 V		1152554°	
Room thermostat - surface mounting (heating)			
			The electric thermostat is used for individual room temperature control in combination with the electrothermal actuators (two point) "Aktor T 2P". Temperature range: 5 °C up to 30 °C Heating: Use electrothermal actuators (two point) "closed with current off". As for item no. 1152051/52/55/71/72, the temperature may be set back by use of an external time switch (item no. 1152551/52 for 230 V, item no. 1152554 for 24 V). Cooling: Use electrothermal actuators (two point) "open with current off". Limitation of the control range of item no. 1152051/52/71/72 by using the concealed limiting elements.
230 V	(25)	1152051	
24 V	(25)	1152052	
			
230 V	(25)	1152055	



Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------



Room thermostat - flush mounting (heating)
Heating two point control

230 V	(128)	1152071
24 V	(10)	1152072°



Room thermostat - flush mounting (heating)
with display
Heating two point control

230 V	(40)	1152561
24 V	(40)	1152562

With LCD display and adjustable timed programme.

Temperature range: 5 °C up to 35 °C

Operating current range (item no. 1152561): 100 up to 230 V AC

Heating:

Use electrothermal actuators (two point) "closed with current off" (terminal "NC") or "open with current off" (terminal "NO").



Room thermostat - surface mounting (heating or cooling)
Heating two point control
Cooling two point control
with fan drive

230 V		1152351°
-------	--	-----------------

The room thermostat is used for heating or cooling in combination with electrothermal actuators (two point) "Aktor T 2P" and fan convectors (fan coil units).

The room temperature is maintained at the chosen level. With switch for "Heating-Off-Cooling" and fan switch.

Temperature range: 5 °C up to 30 °C

Heating/cooling:

Use electrothermal actuators (two point) "closed with current off".

For further information see "Technical information":



Room thermostat - surface mounting (heating or cooling)
with display
Heating two point control
Cooling two point control
with fan drive

230 V		1152451
-------	--	----------------

With LCD display and adjustable timed programme.

Temperature range: 5 °C up to 35 °C

Heating or cooling:

Use electrothermal actuators (two point) closed with current "off".

For further information see "Technical information":





Article
Room thermostat - surface mounting (heating and cooling)
with display
Heating two point control
Cooling 0 - 10 V control
with fan drive

Article-No.
1152065

Hint
Electronic room thermostat with digital display for ventilation systems with heating and cooling function.

24 V

1152065



Article
Room thermostat - surface mounting (heating or cooling)
with display
Heating or cooling 0 - 10 V control
with fan drive

Article-No.
1152064

24 V

1152064




"Sensor GA FD" Dew point control



"Sensor GA FD" Dew point control 24 V
with alternating contact

Article-No.
1141951

Hint
Is required in combination with room thermostats to protect chilled ceilings against condensation.
An actuator interrupting the cooling water flow is for instance activated in combination with the "Regufloor HC".
Connection to the cooling water supply.
Connecting cable 1 m.

Article	Packing unit	Article-No.	Hint
"Aktor T" Electrothermal actuators			
	"Aktor T 2P" Electrothermal actuators (two point) connection thread M 30 x 1.5		<p>Oventrop electrothermal actuators are used for heating, ventilation and air conditioning. The actuators serve to control the room temperature and can be used e. g. with conventional radiators, radiators with integrated distributor, radiant ceiling panels, chilled ceiling systems and induction air systems in combination with two point room thermostats.</p> <p>Further applications in bivalent heating installations. Connecting cable 1 m. With "First-Open" function and stroke index. Simple plug-in connection with valve adapter. Actuators can be installed in any position. Due to their construction, the electrothermal actuators are secured against overvoltage which could occur when switching on neon tubes. A varistor is thus not necessary.</p>
	"H NC", closed with current "off", 230 V	1012415	
	"H NO", open with current "off", 230 V	1012425	
	"L NC", closed with current "off", 24 V	1012416	
	"L NO", open with current "off", 24 V	1012426	
	"H NC", closed with current "off", 230 V with mounted auxiliary switch	1012435	
	"L NC", closed with current "off", 24 V cable 2 m long	1012442	
	"H NC", closed with current "off", 230 V cable 2 m long	1012452	
	"H NC", closed with current "off", 230 V cable 5 m long	1012455	
	"H NC", closed with current "off", 230 V cable 10 long	1012459	
	"M NC", closed with current "off", 120 V only in approved countries outside the EU	1012420#	
		"Aktor T ST" Electrothermal actuator (0-10 V) Proportional actuator connection thread M 30 x 1.5	
"L NC", closed with current "off", 24 V with automatic recognition of neutral point and valve travel		1012953	
	Valve adapter		<p>The high model is required when using the actuators, item no. 10124.. and 1012953, in combination with the regulating valves "Hycococon ETZ/HTZ" as well as the fittings "Multiblock T/TU/TFU/TQ" and the design cover (11 mm higher than standard).</p>
	high model connection thread M 30 x 1.5	(5) 1012462	



Article	Packing unit	Article-No.	Hint
<p>"Aktor M" Electromotive actuators connection thread M 30 x 1.5 with manual setting, adjustable mode of operation</p>			<p>Description electromotive actuators 0 - 10 V: The actuators can be used in centralised building control systems in combination with the electronic room thermostat, item no. 1152151, or with a central controller. Connecting cable 1.5 m. With stroke index.</p>
"ST L", 24 V, modulating proportional actuator, 0-10 V, automatic anti-blocking function and recognition of neutral point, multiple characteristic lines adjustable		1012705	
as item no. 1012705, but for "Cocon QTZ" PN 25		1012735	<p>Description electromotive actuators (10127..): Connecting cable 1.5 m. Anti-blocking function: The valve is completely opened and closed every 24 hours. For further information see "Technical information."</p>
"ST L", 24 V, modulating proportional actuator, 0-10 V, with position feedback, automatic anti-blocking function and recognition of neutral point, multiple characteristic lines adjustable		1012706	
as item no. 1012706, but for "Cocon QTZ" PN 25		1012736	
"3P L", 24 V, three point actuator, without anti-blocking function		1012708	<p>With the appropriate control, the actuator, item no. 1012708, can also be used for two point operation.</p>
"3P H", 230 V, three point actuator, without anti-blocking function, mode of operation not adjustable		1012709	
"ST L NC", 24 V modulating proportional actuator, 0 - 10 V, with electric emergency control function and automatic recognition of neutral point		1012717	<p>In case of electric emergency control function, the actuator moves to a specified lift position if the power supply is interrupted.</p>



"3P H", 230 V, three point actuator, without anti-blocking function (10) **1012703°**



"2P H", 230 V, two point actuator, without anti-blocking function **1012710**
"2P L", 24 V, two point actuator, without anti-blocking function **1012711**

Short operating time (about 3 sec.).
Connecting cable 1.5 m.

Article	Article-No.	Hint
---------	-------------	------

"Aktor M" Electromotive actuators
squeeze connection, 24 V

Steady control with 0-10 V or switching as two or three point control.
Type of characteristic line (linear, equal percentage) adjustable.
With position feedback signal 0-10 V.



"ST/ 2P/ 3P L", 10 mm piston stroke, with adapter	1158010	For "Cocon QTR/QFC" DN 40 and DN 50.
"ST/ 2P/ 3P L", 10 mm piston stroke, without adapter	1158011	For two-way valves 11308.. and 16708.. DN 15 up to DN 50.

Steady control with 0(2) - 10 V or switching as three point control.
Linear characteristic line.
With position feedback signal 0-10 V.



"ST/ 3P L", 20 mm piston stroke, with adapter	1158020	For "Cocon QTR/QFC" DN 40 up to DN 100.
---	----------------	---

Steady control with 0(2) - 10 V or 0(4) - 20 mA or switching as two or three point control.
Linear characteristic line.
With position feedback signal 0 - 10 V.



"ST/ 3P L", 20 mm piston stroke, with spring return and adapter	1158021	For "Cocon QTR/QFC" DN 40 up to DN 100.
"ST/ 2P/ 3P L", 20 mm piston stroke, with spring return and adapter	1158022	Valves opening with current "off". Valves closing with current "off".

Steady control with 0 - 10 V or 4 - 20 mA or switching as two or three point control.
Type of characteristic line (linear, square-law, equal percentage) adjustable.
With position feedback signal 0 - 10 V.



"ST/ 2P/ 3P L", 40 mm piston stroke, with adapter	1158030	For "Cocon QFC" DN 125 up to DN 200 as well as two-way valves, item no. 11308.. and 16708.. DN 65 up to DN 150.
"ST/ 2P/ 3P L", 40 mm piston stroke, with spring return and adapter	1158031	Valves opening with current "off".
"ST/ 2P/ 3P L", 40 mm piston stroke, with spring return and adapter	1158032	Valves closing with current "off".

For further information see "Technical information":



Accessories



Connection module 230 V	1158033	For the connection of the 24 V actuators "Aktor M", item no. 1158030/ 31/ 32, to the 230 V supply voltage. Module for plug-in connection to the actuator.
-------------------------	----------------	---

Resistor 0/4 mA	1158025*	For the conversion of the actuator "Aktor M", item no. 1158020, from 0-10 V control to 0/4 mA control. The resistor is fitted into the actuator.
-----------------	-----------------	--



"Aktor M ST EIB" Electromotive actuators system "EIB"
 with integrated bus coupling
 connection thread M 30 x 1.5

"Uni EIB H"

with one binary entry **1156065**
 with two binary entries **1156066**

Description EIB/LON:
 The electromotive actuator EIB is suitable for a direct connection to the European installation bus control system. The power absorption is extremely low, so that a separate power supply is not needed. Moreover, the actuator is equipped with one or two integrated binary entries to which a window contact may for instance be connected. The connection of the bus and the binary entries is made via a 4- or a 6-core cable (1 m).



"Aktor M ST LON®" Electromotive actuators system "LON®"
 with integrated bus coupling
 connection thread M 30 x 1.5

"OV LON H"

with one binary entry **1157065°**

Product data bank "KNX/EIB" and application programmes "LON" **1156051**

The electromotive actuator LON is suitable for a direct connection to the LonWorks® networks. The power absorption is extremely low, so that a separate power supply is not needed when using the Link-Power-Technology. Moreover, the actuator is equipped with an integrated binary entry to which a window contact may for instance be connected. The connection of the bus and the binary entry is made via a 4-core cable (1 m). 3.5" diskette with Oventrop specific data to be read in the ETS data banks or the LonTalk®-Software.
 The data to be read in the ETS data banks or the LonTalk®-Software can be downloaded from the internet under www.oventrop.de (category "Software") free of charge.



"Aktor MH CON B" (ENOCEAN)

Connection thread M 30 x 1.5 **1150765#**
 Electronic actuator
 with bi-directional wireless communication,
 battery operated

traffic white (RAL 9016)

Electronic actuator for room temperature control. The actuator supports the EnOcean profile A5-20-01 and can be connected to communication centres/gateways or room thermostats supporting the profile.



Only functions in combination with communication centres/gateways (e.g. "OVbalance Home" basic set) supporting the respective EEP (EnOcean Equipment Profile).

System	Oventrop actuators	Item no.	The Oventrop actuators can e.g. be used with the following bus systems:
KNX/EIB	"Uni EIB H" with one binary entry with two binary entries	1156065 1156066	- GIRA Instabus KNX/EIB - ABB i-bus KNX - Busch-Jäger installation bus - Jung KNX-System - Merten KNX
	"Uni EIB D" with one binary entry with two binary entries	1156075 1156076	- Siemens GAMMA instabus - Woertz Building Control Systems - and others
LON	"OVLONH" with one binary entry	1157065	- Gesytec - SVEA Building Control Systems - Echelon
	"OVLOND" with one binary entry	1157075	- ELKA Electronics - Kieback & Peter - t.a.c. TAC Vista - Regulex - and others
EnOcean (wireless)	"Aktor MH CON B" (ENOCEAN) with wireless module	1150765	- iXERGY (wibutler) - and others



3.m "OV-DMC 3" Measuring system

Content

"OV-DMC 3"	3.98
"OV-DMC 3", "OV-DMC 2", "OV-DMPC" Accessories	3.99
"OV-Connect" Differential pressure transmitter	3.100
"classic" measuring technique	3.101
Accessories "eco" measuring technique	3.101

Article	Article-No.	Hint
---------	-------------	------

"OV-DMC 3"
for measurement, transfer and determination of pressure, flow, temperature and performance data

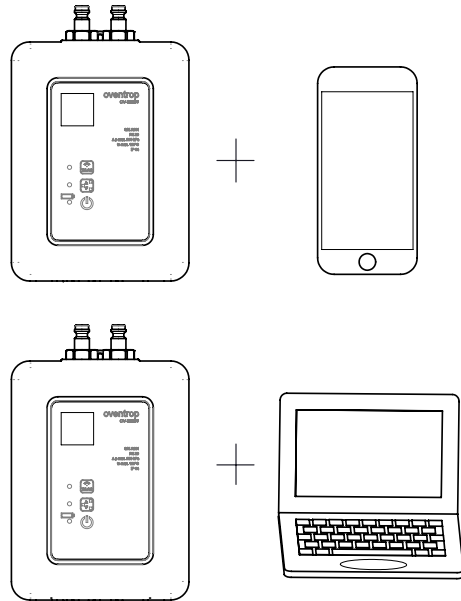
without display device **1069278**
with display device **1069279**



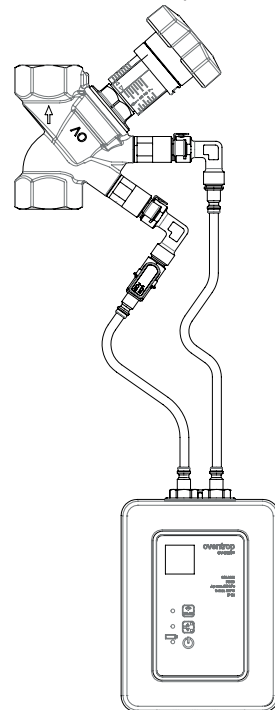
Application:
The measuring system "OV-DMC 3" can be used in combination with Oventrop products with "classic" or "eco" measuring technique (e.g. "Hycoccon", "Hydrocontrol" and "Cocon" valves as well as Oventrop metering stations).





Description "OV-DMC 3":
The measuring system "OV-DMC 3" has especially been designed for the regulation of heating and cooling systems. The interfaces for communication with standard smartphones, tablets and personal computers enable an easy regulation of heating and cooling systems as well as a simple generation of measured records. The data obtained via the calculation programmes "OVplan" and "OVselect" can be accessed retrospectively. Measuring system "OV-DMC 3" for differential pressure measurement and the resulting determination of the flow rate. Calculation of the presetting for a double regulating and commissioning valve is possible after having entered the valve data and the required nominal flow rate. The permanent measurement of differential pressure and flow is possible, too. The measurement of two temperatures (e.g. supply and return) with the help of temperature sensors which can be connected to the "OV-DMC 3" allows for a direct calculation of the heating capacity.

Applications of "OV-DMC 3":



Connection example "OV-DMC 3":



Article	Packing unit	Article-No.	Hint
"OV-DMC 3", "OV-DMC 2", "OV-DMPC" Accessories			
	Contact thermometer	1069197	For "OV-DMC 2" and "OV-DMPC".
	Set 16 = 2 measuring hoses	(5) 1069178	For "OV-DMC 3", "OV-DMC 2" and "OV-DMPC". L = 0.5 m. L = 2 m, red and blue
	Set 14 = 2 measuring hoses	(5) 1069179	
	Set 17 = 2 measuring nipples G 3/8 with screen	(50) 1069186 152164029 5593	For replacement purposes for measuring systems "OV-DMC 3", "OV-DMC 2" and "OV-DMPC". Quick-coupling technic.
	USB connecting cable	(50) 1069299	Connecting cable for the transmission of data from the "OV-DMC 2" to the USB interface. Supplied with software for the data transmission to the USB stick.

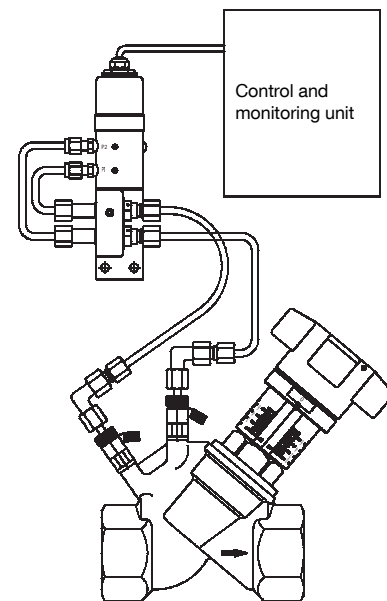
Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

"OV-Connect" Differential pressure transmitter

including measuring needles and connecting cable (5) **1069180**



The Oventrop "OV-Connect" differential pressure transmitter permanently controls the differential pressure of Oventrop products with "classic" measuring technique in heating, cooling and potable water systems which are operated with water or water and glycol mixtures. The signals can be processed via an electric control and monitoring unit. The differential pressure of the valve is measured via the measuring needles and 6 mm copper pipes at the pressure test points. Measuring range: 0 - 1000 mbar. During working conditions, the appliance provides an output signal proportional to the measured differential pressure (0 – 10 V). Supply voltage 24 V DC (18 up to 33 V) or 24 VAC ± 15%



For further information see "Technical information":



Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

"classic" measuring technique

Function:
- differential pressure measurement



Set 9 = 2 measuring needles for (50) **1069199**

Accessories "eco" measuring technique



Fill and drain tool (50) **1061791**
for valves with "eco" measuring technique

"eco" measuring technique:
For draining, venting and filling the installation.



Measuring adapter (50) **1060297**

Measuring adapter with quick-coupling technic to be screwed onto the fill and drain tool.



Set = 2 measuring needles for (25) **1061799**
valves with "eco" measuring technique

For measurement with measuring systems "OV-DMC 3", "OV-DMC 2" and "OV-DMPC".



Measuring adapter, (50) **1060298**
"classic" measuring technique

Measuring devices



Straight pattern (10) **1145099**



Angle pattern (10) **1145085**

3.n Products for air conditioning and ventilation

Content



Products for air conditioning and ventilation

3.104



“Tri-D TR” Three-way diverting valves
with connection thread M 30 x 1.5 for thermostats and actuators

Devices, such as e.g. fan convectors, chilled ceilings, hot air curtain systems, façade ventilation devices, have to be hydraulically integrated into heating and cooling installations, balanced and regulated. The following Oventrop valves comply with these requirements.

Divert and change over of volume flows.
Page 3.83



“Tri-CTR” Three-way diverting and mixing valves
with connection thread M 30 x 1.5 for thermostats and actuators

Divert and mix of volume flows.
Page 3.83



“Tri-M plus TR” Four-way mixing valves
with connection thread M 30 x 1.5 for thermostats and actuators

For the operation in a secondary circuit (e.g. in fan coil units).
Page 3.82



Temperature controllers
with connection thread M 30 x 1.5

For different temperature control ranges.
Page 3.85



Thermostat with remote control
with connection thread M 30 x 1.5

Page 1.12



“Hycoflow” Double regulating and commissioning valves with flow display

Allows for the direct reading of the balanced flow values.
Page 3.54



“Cocon QTZ” Pressure independent control valves
with connection thread M 30 x 1.5 for thermostats and actuators

Control of e.g. a room temperature via actuators and thermostats and automatic limitation of the volume flow to a pre-settable maximum value.
Page 3.56



“Cocon 2TZ” Regulating valves

Control of e.g. a room temperature via actuators and thermostats and automatic limitation of the volume flow to a presettable fixed value.
Page 3.65



Room thermostat with fan drive

Room temperature control with connection facility for electrothermal actuators (two point).
Page 3.91



Dew point control

To avoid condensation.
Page 3.92



Electrothermal actuators
with connection thread M 30 x 1.5

With two point, three point or 0-10 V control.
Page 3.93



Electromotive actuators
with connection thread M 30 x 1.5

With two point, three point or 0-10 V control for the installation bus control systems EIB and LON.
Page 3.94



“A” Thermostatic straight pattern valves
with connection thread M 30 x 1.5

With high kvs value.
Page 1.64



“Hycoccon HTZ” Regulating valves
with connection thread M 30 x 1.5

Regulating valve with high kvs value.
Page 3.14



**“Hydrocontrol VTR” Bronze double regulating and
commissioning valves**

For hydronic balancing.
Page 3.26



DDC “CR-BX” Central control and regulating techniques

For central temperature control. Setback
periods and monitoring functions.
Page 12.27

3.o Products for radiant and chilled ceiling systems

Content



Products for radiant and chilled ceiling systems

3.108



“Cocon QTZ” Pressure independent control valves
with connection thread M 30 x 1.5 for thermostats and actuators

This is a summary of valves which are required for radiant and chilled ceiling systems, for the hydronic balancing and for the temperature and flow control.

Control for instance of a room temperature via actuators and thermostats and automatic limitation of the volume flow to a presettable maximum value.
Page 3.56



“Cocon 2TZ” Regulating valves

Control for instance of a room temperature via actuators and thermostats and automatic limitation of the volume flow to a presettable fixed value.
Page 3.65



Dew point control

To avoid condensation.
Page 3.92



Electrothermal actuators
with connection thread M 30 x 1.5

With two point or 0-10 V control.
Page 3.93



Electromotive actuators
with connection thread M 30 x 1.5

With two point, three point or 0-10 V control for the installation bus control systems EIB and LON.
Page 3.94



“Hydrocontrol VTR” Bronze double regulating and commissioning valves

For hydronic balancing.
Page 3.26



“Hydromat DTR” Differential pressure regulators

With the differential pressure in the installation changing, the differential pressure regulator maintains a constant fixed differential pressure between supply and return in the riser.
Page 3.39



“Hydromat QTR” Flow regulators

With the flow in the installation changing, the flow regulator maintains a constant fixed volume flow in the riser.
Page 3.38



“Optibal” Ball valves

For fluids in heating and cooling systems.
Page 5.04



Strainers
bronze

For fluids in heating and cooling systems, with wire baskets with different mesh sizes to choose.
Page 5.32



“Multidis SF” Stainless steel distributors/collectors for surface heating and cooling

Models for 2 up to 12 circuits with flow measuring and regulating devices.
Page 2.60



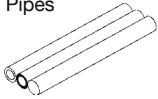


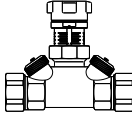
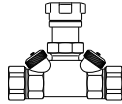
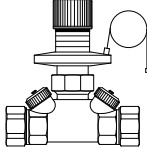
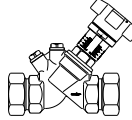
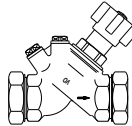
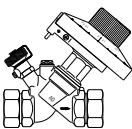
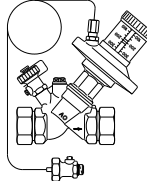



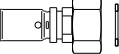
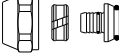

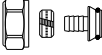



“Ofix” Compression fittings

For different pipe materials and their connection to valves and distributors/collectors.
Pages 1.144 and 2.53

3.p Connection system

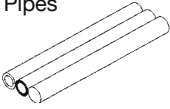

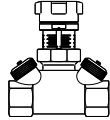
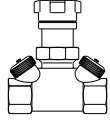
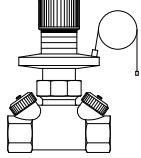
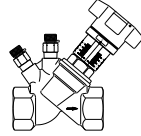
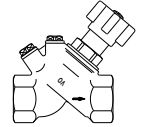
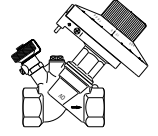
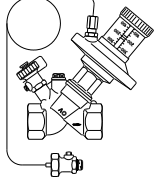


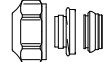

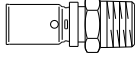
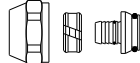

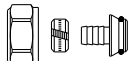
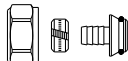

Content

Summary of the product groups and connection systems with male thread	3.112
Summary of the product groups and connection systems with female thread	3.113

Pipes 	Connection method	Connection system		Male threaded connection
		Connection fitting	Additional fitting	Oventrop valves (examples)
Copper pipe, stainless steel pipe, precision steel pipe 1)	Screwed connection	 Collar nut, compression ring and ring gasket for G 3/4 male thread according to DIN EN 16313 (cone "Euro") soft sealing Item no. 102744. Page 1.145	 Connection piece Item no. 15030.. Page 11.34	Valves for hydronic balancing       
Copper pipe 1)	Screwed connection	 Collar nut and compression ring for G 3/4 male thread according to DIN EN 16313 (cone "Euro") metal to metal sealing Item no. 102747. Page 1.145		
	Soldering connection	 Item no. 10610.. Page 3.49	-	
Stainless steel pipe 1)	Press connection	 Item no. 42015.. Page 8.69	-	
"Copipe" Composition pipe	Press connection	 Item no. 15121.. Page 11.14	-	
	Screwed connection	 Item no. 15079.. Page 11.34	 Connection piece Item no. 15030.. Page 11.34	
PE-Xc pipe	Screwed connection	 Collar nut, compression ring and outlet for G 3/4 male thread according to DIN EN 16313 (cone "Euro") Item no. 10277.. Page 1.145		
Steel pipe as well as screwed fittings	Screwed connection	 Item no. 10613.. Page 3.49  Item no. 10614.. Page 3.49	-	
	Welding connection	 Item no. 10605.. Page 3.49	-	
Other pipes e.g. stainless steel pipe, thick walled plastic pipe	All other pipes – with their special connection – may be connected with flat sealing tailpipes (with ring gaskets and collar nuts) to Oventrop flat sealing and male threaded valves.			

This table is not exhaustive.

1) Pipes with a wall thickness ≤ 1 mm need reinforcing sleeves, except when the soft sealing fitting 102744. is used! Page 1.145

Pipes 	Connection method	Connection system		Female threaded connection
		Connection fitting	Additional fitting	Oventrop valves (examples)
Copper pipe 1)	Screwed connection	Compression nut and compression ring  Item no. 10271.. Female thread G 3/8-G 3/4, Page 3.49	-	Valves for hydronic balancing       
		Collar nut and compression ring  for G 3/4 male thread according to DIN EN 16313 (cone "Euro") metal to metal sealing Item no. 102747. Page 1.145	Double nipple  Item no. 15031.. Page 11.34	
		Collar nut, compression ring and ring gasket  for G 3/4 male thread according to DIN EN 16313 (cone "Euro") soft sealing Item no. 102744. Page 1.145		
Copper pipe, stainless steel pipe, precision steel pipe 1)	Press connection	 Item no. 42015/16.. Page 3.46/3.47	-	
"Copipe" Composition pipe	Press connection	 Item no. 15120.. Page 11.14	-	
	Screwed connection	 Item no. 15079.. Page 11.34	Double nipple  Item no. 15031.. Page 11.34	
Collar nut, compression ring and outlet  Item no. 10277.. Page 1.145				
PE-Xc pipe thin walled plastic pipe	Screwed connection	Collar nut, compression ring and outlet  Item no. 10277.. Page 1.145	Double nipple  Item no. 15031.. Page 11.34	
Steel pipe				seal directly

1) Pipes with a wall thickness ≤ 1 mm will need reinforcing sleeves, except when the soft sealing fitting 102744. is used! Page 1.145



5.a "Optibal" Ball valves

Content	5.03
"Optibal" Ball valves PN 16	5.04
"Optibal" Ball valves with coupling PN 16	5.06
Accessories	5.06
Insulation	5.06
"Optibal" Ball valves with lever PN 16	5.07
"Optigas" Isolating ball valves	5.07
"Optibal" Ball valves with T-handle PN 16	5.08
Stem extensions	5.08
Conversion set plastic handle (anthracite)	5.08
Ball valves "DZR"	5.09
Ball valves NPT	5.10
"Optibal" High temperature ball valves PN 16	5.11
"Optibal" High pressure ball valves PN 40	5.12
Accessories	5.12



5.b "Hygate" Gate valves

Content	5.13
"Hygate ATB" Gate valves PN 25	5.14
"Hygate ATR" Gate valves PN 25	5.14
"Hygate AFC" Flanged gate valves PN 16	5.15
"Hygate AFC" Flanged gate valves PN 10	5.15



5.c Valves PN 16/25

Content	5.17
Oblique pattern globe valves with position indicator PN 25	5.18
Straight pattern globe valves with position indicator PN 25	5.18
Straight pattern globe valves PN 16	5.18
Oblique pattern globe valves PN 25	5.19
Oblique pattern drain valves PN 25	5.19
Lockshield spindles	5.19
Airvent PN 25	5.19
Accessories	5.19



5.d Butterfly valves

Content	5.21
Lugged butterfly valves PN 16	5.22
Wafer butterfly valves PN 16	5.22
Accessories	5.22
Lugged butterfly valves PN 16	5.23
Wafer butterfly valves PN 16	5.23
Accessories	5.23

5.e Piston type spring assisted check valves, swing type check valves



Content	5.25
Piston type spring assisted check valves (female threaded model) PN 25	5.26
Swing type check valves (female threaded model) PN 16	5.27
Swing type check valves (flanged model) PN 16	5.28
Swing type check valves (wafer model) PN 16	5.28
Double swing type check valves (wafer model) PN 16	5.28

5.f Airvents



Content	5.29
Airvents PN 10	5.30

5.g Strainers



Content	5.31
"Y" type strainers PN 25	5.32
Spare parts	5.32
"Y" type strainers PN 16	5.33
Spare parts	5.33
"Y" type strainers PN 25	5.34
Spare parts	5.34

5.h Spare parts



Content	5.35
Handwheels	5.36
PTFE washers	5.36



5.a "Optibal" Ball valves

Content

"Optibal" Ball valves PN 16	5.04
"Optibal" Ball valves with coupling PN 16	5.06
Accessories	5.06
Insulation	5.06
"Optibal" Ball valves with lever PN 16	5.07
"Optigas" Isolating ball valves	5.07
"Optibal" Ball valves with T-handle PN 16	5.08
Stem extensions	5.08
Conversion set plastic handle (anthracite)	5.08
Ball valves "DZR"	5.09
Ball valves NPT	5.10
"Optibal" High temperature ball valves PN 16	5.11
"Optibal" High pressure ball valves PN 40	5.12
Accessories	5.12

Article	kvs	Packing unit	Article-No.	Hint
---------	-----	--------------	-------------	------

"Optibal" Ball valves PN 16
brass, nickel plated, full flow,
extended plastic handle (anthracite)
with red cover plug for riser identification

both ports female thread



DN 10	8.80	(10)	1077103
DN 15	22.00	(10)	1077104
DN 20	43.00	(10)	1077106
DN 25	67.00	(10)	1077108
DN 32	99.00	(8)	1077110
DN 40	143.00	(6)	1077112
DN 50	254.00	(4)	1077116

as above, with thermometer (anthracite)



DN 10	8.80	(10)	1078003
DN 15	22.00	(10)	1078004
DN 20	43.00	(10)	1078006
DN 25	67.00	(10)	1078008
DN 32	99.00	(8)	1078010
DN 40	143.00	(6)	1078012
DN 50	254.00	(4)	1078016

one port male thread, one port female thread



DN 10	8.80	(10)	1077303
DN 15	22.00	(10)	1077304
DN 20	43.00	(10)	1077306
DN 25	67.00	(10)	1077308
DN 32	99.00	(8)	1077310
DN 40	143.00	(6)	1077312
DN 50	254.00	(4)	1077316

both ports female thread
with draining valve (connection thread G 1/4)



DN 15		(10)	1077804
DN 20		(5)	1077806
DN 25		(5)	1077808
DN 32		(5)	1077810

Application:
Pipe fitting for fluids.
Max. operating pressure p_s : 16 bar (PN 16), for cold water 20 bar, for air and other harmless gases (not for gaseous fluids group 1 according to directive 2014/68/EU) 10 bar.
Operating temperature t_s : -10 °C up to +100 °C
Attention: Prevent formation of ice as it can destroy the pipework and valve.
Chrome plated brass ball, PTFE seats, FKM O-ring seal.

Advantages:

- full flow
- diverse applications
- all standard handles available
- simple insulation of models with extended plastic handle
- high pressure rating due to blow-off proof stem and high body resistance
- ball surface hard-chrome plated

For further information see
"Technical information":



With plug and draining valve.



Article	P2	Packing unit	Article-No.	Hint
both ports press connection				
DN 15	Ø 15 mm	(10)	1077162	Application: Pipe fitting for fluids. Max. operating pressure p _s : 16 bar (PN 16), for cold water 20 bar, for air and other harmless gases (not for gaseous fluids group 1 according to directive 2014/68/EU) 10 bar. Operating temperature t _s : -10 °C up to +100 °C Attention: Prevent formation of ice as it can destroy the pipework and valve. Chrome plated brass ball, PTFE seats, FKM O-ring seal.
DN 15	Ø 18 mm	(10)	1077163	
DN 20	Ø 22 mm	(10)	1077164	
DN 25	Ø 28 mm	(10)	1077165	
DN 32	Ø 35 mm	(5)	1077166	

DN 40 and DN 50 see item no. 4208857/58: page 8.24



one port female thread, one port press connection				
DN 15	G ½	Ø 15 mm	(10)	1077152
DN 15	G ½	Ø 18 mm	(10)	1077153
DN 20	G ¾	Ø 22 mm	(10)	1077154
DN 25	G 1	Ø 28 mm	(10)	1077155
DN 32	G 1 ¼	Ø 35 mm	(5)	1077156

- Advantages:
- full flow
 - diverse applications
 - all standard handles available
 - simple insulation of models with extended plastic handle
 - high pressure rating due to blow-off proof stem and high body resistance
 - ball surface hard-chrome plated

Press connection:
 For the direct connection of copper pipes according to DIN EN 1057 / DVGW GW 392, stainless steel pipes according to DIN EN 10088 / DVGW GW 541 and thin-walled C-steel pipe (material no. E195/1.0034) according to DIN EN 10305-3. Pressing must be carried out to tighten the connection. Only use press jaws with the original contours SANHA (SA), Geberit-Mapress (MM) or Viega (Profipress) in corresponding size. Processing must be carried out according to the installation instructions.

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

"Optibal" Ball valves with coupling PN 16

brass, nickel plated, full flow,
 extended plastic handle (anthracite)
 with red cover plug for riser identification

one port with tapered sealing coupling with male thread,
 one port female thread



DN 15	(10)	1075704
DN 20	(10)	1075706
DN 25	(10)	1075708
DN 32	(10)	1075710

Application:
 Pipe fitting for central heating and cooling systems.
 Max. operating pressure p_s : 16 bar (PN 16), for cold water 20 bar, for air and other harmless gases (not for gaseous fluids group 1 according to directive 2014/68/EU) 10 bar.
 Operating temperature t_s : -10 °C up to +100 °C
 Attention: Prevent formation of ice as it can destroy the pipework and valve.
 Chrome plated brass ball, PTFE seats, FKM O-ring seal.

Accessories

Insulation

for brass ball valves "Optibal" with extended plastic handle
 ball valves with female thread (item no. 10771/80/87/91..)



DN 15 (also for DN 10)	1078092
DN 20	1078093
DN 25	1078094
DN 32	1078095
DN 40	1078096
DN 50	1078097

For heating and cooling systems.
 With stem extension also suitable for other handles.
 All ball valves "Optibal" with extended plastic handle can also be coated with standard insulation material.

Blue cover plug
 for riser identification,
 for replacement of the existing red cover plug



DN 10 + DN 15, set = 10 pieces	1077171
DN 20 + DN 25, set = 10 pieces	1077172
DN 32 - DN 50, set = 5 pieces	1077173

Meet the requirements of the German Energy Saving Directive according to appendix 5, table 1, line 5.

Building material class B2 according to DIN 4102.

Operating temperature t_s : +100 °C

Thermometer conversion set, anthracite
 for item no. 10771/73/78/57/91 ..



DN 10 + DN 15	(10)	1077181
DN 20 and DN 25	(10)	1077182
DN 32 - DN 50	(10)	1077183

Stem extensions

brass, with swivel plastic sleeve



		Extension in mm		
up to DN 15	38.5	(10)	1696081	
DN 20 + DN 25	39	(10)	1696082	
DN 32 - DN 50	64	(10)	1696083	

To upgrade brass ball valves "Optibal" with extended plastic handle (except for item no. 10787..).
 By sealing the swivel plastic sleeve against the insulation in cooling systems, no humidity can reach the pipework via the stem extension.
 Only one extension can be used.

Article	kvs	Packing unit	Article-No.	Hint
---------	-----	--------------	-------------	------

"Optibal" Ball valves with lever PN 16
 brass, nickel plated, full flow,
 galvanised steel lever with plastic coating

both ports female thread



DN 8	5.60	(10)	1076002
DN 10	8.80	(10)	1076003
DN 15	22.00	(10)	1076004
DN 20	43.00	(10)	1076006
DN 25	67.00	(10)	1076008
DN 32	99.00	(8)	1076010
DN 40	143.00	(6)	1076012
DN 50	254.00	(4)	1076016
DN 65	470.00	(2)	1076020
DN 80	720.00		1076024
DN 100	1,120.00		1076032

one port male thread,
 one port female thread



DN 10	8.80	(10)	1076203
DN 15	22.00	(10)	1076204
DN 20	43.00	(10)	1076206
DN 25	67.00	(10)	1076208
DN 32	99.00	(8)	1076210

Application:
 Pipe fitting for fluids.
 Up to DN 50:
 Max. operating pressure p_s : 16 bar (PN 16) for cold water 20 bar, for air and other harmless gases (not for gaseous fluids group 1 according to directive 2014/68/EU) 10 bar.
 Operating temperature t_s : -10 °C up to +100 °C
 DN 65 up to DN 100:
 Max. operating pressure p_s : 16 bar at 70 °C (PN 16), 12 bar at 85 °C, 8 bar at 100 °C
 Operating temperature t_s : -10 °C up to +100 °C
 CE marking according to directive 2014/68/EU.
 Attention: Prevent formation of ice as it can destroy the pipework and valve.

For further information see
 "Technical information":



"Optigas" Isolating ball valves
 brass, nickel plated, DVGW approved, with full flow
 and female thread according to EN 10226-1,
 stem with double O-ring seal made of FKM,
 ball hard-chrome plated, PTFE seats



DN 15	Rp 1/2	(25)	3016404
DN 20	Rp 3/4	(25)	3016406
DN 25	Rp 1	(25)	3016408
DN 32	Rp 1 1/4	(10)	3016410
DN 40	Rp 1 1/2	(10)	3016412
DN 50	Rp 2	(5)	3016416

Application:
 Gas installations according to DVGW-TRGI
 used with gas according to DVGW work sheet
 G 260/I including liquid gas in gaseous state.

Temperature range: -20 °C up to +60 °C
 MOP 5 (5 bar according to EN 331).

Heating, cooling and industrial application:
 Water, water and glycol mixtures, heating oil,
 fuels and air.

Full flow according to DIN EN 1983.
 Max. operating pressure p_s : 16 bar (PN 16),
 for cold water 20 bar, for air and other
 harmless gases (not for gaseous fluids
 group 1 according to directive 2014/68/EU)
 10 bar.
 Operating temperature t_s : -20 °C up to +100 °C

Attention: Prevent formation of ice as it can
 destroy the pipework and valve.

Article	kv s	Packing unit	Article-No.	Hint
---------	---------	-----------------	-------------	------

"Optibal" Ball valves with T-handle PN 16

brass, nickel plated, full flow,
metal T-handle,
both ports female thread



DN 10	8.80	(10)	1076103
DN 15	22.00	(10)	1076104
DN 20	43.00	(10)	1076106
DN 25	67.00	(10)	1076108
DN 32	99.00	(8)	1076110

Application:
Pipe fitting for fluids.
Max. operating pressure p_s : 16 bar
(PN 16), for cold water 20 bar, for air
and other harmless gases (not for gaseous
fluids group 1 according to directive
2017/68/EU) 10 bar.
Operating temperature t_s : -10 °C up to +100 °C
Attention: Prevent formation of ice as it can
destroy the pipework and valve.

one port male thread,
one port female thread



DN 10	8.80	(10)	1076303
DN 15	22.00	(10)	1076304
DN 20	43.00	(10)	1076306
DN 25	67.00	(10)	1076308
DN 32	99.00	(8)	1076310

one port with tapered sealing coupling with male thread,
one port female thread



DN 15		(10)	1075804
DN 20		(10)	1075806
DN 25		(8)	1075808
DN 32		(8)	1075810

Stem extensions

brass, with swivel plastic sleeve

Extension in mm



up to DN 15	38.5	(10)	1076081
DN 20 + DN 25	39	(10)	1076082
DN 32 - DN 50	64	(10)	1076083
DN 65 - DN 100	85	(10)	1076084

To upgrade brass ball valves "Optibal" (except
for item no. 10787..).
By sealing the swivel plastic sleeve against the
insulation in cooling systems, no humidity can
reach the pipework via the stem extension.
To avoid condensation at the lever, the latter
must also be insulated, for instance by slipping
an elastic pipe insulation over the stem
extension and the shank of the plastic handle.
Only one extension can be used.

Conversion set plastic handle (anthracite)

with red cover plug for riser identification




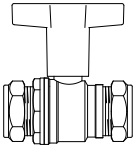



up to DN 15		(10)	1076071
DN 20 + DN 25		(10)	1076072
DN 32 - DN 50		(10)	1076073

For subsequent conversion of brass ball valves
"Optibal" with lever or metal T-handle to plastic
handle (except for item no. 10787..) allowing
the insulation of the ball valves.





For further information see
"Technical information":









Article	kvs	Packing unit	Article-No.	Hint
Ball valves "DZR" brass resistant to dezincification, full flow, both ports female thread according to ISO 228/1 (thread also corresponds to Rp according to EN 10226-1). Operating element: Galvanised steel lever with plastic coating				Application: Pipe fitting for central heating and cooling systems. Max. operating pressure p_s : 30 bar pressure impact resistant at 30 °C (PN 30), 6 bar at 120 °C, for air max. 10 bar. Operating temperature t_s : -10 °C up to +120 °C Pressure/temperature allocation see data sheet. Attention: Prevent formation of ice as it can destroy the pipework and valve.
	DN 15	22.00	(10) 1079004	
	DN 20	43.00	(10) 1079006	
	DN 25	67.00	(10) 1079008	
	DN 32	99.00	(8) 1079010	
	DN 40	143.00	(6) 1079012	
	DN 50	254.00	(4) 1079016	
Aluminium T-handle, red				
	DN 15	22.00	(10) 1079404	
	DN 20	43.00	(12) 1079406	
Extended plastic handle (anthracite) with red cover plug for riser identification				
	DN 15	22.00	(8) 1079104	
	DN 20	43.00	(10) 1079106	
	DN 25	67.00	(8) 1079108	
	DN 32	99.00	(6) 1079110	
	DN 40	143.00	(6) 1079112	
	DN 50	254.00	(4) 1079116	
	both ports compression ends for copper pipe according to EN 1254-2			Application: Pipe fitting for central heating and cooling systems. Max. operating pressure p_s : 16 bar pressure impact resistant at 30 °C (PN 16), 10 bar up to 65 °C, 6 bar up to 110 °C and 5 bar up to 120 °C Operating temperature t_s : -10 °C up to +120 °C WRAS certified. Attention: Prevent formation of ice as it can destroy the pipework and valve.
	15 mm		(8) 1079704	
	22 mm		(10) 1079706	
	28 mm		(8) 1079708	
	35 mm		(6) 1079710	
Locking cap, brass				The locking cap can be mounted instead of the handle. The ball valve is locked in open and shut-off position and setting is secured.
	DN 15		(5) 1079254	
	DN 20 + DN 25		(5) 1079255	
	DN 32 - DN 50		(5) 1079256	

Article	Packing unit	Article-No.	Hint
Ball valves NPT brass, unplated, full flow extended plastic handle (anthracite) with red cover plug for riser identification both ports NPT female thread according to ANSI B1.20.1			Application: Pipe fitting for central heating and cooling systems. Max. operating pressure p_s : 16 bar Operating temperature t_s : -10 °C up to -100 °C Attention: Prevent formation of ice as it can destroy the pipework and the valve. Chrome plated brass ball, PTFE seats, FKM O-ring seal.
DN 15	NPT 1/2	(8) 1077904	
DN 20	NPT 3/4	(10) 1077906	
DN 25	NPT 1	(8) 1077908	
DN 32	NPT 1 1/4	(6) 1077910	
DN 40	NPT 1 1/2	(6) 1077912	
DN 50	NPT 2	(4) 1077916	



Article	kvs	Packing unit	Article-No.	Hint
"Optibal" High temperature ball valves PN 16 brass, nickel plated, reduced flow, extended plastic handle (anthracite)				Application: Pipe fitting for central heating and cooling systems. Max. operating pressure p_s : 16 bar (PN 16) Operating temperature t_s : -10 °C up to +150°C, for short periods up to +180 °C; with press connection max. +120 °C, for short periods up to +150 °C Attention: Prevent formation of ice as it can destroy the pipework and valve. Press connection: For the direct connection of copper pipes according to DIN EN 1057 / DVGW GW 392, stainless steel pipes according to DIN EN 10088 / DVGW GW 541 and thin-walled C-steel pipe (material no. E 195/1.0034) according to DIN EN 10305-3. Pressing must be carried out to tighten the connection. Only use press jaws with the original contours SANHA (SA), Geberit-Mapress (MM) or Viega (Profipress) in corresponding size. Processing must be carried out according to the installation instructions.
both ports female thread				
	DN 20 Rp 3/4	9.50	(10) 1078706	
	DN 25 Rp 1	17.00	(10) 1078708	
	DN 32 Rp 1 1/4	35.00	(5) 1078710	
both ports press connection				
	DN 20 Ø 22 mm		(10) 1078760	
	DN 25 Ø 28 mm		(10) 1078761	
	DN 32 Ø 35 mm		(5) 1078762	
Accessories				
Stem seal for replacement purposes (set of 5 pieces) (not suitable for valves with marking "HT")				
	DN 20		1078790	
	DN 25 / 32		1078791	
Thermometer conversion set, anthracite				
	for item no. 1078171/ 72/ 73, 1078371/ 72/ 73, 1078708/ 10/ 61/ 62 and 4208806/ 08, 4208854/ 55, 4208906/ 08		(10) 1078382	

Article	Packing unit	Article-No.	Hint
<p>"Optibal" High pressure ball valves PN 40 bronze, unplated, full flow</p>			<p>Application: Pipe fitting for central heating (especially for district heating) and cooling systems.</p> <p>Max. operating pressure p_s: 40 bar at 150 °C (PN 40) Operating temperature t_s: 2 °C up to 150 °C (with plastic handle up to 120 °C)</p> <p>For further information see "Technical information":</p> 
<p>one port with weldable steel tailpipe, one port with cap, extended plastic handle (anthracite)</p>			
		DN 15 (5) 1066604	
		DN 20 (5) 1066606	
		DN 25 (5) 1066608 DN 32 (5) 1066610	
<p>one port with weldable steel tailpipe, one port with cap, aluminium lever</p>			
		DN 15 1066504	
		DN 20 1066506	
		DN 25 1066508 DN 32 1066510	
<p>both ports with weldable steel tailpipe, extended plastic handle (anthracite)</p>			
		DN 15 (5) 1065604	
		DN 20 (5) 1065606	
		DN 25 (5) 1065608 DN 32 (5) 1065610	
<p>both ports with weldable steel tailpipe, aluminium lever</p>			
		DN 15 1065504	
		DN 20 1065506	
		DN 25 1065508 DN 32 1065510	
<p>Accessories</p>			
<p>Cap with washer and chain</p>			<p>For item no. 10650/51/55/56.. and 10660/61/65/66 ..</p> <p>G 3/4 female thread G 1 female thread G 1 1/4 female thread G 1 1/2 female thread</p>
		DN 15 (25) 1066904	
		DN 20 (25) 1066906	
		DN 25 (25) 1066908	
		DN 32 (25) 1066910	



5.b "Hygate" Gate valves

Content

"Hygate ATB" Gate valves PN 25	5.14
"Hygate ATR" Gate valves PN 25	5.14
"Hygate AFC" Flanged gate valves PN 16	5.15
"Hygate AFC" Flanged gate valves PN 10	5.15

Article	kvs	Packing unit	Article-No.	Hint
---------	-----	--------------	-------------	------

"Hygate ATB" Gate valves PN 25
 (with isolating facility, threaded connection, brass)



Standard model

DN 10	10.00	(50)	1040003
DN 15	11.00	(50)	1040004
DN 20	34.00	(50)	1040006
DN 25	46.00	(25)	1040008
DN 32	60.00	(25)	1040010
DN 40	105.00	(10)	1040012
DN 50	170.00	(5)	1040016
DN 65	280.00	(5)	1040020
DN 80	420.00	(2)	1040024
DN 100	650.00	(2)	1040032

Application:
 Central heating and cooling systems with closed circuits and industrial plants, for operation with non-aggressive, harmless fluids (e. g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).
 Material resistant to: mineral, heating and hydraulic oils

Max. operating pressure p_s : 25 bar (PN 25)
 Operating temperature t_s : -10 °C up to +120 °C
 (The valid rules and standards for the use of these media may restrict the temperature range. Not suitable for gaseous fluids group 1 according to directive 2014/68/EU).

Body, bonnet, wedge and non-rising stem made of brass, with re-adjustable gland packing made of material containing PTFE.

For further information see "Technical information":



"Hygate ATR" Gate valves PN 25
 (with isolating facility, threaded connection, bronze)



DN 10	10.00	(50)	1043003
DN 15	11.00	(50)	1043004
DN 20	34.00	(50)	1043006
DN 25	46.00	(25)	1043008
DN 32	60.00	(20)	1043010
DN 40	105.00	(10)	1043012
DN 50	170.00	(5)	1043016
DN 65	280.00	(5)	1043020
DN 80	420.00	(2)	1043024

Application:
 Central heating and cooling systems with closed circuits and industrial plants, for operation with non-aggressive, harmless fluids (e. g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).
 Material resistant to: mineral, heating and hydraulic oils, fuels, water vapour as well as air and other harmless and non-aggressive gases (not for gaseous fluids group 1 according to directive 2014/68/EU)

Max. operating pressure p_s : 25 bar (PN 25)
 Operating temperature t_s :
 -10 °C up to +200 °C for water
 (0 °C up to 150 °C for water vapour)
 (The valid rules and standards for the use of these media may restrict the temperature range.)

Body, bonnet and wedge made of bronze, non-rising stem made of brass resistant to dezincification, with re-adjustable gland packing made of material containing PTFE, brass gland nut.

For further information see "Technical information":



Article kvs Article-No. Hint



"Hygate AFC" Flanged gate valves PN 16
 (with isolating facility, flanged connection, cast iron)

DN 40	107.00	1045049
DN 50	250.00	1045050
DN 65	430.00	1045051
DN 80	790.00	1045052
DN 100	1,250.00	1045053
DN 125	1,960.00	1045054
DN 150	2,790.00	1045055
DN 200	2,880.00	1045056
DN 250	4,306.00	1045057
DN 300	6,380.00	1045058

Application:
 Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e. g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).

Max. operating pressure p_s : 16 bar (PN 16)
 Operating temperature t_s : -10 °C up to +120 °C
 Body, bonnet and stuffing box assembly made of cast iron (EN-GJL-250 DIN EN1561), stem and valve seat made of brass, asbestos free seal.
 Round flanges according to DIN EN 1092-2, PN 16.

Lengths according to EN 558-1, basic series 15

For further information see "Technical information":



"Hygate AFC" Flanged gate valves PN 10
 (with isolating facility, flanged connection, cast iron)

DN 40	120.00	1045149
DN 50	270.00	1045150
DN 65	470.00	1045151
DN 80	900.00	1045152
DN 100	1,600.00	1045153
DN 125	2,150.00	1045154
DN 150	3,680.00	1045155
DN 200		1045156
DN 250		1045157
DN 300		1045158

Application:
 Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e. g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).

Max. operating pressure p_s : 10 bar (PN 10)
 Operating temperature t_s : -10 °C up to +120 °C
 Body, bonnet and stuffing box assembly made of cast iron (EN-GJL-250 DIN EN1561), stem and valve seat made of brass, asbestos free seal.
 Round flanges according to DIN EN 1092-2, PN 10.

Lengths according to EN 558-1, basic series 14

For further information see "Technical information":





5.c Valves PN 16/25

Content

Oblique pattern globe valves with position indicator PN 25	5.18
Straight pattern globe valves with position indicator PN 25	5.18
Straight pattern globe valves PN 16	5.18
Oblique pattern globe valves PN 25	5.19
Oblique pattern drain valves PN 25	5.19
Lockshield spindles	5.19
Airvent PN 25	5.19
Accessories	5.19

Article	kvs	Packing unit	Article-No.	Hint
---------	-----	--------------	-------------	------

Oblique pattern globe valves with position indicator PN 25

with plastic handwheel, bronze
bonnet and stem with maintenance-free O-ring seal,
additional sealing when stem is fully opened,
setting indicator "valve fully opened", seat with PTFE seal,
materials suitable for potable water

without draining facility



DN 10	3.10	(10)	1050203
DN 15	4.40	(10)	1050204
DN 20	9.50	(10)	1050206
DN 25	17.40	(10)	1050208
DN 32	29.20	(5)	1050210
DN 40	42.90	(5)	1050212
DN 50	64.00	(5)	1050216

with draining facility (level with the handwheel)



DN 10	3.10	(10)	1050303
DN 15	4.40	(10)	1050304
DN 20	9.50	(10)	1050306
DN 25	17.40	(10)	1050308
DN 32	29.20	(5)	1050310
DN 40	42.90	(5)	1050312
DN 50	64.00	(5)	1050316

Straight pattern globe valves with position indicator PN 25

with plastic handwheel, bronze
length according to DIN 3844, series 2
bonnet and stem with maintenance-free O-ring seal,
additional sealing when stem is fully opened,
setting indicator "valve fully opened", seat with PTFE seal,
materials suitable for potable water

without draining facility



DN 8	1.45	(10)	1052102
DN 10	2.10	(10)	1052103
DN 15	3.70	(10)	1052104
DN 20	6.40	(10)	1052106
DN 25	9.80	(10)	1052108
DN 32	15.80	(5)	1052110
DN 40	22.50	(5)	1052112
DN 50	32.60	(5)	1052116

Straight pattern globe valves PN 16

bronze
length according to DIN 3844, series 2
with PTFE seal, not suitable for potable water
Bonnet (item no. 10590..) on request.
The bonnets for the bodies DN 8, DN 10 and DN 15 are identical.
Bodies (item no. 10580..) on request.



DN 8	3.00	(10)	1052002°
DN 10	3.00	(10)	1052003°
DN 15	3.00	(10)	1052004°
DN 20	5.00	(10)	1052006°
DN 25	8.50	(10)	1052008°
DN 32	15.00	(5)	1052010°
DN 40	20.00	(5)	1052012°
DN 50	30.00	(5)	1052016°
DN 65	55.00	(2)	1052020°

Application:

Item no. 10502/03/21...:
Central heating and cooling systems with
closed circuits, for operation with non-
aggressive, harmless fluids (e. g. water or
suitable water and glycol mixtures according to
VDI 2035/ÖNORM 5195), as well as
installations with open circuits which are
operated with water.

Max. operating pressure p_s : 25 bar (PN 25)
Operating temperature t_s : -10 °C up to +150 °C

Bronze body, brass bonnet.

The oblique pattern globe valves
DN 10 - DN 20 are suitable for use with
compression fittings, item no. 10271..,
page 3.49.

For further information see
"Technical information":



Application:

Central heating and cooling systems with
closed circuits and industrial plants, for
operation with non-aggressive, harmless fluids
(e. g. water or suitable water and glycol
mixtures according to VDI 2035/ÖNORM
5195).









Material resistant to: mineral, heating and
hydraulic oils, fuels, water vapour as well as air

Max. operating pressure p_s : 16 bar (PN 16)
Operating temperature t_s : 0 °C up to 150 °C
For air:

Max. operating pressure p_s : 6 bar (PN 16)
Operating temperature t_s : 0 °C up to 100 °C

Bronze body, brass bonnet.

The straight pattern globe valves are not
suitable for compression connection.

Article	Packing unit	Article-No.	Hint
Oblique pattern globe valves PN 25			
bronze			
both ports with weldable steel tailpipes, with PTFE seal			
with handwheel			
	DN 15	1065004	Application: Central heating and cooling systems with closed circuits (especially for district heating and transmission units), for operation with non-aggressive, harmless fluids (e. g. water or suitable water and glycol mixtures according to VDI 2035, ÖNORM 5195 and FW510). Max. operating pressure p_s : 25 bar (PN 25) Operating temperature t_s : 0 °C up to 150 °C Bonnet secured against accidental release.
	DN 20	1065006	
	DN 25	1065008	
	DN 32	1065010	
Oblique pattern drain valves PN 25			
bronze			
one port with weldable steel tailpipe, one port with cap			
with handwheel			
	DN 15	1066004	For further information see "Technical information": 
	DN 20	1066006	
	DN 25	1066008	
	DN 32	1066010	
Lockshield spindles			
for oblique pattern valves and airvent PN 25			
	DN 15	(5) 1069292	Lockshield spindle as replacement for oblique pattern valves and airvent PN 25.
	DN 20	(5) 1069293	
	DN 25	(5) 1069294	
	DN 32	(5) 1069295	
Airvent PN 25			
steel			
	DN 15	(25) 1067004	
Accessories			
Cap with washer and chain			
	DN 15	(25) 1066904	For item no. 10650/51/55/56.. and 10660/61/65/66 .. G ¾ female thread G 1 female thread G 1¼ female thread G 1½ female thread
	DN 20	(25) 1066906	
	DN 25	(25) 1066908	
	DN 32	(25) 1066910	
	Washer for item no. 10650..., 10651..., 10660..., 10661..		
	DN 15	(10) 1065904	
	DN 20	(10) 1065906	
	DN 25	(10) 1065908	
	DN 32	(10) 1065910	
	General purpose lockshield key		(10) 1066151



5.d Butterfly valves

Content

Lugged butterfly valves PN 16	5.22
Wafer butterfly valves PN 16	5.22
Accessories	5.22
Lugged butterfly valves PN 16	5.23
Wafer butterfly valves PN 16	5.23
Accessories	5.23

Article	Article-No.	Hint
---------	-------------	------

Lugged butterfly valves PN 16 with EPDM liner

Body: EN-GJS-400-15 (GGG-40) nodular cast iron
Stem: AISI420 (X20Cr13) stainless steel
Disc: AISI316 (CF8M) stainless steel

Application:
Central heating and cooling systems and industrial plants with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).



Lugged pattern, lever operated

DN 50	1048450*
DN 65	1048451*
DN 80	1048452*
DN 100	1048453*
DN 125	1048454*
DN 150	1048455*
DN 200	1048456*

Lugged pattern butterfly valves (DN 50 up to DN 600) for installation between two flanges according to DIN EN 1092-2 (PN 10 or PN 16 for DN 50 up to DN 150; DN 200 up to DN 600 only for PN 16).

Max. operating pressure p_s : 16 bar (PN 16)
Operating temperature t_s : -20 °C up to +120 °C



Lugged pattern, gear operated

DN 150	1049255*
DN 200	1049256*
DN 250	1049257*
DN 300	1049258*
DN 350	1049259*
DN 400	1049260*
DN 450	1049261*
DN 500	1049262*
DN 600	1049263*

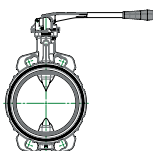
Extended neck for insulation purposes.

Item no. 10492..: Larger dimensions on demand.

Wafer butterfly valves PN 16 with EPDM liner

Body: EN-GJS-400-15 (GGG-40) nodular cast iron
Stem: AISI420 (X20Cr13) stainless steel
Disc: AISI316 (CR8M) stainless steel

Application:
Central heating and cooling systems and industrial plants with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).

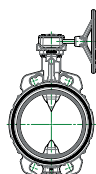


Wafer pattern, lever operated

DN 50	1046450*
DN 65	1046451*
DN 80	1046452*
DN 100	1046453*
DN 125	1046454*
DN 150	1046455*
DN 200	1046456*

Wafer pattern butterfly valves (DN 50 up to DN 300) for installation between two flanges according to DIN EN 1092-2 (PN 6, PN 10 or PN 16).

Max. operating pressure p_s : 16 bar (PN 16)
Operating temperature t_s : -20 °C up to +120 °C



Wafer pattern, gear operated

DN 150	1047255*
DN 200	1047256*
DN 250	1047257*
DN 300	1047258*

Extended neck for insulation purposes.

Accessories

Lever handles

for butterfly valves, item no. 10484.. and 10464..








DN 50 - DN 125	1048491*
DN 150 - DN 200	1048492*

Gear operators

for butterfly valves 10492.. and 10472..



DN 50 - DN 100	1049850*
DN 125 - DN 200	1049853*

Article	kvs	Article-No.	Hint
Lugged butterfly valves PN 16 with EPDM liner Body: GJS-500 (GGG-50) nodular cast iron Stem: AISI420 stainless steel Disc: CF8M AISI316 stainless steel			Application: Central heating and cooling systems and industrial plants with closed circuits, for operation with non-aggressive, harmless fluids (e. g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195). Max. operating pressure p_s : 16 bar (PN 16) Operating temperature t_s : -10 °C up to +110 °C
Lugged pattern, lever operated			
	DN 50	108.00	1048250°
	DN 65	198.00	1048251°
	DN 80	330.00	1048252°
	DN 100	545.00	1048253°
	DN 125	890.00	1048254°
	DN 150	1,410.00	1048255°
	DN 200	2,356.00	1048256°
Lugged pattern, gear operated			Extended neck for insulation purposes.
	DN 100	545.00	
	DN 125	890.00	1048954°
	DN 150	1,410.00	1048955°
	DN 200	2,356.00	1048956°
	DN 250	3,780.00	1048957°
	DN 300	5,590.00	1048958°
	DN 350	8,080.00	1048959°
	DN 400	10,533.00	1048960°
Wafer butterfly valves PN 16 with EPDM liner Body: GJS-500 (GGG-50) nodular cast iron Stem: AISI420 stainless steel Disc: CF8M AISI316 stainless steel			Application: Central heating and cooling systems and industrial plants with closed circuits, for operation with non-aggressive, harmless fluids (e. g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195). Max. operating pressure p_s : 16 bar (PN 16) Operating temperature t_s : -10 °C up to +110 °C
Wafer pattern, lever operated			
	DN 50	108.00	1046250°
	DN 65	198.00	1046251°
	DN 80	330.00	1046252°
	DN 100	545.00	1046253°
	DN 125	890.00	1046254°
	DN 150	1,410.00	1046255°
	DN 200	2,356.00	1046256°
Wafer pattern, gear operated			Extended neck for insulation purposes.
	DN 100	545.00	
	DN 125	890.00	1046954°
	DN 150	1,410.00	1046955°
	DN 200	2,356.00	1046956°
	DN 250	3,780.00	1046957°
	DN 300	5,590.00	1046958°
Accessories (without illustration)			
Lever handles for butterfly valves item no. 10482.. and 10462..			
	DN 50 - DN 80		1048291°
	DN 50 - DN 150		1048292°
	DN 200		1048293°

Article	Article-No.	Hint
---------	-------------	------

Gear operators

for butterfly valves item no. 10489.. and 10469..



DN 50 - DN 80	1049950°	
DN 50 - DN 150	1049953°	
DN 200	1049956°	
DN 250 - DN 300	1049957°	
DN 350	1049959°	
DN 400 - DN 450	1049960°	

Handwheels for gear operator

for item no. 1049950-60



DN 50 - DN 150	1048991°	
DN 200 - DN 300	1048992°	
DN 350	1048993°	
DN 400 - DN 600	1048994°*	

**5.e Piston type spring assisted check valves,
swing type check valves**



Content

Piston type spring assisted check valves (female threaded model) PN 25	5.26
Swing type check valves (female threaded model) PN 16	5.27
Swing type check valves (flanged model) PN 16	5.28
Swing type check valves (wafer model) PN 16	5.28
Double swing type check valves (wafer model) PN 16	5.28



Article	kvs	Packing unit	Article-No.
Piston type spring assisted check valves (female threaded model) PN 25			
bronze, brass with FKM seal			
DN 10	2.50	(10)	1072003
DN 15	3.80	(10)	1072004
DN 20	6.00	(10)	1072006
DN 25	13.00	(10)	1072008
DN 32	17.00	(5)	1072010
DN 40	19.00	(5)	1072012
DN 50	30.50	(5)	1072016

Non-return check valve for horizontal and vertical installation.
Bronze body, inner parts made of brass.
Valve disc spring assisted.
Opening pressure 40 mbar (~400 mm WG).
Sizes DN 10 - DN 20 are suitable for use with compression fittings, item no. 10271..., page 3.49.

Application:
Central heating and cooling systems with closed circuits and industrial plants, for operation with non-aggressive, harmless fluids (e. g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).

Material resistant to: mineral, heating and hydraulic oils, fuels, air
(The valid rules and standards for the use of these media may restrict the temperature range. Not suitable for gaseous fluids group 1 according to directive 2014/68/EU).

Max. operating pressure p_s : 25 bar (PN 25)
[6 bar (PN 25) for air]
Operating temperature t_s : 0 up to 100°C
[-10 °C up to +120 °C for water]

For further information see
"Technical information":



Piston type spring assisted check valves (female threaded model) PN 25			
bronze, brass with EPDM seal, materials suitable for potable water			
DN 10	3.40	(10)	1072103
DN 15	5.50	(10)	1072104
DN 20	10.30	(10)	1072106
DN 25	17.50	(10)	1072108
DN 32	33.00	(5)	1072110
DN 40	44.00	(5)	1072112
DN 50	68.00	(5)	1072116

Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e. g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195), as well as systems with open circuits which are operated with water.

Max. operating pressure p_s : 25 bar (PN 25)
Operating temperature t_s : -10 °C up to +150 °C

Article	kvs	Packing unit	Article-No.	Hint
Swing type check valves (female threaded model) PN 16 bronze, brass with metal to metal seal				Application: Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e. g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195). Max. operating pressure p_s : 16 bar (PN 16) Operating temperature t_s : -10 °C up to +80 °C [80 °C up to 120 °C: max. p_s 10 bar] Non-return check valve for horizontal and vertical (riser, flap opening upwards) installation. Bronze body, inner parts made of brass. For further information see "Technical information":
DN 15	5.50	(10)	1075004	
DN 20	10.20	(10)	1075006	
DN 25	20.20	(10)	1075008	
DN 32	34.70	(5)	1075010	
DN 40	44.90	(5)	1075012	
DN 50	104.40		1075016	
DN 65	175.00		1075020	



Article kvs Article-No. Hint

Swing type check valves (flanged model) PN 16
cast iron



DN 40	85.00	1073049
DN 50	132.00	1073050
DN 65	326.00	1073051
DN 80	490.00	1073052
DN 100	770.00	1073053
DN 125	1,020.00	1073054
DN 150	1,700.00	1073055
DN 200	2,410.00	1073056
DN 250	3,870.00	1073057
DN 300	5,670.00	1073058

Application:
Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e. g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).

Max. operating pressure p_s : 16 bar (PN 16)
Operating temperature t_s : -10 °C up to +120 °C

Non-return check valve for horizontal and vertical (riser, flap opening upwards) installation.

Body, cover and stuffing box assembly made of cast iron (EN-GJL-250 DIN EN1561), valve seat made of brass, asbestos free gaskets. Round flanges according to DIN EN 1092-2, PN 16.

For further information see "Technical information":



Swing type check valves (wafer model) PN 16
steel
with EPDM seal



DN 40	22.20	1072549
DN 50	54.00	1072550
DN 65	75.00	1072551
DN 80	112.00	1072552
DN 100	172.00	1072553
DN 125	342.00	1072554
DN 150	490.00	1072555
DN 200	1,128.00	1072556
DN 250	1,500.00	1072557
DN 300	1,850.00	1072558
DN 350	2,700.00	1072559
DN 400	3,500.00	1072560
DN 450	5,200.00	1072561

Application:
Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e. g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).

Max. operating pressure p_s : 16 bar (PN 16)
Operating temperature t_s : -10 °C up to +120 °C

Body and flap made of galvanised steel. Suitable for 3 m/s velocity.

For further information see "Technical information":



Double swing type check valves (wafer model) PN 16
cast iron
seat seal made of EPDM



DN 50	55.00	1072650
DN 65	82.00	1072651
DN 80	115.00	1072652
DN 100	236.00	1072653
DN 125	500.00	1072654
DN 150	700.00	1072655
DN 200	1,100.00	1072656
DN 250	2,000.00	1072657
DN 300	3,300.00	1072658
DN 350	3,950.00	1072659
DN 400	5,000.00	1072660
DN 450	6,550.00	1072661
DN 500	8,250.00	1072662
DN 600	12,600.00	1072663

Application:
Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e. g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).

Max. operating pressure p_s : 16 bar (PN 16)
Operating temperature t_s : 0 °C up to 120 °C

Body made of cast iron (EN-GJL-250 DIN EN 1561), stainless steel flaps.

For further information see "Technical information":








5.f Airvents

Content

Airvents PN 10

5.30







Article	Packing unit	Article-No.	Hint
Airvents PN 10			Application: Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e. g. water or suitable water and glycol mixtures with a maximum glycol proportion of 30 % according to VDI 2035/ÖNORM 5195). Max. operating pressure p_s : 10 bar (PN 10) Operating temperature t_s : 0 °C up to 110 °C
 Brass automatic airvent with automatic shut off			
G 3/8	(10)	1088303	
G 1/2	(10)	1088304	
G 3/4	(10)	1088306	
 angle pattern nickel plated, without automatic shut off			
G 1/2	(10)	1088404	
 Brass precision airvent with automatic shut off			With air admission barrier in the venting valve.
G 3/8	(10)	1088203	



5.g Strainers

Content

"Y" type strainers PN 25	5.32
Spare parts	5.32
"Y" type strainers PN 16	5.33
Spare parts	5.33
"Y" type strainers PN 25	5.34
Spare parts	5.34

Article	kvs	Packing unit	Article-No.	Hint																														
"Y" type strainers PN 25																																		
bronze																																		
with simple wire basket, 600 µm																																		
	DN 8	1.50	(10) 1120002	<p>Application: Central heating and cooling systems with closed circuits and industrial plants, for operation with non-aggressive, harmless fluids (e. g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).</p> <p>Strainers 11200/10: Material resistant to: mineral, heating and hydraulic oils, fuels, water vapour, as well as air and other harmless, non-aggressive gases (not suitable for gaseous fluids group 1 according to directive 2014/68/EU)</p> <p>Max. operating pressure p_s: 25 bar (PN 25) Operating temperature t_s: -10 °C up to +150 °C</p> <p>(The valid rules and standards for the use of these media may restrict the temperature range.)</p> <p>The sizes DN 10 - DN 80 are WRAS (United Kingdom) certified for installation in potable water systems.</p> <p>The strainers DN 10 - DN 20 are suitable for use with compression fittings, item no. 10271..., page 3.49.</p> <p>DN 8 – DN 50 bronze body, brass bonnet. DN 65 – DN 80 brass body and bonnet. Wire basket made of stainless chromium steel.</p> <p>Item no. 11200: Mesh size 0.6 mm 100 meshes/cm², Δ 600 µm.</p> <p>Item no. 11210: Mesh size 0.25 mm 600 meshes/cm², Δ 250 µm.</p> <p>Wire basket</p> <table border="1"> <thead> <tr> <th>D</th> <th>Height</th> <th>Ø</th> </tr> </thead> <tbody> <tr><td>DN 8 + DN 10</td><td>22</td><td>13.5</td></tr> <tr><td>DN 15</td><td>27</td><td>19</td></tr> <tr><td>DN 20</td><td>36</td><td>25</td></tr> <tr><td>DN 25</td><td>42</td><td>31</td></tr> <tr><td>DN 32</td><td>55</td><td>43</td></tr> <tr><td>DN 40</td><td>62</td><td>48.5</td></tr> <tr><td>DN 50</td><td>72</td><td>64</td></tr> <tr><td>DN 65</td><td>110</td><td>70</td></tr> <tr><td>DN 80</td><td>130</td><td>80</td></tr> </tbody> </table> <p>For further information see "Technical information":</p>  <p>Strainer 11410: Max. operating pressure p_s: 25 bar (PN 25) Operating temperature t_s: -10 °C up to +120 °C</p>	D	Height	Ø	DN 8 + DN 10	22	13.5	DN 15	27	19	DN 20	36	25	DN 25	42	31	DN 32	55	43	DN 40	62	48.5	DN 50	72	64	DN 65	110	70	DN 80	130	80
D	Height	Ø																																
DN 8 + DN 10	22	13.5																																
DN 15	27	19																																
DN 20	36	25																																
DN 25	42	31																																
DN 32	55	43																																
DN 40	62	48.5																																
DN 50	72	64																																
DN 65	110	70																																
DN 80	130	80																																
	DN 10	1.70	(10) 1120003																															
	DN 15	3.80	(10) 1120004																															
	DN 20	7.80	(10) 1120006																															
	DN 25	13.40	(10) 1120008																															
	DN 32	23.90	(5) 1120010																															
	DN 40	32.50	(5) 1120012																															
	DN 50	56.20	(5) 1120016																															
	DN 65	101.30	1120020																															
	DN 80	133.60	1120024																															
with double wire basket for fine filtering, 250 µm																																		
	DN 8	1.40	(10) 1121002																															
	DN 10	1.60	(10) 1121003																															
	DN 15	3.40	(10) 1121004																															
	DN 20	6.90	(10) 1121006																															
	DN 25	10.90	(10) 1121008																															
	DN 32	20.70	(5) 1121010																															
	DN 40	27.40	(5) 1121012																															
	DN 50	47.30	(5) 1121016																															
	DN 65	82.10	1121020																															
	DN 80	102.00	1121024																															
Spare parts																																		
Wire basket (mesh size 600 µm)																																		
	DN 8 + DN 10		1123003																															
	DN 15		1123004																															
	DN 20		1123006																															
	DN 25		1123008																															
	DN 32		1123010																															
	DN 40		1123012																															
	DN 50	(100)	1123016																															
	DN 65		1123020																															
	DN 80		1123024																															
Double wire basket (mesh size 250 µm)																																		
	DN 8 + DN 10		1123103																															
	DN 15		1123104																															
	DN 20		1123106																															
	DN 25		1123108																															
	DN 32		1123110																															
	DN 40		1123112																															
	DN 50		1123116																															
	DN 65		1123120																															
	DN 80		1123124																															
Strainer PN 25																																		
both ports male thread, flat sealing with double wire basket 250 µm																																		
	DN 15	2.70	(10) 1141004																															
	DN 20	4.80	(10) 1141006																															

Article	kvs	Article-No.	Hint
---------	-----	-------------	------

"Y" type strainers PN 16
cast iron



DN 15	7.00	1122045
DN 20	10.00	1122046
DN 25	15.00	1122047
DN 32	21.00	1122048
DN 40	39.00	1122049
DN 50	60.00	1122050
DN 65	105.00	1122051
DN 80	140.00	1122052
DN 100	225.00	1122053
DN 125	340.00	1122054
DN 150	405.00	1122055
DN 200	715.00	1122056
DN 250	1,355.00	1122057
DN 300	1,890.00	1122058
DN 350	2,970.00	1122059
DN 400	4,150.00	1122060
DN 450	5,540.00	1122061
DN 500	6,850.00	1122062
DN 600	9,280.00	1122063

Application:
Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e. g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).

Max. operating pressure p_s : 16 bar (PN 16)
Operating temperature t_s : 0 up to 120 °C

Body and cover made of cast iron (EN-GJL-250 DIN EN1561), wire basket made of stainless steel, asbestos free gasket.
Round flanges according to DIN EN 1092-2, PN 16.

Mesh size:
DN 15 - 32: 1.0 mm
DN 40 - 150: 1.5 mm
DN 200 - 300: 2.0 mm
DN 350 - 600: 3.0 mm

For further information see
"Technical information":



Spare parts

Wire basket and blind flange ring gasket



DN 15/20		1122085
DN 25		1122087
DN 32		1122088
DN 40		1122089
DN 50		1122090
DN 65		1122091
DN 80		1122092
DN 100		1122093
DN 125		1122094
DN 150		1122095
DN 200		1122096
DN 250		1122097
DN 300		1122098
DN 350		1122159
DN 400		1122160
DN 450		1122161
DN 500		1122162
DN 600		1122163

Larger sizes on demand.

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

"Y" type strainers PN 25
bronze

both ports with weldable steel tailpipe
wire basket made of stainless chromium steel
mesh size 0.6 mm



DN 15		1068004	
DN 20		1068006	
DN 25		1068008	
DN 32		1068010	

Application:
Central heating and cooling systems with closed circuits and industrial plants, for operation with non-aggressive, harmless fluids (e. g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).

Material resistant to: mineral, heating and hydraulic oils, fuels, water vapour as well as air and other harmless non-aggressive gases (not for gaseous fluids group 1 according to directive 2014/68/EU)

Max. operating pressure p_s : 25 bar (PN 25)
Operating temperature t_s : 0 °C up to 150 °C

Spare parts

Wire basket
(mesh size 0.6 mm)



DN 15	(10)	1068804	
DN 20	(10)	1068806	
DN 25	(10)	1068808	
DN 32	(10)	1068810	

5.h Spare parts

Content



Handwheels	5.36
PTFE washers	5.36

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

Handwheels

red, for gate valves 10400/30.. and bronze valves 10520..



DN 10 + DN 15	(100)	1900051	
DN 20 + DN 25	(100)	1900052	
DN 32 + DN 40	(100)	1900053	
DN 50	(100)	1900054	
DN 65	(100)	1900055	
DN 80 + DN 100	(100)	1900056	

The handwheels of the bronze valves DN 10 and DN 15 as well as DN 20 and DN 25 are identical.

PTFE washers

(washer for valve disc)



for bronze valves 10520..

DN 10 + DN 15	(10)	1902051°	
DN 20	(10)	1902052°	
DN 25	(10)	1902053°	
DN 32	(10)	1902054°	
DN 40	(10)	1902055°	
DN 50	(10)	1902056°	
DN 65	(10)	1902057°	
DN 80	(10)	1902058°	



6.a "Regumat 130/180" DN 20/25/32

Content	6.05
"Regumat S-130" DN 20 - constant temperature heating circuit	6.06
"Regumat M3-130" DN 20 - variable temperature heating circuit	6.07
Accessories for "Regumat S/M3-130" DN 20	6.08
"Regumat S-130" DN 25 - constant temperature heating circuit	6.09
"Regumat M3-130" DN 25 - variable temperature heating circuit	6.10
Accessories for "Regumat S/M3-130" DN 25	6.11
"Regumat S-180" DN 25 with pump ball valve - constant temperature heating circuit	6.13
"Regumat M3-180" DN 25 with pump ball valve - variable temperature heating circuit	6.14
Accessories for "Regumat S/M3-180" DN 25 with pump ball valve	6.15
"Regumat S-180" DN 25 with reduced dimensions - constant temperature heating circuit	6.17
"Regumat M3-180" DN 25 with reduced dimensions - variable temperature heating circuit	6.18
Accessories for "Regumat S/M3-180" DN 25 with reduced dimensions	6.19
"Regumat M3-180" DN 25 - variable temperature heating circuit	6.21
Accessories for "Regumat S/M3/M4-180" DN 25	6.22
"Regumat S-180" DN 32 with pump ball valve - constant temperature heating circuit	6.24
"Regumat M3-180" DN 32 with pump ball valve - variable temperature heating circuit	6.25
Accessories for "Regumat S/M3-180" DN 32 with pump ball valve	6.26
"Regumat S-180 plus" DN 32 with pump ball valve - constant temperature heating circuit	6.27
"Regumat M3-180 plus" DN 32 with pump ball valve - variable temperature heating circuit	6.28
Accessories for "Regumat S/M3-180 plus" with pump ball valve	6.29

6.b "Regumat 220/280" DN 40/50



Content	6.31
"Regumat S-220" DN 40 - constant temperature heating circuit	6.32
"Regumat M3-220" DN 40 - variable temperature heating circuit	6.33
Accessories for "Regumat S/M3-220" DN 40	6.34
"Regumat S-280" DN 50 - constant temperature heating circuit	6.35
"Regumat M3-280" DN 50 - variable temperature heating circuit	6.36
Accessories for "Regumat S/M3-280" DN 50	6.37

6.c "Regumat F/FR" Stations for thermally controlled surface heating systems



Content	6.39
"Regumat F-130" DN 25	6.40
"Regumat F-180" DN 25 with pump ball valve	6.41
"Regumat F-180" DN 25	6.42
"Regumat FR-180" DN 25	6.42
Accessories for "Regumat F-130/F-180/FR-180" DN 25	6.43
"Regumat" Heat exchangers	6.44
"Regumat" Heat exchangers - Examples of the application	6.45
Accessories for "Regumat" heat exchangers	6.44



6.d "Regumat RTA" Stations for solid fuel boilers for return temperature increase

Content	6.47
Summary	6.49
"Regumat RTA-130 VR" DN 25 - supply on the right hand side	6.50
"Regumat RTA-130 VL" DN 25 - supply on the left hand side	6.50
"Regumat RTA-130 TOP" DN 25 - connection from the top	6.50
"Regumat RTA-180" DN 25	6.51
Accessories for "Regumat RTA-130/180" DN 25	6.52
"Regumat RTA-180" DN 32	6.53
Accessories for "Regumat RTA-180" DN 32	6.53
Thermal drainage protection device	6.53

6.e Products for heat pump systems

Content	6.55
Products for heat pump systems	6.56
Accessories	6.57

6.f "Regumat S/M3-180" DN 25 for heat meters



Content	6.59
"Regumat S-180" DN 25 for heat meters	6.60
"Regumat M3-180" DN 25 for heat meters	6.60
Heat meter installation set	6.60
Accessories for "Regumat S/M3-180" DN 25 for heat meters	6.61

6.g Accessories for "Regumat"



Content	6.63
Distributor for "Regumat" DN 20	6.64
Distributor for "Regumat" DN 25	6.64
Modular distributor for "Regumat" DN 25	6.64
Distributor for "Regumat" DN 32 with pump ball valve	6.65
Distributor for "Regumat plus" DN 32 with pump ball valve	6.65
Distributor for "Regumat-220/280" DN 40/50	6.65
Wall consoles	6.65
"HydroFixx"	6.66
Accessories for hydronic headers / distributors	6.68
"Regumat" Tailpipe sets DN 20	6.68
"Regumat" Tailpipe sets DN 25	6.70
"Regumat" Tailpipe sets DN 32	6.71
"Regumat" Tailpipe sets DN 40/50	6.71
System illustration	6.73
Thermal insulation	6.72
"Regtronic RH" Heating circuit controller	6.74
"Regtronic SV" Sensor distributor	6.75
"Regtronic RH" Heating circuit controller	6.76
"Regtronic EM" Extension module	6.77

Accessories	6.77
High-efficiency pumps 130 mm	6.80
High-efficiency pumps 180 mm	6.80

6.h "Regudis W" Dwelling stations



Content	6.81
General information	6.83
"Regudis W-HTU" Dwelling stations, depth 150 - 175 mm	6.85
"Regudis W-HTU Basic" Dwelling stations, depth 150 - 175 mm	6.88
"Regudis W-HTF" Dwelling stations, depth 110 mm	6.89
Covers and cabinets for dwelling stations "Regudis W"	6.93
"Regudis W-HTE" Dwelling stations - electronic control, depth 110 mm	6.100
Extension modules for "Regudis W-HTE"	6.100
Accessories for "Regudis W-HTE"	6.101
Covers and cabinets for dwelling stations "Regudis W-HTE"	6.102
"Regtronic RD-W" System controller	6.105
Accessories for system controller "Regtronic RD-W"	6.106

6.i "Regumaq X/XZ/XH/K" Stations for hot potable water preparation



Content	6.109
"Regumaq X-30" - without circulation connection	6.110
"Regumaq XZ-30" - with circulation connection	6.110
"Regumaq XZ-30" - with circulation connection and high-efficiency circulation pump	6.111
Heat exchangers	6.112
Accessories for "Regumaq X-/XZ-30"	6.113
"Regumaq K" Cascade control set for "Regumaq X/XZ-30"	6.117
"Regumaq X-80"	6.118
Accessories for "Regumaq X-80"	6.118
"Aquanova Magnum" Water filters	6.120
"Regumaq XH"	6.122
Accessories for "Regumaq XH"	6.123

6.j "Regudis WK" Cooling stations



Content	6.125
System illustration	6.126
"Regudis WK" Transmission station for cooling	6.128
Accessories for transmission station "Regudis WK"	6.128

6.k Further associated products



Content	6.129
"Optibal P" Pump ball valves	6.130
"Optibal" Ball valves	6.130
Insulations	6.130
Thermometer conversion sets	6.130
"Optibal PK" Isolating set	6.131

	Page
"Optibal" Ball valves with press connection	6.131
Accessories for the connection of the boiler and the storage cylinder to the pipework	6.132
"MSM-Block" Boiler safety device	6.135
Heating system filling station	6.135
"Expa-Con" Valves with lead sealable cap	6.135
"Optiflex" Fill and drain ball valves	6.136
"Optiflex" Fill and drain ball valves for solar	6.137
Accessories	6.137
Ball valves with hose connection	6.137
Fiill and drain ball valves made of bronze	6.138
Draining and venting valves	6.138
Fill and drain cocks	6.139
Accessories	6.139
Gauge cocks	6.140
Gauge cock, button type	6.140
Accessories	6.140
Gauge isolating valves	6.141
Accessories	6.141
Check valves	6.142
Check valves made of bronze	6.142
Differential pressure relief valves PN 10	6.143



6.a "Regumat 130/180" DN 20/25/32

Content

"Regumat S-130" DN 20 - constant temperature heating circuit	6.06
"Regumat M3-130" DN 20 - variable temperature heating circuit	6.07
Accessories for "Regumat S/M3-130" DN 20	6.08
"Regumat S-130" DN 25 - constant temperature heating circuit	6.09
"Regumat M3-130" DN 25 - variable temperature heating circuit	6.10
Accessories for "Regumat S/M3-130" DN 25	6.11
"Regumat S-180" DN 25 with pump ball valve - constant temperature heating circuit	6.13
"Regumat M3-180" DN 25 with pump ball valve - variable temperature heating circuit	6.14
Accessories for "Regumat S/M3-180" DN 25 with pump ball valve	6.15
"Regumat S-180" DN 25 with reduced dimensions - constant temperature heating circuit	6.17
"Regumat M3-180" DN 25 with reduced dimensions - variable temperature heating circuit	6.18
Accessories for "Regumat S/M3-180" DN 25 with reduced dimensions	6.19
"Regumat M3-180" DN 25 - variable temperature heating circuit	6.21
Accessories for "Regumat S/M3/M4-180" DN 25	6.22
"Regumat S-180" DN 32 with pump ball valve - constant temperature heating circuit	6.24
"Regumat M3-180" DN 32 with pump ball valve - variable temperature heating circuit	6.25
Accessories for "Regumat S/M3-180" DN 32 with pump ball valve	6.26
"Regumat S-180 plus" DN 32 with pump ball valve - constant temperature heating circuit	6.27
"Regumat M3-180 plus" DN 32 with pump ball valve - variable temperature heating circuit	6.28
Accessories for "Regumat S/M3-180 plus" with pump ball valve	6.29

Article	Article-No.	Hint
---------	-------------	------



"Regumat S-130" DN 20 - constant temperature heating circuit with universal thermal insulation of modular construction

- consisting of:
- isolation device with 2 ball valves, 2 thermometers and wall mounting device
 - flanged pipe with check valve
 - distance piece
 - thermal insulation

without pump **1355051**

For the connection of the boiler to the pipework.
Max. operating pressure: 10 bar (PN 10)
Max. operating temperature for high-efficiency pumps: 95 °C
Dimensions product assembly:
Distance between pipe centres: 100 mm
Length: 315 mm

Outer dimensions thermal insulation (W x H x D):
230 mm x 360 mm x 190 mm

with high-efficiency pump (EEI ≤ 0.2)



Grundfos ALPHA 2.1 15-60 **1355057**
Wilo-Stratos PICO 15/1-6 **1355059**

Connection:
To heating circuit:
G 1 male thread, flat sealing
To boiler:
G 1 male thread, flat sealing

Model without pump:
Components loosely connected, individual components leak tested.

Models with high-efficiency pumps:
Components screwed tightly, product assembly leak tested.

Any standard pump (DN 20, length 130 mm, G 1 male thread) can be installed.

Note: On delivery, the supply pipe is on the right hand side. If required, the supply and the return pipe can be changed on site (see installation instructions).

Tailpipe sets are available separately: page 6.68

Heating circuit controller "Regtronic RH" for weather guided control of the flow temperature of the heating system: page 6.74



"Regumat M3-130" DN 20 - variable temperature heating circuit
 with three-way mixing valve with check valve and actuator

with universal thermal insulation of modular construction

consisting of:
 -isolation device with 2 ball valves, 2 thermometers and wall mounting device
 -three-way mixing valve with check valve and actuator
 -thermal insulation

without pump **1355251**

For the connection of the boiler to the pipework.

Max. operating pressure: 10 bar (PN 10)
 Max. operating temperature for high-efficiency pumps: 95 °C

With three-way mixing valve with check valve and actuator for flow temperature control in central heating systems with circulation pump.

Dimensions product assembly:
 Distance between pipe centres: 100 mm
 Length: 315 mm



with high-efficiency pump (EEI ≤ 0.2)

Grundfos ALPHA 2.1 15-60 **1355257**
 Wilo-Stratos PICO 15/1-6 **1355259**

Outer dimensions thermal insulation (W x H x D):
 230 mm x 360 mm x 190 mm

Connection:
 To heating circuit:
 G 1 male thread, flat sealing
 To boiler:
 G 1 male thread, flat sealing

Model without pump:
 Components loosely connected, individual components leak tested.

Models with high-efficiency pumps:
 Components screwed tightly, product assembly leak tested.

Any standard pump (DN 20, length 130 mm, G 1 male thread) can be installed.

Note: On delivery, the supply pipe is on the right hand side. If required, the supply and the return pipe can be changed on site (see installation instructions).

Tailpipe sets are available separately: page 6.68

Heating circuit controller "Regtronic RH" for weather guided control of the flow temperature of the heating system: page 6.74

Article	Article-No.	Hint
---------	-------------	------

Accessories for "Regumat S/M3-130" DN 20



Thermometer

Replacement thermometer for "Regumat/Regusol" DN 20

blue	1351701
red	1351702



Replacement ball valve for "Regumat-130"
without thermometer, including set of seals

DN 20	1351703
-------	----------------



Actuators

The mounting set for actuators, item no. 1350290, is required for upgrading the stations "Regumat" DN 25 with pump ball valve and the "Regumat" DN 25 with reduced dimensions with the actuator.

24 V (0-10 V)	1350951
24 V (three point)	1350952
230 V (three point)	1350953
230 V (three point)	1361098

For the operation of three- and four-way mixing valves. As replacement for "Regumat M3/M4".

Operating time 140 sec., torque 5 Nm
Operating time 140 sec., torque 5 Nm
Operating time 140 sec., torque 5 Nm
Operating time 35 sec., torque 5 Nm



Three-way mixing valve for "Regumat M3"

without actuator, including pipe for the return and set of seals

DN 20	1351704
-------	----------------



Adapter

1350296

For "Lineg" actuator.



Adapter

1350297

For "ESBE" actuator.



"Regumat S-130" DN 25 - constant temperature heating circuit
consisting of:

- isolation device with 2 ball valves and 2 thermometers (without pressure relief device)
- flanged pipe with check valve
- distance piece
- thermal insulation

without pump

1355071



with high-efficiency pump (EEI ≤ 0.2)

- Grundfos ALPHA 2.1 25-60
- Wilo-Yonos PARA RS 25/6 RKA

1355073°
1355074

For the connection of the boiler to the pipework.

Max. operating pressure: 10 bar (PN 10)
Max. operating temperature for high-efficiency pumps: 85 °C

Dimensions product assembly:
Distance between pipe centres: 125 mm
Length: 311 mm

Outer dimensions thermal insulation (W x H x D):
248 mm x 364 mm x 197 mm

Connection:
To heating circuit:
G 1½ male thread, flat sealing
To boiler:
G 1½ male thread, flat sealing

Model without pump:
Components loosely connected, individual components leak tested.

Models with high-efficiency pumps:
Components screwed tightly, product assembly leak tested.

Any standard pump (DN 25, length 130 mm, G 1½ male thread) can be installed.

Note: On delivery, the supply pipe is on the right hand side. If required, the supply and the return pipe can be changed on site (see installation instructions).

Tailpipe sets (page 6.70) and a wall mounting device (page 6.11) are available separately.

For further information see "Technical information":



Article	Article-No.	Hint
---------	-------------	------

"Regumat M3-130" DN 25 - variable temperature heating circuit with three-way mixing valve with bypass with manual presetting and actuator



consisting of:
-isolation device with 2 ball valves and 2 thermometers (without pressure relief device)
-flanged pipe with check valve
-three-way mixing valve with actuator
-thermal insulation

For the connection of the boiler to the pipework.

Max. operating pressure: 10 bar (PN 10)
Max. operating temperature for high-efficiency pumps: 85°C

With three-way mixing valve and actuator for flow temperature control in central heating systems with circulation pump.

without pump

1355271

The three-way mixing valve is additionally equipped with a bypass with manual presetting.

with high-efficiency pump (EEI ≤ 0.2)



Grundfos ALPHA 2.1 25-60
Wilo-Yonos PARA RS 25/6 RKA

1355273°

1355274

Dimensions product assembly:
Distance between pipe centres: 125 mm
Length: 311 mm

Outer dimensions thermal insulation (W x H x D):
248 mm x 364 mm x 197 mm

Connection:
To heating circuit:
G 1½ male thread, flat sealing
To boiler:
G 1½ male thread, flat sealing

Model without pump:
Components loosely connected, individual components leak tested.

Models with high-efficiency pumps:
Components screwed tightly, product assembly leak tested.

Any standard pump (DN 25, length 130 mm, G 1½ male thread) can be installed.

Note: On delivery, the supply pipe is on the right hand side. If required, the supply and the return pipe can be changed on site (see installation instructions).

Tailpipe sets (page 6.70) and a wall mounting device (page 6.11) are available separately.

Heating circuit controller "Regronic RH" for weather guided control of the flow temperature of the heating system: page 6.74

For further information see "Technical information":



Article	Article-No.	Hint
---------	-------------	------

Accessories for "Regumat S/M3-130" DN 25

Thermal insulation
with one-piece front insulation shell:



for "Regumat-130" DN 25	1355090	Not suitable for "Regumat 130" DN 25 with Grundfos ALPHA 2.
-------------------------	----------------	---

Isolation device DN 25 for "Regumat"
with 2 ball valves and 2 thermometers,
2 collar nuts and set of seals



DN 25	1353181	
-------	----------------	--

Replacement thermometer
for "Regumat" DN 25-50 as well as for
"Regucirc M" and "Optibal PK"



	1351690	
--	----------------	--

Insert for pressure relief device (bypass)
for subsequent conversion
for "Regumat S/M3/M4"



DN 25-130 and DN 25-180	1353390	Preset to 200 mbar.
-------------------------	----------------	---------------------

Wall mounting device for "Regumat"
including fixing material



DN 25-130 and DN 25-180	1352096	
-------------------------	----------------	--

"Regumat" Flanged pipe with check valve



DN 25-130	1352296	L = 212 mm. For "Regumat S-130" (replacement).
-----------	----------------	--

Actuators



The mounting set for actuators, item no. 1350290, is required for upgrading the stations "Regumat" DN 25 with pump ball valve and the "Regumat" DN 25 with reduced dimensions with the actuator.

For the operation of three- and four-way mixing valves. As replacement for "Regumat M3/M4".

24 V (0-10 V)	1350951	Operating time 140 sec., torque 5 Nm Operating time 140 sec., torque 5 Nm Operating time 140 sec., torque 5 Nm Operating time 35 sec., torque 5 Nm
24 V (three point)	1350952	
230 V (three point)	1350953	
230 V (three point)	1361098	

Three-way mixing valve for "Regumat M3"



without actuator,
with set of seals

For flow temperature control.
Manual setting, actuator can be mounted subsequently (only valid for DN 25).
Distance between pipe centres: 125 mm
Connection:
G 1½ male thread x G 1½ collar nut

DN 25 <u>with</u> manually adjustable bypass	1350281	
DN 25 <u>without</u> manually adjustable bypass	1350271	

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------



Bronze four-way mixing valve for "Regumat M4" without actuator and without manual operating device, with bypass with manual presetting, with set of seals

Only as replacement for "Regumat" DN 32 with "Lineg" actuator manufactured since 2007.

DN 25 1350954



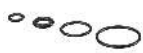
Setting group

for manual setting of the three- and four-way mixing valves 1651500



Set of seals
for three-way mixing valve DN 25 (20) 1350289

For "ESBE" and "Lineg" actuators.



Set of seals
for four-way mixing valve DN 25 1350299

For "ESBE" and "Lineg" actuators.



Adapter 1350296

For "Lineg" actuator.



Adapter 1350297

For "ESBE" actuator.



Bypass plug M3 - DN 25 (25) 1350292

For three-way mixing valves with manually adjustable bypass for closing the bypass channel.



Regulating insert (spindle) for three-way mixing valve DN 25 with set of seals 1350285

For "ESBE" and "Lineg" actuators (without adapter).



Regulating insert (spindle) for four-way mixing valve DN 25 with set of seals 1350295

For "ESBE" actuator (without adapter).



Regulating insert (spindle) for four-way mixing valve DN 25 with set of seals 1350294

For "Lineg" actuator (without adapter).

Article	Article-No.	Hint
---------	-------------	------



"Regumat S-180" DN 25 with pump ball valve - constant temperature heating circuit

with universal thermal insulation of modular construction. Suitable for the installation of the following high-efficiency pumps:

- Wilo-Yonos PARA
- Wilo-Stratos PICO 25/1-4/6
- Wilo-Stratos ECO 25/1-5
- Grundfos ALPHA 2.1 25-40/60
- Laing series Ecocirc
- Biral AX 13-1

- consisting of:
- isolation device with 2 ball valves and 2 thermometers (without pressure relief device)
 - wall mounting device
 - flanged pipe
 - check valve
 - pump ball valve at the pump inlet
 - distance piece
 - thermal insulation

without pump **1357070**

with high-efficiency pump (EEI ≤ 0.2)



Wilo-Yonos PARA RS 25/6 RKA **1357072**
Grundfos ALPHA 2.1 25-60 **1357073**

For the connection of the boiler to the pipework.

Max. operating pressure: 10 bar (PN 10)
Max. operating temperature for high-efficiency pumps: 95 °C

Dimensions product assembly:
Distance between pipe centres: 125 mm
Length: 411 mm

Outer dimensions thermal insulation (W x H x D):
248 mm x 465 mm x 213 mm

Connection:
To heating circuit:
G 1½ male thread, flat sealing
To boiler:
G 1½ male thread, flat sealing

Model without pump:
Components loosely connected, individual components leak tested.

Models with high-efficiency pumps:
Components screwed tightly, product assembly leak tested.

Any standard pump (DN 25, length 180 mm, G 1½ male thread) can be installed.

Note: On delivery, the supply pipe is on the right hand side. If required, the supply and the return pipe can be changed on site (see installation instructions).


Tailpipe sets are available separately: page 6.70

Heating circuit controller "Regtronic RH" for weather guided control of the flow temperature of the heating system: page 6.74

Heating circuit controller extension set including controller "Regtronic RH" and bracket for the direct connection to the station: page 6.74

Heat meter connection set can be installed subsequently.

Connection of a heat meter G ¾, 110 mm or G 1, 130 mm: page 6.16

Article	Article-No.	Hint
 <p>"Regumat M3-180" DN 25 with pump ball valve - variable temperature heating circuit with three-way mixing valve with check valve and actuator</p> <p>with universal thermal insulation of modular construction. Suitable for the installation of the following high-efficiency pumps:</p> <p>Wilo-Yonos PARA Wilo-Stratos PICO 25/1-4/6 Wilo-Stratos ECO 25/1-5 Grundfos ALPHA 2.1 25-40/60 Laing series Ecocirc Biral AX 13-1</p> <p>consisting of: -isolation device with 2 ball valves and 2 thermometers (without pressure relief device) -wall mounting device -flanged pipe -three-way mixing valve with check valve and actuator -pump ball valve at the pump inlet -thermal insulation</p> <p>without pump</p>	<p>1357270</p>	<p>For the connection of the boiler to the pipework.</p> <p>Max. operating pressure: 10 bar (PN 10) Max. operating temperature for high-efficiency pumps: 95 °C</p> <p>With three-way mixing valve and actuator for flow temperature control in central heating systems with circulation pump.</p> <p>Dimensions product assembly: Distance between pipe centres: 125 mm Length: 411 mm</p> <p>Outer dimensions thermal insulation (W x H x D): 248 mm x 465 mm x 213 mm</p> <p>Connection: To heating circuit: G 1½ male thread, flat sealing To boiler: G 1½ male thread, flat sealing</p> <p>Model without pump: Components loosely connected, individual components leak tested.</p>
	<p>with high-efficiency pump (EEI ≤ 0.2)</p> <p>Wilo-Yonos PARA RS 25/6 RKA Grundfos ALPHA 2.1 25-60</p> <p>1357272 1357273</p>	<p>Models with high-efficiency pumps: Components screwed tightly, product assembly leak tested.</p> <p>Any standard pump (DN 25, length 180 mm, G 1½ male thread) can be installed.</p> <p>Note: On delivery, the supply pipe is on the right hand side. If required, the supply and the return pipe can be changed on site (see installation instructions). The actuator can be mounted without tools - "plug & play".</p> <p>Tailpipe sets are available separately: page 6.70</p> <p>Heating circuit controller "Regtronic RH" for weather guided control of the flow temperature of the heating system: page 6.74</p> <p>Heating circuit controller extension set including controller "Regtronic RH" and bracket for the direct connection to the station: page 6.15</p> <p>Heat meter connection set can be installed subsequently. Connection of a heat meter G ¾, 110 mm or G 1, 130 mm: page 6.16</p> <p>NR24/230 actuators (without mounting plate) can be fitted to the "Regumat" stations DN 25 with the help of the mounting set: page 6.16</p>

Article	Article-No.	Hint
---------	-------------	------

**Accessories for "Regumat S/M3-180"
DN 25 with pump ball valve**

Thermal insulation

including expanded metal and Oventrop plate



for "Regumat 180" DN 25 **1357096**

Ball valve for isolation device "Regumat S/ M3"

including handle, collar nuts and seals, without thermometer



1357090

Pump ball valve for "Regumat S/ M3"

including collar nuts and seals



1357089

Thermometer



for "Regumat" DN 25 / DN 32

blue **1357098**

red **1357099**

Wall mounting device for "Regumat"

including fixing set



1357097

Flanged pipe for "Regumat S/ M3"

including collar nuts and seals



1357091

Three-way mixing valve without actuator

including collar nuts and seals



1357092

Actuator "Lineg"

including mounting plate and adapter



1357093

Heating circuit controller extension set for "Regumat 180" DN 25 with pump ball valve











consisting of: **1357290**

- a) Heating circuit controller "Regtronic RH"
- b) Controller location made of expanded polypropylene
- c) Controller bracket made of metal including fixing material



Controller bracket for the variable direct connection of the heating circuit controller "Regtronic RH" on the left or right hand side of the station.

Extension set only suitable for "Regumat" DN 25:
1357070/72/73, 1357270/72/73,
1357020/27/29 and 1357220/27/29

Article	Packing unit	Article-No.	Hint
Actuators			
		The mounting set for actuators, item no. 1350290, is required for upgrading the stations "Regumat" DN 25 with pump ball valve and the "Regumat" DN 25 with reduced dimensions with the actuator.	For the operation of three- and four-way mixing valves. As replacement for "Regumat M3/M4".
24 V (0-10 V)		1350951	Operating time 140 sec., torque 5 Nm
24 V (three point)		1350952	Operating time 140 sec., torque 5 Nm
230 V (three point)		1350953	Operating time 140 sec., torque 5 Nm
230 V (three point)		1361098	Operating time 35 sec., torque 5 Nm
Mounting set for actuators NR 24/230 without mounting plate			
		for connection to "Regumat M3-180" DN 25	
		1350290	
Heat meter installation set			
		with integrated temperature sensor connection at the pump ball valve and adapters. For heat meters G 1, 130 mm or G 3/4, 110 mm	Only for "Regumat S/M3-180" DN 25 with pump ball valve, item no. 1357070/72/73, 1357270/72/73
		1352250	
		Set of seals	
		for three-way mixing valve DN 25 (20)	1357094
		Regulating insert (spindle) for four-way mixing valve DN 25 including sleeves and O-rings	1357095
		Distance piece for "Regumat S" including collar nuts and seals	1357086
		Check valve for "Regumat S" including collar nuts and seals	1357087
		Adapter (25)	1357088 For "Lineg" actuator.
		Adapter for heat meter installation set with temperature sensor Ø 5.2	(e.g. Hydrometer, Ista, Techem, Minol, Rossweiner, Grundis, NRZ)
		1352258	
		Adapter for heat meter installation set with temperature sensor Ø 6	(e.g. Allmess)
		1352259	

Article	Article-No.	Hint
---------	-------------	------



"Regumat S-180" DN 25 with reduced dimensions - constant temperature heating circuit

with universal thermal insulation of modular construction. Suitable for the installation of the following high-efficiency pumps:

- Wilo-Yonos PARA
- Wilo-Stratos PICO 25/1-4/6
- Wilo-Stratos ECO 25/1-5
- Grundfos ALPHA 2.1 25-40/60
- Laing series Ecocirc
- Biral AX 13-1

- consisting of:
- isolation device with 2 ball valves and 2 thermometers (without pressure relief device)
 - wall mounting device
 - flanged pipe with check valve
 - pump ball valve at the pump inlet
 - thermal insulation

without pump **1357020**

with high-efficiency pump (EEI ≤ 0.2)



Grundfos ALPHA 2.1 25-60 **1357027**
 Wilo-Stratos PICO 25/1-6 **1357029**

For the connection of the boiler to the pipework.

Max. operating pressure: 10 bar (PN 10)
 Max. operating temperature for high-efficiency pumps: 95 °C

Dimensions product assembly:
 Distance between pipe centres: 125 mm
 Length: 339 mm

Outer dimensions thermal insulation (W x H x D):
 248 mm x 393 mm x 213 mm

Connection:
 To heating circuit:
 G 1½ male thread, flat sealing
 To boiler:
 G 1½ male thread, flat sealing

Model without pump:
 Components loosely connected, individual components leak tested.

Models with high-efficiency pumps:
 Components screwed tightly, product assembly leak tested.

Any standard pump (DN 25, length 180 mm, G 1½ male thread) can be installed.

Note: On delivery, the supply pipe is on the right hand side. If required, the supply and the return pipe can be changed on site (see installation instructions).

Tailpipe sets are available separately: page 6.70

Heating circuit controller "Regtronic RH" for weather guided control of the flow temperature of the heating system: page 6.74

Heating circuit controller extension set including controller "Regtronic RH" and bracket for the direct connection to the station: page 6.19

Article	Article-No.	Hint
<p>"Regumat M3-180" DN 25 with reduced dimensions - variable temperature heating circuit with three-way mixing valve with check valve and actuator</p> <p>with universal thermal insulation of modular construction. Suitable for the installation of the following high-efficiency pumps:</p> <p>Wilo-Yonos PARA Wilo-Stratos PICO 25/1-4/6 Wilo-Stratos ECO 25/1-5 Grundfos ALPHA 2.1 25-40/60 Laing series Ecocirc Biral AX 13-1</p> <p>consisting of: -isolation device with 2 ball valves and 2 thermometers (without pressure relief device) -wall mounting device -flanged pipe -three-way mixing valve with check valve and actuator -thermal insulation</p> <p>without pump</p>	<p>1357220</p>	<p>For the connection of the boiler to the pipework.</p> <p>Max. operating pressure: 10 bar (PN 10) Max. operating temperature for high-efficiency pumps: 95 °C</p> <p>With three-way mixing valve with check valve and actuator for flow temperature control in central heating systems with circulation pump.</p> <p>Dimensions product assembly: Distance between pipe centres: 125 mm Length: 339 mm</p> <p>Outer dimensions thermal insulation (W x H x D): 248 mm x 393 mm x 213 mm</p> <p>Connection: To heating circuit: G 1½ male thread, flat sealing To boiler: G 1½ male thread, flat sealing</p> <p>Model without pump: Components loosely connected, individual components leak tested.</p> <p>Models with high-efficiency pumps: Components screwed tightly, product assembly leak tested.</p> <p>Any standard pump (DN 25, length 180 mm, G 1½ male thread) can be installed.</p> <p>Note: On delivery, the supply pipe is on the right hand side. If required, the supply and the return pipe can be changed on site (see installation instructions). The actuator can be mounted without tools - "plug & play".</p> <p>Tailpipe sets are available separately: page 6.70</p> <p>Heating circuit controller "Regtronic RH" for weather guided control of the flow temperature of the heating system: page 6.74</p> <p>Heating circuit controller extension set including controller "Regtronic RH" and bracket for the direct connection to the station: page 6.19</p> <p>NR24/230 actuators (without mounting plate) can be fitted to the "Regumat" stations DN 25 with the help of the mounting set: page 6.16</p>
<p>with high-efficiency pump (EEI ≤ 0.2)</p> <p>Grundfos ALPHA 2.1 25-60 Wilo-Stratos PICO 25/1-6</p>	<p>1357227 1357229</p>	



Article	Article-No.	Hint
---------	-------------	------

Accessories for "Regumat S/M3-180" DN 25 with reduced dimensions



Ball valve for isolation device "Regumat S/ M3"
including handle, collar nuts and seals,
without thermometer

1357090



Thermometer

for "Regumat" DN 25 / DN 32

blue
red

1357098
1357099



Wall mounting device for "Regumat"

including fixing set

1357097



Three-way mixing valve without actuator
including collar nuts and seals

1357092



Actuator "Lineg"
including mounting plate and adapter

1357093



Heating circuit controller extension set for "Regumat 180" DN 25 with pump ball valve

consisting of: **1357290**
a) Heating circuit controller "Regtronic RH"
b) Controller location made of expanded polypropylene
c) Controller bracket made of metal including fixing material

Controller bracket for the variable direct connection of the heating circuit controller "Regtronic RH" on the left or right hand side of the station.
Extension set only suitable for "Regumat" DN 25:
1357070/72/73, 1357270/72/73, 1357020/27/29 and 1357220/27/29



Actuators

The mounting set for actuators, item no. 1350290, is required for upgrading the stations "Regumat" DN 25 with pump ball valve and the "Regumat" DN 25 with reduced dimensions with the actuator.

For the operation of three- and four-way mixing valves. As replacement for "Regumat M3/M4".

24 V (0-10 V) **1350951**
24 V (three point) **1350952**
230 V (three point) **1350953**
230 V (three point) **1361098**




Operating time 140 sec., torque 5 Nm
Operating time 140 sec., torque 5 Nm
Operating time 140 sec., torque 5 Nm
Operating time 35 sec., torque 5 Nm



Mounting set for actuators NR 24/230 without mounting plate

for connection to "Regumat M3-180" DN 25

1350290

Article	Packing unit	Article-No.	Hint
	Set of seals	(20) 1357094	
	Regulating insert (spindle) for four-way mixing valve DN 25 including sleeves and O-rings	1357095	
	Adapter	(25) 1357088	For "Lineg" actuator.

Article	Article-No.	Hint
---------	-------------	------



"Regumat M3-180" DN 25 - variable temperature heating circuit with three-way mixing valve with bypass with manual presetting

with universal thermal insulation of modular construction. Suitable for the installation of the following high-efficiency pumps:

- Grundfos ALPHA 2.1 25-40/60
 - Wilo-Stratos ECO 25/1-5
 - Wilo-Stratos PICO 25/1-4/6
 - Wilo-Yonos PARA
 - Laing series Ecocirc
 - Biral AX 13-1
- as well as standard circulation pumps (asynchronous pumps)

consisting of:
 -isolation device with 2 ball valves and 2 thermometers (without pressure relief device)
 -flanged pipe with check valve
 -three-way mixing valve
 -thermal insulation

without pump and actuator **1356223**

Oventrop actuators can subsequently be installed.

For the connection of the boiler to the pipework.

Max. operating pressure: 10 bar (PN 10)
 Max. operating temperature for high-efficiency pumps: 95 °C

With three-way mixing valve for flow temperature control in central heating systems with circulation pump. The three-way mixing valve is additionally equipped with a bypass with manual presetting.

Dimensions product assembly:
 Distance between pipe centres: 125 mm
 Length: 361 mm

Outer dimensions thermal insulation (W x H x D):
 248 mm x 414 mm x 200 mm

Connection:
 To heating circuit:
 G 1½ male thread, flat sealing
 To boiler:
 G 1½ male thread, flat sealing

Components loosely connected, individual components leak tested.

Any standard pump (DN 25, length 180 mm, G 1½ male thread) can be installed.

When installing a high-efficiency pump "Grundfos ALPHA 2.1" or "Wilo PICO" subsequently, there may be a collision of pump plug and actuator.

Pump cable with right angle plug 1358150: page 6.80

Note: On delivery, the supply pipe is on the right hand side. If required, the supply and the return pipe can be changed on site (see installation instructions).

Tailpipe sets (page 6.70) and a wall mounting device (page 6.22) are available separately.

For further information see "Technical information":



Actuator with fixed temperature value control including temperature sensor PT1000 and mains connection 230 V AC

Temperature setting ranges: **1351055***
 20 - 80 °C
 0 - 99 °C
 60 - 85 °C
 25 - 45 °C

For upgrading the station "Regumat M3-180" DN 25, item no. 1356223. Operating time 140 sec., torque 5 Nm

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

Accessories for "Regumat S/M3/M4-180" DN 25

Universal thermal insulation:



for "Regumat-180" DN 25 without pump ball valve **1356098**

Replacement thermometer **1351691**
for "Regumat-180" DN 25 with universal thermal insulation



Insert for pressure relief device (bypass) **1353390**
for subsequent conversion for "Regumat S/M3/M4" Preset to 200 mbar.



DN 25-130 and DN 25-180 **1353390**

Wall mounting device for "Regumat" **1352096**
including fixing material
DN 25-130 and DN 25-180



"Regumat" Flanged pipe with check valve **1352273**
DN 25-180 L = 180 mm.



Actuators **1350951**
The mounting set for actuators, item no. 1350290, is required for upgrading the stations "Regumat" DN 25 with pump ball valve and the "Regumat" DN 25 with reduced dimensions with the actuator. For the operation of three- and four-way mixing valves. As replacement for "Regumat M3/M4".









24 V (0-10 V) **1350951** Operating time 140 sec., torque 5 Nm
24 V (three point) **1350952** Operating time 140 sec., torque 5 Nm
230 V (three point) **1350953** Operating time 140 sec., torque 5 Nm
230 V (three point) **1361098** Operating time 35 sec., torque 5 Nm



Three-way mixing valve for "Regumat M3" **1350281**
without actuator, with set of seals For flow temperature control. Manual setting, actuator can be mounted subsequently (only valid for DN 25). Distance between pipe centres: 125 mm Connection: G 1½ male thread x G 1½ collar nut
DN 25 with manually adjustable bypass **1350281**
DN 25 without manually adjustable bypass **1350271**



Setting group **1651500**
for manual setting of the three- and four-way mixing valves



	Article	Packing unit	Article-No.	Hint
	Set of seals for three-way mixing valve DN 25	(20)	1350289	For "ESBE" and "Lineg" actuators.
	Set of seals for four-way mixing valve DN 25		1350299	For "ESBE" and "Lineg" actuators.
	Adapter		1350296	For "Lineg" actuator.
	Adapter		1350297	For "ESBE" actuator.
	Bypass plug M3 - DN 25	(25)	1350292	For three-way mixing valves with manually adjustable bypass for closing the bypass channel.
	Regulating insert (spindle) for three-way mixing valve DN 25 with set of seals		1350285	For "ESBE" and "Lineg" actuators (without adapter).

Article	Article-No.	Hint
 <p>"Regumat S-180" DN 32 with pump ball valve - constant temperature heating circuit with universal thermal insulation of modular construction</p> <p>consisting of: -isolation device with 2 ball valves and 2 thermometers (without pressure relief device) -wall mounting device -flanged pipe with check valve -distance piece -pump ball valve at the pump inlet -thermal insulation</p>		<p>For the connection of the boiler to the pipework.</p> <p>Max. operating pressure: 10 bar (PN 10) Max. operating temperature for high-efficiency pumps: 95 °C</p> <p>Dimensions product assembly: Distance between pipe centres: 125 mm Length: 445 mm</p> <p>Outer dimensions thermal insulation (W x H x D): 350 mm x 530 mm x 221 mm</p>
<p>without pump</p>	<p>1355075</p>	<p>Connection: To heating circuit: G 2 male thread, flat sealing To boiler: G 2 male thread, flat sealing</p> <p>Model without pump: Components loosely connected, individual components leak tested.</p>
 <p>with high-efficiency pump (EEI ≤ 0.2)</p>	<p>Grundfos ALPHA 2.1 32-60 1355076 Wilo-Stratos PICO 30/1-6 1355079</p>	<p>Models with high-efficiency pumps: Components screwed tightly, product assembly leak tested.</p> <p>Any standard pump (DN 32, length 180 mm, G 2 male thread) can be installed.</p>
		<p>Note: On delivery, the supply pipe is on the right hand side. If required, the supply and the return pipe can be changed on site (see installation instructions).</p> <p>Tailpipe sets are available separately: page 6.71</p> <p>Heating circuit controller "Regtronic RH" for weather guided control of the flow temperature of the heating system: page 6.74</p>

Article	Article-No.	Hint
<p>"Regumat M3-180" DN 32 with pump ball valve - variable temperature heating circuit with three-way mixing valve and actuator</p> <p>with universal thermal insulation of modular construction</p> <p>consisting of:</p> <ul style="list-style-type: none"> -isolation device with 2 ball valves and 2 thermometers (without pressure relief device) -wall mounting device -flanged pipe with check valve -three-way mixing valve with actuator -pump ball valve at the pump inlet -thermal insulation 		<p>For the connection of the boiler to the pipework.</p> <p>Max. operating pressure: 10 bar (PN 10) Max. operating temperature for high-efficiency pumps: 95 °C</p> <p>With three-way mixing valve and actuator for flow temperature control in central heating systems with circulation pump.</p> <p>Dimensions product assembly: Distance between pipe centres: 125 mm Length: 445 mm</p>
<p>without pump</p>	<p>1355275</p>	<p>Outer dimensions thermal insulation (W x H x D): 350 mm x 530 mm x 221 mm</p>
<p>with high-efficiency pump (EEI ≤ 0.2)</p> <p>Grundfos ALPHA 2.1 32-60 Wilo-Stratos PICO 30/1-6</p>	<p>1355276 1355279</p>	<p>Model without pump: Components loosely connected, individual components leak tested.</p> <p>Models with high-efficiency pumps: Components screwed tightly, product assembly leak tested.</p> <p>Any standard pump (DN 32, length 180 mm, G 2 male thread) can be installed.</p> <p>Note: On delivery, the supply pipe is on the right hand side. If required, the supply and the return pipe can be changed on site (see installation instructions).</p> <p>Tailpipe sets are available separately: page 6.71</p> <p>Heating circuit controller "Regtronic RH" for weather guided control of the flow temperature of the heating system: page 6.74</p>



Article	Article-No.	Hint
---------	-------------	------

Accessories for "Regumat S/M3-180" DN 32 with pump ball valve



Thermometer

for "Regumat" DN 25 / DN 32

blue	1357098
red	1357099



Three-way mixing valve for "Regumat M3"
without actuator, including pipe for the return, collar nut, set of seals and locking device

DN 32	1355299
-------	----------------

Actuators



The mounting set for actuators, item no. 1350290, is required for upgrading the stations "Regumat" DN 25 with pump ball valve and the "Regumat" DN 25 with reduced dimensions with the actuator.

24 V (0-10 V)	1350951
24 V (three point)	1350952
230 V (three point)	1350953
230 V (three point)	1361098

For the operation of three- and four-way mixing valves. As replacement for "Regumat M3/M4".

Operating time 140 sec., torque 5 Nm
Operating time 140 sec., torque 5 Nm
Operating time 140 sec., torque 5 Nm
Operating time 35 sec., torque 5 Nm



Adapter	1350296
---------	----------------

For "Lineg" actuator.



High-efficiency pumps 180 mm with connection thread G 2 DN 32

KSB Calio 30-120 180	1358165
----------------------	----------------

For subsequent installation into the "Regumat S/M3-180" DN 32 with pump ball valve.

Other circulation pumps on request.



Load relay

2-phase cabled with the casing	1152089
--------------------------------	----------------

For the connection of high-performance pumps (> 1A).



"Regumat S-180 plus" DN 32 with pump ball valve - constant temperature heating circuit
 with universal thermal insulation of modular construction

- consisting of:
- isolation device with 2 ball valves and 2 thermometers (without pressure relief device)
 - wall mounting device
 - flanged pipe
 - check valve
 - distance piece
 - pump ball valve at the pump inlet
 - thermal insulation

without pump 1355070*



with high-efficiency pump (EEI ≤ 0,2)

Grundfos MAGNA3 32-100 1355080*
 Wilo Stratos 30 1-10 1355081*

For the connection of the boiler to the pipework.

Max. operating pressure: 10 bar (PN 10)
 Max. operating temperature for high-efficiency pumps: 95 °C

Dimensions product assembly:
 Distance between pipe centres: 125 mm
 Length: 540,5 mm

Outer dimensions thermal insulation (W x H x D):
 428 mm x 626 mm x 221 mm

Connection:
 To heating circuit:
 G 2 male thread, flat sealing
 To boiler:
 G 2 male thread, flat sealing

Model without pump:
 Components loosely connected, individual components leak tested.

Models with high-efficiency pump:
 Components screwed tightly, product assembly leak tested.

Any standard pump (DN 32, length 180 mm, G 2 male thread) can be installed.

Note: On delivery, the supply pipe is on the right hand side. If required, the supply and the return pipe can be changed on site (see installation instructions).

Tailpipe sets are available separately: page 6.71

Heating circuit controller "Regtronic RH" for weather guided control of the flow temperature of the heating system: page 6.74

Article	Article-No.	Hint
---------	-------------	------



"Regumat M3-180 plus" DN 32 with pump ball valve - variable temperature heating circuit

with three-way mixing valve with check valve and actuator

with universal thermal insulation of modular construction

consisting of:

- isolation device with 2 ball valves and 2 thermometers (without pressure relief device)
- wall mounting device
- flanged pipe
- three-way mixing valve with check valve and actuator
- pump ball valve at the pump inlet
- thermal insulation

without pump

1355270*

For the connection of the boiler to the pipework.

Max. operating pressure: 10 bar (PN 10)
 Max. operating temperature for high-efficiency pumps: 95 °C

With three-way mixing valve and actuator for flow temperature control in central heating systems with circulation pump.

Dimensions product assembly:
 Distance between pipe centres: 125 mm
 Length: 540.5 mm

Outer dimensions thermal insulation (W x H x D):
 428 mm x 626 mm x 221 mm



with high-efficiency pump (EEI ≤ 0,2)

Grundfos MAGNA3 32-100
 Wilo Stratos 30 1-10

1355280*

1355281*

Connection:
 To heating circuit:
 G 2 male thread, flat sealing
 To boiler:
 G 2 male thread, flat sealing

Model without pump:
 Components loosely connected, individual components leak tested.





Models with high-efficiency pumps:
 Components screwed tightly, product assembly leak tested.

Any standard pump (DN 32, length 180 mm, G 2 male thread) can be installed.

Note: On delivery, the supply pipe is on the right hand side. If required, the supply and the return pipe can be changed on site (see installation instructions).

Tailpipe sets are available separately: page 6.71

Heating circuit controller "Regtronic RH" for weather guided control of the flow temperature of the heating system: page 6.74

Article	Article-No.	Hint
Accessories for "Regumat S/M3-180 plus" with pump ball valve		
Thermometer		
		
for "Regumat" DN 25 / DN 32		
blue	1357098	
red	1357099	
Actuators		
		
The mounting set for actuators, item no. 1350290, is required for upgrading the stations "Regumat" DN 25 with pump ball valve and the "Regumat" DN 25 with reduced dimensions with the actuator.		
230 V for Regumat DN 40/50	1350956	Operating time 140 sec., torque 15 Nm
24 V (0-10 V) for Regumat DN 40/50	1350958	Operating time 140 sec., torque 10 Nm
High-efficiency pumps 180 mm with connection thread G 2 DN 32		
		
KSB Calio 30-120 180	1358165	For subsequent installation into the "Regumat S/M3-180" DN 32 with pump ball valve.
Other circulation pumps on request.		
Load relay		
		
2-phase cabled with the casing	1152089	For the connection of high-performance pumps (> 1A).



6.b "Regumat 220/280" DN 40/50

Content

"Regumat S-220" DN 40 - constant temperature heating circuit	6.32
"Regumat M3-220" DN 40 - variable temperature heating circuit	6.33
Accessories for "Regumat S/M3-220" DN 40	6.34
"Regumat S-280" DN 50 - constant temperature heating circuit	6.35
"Regumat M3-280" DN 50 - variable temperature heating circuit	6.36
Accessories for "Regumat S/M3-280" DN 50	6.37

Article	Article-No.	Hint
---------	-------------	------

"Regumat S-220" DN 40 - constant temperature heating circuit with universal thermal insulation of modular construction



- consisting of:
- isolating ball valve for the supply pipe with thermometer and draining/flushing valve
 - isolating ball valve for the return pipe with integrated check valve, thermometer and draining/flushing valve
 - bracket
 - pump ball valve with draining/flushing valve
 - distance piece
 - return pipe
 - thermal insulation

without pump 1358240

For the connection of the boiler to the pipework.

Max. operating pressure: 10 bar (PN 10)
Max. operating temperature for high-efficiency pumps: 95 °C

Dimensions product assembly:
Distance between pipe centres: 125 mm
Length: 797 mm

Outr dimensions thermal insulation (W x H x D):
428 mm x 850 mm x 340 mm
(depending on installed pump)

Connection:
To heating circuit:
G 2 female thread
To boiler:
G 2 male thread, flat sealing
Pump: flanged connection DN 40

with high-efficiency pump (EEI ≤ 0.2)



Wilo-Stratos 40/1-8 1358251
Grundfos MAGNA3 40-100F 1358252

Model without pump:
Components loosely connected, individual components leak tested.

Models with high-efficiency pumps:
Components screwed tightly, product assembly leak tested.

Any standard pump (DN 40, length 220 mm, flanged connection PN 10) can be installed.

Note: On delivery, the supply pipe is on the left hand side. If required, the supply and the return pipe can be changed on site (see installation instructions).

Tailpipe sets (page 6.71) and a wall mounting device (page 6.34) are available separately.

For further information see "Technical information":





"Regumat M3-220" DN 40 - variable temperature heating circuit with three-way mixing valve and actuator

with universal thermal insulation of modular construction

consisting of:

- isolating ball valve for the supply pipe with thermometer and draining/flushing valve
- isolating ball valve for the return pipe with integrated check valve, thermometer and draining/flushing valve
- bracket
- pump ball valve with draining/flushing valve
- three-way mixing valve with actuator (suitable for the standard boiler regulations)
- return pipe
- thermal insulation

without pump

1358340

For the connection of the boiler to the pipework.

Max. operating pressure: 10 bar (PN 10)
 Max. operating temperature for high-efficiency pumps: 95 °C

With three-way mixing valve and actuator for flow temperature control in central heating systems with circulation pump.

Dimensions product assembly:
 Distance between pipe centres: 125 mm
 Length: 797 mm

Outer dimensions thermal insulation (W x H x D):
 428 mm x 850 mm x 340 mm (depending on installed pump)

Connection:
 To heating circuit:
 G 2 female thread
 To boiler:
 G 2 male thread, flat sealing
 Pump: flanged connection DN 40

Model without pump:
 Components loosely connected, individual components leak tested.

Models with high-efficiency pumps:
 Components screwed tightly, product assembly leak tested.

Any standard pump (DN 40, length 220 mm, flanged connection PN 10) can be installed.

Note: On delivery, the supply pipe is on the left hand side. If required, the supply and the return pipe can be changed on site (see installation instructions).

Tailpipe sets (page 6.71) and a wall mounting device (page 6.34) are available separately.

For further information see "Technical information":







with high-efficiency pump (EEI ≤ 0.2)

Wilo-Stratos 40/1-8

1358351

Grundfos MAGNA3 40-100F

1358352

Article	Article-No.	Hint
Accessories for "Regumat S/M3-220" DN 40		
	Replacement thermometer for "Regumat" DN 25-50 as well as for "Regucirc M" and "Optibal PK"	1351690
	Wall mounting device for "Regumat" including fixing material DN 40/50	1352098
	Actuators The mounting set for actuators, item no. 1350290, is required for upgrading the stations "Regumat" DN 25 with pump ball valve and the "Regumat" DN 25 with reduced dimensions with the actuator.	For the operation of three- and four-way mixing valves. As replacement for "Regumat M3/M4".
	230 V for Regumat DN 40/50 24 V (0-10 V) for Regumat DN 40/50	1350956 1350958 Operating time 140 sec., torque 15 Nm Operating time 140 sec., torque 10 Nm
	Load relay 2-phase cabled with the casing	1152089 For the connection of high-performance pumps (> 1A).

Article	Article-No.	Hint
---------	-------------	------

"Regumat S-280" DN 50 - constant temperature heating circuit
with universal thermal insulation of modular construction



- consisting of:
- isolating ball valve for the supply pipe with thermometer and draining/flushing valve
 - isolating ball valve for the return pipe with integrated check valve, thermometer and draining/flushing valve
 - bracket
 - pump ball valve with draining/flushing valve
 - distance piece
 - return pipe
 - thermal insulation

without pump 1358540

For the connection of the boiler to the pipework.

Max. operating pressure: 10 bar (PN 10)
Max. operating temperature for high-efficiency pumps: 95 °C

Dimensions product assembly:
Distance between pipe centres: 125 mm
Length: 797 mm

Outer dimensions thermal insulation (W x H x D):
428 mm x 850 mm x 340 mm
(depending on installed pump)

Connection:
To heating circuit:
G 2 female thread
To boiler:
G 2 male thread, flat sealing
Pump: flanged connection DN 50

with high-efficiency pump (EEI ≤ 0.2)



Wilo-Stratos 50/1-12 1358551
Grundfos MAGNA3 50-120F 1358552

Model without pump:
Components loosely connected,
individual components leak tested.

Models with high-efficiency pumps:
Components screwed tightly,
product assembly leak tested.

Any standard pump (DN 50, length 280 mm, flanged connection PN 10) can be installed.

Note: On delivery, the supply pipe is on the left hand side. If required, the supply and the return pipe can be changed on site (see installation instructions).

Tailpipe sets (page 6.71) and a wall mounting device (page 6.37) are available separately.

For further information see "Technical information":



Article	Article-No.	Hint
---------	-------------	------



"Regumat M3-280" DN 50 - variable temperature heating circuit with three-way mixing valve and actuator

with universal thermal insulation of modular construction

consisting of:

- isolating ball valve for the supply pipe with thermometer and draining/flushing valve
- isolating ball valve for the return pipe with integrated check valve, thermometer and draining/flushing valve
- bracket
- pump ball valve with draining/flushing valve
- three-way mixing valve with actuator (suitable for the standard boiler regulations)
- return pipe
- thermal insulation

without pump

1358640

For the connection of the boiler to the pipework.

Max. operating pressure: 10 bar (PN 10)
 Max. operating temperature for high-efficiency pumps: 95 °C

With three-way mixing valve and actuator for flow temperature control in central heating systems with circulation pump.

Dimensions product assembly:
 Distance between pipe centres: 125 mm
 Length: 797 mm

Outer dimensions thermal insulation (W x H x D):
 428 mm x 850 mm x 340 mm
 (depending on installed pump)

Connection:
 To heating circuit:
 G 2 female thread
 To boiler:
 G 2 male thread, flat sealing
 Pump: flanged connection DN 50

Model without pump:
 Components loosely connected, individual components leak tested.

Models with high-efficiency pumps:
 Components screwed tightly, product assembly leak tested.

Any standard pump (DN 50, length 280 mm, flanged connection PN 10) can be installed.

Note: On delivery, the supply pipe is on the left hand side. If required, the supply and the return pipe can be changed on site (see installation instructions).

Tailpipe sets (page 6.71) and a wall mounting device (page 6.37) are available separately.

For further information see "Technical information":



with high-efficiency pump (EEI ≤ 0.2)

Wilo-Stratos 50/1-12
 Grundfos MAGNA3 50-120F

1358651
1358652

Model without pump:
 Components loosely connected, individual components leak tested.





Models with high-efficiency pumps:
 Components screwed tightly, product assembly leak tested.

Any standard pump (DN 50, length 280 mm, flanged connection PN 10) can be installed.

Note: On delivery, the supply pipe is on the left hand side. If required, the supply and the return pipe can be changed on site (see installation instructions).

Tailpipe sets (page 6.71) and a wall mounting device (page 6.37) are available separately.

For further information see "Technical information":

Article	Article-No.	Hint
Accessories for "Regumat S/M3-280" DN 50		
	Replacement thermometer for "Regumat" DN 25-50 as well as for "Regucirc M" and "Optibal PK"	1351690
	Wall mounting device for "Regumat" including fixing material DN 40/50	1352098
	Actuators The mounting set for actuators, item no. 1350290, is required for upgrading the stations "Regumat" DN 25 with pump ball valve and the "Regumat" DN 25 with reduced dimensions with the actuator.	For the operation of three- and four-way mixing valves. As replacement for "Regumat M3/M4".
	230 V for Regumat DN 40/50 24 V (0-10 V) for Regumat DN 40/50	1350956 1350958 Operating time 140 sec., torque 15 Nm Operating time 140 sec., torque 10 Nm
	Load relay 2-phase cabled with the casing	1152089 For the connection of high-performance pumps (> 1A).



6.c "Regumat F/FR" Stations for thermally controlled surface heating systems

Content

"Regumat F-130" DN 25	6.40
"Regumat F-180" DN 25 with pump ball valve	6.41
"Regumat F-180" DN 25	6.42
"Regumat FR-180" DN 25	6.42
Accessories for "Regumat F-130/F-180/FR-180" DN 25	6.43
"Regumat" Heat exchangers	6.44
"Regumat" Heat exchangers - Examples of the application	6.45
Accessories for "Regumat" heat exchangers	6.44

"Regumat F-130" and "Regumat F-180" for thermally controlled surface heating systems

"Regumat FR-180" with high-efficiency pump made of bronze or stainless steel for thermally controlled open vented surface heating systems

In general, the unit is used in combination with the heat exchanger "Regumat".

All models with or without high-efficiency pump, isolation device with ball valves, thermometers and connection for immersion sensor, temperature controller with immersion sensor, flanged pipe with check valve, three-way mixing valve, electronic temperature controller and thermal insulation. The model "Regumat F-180" is additionally equipped with a pump ball valve at the pump inlet.

"Regumat F" DN 25			
	Model with cast iron pump		Model with stainless steel/bronze pump
	"Regumat F-130"	"Regumat F-180"	"Regumat FR-180"
Catalogue page	6.41		6.42
With pump ball valve at the pump inlet		X	
Fixed value control unit for sealed systems	X		
Fixed value control unit for open vented systems			X
Outer dimensions thermal insulation	H = 364 mm W = 248 mm D = 197 mm	H = 512 mm W = 248 mm D = 200 mm	H = 414 mm W = 248 mm D = 200 mm

Article	Article-No.	Hint
---------	-------------	------



"Regumat F-130" DN 25
 Fixed value control unit to maintain the flow temperature of underfloor and wall heating systems

- consisting of:
- isolation device with 2 ball valves and 2 thermometers (without pressure relief device) and connection for immersion sensor
 - temperature controller with immersion sensor
 - flanged pipe with check valve
 - three-way mixing valve
 - electronic pipe contact safety switch
 - high-efficiency pump (cast iron)
 - thermal insulation

without pump **1354171**



with high-efficiency pump (EEI ≤ 0.2)

Grundfos ALPHA 2.1 25-60 **1354165°**
 Wilo-Yonos PARA RS 25/6 RKA **1354166***

Fixed value control unit "Regumat F-130" for flow temperature control and limitation in combined radiator/surface heating systems. The flow temperature is controlled with the help of a three-way mixing valve in combination with a temperature controller with immersion sensor.
 Control range: 20 - 50 °C

Max. operating pressure: 10 bar (PN 10)
 Max. operating temperature for high-efficiency pumps: 85 °C

Distance between pipe centres: 125 mm

Connection:
 To heating circuit:
 G 1½ male thread, flat sealing
 To boiler:
 G 1½ male thread, flat sealing

Tailpipe sets (page 6.70) and a wall mounting device (page 6.43) are available separately.



"Regumat F-180" DN 25 with pump ball valve
 Fixed value control unit to maintain the flow temperature of underfloor and wall heating systems with universal thermal insulation of modular construction

- consisting of:
- isolation device with 2 ball valves and 2 thermometers (without pressure relief device) and connection for immersion sensor
 - temperature controller with immersion sensor
 - flanged pipe with check valve
 - three-way mixing valve
 - electric pipe contact safety switch
 - high-efficiency pump (cast iron)
 - pump ball valve at the pump inlet
 - thermal insulation

without pump **1354270**



with high-efficiency pump (EEI ≤ 0.2)

Grundfos ALPHA 2.1 25-60 **1354274**
 Wilo-Stratos PICO 25/1-6 **1354276**

As "Regumat F-130" but with pump length 180 mm and additional pump ball valve at the pump inlet.

Max. operating temperature for high-efficiency pumps: 95 °C

For further information see "Technical information":



Further models for fixed value control: "Regumat M3-180" DN 25 and actuator with temperature control: page 6.21



without pump and thermostatic temperature controller **1354272**

Further temperature controllers with different control ranges: page 3.85

Article	Article-No.	Hint
---------	-------------	------



"Regumat F-180" DN 25
 Fixed value control unit to maintain the flow temperature of underfloor and wall heatings with universal thermal insulation of modular construction

As "Regumat F-180", item no. 1354270, but without pump ball valve.

Max. operating temperature for high-efficiency pumps: 95 °C

consisting of:
 -isolation device with 2 ball valves and 2 thermometers (without pressure relief device) and connection for immersion sensor
 -temperature controller with immersion sensor
 -flanged pipe with check valve
 -three-way mixing valve
 -electrical pipe contact safety switch
 -thermal insulation



without pump and pump ball valve **1354070**

"Regumat FR-180" DN 25
 Fixed value control unit to maintain the flow temperature of open vented underfloor and wall heating systems with universal thermal insulation of modular construction

As "Regumat F-180", item no. 1354270, but without pump ball valve. With stainless steel/bronze pump instead of cast iron pump.

Max. operating temperature for high-efficiency pumps: 95 °C

consisting of:
 -isolation device with 2 ball valves and 2 thermometers (without pressure relief device) and connection for immersion sensor
 -temperature controller with immersion sensor
 -flanged pipe with check valve
 -three-way mixing valve
 -electronic pipe contact safety switch
 -high-efficiency pump (stainless steel/bronze)
 -thermal insulation

Tailpipes sets (page 6.70) and a wall mounting device (page 6.43) are available separately.

with high-efficiency pump (EEI ≤ 0.2)

Grundfos ALPHA 2.1 25-60N	1354087
Wilo-Stratos PICO 25/1-6 RG	1354097



High-efficiency pumps 180 mm with connection thread G 1 1/2 DN 25

For replacement purposes or for upgrading the "Regumat 180" stations without pump, for open vented systems.

Grundfos ALPHA 2.1 180 25-60N	1357159
Wilo-Stratos PICO 180 25/1-6 RG	1357160

with stainless steel body
 with bronze body

Article	Article-No.	Hint
---------	-------------	------

Accessories for "Regumat F-130/F-180/FR-180" DN 25

Thermal insulation
with one-piece front insulation shell:



for "Regumat-130" DN 25	1355090	Not suitable for "Regumat 130" DN 25 with Grundfos ALPHA 2.
-------------------------	----------------	---

Universal thermal insulation:



for "Regumat-180" DN 25 with pump ball valve	1356097	
for "Regumat-180" DN 25 without pump ball valve	1356098	

Isolation device DN 25 for "Regumat"
with 2 ball valves and 2 thermometers,
2 collar nuts and set of seals



DN 25	1353181	
-------	----------------	--

Replacement thermometer **1351690**
for "Regumat" DN 25-50 as well as for
"Regucirc M" and "Optibal PK"



Replacement thermometer **1351691**
for "Regumat-180" DN 25 with universal thermal insulation



Pump ball valve
with integrated check valve
including collar nuts and seals



DN 25	1353771	
-------	----------------	--

For the connection of the boiler to the pipework.

PN 10

For the supply pipe: red handle
Installation at the pump inlet.

Wall mounting device for "Regumat"
including fixing material



DN 25-130 and DN 25-180	1352096	
-------------------------	----------------	--

"Regumat" Flanged pipe with check valve



DN 25-180	1352273	
DN 25-180	1352272	

L = 180 mm.
L = 279 mm. For the conversion of
"Regumat S-180" with pump ball valve
to "Regumat M3/M4-180".

Article Article-No. Hint

Temperature controller with contact sensor and heat transfer unit



Control range	Capillary length	
20 - 50 °C	2 m	1142861
30 - 60 °C	2 m	1142862
40 - 70 °C	2 m	1142863
50 - 80 °C	2 m	1142864

"Regumat" Heat exchangers

High-capacity plate heat exchangers



with connection fitting

14 plates up to 14 kW	1351596
30 plates up to 28 kW	1351696

The capacities are determined by the fixed default values in the primary circuit (70/50 °C) and the secondary circuit (40/50 °C).

Modular complement to the boiler connection systems "Regumat-130/180" DN 25 with a distance of 125 mm between pipe centres. System separation with plate heat exchanger for the separation of different product groups and individual components for:

- surface and underfloor heating/cooling
- storage cylinder loading
- fresh water loading

Connection distance: 125 mm

One port 2 x pump flange, flat sealing, with collar nut G 1½, one port 2 x G 1½ male thread, flat sealing with additional lateral connection devices, including insulation.

Tailpipe sets are available separately: page 6.70

without connection fitting for higher capacities



20 plates up to about 40 kW	1351790
30 plates up to about 55 kW	1351791

40 plates up to about 70 kW	1351792
50 plates up to about 85 kW	1351793

The capacities are determined by the fixed default values in the primary circuit (80/60 °C) and in the secondary circuit (50/70 °C).

Connection distance: 466 mm x 50 mm
4 x G 1 flat sealing

As replacement for "Regusol X-15".

As replacement for "Regusol X-25" and "Regumaq".



Safety group

with diaphragm safety valve 3 bar, pressure gauge, fill and drain cock and connection facility for an expansion tank

1351598

For the protection of pressurized systems. For the connection to the heat exchanger "Regumat".

Accessories for "Regumat" heat exchangers



Thermal insulation made of expanded polypropylene

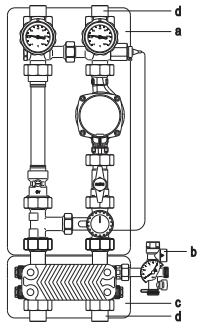
for heat exchangers 1351790/91	1359591
for heat exchangers 1351792/93	1359592



Set of connection fittings

G 1½ female thread x pump flange for G 1½ with collar nuts and seals	1351597
--	----------------

For the connection of the heat exchanger "Regumat" to a pump group "Regumat" on the boiler side.

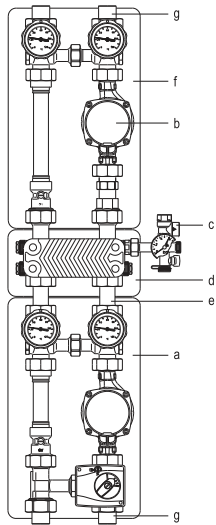


Example 1:

- a "Regumat FR-180" DN 25 with Grundfos pump ALPHA 2.1 25-60 N **1354087**
with Wilo pump Stratos PICO 25/1-6 RG **1354097**
- b Heat exchanger "Regumat" with 14 plates up to 14 kW **1351596**
- c Safety group **1351598**
- d Tailpipe set **13504..**

For the extension of existing heating circuits by a heat exchanger and a fixed value control unit in open vented surface heating systems.

Installation dimensions:
H = 640 mm, W = 250 mm



Example 2:

- a "Regumat S-180" DN 25 without pump **1356020**
- b Heat exchanger "Regumat" with 30 plates up to 28 kW **1351696**
- c Safety group **1351598**
- d Tailpipe set **13504..**
- e High-efficiency pump with stainless steel/bronze body 180 mm
Grundfos ALPHA 2.1 25-60 N **1357159**
Wilo-Stratos PICO 25/1-6 RG **1357160**
- f "Regumat M3-180" DN 25 with Grundfos pump ALPHA 2.1 25-60 **1356277**
with Wilo pump Stratos PICO 25/1-6 **1356279**
- g Set of connection fittings **1351597**

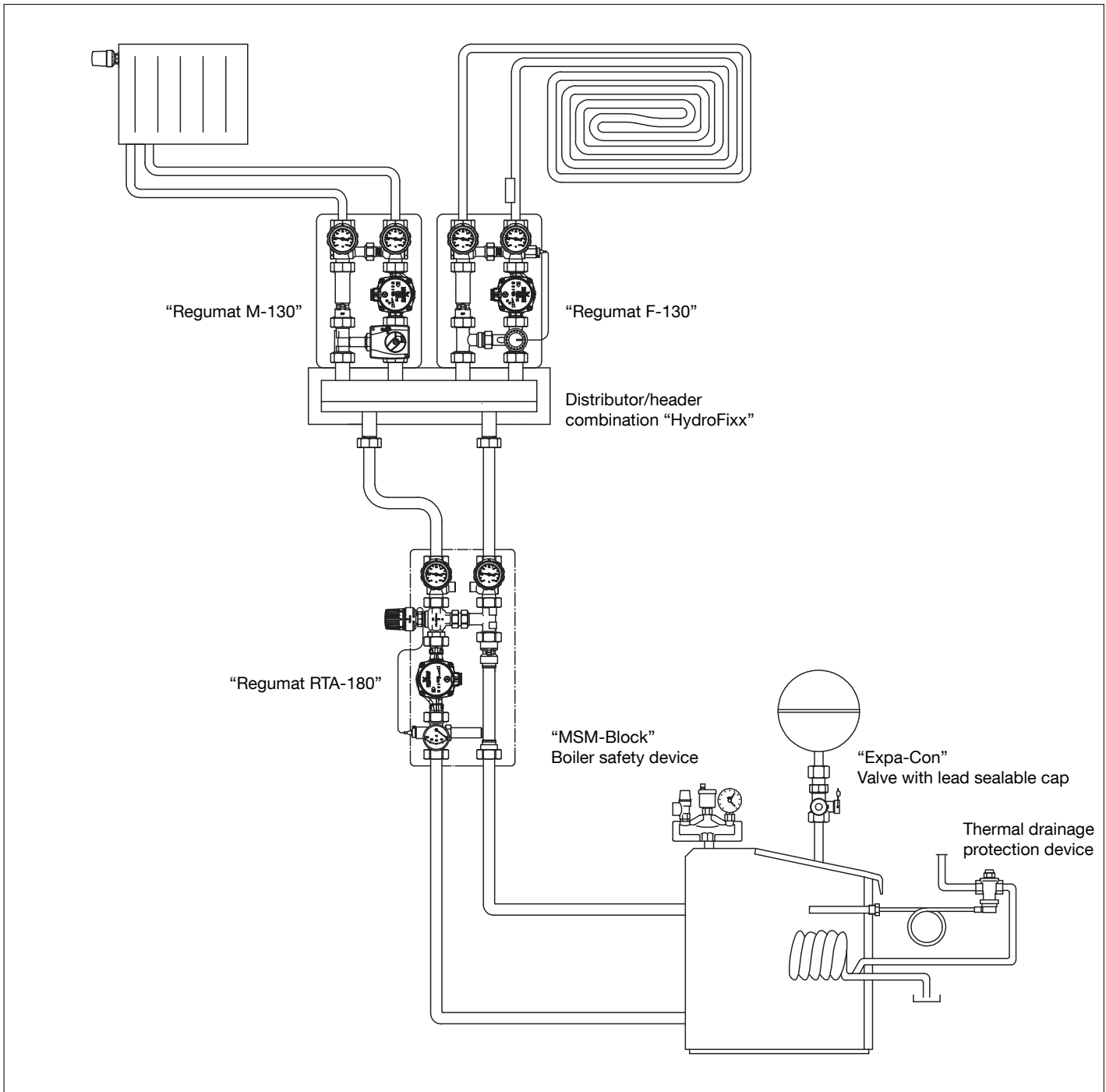
Please observe:
When changing the supply, change both pumps.
Delivered with supply on the right hand side.
Installation dimensions:
H = 960 mm, W = 250 mm



6.d "Regumat RTA" Stations for solid fuel boilers for return temperature increase

Content

Summary	6.49
"Regumat RTA-130 VR" DN 25 - supply on the right hand side	6.50
"Regumat RTA-130 VL" DN 25 - supply on the left hand side	6.50
"Regumat RTA-130 TOP" DN 25 - connection from the top	6.50
"Regumat RTA-180" DN 25	6.51
Accessories for "Regumat RTA-130/180" DN 25	6.52
"Regumat RTA-180" DN 32	6.53
Accessories for "Regumat RTA-180" DN 32	6.53
Thermal drainage protection device	6.53



System Illustration: Connection of "Regumat RTA" to a solid fuel installation (e.g. pellets) and two heating circuits

Solid fuel boiler connection systems "Regumat RTA"

Choice of the "Regumat RTA" systems

Product assembly DN 25/DN 32 for pump lengths 130/180 mm

All models with or without high-efficiency pump, ball valve with thermometer, ball valve with thermometer and connection for immersion sensor ("Regumat RTA-180" DN 25 with housing for immersion sensor with thermometer), three-way mixing valve, temperature controller with immersion sensor, flanged pipe with check valve and thermal insulation.

Models for solid fuel boilers "Regumat RTA"					
	"Regumat RTA-130"	"Regumat RTA-130 VL"	"Regumat RTA-130 Top"	"Regumat RTA-180"	
Catalogue Page	6.50	6.50	6.50	6.51	6.51
Size	DN 25	DN 25	DN 25	DN 25	DN 32
Boiler connection from below	X	X		X	X
Boiler connection from the top			X		
Supply on right hand side	X		X	X	X
Supply on left hand side		X			
Pump length	L = 130 mm	L = 130 mm	L = 130 mm	L = 180 mm	L = 180 mm
Outer dimensions thermal insulation	H = 364 mm W = 248 mm D = 197 mm			Standard thermal insulation H = 513 mm W = 248 mm D = 211 mm Universal thermal insulation H = 414 mm W = 248 mm D = 200 mm	H = 471 mm W = 248 mm D = 207 mm

Tailpipe sets are available separately.

Article	Article-No.	Hint
---------	-------------	------

"Regumat RTA-130 VR" DN 25 - supply on the right hand side
 with integrated three-way mixing valve
 with temperature controller for return temperature increase
 Supply on the right hand side



consisting of:
 -high-efficiency pump
 -ball valve with thermometer
 -three-way mixing valve
 -temperature controller with immersion sensor control range 40-70 °C
 -flanged pipe with check valve
 -ball valve with thermometer and connection for immersion sensor
 -thermal insulation

with high-efficiency pump (EEI ≤ 0.2) 1354795
 Wilo-Yonos PARA RS 25/6 RKC

For the connection of the solid fuel boiler to the pipework.
 Pump length: 130 mm

Max. operating pressure: 10 bar (PN 10)
 Max. operating temperature for high-efficiency pumps: 85 °C

Dimensions product assembly:
 Distance between pipe centres: 125 mm
 Length: 364 mm

Outer dimensions thermal insulation (W x H x D):
 310 mm x 364 mm x 197 mm

Connection:
 To heating circuit:
 G 1½ male thread, flat sealing
 To boiler:
 G 1½ male thread, flat sealing

"Regumat RTA-130 VL" DN 25 - supply on the left hand side
 as "Regumat RTA-130 VR" but supply on the left hand side



consisting of:
 -high-efficiency pump
 -ball valve with thermometer
 -three-way mixing valve
 -temperature controller with immersion sensor control range 40-70 °C
 -flanged pipe with check valve
 -ball valve with thermometer and connection for immersion sensor
 -thermal insulation

with high-efficiency pump (EEI ≤ 0.2) 1354798
 Wilo-Yonos PARA RS 25/6 RKC

For return temperature control of solid fuel and pellet boilers.

The return temperature is increased to the set value with the help of a three-way mixing valve in combination with a temperature controller (control range 40 °C-70 °C) with immersion sensor.

Tailpipe sets (page 6.70) and a wall mounting device (page 6.52) are available separately.

For further information see "Technical information":








"Regumat RTA-130 TOP" DN 25 - connection from the top
 as "Regumat RTA-130 VR" but boiler is connected from the top



consisting of:
 -high-efficiency pump
 -ball valve with thermometer
 -three-way mixing valve
 -temperature controller with immersion sensor control range 40-70 °C
 -flanged pipe with check valve
 -ball valve with thermometer and connection for immersion sensor
 -thermal insulation

with high-efficiency pump (EEI ≤ 0.2) 1354783
 Wilo-Yonos PARA RS 25/6 RKC

Article	Article-No.	Hint
	<p>"Regumat RTA-180" DN 25 with integrated three-way mixing valve with temperature controller for return temperature increase</p> <p>consisting of:</p> <ul style="list-style-type: none"> -high-efficiency pump -ball valve with thermometer -three-way mixing valve -temperature controller with immersion sensor control range 40-70 °C -flanged pipe with check valve -housing for immersion sensor with thermometer -thermal insulation <p>without pump</p>	<p>For the connection of the solid fuel boiler to the pipework. Pump length: 180 mm</p> <p>Max. operating pressure: 10 bar (PN 10) Max. operating temperature for high-efficiency pumps with standard thermal insulation: 85 °C Max. operating temperature for high-efficiency pumps with universal thermal insulation of modular construction: 95 °C</p> <p>Dimensions product assembly: Distance between pipe centres: 125 mm Length: 460 mm (with standard insulation) 371 mm (with universal insulation)</p>
	<p>with high-efficiency pump (EEI ≤ 0.2)</p> <p>Wilo-Yonos PARA RS 25/6 1354691* Grundfos ALPHA 2.1 25-60 1354693°</p>	<p>Connection: To heating circuit: G 1½ male thread, flat sealing To boiler: G 1½ male thread, flat sealing</p>
	<p>"Regumat RTA-180" DN 25 with integrated three-way mixing valve with temperature controller for return temperature increase with universal thermal insulation of modular construction</p> <p>consisting of:</p> <ul style="list-style-type: none"> -high-efficiency pump -ball valve with thermometer -three-way mixing valve -temperature controller with immersion sensor control range 40-70 °C -flanged pipe with check valve -ball valve with thermometer and connection for immersion sensor -thermal insulation <p>without pump</p>	<p>For return temperature control of solid fuel and pellet boilers. The return temperature is increased to the set value with the help of a three-way mixing valve in combination with a temperature controller (control range 40 °C-70 °C) with immersion sensor.</p> <p>Tailpipe sets (page 6.70) and a wall mounting device (page 6.52) are available separately.</p>
	<p>with high-efficiency pump (EEI ≤ 0.2)</p> <p>Grundfos ALPHA 2.1 25-60 1354586 Wilo-Yonos PARA RS 25/6 RKC 1354587</p>	<p>For further information see "Technical information":</p> 

Article	Article-No.	Hint
---------	-------------	------

Accessories for "Regumat RTA-130/180" DN 25



Replacement thermometer **1351690**
for "Regumat" DN 25-50 as well as for "Regucirc M" and "Optibal PK"



Replacement thermometer **1351691**
for "Regumat-180" DN 25 with universal thermal insulation



Wall mounting device for "Regumat"
including fixing material

DN 25-130 and DN 25-180 **1352096**



Mixing valve group **1350260**
as replacement for "Regumat RTA-130/180" DN 25

Article	Article-No.	Hint
---------	-------------	------



"Regumat RTA-180" DN 32
 with integrated three-way mixing valve
 with temperature controller for
 return temperature increase

- consisting of:
- high-efficiency pump
 - ball valve with thermometer
 - three-way mixing valve
 - temperature controller with immersion sensor
 control range 40-70 °C
 - flanged pipe with check valve
 - ball valve with thermometer and connection for immersion sensor
 - thermal insulation

with high-efficiency pump (EEI ≤ 0.2)

Wilo-Yonos PARA RS 30/6 RKC **1354571**

Further temperature controllers with different control ranges:
 page 3.85

Accessories for "Regumat RTA-180" DN 32



Replacement thermometer **1351690**
 for "Regumat" DN 25-50 as well as for
 "Regucirc M" and "Optibal PK"

For the connection of the solid fuel boiler to the
 pipework.
 Pump length: 180 mm

Max. operating pressure: 10 bar (PN 10)
 Max. operating temperature for high-
 efficiency pumps: 85 °C

Dimensions product assembly:
 Distance between pipe centres: 125 mm
 Length: 419 mm

Connection:
 To heating circuit:
 G 2 male thread, flat sealing
 To boiler:
 G 2 male thread, flat sealing

For return temperature control of solid fuel and
 pellet boilers.

The return temperature is increased to the set
 value with the help of a three-way mixing valve
 in combination with a temperature controller
 (control range 40 °C-70 °C) with immersion
 sensor.

For further information see
 "Technical information":



Thermal drainage protection device
 for "Regumat RTA"



DN 20 **1354699**

Application:
 For thermal protection of solid fuel boilers in
 closed hot water heating systems according to
 DIN EN 12828.

Tested according to DIN 3440.

Response temperature: 95 °C
 Max. heating capacity: 90 kW
 Length of capillary with protective pipe: 1.3 m

Both ports female thread Rp ¾.

Immersion pocket G ½ connection.

6.e Products for heat pump systems

Content

Products for heat pump systems	6.56
Accessories	6.57

Article	Article-No.	Hint
---------	-------------	------

Products for heat pump systems

Buffer storage cylinder connection group

for heat pumps
with connection set for safety group for diaphragm expansion tank



- consisting of:
- isolation device with 2 ball valves and 2 thermometers (without pressure relief device)
 - pump ball valve at the pump inlet
 - thermal insulation
 - connection set for safety group for diaphragm expansion tank
 - high-efficiency pump Wilo PICO 25/1-6
 - connection elbow G 1/2

1356872

For the connection of a heat pump to the heating system and a buffer storage cylinder.

Max. operating pressure 10 bar: (PN 10)
Max. operating temperature for high-efficiency pumps: 95 °C

Dimensions product assembly:
Distance between pipe centres: 125 mm
Length: 588 mm

Connection:
To heating circuit:
G 1 1/2 male thread, flat sealing
To boiler:
G 1 1/2 male thread, flat sealing

Components screwed tightly,
product assembly leak tested.

Heating circuit connection group

for heat pumps
with connection set for safety group for diaphragm expansion tank



- consisting of:
- isolation device with 2 ball valves and 2 thermometers (without pressure relief device)
 - flanged pipe with check valve
 - distance piece
 - pump ball valve at the pump inlet
 - thermal insulation
 - connection set for safety group for diaphragm expansion tank
 - high-efficiency pump Wilo PICO 25/1-6

1356972

For the connection of a heat pump to the heating system.

Tailpipes sets (page 6.70) and a wall mounting device (page 6.57) are available separately.

Connection set for safety group for diaphragm expansion tank



1356989

With the option to connect the safety group.

Safety group

with diaphragm safety valve 3 bar, pressure gauge, fill and drain cock and connection facility for an expansion tank



1351598

For the protection of pressurized systems.
For the connection to the heat exchanger "Regumat".

Article	Article-No.	Hint
---------	-------------	------

Accessories



Replacement thermometer **1351691**
for "Regumat-180" DN 25 with universal thermal insulation



Pump ball valve
with integrated check valve
including collar nuts and seals

DN 25

1353771

For the connection of the boiler to the
pipework.

PN 10

For the supply pipe: red handle
Installation at the pump inlet.



Wall mounting device for "Regumat"
including fixing material

DN 25-130 and DN 25-180

1352096



"Regumat" Flanged pipe with check valve

DN 25-180

1352297

L = 361 mm. For "Regumat S-180"
with pump ball valve (replacement).



“Regusol” Connection set for diaphragm expansion tank
consisting of:
angled wall bracket made of steel
quick-coupling for diaphragm expansion tank
flexible hose

For the connection of a diaphragm expansion tank to the solar station “Regusol”,
page 9.56



“Regusol” Filling and flushing device
G 1 male thread x G 1 male thread

For filling and flushing of heating systems,
page 9.33



“Expa-Con” Valve
with lead sealable cap brass

For control, maintenance and possible replacement of diaphragm expansion tanks,
page 6.135



“MSM-Block” Boiler safety device
airvent with automatic shut-off
pressure gauge with automatic shut-off
insulation
DN 25, G 1 female thread

Complete safety group according to DIN EN 12828,
page 6.135



Strainer
bronze
with simple wire basket

For heating and cooling circuits,
page 5.32

6.f "Regumat S/M3-180" DN 25 for heat meters

Content



"Regumat S-180" DN 25 for heat meters	6.60
"Regumat M3-180" DN 25 for heat meters	6.60
Heat meter installation set	6.60
Accessories for "Regumat S/M3-180" DN 25 for heat meters	6.61

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------



"Regumat S-180" DN 25 for heat meters
 For the installation of a heat meter G 1, 130 mm or G ¾, 110 mm, with spacer made of plastic, 110 mm long

- consisting of:
- isolation device with 2 ball valves and 2 thermometers
 - ball valve with check valve
 - distance piece
 - pump ball valve at the pump inlet
 - adapter G ¾ and G 1
 - plug for temperature sensor M 10 x 1.0
 - thermal insulation

without pump and heat meter **1356050**

For measurement of heat consumption in heating systems.

Dimensions product assembly:
 Distance between pipe centres: 125 mm
 Length: 460 mm

With universal thermal insulation element featuring perforated cut edges for a direct adaptation to the heat meter.

When choosing the suitable heat meter, the technical specifications of the manufacturer must be observed.

Oventrop recommends the use of ultrasonic heat meters.



"Regumat M3-180" DN 25 for heat meters
 For the installation of a heat meter G 1, 130 mm or G ¾, 110 mm, with spacer made of plastic, 110 mm long

- consisting of:
- isolation device with 2 ball valves and 2 thermometers
 - ball valve with check valve
 - three-way mixing valve with actuator
 - pump ball valve at the pump inlet
 - adapter G ¾ and G 1
 - plug for temperature sensor M 10 x 1.0
 - thermal insulation

without pump and heat meter **1356250**

Adapters for fixing of the temperature sensors item no. 1352258/59: page 6.62



Heat meter installation set
 with plug for the fixing of a temperature sensor M 10 x 1.0, for heat meters G 1, 130 mm or G ¾, 110 mm, for "Regumat 180" DN 25 with ball valve at the pump inlet

for "Regumat S-180" **1350443**

with pump ball valve

for "Regumat M3/M4-180" **1350444**

with pump ball valve



Plug for heat meter installation set for fixing of a temperature sensor

M 10 x 1.0 (25) **1350490**



Heat meter installation set
 with integrated temperature sensor connection at the pump ball valve and adapters.
 For heat meters G 1, 130 mm or G ¾, 110 mm

1352250

Only for "Regumat S/M3-180" DN 25 with pump ball valve, item no. 1357070/72/73, 1357270/72/73

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

Accessories for "Regumat S/M3-180" DN 25 for heat meters

Universal thermal insulation:



for "Regumat-180" DN 25 with pump ball valve **1356097**



Replacement thermometer 1351691
for "Regumat-180" DN 25 with universal thermal insulation



Pump ball valve
with integrated check valve including collar nuts and seals

DN 25 **1353771**

For the connection of the boiler to the pipework.

PN 10

For the supply pipe: red handle
Installation at the pump inlet.



Wall mounting device for "Regumat"
including fixing material

DN 25-130 and DN 25-180 **1352096**



Actuators

The mounting set for actuators, item no. 1350290, is required for upgrading the stations "Regumat" DN 25 with pump ball valve and the "Regumat" DN 25 with reduced dimensions with the actuator.

For the operation of three- and four-way mixing valves. As replacement for "Regumat M3/M4".

24 V (0-10 V) **1350951**
24 V (three point) **1350952**
230 V (three point) **1350953**
230 V (three point) **1361098**

Operating time 140 sec., torque 5 Nm
Operating time 140 sec., torque 5 Nm
Operating time 140 sec., torque 5 Nm
Operating time 35 sec., torque 5 Nm



Three-way mixing valve for "Regumat M3"

without actuator,
with set of seals

DN 25 with manually adjustable bypass **1350281**

For flow temperature control.
Manual setting, actuator can be mounted subsequently (only valid for DN 25).
Distance between pipe centres: 125 mm
Connection:
G 1½ male thread x G 1½ collar nut



Setting group

for manual setting of the three- and four-way mixing valves **1651500**



Set of seals






for three-way mixing valve DN 25 (20) **1350289**

For "ESBE" and "Lineg" actuators.



Adapter **1350296**

For "Lineg" actuator.









Article	Packing unit	Article-No.	Hint
 Adapter		1350297	For "ESBE" actuator.
 Bypass plug M3 - DN 25	(25)	1350292	For three-way mixing valves with manually adjustable bypass for closing the bypass channel.
 Regulating insert (spindle) for three-way mixing valve DN 25 with set of seals		1350285	For "ESBE" and "Lineg" actuators (without adapter).
 Adapter for heat meter installation set with temperature sensor Ø 5.2		1352258	(e.g. Hydrometer, Ista, Techem, Minol, Rossweiner, Grundis, NRZ)
 Adapter for heat meter installation set with temperature sensor Ø 6		1352259	(e.g. Allmess)



6.g Accessories for "Regumat"

Content

Distributor for "Regumat" DN 20	6.64
Distributor for "Regumat" DN 25	6.64
Modular distributor for "Regumat" DN 25	6.64
Distributor for "Regumat" DN 32 with pump ball valve	6.65
Distributor for "Regumat plus" DN 32 with pump ball valve	6.65
Distributor for "Regumat-220/280" DN 40/50	6.65
Wall consoles	6.65
"HydroFixx"	6.66
Accessories for hydronic headers / distributors	6.68
"Regumat" Tailpipe sets DN 20	6.68
"Regumat" Tailpipe sets DN 25	6.70
"Regumat" Tailpipe sets DN 32	6.71
"Regumat" Tailpipe sets DN 40/50	6.71
System illustration	6.73
Thermal insulation	6.72
"Regtronic RH" Heating circuit controller	6.74
"Regtronic SV" Sensor distributor	6.75
"Regtronic RH" Heating circuit controller	6.76
"Regtronic EM" Extension module	6.77
Accessories	6.77
High-efficiency pumps 130 mm	6.80
High-efficiency pumps 180 mm	6.80

Article	Packing unit	Article-No.	Hint
 <p>Distributor for "Regumat" DN 20 made of steel with insulation and wall bracket</p> <p>for 2 heating circuits for 3 heating circuits</p>		<p>1351482 1351483</p>	<p>Connection to the heating circuit: G 1 collar nut, flat sealing Connection to the boiler: G 1 male thread, flat sealing</p> <p>Max. operating pressure: 4 bar Max. operating temperature: 110 °C Max. flow rate: 2.5 m³/h</p>
 <p>Distributor for "Regumat" DN 25 with insulation</p> <p>for 2 heating circuits DN 25 made of bronze</p>		1351571	<p>Connection to the heating circuit: G 1½ collar nut, flat sealing Connection to the boiler: G 1½ male thread, flat sealing Max. flow rate: 4 m³/h</p>
 <p>Wall bracket for 2-fold distributor made of bronze including fixing material</p>	(10)	1351592	
 <p>made of steel</p> <p>for 2 heating circuits DN 25 for 3 heating circuits DN 25 for 4 heating circuits DN 25 for 5 heating circuits DN 25 for 6 heating circuits DN 25 for 7 heating circuits DN 25 for 8 heating circuits DN 25</p>		<p>1351582 1351583 1351584 1351585 1351586 1351587 1351588</p>	<p>Connection to the heating circuit: G 1½ collar nut, flat sealing Connection to the boiler: G 1½ male thread, flat sealing Including wall bracket for "Regumat" with a distance of 125 mm between pipe centres and insulation. Distributors for 9 heating circuits and more on request. Max. flow rate: 4 m³/h</p>
 <p>Compact distributor made of steel</p> <p>for 3 heating circuits DN 25 for 5 heating circuits DN 25</p>		<p>1351783 1351785</p>	<p>Connection to the heating circuit: G 1½ collar nut, flat sealing Connection to the boiler: G 1½ male thread, flat sealing Including wall bracket for "Regumat" with a distance of 125 mm between pipe centres and insulation.</p>
 <p>Modular distributor for "Regumat" DN 25 made of brass with insulation</p> <p>for 2 heating circuits for 3 heating circuits</p>		<p>1351471 1351472</p>	<p>Heating distributor system of modular construction:</p> <ul style="list-style-type: none"> - subsequently extendable - up to 6 groups can be connected to the boiler and heating circuit
 <p>Extension module with insulation</p>		1351470	<p>Connection to the heating circuit: G 1½ collar nut, flat sealing Connection to the boiler: G 1½ male thread, flat sealing Max. flow rate: 4 m³/h</p>
 <p>Wall bracket for 2-fold modular distributor "Regumat"</p> <p>made of steel including fixing material</p>	(10)	1351593	

Article	Article-No.	Hint
---------	-------------	------



Distributor for "Regumat" DN 32 with pump ball valve
 made of steel
 with insulation and wall bracket

Connection to the heating circuit:
 G 2 collar nut, flat sealing
 Connection to the boiler:
 G 2 male thread, flat sealing
 Max. operating pressure: 4 bar
 Max. operating temperature: 110 °C

for 2 heating circuits	1351672
for 3 heating circuits	1351673
for 4 heating circuits	1351674
for 5 heating circuits	1351675

Max. flow rate: 9 m³/h

Max. flow rate: 12 m³/h

Distributor for "Regumat plus" DN 32 with pump ball valve
 made of steel
 with insulation and wall bracket

Connection to the heating circuit:
 G 2 collar nut, flat sealing
 Connection to the boiler:
 G 2 collar nut, flat sealing

for 2 heating circuits	1351662*
for 3 heating circuits	1351663*
for 4 heating circuits	1351664*
for 5 heating circuits	1351665*

Max. operating pressure: 4 bar
 Max. operating temperature: 110 °C



Distributor for "Regumat-220/280" DN 40/50
 made of steel
 with insulation

Distributor for "Regumat-220/280" with a distance of 180 mm between pipe centres.

for 2 heating circuits	1351692
for 3 heating circuits	1351693
for 4 heating circuits	1351694

Connection to the heating circuit:
 G 2 collar nut, flat sealing
 Connection to the boiler:
 flanged DN 80

Max. flow rate: 18 m³/h



Mounting legs for distributors/'HydroFixx' DN 40/50

For further information see "Technical information":

infinitely adjustable height 285-480 mm including fixing material	1351697
---	----------------



Wall consoles for distributors/'HydroFixx' DN 40/50

distance to wall infinitely adjustable between 165 and 235 mm including fixing material

1351695



Sealing plug set
 2-fold

For closing a pair of heating circuits at the distributor.

DN 25, G 1½	1351770
DN 32, G 2	1351771

Article	Article-No.	Hint
---------	-------------	------

"HydroFixx"
Hydronic header / distributor combination

Distributor with horizontal integrated hydronic header, compact construction, made of steel.

"HydroFixx" for "Regumat" DN 20
 made of steel
 with insulation and wall bracket

Connection to the heating circuit:
 G 1 collar nut, flat sealing
 Connection to the boiler:
 G 1 male thread, flat sealing



for 2 heating circuits **1351568**
 for 3 heating circuits **1351569**

Max. operating pressure: 4 bar
 Max. operating temperature: 110 °C

Max. flow rate: 2.5 m³/h

"HydroFixx" for "Regumat" DN 25
 made of steel
 with insulation and wall bracket

For the connection of "Regumat" DN 25 with a distance of 125 mm between pipe centres.



for 2 heating circuits **1351698**
 for 3 heating circuits **1351699**

Connection to the heating circuit:
 G 1½ collar nut, flat sealing
 Connection to the boiler:
 G 1½ male thread, flat sealing
 Max. flow rate: 4 m³/h

For further information see "Technical information":



"HydroFixx" for "Regumat" DN 32 with pump ball valve
 made of steel
 with insulation and wall bracket

For the connection of "Regumat" DN 32 with a distance of 125 mm between pipe centres.



for 2 heating circuits **1351758**
 for 3 heating circuits **1351759**

Connection to the heating circuit:
 G 2 collar nut, flat sealing
 Connection to the boiler:
 G 2 male thread, flat sealing
 Max. flow rate: 9 m³/h

"HydroFixx" for "Regumat plus" DN 32 with pump ball valve
 made of steel
 with insulation and wall bracket

Distance between pipe centres: 125 mm

for 2 heating circuits **1351678***
 for 3 heating circuits **1351679***

Connection to the heating circuit:
 G 2 collar nut, flat sealing
 Connection to the boiler:
 G 2 male thread, flat sealing

"HydroFixx" for "Regumat" DN 40/50
 made of steel
 with insulation

For the connection of "Regumat" DN 40/50 with a distance of 180 mm between pipe centres.



for 2 heating circuits **1351778**
 for 3 heating circuits **1351779**

Connection to the heating circuit:
 G 2 collar nut, flat sealing
 Connection to the boiler:
 flanged DN 80
 Max. flow rate: 18 m³/h

For further information see "Technical information":



Article	Article-No.	Hint
---------	-------------	------



Hydronic header
made of steel
with insulation

DN 25
connection G 1½ male thread,
flat sealing

DN 32
connection G 2 male thread,
flat sealing

1351590

1351591

For the hydronic decoupling of the heating and boiler circuit.

Max. flow rate: 4 m³/h

Max. flow rate: 8 m³/h

For further information see
"Technical information":



"MonoFixx" for "Regumat" DN 25
made of steel
with insulation and wall bracket
for one heating circuit

1351589

For the hydronic decoupling of the heating and boiler circuit.

For the connection of a "Regumat" DN 25 with a distance of 125 mm between pipe centres.

Connection to the heating circuit:

G 1½ collar nut, flat sealing

Connection to the boiler:

G 1½ male thread, flat sealing

Max. flow rate: 4 m³/h

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

Accessories for hydronic headers / distributors



Connection fitting
for "Regumat RTA"
below the distributor
2 x G 1 1/2 female thread/installation length 45 mm
Set = 2 pieces



Connection fittings
for connection of a distributor DN 25 to a "Regumat" DN 20
G 1 1/2 male thread x G 1 collar nut, set = 2 pieces
for connection of a distributor DN 32 to a "Regumat" DN 25
G 2 male thread x G 1 1/2 collar nut
for connection of a distributor DN 40/50 to a "Regumat" DN 25
G 2 male thread x G 1 1/2 collar nut, set = 2 pieces
for connection of a distributor DN 40/50 to a "Regumat" DN 32
G 2 male thread x G 2 collar nut, set = 2 pieces



for connection of a "Regumat" DN 32 without pump ball valve to a distributor DN 25

"Regumat" Tailpipe sets DN 20

Required for the connection of the pipework to the heating circuit and for the connection of the "Regumat" DN 20 and "Regumaq" with G 1 connection to the boiler, including ring gaskets.



Set of weldable tailpipes
2-fold:
collar nut G 1, weldable tailpipe



Set of solder tailpipes, 22 mm
2-fold:
collar nut G 1, solder tailpipe



Set of threaded tailpipes R 3/4
2-fold:
collar nut G 1, threaded tailpipe



Press connection set 26 x 3 mm
2-fold:
collar nut G 1, press connection












Connection set, system Mapress 22 mm
2-fold:
collar nut G 1, press connection






Connection set, system Viega Sanpress 22 mm
2-fold:
collar nut G 1, press connection



Article	Packing unit	Article-No.	Hint
Connection set Rp 3/4 2-fold: collar nut G 1, nipple	(10)	1350447	

Article	Packing unit	Article-No.	Hint
"Regumat" Tailpipe sets DN 25			Required for the connection of the pipework to the heating circuit and for the connection of the "Regumat DN 25-130/180" to the boiler, without ring gaskets (come with the "Regumat").
Weldable tailpipe sets			
	2-fold: collar nut G 1½, weldable tailpipe	1350455	
	4-fold: collar nut G 1½, weldable tailpipe	1350465	
Solder tailpipe sets 28 mm			
	2-fold: collar nut G 1½, solder tailpipe	1350456	
	4-fold: collar nut G 1½, solder tailpipe	1350466	
Threaded tailpipe sets Rp 1			
	2-fold: collar nut G 1½, threaded tailpipe	1350457	
	4-fold: collar nut G 1½, threaded tailpipe	1350467	
Press connection set 26 mm x 3 mm with seal			
	1-fold: press connection, collar nut G 1½	(5) 1511946	
Press connection set 32 mm x 3 mm with seal			
	1-fold: press connection, collar nut G 1½	(5) 1511949	
Collar nut G 1½			
	2-fold	1350450	
	4-fold	1350451	
	1-fold	(20) 1359099	
Weldable tailpipe			
	2-fold	1350594	
Solder tailpipe 28 mm			
	2-fold	1351095	
Threaded tailpipe Rp 1			
	2-fold	1351394	

Article	Packing unit	Article-No.	Hint
"Regumat" Tailpipe sets DN 32			Required for the connection of the "Regumat" DN 32 to the boiler.
Solder tailpipe sets 35 mm			
	2-fold: collar nut G 2 and solder tailpipe	1350474	
	4-fold: collar nut G 2 and solder tailpipe	1350475	
Threaded tailpipe sets Rp 1¼			
	2-fold: collar nut G 2 and threaded tailpipe	1350476	
	4-fold: collar nut G 2 and threaded tailpipe	1350477	
Collar nut G 2			
	2-fold	1350470	
	4-fold	1350471	
Solder tailpipe 35 mm			
	2-fold	1351096	
Threaded tailpipe Rp 1¼			
	2-fold	1351396	
Ring gasket (Set = 10 pieces)			
	Ø 30 x Ø 25 x 2 mm	(100) 1359551	For junction G 1.
	Ø 44.5 x Ø 28 x 2 mm	(100) 1359552	For junction G 1½.
	Ø 27 x Ø 38 x 2 mm	1359553	for junction G 1¼
Set = 4 pieces			
	Ø 56 x Ø 36 x 2.5	(10) 1359554	For junction G 2.
Coupling			
	2 x G 2 collar nut	1352088	For connection to a "Regumat" DN 32.
"Regumat" Tailpipe sets DN 40/50			
"Cofit PD" Press fitting 2-fold, made of brass resistant to dezincification, stainless steel casing, for "Copipe HS" composition pipe			
	63 x 6.0 mm x R 2	1350481	
Fitting			
	R 2 male x G 2 collar nut	1352089	For connection to a "Regumat" DN 40/50.

Article	Article-No.	Hint
---------	-------------	------



Thermal insulation

with one-piece front insulation shell:

for "Regumat-130" DN 25 **1355090**

Not suitable for "Regumat 130" DN 25 with Grundfos ALPHA 2.

for "Regumat-180" DN 25 **1355091**

with pump ball valve

for "Regumat-180" DN 32 **1355092**

for "Regumat-180" DN 25 **1356090**

with pump ball valve, Grundfos pump ALPHA 2.1 25-60

for "Regumat-180" DN 25 **1356091**

with pump ball valve,

Wilco pump Stratos ECO 25/1-5

for "Regumat-180" DN 25 **1356092**

without pump ball valve,

Grundfos pump ALPHA 2.1 25-60

for "Regumat-180" DN 25 **1356093**

without pump ball valve,

Wilco pump Stratos ECO 25/1-5

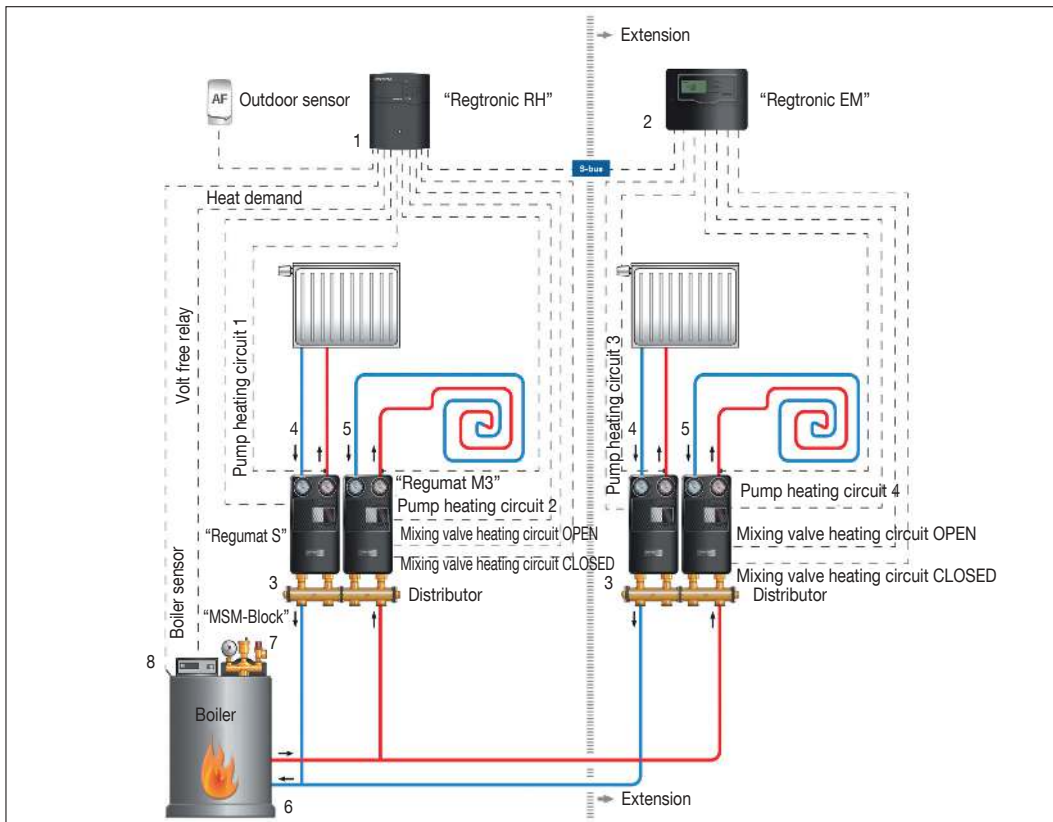
Universal thermal insulation:



for "Regumat-180" DN 25 **1356097**
with pump ball valve

for "Regumat-180" DN 25 **1356098**

without pump ball valve



Example: Weather guided control of 2 variable and 2 constant temperature circuits with heat demand (e.g. via a conventional boiler, solid fuel or heat pump) consisting of the heating circuit controller "Regtronic RH-B" with outdoor sensor and the extension module "Regtronic EM-B".

Oventrop products:

- 1 "Regtronic RH-B" Heating circuit controller with outdoor sensor
- 2 "Regtronic EM-B" Extension module
- 3 Distributor for "Regumat"
- 4 "Regumat S"
- 5 "Regumat M3"
- 6 "Optiflex" Ball valve
- 7 "MSM-Block" Boiler safety device
- 8 "Expa-Con" Valve with lead sealable cap

Article Article-No. Hint



"Regtronic RH" Heating circuit controller

with 1 outdoor sensor and 3 additional sensors (PT 1000)

1152093°

with 1 outdoor sensor, 2 additional sensors (PT 1000) and remote control including room temperature sensor (PT 1000)

1152090°

Weather guided control of the flow temperature of the heating system via the demand of a heat generator and/or a mixing valve (e. g. "Regumat M3" or "Regufloor HW" with three-way mixing valve). Controller for wall mounting with data bus (S-bus).
Basic functions: 1 variable and 1 constant temperature heating circuit with heat demand. Extendable by "Regtronic EM". The status can be viewed via a full graphic display.
Interfaces: S-bus, SD-card slot for data recording
Inputs: 8 sensor inputs (PT 1000, KTY, switch or remote control), 2 inputs for electronic volume flow sensor / pressure sensor and irradiation sensor.
Outputs: 4 solid-state relays (speed controlled), 1 standard relay (volt free), 2 PWM outputs for the speed controlled activation of high-efficiency pumps. Both PWM outputs can be switched to 0-10 V.

ErP classification heating circuit controller "Regtronic RH"						
Item no.	Controller	Required accessories	Boiler control modulating (0-10 V)		ErP %	Class
			On/Off			
1152093	"Regtronic RH"	Adapter cable 1152086	X		2.0	II
1152093	"Regtronic RH"	-		X	1.5	III
1152090	"Regtronic RH" incl. remote control with room temperature sensor	Adapter cable 1152086	X		4.0	VI
1152090	"Regtronic RH" incl. remote control with room temperature sensor	-		X	3.5	VII
1152090	"Regtronic RH" incl. remote control with room temperature sensor	2 x room temperature sensor 1152095 Adapter cable 1152086	X		5.0	VIII

For the connection of high-performance pumps (> 1A) see load relay, page 6.80.

Adapter cable

PWM-/ 0-10 V

1152086



Adapter cable for signal transmission, for instance from the heating circuit controller "Regtronic RH" to a modulating heat generator with 0-10 V interface.
Accessory required for ErP classification II, VI and VIII.

Heating circuit controller extension set for "Regumat 180" DN 25 with pump ball valve

consisting of:

1357290

- a) Heating circuit controller "Regtronic RH"
- b) Controller location made of expanded polypropylene
- c) Controller bracket made of metal including fixing material



Controller bracket for the variable direct connection of the heating circuit controller "Regtronic RH" on the left or right hand side of the station.
Extension set only suitable for "Regumat" DN 25:
1357070/72/73, 1357270/72/73, 1357020/27/29 and 1357220/27/29

Article	Article-No.	Hint
---------	-------------	------

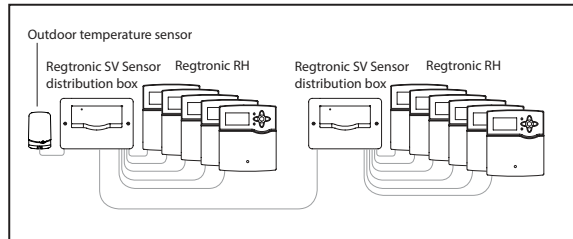
"Regtronic SV" Sensor distributor



for the distribution of one PT 1000 temperature sensor to up to 6 "Regtronic" controllers

1152088°

The sensor distributor "Regtronic SV" distributes the signal of one PT1000 outside temperature sensor to 6 outputs. This allows the transmission of the signal of one sensor to up to 6 controllers (e.g. heating circuit controller "Regtronic RH").



Example: Distribution of one temperature sensor (outside temperature sensor) to 5 respectively 6 heating circuit controllers "Regtronic RH".

Article

Article-No.

Hint

"Regtronic RH" Heating circuit controller



with 1 outdoor sensor (bus-compatible) and 3 additional sensors (PT1000) **1152083***

with 1 outdoor sensor (bus-compatible), 2 additional sensors (PT1000) and remote control including room temperature sensor (PT1000) **1152080***

Weather guided control of the flow temperature of the heating system via the demand of a heat generator and/or a mixing valve (e. g. "Regumat M3" or "Regufloor HW" with three-way mixing valve).

Controller for wall mounting with data bus (S-bus) for the connection to the data logger "CS-BS".

Basic functions: 1 variable and 1 constant temperature heating circuit with heat demand. Extendable by "Regtronic EM".

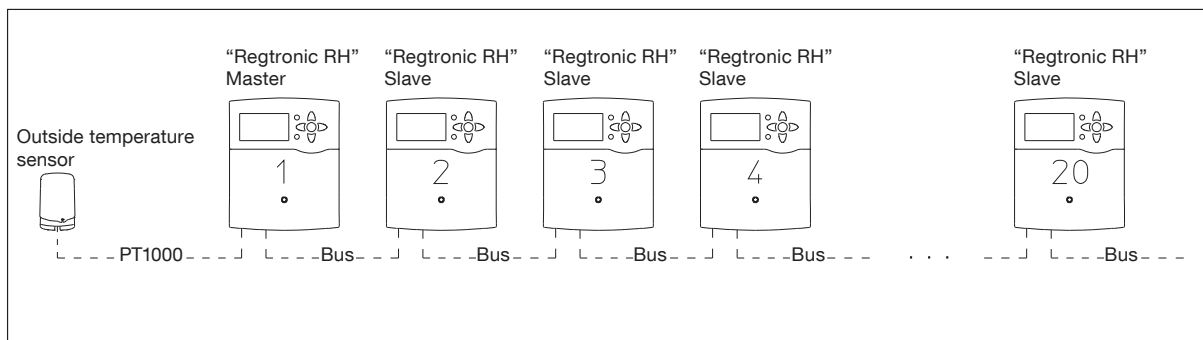
The status can be viewed via a full graphic display.

Interfaces: S-bus (optional connection to the data logger "CS-BS") , SD-card slot for data recording, a central outdoor sensor can also be connected of the heating circuit controller

Inputs: 8 sensor inputs (PT1000, KTY, switch or remote control), 2 inputs for electronic flow sensor VFD (volume flow/temperature)
Outputs: 3 solid-state relays (speed controlled), 2 standard relays, 1 volt free low voltage relay, 2 PWM outputs for the speed controlled activation of high-efficiency pumps. Both PWM outputs can be switched to 0-10 V.

For the connection of high-performance pumps (> 1A) see load relay, page 6.80.

Erp classification heating circuit controller "Regtronic RH"						
Item no.	Controller	Required accessories	Boiler control		ErP %	Class
			modulating (0-10 V)	On/Off		
1152083	"Regtronic RH"	Adapter cable 1152086	X		2.0	II
1152083	"Regtronic RH"	-		X	1.5	III
1152080	"Regtronic RH" incl. remote control with room temperature sensor	Adapter cable 1152086	X		4.0	VI
1152080	"Regtronic RH" incl. remote control with room temperature sensor	-		X	3.5	VII
1152080	"Regtronic RH" incl. remote control with room temperature sensor	2 x room temperature sensor 1152095 Adapter cable 1152086	X		5.0	VIII



Example: Distribution of a temperature sensor (outside temperature sensor, item no. 1152099) up to 20 heating circuit controllers "Regtronic RH" (item no. 1152080/1152083)

Article Article-No. Hint

"Regtronic EM" Extension module



for the connection to the heating circuit controller "Regtronic RH" **1152098**

"Regtronic EM" for the extension of the heating circuit controller "Regtronic RH" by 6 sensor inputs and 5 relay outputs. Thus, further variable or constant temperature heating circuits can be activated. Up to **five** extension modules can be connected to the heating circuit controller "Regtronic RH". 1 sensor attached to the pipe PT 1000 is included.

"Regtronic RM"



12 inputs PT 1000, PT 500 or KTY
3 pulse inputs
2 analogue inputs Grundfos Direct Sensors™
2 digital inputs Grundfos Direct Sensors™
14 outputs
4 PWM outputs (convertible to 0-10 V)
Data output S-bus

The system controller "Regtronic RM" for wall attachment has 14 relay outputs (13 speed controlled solid-state relays and 1 volt free relay) and 4 PWM outputs for the speed control of high-efficiency pumps which are convertible to the output of a 0-10 V signal.

With 2 collector sensors and 6 storage cylinder sensors. The outdoor sensor is not included.

The controller "Regtronic RM" controls solar plants with East-West roof orientation and several storage cylinders as well as weather guided variable / constant temperature heating circuits.

Solar system controller with full graphic display for use in solar and heating systems. Control of weather guided heating circuits. Operating current 100-240 V.

Preloaded function blocks simplify the system parameterization and thus facilitate an integration of various heat generators (e. g. oil, gas or solid fuel boilers).

1369555

ErP classification "Regtronic RM"						
Item no.	Controller	Required accessories	Boiler control		ErP %	Class
			modulating (0-10 V)	On/Off		
1369555	"Regtronic RM"	1 x outside temperature sensor 1152099	X		2,0	II
		1 x outside temperature sensor 1152099		X	1,5	III
		1 x room temperature sensor 1152095	X		4,0	VI
		1 x outside temperature sensor 1152099				
		1 x room temperature sensor 1152095		X	3,5	VII
		1 x outside temperature sensor 1152099				
		3x room temperature sensor 1152095	X		5,0	VIII

Different optional functions such as storage cylinder loading section by section, heat exchange, heat demand, boiler loading, solid fuel boiler, mixing valve control, measurement of heat consumption, tube collector function, drain back option, thermostat function, ΔT-regulation, thermal disinfection, circulation and further functions may be activated via the intuitive user guidance.

Interfaces: S-bus for the connection to the data logger "CS-BS". SD-card slot for data recording and transmission of set values as well as updating of the firmware.

Up to 5 extension modules "Regtronic EM" can be connected to the "Regtronic RM". Thus, there is a total number of 39 relay outputs for individual pipework configurations.

Further information and ErP data:










Accessories










Room temperature sensor PT 1000 **1152095**

Room temperature sensor for fixing on level surfaces (surface mounting).

Article	Packing unit	Article-No.	Hint
 Outside temperature sensor		1152099	Temperature sensor PT 1000 for connection to the heating circuit controller "Regtronic RH".
Room thermostat - surface mounting			
 230 V	(25)	1152051	The surface- or flush-mounted model of the electric thermostat is used for individual room temperature control in combination with the electrothermal actuators (two point) "Aktor T 2P". Temperature range: 5 °C up to 30 °C Heating: Use electrothermal actuators (two point) "closed with current off". As for item no. 1152051/52/55/71/72, the temperature may be set back by use of an external time switch (item no. 1152551/52 for 230 V, item no. 1152554 for 24 V). Cooling: Use electrothermal actuators (two point) "open with current off". Limitation of the control range of item no. 1152051/52/71/72 by using the concealed limiting elements. The isolator terminals of the room thermostat can be connected to the sensor entry of the heating circuit controller "Regtronic RH". The heating circuit controller can for instance activate a 230 V actuator or can switch to reduced heating operation.
24 V	(25)	1152052	
 230 V with concealed temperature setting	(25)	1152055	
 Remote control with room temperature sensor PT 1000		1152096	Remote control with room temperature sensor PT 1000 for the connection to the electronic controllers "Regtronic RH, RM and RS" for a comfortable control of the heating curve of the controller from the living area. When increasing the heating curve, the flow temperature is increased and vice versa. The remote control also features the functions "heating circuit off" and "party position".
 Room controller with operating mode switch, remote control and room temperature sensor PT 1000		1152087	Room controller with operating mode switch, remote control and room temperature sensor PT 1000 for the connection to the heating circuit controller "Regtronic RH" for a comfortable setting of the operating mode and heating curve of the controller from the living area. Operating mode switch: Setting of the operating modes "Automatic", "Night setback", "Summer" and "Off". Remote control: An increase of the heating curve provokes an increase of the flow temperature and vice versa. Furthermore, the remote control features the functions "Heating circuit off" and "Party position".

Article	Article-No.	Hint
	"Sensor LW TH" Temperature sensor PT 1000	For electronic registration of the riser temperatures.
Storage cylinder	1369093	Continuous temperature range: up to 105 °C L = 300 cm
Collector	1369094	Continuous temperature range: up to 180 °C (for short periods up to 250 °C) L = 200 cm.
	Temperature sensor attached to the pipe 1369095 Sensor element PT 1000, with fixing clamp Ø 25 - 40 and heat conducting paste	Continuous operating temperature range: up to 180 °C L = 150 mm

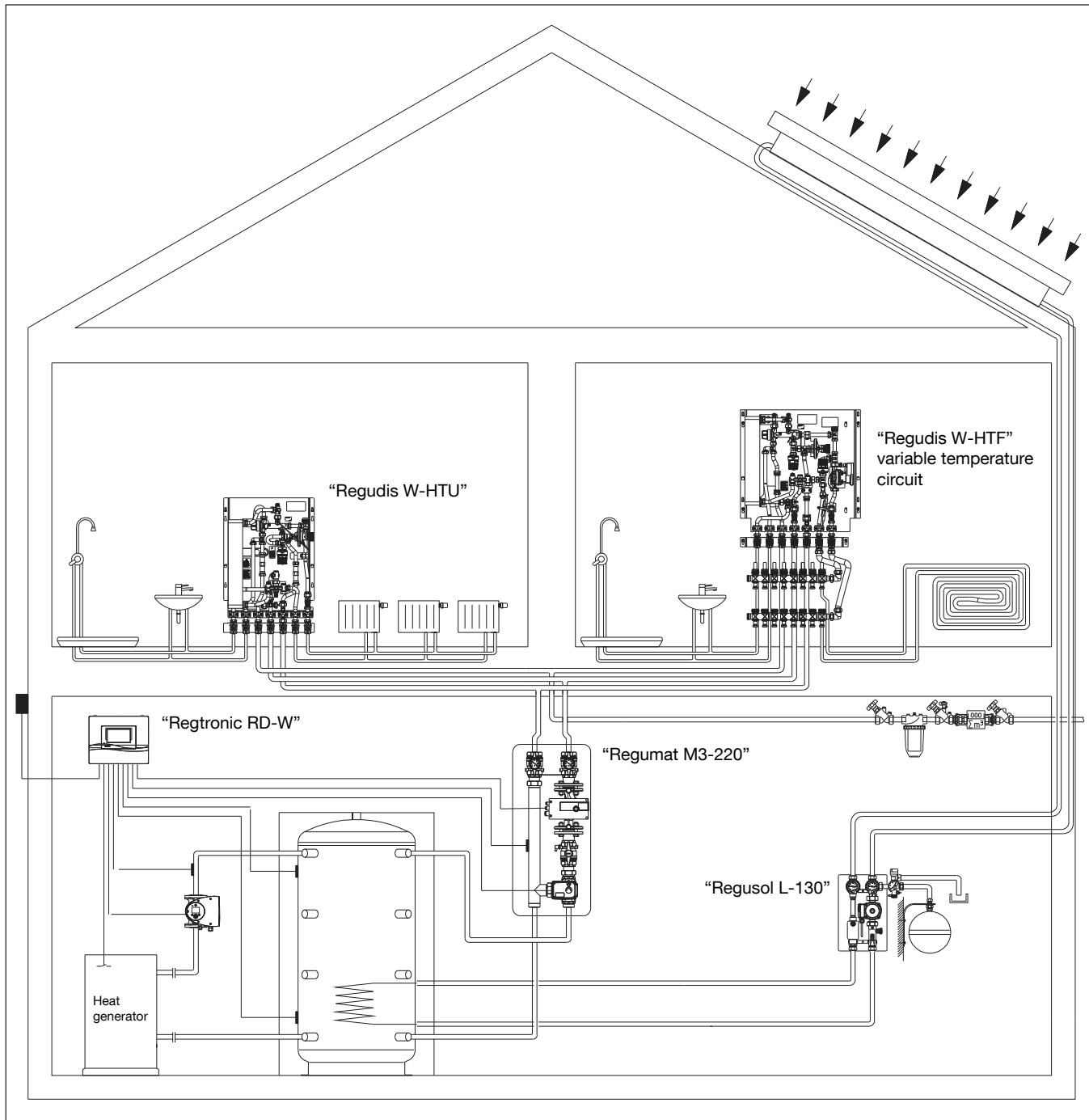
Article	length	Article-No.	Hint
	High-efficiency pump 130 mm with connection thread G 1 DN 20		
Grundfos ALPHA 2.1 15-60	130	1357161	
	High-efficiency pumps 130 mm with connection thread G 1 1/2 DN 25		
Wilo-Yonos PARA RS 25/6-RKA	130	1357153	
Wilo-Yonos PARA RS 25/6-RKC	130	1357154	
Grundfos ALPHA 2.1 25-60	130	1357157	
	High-efficiency pumps 180 mm with connection thread G 1 1/2 DN 25		
Wilo-Yonos PARA RS 25/6-RKA	180	1355158	For replacement purposes or for upgrading the "Regumat 180" stations without pump, for open vented systems.
Grundfos ALPHA 2.1 25-60	180	1358155	
Grundfos ALPHA 2.1 25-60N	180	1357159	with stainless steel body
Wilo-Stratos PICO 25/1-6	180	1358157	
Wilo-Stratos PICO 25/1-6 RG	180	1357160	with bronze body
	High-efficiency pumps 180 mm with connection thread G 2 DN 32		
Grundfos ALPHA 2.1 32-60	180	1358161	For subsequent installation into the "Regumat S/M3-180" DN 32 with pump ball valve.
Wilo-Stratos ECO 30/1-5	180	1358162	
Wilo-Yonos PARA RS 30/6-RKA	180	1358163	
Wilo-Yonos PARA RS 30/6-RKC	180	1358164	
KSB Calio 30-120	180	1358165	
Other circulation pumps on request.			
	Power cord for high-efficiency pumps with right angle plug		
for Grundfos ALPHA		1358150	Small model for "Regumat 180" DN 25 without pump ball valve. Cable 2 m long.
for Wilo-Stratos PICO		1358170	
for Wilo-Yonos PARA		1358171	
	Load relay 2-phase cabled with the casing		
		1152089	For the connection of high-performance pumps (> 1A).
	Grounding clips		
DN 20 - DN 32		1359995*	For the electrical connection of metal pipes to the earth bonding.
DN 40 - DN 50		1359996*	



6.h "Regudis W" Dwelling stations

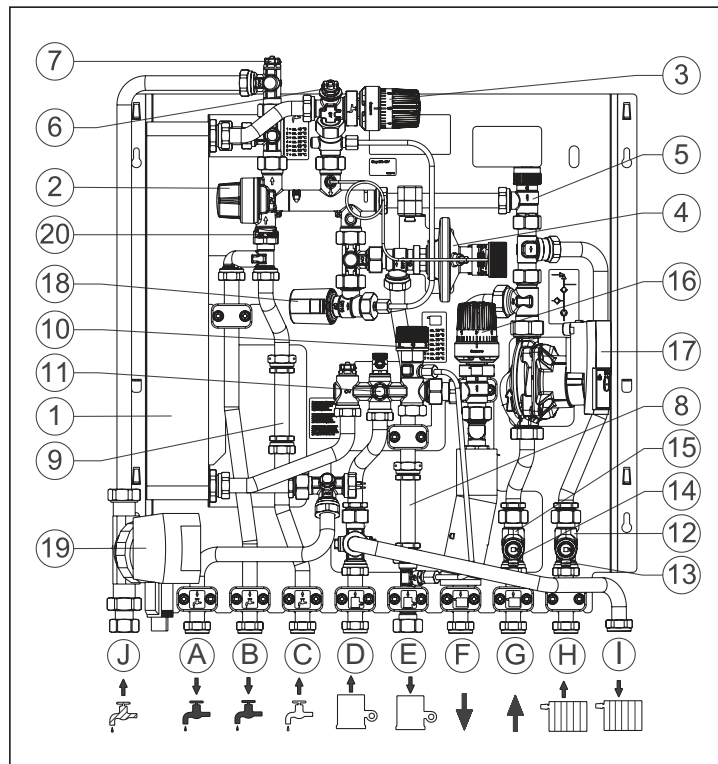
Content

General information	6.83
"Regudis W-HTU" Dwelling stations, depth 150 - 175 mm	6.85
"Regudis W-HTU Basic" Dwelling stations, depth 150 - 175 mm	6.88
"Regudis W-HTF" Dwelling stations, depth 110 mm	6.89
Covers and cabinets for dwelling stations "Regudis W"	6.93
"Regudis W-HTE" Dwelling stations - electronic control, depth 110 mm	6.100
Extension modules for "Regudis W-HTE"	6.100
Accessories for "Regudis W-HTE"	6.101
Covers and cabinets for dwelling stations "Regudis W-HTE"	6.102
"Regtronic RD-W" System controller	6.105
Accessories for system controller "Regtronic RD-W"	6.106



System illustration: "Regudis W" with conventional heat generator, buffer storage cylinder and solar integration
 A control engineered integration of the "Regudis W" dwelling stations into the heating system can be carried out with the help of the "Regudis" system controller "Regtronic RD-W".

Dwelling stations supply heat as well as hot and cold potable water to individual dwellings or commercial units without using auxiliary energy. The hot water for heating purposes is provided by a central heat supply. The potable water is heated locally via a heat exchanger according to the continuous flow principle.



- 1 Plate heat exchanger
- 2 Proportional flow controller
- 3 Thermostatic potable water temperature controller with sensor made of stainless steel, control range 40-70 °C
- 4 Differential pressure regulator
- 5 Zone valve for heating circuit control
- 6 Deaeration heating circuit
- 7 Deaeration potable water circuit
- 8 Spacer for heat meter (110 mm)
- 9 Spacer for water meter (110 mm)
- 10 Derivative temperature control set
- 11 Strainer heating water supply
- 12 Strainer constant temperature heating circuit return
- 13 Draining valve constant temperature heating circuit
- 14 Draining valve variable temperature heating circuit
- 15 Strainer variable temperature heating circuit return
- 16 Heating circuit flow temperature controller, control range 20-50 °C
- 17 Heating circuit pump
- 18 Actuator for time controlled potable water circulation
- 19 Potable water circulation pump
- 20 Flow limiter for the limitation of the maximum potable water draw off capacity (available as accessory)

- Potable water dwelling: Supply:
- A Potable hot water C Cold water supply
 - B Potable cold water D Heating water supply
 - J Circulation return E Heating water return

- Heating circuit dwelling
- F Variable temperature heating circuit supply
 - G Variable temperature heating circuit return
 - H Constant temperature heating circuit return
 - I Constant temperature heating circuit supply

“Regudis W-HTF” – full featured model
With variable temperature heating circuit, high temperature circuit, circulation pipe and derivative temperature control set

Models:

The “Regudis W” product range distinguishes between two standard models which differ in installation depth and function.

“Regudis W-HTU”

(W = Living, H = Heating, T = Hot potable water preparation, U = all connections from below)
Installation depth between 150 mm and 175 mm.
With constant temperature heating circuit.
Ideal for the replacement of existing gas flow heaters during building refurbishment.

“Regudis W-HTF”

(W = Living, H = Heating, T = Hot potable water preparation, F = Flat format)
With constant and/or variable temperature heating circuit.
With an installation depth of only 110 mm ideal for installation in lightweight partitioning walls.
Connection possibility for underfloor heating distributors/collectors.

Technical data:

Nominal size:	DN 20
Max. operating pressure:	PN 10
Max. operating temperature: (heating water supply)	90 °C
Min. cold water pressure without flow limiter:	2.0 bar ²⁾
with flow limiter:	2.5 bar
Min. differential pressure supply:	300 mbar ¹⁾
Draw off temperature $t_{\text{draw off}}$	40-70 °C
Temperature variable temperature heating circuit:	20-50 °C
Min. flow temperature:	$t_{\text{draw off}} + 15\text{K}$

Nominal draw off capacity:

The use of different plate heat exchangers allows for the adaptation of the performance range to the individual requirements.

Performance range 1: Nominal draw off capacity 12 l/min.

Performance range 2: Nominal draw off capacity 15 l/min.

Performance range 3: Nominal draw off capacity 17 l/min.

The nominal draw off capacity depends on the selected performance range and the flow temperature of the heating water. The indicated performance range (nominal draw off capacity 12/ 15/ 17 l/min.) is related to a heating water flow temperature lying 15 K above the set draw off temperature (temperature difference of 15 K). Flow limiters for the limitation of the potable water draw off capacity are available as accessory.

If the temperature difference exceeds 15 K, the effective draw off capacity increases.²⁾

¹⁾ 150 mbar for dwelling stations without integrated differential pressure regulator.

²⁾ Since 01.03.2016, the Oventrop dwelling stations (except for "Regudis W-TU") are no longer supplied with flow limiters for the limitation of the maximum potable water draw off capacity.

Draw off temperature $t_{\text{draw off}}$:

The draw off temperature is adjustable between 40 °C and 70 °C and remains constant within the performance range.

If the nominal draw off capacity is exceeded, $t_{\text{draw off}}$ may drop below the set value.

Plate heat exchanger:

When choosing the dwelling station, the water quality of the application area must be observed.

(A water analysis can be obtained from the local water authority.)

All "Regudis" dwelling stations are also available with nickel brazed heat exchangers. They are used in areas where copper brazed heat exchangers cannot be used, for instance, in mixed installations or areas with aggressive water.

Possible application of copper brazed plate heat exchangers has to be checked.

For further information visit www.oventrop.de/potable_water.

The double-walled heat exchanger with leakage paths offers additional protection of potable water.

Heat meters:

When using a heat meter, it is recommended to only use heat meters with quick sampling rate at one second intervals and with integrated return sensor in the body.

According to the German Energy Saving Directive (EnEV), "Regudis" dwelling stations can be equated with a central hot water preparation with potable water circulation. For further information visit www.oventrop.de.

Further information on request.

For further information see "Technical information".

Article	Nominal draw off capacity [l/min]	Article-No.	Hint
---------	-----------------------------------	-------------	------

"Regudis W-HTU" Dwelling stations, depth 150 - 175 mm consisting of:

- Plate heat exchanger
- Proportional flow controller
- Thermostatic temperature controller
- Strainer
- Spacer for heat meter
- Spacer for water meter
- Zone valve for heating circuit control
- Differential pressure regulator
- Deaeration
- Draining facility

Dwelling stations "Regudis W-HTU" with constant temperature heating circuit.

Example of a complete station consisting of:

- 1) 1341032 "Regudis W-HTU"
- 2) 1341080 Ball valve connector block
- 3) 1341191 Derivative temperature control set
- 4) 1341070 Flush-mounted cabinet- slim model

Heat exchanger copper brazed



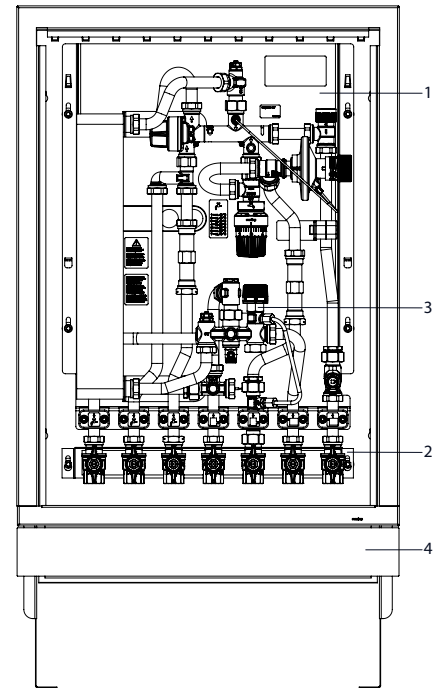
Performance range 1	12	1341030
Performance range 2	15	1341031
Performance range 3	17	1341032

Heat exchanger nickel brazed



Performance range 1	12	1341050
Performance range 2	15	1341051
Performance range 3	17	1341052

Dimensions (W x H x D): 476 mm x 630 mm x 150 mm








6

Possible application of copper brazed plate heat exchangers has to be checked. For further information visit www.oventrop.com/to/trinkwasseranforderung.

SVGW and ACS certified.

For further information see "Technical information":



Article	Nominal draw off capacity [l/min]	Article-No.	Hint
Further models			Possible application of copper brazed plate heat exchangers has to be checked. For further information visit www.oventrop.com/to/trinkwasseranforderung .
	"Regudis W-HTU" without cold water outlet dwelling and without spacer for water meter		SVGW certified. Item no. 1341231 also ACS certified.
Heat exchanger copper brazed	15	1341231	Dimensions (W x H x D): 476 mm x 630 mm x 150 mm
Heat exchanger nickel brazed	15	1341251	
	Heat exchanger double-walled copper brazed		Model with double-walled heat exchanger with leakage paths for the additional protection of potable water. Dimensions (W x H x D): 476 mm x 630 mm x 175 mm
	"Regudis W-HTO" Supply connections from the top, strainer in the potable water inlet, without cold water outlet dwelling, without spacer for water meter, 6 ball valves included		SVGW certified. Item no. 1341274 also ACS certified.
Heat exchanger, copper brazed	15	1341274	Dimensions (W x H x D): 476 mm x 630 mm x 150 mm
Heat exchanger nickel brazed	15	1341271	
	"Regudis W-TU" for hot potable water preparation without heating circuit, without cold water outlet dwelling, without spacer for water meter, without spacer for heat meter, derivative temperature control set pre-assembled, 4 ball valves included		SVGW and ACS certified.
Heat exchanger copper brazed	17	1341262	Dimensions (W x H x D): 476 mm x 630 mm x 150 mm
Heat exchanger nickel brazed	17	1341252	
	"Regudis W-TU" for hot potable water preparation without heating circuit, derivative temperature control set pre-assembled		SVGW certified. Item no. 1341257 also ACS certified.
Heat exchanger copper brazed	17	1341257	Dimensions (W x H x D): 476 mm x 630 mm x 150 mm
Heat exchanger nickel brazed	17	1341267	

Article	Nominal draw off capacity [l/min]	Article-No.	Hint
---------	-----------------------------------	-------------	------



"Regudis W-HTU Duo" with heating circuit separation system
consisting of:

- 2 plate heat exchangers
- Proportional flow controller
- Thermostatic temperature controller
- Strainer
- Spacer for heat meter
- Spacer for water meter
- Zone valve for heating circuit control
- Differential pressure regulator
- Wilo pump Yonos PARA RS 15/1-6 RKA
- Diaphragm expansion tank 3 l
- Safety valve 3 bar
- Pressure gauge
- Deaeration
- Draining facility

Heat exchanger 17 **1341332**
copper brazed

The "Regudis W-HTU Duo" dwelling station features two plate heat exchangers.

The additional heat exchanger on the heating side allows for the separation of the supply system (primary circuit) and the heating circuit of the dwelling (secondary circuit).

Heating circuit temperature control range: 40 °C up to 70 °C

ASC certified.

Dimensions (W x H x D):
630 mm x 630 mm x 150 mm





"Regudis W-HTO Duo" with heating circuit separation system

Potable water connections and supply connections from the top, without cold water outlet dwelling, without spacer for water meter, derivative temperature control set cannot be integrated

Heat exchanger 17 **1341372**
copper brazed

Dimensions (W x H x D):
630 mm x 630 mm x 165 mm

Possible application of copper brazed plate heat exchangers has to be checked. For further information visit www.oventrop.com/to/trinkwasseranforderung.

Article	Nominal draw off capacity [l/min]	Article-No.	Hint
<p>"Regudis W-HTU Basic" Dwelling stations, depth 150 - 175 mm without differential pressure regulator, without cold water outlet dwelling and without spacer for water meter</p>			
<p>Heat exchanger copper brazed</p>			
	Performance range 1	12	1340930
	Performance range 2	15	1340931
	Performance range 3	17	1340932
<p>Heat exchanger nickel brazed</p>			
	Performance range 1	12	1340950
	Performance range 2	15	1340951
	Performance range 3	17	1340952
<p>Heat exchanger double-walled copper brazed</p>			
	8		1340920

Contrary to the standard model, the "Regudis W-HTU Basic" is supplied without integrated differential pressure regulator and without cold water outlet.
 The demands on comfort and energy efficiency of the hot potable water preparation are still fulfilled by the combination consisting of proportional flow controller and temperature controller.

Hydronic balancing of up to 5 dwelling stations connected to one riser can be carried out with the help of a differential pressure regulator "Hycocoon DTZ" installed in the riser.

Dimensions (W x H x D):
 476 mm x 630 mm x 150 mm

The model with double-walled heat exchanger with leakage paths offers additional protection of potable water.

Dimensions (W x H x D):
 476 mm x 630 mm x 175 mm

ACS certified (except for item no. 1340920).

Possible application of copper brazed plate heat exchangers has to be checked. For further information visit www.oventrop.com/to/trinkwasseranforderung.

Article	Nominal draw off capacity [l/min]	Article-No.	Hint
---------	-----------------------------------	-------------	------

"Regudis W-HTF" Dwelling stations, depth 110 mm

consisting of:

- Plate heat exchanger
- Proportional flow controller
- Thermostatic temperature controller
- Strainer
- Stainless steel spacer for heat meter
- Stainless steel spacer for water meter
- Zone valve for heating circuit control
- Differential pressure regulator
- Deaeration
- Draining facility

alternatively with variable temperature heating circuit (fixed value control via heating circuit pump) or constant temperature heating circuit.

Dimensions: 565 x 655 mm constant temperature heating circuit

Dimensions: 630 x 655 mm variable temperature heating circuit

"Regudis W-HTF"

with constant temperature heating circuit

Heat exchanger copper brazed

Performance range 1	12	1341130
Performance range 2	15	1341131
Performance range 3	17	1341132



Heat exchanger nickel brazed

Performance range 1	12	1341150
Performance range 2	15	1341151
Performance range 3	17	1341152



"Regudis W-HTF"

with variable temperature heating circuit, fixed value control, Wilo pump Yonos PARA RS 15/1-6 RKA

Heat exchanger copper brazed

Performance range 1	12	1341140
Performance range 2	15	1341141
Performance range 3	17	1341142



Heat exchanger nickel brazed

Performance range 1	12	1341160
Performance range 2	15	1341161
Performance range 3	17	1341162

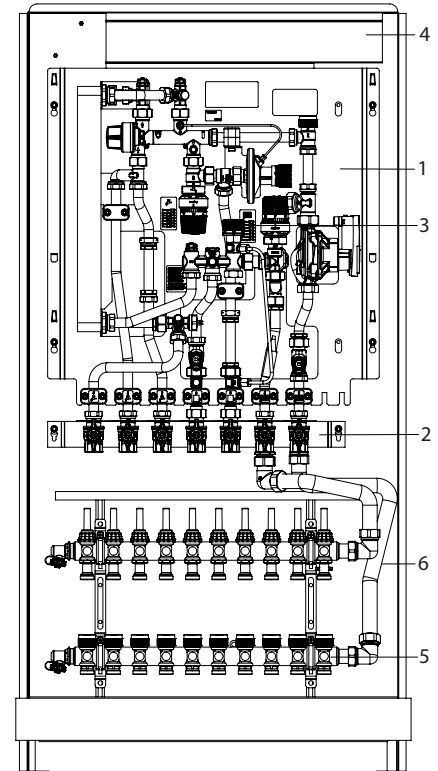


Dwelling station "Regudis W-HTF" with variable temperature heating circuit for flow temperature control when using an underfloor heating.

Flow temperature setting: 20 °C up to 50 °C

Example of a complete station consisting of:

- 1) 1341140 "Regudis W-HTF"
- 2) 1341180 Ball valve connector block
- 3) 1341191 Derivative temperature control set
- 4) 1341175 Cabinet - long model
- 5) 1405360 "Multidis SF" 10-fold stainless steel distributor/collector
- 6) 1341187 Connection set for stainless steel distributor/collector



Components for underfloor heating control: product range 2

All stations are available with copper or nickel brazed heat exchanger.







ACS certified.

Further models on request.

Possible application of copper brazed plate heat exchangers has to be checked. For further information visit www.oventrop.com/to/trinkwasseranforderung.

For further information see "Technical information":



Article	Nominal draw off capacity [l/min]	Article-No.	Hint
			As "Regudis W-HTF" with variable temperature heating circuit, but with additional outlet for a radiator circuit. ASC certified.
"Regudis W-HTF" with variable temperature heating circuit and high temperature circuit, Wilo pump Yonos PARA RS 15/1-6 RKA			
Heat exchanger copper brazed			
Performance range 1	12	1341340	
Performance range 2	15	1341341	
Performance range 3	17	1341342	
			
Heat exchanger nickel brazed			
Performance range 1	12	1341360	
Performance range 2	15	1341361	
Performance range 3	17	1341362	
			As "Regudis W-HTF" with constant temperature heating circuit, but with additional time controlled potable water circulation pump.
"Regudis W-HTF" with constant temperature heating circuit and circulation pipe, Potable water circulation pump: Wilo Star Z Nova C			
Heat exchanger copper brazed			
Performance range 3	17	1341642	
Heat exchanger nickel brazed			
Performance range 3	17	1341662	
			As "Regudis W-HTF" with variable temperature heating circuit, but with additional time controlled potable water circulation pipe.
"Regudis W-HTF" with variable temperature heating circuit and circulation pipe, Wilo pump Yonos PARA RS 15/1-6 RKA Potable water circulation pump: Wilo Star Z Nova C			
Heat exchanger copper brazed			
Performance range 3	17	1341442	
Heat exchanger nickel brazed			
Performance range 3	17	1341462	
			As "Regudis W-HTF" with variable temperature heating circuit, but with additional outlet for a radiator circuit and time controlled potable water circulation pipe. Possible application of copper brazed plate heat exchangers has to be checked. For further information visit www.oventrop.com/to/trinkwasseranforderung .
"Regudis W-HTF" with variable temperature heating circuit, high temperature circuit and circulation pipe, Wilo pump Yonos PARA RS 15/1-6 RKA Potable water circulation pump: Wilo Star Z Nova C			
Heat exchanger copper brazed			
Performance range 3	17	1341542	
Heat exchanger nickel brazed			
Performance range 3	17	1341562	
			



"Regudis W-HTF" - GSWB
 Similar to "Regudis W-HTF" with constant temperature heating circuit, item no. 1341131, but additionally with spacer for cold and hot water meter, no potable water priority function, derivative temperature control set pre-assembled, return temperature imiter in the heating circuit

Possible application of copper brazed heat exchangers has to be checked. For further information visit www.oventrop.com/to/trinkwasseranforderung

Dimensions (W x H x D)
 565 mm x 655 mm x 110 mm

Heat exchanger 15 **1341121**
 copper brazed

Accessories for "Regudis W-HTF" - GSWB



Surface-mounted cover with door **1341195**
 steel, galvanised, white powder coated

Dimensions (W x H x D):
 590 mm x 830 mm x 120 mm

Frame closed on all sides, flush-mounted model.



Refurbishment frame **1341196**

Dimensions (W x H x D):
 590 mm x 830 mm x 60 mm



Ball valve connector block **1341182**

7 angle pattern ball valves mounted onto a bracket for the isolation of all connections of the "Regudis W" station, corrugated pipe for a flexible device connection included.
 Connection to the pipework:
 G 3/4 female thread

Article	Article-No.	Hint
"Regudis W-HTU" Ball valve connector blocks		
	Ball valve connector block 1341080	For the isolation of all connections of the "Regudis" stations. Connection to the pipework: G 3/4 female thread 7 ball valves mounted onto a bracket.
	Ball valve connector block without cold water outlet dwelling 1341084	6 ball valves mounted onto a bracket.
	Ball valve connector block without heating circuit connection dwelling 1341083	5 ball valves mounted onto a bracket.
	Ball valve connector block with flushing function of the supply pipe 1341082	Ball valve connector block consisting of ball valves and "Flypass" connection fitting. 5 ball valves and "Flypass" connection fitting mounted onto a bracket. The Oventrop "Flypass" connection fitting is used for the isolation and flushing of the flow and return pipework serving the "Regudis" station. The connection fitting can be converted to bypass operation. Connection to the pipework: G 3/4 female thread
"Regudis W-HTF" Ball valve connector blocks		
	Ball valve connector block 1341180	7 ball valves mounted onto a bracket for isolation of all connections of the "Regudis W" station. Connection to the pipework: G 3/4 female thread
	Ball valve connector block with flushing function of the supply pipe 1341185	Ball valve connector block consisting of ball valves and "Flypass" connection fitting. 5 ball valves and "Flypass" connection fitting mounted onto a bracket. The Oventrop "Flypass" connection fitting is used for the isolation and flushing of the flow and return pipework serving the "Regudis" station. The connection fitting can be converted to bypass operation. Connection to the pipework: G 3/4 female thread
	Ball valve connection set high temperature connection 1341183	2 ball valves mounted onto a bracket for the isolation of the high temperature connection of the "Regudis W-HTF" station. Connection to the pipework: G 3/4 female thread
	Ball valve connection set circulation pipe 1341184	1 ball valve mounted onto a bracket for the isolation of the circulation pipe of the "Regudis W-HTF" station. Connection to the pipework: G 3/4 female thread
Replacement ball valve		
	Ball valve for the supply pipe: red handle 1341980	For "Regudis W-HTU, W-HTF and W-HTE" ball valve connector blocks. G 3/4 male thread x G 3/4 female thread
	Ball valve for the return pipe: blue handle 1341981	

Covers and cabinets for dwelling stations

	Item no.	Catalogue page	Covers						Cabinets								
			1341095	1341097	1341195	1341197	1341295	1341296	Flush mounting				Surface mounting				"Regubox" 1341098
								1341070	1341170	1341175	1341177	1341071	1341198	1341072	1341074		
1	1340920	6.88						x									
2	1340930/31/32	6.88	x	x					x		x ¹	x ¹		x			x
3	1340950/51/52	6.88	x	x					x		x ¹	x ¹		x			x
4	1341030/31/32	6.85	x	x					x		x ¹	x ¹		x			x
5	1341050/51/52	6.85	x	x					x		x ¹	x ¹		x			x
6	1341121	6.91			x						x	x	x	x			
7	1341130/31/32	6.89			x				x	x	x	x	x				x
8	1341140/41/42	6.89				x			x	x	x	x	x				
9	1341150/51/52	6.89			x				x	x	x	x	x				x
10	1341160/61/62	6.89				x			x	x	x	x	x				
11	1341220	6.86						x	x								
12	1341231/51	6.86	x	x					x		x	x		x			x
13	1341252/62	6.86	x	x					x		x	x		x			x
14	1341257/67	6.86	x	x					x		x	x		x			x
15	1341271/74	6.86					x										
16	1341332	6.87									x	x	x	x			
17	1341340/41/42	6.90				x			x	x	x	x	x				
18	1341360/61/62	6.90				x			x	x	x	x	x				
19	1341372	6.87													x	x	
20	1341442/62	6.90							x	x	x		x				
21	1341542/62	6.90							x	x	x		x				
22	1341642/62	6.90							x	x	x		x				

¹ = required min. installation depth: 150 mm

Article	Article-No.	Hint
---------	-------------	------

Surface-mounted covers



steel, galvanised	1341095	Dimensions (W x H x D): 496 mm x 800 mm x 160 mm
white powder coated	1341097	Dimensions (W x H x D): 496 mm x 800 mm x 160 mm
stainless steel with "anti-fingerprint" coating		
steel, galvanised, white powder coated, for "Regudis W-HTU" with double-walled heat exchanger	1341296	Dimensions (W x H x D): 496 mm x 800 mm x 185 mm

Long model steel, galvanised, white powder coated, pipe cutouts at the top and bottom	1341295	Dimensions (W x H x D): 496 mm x 1100 mm x 160 mm
--	----------------	--



Surface-mounted cover with door steel, galvanised, white powder coated	1341195	Dimensions (W x H x D): 590 mm x 830 mm x 120 mm Frame closed on all sides, flush-mounted model.
---	----------------	--



steel, galvanised, white powder coated	1341197	Dimensions (W x H x D): 645 mm x 800 mm x 120 mm
--	----------------	---

Cabinets - surface mounting

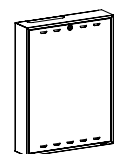
Body steel, galvanised
door, frame and plinth white powder coated,
removable plinth



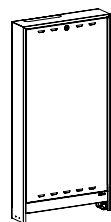
Standard model	1341071	Dimensions (W x H x D): 700 mm x 980 - 1105 mm x 160 mm
----------------	----------------	--



Long model for direct installation of dwelling stations and stainless steel distributors/collectors "Multidis SF"	1341198	Dimensions (W x H x D): 700 mm x 1440 - 1565 mm x 160 mm Suitable stainless steel distributors/collectors "Multidis SF" (up to 10 circuits): page 2.60
--	----------------	--



Model for wall attachment, pipe cutouts at the top and bottom	1341072	Dimensions (W x H x D): 750 mm x 1000 mm x 175 mm
--	----------------	--



Article Long model
pipe cutouts at the top and bottom

Article-No. **1341074**

Hint

Dimensions (W x H x D):
750 mm x 1523-1648 mm x 175 mm

Suitable stainless steel distributors/collectors "Multidis SF" (up to 12 circuits): page 2.60



"Regubox" Exclusive cabinet
with white, frameless, opaque and lockable glass door
Frame surface made of brushed stainless steel, without rear wall

Surface-mounted model **1341098**
for dwelling stations "Regudis W-HTU" and "Regudis W-HTF" with constant temperature heating circuit and for stainless steel distributors/collectors "Multidis SF" with a maximum of 6 heating circuit connections (angle pattern connection set, item no. 1404780, taken into account)

Dimensions (W x H x D):
630 mm x 900 mm x 170 mm
The mounting set for installation during construction for floor-standing installation (item no. 1341099) or wall attachment (item no. 1341199) is to be ordered separately.

Awards:
DESIGN PLUS ISH Frankfurt 2015

ICONIC AWARDS 2015

GERMAN DESIGN AWARD SPECIAL 2016

iF DESIGN AWARD 2016 iF Design Award 2016



Mounting set for installation during construction for "Regubox" steel sheet, galvanised

Floor-standing installation, adjustable height

Article-No. **1341099**



Hint Only for "Regubox", item no. 1341098.











Wall attachment




Article-No. **1341199**

Hint With screen for covering the lower connection channel of the "Regubox" in case of wall attachment.

Article	Article-No.	Hint
Cabinets - flush mounting		
Body steel, galvanised door, frame and plinth white powder coated, removable plinth		
	Slim model, adjustable height and depth	1341070
	Wide model, adjustable height and depth	1341170
	Long model for direct installation of dwelling stations and stainless steel distributors/collectors "Multidis SF"	Suitable stainless steel distributors/collectors "Multidis SF": page 2.60
	for stainless steel distributors/collectors for up to 10 circuits	1341175
	for stainless steel distributors/collectors for up to 12 circuits	1341177
		Dimensions (W x H x D): 560 mm x 870-1075 mm x 150-215 mm
		Dimensions (W x H x D): 700 mm x 985-1105 mm x 110-180 mm
		Dimensions (W x H x D): 700 mm x 1440-1565 mm x 110-180 mm
		Dimensions (W x H x D): 880 mm x 1440-1565 mm x 110-180 mm

Article	Packing unit	Article-No.	Hint
"Regudis W-HTU" Heat exchangers			
	Heat exchanger copper brazed		Heat exchanger for "Regudis W-HTU" dwelling stations. Connections: G 3/4, flat sealing Possible application of copper brazed plate heat exchangers has to be checked. For further information visit www.oventrop.com/to/trinkwasseranforderung .
	Performance range 1 12 l/min - 24 plates	1341280	
	Performance range 2 15 l/min - 30 plates	1341281	
	Performance range 3 17 l/min - 30 plates	1341282	
	Heat exchanger nickel brazed		
	Performance range 1 12 l/min - 24 plates	1341290	
	Performance range 2 15 l/min - 30 plates	1341291	
	Performance range 3 17 l/min - 30 plates	1341292	
"Regudis W-HTF" Heat exchangers			
	Heat exchanger copper brazed		Heat exchanger for "Regudis W-HTF" dwelling stations. Connections: G 3/4, flat sealing Possible application of copper brazed plate heat exchangers has to be checked. For further information www.oventrop.com/to/trinkwasseranforderung .
	Performance range 1 12 l/min - 16 plates	1341283	
	Performance range 2 15 l/min - 20 plates	1341284	
	Performance range 3 17 l/min - 30 plates	1341282	
	Heat exchanger nickel brazed		
	Performance range 1 12 l/min - 16 plates	1341383	
	Performance range 2 15 l/min - 20 plates	1341384	
	Performance range 3 17 l/min - 30 plates	1341292	
Plugs for temperature sensor			
	G 1/2 M x M 12 x 1.5 M, Ø 6.2	(25) 1349053	
	G 1/2 M x M 10 x 1.0 F Ø 5.6	(25) 1349051	For temperature sensor with connection thread M 10 x 1.
	G 1/4 M x M 10 x 1.0 F, Ø 5.6	(25) 1349054	For temperature sensor with connection thread M 10 x 1.0 in dwelling stations with high temperature circuit.
	Derivative temperature control set for stations with mounted brass distributor/collector		For maintaining the flow temperature in the "Regudis W" station to guarantee a quick supply of hot potable water outside the heating period.
	ready for installation for "Regudis W-HTU/TU"	1341088	
	ready for installation for "Regudis W-HTO"	1341089	
	ready for installation for "Regudis W-HTF"	1341188	
	for universal application, not pre-assembled	1341191	

	Article	Packing unit	Article-No.	Hint
	Stainless steel spacer G 3/4 x 110 mm		1349052	For replacement of the plastic spacers for water and heat meters.
	Draining set	(10)	1341094	For a simple draining of the heating circuit when installing a heat meter.
	Flow controller		1343050	Spare part for "Regudis W" dwelling stations except for GSWB model, "Regudis W-TU" and "Regudis" with circulation pipe manufactured up to 2016.
	Flow limiter			For the limitation of the maximum potable water draw off capacity.
	Draw off capacity limitation 12 l/min	(25)	1349980	Since 01.03.2016, flow limiters for the limitation of the maximum potable water draw off capacity are no longer mounted at works.
	Draw off capacity limitation 15 l/min	(25)	1349981	
	Draw off capacity limitation 17 l/min	(25)	1349982	
	Circulation pump 130 mm connection thread G 1			
	Wilo-Star-Z NOVA C		1349096*	As replacement for the "Regudis W" dwelling stations with potable water circulation.
	Wilo-Yonos PARA RS 15/6 RK		1349097	As replacement for the "Regudis W-HTF" dwelling stations with variable temperature heating circuit.
	Flushing and bridging fitting		1341189	For flushing of the heating system.
	Filter insert Set = 2 pieces		1349098	
	Draining valve		1349099	
	Connection set for stainless steel distributor/collector "Multidis SF"		1341187	For the connection of the "Regudis W-HTF" dwelling station to the "Multidis SF" stainless steel distributor/collector.
	T-piece		1685121	2 T-pieces allow for the connection of two stainless steel distributors/collectors to one connection set.
	Temperature sensor			For potable water temperature control.
	with spiral sensor made of stainless steel		1343092	
	Return temperature limiter set heating circuit		1341091	For temperature limitation of the heating return temperature (control range 0 - 40 °C). Only suitable for "Regudis W-HTU" and "Regudis W-HTO".

Article	Packing unit	Article-No.	Hint
		1341093	For subsequent installation of a cold water meter to the dwelling. For stations with cold water outlet. Only suitable for "Regudis W-HTU", "Regudis W-HTU Duo" and "Regudis W-TU".
	(50)	1341092	For equipotential bonding of the dwelling station.
		1341081	Set consisting of 7 corrugated hoses which may be cut to required length for a flexible connection.

Article	Nominal draw off capacity [l/min]	Article-No.	Hint
---------	-----------------------------------	-------------	------

"Regudis W-HTE" Dwelling stations - electronic control, depth 110 mm

consisting of:

- Plate heat exchanger
- Control valve with integrated differential pressure and flow control
- Actuator with integrated potable water temperature control
- Flow and temperature sensor
- Strainer
- Spacer for heat meter
- Spacer for water meter
- Connection facility for return temperature sensor of the heat meter (M 10 x 1)
- Deaeration/draining facility

Dimensions (W x H x D): 600 mm x 455 mm x 110 mm

Heat exchanger copper brazed

Performance range 1	12	1344030
Performance range 2	18	1344031
Performance range 3	25	1344032

Heat exchanger copper brazed, with special coating

Performance range 1	12	1344050
Performance range 2	18	1344051
Performance range 3	25	1344052

Extension modules for "Regudis W-HTE"

Flow temperature control module for surface heating systems

For the extension of the "Regudis W-HTE" station by a thermostatic flow temperature control for surface heating circuits.
 Flow temperature control range: 20 °C - 50 °C

consisting of:

- High-efficiency pump Wilo-Yonos PARA RS 15/1-6 RKA
- Thermostatic temperature controller with contact sensor
- Set for connection to "Regudis W-HTE"
- Electric sensor attached to the pipe for max. limitation of the heating circuit temperature

1344550

Potable water circulation module

For the extension of the "Regudis W-HTE" station by a time controlled potable water circulation function.

consisting of:

- High-efficiency pump Wilo Star Z Nova
- Timer
- Pipe connection set

1344555

Heating circuit connection fitting

For the extension of the flow temperature control module by one constant temperature heating circuit
 Connection to the pipework: G 3/4 female thread

Set = 2 pieces

1344551*

Heat transmission station with electronic control for the supply of hot and cold potable water as well as heating water to a dwelling.

The performance ranges for the draw off volume flow are reached at a heating water flow temperature set 5 K above the draw off temperature.

The modular construction of the "Regudis W-HTE" station allows for upgrading the functional range with the help of the below extension modules.

Technical data:

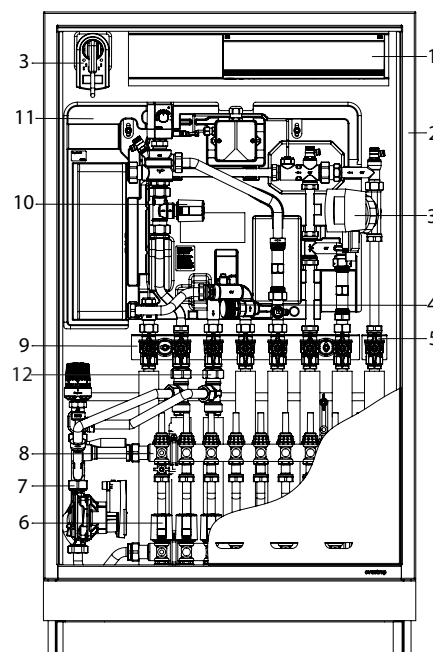
Nominal size: DN 20

Pressure rating: PN 16

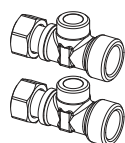
Max. operating temperature: 90 °C







Draw off temperature: 40 °C - 70 °C

System illustration:



- 1) 1400983 Connecting block for room thermostats and actuators
- 2) 1344598 Cabinet
- 3) 1344555 Potable water circulation module with time switch
- 4) 1344490 Derivative temperature control set
- 5) 1344484 Ball valve connection set for circulation module
- 6) 1012452 "Aktor T 2P H N" Actuator for individual room temperature control
- 7) 1344550 Flow temperature control module
- 8) 1405358 "Multidis SF" 10-fold stainless steel distributor/collector
- 9) 1344480 Ball valve connector block
- 10) 1012452 "Aktor T 2P H NC" Actuator for zone control
- 11) 1344032 "Regudis W-HTE" Dwelling station
- 12) 1344551 Heating circuit connection fitting



Article	Article-No.	Hint
Accessories for "Regudis W-HTE"		
	Derivative temperature control set 1344490	For maintaining the flow temperature to guarantee a quick supply of hot potable water outside the heating period.
	Stainless steel spacer G 3/4 x 110 mm 1349052	For replacement of the plastic spacers for water and heat meters.
Ball valve connector blocks		
	Ball valve connector block 1344480	For the isolation of all connections of the "Regudis W-HTE" station. Connection to the pipework: G 3/4 female thread 7 ball valves mounted onto a bracket.
	Ball valve connector block with flushing function of the supply pipe 1344485	Ball valve connector block consisting of ball valves and "Flypass" connection fitting. 5 ball valves and "Flypass" connection fitting mounted onto a bracket. The Oventrop "Flypass" connection fitting is used for the isolation and flushing of the flow and return pipework serving the "Regudis" station. The connection fitting can be converted to bypass operation. Connection to the pipework: G 3/4 female thread
	Ball valve connection set for circulation module 1344484*	1 ball valve mounted onto a bracket. For the isolation of the circulation pipe.
Replacement ball valve		
	Ball valve for the supply pipe: red handle 1341980 Ball valve for the return pipe: blue handle 1341981	For "Regudis W-HTU, W-HTF and W-HTE" ball valve connector blocks. G 3/4 male thread x G 3/4 female thread

Article	Article-No.	Hint
---------	-------------	------

Covers and cabinets for dwelling stations "Regudis W-HTE"



Front insulation shell for "Regudis W-HTE"
made of expanded polypropylene

1344470*

Dimensions (W x H x D):
600 mm x 460 mm x 80 mm

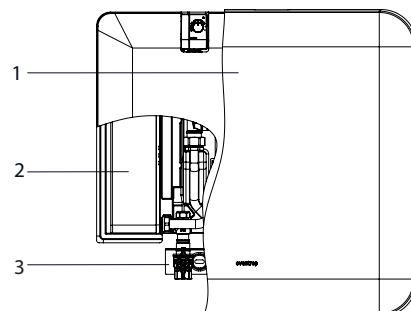


"Regubox" Exclusive surface-mounted cover
plastic, white RAL 9016

1344595*

Including front insulation shell

Dimensions (W x H x D):
670 mm x 606 mm x 110 mm



- 1) 1344595 Surface-mounted cover
- 2) 1344032 "Regudis W-HTE" Dwelling station
- 3) 1344480 Ball valve connector block

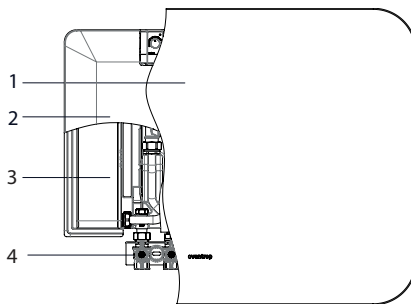
"Regubox" Exclusive cabinet
with white, frameless, opaque and lockable glass door

Frame surface made of brushed stainless steel,
without rear wall

Dimensions (W x H x D):
900 mm x 600 mm x 170 mm



Surface-mounted model **1341298**
for dwelling station "Regudis W-HTE" and
stainless steel distributor/collector "Multidis SF"
with a maximum of 9 heating circuit connections
(angle pattern connection set, item no. 1404780,
taken into account)



- 1) 1341298 "Regubox"
- 2) 1344470 Front insulation shell
- 3) 1344032 "Regudis W-HTE" Dwelling station
- 4) 1344480 Ball valve connector block



Mounting set for installation during construction for "Regubox"
steel sheet, black RAL 9005
Floor standing installation, adjustable height

1344097*

The mounting set for installation during
construction for floor-standing installation is to
be ordered separately.

Adjustable height for the adaptation to
different floor constructions. For "Regubox",
item no. 1341298.

Article	Article-No.	Hint
---------	-------------	------

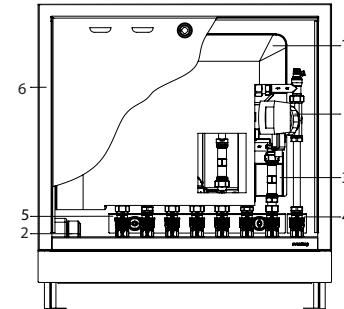
Cabinets - flush mounting
 Body steel, galvanised
 door, frame and plinth white powder coated,
 removable plinth

Adjustable height and depth.



Standard model **1344597***

Dimensions without frame (W x H x D):
 700 x 760 - 885 x 110 - 175 mm



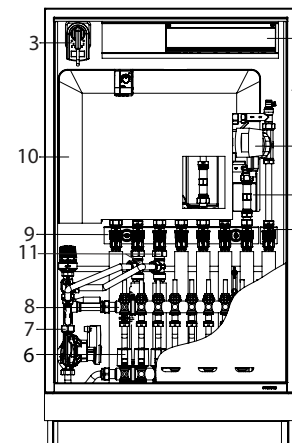
- 1) 1344470 Front insulation shell
- 2) 1344555 Potable water circulation module with time switch
- 3) 1344032 "Regudis W-HTE" Dwelling station
- 4) 1344484 Ball valve connection set for circulation module
- 5) 1344480 Ball valve connector block
- 6) 1344597 Cabinet



Long model
 for direct installation of the dwelling station "Regudis W-HTE" and stainless steel distributors/collectors "Multidis SF"

for stainless steel distributors/collectors for up to 8 circuits **1344598***
 for stainless steel distributors/collectors for up to 12 circuits **1344599***

Dimensions without frame (W x H x D):
 Item no. 1344598:
 700 x 1317 - 1442 x 110 - 175 mm
 Item no. 1344599:
 880 x 1317 - 1442 x 110 - 175 mm



- 1) 1400983 Connecting block
- 2) 1344598 Cabinet
- 3) 1344555 Potable water circulation module with time switch
- 4) 1344032 "Regudis W-HTE" Dwelling station
- 5) 1344484 Ball valve connection set for circulation module
- 6) 1012452 "Aktor T 2P H NC" Actuator
- 7) 1344550 Flow temperature control module
- 8) 1405358 "Multidis SF" 8-fold stainless steel distributor/collector
- 9) 1344480 Ball valve connector block
- 10) 1344470 Front insulation shell
- 11) 1344551 Heating circuit connection fitting

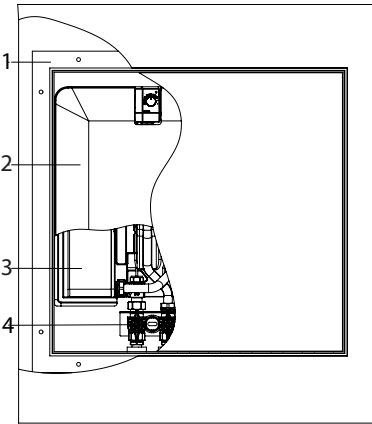
Article	Article-No.	Hint
---------	-------------	------



Tiling ready frame for "Regudis W-HTE"

1344098*

For flush wall mounting in dry construction (gypsum plaster board).



- 1) 1344098 Tiling ready frame
- 2) 1344470 Front insulation shell
- 3) 1344032 "Regudis W-HTE" Dwelling station
- 4) 1344480 Ball valve connector block

Cabinets - surface mounting

Body steel, galvanised door, frame and plinth white powder coated, removable plinth

Adjustable height



Standard model

1344697*



Long model for direct installation of the dwelling station "Regudis W-HTE" and stainless steel distributors/collectors "Multidis SF"

for stainless steel distributors/collectors for up to 8 circuits **1344698***

for stainless steel distributors/collectors for up to 12 circuits **1344699***

Article	Article-No.	Hint
---------	-------------	------

"Regtronic RD-W" System controller

1342093

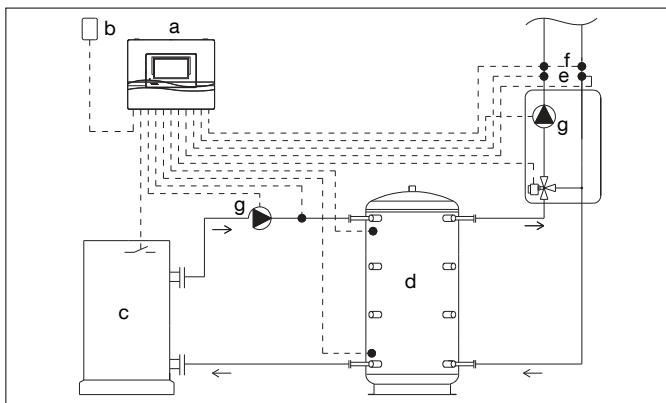


For the control engineered integration of the dwelling stations "Regudis W" into the heat supply. The controller offers the following control options:

- Buffer storage cylinder loading
- Flow temperature control with heat demand recognition
- Differential pressure control of the heating circuit pump with heat demand recognition










Furthermore, the flow and buffer storage cylinder temperatures as well as the differential pressure can be set back according to adjustable timed programmes, for instance overnight. Sensors which are required for the operation are available as accessories.

6



System illustration "Regtronic RD-W"

- a "Regtronic RD-W" System controller
- b Outdoor sensor
- c Heat generator
- d Buffer storage cylinder
- e Flow and return temperature sensor
- f Differential pressure sensor
- g Pump (speed controlled via 0-10 V interface)

Article	Article-No.	Hint
Accessories for system controller "Regtronic RD-W"		
	Sensor connection set "Regumat" for system controller "Regtronic RD-W"	For the connection of differential pressure and temperature sensors to the pipework.
consisting of:	1357291	
2 x Adapter G 2 male x G 2 male		
1 x Differential pressure sensor		
2 x Temperature sensor PT 1000		
	Sensor connection set "Regumat" for system controller "Regtronic RD-W"	As item no. 1357291, but without differential pressure sensor.
consisting of:	1357292	
2 x Adapter G 2 male x G 2 male		
2 x Temperature sensor PT 1000		
	Fitting	
R 2 male x G 2 collar nut	1352089	For connection to a "Regumat" DN 40/50.
	Coupling	
2 x G 2 collar nut	1352088	For connection to a "Regumat" DN 32.
	Outside temperature sensor	Temperature sensor PT 1000 for connection to the heating circuit controller "Regtronic RH".
	"Sensor LW TH"	For electronic registration of the riser temperatures.
Temperature sensor PT 1000		
	Storage cylinder	Continuous temperature range: up to 105 °C L = 300 cm
	Collector	Continuous temperature range: up to 180 °C (for short periods up to 250 °C) L = 200 cm.
	Temperature sensor attached to the pipe	Continuous operating temperature range: up to 180 °C L = 150 mm
Sensor element PT 1000, with fixing clamp Ø 25 - 40 and heat conducting paste	1369095	

Article	Packing unit	Article-No.	Hint
Electronic control components for the constant temperature heating circuit			
Room thermostat - flush mounting (heating)			
	230 V	(40) 1152561	With LCD display and adjustable timed programme. In combination with a two point actuator, e.g. item no. 1012415, the room thermostat can be used for the timed control of the constant temperature heating circuit of the dwelling of a "Regudis" station.
Electronic control components for the variable temperature heating circuit			
"Sensor LW TH" Electric sensor attached to the pipe with concealed temperature setting			
	Control range 20-90 °C	1143000	For max. limitation of the flow temperature of surface heating systems.
"Regtronic RH" Heating circuit controller			
	with 1 outdoor sensor and 3 additional sensors (PT 1000)	1152093°	
	with 1 outdoor sensor (bus-compatible) and 3 additional sensors (PT1000)	1152083*	
"Aktor M" Electromotive actuators			
connection thread M 30 x 1.5 with manual setting, adjustable mode of operation			
	"3P H", 230 V, three point actuator, without anti-blocking function, mode of operation not adjustable	1012709	In combination with a heating circuit controller, the actuators allow for weather guided control of the variable temperature heating circuit of the dwelling of the "Regudis" dwelling stations.
	Remote control with room temperature sensor PT 1000	1152096	Remote control with room temperature sensor PT 1000 for the connection to the electronic controllers "Regtronic RH, RM and RS" for a comfortable control of the heating curve of the controller from the living area. When increasing the heating curve, the flow temperature is increased and vice versa. The remote control also features the functions "heating circuit off" and "party position".

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------



Connecting block (10 control zones) for room thermostats and actuators

230 V, heating/cooling, pump control	(25)	1400981	For the connection of up to 10 room thermostats and actuators for individual room temperature control. For the additional control of the pump for the variable temperature heating circuit inside the dwelling station. Casing cover with integrated time switch.
230 V, heating/cooling, pump and boiler control, time switch	(25)	1400983*	

Room thermostat-clock - surface mounting (heating)

with daily setting



230 V	(78)	1152551°
-------	------	-----------------

with weekly setting

230 V		1152552
-------	--	----------------

Room thermostat - surface mounting (heating)



230 V	(25)	1152051
-------	------	----------------

"Aktor T 2P" Electrothermal actuators (two point)
connection thread M 30 x 1.5



"H NC", closed with current "off", 230 V		1012415
"H NC", closed with current "off", 230 V cable 2 m long		1012452

For individual room temperature control in combination with the connecting block, item no. 1400981.
For zone control in combination with the room thermostat, item no. 1152561.



Further room thermostats and actuators: see product range 2

6.i "Regumaq X/XZ/XH/K" Stations for hot potable water preparation



Content

"Regumaq X-30" - without circulation connection	6.110
"Regumaq XZ-30" - with circulation connection	6.110
"Regumaq XZ-30" - with circulation connection and high-efficiency circulation pump	6.111
Heat exchangers	6.112
Accessories for "Regumaq X-/XZ-30"	6.113
"Regumaq K" Cascade control set for "Regumaq X/XZ-30"	6.117
"Regumaq X-80"	6.118
Accessories for "Regumaq X-80"	6.118
"Aquanova Magnum" Water filters	6.120
"Regumaq XH"	6.122
Accessories for "Regumaq XH"	6.123

Article	Article-No.	Hint
 <p>"Regumaq X-30" - without circulation connection Station for hot potable water preparation with electronic controller "Regtronic RQ" with full graphic display and data output (S-bus)</p> <p>with Wilo high-efficiency pump Yonos PARA RS 130 15/7 PWM2 for the buffer side Heat exchanger: 30 plates</p> <p>Discharge capacity: 2 - 45 l/min. depending on the set potable water temperature and the existing water temperature inside the buffer storage cylinder</p> <p>Control range of potable water temperature: 20 °C - 60 °C</p> <p>Connections: G 1 flat sealing for the connection to the buffer and potable water circuit</p> <p>Potable water circuit: with flow sensor, safety valve 10 bar, electronic resistance thermometer, 2 fill and drain cocks, ball valves and thermometer</p> <p>Buffer circuit: Fill and drain cocks, ball valves with and without check valve and thermometer, circulation pump</p> <p>Dimensions (outer dimensions of insulation): Width: 500 mm Height: 860 mm Depth: 260 mm</p> <p>Model with copper brazed heat exchanger 1381030 Model with heat exchanger completely made of stainless steel 1381032</p>		<p>Application: Electronically controlled product assembly with heat exchanger for the hygienic heating of potable water according to the continuous flow principle.</p> <p>The potable water is only heated at the moment when it is needed, i. e. "just in time". The stations are especially suitable for detached and semi-detached houses. They are connected to buffer storage cylinders which are heated up by solar energy, solid fuels, gas or oil.</p> <p>Depending on the temperature and the volume flow on the potable water side, the circulation pump on the heating side is speed regulated. The plate heat exchanger complies with the specifications of the European Pressure Equipment Directive (PED).</p> <p>Due to the turbulent flow, a good self-cleaning effect avoiding a contamination is achieved. The plate heat exchanger can be flushed using the fill and drain cocks integrated in the primary and secondary circuit.</p> <p>The potable water circuit is protected by a 10 bar safety valve.</p> <p>The components of the heat exchanger system have flat sealing connections, are pre-assembled on a mounting board and leak tested.</p> <p>The controller is wired up with the internal electric components and features a data bus (S-bus) for the connection to the data logger "CS-BS".</p>
 <p>"Regumaq XZ-30" - with circulation connection Station for hot potable water preparation with electronic controller "Regtronic RQ" and connection for potable water circulation systems</p> <p>with Wilo high-efficiency pump Yonos PARA RS 130 15/7 PWM2 for the buffer side</p> <p>with Wilo pump ZRS 130 15/4-3KU for the potable water side (circulation)</p> <p>Model with copper brazed heat exchanger 1381035 Model with heat exchanger completely made of stainless steel 1381037</p>		<p>Similar to "Regumaq X-30". The potable water circuit is additionally equipped with a circulation pump for the operation in a circulation system.</p> <p>With check valve in the circulation circuit. Control functions individually programmable: Adjustable circulation return temperature or adjustable time frames and daily programmes.</p> <p>Possible application of copper brazed plate heat exchangers has to be checked. For further information visit www.oventrop.com/to/trinkwasseranforderung.</p>

Article

Article-No.

Hint



"Regumaq XZ-30" - with circulation connection and high-efficiency circulation pump

Station for hot potable water preparation with electronic controller "Regtronic RQ" and connection for potable water circulation systems

with high-efficiency pump Wilo-Yonos PARA RS 130 15/7 PWM 2 for the buffer side

with high-efficiency pump Wilo-Yonos PARA Z RKC 130 15/7 for the potable water side (circulation)

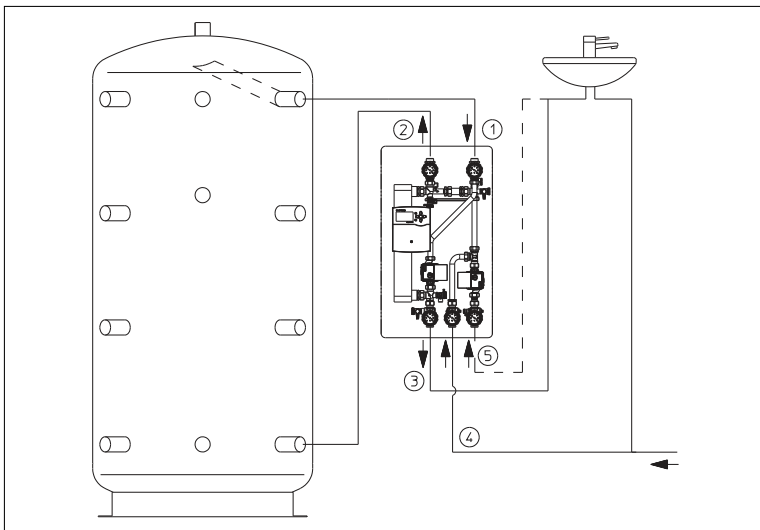
Model with copper brazed heat exchanger **1381025**

Model with heat exchanger completely made of stainless steel **1381027**

Similar to "Regumaq X-30". The potable water circuit is additionally equipped with a high-efficiency circulation pump for the operation in a circulation system.

With check valve in the circulation circuit. Control functions individually programmable: Adjustable circulation return temperature or adjustable time frames and daily programmes.

Possible application of copper brazed plate heat exchangers has to be checked. For further information visit www.oventrop.com/to/trinkwasseranforderung.



- 1 Supply from the storage cylinder
- 2 Return to the storage cylinder
- 3 Hot water
- 4 Cold water supply
- 5 Circulation - return (only "Regumaq XZ")

Article	Article-No.	Hint
---------	-------------	------

Heat exchangers

Replacement for "Regumaq" and "Regusol X" copper brazed



without connection fitting for higher capacities

20 plates up to about 40 kW
30 plates up to about 55 kW

1351790
1351791

Connection distance: 466 mm x 50 mm
4 x G 1 flat sealing

As replacement for "Regusol X-15".
As replacement for "Regusol X-25" and "Regumaq".

The capacities are determined by the fixed default values in the primary circuit (80/60 °C) and in the secondary circuit (50/70 °C).



Model completely made of stainless steel

30 plates up to about 55 kW

1381068

As replacement for "Regumaq".



Retaining and fixing set "Regumaq X/XZ"

1389090

For fixing a potable water station "Regumaq X/XZ" to a buffer storage cylinder "Hydrocor - HP/HS".







Storage cylinder connection set "Regumaq X/XZ"





1381185

For the hydronic connection of a potable water station "Regumaq X/XZ" fixed at a buffer storage cylinder "Hydrocor - HP/HS".

Suitable buffer storage cylinders "Hydrocor - HP/HS":
page 10.20

Article	Article-No.	Hint
Accessories for "Regumaq X-/XZ-30"		
	for the secondary circuit (potable water circuit) WILO ZRS 15/4-3 KU three-stage speed control, plastic housing DN 25, PN 10, 110 °C	1381091 Only supplied as replacement for the station "Regumaq XZ-30". With Molex plug (without pump connecting cable).
	Connection thread G 1 Wilo-Yonos PARA 15-7 PWM2 DN 15, PN 10, 95 °C for the secondary circuit (storage cylinder circuit) "Regusol" or the primary circuit (storage cylinder circuit) "Regumaq"	1389008 Only supplied as replacement for the stations "Regumaq X-30/XZ-30" and "Regusol X-Uno/Duo 25".
	Replacement kit high-efficiency pump consisting of: – Electronic controller "Regtronic RQ" – VFD flow sensor 2-40 l/min. – Controller location made of expanded polypropylene for "Regtronic RQ" – Screw-in sensor PT 1000 – High-efficiency pump Wilo-Yonos PARA RS 15/7 130 PWM for the primary circuit	1389095 The high starting current of high-efficiency pumps places special demands on the control and regulation technology. The control signal of the controller and the high-efficiency pump must be co-ordinated. If the control signals of the controller and the pump are not co-ordinated, an operation is not possible. Accordingly, the controller must also be replaced when replacing the asynchronous pump of a "Regumaq X/XZ" station with a high-efficiency pump.
	"Regtronic PQ" cabled, replacement for "Regumaq X/XZ-30"	1381092 Only supplied as replacement for the stations "Regumaq X-30" and "Regumaq XZ-30".
	"Regtronic RQ" cabled, replacement for "Regumaq X/XZ-30"	1389099*
	Flow sensors Pulse water meter, 40 pulses/litre for the secondary circuit (potable water circuit) connection G 1 x G 1 collar nut, including seals	1381093 Only supplied as replacement for the stations "Regumaq X-30" and "Regumaq XZ-30" with controller "Regtronic PQ".
	VFD sensor 2-40 l/min. for the secondary circuit (potable water circuit) connection G 1 x G 1 collar nut, including seals	1389901 Only supplied as replacement for the stations "Regumaq X-30" and "Regumaq XZ-30" with controller "Regtronic PQ".
	VFD sensor, 2-40 l/min., for the secondary circuit (potable water circuit) sensor head, without housing	1389902 For insertion into an existing brass housing.

Article	Packing unit	Article-No.	Hint
			
Ball valves, primary circuit			
for the primary circuit (buffer storage cylinder circuit) connection G 1 x G 1			
Return, blue thermometer		1381094	Only supplied as replacement for the stations "Regumaq X-30" and "Regumaq XZ-30".
			
Supply, with check valve, red thermometer		1381095	
			
Ball valves, secondary circuit			
for the secondary circuit (potable water circuit) connection G 1 x G 1 collar nut			
Potable water outlet hot, with fill and drain cock, red thermometer		1381096	Only supplied as replacement for the stations "Regumaq X-30" and "Regumaq XZ-30".
			
Potable water supply cold, blue thermometer		1381097	
			
Potable water circulation, red thermometer		1381088	
			
Check valve Potable water circulation	(10)	1381089	Check valve for replacement purposes or for subsequent installation in the potable water circulation return pipe in front of the circulation pump.

Article	Article-No.	Hint	
PT1000 Temperature sensors			
	Potable water outlet, hot (T2) Screw-in sensor	1389050	Only for "Regtronic PQ".
	PT1000/pipe Potable water supply, cold (T3) Sensor attached to the pipe	1389051	Only for "Regtronic PQ".
	Potable water outlet, hot (S2) Screw-in sensor	1389052	Only for "Regtronic RQ".
Conversion set for external circulation pump			For the operation of "Regumaq X-30" stations in combination with an external circulation pump. Circulation pump not included.
	Pipework set with seals, ball valve, draining valve, check valve, thermometer, insulation screen and fixing material.	1381080	
Spacer for circulation pump			
2 x G 1 male thread x 130 mm	1381079*		

Article	kvs	Article-No.	Hint
---------	-----	-------------	------

Tailpipe sets DN 20 for "Regusol X" and "Regumaq X/XZ" stations

To be ordered separately:

Tailpipe sets 3-fold with collar nut and ring gasket

Are required for the connection of the "Regusol X" and "Regumaq X/XZ" stations to the storage cylinder circuit.

Use "Regusol" compression fittings for the connection of the "Regusol X" station to the solar circuit.

May also be used for "Regumaq X/XZ" and accessories.



Solder tailpipes 22 mm **1367465**



Male threaded tailpipes R 3/4 **1367468**

Isolation device for "Regumaq X/ XZ-30/ X-80"

consisting of:

- 1 x "Hycococon HTZ" Regulating valve DN 40
- 1 x "Aktor M 2P H" Electromotive actuator

1381078

Isolating set to avoid gravity circulation in the primary circuit (buffer circuit).



Accessories kit "Regumaq" for return layering for the primary circuit (buffer storage cylinder circuit)

Consisting of three-way valve G 1 1/4, flat sealing, actuator and storage cylinder sensor **1381066**

For layering the temperature dependent return water in the lower or central storage cylinder section.

The switching function is already pre-configured inside the controller "Regtronic RQ".

Not suitable for cascading constructions.



Ball valve for return layering, PN 16

DN 25	10.00	1381191
DN 32	15.00	1381192
DN 40	47.00	1381193
DN 50	75.00	1381194






A set for return layering consists of:


- 1 x ball valve for return layering
- 1 x actuator for ball valve for return layering
- 1 x storage cylinder temperature sensor PT 1000, item no. 1369093; page 10.13



Actuator for ball valve for return layering **1381199**



Article	Article-No.	Hint
<p>"Regumaq K" Cascade control set for "Regumaq X/XZ-30" Cascade control set for hot potable water preparation</p> <p>Cascade control integrated in the actuators, with ball valves for potable water supply</p>		<p>Application: The cascade control set allows to increase the discharge capacity of the "Regumaq" stations up to 120 l/min. The set does not include the potable water stations.</p>
 <p>"Regumaq K-2" Set for the control of 2 "Regumaq" stations</p> <p>Discharge capacity: 60 l/min. according to the supply capacity (see technical information "Regumaq Stations for hot potable water preparation") 2 actuators with ball valves DN 25 G 1¼</p>	<p>1381082</p>	
 <p>"Regumaq K-3" Set for the control of 3 "Regumaq" stations</p> <p>Discharge capacity: 90 l/min. according to the supply capacity (see technical information "Regumaq Stations for hot potable water preparation") 3 actuators with ball valves DN 25 G 1¼</p>	<p>1381083</p>	
 <p>"Regumaq K-4" Set for the control of 4 "Regumaq" stations</p> <p>Discharge capacity: 120 l/min. according to the supply capacity (see technical information "Regumaq Stations for hot potable water preparation") 4 actuators with ball valves DN 25 G 1¼</p>	<p>1381084</p>	
 <p>"Regumaq K" Connection piping G 1¼ collar nut x G 1 collar nut</p>	<p>1389082</p>	<p>Connection piece between "Regumaq" and cascade ball valves.</p>
 <p>Switching module</p>	<p>1389085</p>	<p>The minimum draw off temperature is monitored by the switching module. A message can be sent to the centralised building control system or a signalling unit.</p>

Article	Article-No.	Hint
 <p>"Regumaq X-80" Station for hot potable water preparation with electronic controller "Regtronic RQ" with full graphic display and data output (S-bus)</p> <p>with Grundfos pump UPML 25-105 PWM Heat exchanger: 46 plates</p> <p>Discharge capacity: 2- 80 l/min. depending on the set potable water temperature and the existing water temperature inside the buffer storage cylinder</p> <p>Performance data according to SPF test procedure: Discharge capacity 77 l/min. with PWH-3K PWC = 10 °C, PWH = 60 °C (setting) T_{storage cylinder} = 75 °C</p> <p>Control range of potable water temperature: 20 - 60 °C</p> <p>Connections: G 1½ flat sealing for the connection to the buffer and potable water circuit</p> <p>Potable water circuit: with flow sensor, safety valve 10 bar, electronic resistance thermometer, 2 fill and drain cocks and ball valves</p> <p>Buffer circuit: 2 fill and drain cocks, ball valves, circulation pump and throttling valve with actuator</p> <p>Dimensions (outer dimensions of insulation): Width: 660 mm Height: 875 mm Depth: 290 mm</p> <p>Model with copper brazed heat exchanger 1381580 Model with nickel brazed heat exchanger 1381581</p>		<p>Electronically controlled product assembly with heat exchanger for the hygienic heating of potable water according to the continuous flow principle. The potable water is only heated when it is needed, i.e. "just in time". The stations are especially suitable for multiple dwellings, hotels and sports facilities. They are connected to bufferstorage cylinders which are heated up by solar energy, solid fuels, gas or oil.</p> <p>Depending on the temperature and the volume flow on the potable water side, the circulation pump on the heating side is speed regulated. The plate heat exchanger complies with the specifications of the European Pressure Equipment Directive (PED).</p> <p>Due to the turbulent flow, a good self-cleaning effect avoiding a contamination is achieved. The plate heat exchanger can be flushed using the fill and drain cocks integrated in the primary and secondary circuit. The potable water circuit is protected by a 10 bar safety valve. The components of the heat exchanger system have flat sealing connections, are pre-assembled on a mounting board and leak tested.</p> <p>The controller is wired up with the internal electric components and features a data bus (S-bus) for the connection to the data logger "CS-BS".</p> <p>Accessories for return layering: page 6.116</p> <p>Possible application of copper brazed plate heat exchangers has to be checked. For further information visit www.oventrop.com/to/trinkwasseranforderung.</p>

Accessories for "Regumaq X-80"

"Regumaq X-80" Potable water circulation set



Connection set for the extension of the "Regumaq X-80" station by a potable water circulation
 Pipework set with seals and ball valve with check valve

1381590


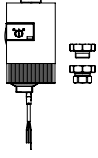




Isolation device for "Regumaq X/ XZ-30/ X-80"



consisting of:
 - 1 x "Hycococon HTZ" Regulating valve DN 40
 - 1 x "Aktor M 2P H" Electromotive actuator

1381078

Isolating set to avoid gravity circulation in the primary circuit (buffer circuit).

Article	kvs	Packing unit	Article-No.	Hint
	High-efficiency circulation pumps with connection adapters for installation into the potable water circulation set "Regumaq X-80"			
			Wilo-Yonos PARA Z 15/7.0 RKC 130	1381591
			Wilo-Stratos PARA Z 25/1-12 RK 180	1381592
	Load relay			
			2-phase cabled with the casing	1152089
	Connection fittings for circulation pumps installed on site			
			G 1 female x G 1 female	(10) 1381585
			G 1½ female x G 1½ male	(10) 1381587
			G 1½ female x G 1 c/nut 32 mm	(10) 1359091
	Ball valve for return layering, PN 16			
			DN 25	10.00 1381191
			DN 32	15.00 1381192
			DN 40	47.00 1381193
			DN 50	75.00 1381194
	Actuator for ball valve for return layering			
				1381199

In conjunction with the fresh water controller "Regtronic RQ", the circulation pump Wilo-Stratos PARA Z 25/1-12 RK 180 must only be used in combination with the load relay, item no. 1152098.

For the connection of high-performance pumps (> 1A).

One connection fitting, item no. 1381585, is required for the integration of a G 1 circulation pump installed on site into the potable water circulation set, item no. 1381590. One connection fitting, item no. 1381587, and one fitting, item no. 1359091, are required for a G 1½ circulation pump.

A set for return layering consists of:
 1 x ball valve for return layering
 1 x actuator for ball valve for return layering
 1 x storage cylinder temperature sensor
 PT 1000, item no. 1369093: page 10.13

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

"Aquanova Magnum" Water filters

Head and collar nut: brass
 Filter insert (one piece):
 plastic body covered with mesh
 Max. water temperature: 30 °C
 Mesh size: 95-140 µm

Application:
 Potable water installations PN 16.



with transparent plastic filter cup (Trogamid T) PN 16
 both ports female thread according to EN 10226-1

DVGW and ACS certified.

DN 25	6120008
DN 32	6120010
DN 40	6120012
DN 50	6120016



with transparent plastic filter cup (Trogamid T) PN 16
 both ports male threaded tailpipes according to DIN EN 10226-1

DVGW and ACS certified.

DN 32	6122010
-------	----------------

For further information see
 "Technical information":



Filter inserts



Filter insert 95-140 µm,
 hygienically packed, DIN-DVGW tested

6125101

Connection fittings



Tailpipe (bronze), flat sealing, with male thread according to
 EN 10226-1, collar nut and ring gasket (EPDM)

R 1¼	x G 1½ (collar nut)	(5)	4201475
------	---------------------	-----	----------------

"Aquastrum P" Water sampling valve



DN 8	(10)	4209102
------	------	----------------

Flame resistant and chemically disinfectable
 water sampling valve for hygienic-
 microbiologic tests according to DIN EN ISO
 19458, DVGW W 551, TrinkwV (German Decree
 for Potable Water) and VDI 6023.
 PN 10.

Valve body made of bronze, stem made of
 stainless steel, metal to metal sealing, with
 additional seal made of heat-resistant PTFE,
 with metal plate for marking the water sampling
 point according to DIN EN ISO 19458 chapter
 3.

All models with discharge elbow made of
 stainless steel.
 Operation with the help of the Allen key
 supplied with the valve.

Article

Article-No.

Hint



"Regumaq XH"

Station for hot potable water preparation

with high-efficiency pump Wilo-Yonos PARA RS 130 15/7 PWM2 in the buffer circuit

Recommended discharge capacity: 15-20 l/min., depending on the set potable water temperature and the existing water temperature inside the buffer storage cylinder

Control range of potable water temperature: 40 °C - 60 °C

Connections:

G 3/4 flat sealing for the connection to the potable water circuit

G 1 flat sealing for the connection to the buffer circuit

Potable water circuit:

consisting of flow controller, connection for circulation pipe (G 3/4), heat exchanger, temperature sensor and flow switch

Buffer circuit:

consisting of storage cylinder pump, heat exchanger, venting valve, flow controller and thermostatic valve

Dimensions (outer dimensions of insulation):

Width: 400 mm

Height: 690 mm

Depth: 190 mm

"Regumaq XH"

1381042

Heat exchanger made of stainless steel, copper brazed

Hydraulically controlled product assembly with heat exchanger for the hygienic heating of potable water according to the continuous flow principle.

The potable water is only heated at the moment when it is needed, i.e. "just in time".

For the connection to buffer storage cylinders which are heated up by solar energy, solid fuels, oil or gas.

PN 10 (at 20 °C), up to 95 °C.

Depending on the draw off capacity on the potable water side, the circulation pump on the heating side is switched on and the volume flow is regulated.

The soldered plate heat exchanger complies with the specifications of the European Pressure Equipment Directive (PED). Due to the turbulent flow, a good self-cleaning effect avoiding a contamination is achieved.

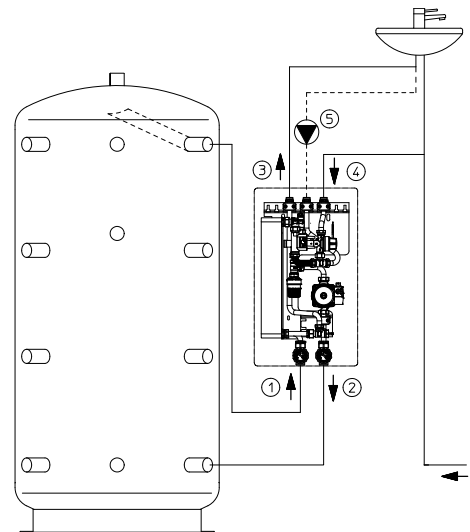
The components of the heat exchanger system have flat sealing connections, are pre-assembled on a carrier board and leak tested.

The product assembly is wired and ready for plug-in. With wall bracket.







The "Regumaq XH" is certified by the SVGW under certificate no. 1212-6108.

Possible application of copper brazed plate heat exchangers has to be checked. For further information visit www.oventrop.com/to/trinkwasseranforderung.

System illustration:



- 1 Supply from the buffer storage cylinder
- 2 Return to the buffer storage cylinder
- 3 Hot water
- 4 Cold water supply
- 5 Circulation pipe - return (optionally with 1381047 or 1381049)

Article	Article-No.	Hint
Accessories for "Regumaq XH"		
	"Regumaq XH" Potable water circulation set Connection set with circulation pump Wilo Star Z Nova C and time switch for the extension of the "Regumaq XH" station by a potable water circulation	1381047
	"Regumaq XH" Potable water circulation set as above but without circulation pump and without time switch	1381049
	Flow switch for "Regumaq" item no. 1381040 without high-efficiency pump	1381046
	Flow switch for add-on groups for hot potable water preparation with high-efficiency pump	1381043
	"Regumaq XH" Filter insert	1381044
	Upgrade kit high-efficiency pumps consisting of: – Electronic box with signal, power supply cords and flow switch – High efficiency pump Wilo-Yonos PARA ST 15/7 130 PWM2 for the primary circuit (buffer storage cylinder circuit)	1381048
	Circulation pump 130 mm Wilo-Yonos ST 15/7 130 PWM2 Connection thread G 1 for the primary circuit/buffer storage cylinder circuit	1383582
	Flow controller	1381045

Suitable for:
"Regumaq XH" 1381042
"Regucor WH" 1383460/65
"Regucor WHS" 1383550/55/62/67
1383645

For the protection of the potable water circuit against contaminations.
Mesh size 0.5 mm,
made of stainless steel

The high starting current of high-efficiency pumps places special demands on the control and regulation technology. Accordingly, it is not only necessary to replace the asynchronous pump of the "Regumaq XH" station with a high-efficiency pump, but the flow switch also has to be replaced and connected to the electronic box.

Suitable for:
"Regumaq XH" 1381040
"Regucor WHS" 1383560, 1383565

Suitable for:
"Regumaq XH" 1381042
"Regucor WH" 1383460/65
"Regucor WHS" 1383550/55/62/67
1383645

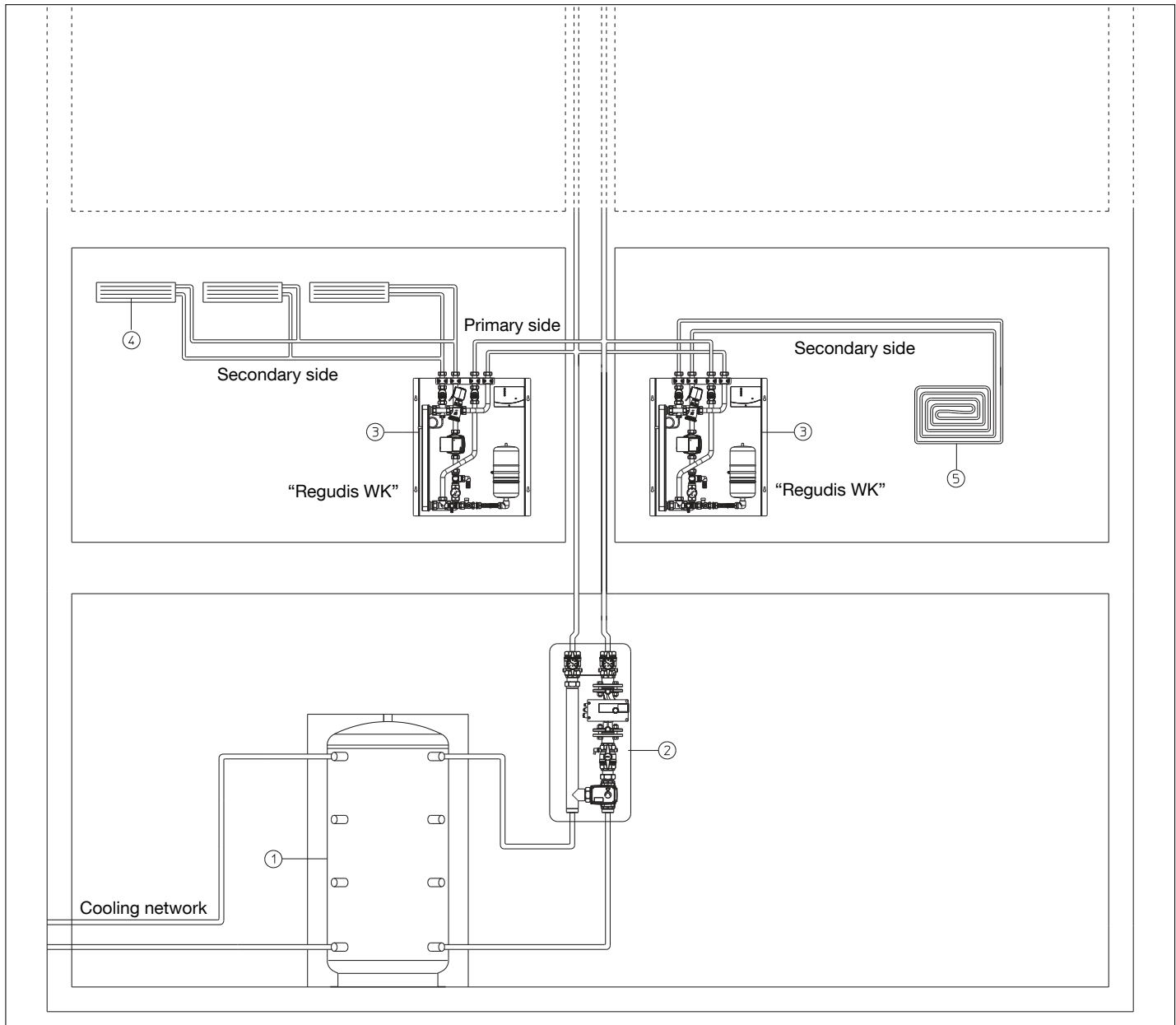
Suitable for:
"Regumaq XH" 1381040/42
"Regucor WH" 1383460/65
"Regucor WHS" 1383550/55/62/67
1383645



6.j "Regudis WK" Cooling stations

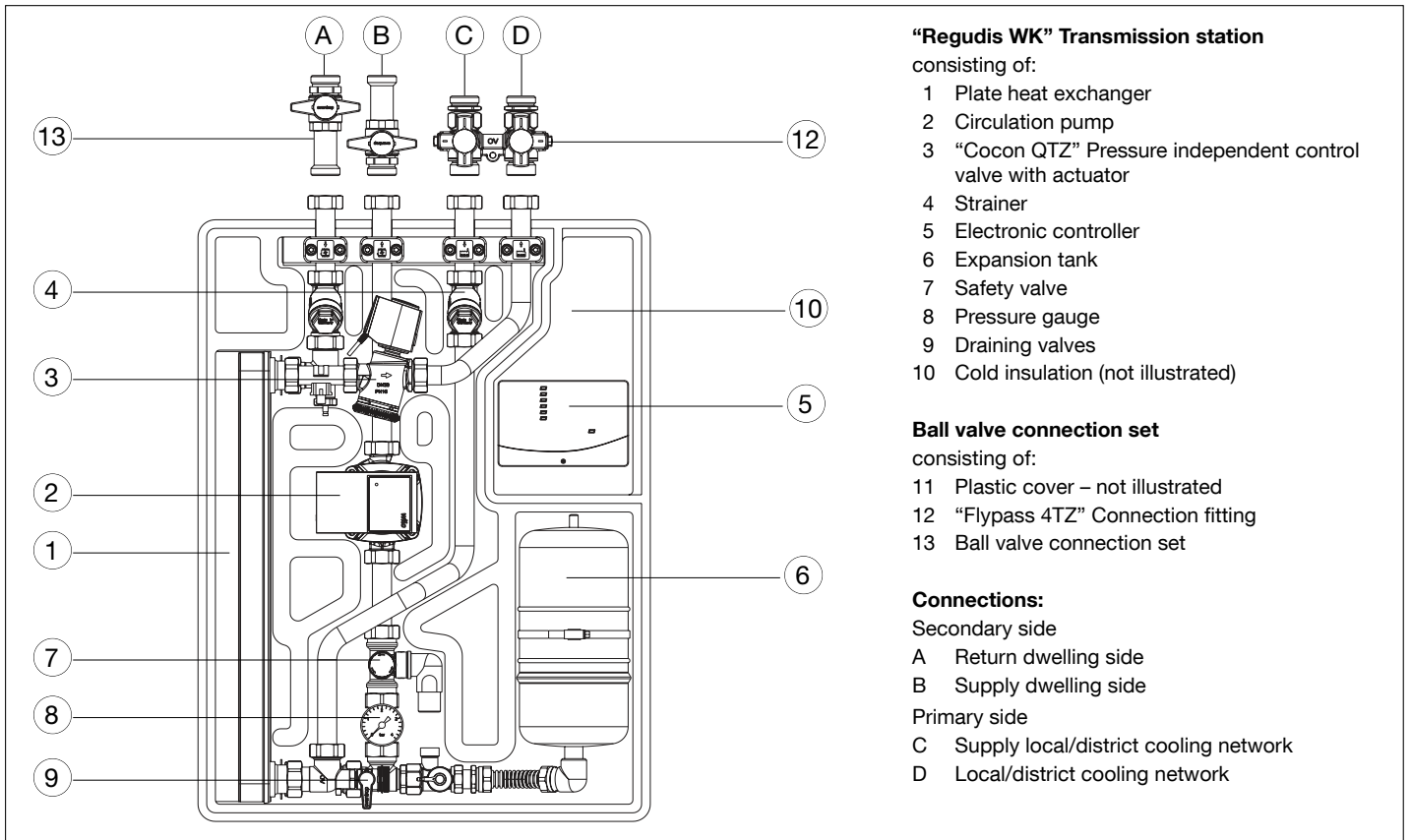
Content

System illustration	6.126
"Regudis WK" Transmission station for cooling	6.128
Accessories for transmission station "Regudis WK"	6.128



System illustration "Regudis WK" in combination with fan convector and surface cooling

- 1 Cold storage cylinder
- 2 Pump group – e.g. "Regumat M3-220"
- 3 "Regudis WK"
- 4 Fan convectors
- 5 Surface cooling



System illustration transmission station "Regudis WK"

Article	Article-No.	Hint
---------	-------------	------

"Regudis WK" Transmission station for cooling

- consisting of:
- Electronic controller
 - Plate heat exchanger
 - Pressure independent control valve "Cocon QTZ" with actuator
 - Strainers (on primary and secondary side)
 - Pressure gauge
 - Safety valve
 - Expansion tank
 - Draining valves
 - Cold insulation
 - Plastic cover (white)

Performance range 1 DN 25	6 kW	1341630
Performance range 2 DN 25	10 kW	1341631
Performance range 3 DN 25	15 kW	1341632

Transmission station with heat exchanger for indirect cooling of living areas (for instance with fan convectors).

The station regulates the return temperature in the primary and secondary circuit to the temperature set in the controller. Regulation to an adjustable temperature difference between the supply and return is also possible. The electronic control is optimised to a maximum temperature difference across the complete performance range. This way, a high efficiency of the installation is guaranteed.

Nominal size: DN 25
 Operating pressure:
 Primary side: PN 16
 Secondary side: Safety valve 3 bar
 Display range of the pressure gauge: 0 - 4 bar

Connections: G 1 (collar nut, flat sealing)

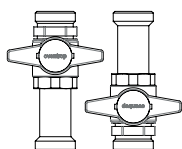
Primary volume flow:
 Performance range 1: 830 l/h
 Performance range 2: 1400 l/h
 Performance range 3: 2100 l/h
 (with primary: 6/12 °C, secondary: 8/14 °C)

Dimensions (W x H x D):
 530 mm x 700 mm x 160 mm

For further information see "Technical information".

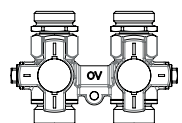
Accessories for transmission station "Regudis WK"

Ball valve connection set	1341680	
---------------------------	----------------	--



For the isolation of all connections of the "Regudis WK" station.
 Connection to the pipework: G 1 flat sealing
 2 ball valves mounted onto a bracket.

"Flypass 4TZ" Connection fitting	1341681	
----------------------------------	----------------	--










The Oventrop "Flypass" connection fitting is used for the isolation and flushing of the flow and return pipework serving the "Regudis" station. The connection fitting can be converted to bypass operation.
 Connection to the pipework: G 1 flat sealing



6.k Further associated products

Content

"Optibal P" Pump ball valves	6.130
"Optibal" Ball valves	6.130
Insulations	6.130
Thermometer conversion sets	6.130
"Optibal PK" Isolating set	6.131
"Optibal" Ball valves with press connection	6.131
Accessories for the connection of the boiler and the storage cylinder to the pipework	6.132
"MSM-Block" Boiler safety device	6.135
Heating system filling station	6.135
"Expa-Con" Valves with lead sealable cap	6.135
"Optiflex" Fill and drain ball valves	6.136
"Optiflex" Fill and drain ball valves for solar	6.137
Accessories	6.137
Ball valves with hose connection	6.137
Fill and drain ball valves made of bronze	6.138
Draining and venting valves	6.138
Fill and drain cocks	6.139
Accessories	6.139
Gauge cocks	6.140
Gauge cock, button type	6.140
Accessories	6.140
Gauge isolating valves	6.141
Accessories	6.141
Check valves	6.142
Check valves made of bronze	6.142
Differential pressure relief valves PN 10	6.143

Article	Packing unit	Article-No.	Hint
"Optibal P" Pump ball valves brass, nickel plated, (valves with marking "HT" can also be used up to 150 °C)			Max. opening pressure: 20 mbar Collar nuts and seals: pages 6.70 and 6.71 PN 10, max. 120 °C
with check valve, installation at the pump inlet			
	DN 25 Rp 1	x G 1½* (10) 1078171	
	DN 32 Rp 1¼	x G 2* (10) 1078172	
	DN 32 Rp 1¼	x G 1½* (10) 1078173	
without check valve			
	DN 25 Rp 1	x G 1½* (10) 1078371	
	DN 32 Rp 1¼	x G 2* (10) 1078372	
	DN 32 Rp 1¼	x G 1½* (10) 1078373	
* pump connection			
"Optibal" Ball valves brass, nickel plated extended plastic handle (anthracite), for the return pipe			The heights are identical with the pump ball valves "Optibal P".
both ports female thread			
	DN 25 Rp 1	(10) 1078708	
	DN 32 Rp 1¼	(5) 1078710	
Insulations for brass ball valves "Optibal" with extended plastic handle ball valves with female thread (item no. 10771/80/87/91..)			Meet the requirements of the German Energy Saving Directive according to appendix 5, table 1, line 5. Building material class B2 according to DIN 4102.
	DN 25	1078094	
	DN 32	1078095	
for pump ball valves "Optibal P"			
	DN 25	1078194	
	DN 32	1078195	
Thermometer conversion sets Thermometer conversion set, anthracite			
	for item no.	(10) 1078382	
	1078171/ 72/ 73, 1078371/ 72/ 73, 1078708/ 10/ 61/ 62 and 4208806/ 08, 4208854/ 55, 4208906/ 08		
Thermometer conversion set, red and blue red thermometer for supply pipe ("Optibal P") and blue thermometer for return pipe ("Optibal")			
	DN 25/ 32	(10) 1078182	

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

"Optibal PK" Isolating set
 Supply: Pump ball valve with check valve and pump ball valve with thermometer (red) Ø 63 as well as collar nuts and seals for the pump flanges
 Return: Female threaded ball valve with thermometer (blue) Ø 63

Suitable insulations:
 for 1353583, DN 25:
 2 x 1078194 + 1 x 1078094

for 1353584, DN 32:
 2 x 1078195 + 1 x 1078095



DN 25	G 1½*	1353583
DN 32	G 2*	1353584

*pump connection

"Optibal" Ball valves with press connection
 for the return pipe,
 brass, nickel plated

PN 16, max. 120 °C

both ports press connection



DN 25	Ø 28 mm	(10)	1078761
DN 32	Ø 35 mm	(5)	1078762

Angle pattern ball valve DN 20



G 1 c/nut x G 1 M	1351705
-------------------	----------------

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

Accessories for the connection of the boiler and the storage cylinder to the pipework

Storage cylinder loading set DN 25



1359050

Connection nipple G 1 M x Rp 1
Elbow G 1 x G 1 collar nut
Corrugated metal hose, L = 1100 m, may be cut to required length
Elbow G 1 collar nut x G 1¼
Pump connection nipple G 1½ F x G 1
Pump with cable
Angle pattern non-return check valve
G 1 collar nut x pump flange G 1½
Collar nut G 1½
Set of seals
Brass connection pieces

Three-way mixing valve



Rp ¾ F, Kv 6	(10)	1350106
Rp 1 F, Kv 12	(10)	1350108

For flow temperature control.
Manual setting, actuator (see page 6.11) can be mounted subsequently.
(Do not use an actuator with "plug & play" technology!)

Connection elbows



Connection elbow with pump flange G 1 x pump flange for G 1½ 40 x 35 mm suitable collar nut item no. 1359099	(25)	1359060
--	------	---------



G 1 x G 1 35 x 35 mm	(25)	1359061
-------------------------	------	---------



G 1 x G 1 c/nut 37 x 35 mm	(25)	1359062
-------------------------------	------	---------



G 1 c/nut x G 1 c/nut 37 x 35 mm	(25)	1359063
-------------------------------------	------	---------



G 1 c/nut x G 1 M x G ¾ F 37 x 35 mm	(25)	1359064
---	------	---------



G 1 c/nut x G 1 c/nut x G ¾ F 37 x 35 mm	(25)	1359065
---	------	---------













with fill and drain ball valve "Optiflex" G 1 c/nut x G 1 M 37 x 35 mm	(25)	1359066
--	------	---------















with fill and drain ball valve "Optiflex" G 1 c/nut x G 1 c/nut 37 x 35 mm	(25)	1359067
--	------	---------










G 1¼ c/nut x R 1¼ M 40 x 49 mm	(25)	1359043
-----------------------------------	------	---------




	Article	Packing unit	Article-No.	Hint
	with pump flange, long			
	G 1 c/nut x pump flange for G 1½ 88 x 35 mm R ½ vent plug and R ¾ blind plug suitable collar nut item no. 1359099	(25)	1359068	
	R ¾ blind plug			
	G 1 c/nut x G 1 M 90 x 35 mm	(25)	1359069	
	2 x G 1 c/nut 88 x 35 mm	(25)	1359042	
	with fill and drain ball valve "Optiflex" 2 x G 1 c/nut 88 x 35 mm	(25)	1359073	
	Reducer			
	G 1 F x G 1½ M 31.5 mm	(20)	1359041	
	Double fitting			
	both ports G 1 c/nut 30 mm	(10)	1359085	
	G ¾ F x G ¾ c/nut 19.5 mm	(10)	1359086	
	Check valve			
	G 1 M x pump flange for G 1½ 31 mm suitable collar nut item no. 1359099	(50)	1359070	
	Angle pattern non-return check valves			
	G 1 c/nut x G 1 M 44 x 35 mm	(20)	1359071	
	with opening device and fill and drain ball valve "Optiflex"			
	G 1 c/nut x pump flange for G 1½ 47 x 40 mm suitable collar nut item no. 1359099	(12)	1359072	
	T-piece			
	G 1 x G 1 x G 1 c/nut	(10)	1359080	
	G 1 x G 1 c/nut x G 1	(10)	1359081	

Article	Packing unit	Article-No.	Hint
Pump connection nipple			
	G 1½ F x G 1 M 32 mm	(10) 1359090	
	G 1½ female x G 1 c/nut 32 mm	(10) 1359091	
Connection nipple			
	G 1 M x Rp ¾, 34 mm	(20) 1359095	
	G 1 M x Rp 1, 37 mm	(20) 1359096	
	G 1 M x Rp 1¼, 40 mm	(20) 1359097	
Double nipple			
	R 1 x G 1, 33 mm	(20) 1359094	
	G 1 x G 1, 33 mm	(20) 1359098	
6-way block with pump flange			
	G 1½, G 1½ M and 4 x G 1 M	1359040	
Extension			
	both ports G 1 M		
	51 mm	(10) 1359101	
	65 mm	(10) 1359102	
	89 mm	(10) 1359103	
	104 mm	(10) 1359104	
	125 mm	(10) 1359105	

Article	Packing unit	Article-No.	Hint
"MSM-Block" Boiler safety device Airvent with automatic shut-off Pressure gauge with automatic shut-off Insulation DN 25			Complete safety device according to DIN EN 12828.
		Female threaded connection Rp 1	
		Diaphragm safety valve 3.0 bar	1351062
		Male threaded connection G 1, flat sealing	
		Diaphragm safety valve 3.0 bar	1351072
Heating system filling station Filling combination according to DIN EN 1717 for heating systems, consisting of strainer, pressure reducer, system separator type BA and drain water connection, with isolating facility for maintenance. Brass body, cartridges of system separator and pressure reducer made of plastic			Application: Potable water installations PN 10, Max. water temperature: 30 °C at the inlet port 65 °C at the outlet port
		DN 15	G 3/4
			1055004
"Expa-Con" Valves with lead sealable cap brass			Required according to DIN EN 12828. For control, maintenance and possible replacement of diaphragm expansion tanks.
		DN 20	*Rp 3/4 (25) 1089006
		DN 20	*Rp 1 (25) 1089008
		DN 25	*Rp 1 (10) 1089052
		DN 32	*Rp 1 1/4 (10) 1089010
		DN 40	*Rp 1 1/2 (10) 1089012
* connection to expansion tank			
		Lead sealing set (10 fold)	(10) 1089091
		Quick coupling for diaphragm expansion tank	
		DN 20, G 3/4 F x G 3/4 M	(25) 1088806
			For the automatic separation of the expansion tank and the system.

Article	Packing unit	Article-No.	Hint
<p>"Optiflex" Fill and drain ball valves brass, handle with stop with male thread</p>			<p>Application: For filling and draining of heating and cooling systems, boilers, radiators and pipework.</p>
<p>self sealing, with counternut, with hose connection (soft seal) and cap</p>			<p>The brass ball valve is suitable for water and water and glycol mixtures up to PN 16 and 120 °C.</p>
	DN 10	(50) 1033313	<p>Also suitable for connection of plastic and copper pipes.</p> <p>Compression fittings and reinforcing sleeves: pages 1.145 -1.147</p>
	DN 15	(50) 1033314	
	DN 20	(25) 1033316	
	DN 25	(10) 1033308	
<p>DN 15 (50 pieces loosely packed) DN 15 brass hose connection</p>			<p>If not stated otherwise the hose connection of the sizes DN 10 and DN 15 is made of plastic.</p>
<p>DN 10 nickel plated (50) 1033351 DN 15 nickel plated (50) 1033352 DN 15 nickel plated (50 pieces loosely packed) (50) 1033354</p>			<p>For further information see "Technical information":</p> 
	with cap		
<p>DN 10 (50) 1033413 DN 15 (50) 1033414</p>			
	brass, handle with stop with female thread		
<p>with hose connection (soft seal) and cap</p>			
	DN 15 (50) 1033814 DN 15 nickel plated (50) 1033852		
<p>with cap</p>			
	DN 15 (50) 1033914		
<p>"Optiflex" Fill and drain ball valves for potable water brass, nickel plated from outside, handle with stop, with male thread, self sealing, with counternut and cap</p>			<p>Application: Potable water installations, PN 10, DN 15 R (reduced). Max. water temperature: 90 °C</p>
	DN 15	G ½ (50) 1033152	<p>DVGW tested and certified.</p> <p>Further applications for heating systems see above.</p>

Article	Packing unit	Article-No.	Hint
"Optiflex" Fill and drain ball valves for solar			
brass, handle with stop with male thread, self sealing, with counternut			
with hose connection (soft seal) and cap			
	DN 15 nickel plated	(50) 1033372	<p>Application: For filling and draining of heating and cooling systems, boilers, radiators and pipework also in solar plants.</p> <p>The brass ball valve is suitable for water and mixtures of water and glycol up to PN 16 and 150 °C, for short periods up to 180 °C.</p> <p>Also suitable for connection of plastic and copper pipes.</p> <p>Compression fittings and reinforcing sleeves: pages 1.144 -1.147</p> <p>The hose connection is made of plastic.</p>
Angle pattern, with hose connection (soft seal) and cap			
	DN 15 nickel plated	(50) 1033672	
Accessories			
Hose connection made of brass			
	DN 10 + DN 15	(50) 1034552	Female thread of the collar nut
	DN 20	(25) 1034553	G ¾
	DN 25	(25) 1034554	G 1
			G 1¼
made of plastic			
	DN 10 + DN 15	(50) 1034562	G ¾
Cap with washer and fixing loop			
	DN 15	(50) 1034052	Female thread of the cap
	DN 20	(25) 1034053	G ¾, also for "Optiflex" DN 10
	DN 25	(25) 1034008	G 1
			G 1¼
Washer (for above caps)			
	DN 15	(10) 1034092	Female thread of the cap
	DN 20	(10) 1034093	G ¾, also for "Optiflex" DN 10
	DN 25	(10) 1034094	G 1
			G 1¼
Ball valves with hose connection			
brass nickel plated, full flow, with double FKM O-ring seal, ball hard-chrome plated, PTFE seats, inlet port female thread according to EN 10226-1, outlet port hose connection and cap with fixing loop			
	DN 15	(25) 1036154	Application: Water, water and glycol mixtures, heating oil and fuels, saturated steam and air.
	DN 20	(10) 1036156	Max. operating pressure p _s : 16 bar (PN 16), for air and harmless gases (not for gaseous fluids group 1 according to directive 2014/68/EU) 10 bar.
	DN 25	(5) 1036158	Operating temperature t _s : -20 °C up to +120 °C
			Attention: Prevent formation of ice as it can destroy the pipework and valve.

Article	Packing unit	Article-No.	Hint
Fill and drain ball valves made of bronze with male thread			Application: Fluids, steam and treated heating water (e. g. district heating). Max. operating pressure p_s : 16 bar (PN 16) Operating temperature t_s : 0 °C up to 150 °C Operation of the fill and drain ball valves by use of the grey handle.
handle with stop with hose connection and cap			
	DN 10	(50) 1032403	
	DN 15	(50) 1032404	
Handle for fill and drain ball valves			Accessories: page 6.137 For further accessories see "Optiflex".
		1033091	
Draining and venting valves brass			Application: Central heating systems PN 16 up to 120 °C. Key, item no. 1103051: page 1.142
with metal seal			
	G ¼	(50) 1038002	
	G ¾	(50) 1038003	



Fill and drain cocks

Heavy pattern - bronze, PN 16 based on DIN 3848 with hose connection and cap

Article	Packing unit	Article-No.
DN 10	(50)	1032003
DN 15	(50)	1032004
DN 20	(25)	1032006
DN 25	(10)	1032008

Application:
Bronze models: Fluids, steam and treated heating water (e.g. district heating) up to PN 16 and 150 °C, for short periods up to 180 °C.
Re-adjustment of the fill and drain cocks may become necessary to guarantee tightness during operation, for instance in case of:

- operation at low temperatures
- extreme temperature changes
- use of creeping additives in heat transfer liquids

For further information see "Technical information":



Accessories



Cap with washer and fixing loop

Article	Packing unit	Article-No.
DN 10	(50)	1034003
DN 15	(50)	1034052
DN 20	(25)	1034053
DN 25	(25)	1034008

Female thread of the cap

- G ½
- G ¾, also for "Optiflex" DN 10
- G 1
- G 1¼



Square spanner

Article	Packing unit	Article-No.
DN 10/DN 15	(10)	1035004
DN 20/DN 25	(5)	1035006

Spanner size: 12 mm
Spanner size: 14 mm



Washer (for above caps)

Article	Packing unit	Article-No.
DN 10	(10)	1034091
DN 15	(10)	1034092
DN 20	(10)	1034093
DN 25	(10)	1034094

Female thread of the cap

- G ½
- G ¾, also for "Optiflex" DN 10
- G 1
- G 1¼






Hose connection







Article	Packing unit	Article-No.
DN 10	(50)	1034551
DN 15	(50)	1034504
DN 20	(50)	1034506
DN 25	(25)	1034508

Female thread of the collar nut

- G ½ (for hose DN 15)
- G ¾
- G 1
- G 1¼

Article	Packing unit	Article-No.	Hint
Gauge cocks brass, with gland, with female thread PN 10			Application: Central heating systems up to 120 °C and PN 10 as well as cooling systems. Re-adjustment of the gauge cocks may become necessary to guarantee tightness during operation, for instance in case of: - operation at low temperatures - extreme temperature changes - use of creeping additives in heat transfer liquids * connection for pressure gauge
	DN 10	G 3/8 x G 1/2 *	(20) 1110003°
	DN 8	G 1/4	(20) 1110102°
	DN 10	G 3/8	(20) 1110103°
	DN 15	G 1/2	(20) 1110104
	DN 15 (PN25)	G 1/2	(20) 1110174
PN 10, chrome plated			For further information see "Technical information":
	DN 15	G 1/2	(20) 1110152°
	with female thread with test flange 25 x 60 mm		
	DN 15 (PN 25)	G 1/2	(5) 1110204
	Gauge cock, button type brass, nickel plated, both ports female thread Rp 1/2 according to EN 10226-1, (outlet port also corresponds to pressure gauge threaded bore according to DIN EN 837-1)		
	DN 15		(25) 1110504
	Accessories		
	Connection piece brass		
	with rotating collar nut, with graphite washer for differential pressure gauge suitable for item no. 11100.. – 11105..		
	DN 15		(40) 1111904
	Plastic handle red, for gauge cock		
	DN 10 + DN 15		(10) 1905051
	Graphite washer		
	for pressure gauges, gauge cocks and connection pieces		(50) 1905551

Article	Packing unit	Article-No.	Hint
Gauge isolating valves			Application:
DN 15, G 1/2, connecting nut x spigot for the connection of pressure gauges to installations			Fluids, gas and steam to which the valve materials are resistant.
	Valve DIN 16270 - A - 20 Ms brass/stainless steel, PN 250 (without test connection)	1115004	Brass/stainless steel, PN 250 **: Body, connecting nut, collar nut and test spigot/flange made of brass. Stem and venting screw made of stainless steel, seal packing made of PTFE, handwheel made of plastic. Operating temperature t _g : -10 °C* up to -120 °C
	Valve DIN 16270 - A - 10 St steel/stainless steel, PN 400 (without test connection)	1116004	
	Valve DIN 16271 - A - 20 Ms brass/stainless steel, PN 250 with test spigot M 20 x 1.5	1115104	Steel/stainless steel, PN 400 **: Body, connecting nut, collar nut and test spigot/flange made of steel, stem and venting screw made of stainless steel, seal packing made of graphite, handwheel made of plastic. Operating temperature t _g : -10 °C* up to -120 °C
	Valve DIN 16271 - A - 10 St steel/stainless steel, PN 400 with test spigot M 20 x 1.5	1116104	
	Valve (similar to DIN 16271 - A - 20 Ms) brass/stainless steel, PN 250 with test flange M 20 x 60 mm	1115204	*Prevent formation of ice **See pressure-temperature chart
	Valve (similar to DIN 16271 - A - 10 St) steel/stainless steel, PN 400 with test flange M 20 x 1.5	1116204	
Accessories			
	Weldable steel nipple with collar nut	(50) 1117204	
	Copper washer DIN 16528 for gauge isolating valves	1905552	

Article	Packing unit	Article-No.	Hint
<p>Check valves brass installation at the pump outlet</p>			<p>Application: Central heating systems PN 10 with circulation pump, up to 120 °C.</p>
<p>SVE</p>			<p>Opening pressure: 20 mbar (~ 200 mm WG) Check valves avoid gravity circulation in different heating systems with the circulation pump being switched off.</p>
	DN 20	*G 1¼ (10) 1070006	
	DN 25	*G 1½ (10) 1070008	
	DN 32	*G 2 (10) 1070010	
<p>with automatic deaeration</p>			
	DN 25	*G 1½ (10) 1070308	
	DN 32	*G 2 (10) 1070310	
<p>SVA</p>			<p>For the direct connection to the circulation pump. Valve cover made of plastic, setting to gravity circulation.</p>
	DN 25	*G 1½ (10) 1070108	For further information see "Technical information":
	DN 32	*G 2 (10) 1070110	
<p>SVI</p>			
	DN 25	*G 1½ (10) 1070208	
	DN 32	*G 2 (10) 1070210	
<p>Check valves made of bronze</p>			<p>Application: Central heating systems PN 10 with circulation pump, up to 120 °C. Opening pressure: 20 mbar (~ 200 mm WG) For vertical installation as angle pattern, straight pattern or three-way valve. Plug and valve disc made of brass, soft seal, setting to gravity circulation.</p>
<p>Universal model SVU</p>			
	DN 25	1071008	
	DN 32	1071010	
	DN 40	1071012	
	DN 50	1071016	

Article	Article-No.	Hint
---------	-------------	------

Differential pressure relief valves PN 10
bronze/brass



DN 20	1085206
DN 25	1085208
DN 32	1085210

Application:
Pump hot water heating systems PN 10,
120 °C, to reduce flow noises.
Central heating systems with gas boilers to
maintain a minimum water circulation.
Range of setting: 50 - 500 mbar
(~ 0.5 - 5.0 m WG)
Preset at works to 200 mbar.

For further information see
"Technical information":





7.a Local and district heating technology

Content	7.03
System illustration	7.04
Construction "Regudis H-HT"	7.07
"Regudis H-HT" Transmission station	7.08
Accessories for "Regudis H-HT"	7.08
Further products for local and district heating technology	7.10

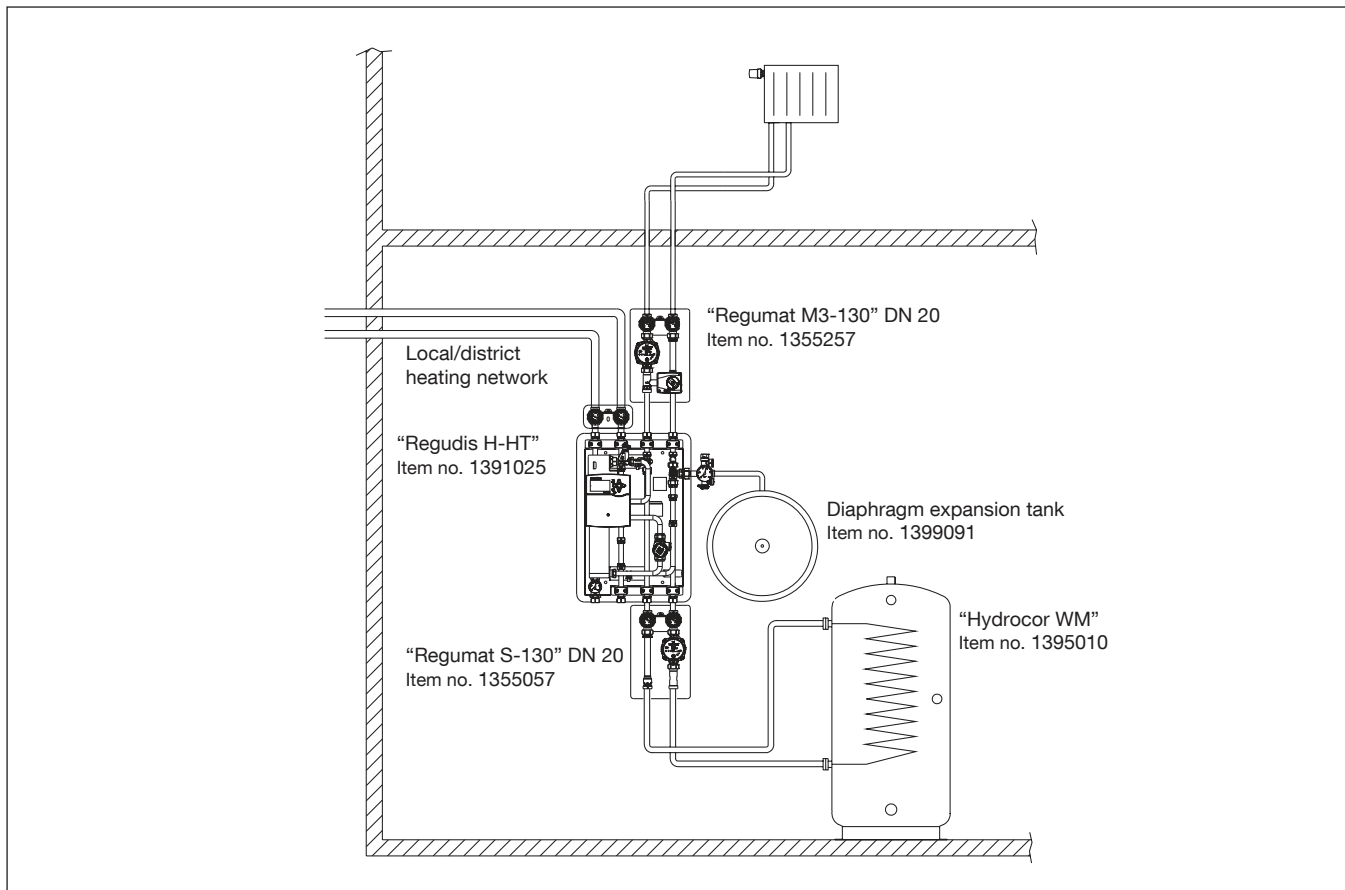


7.a Local and district heating technology

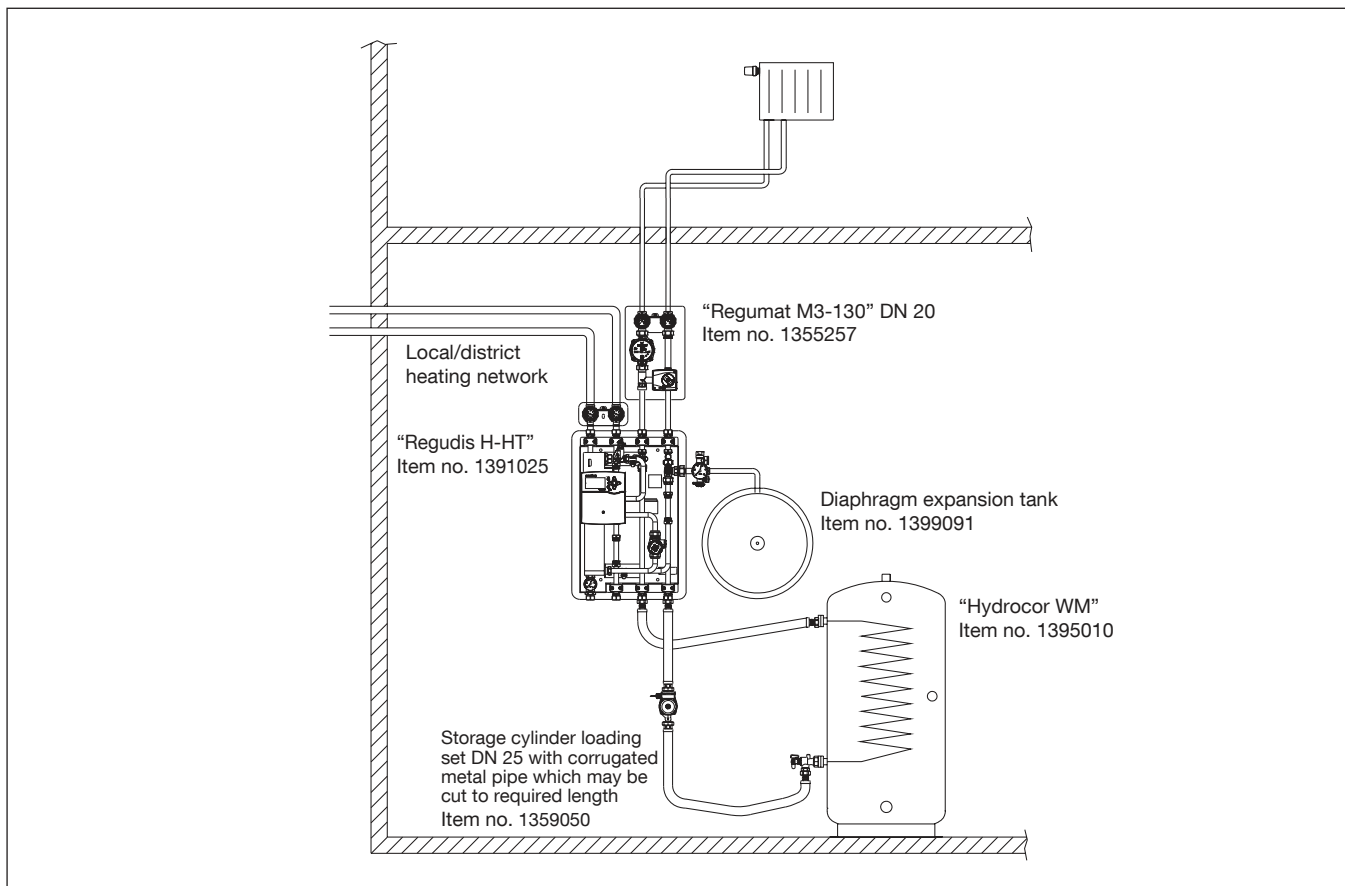
Content

System illustration	7.04
Construction "Regudis H-HT"	7.07
"Regudis H-HT" Transmission station	7.08
Accessories for "Regudis H-HT"	7.08
Further products for local and district heating technology	7.10

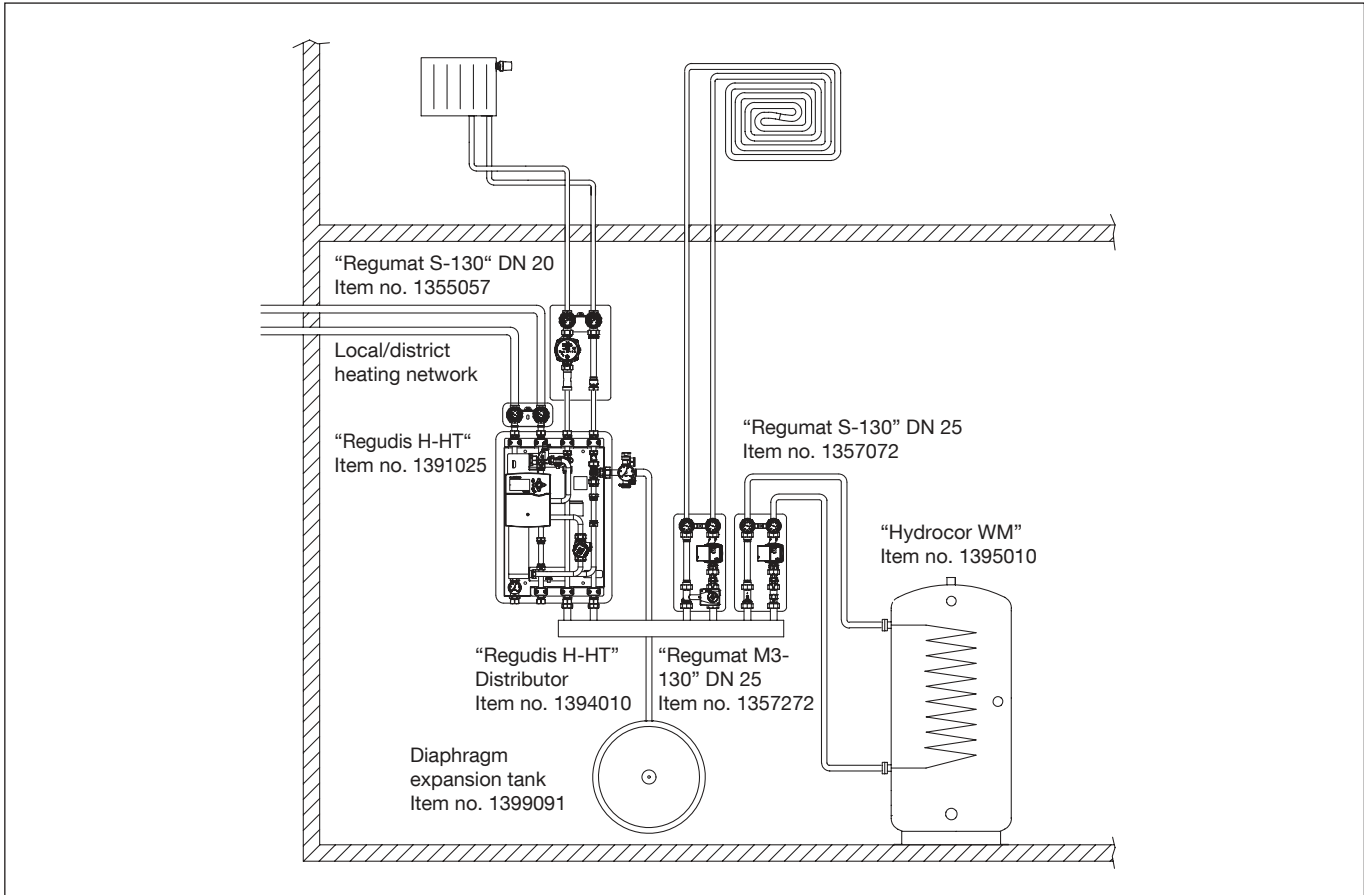
7



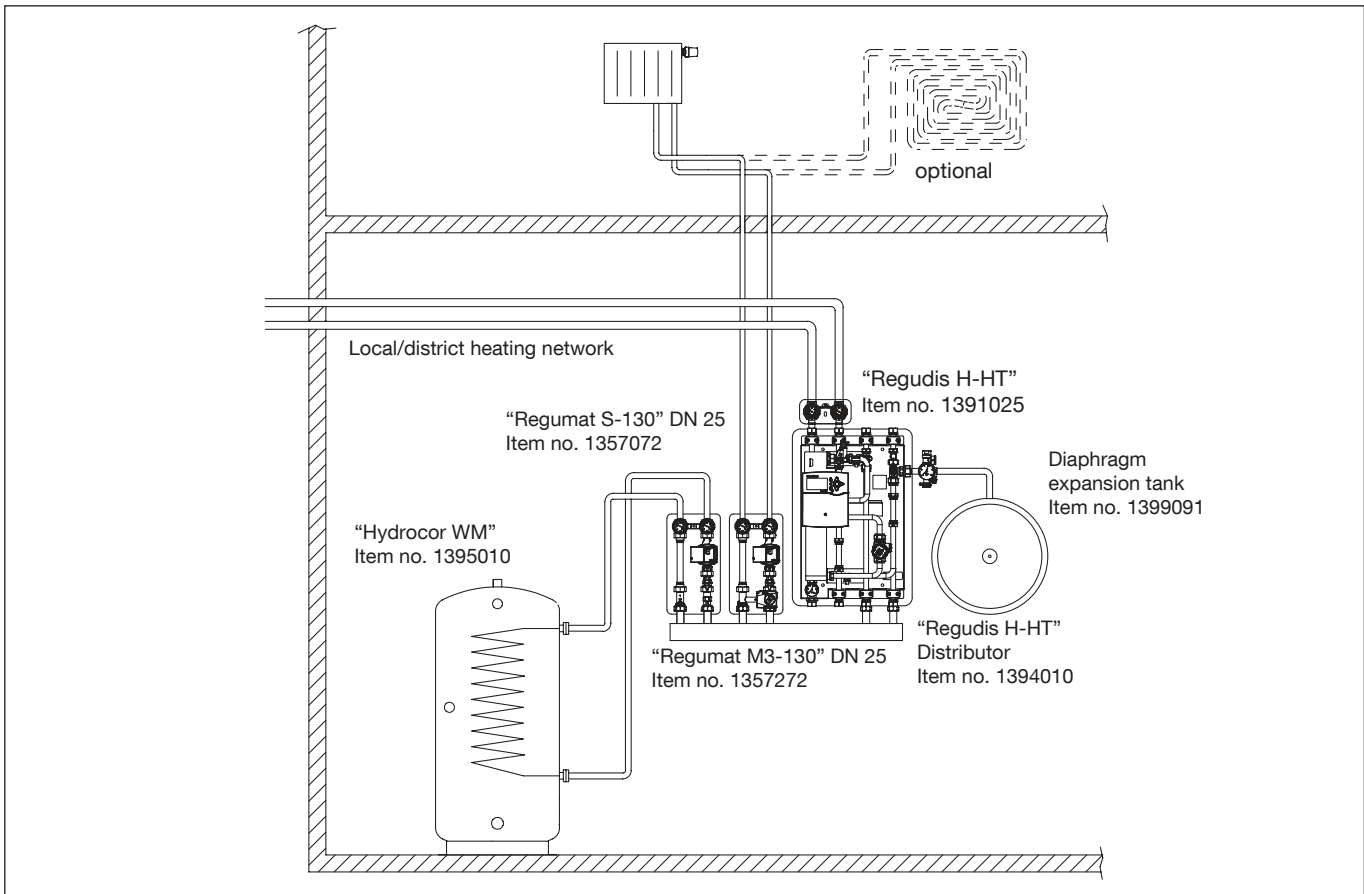
System illustration: Integration of a transmission station by the direct connection of a "Regumat" station DN 20 to the transmission station - Storage cylinder connection via a "Regumat" station DN 20



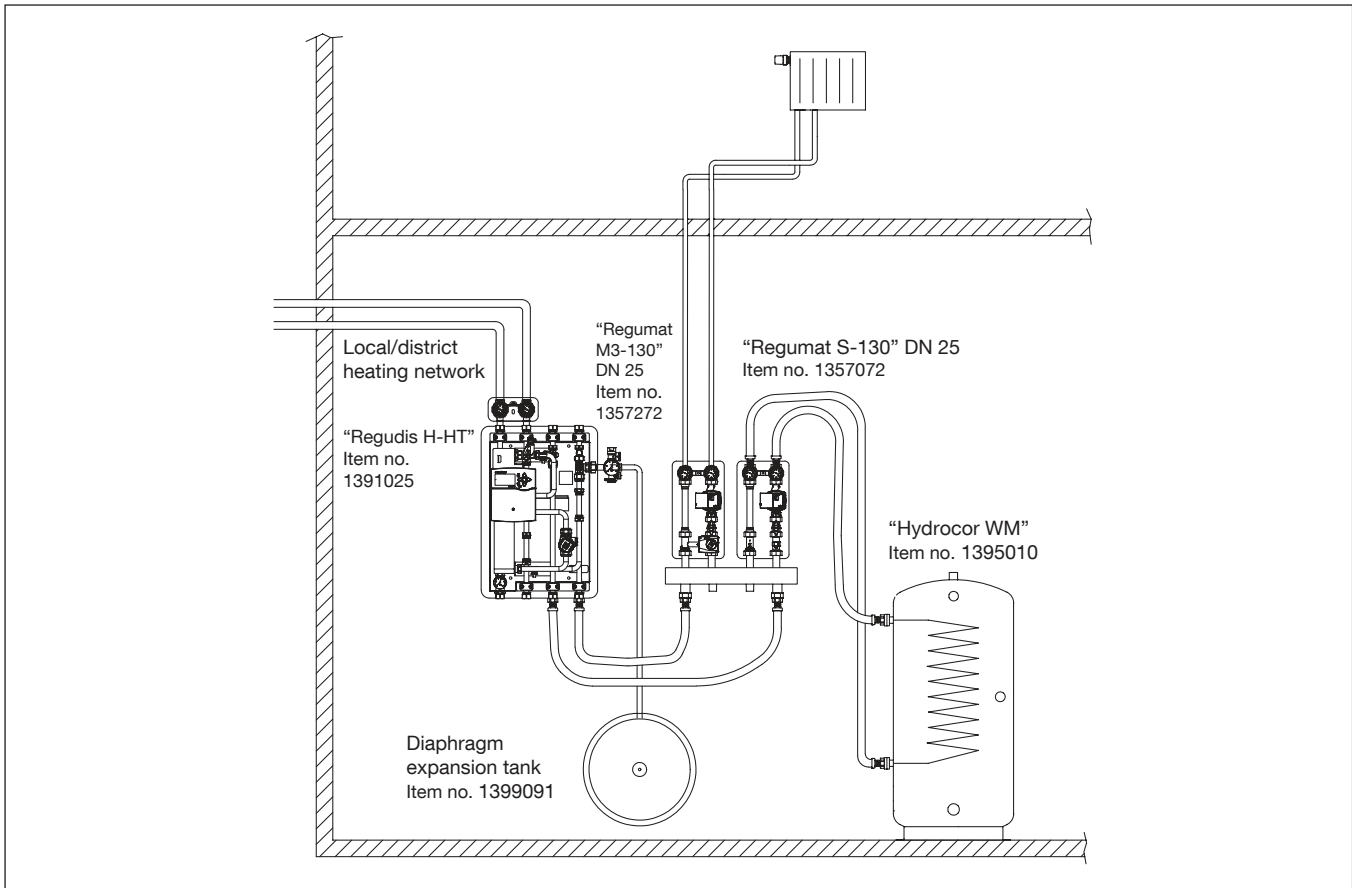
System illustration: Integration of a transmission station by the direct connection of a "Regumat" station DN 20 to the transmission station - Storage cylinder connection via storage cylinder loading set



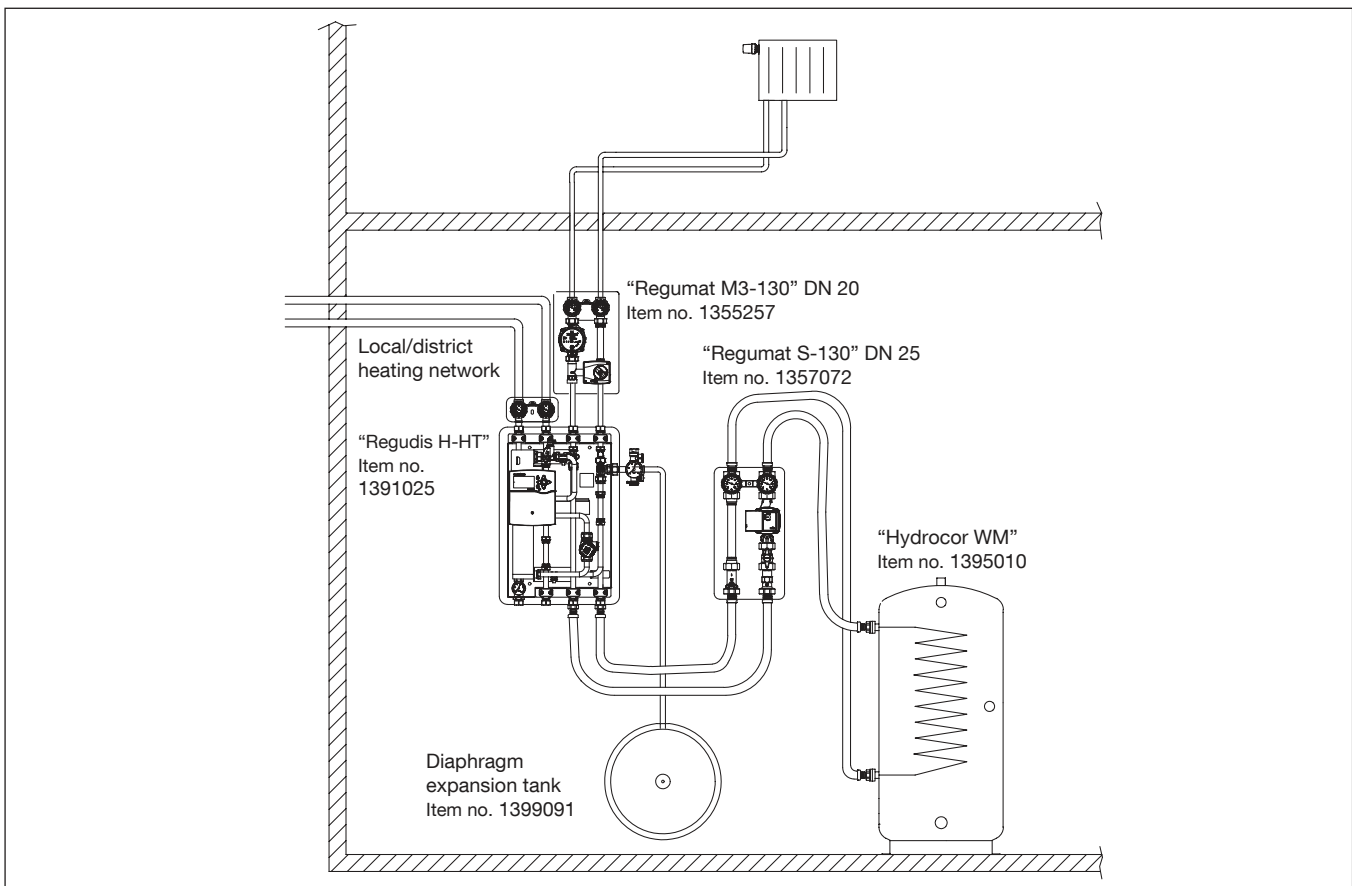
System illustration: Integration of a transmission station with distributor “Regudis H-HT” and “Regumat” stations DN 20 and DN 25 - Right hand side connection



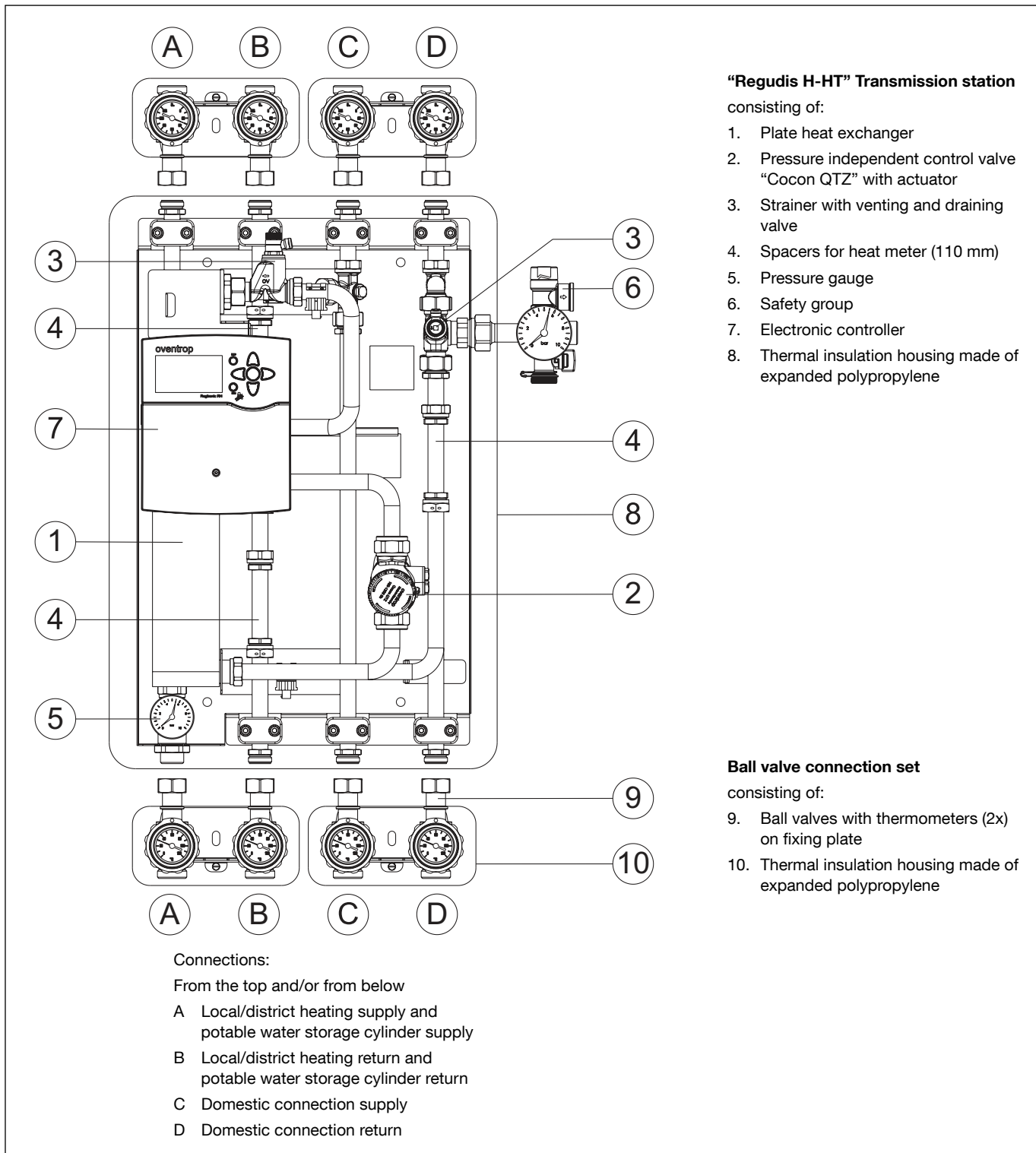
System illustration: Integration of a transmission station with distributor “Regudis H-HT” and “Regumat” stations DN 25 - Left hand side connection





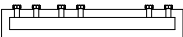
System illustration: Integration of a transmission station via flexible corrugated metal pipes with "Regumat" stations DN 25 - Connection with distributor and corrugated metal pipe



System illustration: Integration of a transmission station via flexible corrugated metal pipes with "Regumat" stations DN 20 and DN 25 - Direct connection with corrugated metal pipe



System illustration: "Regudis H-HT" Transmission station

Article	Article-No.	Hint
 <p>"Regudis H-HT" Transmission station consisting of:</p> <ul style="list-style-type: none"> -Plate heat exchanger (copper brazed) -Pressure independent control valve "Cocon QTZ" with actuator -Strainer -Pressure gauge -Safety valve -Draining valve -Electronic controller -Thermal insulation housing made of expanded polypropylene -Outside temperature sensor and 2 additional temperature sensors (PT 1000) 		<p>Transmission station with plate heat exchanger for indirect heat transmission from a local or district heating network to the potable water and heating installation of detached and semi-detached houses.</p> <p>For use in closed local and district heating networks, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).</p> <p>Operating pressure: Primary side: PN 10 Secondary side: Safety valve 3 bar Max. primary temperature: 90 °C Display range of the pressure gauge: 0 - 10 bar</p> <p>A potable water storage cylinder with internal heat exchanger (e.g. "Hydrocor WM") can be connected to the primary side.</p> <p>With electronic controller for weather guided control of the flow temperature of the heating system and simultaneous limitation of the return temperature to the heat network. Hot water priority function or parallel operation to the heating circuit.</p>
	<p>DN 20, max. 45 kW</p> <p style="text-align: right;">1391025</p>	<p>Performance range: Max. 30 kW: with primary: 75/45 °C, secondary: 65/35 °C Max. 45 kW: with primary: 90/45 °C, secondary: 80/35 °C Heating network and domestic connection: G ¾ Dimensions (W x H x D): 470 mm x 680 mm x 295 mm</p>
<p>DN 25, max. 120 kW in preparation</p> <p style="text-align: right;">1391035</p>	<p>Performance range: Max. 80 kW: with primary: 75/45 °C, secondary: 65/35 °C Max. 120 kW: with primary: 90/45 °C, secondary: 80/35 °C Heating network and domestic connection: G 1¼ Dimensions (W x H x D): 620 mm x 900 mm x 350 mm</p>	
<p>Accessories for "Regudis H-HT"</p>		
 <p>Ball valve connection set consisting of:</p> <ul style="list-style-type: none"> -Ball valve with thermometer (2 x) -Bracket -Thermal insulation housing made of expanded polypropylene 	<p>For the connection of the "Regudis H-HT" station to the local/district heating and domestic network. Thermal insulation housing made of expanded polypropylene. Thermometer display range: 0 - 120 °C</p>	
	<p>for DN 20</p> <p style="text-align: right;">1399090</p>	<p>Connection thread: G ¾ collar nut</p>
<p>for DN 25</p> <p style="text-align: right;">1399095</p>	<p>G 1 male thread, flat sealing Connection thread: G 1¼ collar nut, flat sealing</p>	
 <p>"Regudis H-HT" Distributor with thermal insulation and wall bracket</p>	<p>For the connection of 2 "Regumat" stations DN 25 to the local heating station "Regudis H-HT".</p>	
<p>for DN 20</p> <p style="text-align: right;">1394010</p>		
<p>for DN 25</p> <p style="text-align: right;">1394015</p>		

Article	Article-No.	Hint
	<p>"Regumat 130/180" DN 20/ DN 25 Product assemblies with high-efficiency pumps with and without three-way mixing valve</p>	<p>For the connection of the transmission station "Regudis H-HT" to the heating system and loading of the potable water storage cylinder for indirect hot potable water preparation.</p> <p>From page 6.06</p>
	<p>Distributor Module distributor Hydronic header/distributor combination</p>	<p>For the distribution of the volume flows of the transmission station to up to 8 heating circuits.</p> <p>Page 6.64</p>
	<p>"Hydrocor - WM" Monovalent potable water storage cylinder with an internal tube heat exchanger</p> <p>Type 120 Energy efficiency class B</p> <p style="text-align: right;">1395010</p>	<p>Thermal insulation made of polyurethane rigid foam.</p> <p>Max. operating pressure: Storage cylinder: 10 bar Heat exchanger: 16 bar Max. operating temperature: 95 °C</p>
	<p>Diaphragm expansion tank</p> <p>Nominal volume 35 l Nominal volume 50 l</p> <p style="text-align: right;">1399091 1399092</p>	<p>For wall attachment G 3/4 male thread.</p>
	<p>Corrugated metal pipe made of stainless steel with thermal insulation, both ports G 1 collar nut, flat sealing, may be cut to required length, with seals</p> <p>500 mm 1000 mm 2000 mm 3000 mm</p> <p style="text-align: right;">1394020 1394021 1394022 1394023</p>	<p>Flexible corrugated metal pipe made of stainless steel for the connection of system components to the heating technology.</p> <p>Max. operating pressure: 9 bar Max. operating temperature: 100 °C Thermal insulation made of synthetic rubber.</p>
	<p>Reducer</p> <p>G 3/4 male x G 1 male G 1 1/2 male x G 1 male</p> <p style="text-align: right;">1394090 1394091</p>	<p>Further accessories: page 6.132</p>



“Hycococon HTZ” Regulating valves PN 16
DN 20
DN 25

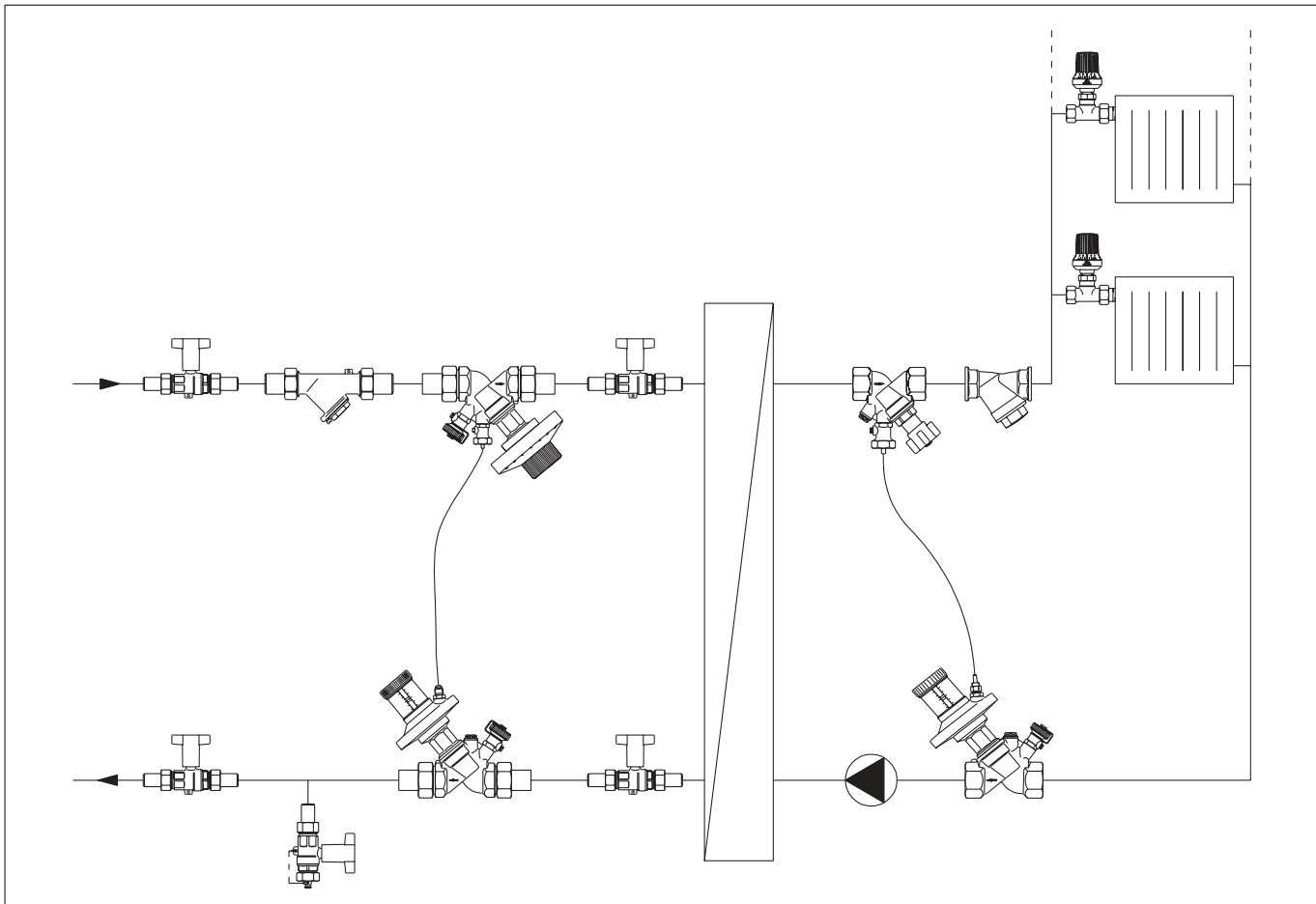
In combination with an actuator for the control of potable water storage cylinder loading for direct hot potable water preparation (system illustration page 10.04).
Page 3.14



“Aktor T2 P” Electrothermal actuator “H NC”
closed with current “off”, 230 V
Connecting cable 5 m

Page 1.26

7



System illustration: District heating/biomass plant (example)

	<p>"Hydrocor - HP" Buffer storage cylinder "Hydrocor - HS" Solar buffer storage cylinder "Hydrocor - WB" Bivalent potable water storage cylinder</p>	Page 10.20
	<p>"AF" Valves for thermostats Valves with fine presetting</p>	Page 1.55
	<p>"Hydrocontrol VTR/VFC" Double regulating and commissioning valves bronze/cast iron</p>	Page 3.26
	<p>"Cocon QTR" Pressure independent control valves PN 25</p>	Page 3.60
	<p>"Hydromat DTR" Differential pressure regulators</p>	Page 3.39
	<p>"Hygate" Gate valves DIN 3352</p>	Page 5.14
	<p>"Optibal" High pressure ball valves PN 40</p>	Page 5.11
	<p>Oblique pattern globe valves PN 25</p>	Page 5.19
	<p>Strainers PN 25</p>	Page 5.34
	<p>Airvent PN 25</p>	Page 5.19
	<p>Fill and drain ball valves</p>	Page 1.136
	<p>Fill and drain cocks PN 16 heavy pattern- DIN 3848</p>	Page 1.139



8.a System summary

Content	8.05
System illustrations	8.07



8.b "Aquastrum F"/"Aquastrum KFR" valves

Content	8.09
"Aquastrum F" Free-flow valves (both ports female thread)	8.10
"Aquastrum F" Free-flow valves (solder connection/collar nut)	8.11
"Aquastrum F" Free-flow valves (both ports male thread)	8.12
"Aquastrum F" Free-flow valves (female thread/male thread)	8.13
"Aquastrum KFR" Valves (both ports female thread)	8.14
"Aquastrum KFR" Valves (both ports collar nut)	8.15
"Aquastrum KFR" Valves (both ports male thread)	8.16
"Aquastrum KFR" Valves (female thread/male thread)	8.17
"Aquastrum F" Free-flow valves (both ports male thread)	8.18
"Aquastrum KFR" Valves (both ports male thread)	8.18
"Aquastrum F" Free-flow valves (both ports flanged)	8.19
"Aquastrum KFR" Valves (both ports flanged)	8.19
Accessories	8.20



8.c "Aquastrum FR" and "Aquastrum R" valves

Content	8.21
"Aquastrum FR" Free-flow valves	8.22
"Aquastrum R" Non-return check valves	8.22



8.d "Optibal TW" Ball valves for potable water

Content	8.23
"Optibal TW" Ball valves for potable water	8.24
Insulation shells	8.25



8.e "Aquastrum VT/T plus" Thermal circulation valves

Content	8.27
"Aquastrum VT"	8.28
"Aquastrum T plus"	8.29
Accessories for "Aquastrum T plus", "Aquastrum VT"	8.30

8.f "Aquastrum C" Regulating valves, "Aquastrum P" Water sampling valves



Content	8.31
"Aquastrum C" Double regulating and commissioning valves	8.32
"Aquastrum P" Water sampling valves	8.34
"Aquastrum M" Measuring and draining device	8.34
Accessories	8.34

8.g "Aquastrum UP" Flush-mounted valves



Content	8.35
"Aquastrum UP-F" Flush-mounted free-flow valves	8.36
"Aquastrum UP-Therm" Flush-mounted circulation valves	8.38
"Aquastrum UP-MS" Water meter installation set	8.40
Accessories for "Aquastrum" flush mounted valves	8.41
Accessories for "Aquastrum UP" flush-mounted valves <u>with</u> flush-mounting pipe	8.42
Accessories for "Aquastrum UP" flush-mounted valves <u>without</u> flush-mounting pipe	8.43
General accessories	8.44

8.h "Aquastrum K" Thermostatic cold water circulation valve



Content	8.45
"Aquastrum K"	8.46
Accessories	8.46

8.i "Brawa-Mix" Thermostatic mixing valves



Content	8.47
"Brawa-Mix"	8.48
Accessories	8.49
Strainers	8.49

8.j "Regucirc" Circulation stations



Content	8.51
"Regucirc B"	8.52
"Regucirc M"	8.53

8.k "Regudrain" Flushing station



Content	8.55
"Regudrain" Flushing station	8.56
Accessories	8.56

8.l "Aquamodul" Distributor system for potable water



Content	8.59
T-distributor	8.61
Extension	8.61
Elbow	8.61
"Aquanova Compact" Water filter	8.62
EAS - One pipe connection piece	8.62
Pressure relief cap	8.62
Bypass valve	8.62
Fill and drain ball valve	8.63
Draining ball valve	8.63
"Optiflex" Fill and drain ball valve	8.63
Bracket	8.63
Accessories	8.64

8.m "Ofix" Connection fittings



Content	8.65
"Ofix" Connection fittings	8.66

8.n Domestic water station/Heating system filling station



Content	8.67
Domestic water station	8.68
Heating system filling station	8.68

8.o "Aquanova" Water filters



Content	8.69
"Aquanova Compact" Water filters	8.70
Accessories	8.70
"Aquanova Magnum" Water filters	8.71
Accessories	8.72

8.p Valves for water softening



Content	8.73
Bypass isolating valve	8.74
Accessories for bypass isolating valve and bypass mixing valve DN 25	8.74
Bypass mixing valve DN 25	8.75
Bypass mixing valve DN 32	8.76
Spare parts	8.76
Bypass mixing valve DN 50	8.76
Spare parts	8.76

8.q "Multidis R" Sanitary distributor



Content	8.77
"Multidis R" Sanitary distributor	8.78
Accessories	8.78
"Multidis R" Sanitary distributor with isolating facility	8.79
Accessories	8.79

8.r Connection system

Content	8.81
Connection of pipes and Oventrop valves with different connections in potable water installations	8.82

8.s Stations for hot potable water preparation/Other products for water installations



Content	8.83
"Regumaq" Stations for hot potable water preparation	8.84



8.a System summary

Content

System illustrations

8.07

"Aquanova System"

The quality of potable water, the most important product for our nutrition, is influenced by the potable water installation to a large extent.

The installation serves as "packaging" feeding the potable water from the house connection to the individual draw off points – hygienically safe, fit for human consumption and in accordance with the German Decree for Potable Water (TrinkwV). The potable water quality must not be impaired by operational conditions or the used materials.

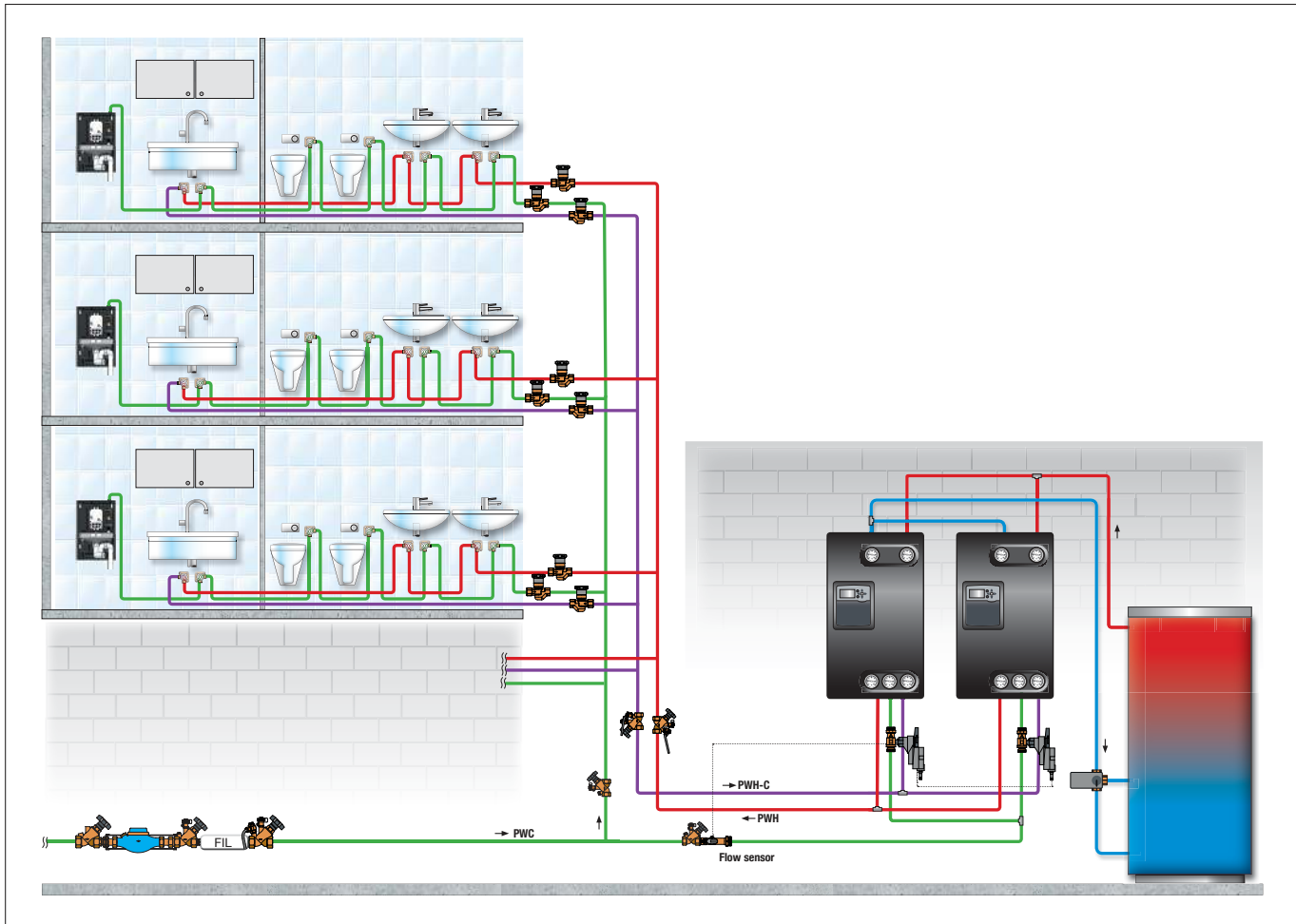
The "Aquanova System" includes systems, products, software and other useful services relating to potable water.

Advantages:

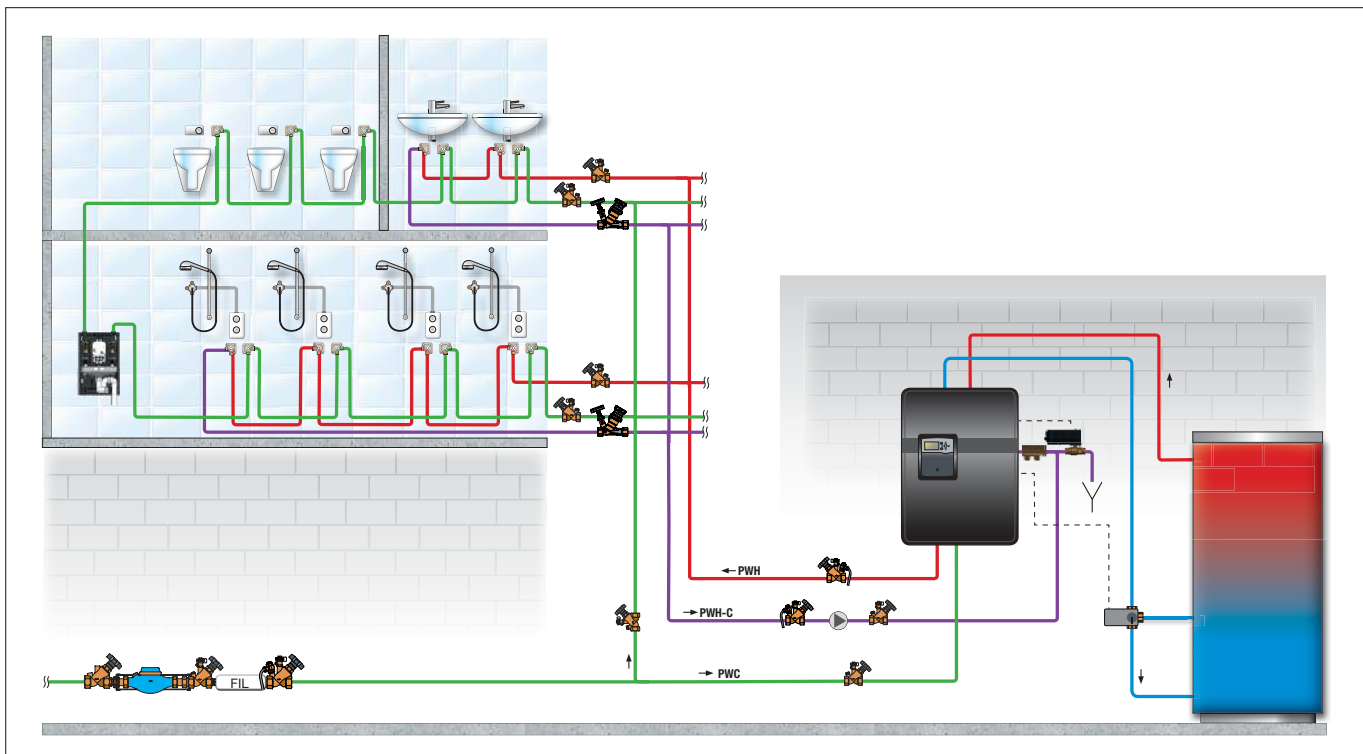
- the system interfaces (heat generation and hot potable water preparation) reflect the competence of Oventrop as system provider for potable water and heating installations and is therefore relevant to your design work
- Oventrop is an expert partner to the specialist trade and supports its partners during the design of potable water and heating installations
- Oventrop offers instruments and information as well as certified training courses and seminars to the specifying engineer and qualified installer



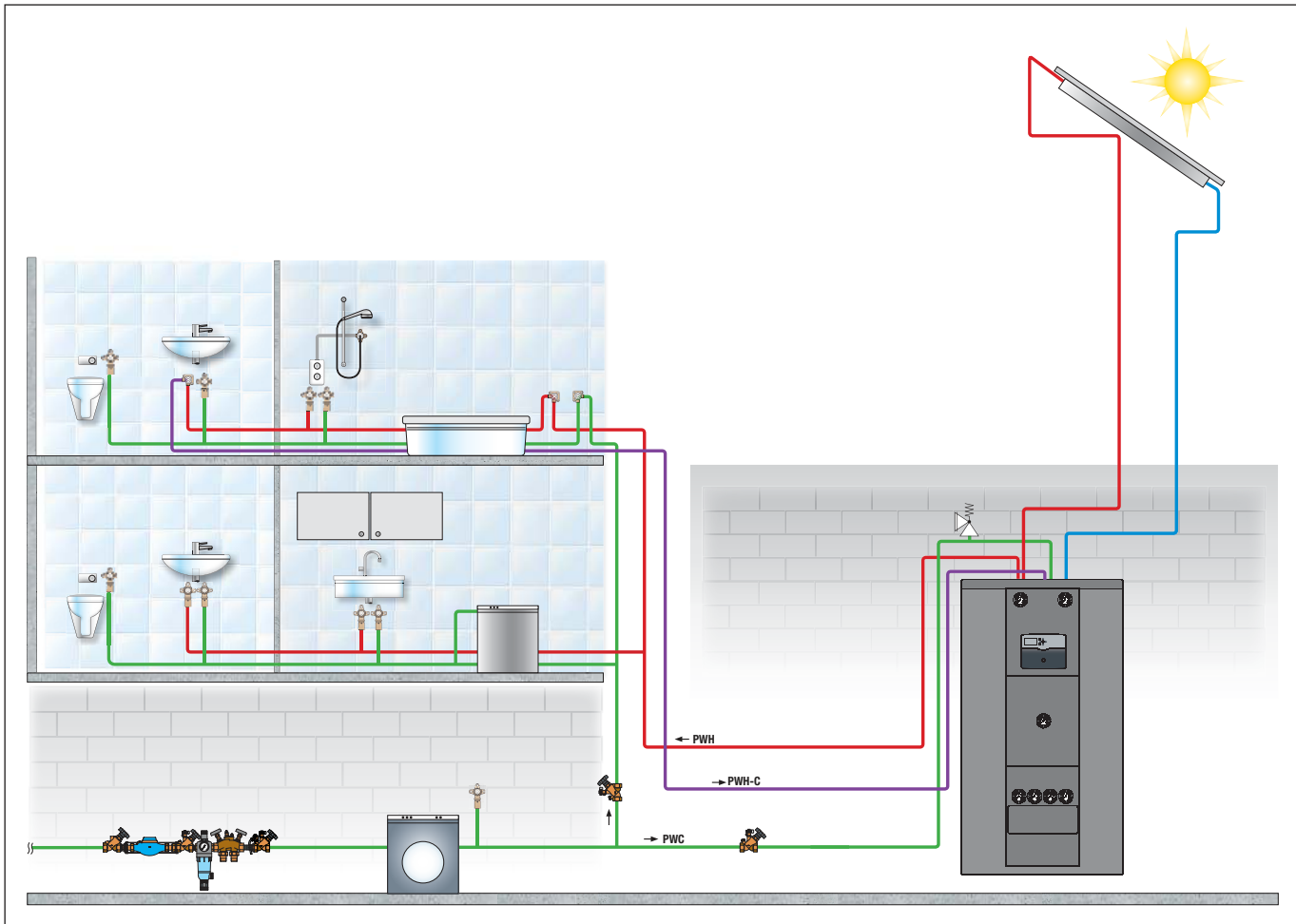
Hygiene with the Oventrop "Aquanova-System" – for the most important product for our nutrition: potable water



System illustration: Potable water installation in an office building



System illustration: Potable water installation in a sports facility









System illustration: Potable water installation in a detached house

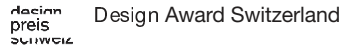





8.b "Aquastrom F"/"Aquastrom KFR" valves

Content



"Aquastrom F" Free-flow valves (both ports female thread)	8.10
"Aquastrom F" Free-flow valves (solder connection/collar nut)	8.11
"Aquastrom F" Free-flow valves (both ports male thread)	8.12
"Aquastrom F" Free-flow valves (female thread/male thread)	8.13
"Aquastrom KFR" Valves (both ports female thread)	8.14
"Aquastrom KFR" Valves (both ports collar nut)	8.15
"Aquastrom KFR" Valves (both ports male thread)	8.16
"Aquastrom KFR" Valves (female thread/male thread)	8.17
"Aquastrom F" Free-flow valves (both ports male thread)	8.18
"Aquastrom KFR" Valves (both ports male thread)	8.18
"Aquastrom F" Free-flow valves (both ports flanged)	8.19
"Aquastrom KFR" Valves (both ports flanged)	8.19
Accessories	8.20

Article	Packing unit	Article-No.	Hint
"Aquaström F" Free-flow valves (both ports female thread) bronze			<p>Application: Potable water installations PN 16, max. water temperature 120 °C.</p> <p>DVGW, SVGW, KIWA certified (PN 10).</p> <p>Sound absorbing according to DIN EN ISO 3822 product group I.</p> <p>All components in contact with potable water are made of non-brass materials, small dimensions, non-rising stem on size DN 25 and above.</p> <p>Construction according to DIN 3502.</p> <p>Draining facility within same plane as handle, therefore allowing pipes to be at close centres. Draining ball valve (see accessories) can be installed subsequently.</p> <p>Press connection: For direct connection of copper pipes according to DIN EN 1057 / DVGW GW 392, stainless steel pipes according to DIN EN 10088 / DVGW GW 541. Pressing must be carried out to tighten the connection. Only use press jaws with the original contours SANHA (SA), Geberit-Mapress (MM) or Viega (Profipress) in corresponding size. Processing must be carried out according to the installation instructions.</p> <p>Award:  Design Award Switzerland</p> <p>For further information see "Technical information":</p> 
both ports female thread according to EN 10226-1 without draining orifices			
			
DN 15	Rp 1/2 x Rp 1/2	(10) 4200804	
DN 20	Rp 3/4 x Rp 3/4	(10) 4200806	
DN 25	Rp 1 x Rp 1	(10) 4200808	
DN 32	Rp 1 1/4 x Rp 1 1/4	(5) 4200810	
DN 40	Rp 1 1/2 x Rp 1 1/2	(5) 4200812	
DN 50	Rp 2 x Rp 2	(5) 4200816	
both ports female thread according to EN 10226-1 draining orifices G 1/4 closed with plugs			
			
DN 15	Rp 1/2 x Rp 1/2	(10) 4201004	
DN 20	Rp 3/4 x Rp 3/4	(10) 4201006	
DN 25	Rp 1 x Rp 1	(10) 4201008	
DN 32	Rp 1 1/4 x Rp 1 1/4	(5) 4201010	
DN 40	Rp 1 1/2 x Rp 1 1/2	(5) 4201012	
DN 50	Rp 2 x Rp 2	(5) 4201016	
both ports female thread according to EN 10226-1 with draining ball valve G 1/4			
			
DN 15	Rp 1/2 x Rp 1/2	(10) 4201204	
DN 20	Rp 3/4 x Rp 3/4	(10) 4201206	
DN 25	Rp 1 x Rp 1	(10) 4201208	
DN 32	Rp 1 1/4 x Rp 1 1/4	(5) 4201210	
DN 40	Rp 1 1/2 x Rp 1 1/2	(5) 4201212	
DN 50	Rp 2 x Rp 2	(5) 4201216	
both ports bronze press fittings system Sanha® with draining ball valve G 1/4			
			
Ø 15 mm		(10) 4201252	
Ø 18 mm		(10) 4201253	
Ø 22 mm		(10) 4201254	
Ø 28 mm		(10) 4201255	
Ø 35 mm		(5) 4201256	
Ø 42 mm		(5) 4201257	
Ø 54 mm		(5) 4201258	

Article	Packing unit	Article-No.	Hint
<p>"Aquastrum F" Free-flow valves (solder connection/collar nut) bronze for the connection of copper pipes according to DIN EN 1057 Inlet port: solder connection Outlet port: male thread according to DIN ISO 228 with ring gasket, collar nut and solder tailpipe (bronze) with draining ball valve G ¼</p>			<p>Application: Potable water installations PN 16, max. water temperature 120 °C.</p> <p>DVGW certified (PN 10).</p> <p>Sound absorbing according to DIN EN ISO 3822 product group I.</p> <p>All components in contact with potable water are made of non-brass materials, small dimensions, non-rising stem on size DN 25 and above. Construction according to DIN 3502.</p> <p>Draining facility within same plane as handle, therefore allowing pipes to be at close centres. Draining ball valve (see accessories) can be installed subsequently.</p> <p>The bonnet has to be removed before soldering.</p> <p>Award:  </p> <p>For further information see "Technical information":</p> 
	DN 15	Ø 15 x Ø 15	(10) 4204252°
	DN 15	Ø 18 x Ø 18	(10) 4204253°
	DN 20	Ø 22 x Ø 22	(10) 4204254°
	DN 25	Ø 28 x Ø 28	(10) 4204255°
	DN 32	Ø 35 x Ø 35	(5) 4204256°
	DN 40	Ø 42 x Ø 42	(5) 4204257°
	DN 50	Ø 54 x Ø 54	(5) 4204258°
	<p>Inlet port: solder connection Outlet port: male thread according to DIN ISO 228 with ring gasket, collar nut and solder tailpipe (bronze) draining orifices G ¼ closed with plugs</p>		
	DN 15	Ø 15 x Ø 15	(10) 4203852
	DN 15	Ø 18 x Ø 18	(10) 4203853
	DN 20	Ø 22 x Ø 22	(10) 4203854
	DN 25	Ø 28 x Ø 28	(10) 4203855
	DN 32	Ø 35 x Ø 35	(5) 4203856
	DN 40	Ø 42 x Ø 42	(5) 4203857
	DN 50	Ø 54 x Ø 54	(5) 4203858
	<p>both ports male thread according to DIN ISO 228 with ring gaskets, collar nuts and solder tailpipes (bronze) with draining ball valve G ¼</p>		
	DN 15	Ø 15 x Ø 15	(10) 4202252°
	DN 15	Ø 18 x Ø 18	(10) 4202253°
	DN 20	Ø 22 x Ø 22	(10) 4202254°
	DN 25	Ø 28 x Ø 28	(10) 4202255°
	DN 32	Ø 35 x Ø 35	(5) 4202256°
	DN 40	Ø 42 x Ø 42	(5) 4202257°
	DN 50	Ø 54 x Ø 54	(5) 4202258°
	<p>both ports male thread according to DIN ISO 228 with ring gaskets, collar nuts and solder tailpipes (bronze) draining orifices G ¼ closed with plugs</p>		
	DN 15	Ø 15 x Ø 15	(10) 4201852°
	DN 15	Ø 18 x Ø 18	(10) 4201853°
	DN 20	Ø 22 x Ø 22	(10) 4201854°
	DN 25	Ø 28 x Ø 28	(5) 4201855°
	DN 32	Ø 35 x Ø 35	(5) 4201856°
	DN 40	Ø 42 x Ø 42	(5) 4201857°
	DN 50	Ø 54 x Ø 54	(5) 4201858°

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

"Aquaström F" Free-flow valves (both ports male thread)
bronze



both ports flat sealing male thread
according to DIN ISO 228
with draining ball valve G 1/4

DN 15	G 3/4	x G 3/4	(10)	4202204
DN 20	G 1	x G 1	(10)	4202206
DN 25	G 1 1/4	x G 1 1/4	(10)	4202208
DN 32	G 1 1/2	x G 1 1/2	(5)	4202210
DN 40	G 1 3/4	x G 1 3/4	(5)	4202212
DN 50	G 2 3/8	x G 2 3/8	(5)	4202216

Application:
Potable water installations PN 16,
max. water temperature 120 °C.

DVGW, SVGW and KIWA certified (PN 10).

Sound absorbing according to DIN EN ISO 3822 product group I.

All components in contact with potable water are made of non-brass materials, small dimensions, non-rising stem on size DN 25 and above.

Construction according to DIN 3502.



both ports flat sealing male thread
according to DIN ISO 228
draining orifices G 1/4 closed with plugs

DN 15	G 3/4	x G 3/4	(10)	4201804
DN 20	G 1	x G 1	(10)	4201806
DN 25	G 1 1/4	x G 1 1/4	(10)	4201808
DN 32	G 1 1/2	x G 1 1/2	(5)	4201810
DN 40	G 1 3/4	x G 1 3/4	(5)	4201812
DN 50	G 2 3/8	x G 2 3/8	(5)	4201816

Draining facility within same plane as handle, therefore allowing pipes to be at close centres. Draining ball valve (see accessories) can be installed subsequently.

Award:

design preis summit Design Award Switzerland

For further information see "Technical Information":



both ports enlarged, flat sealing male thread
according to DIN ISO 228
for the connection of thick walled plastic pipes
with draining ball valve G 1/4

DN 15	G 1	x G 1	(10)	4202663°
DN 20	G 1 1/4	x G 1 1/4	(10)	4202664°
DN 25	G 1 1/2	x G 1 1/2	(10)	4202665°
DN 32	G 2	x G 2	(5)	4202666°
DN 40	G 2 1/4	x G 2 1/4	(5)	4202667°
DN 50	G 2 3/4	x G 2 3/4	(5)	4202668°



both ports enlarged, flat sealing male thread
according to DIN ISO 228
for the connection of thick walled plastic pipes
draining orifices G 1/4 closed with plugs

DN 15	G 1	x G 1	(10)	4202463
DN 15	G 1 1/4	x G 1 1/4	(10)	4202464
DN 25	G 1 1/2	x G 1 1/2	(10)	4202465
DN 32	G 2	x G 2	(5)	4202466
DN 40	G 2 1/4	x G 2 1/4	(5)	4202467
DN 50	G 2 3/4	x G 2 3/4	(5)	4202468

Insulation shells: Pages 8.20, 3.47
Connection fittings: Pages 8.66, 6.120

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

"Aquaström F" Free-flow valves (female thread/male thread) bronze

Inlet port: female thread according to EN 10226-1
 Outlet port: male thread according to DIN ISO 228 with ring gasket, collar nut and threaded tailpipe (bronze) with draining ball valve G 1/4



DN 15	Rp 1/2	x R 1/2	(10)	4203304°
DN 20	Rp 3/4	x R 3/4	(10)	4203306°
DN 25	Rp 1	x R 1	(10)	4203308°
DN 32	Rp 1 1/4	x R 1 1/4	(5)	4203310°
DN 40	Rp 1 1/2	x R 1 1/2	(5)	4203312°
DN 50	Rp 2	x R 2	(5)	4203316°

Inlet port: female thread according to EN 10226-1
 Outlet port: male thread according to DIN ISO 228 with ring gasket, collar nut and threaded tailpipe (bronze) draining orifices G 1/4 closed with plugs



DN 15	Rp 1/2	x R 1/2	(10)	4202904°
DN 20	Rp 3/4	x R 3/4	(10)	4202906°
DN 25	Rp 1	x R 1	(10)	4202908°
DN 32	Rp 1 1/4	x R 1 1/4	(5)	4202910°
DN 40	Rp 1 1/2	x R 1 1/2	(5)	4202912°
DN 50	Rp 2	x R 2	(5)	4202916°

Inlet port: female thread according to EN 10226-1
 Outlet port: male thread according to DIN ISO 228 with draining ball valve G 1/4



DN 15	Rp 1/2	x G 3/4	(10)	4203204°
DN 20	Rp 3/4	x G 1	(10)	4203206°
DN 25	Rp 1	x G 1 1/4	(10)	4203208°
DN 32	Rp 1 1/4	x G 1 1/2	(5)	4203210°
DN 40	Rp 1 1/2	x G 1 3/4	(5)	4203212°
DN 50	Rp 2	x G 2 3/4	(5)	4203216°

Inlet port: female thread according to EN 10226-1
 Outlet port: male thread according to DIN ISO 228 draining orifices G 1/4 closed with plugs



DN 15	Rp 1/2	x G 3/4	(10)	4202804
DN 20	Rp 3/4	x G 1	(10)	4202806
DN 25	Rp 1	x G 1 1/4	(10)	4202808
DN 32	Rp 1 1/4	x G 1 1/2	(5)	4202810
DN 40	Rp 1 1/2	x G 1 3/4	(5)	4202812
DN 50	Rp 2	x G 2 3/4	(5)	4202816

Application:
 Potable water installations PN 16, max. water temperature 120 °C.

DVGW and SVGW certified (PN 10).

Sound absorbing according to DIN EN ISO 3822 product group I.

All components in contact with potable water are made of non-brass materials, small dimensions, non-rising stem on size DN 25 and above.

Construction according to DIN 3502.

Draining facility within same plane as handle, therefore allowing pipes to be at close centres. Draining ball valve (see accessories) can be installed subsequently.

Award:
 Design Award Switzerland

For further information see "Technical information":



Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

**"Aquaström KFR" Valves (both ports female thread)
Combination free-flow valve and
non-return check valve
bronze**

both ports female thread according to EN 10226-1
construction according to DIN 3502
with draining ball valve G 1/4
for the universal connection of pipes and fittings



DN 15	Rp 1/2	x Rp 1/2	(10)	4206204
DN 20	Rp 3/4	x Rp 3/4	(10)	4206206
DN 25	Rp 1	x Rp 1	(10)	4206208
DN 32	Rp 1 1/4	x Rp 1 1/4	(5)	4206210
DN 40	Rp 1 1/2	x Rp 1 1/2	(5)	4206212
DN 50	Rp 2	x Rp 2	(5)	4206216

both ports female thread according to DIN EN 10226-1
construction according to DIN 3502
draining orifices G 1/4 closed with plugs
for the universal connection of pipes and fittings



DN 15	Rp 1/2	x Rp 1/2	(10)	4205804
DN 20	Rp 3/4	x Rp 3/4	(10)	4205806
DN 25	Rp 1	x Rp 1	(10)	4205808
DN 32	Rp 1 1/4	x Rp 1 1/4	(5)	4205810
DN 40	Rp 1 1/2	x Rp 1 1/2	(5)	4205812
DN 50	Rp 2	x Rp 2	(5)	4205816

both ports bronze press fittings System Sanha®
with draining ball valve G 1/4



Ø 15 mm	(10)	4206252°
Ø 18 mm	(10)	4206253°
Ø 22 mm	(10)	4206254°
Ø 28 mm	(10)	4206255°
Ø 35 mm	(5)	4206256°
Ø 42 mm	(5)	4206257°
Ø 54 mm	(5)	4206258°

Application:
Potable water installations PN 16,
max. water temperature 120 °C.

DVGW certified (PN 10).

Sound absorbing according to DIN EN ISO
3822 product group I.

All components in contact with potable water
are made of non-brass materials, small
dimensions, non-rising stem on size DN 25 and
above. Draining and test orifice on the side of
the handwheel.

The valves without draining facility have a
plugged draining orifice G 1/4.
Drain ball valve (see accessories) may be
installed subsequently.

Award:

 Design Award Switzerland

For further information see
"Technical information":



Press connection:

For the direct connection of copper pipes
according to DIN EN 1057 / DVGW GW 392,
stainless steel pipes according to DIN EN
10088 / DVGW GW 541.

Pressing must be carried out to tighten the
connection. Only use press jaws with the
original contours SANHA (SA), Geberit-
Mapress (MM) or Viega (Profipress) in
corresponding size.

Processing must be carried out according to
the installation instructions.

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

**"Aquaström KFR" Valves (both ports collar nut)
Combination free-flow valve and
non-return check-valve
bronze**



both ports male thread according to DIN ISO 228
with ring gaskets, collar nuts and solder tailpipes (bronze)
with draining ball valve G ¼
for the connection of copper pipes

DN 15	Ø 15 x Ø 15	(10)	4208352°
DN 15	Ø 18 x Ø 18	(10)	4208353°
DN 20	Ø 22 x Ø 22	(10)	4208354°
DN 25	Ø 28 x Ø 28	(10)	4208355°
DN 32	Ø 35 x Ø 35	(5)	4208356°
DN 40	Ø 42 x Ø 42	(5)	4208357°
DN 50	Ø 54 x Ø 54	(5)	4208358°

both ports male thread according to DIN ISO 228
with ring gaskets, collar nuts and solder tailpipes (bronze)
draining orifices G ¼ closed with plugs
for the connection of copper pipes



DN 15	Ø 15 x Ø 15	(10)	4207952°
DN 15	Ø 18 x Ø 18	(10)	4207953°
DN 20	Ø 22 x Ø 22	(10)	4207954°
DN 25	Ø 28 x Ø 28	(10)	4207955°
DN 32	Ø 35 x Ø 35	(5)	4207956°
DN 40	Ø 42 x Ø 42	(5)	4207957°
DN 50	Ø 54 x Ø 54	(5)	4207958°

Application:
Potable water installations PN 16,
max. water temperature 120 °C.

DVGW certified (PN 10).

Sound absorbing according to DIN EN ISO
3822 product group I.

All components in contact with potable water
are made of non-brass materials, small
dimensions, non-rising stem on size DN 25 and
above. Draining and test orifice on the side of
the handwheel.






The valves without draining facility have a
plugged draining orifice G ¼.
Drain ball valve (see accessories) may be
installed subsequently.

The bonnet has to be removed before
soldering.

Award:
Asienn
preis
switzerland Design Award Switzerland

For further information see
"Technical information":



Article	Packing unit	Article-No.	Hint
<p>"Aquaström KFR" Valves (both ports male thread) Combination free-flow valve and non-return check valve bronze</p> <p>both ports flat sealing male thread according to DIN ISO 228 with draining ball valve G ¼ for the universal connection of pipes and fittings</p> 			<p>Application: Potable water installations PN 16, max. water temperature 120 °C.</p> <p>DVGW certified (PN 10).</p> <p>Sound absorbing according to DIN EN ISO 3822 product group I.</p> <p>All components in contact with potable water are made of non-brass materials, small dimensions, non-rising stem on size DN 25 and above. Draining and test orifice on the side of the handwheel.</p> <p>The valves without draining facility have a plugged draining orifice G ¼. Drain ball valve (see accessories) may be installed subsequently.</p>
DN 15	G ¾	x G ¾ (10) 4208204	
DN 20	G 1	x G 1 (10) 4208206	
DN 25	G 1¼	x G 1¼ (10) 4208208	
DN 32	G 1½	x G 1½ (5) 4208210	
DN 40	G 1¾	x G 1¾ (5) 4208212	
DN 50	G 2¾	x G 2¾ (5) 4208216	
<p>both ports flat sealing male thread according to DIN ISO 228 draining orifices G ¼ closed with plugs for the universal connection of pipes and fittings</p> 			<p>Award: <small>design preis summit</small> Design Award Switzerland</p> <p>For further information see "Technical information":</p> 
DN 15	G ¾	x G ¾ (10) 4207804	
DN 20	G 1	x G 1 (10) 4207806	
DN 25	G 1¼	x G 1¼ (10) 4207808	
DN 32	G 1½	x G 1½ (5) 4207810	
DN 40	G 1¾	x G 1¾ (5) 4207812	
DN 50	G 2¾	x G 2¾ (5) 4207816	
<p>both ports enlarged, flat sealing male thread according to DIN ISO 228 with draining ball valve G ¼ for the connection of thick walled plastic pipes</p> 			
DN 15	G 1	x G 1 (10) 4208563°	
DN 20	G 1¼	x G 1¼ (10) 4208564°	
DN 25	G 1½	x G 1½ (10) 4208565°	
DN 32	G 2	x G 2 (5) 4208566°	
DN 40	G 2¼	x G 2¼ (5) 4208567°	
DN 50	G 2¾	x G 2¾ (5) 4208568°	
<p>both ports enlarged, flat sealing male thread according to DIN ISO 228 draining orifices G ¼ closed with plugs for the connection of thick walled plastic pipes</p> 			
DN 15	G 1	x G 1 (10) 4208363	
DN 20	G 1¼	x G 1¼ (10) 4208364	
DN 25	G 1½	x G 1½ (10) 4208365	
DN 32	G 2	x G 2 (5) 4208366	
DN 40	G 2¼	x G 2¼ (5) 4208367	
DN 50	G 2¾	x G 2¾ (5) 4208368	

Insulation shells: Pages 8.20, 3.47
Connection fittings: Pages 8.66, 6.120

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

**"Aquastrum KFR" Valves (female thread/male thread)
Combination free-flow valve and
non-return check valve
bronze**



Inlet port: female thread according to EN 10226-1
Outlet port: male thread according to DIN ISO 228 with ring gasket, collar nut and threaded tailpipe (bronze) with draining ball valve G ¼ for the universal connection of pipes and fittings

DN 15	Rp ½	x R ½	(10)	4207304°
DN 20	Rp ¾	x R ¾	(10)	4207306°
DN 25	Rp 1	x R 1	(10)	4207308°
DN 32	Rp 1¼	x R 1¼	(5)	4207310°
DN 40	Rp 1½	x R 1½	(5)	4207312°
DN 50	Rp 2	x R 2	(5)	4207316°

Application:
Potable water installations PN 16, max. water temperature 120 °C.

DVGW certified (PN 10).

Sound absorbing according to DIN EN ISO 3822 product group I.

All components in contact with potable water are made of non-brass materials, small dimensions, non-rising stem on size DN 25 and above. Draining and test orifice on the side of the handwheel.

The valves without draining facility have a plugged draining orifice G ¼. Drain ball valve (see accessories) may be installed subsequently.

Inlet port: female thread according to EN 10226-1
Outlet port: male thread according to DIN ISO 228 with ring gasket, collar nut and threaded tailpipe (bronze) draining orifices G ¼ closed with plugs for the universal connection of pipes and fittings



DN 15	Rp ½	x R ½	(10)	4206904°
DN 20	Rp ¾	x R ¾	(10)	4206906°
DN 25	Rp 1	x R 1	(10)	4206908°
DN 32	Rp 1¼	x R 1¼	(5)	4206910°
DN 40	Rp 1½	x R 1½	(5)	4206912°
DN 50	Rp 2	x R 2	(5)	4206916°

Award:
Basim
preis
Switzerland Design Award Switzerland

For further information see "Technical information":



Inlet port: female thread according to EN 10226-1
Outlet port: male thread, flat sealing, according to DIN ISO 228 with draining ball valve G ¼ for the universal connection of pipes and fittings



DN 15	Rp ½	x G ¾	(10)	4207204°
DN 20	Rp ¾	x G 1	(10)	4207206°
DN 25	Rp 1	x G 1¼	(10)	4207208°
DN 32	Rp 1¼	x G 1½	(5)	4207210°
DN 40	Rp 1½	x G 1¾	(5)	4207212°
DN 50	Rp 2	x G 2¾	(5)	4207216°

Inlet port: female thread according to EN 10226-1
Outlet port: male thread, flat sealing, according to DIN ISO 228 draining orifices G ¼ closed with plugs for the universal connection of pipes and fittings



DN 15	Rp ½	x G ¾	(10)	4206804
DN 20	Rp ¾	x G 1	(10)	4206806
DN 25	Rp 1	x G 1¼	(10)	4206808
DN 32	Rp 1¼	x G 1½	(5)	4206810
DN 40	Rp 1½	x G 1¾	(5)	4206812
DN 50	Rp 2	x G 2¾	(5)	4206816

Insulation shells: Pages 8.20, 3.47
Connection fittings: Pages 8.66, 6.120

Article	Article-No.	Hint
---------	-------------	------

"Aquastrum F" Free-flow valves (both ports male thread)
 bronze



both ports flat sealing male thread according to DIN ISO 228, without draining facility for the universal connection of pipes

DN 65	G 3	x G 3	4201820
DN 80	G 3½	x G 3½	4201824

Application:
 Potable water installations PN 16, max. water temperature 120 °C.
 "Aquastrum F" valves:
 DVGW certified (PN 10)
 "Aquastrum KFR" valves:
 DVGW certified (PN 10)

Without dead zone, all components in contact with potable water made of non-brass materials, valve disc made of stainless steel, non-rising stem, maintenance-free stem seal due to double O-ring made of EPDM. Draining orifices on the side of the handwheel. Display of the valve setting with the help of the stroke index integrated in the handwheel even if the valve has been insulated.

both ports flat sealing male thread according to DIN ISO 228, with plugged draining orifice G 3/8 in front of and behind the seat for the universal connection of pipes



DN 65	G 3	x G 3	4202220
DN 80	G 3½	x G 3½	4202224

The valves with draining orifice can subsequently be equipped with a drain ball valve: page 8.63

"Aquastrum KFR" Valves (both ports male thread)
Combination free-flow valve/non-return check valve
 bronze



both ports flat sealing male thread according to DIN ISO 228, without draining facility, for the universal connection of pipes

DN 65	G 3	x G 3	4207820
DN 80	G 3½	x G 3½	4207824

For further information see "Technical information":








Suitable insulation shells for the sizes DN 65 and DN 80 can be obtained from:
 GWK Kuhlmann GmbH, 33154 Salzkotten
 or
www.gwk.de
Energy saving box serie MS - standard:
 DN 65 male thread x male thread:
 item no. 1221 065 608
 DN 80 male thread x male thread:
 item no. 1221 080 608

both ports flat sealing male thread according to DIN ISO 228, with plugged draining orifice G 3/8 in front of and behind the seat for the universal connection of pipes



DN 65	G 3	x G 3	4208220
DN 80	G 3½	x G 3½	4208224

Article	Article-No.	Hint						
<p>"Aquaström F" Free-flow valves (both ports flanged) bronze</p>								
<p>both ports round flanges according to DIN EN 1092, with additional flattening to increase the static stability, without draining facility</p>								
	<table border="0"> <tr> <td>DN 65</td> <td>2½</td> <td>4204351</td> </tr> <tr> <td>DN 80</td> <td>3</td> <td>4204352</td> </tr> </table>	DN 65	2½	4204351	DN 80	3	4204352	<p>Application: Potable water installations PN 16, max. water temperature 120 °C. "Aquaström F" valves: DVGW and SVGW certified (PN 10) "Aquaström KFR" valves: DVGW certified (PN 10)</p> <p>Without dead zone, all components in contact with potable water made of non-brass materials, valve disc made of stainless steel, non-rising stem, maintenance-free stem seal due to double O-ring made of EPDM. Draining orifices on the side of the handwheel. Display of the valve setting with the help of the stroke index integrated in the handwheel even if the valve has been insulated.</p> <p>The valves with draining orifice can subsequently be equipped with a drain ball valve: page 8.63</p> <p>For further information see "Technical information":</p>  <p>Suitable insulation shells for the sizes DN 65 and DN 80 can be obtained from: GWK Kuhlmann GmbH, 33154 Salzkotten or www.gwk.de <u>Energy saving box serie FS - standard:</u> DN 65 flanged x flanged: item no. 1112 065 609 DN 80 flanged x flanged: item no. 1112 080 609</p>
DN 65	2½	4204351						
DN 80	3	4204352						
<p>both ports round flanges according to DIN EN 1092, with additional flattening to increase the static stability, with plugged draining orifice G 3/8 in front of and behind the seat</p>								
	<table border="0"> <tr> <td>DN 65</td> <td>2½</td> <td>4204451</td> </tr> <tr> <td>DN 80</td> <td>3</td> <td>4204452</td> </tr> </table>	DN 65	2½	4204451	DN 80	3	4204452	
DN 65	2½	4204451						
DN 80	3	4204452						
<p>"Aquaström KFR" Valves (both ports flanged) Combination free-flow valve/non-return check valve bronze</p>								
<p>both ports round flanges according to DIN EN 1092, with additional flattening to increase the static stability, without draining facility</p>								
	<table border="0"> <tr> <td>DN 65</td> <td>2½</td> <td>4209351</td> </tr> <tr> <td>DN 80</td> <td>3</td> <td>4209352</td> </tr> </table>	DN 65	2½	4209351	DN 80	3	4209352	
DN 65	2½	4209351						
DN 80	3	4209352						
<p>both ports round flanges according to DIN EN 1092, with additional flattening to increase the static stability, with plugged draining orifice G 3/8 in front of and behind the seat</p>								
	<table border="0"> <tr> <td>DN 65</td> <td>2½</td> <td>4209451</td> </tr> <tr> <td>DN 80</td> <td>3</td> <td>4209452</td> </tr> </table>	DN 65	2½	4209451	DN 80	3	4209452	
DN 65	2½	4209451						
DN 80	3	4209452						

Article	Article-No.	Hint
---------	-------------	------

Accessories

Bonnets for valve bodies of the free-flow valves "Aquaström F" and the valves "Aquaström KFR" as well as for replacement purposes for products of other manufacturers than Oventrop with a connection body/bonnet according to DIN 3502.

Bonnet for free-flow valves
bronze



DN 15	4209004
DN 20	4209006
DN 25	4209008
DN 32	4209010
DN 40	4209012
DN 50	4209016
DN 65	4209020
DN 80	4209024

Bonnet for "KFR" valves
bronze



DN 15	4209504
DN 20	4209506
DN 25	4209508
DN 32	4209510
DN 40	4209512
DN 50	4209516
DN 65	4209520
DN 80	4209524

Insulation shells made of polyurethane rigid foam
for "Hydrocontrol VTR/VPR", "Hydrocontrol ATR/APR", "Hydromat QTR", "Hydromat DTR", as well as for free-flow valves "Aquaström F" and "Aquaström KFR" valves
Operating temperature t_g : +130°C (for short periods up to +150°C)



DN 10 - DN 15	1060081
DN 20	1060082
DN 25	1060083
DN 32	1060084
DN 40	1060085
DN 50	1060086

Insulation shells (two-part) made of polyurethane with tongue-and-groove fitting. Meet the requirements of the German Energy Saving Directive (EnEV), appendix 5, table 1, line 5.
Building material class B2 according to DIN 4102.



8.c "Aquastrom FR" and "Aquastrom R" valves

Content

"Aquastrom FR" Free-flow valves	8.22
"Aquastrom R" Non-return check valves	8.22

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

"Aquaström FR" Free-flow valves
 with non-return check valve insert, bronze



both ports flat sealing male thread according to DIN ISO 228, with draining facility and integrated non-return check valve insert with low opening pressure for the universal connection of pipes and fittings

DN 15	G 3/4	x G 3/4	(10)	4202304°
DN 20	G 1	x G 1	(10)	4202306°
DN 25	G 1 1/4	x G 1 1/4	(10)	4202308°
DN 32	G 1 1/2	x G 1 1/2	(5)	4202310°

Application:
 Potable water installations PN 16, max. water temperature 95 °C. DVGW certified (PN 10).

Especially suitable for circulation pipes due to low opening pressure $P_{opening} \geq 10$ mbar, reduced dimensions, non-rising stem on size DN 25 and above. The valves with draining facility have an additional plugged draining orifice G 1/4 in front of the seat. The valves without draining facility have a plugged draining orifice G 1/4 in front of and behind the seat.

Drain ball valve (see accessories) may be installed subsequently.

both ports flat sealing male thread according to DIN ISO 228, with plugged draining orifice G 1/4 in front of and behind the seat and integrated non-return check valve insert with low opening pressure for the universal connection of pipes and fittings



DN 15	G 3/4	x G 3/4	(10)	4202704
DN 20	G 1	x G 1	(10)	4202706
DN 25	G 1 1/4	x G 1 1/4	(10)	4202708
DN 32	G 1 1/2	x G 1 1/2	(5)	4202710

Insulation shells: page 8.20

"Aquaström R" Non-return check valves
 straight pattern, with test orifices G 1/4, DIN EN 13959 type EA, bronze



both ports flat sealing male thread according to DIN ISO 228 for the universal connection of pipes and fittings

DN 15	G 3/4	x G 3/4		4208704
DN 20	G 1	x G 1		4208706
DN 25	G 1 1/4	x G 1 1/4		4208708
DN 32	G 1 1/2	x G 1 1/2		4208710
DN 40	G 1 3/4	x G 1 3/4		4208712
DN 50	G 2 3/8	x G 2 3/8		4208716

Application:
 Potable water installations PN 16, max. water temperature 95 °C, model according to DIN EN 13959.

Safety device according to DIN EN 1717 up to liquid category 2.

Especially suitable for circulation pipes due to low opening pressure $P_{opening} \geq 10$ mbar, without dead zone. DVGW and SVGW certified (PN 10). Sound absorbing according to DIN EN ISO 3822 product group I.

Inlet port: collar nut, flat sealing
 Outlet port: male thread, flat sealing according to DIN ISO 228 for the universal connection of pipes and fittings



DN 15	c/nut 3/4	x G 3/4		4208604
DN 20	c/nut 1	x G 1		4208606
DN 25	c/nut 1 1/4	x G 1 1/4		4208608
DN 32	c/nut 1 1/2	x G 1 1/2		4208610
DN 40	c/nut 1 3/4	x G 1 3/4		4208612
DN 50	c/nut 2 3/8	x G 2 3/8		4208616

For further information see "Technical information":



Connection fittings: page 8.66

8.d "Optibal TW" Ball valves for potable water

Content



"Optibal TW" Ball valves for potable water 8.24

Insulation shells 8.25

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

"Optibal TW" Ball valves for potable water
with full flow, bronze
extended plastic handle (black/green)

extended plastic handle (black/green)
both ports female thread according to EN 10226-1,
with plugged draining orifice G ¼ on both sides



DN 15	Rp ½	x Rp ½	(10)	4208804
DN 20	Rp ¾	x Rp ¾	(10)	4208806
DN 25	Rp 1	x Rp 1	(10)	4208808
DN 32	Rp 1¼	x Rp 1¼	(10)	4208810
DN 40	Rp 1½	x Rp 1½	(5)	4208812
DN 50	Rp 2	x Rp 2	(5)	4208816

Application:
Potable water installations PN 10,
max. water temperature 90 °C.

DN 15 - DN 80 DVGW, GDV and VA certified.

Bronze body, ball made of chrome plated
brass, without dead zone, ball always
surrounded by water.
Full flow according to DIN EN 13828.

Sound absorbing according to DIN EN ISO
3822 product group I.

lever made of galvanised steel, without draining orifice

DN 65	Rp 2½	x Rp 2½	4208820
DN 80	Rp 3	x Rp 3	4208824



extended plastic handle (black/green)
both ports flat sealing male thread
according to DIN ISO 228,
with plugged draining orifice G ¼ on both sides
for the universal connection of pipes



DN 15	G ¾	x G ¾	(10)	4208904
DN 20	G 1	x G 1	(10)	4208906
DN 25	G 1¼	x G 1¼	(10)	4208908
DN 32	G 1½	x G 1½	(10)	4208910
DN 40	G 1¾	x G 1¾	(5)	4208912
DN 50	G 2¾	x G 2¾	(5)	4208916

both ports bronze press fittings system Sanha®
with plugged draining orifice G ¼ on both sides



Ø 15 mm	(10)	4208852
Ø 18 mm	(10)	4208853
Ø 22 mm	(10)	4208854
Ø 28 mm	(10)	4208855
Ø 35 mm	(10)	4208856
Ø 42 mm	(5)	4208857
Ø 54 mm	(5)	4208858

Press connection:
For the direct connection of copper pipes
according to DIN EN 1057 / DVGW GW 392,
stainless steel pipes according to DIN EN
10088 / DVGW GW 451.

Pressing must be carried out to tighten the
connection. Only use press jaws with the
original contours SANHA (SA), Geberit-
Mapress (MM) or Viega (Profipress) n
corresponding size. Processing must be
carried out according to the installation
instructions.

Electromotive actuator
24 V AC/DC, with spring return



for "Optibal TW" DN 15 - DN 25 (10) **4208890**

Electromotive actuator for the motorisation of
"Optibal TW" ball valves DN 15 - DN 25.

Depending on the position of the ball valve
stem, the actuator can be installed closed with
current "off" or open with current "off". Torque
4 Nm, angle of rotation 90° within 30 seconds.

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

Insulation shells



DN 15	Ø 15 mm, Ø 18 mm	(50)	4208881
DN 20	Ø 22 mm	(25)	4208882
DN 25	Ø 28 mm	(25)	4208883
DN 32	Ø 35 mm	(25)	4208884
DN 40	Ø 42 mm	(10)	4208885
DN 50	Ø 54 mm	(10)	4208886

The insulation shells comply with the German Energy Saving Directive as well as the building material class B1 according to DIN 4102 as far as fire protection is concerned.

For further information see "Technical information":



Thermometer conversion set, anthracite

for item no.	(10)	1078382
1078171/ 72/ 73, 1078371/ 72/ 73, 1078708/ 10/ 61/ 62 and 4208806/ 08, 4208854/ 55, 4208906/ 08		
for item no.:	(10)	4208893
4208810/ 12/ 16/ 56/ 57/ 58, 4208910/ 12/ 16		

8.e "Aquastrom VT/T plus" Thermal circulation valves

Content



"Aquastrom VT"	8.28
"Aquastrom T plus"	8.29
Accessories for "Aquastrom T plus", "Aquastrom VT"	8.30

Article Article-No. Hint

"Aquaström VT"
Thermostatic valve with adjustable temperature control range and adjustable residual volume flow for circulation pipes

bronze

with isolating facility, presettable, draining valve for hose connection in front of the thermal control unit, including insulation and thermometer

both ports female thread according to EN 10226-1

DN 15	Rp 1/2	x Rp 1/2	4205704
DN 20	Rp 3/4	x Rp 3/4	4205706



both ports flat sealing male thread according to DIN ISO 228

DN 15	G 3/4	x G 3/4	4206704
DN 20	G 1	x G 1	4206706



both ports bronze press fittings

Ø 15 mm	4205752
Ø 18 mm	4205753
Ø 22 mm	4205754



Application:
Potable water installations PN 16 for circulation pipes according to work sheets W551 and W553.

With the factory setting, the valve complies with DVGW W554.

DVGW, SVGW, KIWA, VA, WRAS and WaterMark certified.

Max. water temperature 90 °C.

Complete with insulation shells made of EPS according to the German Energy Saving Directive (EnEV), building material class B1 according to DIN 4102.

Thermal control:

Max. control range: 50 °C–65 °C

Recommended control range: 55 °C–60 °C

Preset to 57 °C.

Temperature and flow setting lockable. With integrated ball valve, with isolating facility for riser. Automatic thermal disinfection.

Disinfection range starts about 6 K above the set temperature. The disinfection volume flow returns to the residual volume flow

approximately 12 K above the set temperature to guarantee the supply of the succeeding system during thermal disinfection.

Draining valve for hose connection.

Temperature monitoring via thermometer or temperature sensor.

Self-cleaning valve unit.

The thermal control function is maintained even if the residual volume flow is set very low. This way, an exact hydronic balance of the individual circuits according to the pipework calculation is possible.

All parts in contact with potable water are made of non-brass materials.

Press connection:

For direct connection of copper pipes according to DIN EN 1057 / DVGW GW 392, stainless steel pipes according to DIN EN 10088 / DVGW GW 541.

Pressing must be carried out to tighten the connection. Only use press jaws with the original contours SANHA (SA), Geberit-Mapress (MM) or Viega (Profipress) in corresponding size. Processing must be carried out according to the installations instructions.








Awards:







 Design Centre Essen
reddot design award

 Design Award of the
Federal Republic of Germany
Nominated 2010

For further information see
"Technical information":



Article	Article-No.	Hint	
<p>"Aquaström T plus" Thermostatic valve with adjustable temperature control range and fixed residual volume flow for circulation pipes bronze</p>			
<p>with isolating facility, presettable, draining valve for hose connection in front of the thermal control unit, including insulation and thermometer</p>			
<p>both ports female thread according to EN 10226-1</p>			
	DN 15 Rp 1/2 x Rp 1/2 4205504 DN 20 Rp 3/4 x Rp 3/4 4205506 DN 25 Rp 1 x Rp 1 4205508	<p>Application: Potable water installations PN 16 for circulation pipes according to work sheets W551 and W553.</p> <p>Valve complies with DVGW W554. DVGW, KIWA, SVGW, ACS and VA certified.</p> <p>Max. water temperature 90 °C. Thermal control: Recommended control range: 55 °C-60 °C Preset to 57 °C (max. control range 40 °C-65 °C). Temperature setting can be protected against unauthorised tampering. Automatic thermal disinfection. Disinfection range starts about 6 K above the set temperature. When exceeding a temperature of 73 °C, the disinfection volume flow is - irrespective of the set temperature - reduced to the residual volume flow to guarantee the disinfection of the succeeding system. Draining valve for hose connection. Temperature monitoring via thermometer or temperature sensor. Presetting and isolation of the max. volume flow irrespective of the set control temperature. All parts in contact with potable water are made of non-brass materials. Complete with insulation shells made of EPS according to the German Energy Saving Directive (EnEV), building material class B1 according to DIN 4102.</p> <p>Press connection: For direct connection of copper pipes according to DIN EN 1057 / DVGW GW 392, stainless steel pipes according to DIN EN 10088 / DVGW GW 541. Pressing must be carried out to tighten the connection. Only use press jaws with the original contours SANHA (SA), Geberit-Mapress (MM) or Viega (Profipress) in corresponding size. Processing must be carried out according to the installations instructions.</p> <p>For further information see "Technical information":</p> 	
<p>both ports flat sealing male thread according to DIN ISO 228</p>			
	DN 15 G 3/4 x G 3/4 4206504 DN 20 G 1 x G 1 4206506 DN 25 G 1 1/4 x G 1 1/4 4206508		
<p>both ports bronze press fittings</p>			
	Ø 15 mm 4205552 Ø 18 mm 4205553 Ø 22 mm 4205554 Ø 28 mm 4205555		
<p>with isolating facility, presettable, but without draining valve for hose connection in front of the thermal control unit, without thermometer and without insulation The draining valve with hose connection is required for the installation of the thermometer.</p>			
	Draining orifice G 1/4 in front of the thermal control unit closed with a plug. both ports female thread according to EN 10226-1		
	DN 15 Rp 1/2 x Rp 1/2 4205604 DN 20 Rp 3/4 x Rp 3/4 4205606 DN 25 Rp 1 x Rp 1 4205608		
<p>both ports male thread according to DIN ISO 228, flat sealing</p>			
	DN 15 G 3/4 x G 3/4 4206604 DN 20 G 1 x G 1 4206606 DN 25 G 1 1/4 x G 1 1/4 4206608		
<p>as above, but without isolating facility and not presettable</p>			
	both ports female thread according to EN 10226-1 DN 15 Rp 1/2 x Rp 1/2 4205404 DN 20 Rp 3/4 x Rp 3/4 4205406	<p>Only for export.</p>	

Article	Packing unit	Article-No.	Hint
Accessories for "Aquastrum T plus", "Aquastrum VT"			
	Lead sealing set (10 fold)	(10) 1089091	Consisting of lead seal and locking wire.
	Locking pin with locking wire for double regulating and commissioning valves "Hycocon VTZ/VPZ" as well as for "Aquastrum T plus"	(50) 1061792	For locking the set nominal values. For double regulating and commissioning valves "Hycocon VTZ/VPZ" as well as item no. 42055/56/65/66..
	Insulation shell DN 15 + DN 20 DN 25 DN 15 + DN 20	4205581 4205583 4205781	For item no. 42055/56/65/66.. For item no. 42057/67..
	Thermometer (bimetal) NG 50	4205591	The draining valve with hose connection, item no. 4205593, is required for installation.
	Draining valve for hose connection G ¼	(10) 4205593	For hoses ¾.
	"Sensor LW TQ" Sensor element PT 1000	(10) 4205592	For remote monitoring and connection to centralised building control systems.

8

8.f "Aquaström C" Regulating valves, "Aquaström P" Water sampling valves

Content



"Aquaström C" Double regulating and commissioning valves	8.32
"Aquaström P" Water sampling valves	8.34
"Aquaström M" Measuring and draining device	8.34
Accessories	8.34

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

"Aquastrum C" Double regulating and commissioning valves with thermometer, draining valve for hose connection G ¼ and insulation for circulation pipes in potable water installations
bronze

both ports female thread according to EN 10226-1



DN 15	Rp ½	x Rp ½	4208104
DN 20	Rp ¾	x Rp ¾	4208106
DN 25	Rp 1	x Rp 1	4208108
DN 32	Rp 1¼	x Rp 1¼	4208110

both ports female thread according to EN 10226-1 but **without** insulation, without draining valve for hose connection and **without** thermometer



DN 15	Rp ½	x Rp ½	(10) 4208152
DN 20	Rp ¾	x Rp ¾	(10) 4208154
DN 25	Rp 1	x Rp 1	(10) 4208156
DN 32	Rp 1¼	x Rp 1¼	(5) 4208158

both ports male thread according to DIN ISO 228



DN 15	G ¾	x G ¾	4207104
DN 20	G 1	x G 1	4207106
DN 25	G 1¼	x G 1¼	4207108
DN 32	G 1½	x G 1½	4207110

as above but additionally with flame resistant water sampling valve (bronze/stainless steel) for tests according to DVGW 551 and TrinkwV (German Decree for Potable Water)



both ports female thread according to EN 10226-1

DN 15	Rp ½	x Rp ½	4208504
DN 20	Rp ¾	x Rp ¾	4208506
DN 25	Rp 1	x Rp 1	4208508
DN 32	Rp 1¼	x Rp 1¼	4208510

both ports male thread according to DIN ISO 228



DN 15	G ¾	x G ¾	4207504
DN 20	G 1	x G 1	4207506
DN 25	G 1¼	x G 1¼	4207508
DN 32	G 1½	x G 1½	4207510

Replacement insulation shell for "Aquastrum C" with recess for water sampling valve "Aquastrum P"



DN 15 + DN 20	4208181
DN 25	4208182
DN 32	4208183

Application:
Potable water installations PN 16 for circulation pipes according to DVGW work sheets W551 and W553.
DVGW, SVGW, KIWA, ACS, VA and WaterMark certified.
Max. water temperature 90 °C.
Temperature monitoring via thermometer.
Draining valve for hose connection.

Description:
Body, bonnet and draining valve made of bronze, stem and valve disc made of brass resistant to dezincification (DZR), disc with PTFE seal, plug made of brass resistant to dezincification (DZR);
complete with insulation shells made of EPS according to the German Energy Saving Directive (EnEV), building material class B1 according to DIN 4102.

Function:
Oventrop double regulating and commissioning valves "Aquastrum C" are installed in the circulation pipes of potable water installations and serve to achieve a hydronic balance between the various circuits of the system. The Oventrop double regulating and commissioning valves have threaded ports for fill and drain ball valves.

For further information see "Technical information":









The double regulating and commissioning valves "Aquastrum C" are protected by patent. Further double regulating and commissioning valves: page 3.26

Colour rings for marking the risers: page 8.34

Article	Packing unit	Article-No.	Hint
Bonnet for "Aquastrom C"			
DN 15		4208192	
DN 20		4208193	
DN 25		4208194	
DN 32		4208195	
Bronze pressure test points			
"classic" measuring technique	(50)	4209090	Set = 2 pressure test points G 1/4








Article	Packing unit	Article-No.	Hint	
"Aquastrum P" Water sampling valves bronze/stainless steel			Flame resistant and chemically disinfestable water sampling valve for microbiologic-chemical tests according to TrinkwV (German Decree for Potable Water). PN 10. Models 4209102/03: Valve body made of bronze, stem made of stainless steel, metal to metal sealing, with additional seal made of heat-resistant PTFE, with metal plate for marking the water sampling point according to DIN EN ISO 19458. Model 4209202: Valve body made of dezincification resistant brass according to DIN 50930-6, chrome plated, stem made of stainless steel, metal to metal sealing, with additional seal made of heat-resistant PTFE. All models are flame resistant, with discharge elbows made of stainless steel. Operation with the help of the 5 mm Allen key supplied with the valve. Body and discharge elbow can be turned by 360°.	
 DN 8 DN 10	G ¼ G ¾	(10) 4209102 (10) 4209103		
chrome plated, for the connection to an angle pattern valve Inlet port: Pipe 10 x 1.25 Outlet port: G ¾ male thread with tapered crimp fitting with length compensation				
		4209202	All models are flame resistant, with discharge elbows made of stainless steel. Operation with the help of the 5 mm Allen key supplied with the valve. Body and discharge elbow can be turned by 360°.	
"Aquastrum M" Measuring and draining device both ports male thread according to DIN ISO 228 bronze, with hole for lead seal			For potable water temperature control in cold and hot water supply pipes and for the installation of water sampling valves. The device without dead zone features a G ¼ and a G ¾ outlet nipple. When used in combination with the PT 1000 temperature sensor 1150090 (page 8.56), electronic monitoring of the potable water temperature is possible in a centralised building control system. Consisting of lead seal and locking wire.	
 DN 15 DN 20 DN 25 DN 32	G ¾ G 1 G 1¼ G 1½	x G ¾ x G 1 x G 1¼ x G 1½		(50) 4209204 (50) 4209206 (50) 4209208 (50) 4209210
Accessories for double regulating and commissioning valves "Aquastrum C"				
	Lead sealing set (10 fold)	(10) 1089091		Consisting of lead seal and locking wire.
	Locking set (1 fold)	(25) 1060180	Consisting of locking cap, lead seal and locking wire.	
	Marking ring		Colour rings for marking the risers to be clipped onto the handwheel.	
	blue	(50) 1069650		
	red	(50) 1069651		
	violet	(50) 1069652		
	green	(50) 1069653		






8.g "Aquaström UP" Flush-mounted valves








Content








"Aquaström UP-F" Flush-mounted free-flow valves	8.36
"Aquaström UP-Therm" Flush-mounted circulation valves	8.38
"Aquaström UP-MS" Water meter installation set	8.40
Accessories for "Aquaström" flush mounted valves	8.41
Accessories for "Aquaström UP" flush-mounted valves <u>with</u> flush-mounting pipe	8.42
Accessories for "Aquaström UP" flush-mounted valves DN 15/DN 20 <u>without</u> flush-mounting pipe	8.43
General accessories	8.44

Article	Article-No.	Hint
<p>"Aquastrum UP-F" Flush-mounted free-flow valves PN 16, bronze</p> <p>both ports female thread according to EN 10226-1 for the universal connection of pipes in intermediate ceiling installations</p>  <p>DN 15 Rp 1/2 x Rp 1/2 4220004 DN 20 Rp 3/4 x Rp 3/4 4220006</p>		<p>Application: Potable water installations PN 16, max. water temperature 90 °C. Sound absorbing according to DIN EN ISO 3822 product group I.</p> <p>DVGW certified (DN 15, DN 20) (PN 10).</p> <p>Without dead zone, non-rising stem, maintenance-free stem seal due to double O-ring made of EPDM, complete with insulation shell made of EPS according to the German Energy Saving Directive (EnEV), building material class B1 according to DIN 4102.</p> <p>Suitable accessories DN 15 / DN 20: -Accessories for valves <u>with</u> flush-mounting pipe -Accessories vor valves <u>without</u> flush-mounting pipe</p> <p>Suitable accessories DN 25 / DN 32: -Accessories for valves <u>with</u> flush-mounting pipe</p> <p>Press connection: For the direct connection of copper pipes according to DIN EN 1057 / DVGW GW 392, stainless steel pipes according to DIN EN 10088 / DVGW W 541. Pressing must be carried out to tighten the connection. Only use press jaws with the original contours SANHA (SA), Geberit-Mapress (MM) or Viega (Profipress) in corresponding size. Processing must be carried out in accordance with the installation instructions.</p> <p>For further information see "Technical information":</p> 
<p>both ports bronze press fittings for the universal connection of pipes in intermediate ceiling installations</p>  <p>DN 15 Ø 15 mm 4220052 DN 15 Ø 18 mm 4220053 DN 20 Ø 22 mm 4220054</p>		
<p>both ports female thread according to EN 10226-1 for the universal connection of pipes for flush-mounting or front-wall installation, with flush-mounting pipe and protection/operating cap</p>  <p>DN 15 Rp 1/2 x Rp 1/2 4220104 DN 20 Rp 3/4 x Rp 3/4 4220106 DN 25 Rp 1 x Rp 1 4220108 DN 32 Rp 1 1/4 x Rp 1 1/4 4220110</p>		
<p>both ports bronze press fittings for the universal connection of pipes for flush-mounting or front-wall installation, with flush-mounting pipe and protection/operating cap</p>  <p>DN 15 Ø 15 mm 4220152 DN 15 Ø 18 mm 4220153 DN 20 Ø 22 mm 4220154 DN 25 Ø 28 mm 4220155</p>		

Article	Article-No.	Hint
<p>"Aquastrom UP-F" Flush-mounted free-flow valves PN 16, bronze</p>		
	<p>both ports female thread according to EN 10226-1 for the universal connection of pipes for flush-mounting installation, with chrome plated handle bonnet</p>	
	DN 15 Rp 1/2 x Rp 1/2	4220204
	DN 20 Rp 3/4 x Rp 3/4	4220206
	DN 25 Rp 1 x Rp 1	4220208
	DN 32 Rp 1 1/4 x Rp 1 1/4	4220210
<p>Application: Potable water installations PN 16, max. water temperature 90 °C. Sound absorbing according to DIN EN ISO 3822 product group I. DVGW certified (DN 15, DN 20) (PN 10). Without dead zone, non-rising stem, maintenance-free stem seal due to double O-ring made of EPDM, complete with insulation shell made of EPS according to the German Energy Saving Directive (EnEV), building material class B1 according to DIN 4102.</p>		
	<p>both ports bronze press fittings for the universal connection of pipes for flush-mounting installation, with chrome plated handle bonnet</p>	
	DN 15 Ø 15 mm	4220252
	DN 15 Ø 18 mm	4220253
	DN 20 Ø 22 mm	4220254
<p>Suitable accessories DN 15 / DN 20: -Accessories for valves <u>with</u> flush-mounting pipe -Accessories vor valves <u>without</u> flush-mounting pipe</p>		
	<p>Lockshield configuration both ports female thread according to EN 10226-1 for the universal connection of pipes for flush-mounting installation, with chrome plated protective cover and 6 mm socket spanner for operation</p>	
	DN 15 Rp 1/2 x Rp 1/2	4220304
	DN 20 Rp 3/4 x Rp 3/4	4220306
	DN 25 Rp 1 x Rp 1	4220308
	DN 32 Rp 1 1/4 x Rp 1 1/4	4220310
<p>Press connection: For the direct connection of copper pipes according to DIN EN 1057 / DVGW GW 392, stainless steel pipes according to DIN EN 10088 / DVGW W 541. Pressing must be carried out to tighten the connection. Only use press jaws with the original contours SANHA (SA), Geberit-Mapress (MM) or Viega (Profipress) in corresponding size. Processing must be carried out in accordance with the installation instructions.</p>		
	<p>Lockshield configuration both ports bronze press fittings for the universal connection of pipes for flush-mounting installation, with chrome plated protective cover and 6 mm socket spanner for operation</p>	
	DN 15 Ø 15 mm	4220352
	DN 15 Ø 18 mm	4220353
	DN 20 Ø 22 mm	4220354
<p>Suitable accessories DN 25 / DN 32: -Accessories for valves <u>with</u> flush-mounting pipe</p>		
<p>For further information see "Technical information":</p>		
		

Article	Article-No.	Hint
<p>"Aquaström UP-Therm" Flush-mounted circulation valves Thermostatic circulation regulating valve for hydronic balancing of potable water circulation systems with floor to floor distribution bronze</p>		
 <p>both ports female thread according to EN 10226-1 for intermediate ceiling installations Fixed value setting: 57 °C ± 1°C DN 15 Rp ½ x Rp ½</p>	4225004	<p>Application: Potable water installations PN 10 for circulation pipes according to work sheets W551 and W553.</p> <p>DVGW and WRAS certified (PN 10).</p> <p>Max. water temperature 90 °C. Thermal control preset to 57 °C ± 1 °C or 63°C ± 1 °C. With isolating facility for riser. Automatic thermal disinfection. Disinfection range starts about 6 K above the set temperature. The disinfection volume flow returns to the residual volume flow approximately 12 K above the set temperature to guarantee the supply of succeeding system during thermal disinfection. Minimum residual volume flow $k_{v,0.05}$.</p> <p>All components in contact with the fluid are made of non-brass materials. Without dead zone, non-rising stem, maintenance-free stem seal due to double O-ring made of EPDM, complete with insulation shell made of expanded polystyrene according to the German Energy Saving Directive (EnEV), building material class B1 according to DIN 4102.</p> <p>Suitable accessories: -Accessories for valves <u>with</u> flush-mounting pipe</p> <p>For further information see "Technical information":</p> 
 <p>Fixed value setting: 63 °C ± 1°C DN 15 Rp ½ x Rp ½</p>	4225504	
 <p>both ports flat sealing male thread according to DIN ISO 228, for intermediate ceiling installations Fixed value setting: 57 °C ± 1°C DN 15 G ¾ x G ¾</p>	4226004	
 <p>Fixed value setting: 63 °C ± 1°C DN 15 G ¾ x G ¾</p>	4226504	
 <p>both ports female thread according to EN 10226-1 for the universal connection of pipes for flush-mounting or front-wall installation, with flush-mounting pipe and protection/operating cap Fixed value setting: 57 °C ± 1 °C DN 15 Rp ½ x Rp ½</p>	4225104	
 <p>both ports bronze press fittings for the universal connection of pipes for flush-mounting or front-wall installation, with flush-mounting pipe and protection/operating cap Fixed value setting: 57 °C ± 1 °C DN 15 Ø 15 mm</p>	4225152	

Article	Article-No.	Hint
<p>"Aquaström UP-Therm" Flush-mounted circulation valves Thermostatic circulation regulating valve for the hydronic balancing in potable water circulation systems with floor to floor distribution bronze</p>		<p>Application: Potable water installations PN 10 for circulation pipes according to work sheets W551 and W553.</p>
	<p>both ports female thread according to EN 10226-1 for the universal connection of pipes for flush-mounting installation, with chrome plated handle bonnet</p>	<p>DVGW and WRAS certified (PN 10).</p>
	<p>Fixed value setting: 57 °C ± 1 °C DN 15 Rp ½ x Rp ½ 4225204</p>	<p>Max. water temperature 90 °C. Thermal control preset to 57 °C ± 1 °C or 63 °C ± 1 °C. With isolating facility for riser. Automatic thermal disinfection. Disinfection range starts about 6 K above the set temperature. The disinfection volume flow returns to the residual volume flow approximately 12 K above the set temperature to guarantee the supply of the succeeding system during thermal disinfection. Minimum residual volume flow $k_v= 0,05$.</p>
	<p>Fixed value setting: 63 °C ± 1 °C DN 15 Rp ½ x Rp ½ 4225704</p>	<p>All components in contact with the fluid are made of non-brass materials. Without dead zone, non-rising stem, maintenance-free stem seal due to double O-ring made of EPDM, complete with insulation shell made of expanded polystyrene according to the German Energy Saving Directive (EnEV), building material class B1 according to DIN 4102.</p>
	<p>Lockshield configuration, both ports female thread according to EN 10226-1, for the universal connection of pipes for flush-mounting installation, with chrome plated protective cover and 6 mm socket spanner for operation</p>	<p>Suitable accessories: -Accessories for valves <u>with</u> flush-mounting pipe</p>
	<p>Fixed value setting: 57 °C ± 1 °C DN 15 Rp ½ x Rp ½ 4225304</p>	
	<p>Fixed value setting: 63 °C ± 1 °C DN 15 Rp ½ x Rp ½ 4225804</p>	
	<p>Lockshield configuration, both ports bronze press fittings for the universal connection of pipes for flush-mounting installation, with chrome plated protective cover and 6 mm socket spanner for operation</p>	<p>Press connection: For the direct connection of copper pipes according to DIN EN 1057 / DVGW GW 392, stainless steel pipes according to DIN EN 10088 / DVGW GW 541. Pressing must be carried out to tighten the connection. Only use press jaws with the original contours SANHA (SA), Geberit-Mapress (MM) or Viega (Profipress) in corresponding size. Processing must be carried out according to the installation instructions.</p>
	<p>Fixed value setting: 57 °C ± 1 °C DN 15 Ø 15 mm 4225352</p>	<p>For further information see "Technical information":</p>
		

Article	Article-No.	Hint
---------	-------------	------

"Aquaström UP-MS" Water meter installation set
Water meter installation set DN 20, consisting of flush-mounted isolating valve and water meter housing with universal G2-coaxial thread, for the fixing of measuring capsules of different manufacturers up to Qn 1,5 m³/h. For an optimum installation and alignment of water meters and isolating valves. Complete pipe section made of bronze.

Model "Duo"
Two pipe model consisting of hot and cold water riser, distance between pipe centres 153 mm, including protection caps and fixing set, optionally dividable.



DN 20 Rp ¼ x Rp ¼ **4223216**

Model "Uno"
One pipe model consisting of hot or cold water riser, including protection caps and fixing set



DN 20 Rp ¼ x Rp ¼ **4223116**

Application:
Potable water installations PN 10, max. water temperature 90 °C.
(The specifications of the manufacturer of the measuring capsules must be observed!)

Completely pre-assembled and leak tested unit. Complete pipe section made of bronze, one-piece casted.

Sound absorbing according to DIN EN ISO 3822 product group I.

DVGW certified.





Supplied with fixing set for wall attachment or front-wall installation, measuring capsules not included.






Thermal insulation by high-quality insulation shells made of special expanded polystyrene according to the German Energy Saving Directive (EnEV), building material class B1 (hardly inflammable) according to DIN 4102.






Operation of the isolating valve during the construction phase with the help of the protection cap.

Connections:
Both ports female thread Rp ¼ according to EN 10226-1.
Water meter connection with universal G 2 coaxial thread.

Suitable accessories:
-Accessories for valves with flush-mounting pipe
-Accessories for valves without flush-mounting pipe

Article	Article-No.	Hint	
Accessories for "Aquaström" flush mounted valves			
Valve inserts			
	Spare valve insert "Aquaström UP-F" and "Aquaström UP-MS"	Spare valve insert for flush-mounted valves "Aquaström UP" manufactured since 2017 and water meter installation sets "Aquaström UP-MS".	
	DN 15/ DN 20 DN 25/ DN 32		4223191 4220191
	Spare valve insert "Aquaström UP-F" manufactured up to 2016	Spare valve insert for flush-mounted valves "Aquaström UP-F" manufactured up to 2016.	
	DN 15/ DN 20		4220190
	Spare valve insert "Aquaström UP-KFR"	Spare valve insert for flush-mounted valves "Aquaström UP-KFR".	
	DN 15 / DN 20		4221090
	Spare valve insert "UP-Therm"	Spare valve insert for flush-mounted valves "Aquaström UP-Therm".	
	for circulation module 57 °C DN 15		4225090
	for circulation module 63 °C DN 15		4225590

Article	Packing unit	Article-No.	Hint
Accessories for "Aquastrum UP" flush-mounted valves with flush-mounting pipe			
	Standard bonnet handwheel set suitable for flush-mounted valves with flush-mounting pipe consisting of bonnet product assembly with clamping unit, toothed spindle, chrome plated rosette cover, chrome plated operating element and three coloured marking laminas		For the operation of all flush-mounted valves "Aquastrum UP" when using the flush-mounting pipe. With handwheel and locking screw for fixing in the flush-mounting pipe.
	Handwheel set DN 15/ DN 20	4229001	
	Handwheel set DN 25/ DN 32	4229002	
	Lockshield bonnet handwheel set suitable for flush-mounted valves with flush-mounting pipe consisting of bonnet product assembly with clamping unit, toothed spindle, chrome plated rosette cover, chrome plated operating element, three coloured marking laminas and hexagon socket spanner for operation		For the operation of all flush-mounted valves "Aquastrum UP" when using the flush-mounting pipe. With socket spanner and locking screw for fixing in the flush-mounting pipe.
	Bonnet set DN 15/ DN 20	4229010	
	Bonnet set DN 25/ DN 32	4229011	
	Spare flush-mounting pipe with toothed spindle and protection/operating cap		
	DN 15/ DN 20	(25) 4229015	
	DN 25/ DN 32	(25) 4229016	
	Extension set flush-mounting pipe		For an increase of the installation depth by 90 mm.
	DN 15/ DN 20	(10) 4229040	
	DN 25/ DN 32	(10) 4229041	
	Mounting set for front-wall installation		To be screwed onto the flush-mounting pipe.
	DN 15/ DN 20	(10) 4229020	
	DN 25/ DN 32	(10) 4229021	

Article	Article-No.	Hint
<p>Accessories for "Aqastrom UP" flush-mounted valves DN 15/DN 20 without flush-mounting pipe</p>		
	<p>Bonnet handwheel set For wall construction 0 - 35 mm Consisting of chrome plated operating element, chrome plated rosette cover, chrome plated sleeve and coloured marking laminas</p>	<p>4223192</p> <p>For the operation of all flush-mounted valves "Aqastrom UP-F" DN 15/DN 20 manufactured since 2017 and all water meter installation sets "Aqastrom UP-MS".</p>
	<p>Bonnet handwheel set long For wall construction 35 - 90 mm Consisting of chrome plated operating element, chrome plated rosette cover, adjustable plastic extension and coloured marking laminas</p>	<p>4223195</p> <p>Further information regarding installation options of the accessories of the flush- mounted valves and the wall installation height can be found in the "Technical information".</p>
	<p>Lockshield bonnet set For wall construction 0 - 40 mm</p>	<p>4223196</p>
	<p>Lockshield bonnet set long For wall construction 35 - 135 mm</p>	<p>4223193</p>
	<p>Handwheel for surface-mounted installation</p>	<p>4223197</p>

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

General accessories



Pipe socket wrench for all flush-mounted valves

DN 15 - DN 32 (25) **4229035**



Spare insulation shells

DN 15/ DN 20 **4229050**
 DN 25 **4229051**
 DN 32 **4229052**



Spare insulation shells for water meter installation sets "Aquastrom UP-MS"

Model "Duo" **4223290**



Model "Uno" **4223190**



Fixing set for "Aquastrom UP-MS" consisting of 4 elbows and fixing material

4223194

Consisting of 4 elbows, 4 screws and 4 discs.

8.h "Aquastrom K" Thermostatic cold water circulation valve

Content









"Aquastrom K"

8.46

Accessories

8.46

Article	Packing unit	Article-No.	Hint
<p>"Aquaström K" Thermostatic cold water circulation valve Thermostatic double regulating and commissioning valve for the hydronic balancing of chilled potable water or domestic water systems bronze</p> <p>both ports female thread according to EN 10226-1 for intermediate ceiling installations</p> <p>Temperature adjustable between 6°C and 18 °C</p>			<p>Application: Potable water installations PN 10 for cold water systems.</p> <p>WRAS certified.</p> <p>Max. water temperature 25 °C. Thermal control preset to 8 °C ± 1 °C (4205904), to 20 °C ± 1 °C (4206304). With isolating facility.</p> <p>The valve opens above the set temperature and automatically increases the cold water volume flow. Thus, the valve allows an automatic, thermally controlled hydronic balancing in cold water circulation pipes. This way, the supply of chilled potable water at each draw off point of the system is guaranteed.</p> <p>Minimum cold water volume flow $k_v = 0.05$</p> <p>Adjustable temperature range: 6 °C - 18 °C (4205904), 12 °C - 24 °C (4206304)</p> <p>All components in contact with potable water are made of non-brass materials, without dead zone, non-rising stem, maintenance-free stem seal due to double O-ring seal made of EPDM, complete with insulation shells made of EPS according to the German Energy Saving Directive (EnEV), fire protection class B1 according to DIN 4102.</p> <p>Note: In order to improve diffusion tightness, the insulation shells have to be sealed with silicone.</p> <p>With the accessories (page .42) the double regulating and commissioning valve can be used as flush-mounted valve or in dry-build systems.</p> <p>For further information see "Technical information":</p>
	DN 15	Rp 1/2 x Rp 1/2 4205904	
<p>Temperature adjustable between 12 °C and 24 °C</p>			<p>Adjustable temperature range: 6 °C - 18 °C (4205904), 12 °C - 24 °C (4206304)</p>
	DN 15	Rp 1/2 x Rp 1/2 4206304	
<p>Accessories</p>			
<p>Spare valve insert cold water module</p>			
	adjustable between 6 °C and 18 °C adjustable between 12 °C and 24 °C	4205990 4205992	
<p>Spare insulation shells</p>			
	DN 15/ DN 20	4229050	
<p>Thermometer 0-30 °C for potable water temperature control with draining valve for hose connection</p>			<p>The control thermometer can be screwed into all valves with G 1/4 threaded coupling.</p>
	DN 8	G 1/4 (25) 4205991	

Accessories: Page 8.42

8.i "Brawa-Mix" Thermostatic mixing valves



Content

"Brawa-Mix"	8.48
Accessories	8.49
Strainers	8.49

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

"Brawa-Mix"
Thermostatic mixing valve

with "fail-safe" function




Bronze, spring made of vanadium steel, control piston made of polyphenylene ether, EPDM O-rings, both ports flat sealing male thread according to DIN ISO 228, handwheel lockable and lead lockable

DN 20	G 1	x G 1	x G 1	1300306
DN 25	G 1¼	x G 1¼	x G 1¼	1300308
DN 32	G 1½	x G 1½	x G 1½	1300310

Application:
Potable water installations PN 10,
up to 90 °C.
Control range: 35 °C up to 65 °C
Connection fittings: from page 8.66

Awards:
 German Designer Club
Good Design 08

 universal design award



Bronze body, brass components resistant to dezincification, brass couplings, G 1 male thread with 3 collar nuts

DN 20	G 1	x G 1	x G 1	1300351
-------	-----	-------	-------	----------------

Application:
Potable water installations PN 10,
up to 90 °C.
Control range: 35 °C up to 50 °C

WRAS certified.



without collar nuts
(for compression fittings) **1300352**








without "fail-safe" function
Bronze body, brass components resistant to dezincification, brass couplings

G 1 male thread	(25)	1300200
without collar nuts		

Application:
Potable water installations PN 10,
up to 90 °C, with lateral mixed water outlet.
Control range: 30 °C up to 70°C



as above but with lead lockable protection cap, preset to 57 °C, with 3 collar nuts and gaskets (20) **1300251**

Article	Packing unit	Article-No.	Hint
Accessories			
	Insulation shells made of expanded polypropylene for thermostatic mixing valves according to the German Energy Saving Directive (EnEV), building material class B2 according to DIN 4102		
DN 20		1300385	For item no. 1300306
DN 25/DN 32		1300386	For item no. 1300308-10
	Compression fittings – 3-fold – complete with 3 collar nuts		Only for item no. 1300352.
Ø 15 mm	(10)	1300381	
Ø 18 mm	(10)	1300382	
Ø 22 mm	(10)	1300383	
	Bronze inline thermometer with dial		For connection to the "Brawa-Mix".
DN 20	G 1 c/nut	x G 1 M	1300952
DN 25	G 1¼ c/nut	x G 1¼ M	1300953
DN 32	G 1½ c/nut	x G 1½ male	1300954
	Bronze non-return valve for cold water		Up to 95 °C
DN 20	Rp ¾	x Rp ¾	1302006
DN 25	Rp 1	x Rp 1	1302008
DN 32	Rp 1¼	x Rp 1¼	1302010
	with simple wire basket, 600 µm		Accessories: page 5.32
bronz, with stainless steel wire basket for the protection of the thermostatic mixing valve against contaminations and malfunctions			
WRAS certified for installation in potable water systems.			
DN 20	Rp ¾	x Rp ¾	(10) 1120006
DN 25	Rp 1	x Rp 1	(10) 1120008
DN 32	Rp 1¼	x Rp 1¼	(5) 1120010

8.j "Regucirc" Circulation stations

Content



"Regucirc B" 8.52

"Regucirc M" 8.53

Article	Article-No.	Hint
---------	-------------	------



"Regucirc B"
DN 20 G 1 male thread x male thread
 Circulation pump group
 for use in detached or semi-detached houses,
 consisting of an energy-saving high-efficiency pump,
 a non-return check valve, a thermostatic valve
 "Aquastrom VT" and a control thermometer

with Biral pump AX20-4 120 BLUE **4206776**
 Circulation pump with bronze body,
 high-efficiency pump,
 automatic infinitely variable speed control

Application:
 Potable water installations PN 16,
 max. water temperature 90 °C.

Completely pre-assembled and leak tested
 feed unit for circulation systems in detached or
 semi-detached houses.


Both ports G 1 male thread, complete with
 insulation shell made of EPP according to the
 German Energy Saving Directive (EnEV), with
 isolating facility for an easy replacement of the
 pump.
 Max. continuous operating temperature: 90 °C

Award:
 Industrial Design Forum Hanover
 Award iF

For further information see
 "Technical information":



Accessories

 Biral high-efficiency pump AX20-4 120
 BLUE **4206790**
 G 1¼ x 120 mm, 230 V, 50 Hz



Thermometer (bimetal)
 NG 50 **4205591**

The draining valve with hose connection,
 item no. 4205593, is required for
 installation.



Spare insulation shell **4206795**



"Regucirc M"

DN 20 G 1 male thread x male thread
Circulation pump group with thermostatic mixing valve for use in detached or semi-detached houses, consisting of an energy-saving high-efficiency pump, a non-return check valve, ball valves with thermometer and a thermostatic mixing valve (control range 35 °C - 65 °C)

with Biral pump AX20-4 120 BLUE **4206780**

Circulation pump with bronze body, high-efficiency pump, automatic infinitely variable speed control

Application:
Potable water installations PN 16, max. water temperature 90 °C.

Completely pre-assembled and leak tested circulation mixing and feed unit for circulation systems in detached or semi-detached houses.

With flat sealing connections G 1 male thread x male thread, complete with insulation shell made of EPP according to the German Energy Saving Directive (EnEV).
With isolating facility for an easy replacement of the pump or the thermostatic mixing valve.

Max. continuous operating temperature: 90 °C

For further information see "Technical information":



Accessories



Biral high-efficiency pump AX20-4 120 BLUE **4206790**
G 1 1/4 x 120 mm, 230 V, 50 Hz



Replacement thermometer **1351690**
for "Regumat" DN 25-50 as well as for "Regucirc M" and "Optibal PK"



"Sensor LW TH"
Temperature sensor PT 1000

Storage cylinder **1369093**

For electronic registration of the riser temperatures.

Continuous temperature range: up to 105 °C
L = 300 cm



Spare insulation shell **4206797**

Strainer
bronze, with stainless steel wire basket 600 µm for the protection of the thermostatic mixing valve against contaminations and malfunctions

WRAS certified.












with simple wire basket, 600 µm
DN 20 (10) **1120006**







8.k "Regudrain" Flushing station



Content

"Regudrain" Flushing station	8.56
Accessories	8.56

Article	Article-No.	Hint
<p>"Regudrain" Flushing station</p> <p>Hygiene flushing station for the maintenance of normal operation in potable water systems, for instance during interruptions of use.</p>		
	<p>Model "Duo" 4207005</p> <p>For the protection of two risers in a potable water installation</p>	<p>Application: Potable water installations PN 10, max. water temperature 90 °C.</p> <p>For the installation at the end of the riser or in ring circuits. Completely pre-assembled and leak tested unit. Bracket for front-wall installation systems and wall attachment. Insulation made of expanded polypropylene. Flushing riser with solenoid valve and flow sensor, with isolating facility. Free outlet according to EN 1717 for the connection to the sewerage network.</p> <p>Connections: Potable water circuit: G ¾, flat sealing Sewerage network: DN 40</p>
	<p>Model "Uno" 4207004</p> <p>as 4207005, but for the protection of one riser (PWC or PWH) in a potable water installation</p>	<p>Electronic controller "Regtronic HS" for valve control, individually programmable, with web access and log function.</p> <p>Suitable for the protection of the PWC or PWH circuit .</p> <p>DVGW certified according to W 540 and SVGW certified. Award:</p>  <p>ICONIC AWARDS 2018 Innovative Interior</p>
<p>Accessories</p>		
	<p>Extension set "Duo" 4207094</p> <p>for the extension of the model "Uno" by a second flushing riser (PWC or PWH) including fixing material</p>	<p>Completely pre-assembled and leak tested unit including fixing material.</p>
	<p>Extension ring circuit 4207095</p> <p>"h" fitting for the connection in ring circuits G ¾ collar nut x G ¾ x G ¾</p>	<p>"h" fitting for the extension of the "Regudrain" flushing station for installation in ring circuit systems. 2 sets are required for the model "Duo".</p>
	<p>"Sensor LW TQ"</p> <p>Sensor element PT 1000 G ¼, bronze body, temperature sensor made of stainless steel, two wire system</p>	<p>For remote monitoring of the riser temperatures and integration into a centralised building control system.</p>
	<p>Humidity sensor 4207099</p>	
	<p>Sensor cable 4207098</p> <p>1500 mm, bipolar with plug and connecting terminal</p>	<p>One sensor cable with plug, item no. 4207098, is required for the connection of the sensors 1150090, 1369095 and 4207099 to the flushing station.</p>
	<p>Temperature sensor attached to the pipe 1369095</p> <p>Sensor element PT 1000, with fixing clamp Ø 25 - 40 and heat conducting paste</p>	<p>Continuous operating temperature range: up to 180 °C L = 150 mm</p>

Article	Article-No.	Hint
	4207090	Made of aluminium, infinitely adjustable between 200 mm x 350 mm and 520 mm x 620 mm, including fixing material.
	4207091	Dimensions (W x H x D): 315 mm x 472 mm x 108 mm
	4207092	
	4207093	
	4207097	
	4207089 ^o 4207096	Flow controller set for flushing valve Model 7 l/min. Model 5 l/min., 7 l/min. and 11 l/min.

8.1 "Aquamodul" Distributor system for potable water

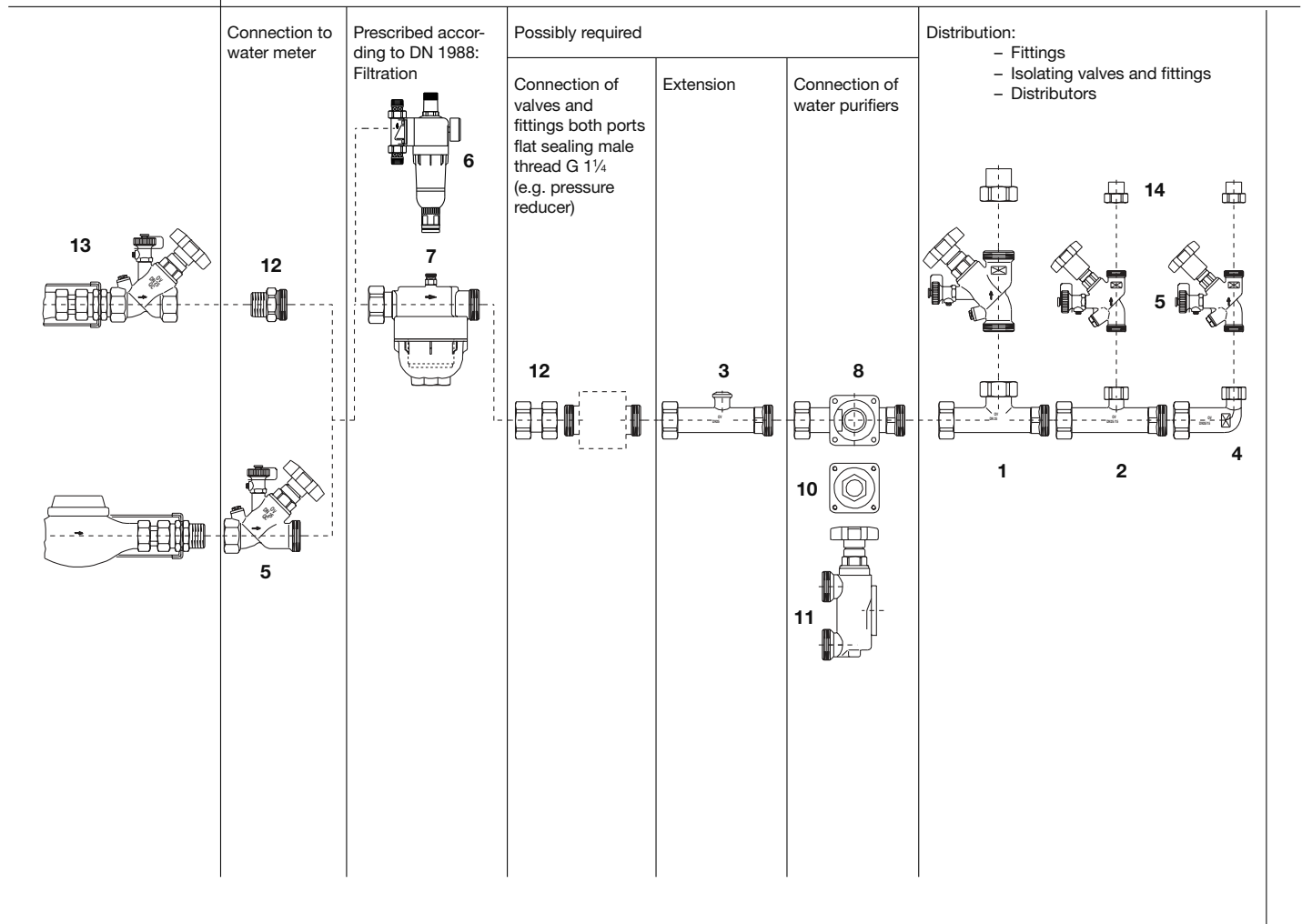
Content



T-distributor	8.61
Extension	8.61
Elbow	8.61
"Aquanova Compact" Water filter	8.62
EAS - One pipe connection piece	8.62
Pressure relief cap	8.62
Bypass valve	8.62
Fill and drain ball valve	8.63
Draining ball valve	8.63
"Optiflex" Fill and drain ball valve	8.63
Bracket	8.63
Accessories	8.64

Water meter connection

"Aquamodul" Distributor system for potable water



The Oventrop distributor system for potable water made of bronze (PN 16) enables a fast installation of pipework for domestic water distribution. The components are connected by using flat sealing screws. The G 1 distributor line has a G 1 1/4 collar nut at the inlet port and is male threaded accordingly at the outlet port. The dimension is 140 mm.

For connecting the columns, the T-pieces (pos. 1 and 2) and the elbow (pos. 4) are equipped with a collar nut and are suitable for a direct connection of isolating valves and fittings with flat sealing male thread G 1 1/4, G 1 or G 3/4 (pos. 5).




A suitable domestic water station (pos. 6) or a water filter (pos. 7) can be directly incorporated into the system.





The one pipe connection piece EAS (pos. 8) serves to connect Oventrop water- and backflush filters with one pipe connection piece. Water purifiers or pipe flushing devices can be connected by use of the bypass valve (pos. 11).

Also available are extensions (pos. 3), pressure relief caps (pos. 10), nipples (pos. 12) and connection fittings for all standard pipes (pos. 14).

Advantages:

- bronze bodies
(all parts coming into contact with potable water are made of non-brass materials)
- simple and quick installation
- all valves and fittings with flat sealing male thread G 1 1/4 may be connected
- all isolating valves and fittings with flat sealing male thread G 1 1/4, G 1 or G 3/4 may be connected
- all standard pipe materials may be connected
- standard pipe fixing devices for DN 25 may be used

Article	Packing unit	Article-No.	Hint
T-distributor bronze flat sealing (140 mm) Inlet port: collar nut G 1¼ Outlet port: male thread G 1¼ Column:			Application: Potable water installations PN 16, max. water temperature 120 °C. Connection of isolating valves and fittings with flat sealing male thread G ¾, G 1 or G 1¼. Bracket: page 8.63
	collar nut G ¾	(10) 4200252	
	collar nut G 1	(10) 4200253	
	collar nut G 1¼	(10) 4200254	
Extension bronze flat sealing (140 mm) Inlet port: collar nut G 1¼ Outlet port: male thread G 1¼			
		(10) 4200256	
Elbow bronze flat sealing (70 mm) Inlet port: collar nut G 1¼ Column:			Connection of isolating valves and fittings with flat sealing male thread G ¾.
	collar nut G ¾	(10) 4200255	

Article	Packing unit	Article-No.	Hint
 <p>"Aquanova Compact" Water filter with transparent plastic filter cup PN 16</p> <p>Head: bronze flat sealing Filter insert: plastic body covered with mesh Mesh size: 100-120 µm Inlet port: collar nut G 1¼ Outlet port: male thread G 1¼</p>		4202508	Application: Potable water installations PN 16, max. water temperature 30 °C. DVGW and ACS certified. Length: 140 mm
 <p>EAS - One pipe connection piece</p> <p>for the connection of the Oventrop bypass valve bronze flat sealing (140 mm) Inlet port: collar nut G 1¼ Outlet port: male thread G 1¼</p>		4200208	Connection of the Oventrop bypass valve, item no. 4200308.
 <p>Pressure relief cap</p> <p>to close the EAS one pipe connection piece, with ring gasket and fixing screws, bronze</p>		(10) 4200211 (10) 4200212	For closing or bridging the EAS one pipe connection piece until a water purifier is installed.
 <p>Bypass valve</p> <p>for the connection to the EAS one pipe connection piece, with ring gasket and fixing screws, bronze</p>		4200308	For connecting or bridging a water purifier or a pipe flushing device. Max. water temperature 90 °C, PN 10.

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

Fill and drain ball valve
 bronze

Max. PN 16 and 90 °C (150 °C).



handle with stop
 with hose connection and cap

DN 10 G 3/8 (50) **1032403**

Draining ball valve



DN 8 G 1/4 (25) **4200191**

"Optiflex" Fill and drain ball valve
 brass, outside nickel plated

PN 10, DN 15R (reduced)
 Max. water temperature: 90 °C
 DVGW certified.

Handle with stop, with male thread,
 self sealing with counternut,
 with cap

DN 15 G 1/2 (50) **1033152**










Bracket

4200295

consisting of
 2 clamp rings with rubber profile layer,
 2 blind screws M 10 and
 suitable dowels

Clamping range Ø 31-35 mm.
 To fix the distributor components onto the wall.
 Item no. 4200252-56: page 8.61



Article	Packing unit	Article-No.	Hint
Accessories			
		Double fitting bronze, flat sealing (38 mm) both ports collar nut G 1 1/4	For the integration of valves and fittings with flat sealing male thread G 1 1/4.
	(10)	4200285	
		Double nipple bronze	
	(10)	4200283	
		Nipple bronze	
	(10)	4200284	
		Cap brass with washer	For closing the T-distributor, item no. 4200254 (if no elbow is used).
	(10)	4200291	
		Plug bronze	For closing the distributor connections.
	(10)	4200289	
	(10)	4200288	
	(10)	4200290	
		Venting screw brass	
	(25)	1109001	
	(25)	1109002	
	(25)	1109003	
		Drain valve self sealing, with rotating outlet made of brass resistant to dezincification Handwheel and outlet anthracite coloured	Max. pressure and temperature: 10 bar, 100 °C, with connection nipple for 3/8 hose. Seal made of EPDM. For draining and bleeding, for use in potable water systems.
	(100)	4209602	
	(100)	4209603	
	(100)	4209604	

8.m "Ofix" Connection fittings

Content



"Ofix" Connection fittings

8.66

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

"Ofix" Connection fittings



Tailpipe (bronze), flat sealing, with male thread according to EN 10226-1, collar nut and ring gasket (EPDM)

R ¾	x G 1¼ (collar nut)	(10)	4201471
R ½	x G ¾ (collar nut)	(10)	4201472
R ¾	x G 1 (collar nut)	(10)	4201473
R 1	x G 1¼ (collar nut)	(10)	4201474
R 1¼	x G 1½ (collar nut)	(5)	4201475
R 1½	x G 1¾ (collar nut)	(5)	4201476
R 2	x G 2¾ (collar nut)	(5)	4201477



Tailpipe (bronze), flat sealing, with female thread according to EN 10226-1, collar nut and ring gasket (EPDM)

Rp ½	x G ¾ (collar nut)	(10)	4201372
Rp ¾	x G 1 (collar nut)	(10)	4201373
Rp ¾	x G 1¼ (collar nut)	(10)	4200282
Rp 1	x G 1¼ (collar nut)	(10)	4201374
Rp 1¼	x G 1½ (collar nut)	(5)	4201375
Rp 1½	x G 1¾ (collar nut)	(5)	4201376
Rp 2	x G 2¾ (collar nut)	(5)	4201377



Rp 2½	x G 3 (collar nut)		4201378
Rp 3	x G 3½ (collar nut)		4201379



Solder tailpipe (bronze), flat sealing, with collar nut and ring gasket (EPDM)

Ø 15 mm	x G ¾ (collar nut)	(10)	4202072
Ø 15 mm	x G 1¼ (collar nut)	(10)	4200272
Ø 18 mm	x G ¾ (collar nut)	(10)	4202073
Ø 18 mm	x G 1¼ (collar nut)	(10)	4200273
Ø 22 mm	x G 1 (collar nut)	(10)	4202074
Ø 28 mm	x G 1¼ (collar nut)	(10)	4202075
Ø 35 mm	x G 1½ (collar nut)	(5)	4202076
Ø 42 mm	x G 1¾ (collar nut)	(5)	4202077
Ø 54 mm	x G 2¾ (collar nut)	(5)	4202078



Weldable tailpipe (steel), flat sealing, with collar nut and ring gasket (EPDM)

DN 15 ½	x G ¾ (collar nut)	(10)	4200572°
DN 20 ¾	x G 1 (collar nut)	(10)	4200573°
DN 25 1	x G 1¼ (collar nut)	(10)	4200574°
DN 32 1¼	x G 1½ (collar nut)	(5)	4200575°
DN 40 1½	x G 1¾ (collar nut)	(5)	4200576°
DN 50 2	x G 2¾ (collar nut)	(5)	4200577°

8.n Domestic water station/Heating system filling station



Content

Domestic water station	8.68
Heating system filling station	8.68

Article	Article-No.	Hint
---------	-------------	------



Domestic water station
 consisting of backflush filter,
 pressure reducer with bronze
 swivel connection piece for
 horizontal and vertical installation
 and with bronze male threaded
 couplings.
 Body and transparent cup made
 of plastic

DN 20	R ¾	4204506
DN 25	R 1	4204508
DN 32	R 1¼	4204510

Accessories

Pressure reducer insert	4204590
Filter insert 100 µm	4204591
Filter cup, complete	4204592
Pressure gauge	4204593

Application:
 Potable water installations PN 16,
 water temperature up to 90 °C.

Mesh size: 95-110 µm
 Pressure at station inlet:
 min. 1.5 bar, max. 16 bar
 Pressure at station outlet:
 adjustable between 1.5 and 6 bar
 (factory preset to 4 bar)

DVGW certified (PN 10).

Compact unit with backflush filter, pressure
 reducer, pressure gauge and male threaded
 couplings.

For further information see
 "Technical information":



Heating system filling station
 Filling combination according to DIN EN 1717 for
 heating systems consisting of strainer, pressure
 reducer, system separator type BA and drain water
 connection, with isolating facility for maintenance.
 Brass body, cartridges of system separator and
 pressure reducer made of plastic.

DN 15	G ¾	1055004
-------	-----	----------------



Application:
 Potable water installations PN 10.
 Max. water temperature
 at the inlet port: 30 °C
 Max. water temperature
 at the outlet port: 65 °C

Max. operating pressure: 10 bar
 Outlet pressure adjustable between
 1 and 5 bar (factory preset to 1.5 bar).

According to DIN EN 1717 all installations have
 to be realised intrinsically safe and as
 permanent connections.

Hence filling of the heating system has to be
 carried out via a system separator type BA or
 BC!

Accessories

Replacement cartridge for system separator	1055095
---	----------------



Replacement cartridge for pressure reducer	1055096
---	----------------



DVGW certified.



8.o "Aquanova" Water filters

Content



"Aquanova Compact" Water filters	8.70
Accessories	8.70
"Aquanova Magnum" Water filters	8.71
Accessories	8.72

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

"Aquanova Compact" Water filters with transparent plastic filter cup (Trogamid T) PN 16

Head: brass
 Filter insert: plastic body covered with mesh
 Mesh size: 100-120 µm
 Max. water temperature: 30 °C

Application:
 Potable water installations PN 16,
 DVGW and ACS certified.

Awards:
 ISH Frankfurt
 Design Award Switzerland

both ports female thread according to EN 10226-1

DN 25	Rp 1	x Rp 1	6120508
-------	------	--------	----------------



For further information see
 "Technical information":



Head and tailpipes: bronze
 both ports flat sealing male threaded tailpipes
 according to EN 10226-1



DN 20	R ¾	6122506
DN 25	R 1	6122508
DN 32	R 1¼	6122510

Head: bronze **4202508**
 flat sealing
 Filter insert: plastic body covered with mesh
 Mesh size: 100-120 µm
 Inlet port: collar nut G 1¼
 Outlet port: male thread G 1¼

Length: 140 mm



Accessories

Venting screw
 brass



G ¼ male thread	(25)	1109001
-----------------	------	----------------

Filter cup made of Trogamid T		6120581
-------------------------------	--	----------------

Filter insert 100-120 µm, DIN-DVGW tested, hygienically packed	(10)	6120591
--	------	----------------



O-ring for filter cup		6120595
-----------------------	--	----------------

Special key to loosen filter cup	(50)	6124100
-------------------------------------	------	----------------

Article	Article-No.	Hint
---------	-------------	------

"Aquanova Magnum" Water filters

Head and collar nut: brass
Filter insert (one piece):
plastic body covered with mesh
Max. water temperature: 30 °C
Mesh size: 95-140 µm

Application:
Potable water installations PN 16.



with transparent plastic filter cup (Trogamid T) PN 16
both ports female thread according to EN 10226-1

DVGW and ACS certified.

DN 25	Rp 1	x Rp 1	6120008
DN 32	Rp 1¼	x Rp 1¼	6120010
DN 40	Rp 1½	x Rp 1½	6120012
DN 50	Rp 2	x Rp 2	6120016



with brass filter cup PN 16
both ports female thread according to EN 10226-1

DN 25	Rp 1	x Rp 1	6120108
-------	------	--------	----------------



with transparent plastic filter cup (Trogamid T) PN 16
both ports male threaded tailpipes according to DIN EN 10226-1

DVGW and ACS certified.

DN 20	R ¾	x R ¾	6122006
DN 25	R 1	x R 1	6122008
DN 32	R 1¼	x R 1¼	6122010


For further information see
"Technical information":



with transparent plastic filter cup (Trogamid T) PN 16
Mesh size: 250-280 µm
both ports female thread according to EN 10226-1

For industrial use.

DN 25	Rp 1	x Rp 1	6120058
DN 32	Rp 1¼	x Rp 1¼	6120060
DN 40	Rp 1½	x Rp 1½	6120062
DN 50	Rp 2	x Rp 2	6120066

Article	Packing unit	Article-No.	Hint	
Accessories				
	Venting screw brass			
G 1/8 male thread	(25)	1109001		
	Blind plug with ring gasket			
DN 6 G 1/8	(10)	6127200		
	2 pressure gauges with ring gasket for all sizes DN 6 G 1/8			
	(50)	6127000	Downward connection.	
	Special key to loosen filter cup			
		6124000		
	Collar nut			
		6125000		
	(10)	6126000		
		6125400		
		6125500		
Filter inserts				
	Filter insert 95-140 µm, hygienically packed, DIN-DVGW tested			
		6125101		
	Filter insert 80-120 µm, multi-piece, hygienically packed			
	(10)	6125100	Consisting of body, collar and mesh, for industrial use.	
	Filter insert 250-280 µm, multi-piece			
	(10)	6125161		
	Filter insert 800-1000 µm, multi-piece			
	(10)	6125163		
	Body with collar			
	(10)	6125200		
	Mesh 80-120 µm, hygienically packed			
	(150)	6125300	Mesh may only be used for multi-piece filter element. If required, body and collar have to be ordered separately (item no. 6125200).	
	Mesh 250-280 µm			
	(50)	6125361		
	Mesh 800-1000 µm			
	(50)	6125363		

8.p Valves for water softening

Content



Bypass isolating valve	8.74
Accessories for bypass isolating valve and bypass mixing valve DN 25	8.74
Bypass mixing valve DN 25	8.75
Bypass mixing valve DN 32	8.76
Spare parts	8.76
Bypass mixing valve DN 50	8.76
Spare parts	8.76

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

Bypass isolating valve
brass,
for installations with integrated bypass mixing valve

Application:
Potable water softeners PN 10,
max. water temperature 90 °C.

with isolating valves and draining plugs,
with draining facilities G ¼ and G ½

For further information see
"Technical information":



Bypass valve in lockshield configuration

DN 25	Rp 1 x Rp 1	6105008
-------	-------------	----------------



Bypass valve with handwheel

DN 25	Rp 1 x Rp 1	6105108
-------	-------------	----------------



Accessories for bypass isolating valve and bypass mixing valve DN 25

Bonnet, flat sealing	6109551
Bonnet with O-ring	6109552
brass	

Up to July 2004
Since July 2004



Coupling	
DN 25 G 1¼	x R 1 (50) 6100508



S-type coupling	
DN 20 G 1¼	x G ¾ (50) 6100606
DN 25 G 1¼	x G 1 (50) 6100608



Two couplings or two flexible hoses are
required for each bypass isolating valve
6105008/6105108.

Flexible hose	
WA-NIRO, 600 mm long	
DN 25 G 1 (c/nut)	x G 1 (male thread) 6105751



Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------



Bypass mixing valve DN 25
bronze body

with isolating valves for the direct connection of the water softener by using the couplings or flexible hoses on page 8.74

DN 25	G 1	x G 1 (male thread)	6101008
DN 25	G 1	x G 1¼ (male thread)	6101051

Application:
Potable water softeners PN 10,
max. water temperature 90 °C.

ACS certified.

Two couplings or two flexible hoses are required for each bypass mixing valve, item no. 6101051 / 6101008.

For further information see
"Technical information":



Spare parts



Bonnet, flat sealing	6109551
Bonnet with O-ring	6109552
brass	

Up to July 2004
Since July 2004



Brass regulating bonnet for setting of high flow rates
(bonnet with adjustment spindle, regulating insert, and spring)

brass	6101053
-------	----------------



Brass valve insert for setting of low flow rates	
brass	(100) 6102051

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

Bypass mixing valve DN 32
bronze body,
brass bonnet



DN 32	G 1¼	6102010	
-------	------	---------	--

For industrial installations.
ACS certified.

For further information see
"Technical information":



Spare parts

Brass regulating bonnet for setting of high flow rates
(bonnet with adjustment spindle, regulating insert and spring)



brass		6102053	
-------	--	---------	--

Brass valve insert for setting of low flow rates



brass	(100)	6102051	
-------	-------	---------	--

Bypass mixing valve DN 50
bronze body,
brass bonnet



DN 50	G 2	6102016	
-------	-----	---------	--

For industrial installations.

For further information see
"Technical information":



Spare parts

Bonnet with adjustment spindle



brass		6109052	
-------	--	---------	--

Regulating insert with diaphragm
and spring



bronze		6109152	
--------	--	---------	--

Regulating screw for setting
of low flow rates



brass		6109851	
-------	--	---------	--



8.q "Multidis R" Sanitary distributor

Content

"Multidis R" Sanitary distributor	8.78
Accessories	8.78
"Multidis R" Sanitary distributor with isolating facility	8.79
Accessories	8.79



Article	Packing unit	Article-No.	Hint
"Multidis R" Sanitary distributor bronze, self sealing			
DN 20	(2)	4200453	Tapered sealing surface for metal to metal and O-ring sealing. To be used in combination with "Cofit S" and "Ofix" compression fittings as well as "Cofit P" press connections with collar nut and spherical sealing surface.

Accessories



Cap G 3/4 female thread (not illustr.)	(10)	1400692	To close outlets not in use.
---	------	----------------	------------------------------



Bracket steel, galvanised	(10)	4201071	Bracket with mounting clip. For mounting the sanitary distributor into the cabinet or onto the wall. Sound-absorbing as per DIN 4109.
------------------------------	------	----------------	---








Cabinets - flush mounting steel, galvanised frame and doors white lacquered removable screen			Depth: 110-145 mm Height: 350 mm
---	--	--	-------------------------------------

Inner width: 400 mm		4201081	For distributors with 6 outlets without water meter or distributors with 3 outlets with water meter.
---------------------	--	----------------	--

Inner width: 600 mm		4201082	For distributors with 10 outlets without water meter or distributors with 7 outlets with water meter.
---------------------	--	----------------	---



Connection elbow 90 °			
	(10)	1504353	To extend the sanitary distributor for one connection.
	(10)	1504354	
	(10)	1504355	
	(5)	1504356	


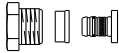





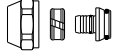









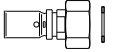

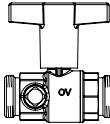
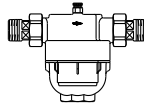
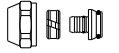






Article	Packing unit	Article-No.	Hint
"Multidis R" Sanitary distributor with isolating facility bronze, without dead zone, self sealing G 3/4 x G 3/4			Application: Potable water installations PN 10 Max. water temperature: 90 °C
	2-fold	4200552	Completely pre-assembled and leak tested unit. Complete pipe section made of bronze, one-piece casted. Connections: Female thread according to EN 10226-1 Male thread according to DIN ISO 228, flat sealing
	3-fold	4200553	Tapered sealing surface for metal to metal and O-ring sealing. To be used in combination with "Cofit S" and "Ofix" compression fittings as well as "Cofit P" press connections with collar nut and spherical sealing surface.
	4-fold	4200554	
Accessories			
	Replacement bonnet	4200590	
	Bracket, small steel, galvanised	(10) 4200571	Bracket with mounting clip. For mounting the sanitary distributor with isolating facility into the cabinet or onto the wall.

8.r Connection system

Content

Connection of pipes and Oventrop valves with different connections in potable water installations 8.82

Connection of pipes and Oventrop valves with different connections in potable water installations

Pipes 	Connection method	Connection system		Female threaded connection
		Connection fitting	Additional fitting	Oventrop valves for water installations (examples)
"Copipe" Composition pipe	Screwed connection	 Item no. 15073.. DN 15 Page 11.34	—	
	Press connection	 Item no. 15120.. Page 11.14	—	  
	Screwed connection	 Item no. 15079.. Item no. 11.34	 Item no. 15031.. Page 11.34	
Copper pipe DN 1057	Screwed connection	 Item no. 10271.. DN 15–DN 20 Page 3.49	—	
		 G 3/4 cone "Euro" metal to metal sealing Item no. 102747. Page 1.145	 Item no. 15031.. Page 11.34	  
Copper pipe, stainless steel pipe, precision steel pipe 1)	Screwed connection	 G 3/4 cone "Euro" soft sealing Item no. 102744. Page 1.145	—	—
Steel pipe as well as screwed fittings	seal directly	—	—	—
Male threaded connection				
"Copipe" Composition pipe	Press connection	 Item no. 15121.. Page 11.14	—	 Oblique pattern free-flow valves and KFR valves "Aquaström" with normal male thread  
	Screwed connection	 Item no. 15079.. Page 11.34	 Item no. 15030.. Page 11.34	
Copper pipe DN 1057	Screwed connection	 G 3/4 cone "Euro" metal to metal sealing Item no. 102747. Page 1.145		
Copper pipe, stainless steel pipe, precision steel pipe 1)	Screwed connection	 G 3/4 cone "Euro" soft sealing Item no. 102744. Page 1.145		
Copper pipe DN 1057	Soldering connection	Brass solder tailpipe, collar nut and ring gasket  Item no. 42020.. and 42002.. Page 8.66	—	
Copper pipe (galvanised) as well as screwed fittings	Screwed connection	 Item no. 42013.. and 42002.. Page 8.66	—	
		 Item no. 42014.. Page 8.66	—	
Other pipe e.g. stainless steel pipe, thick walled plastic pipe	Other pipes may be connected by use of the fittings of the corresponding manufacturers			

1) Pipes with a wall thickness ≤ 1 mm will need reinforcing sleeves, item no. 2083951/52 or 1029651-57 (page 1.147), unless the soft sealing fitting 102744.! Page 1.145.

8.s Stations for hot potable water preparation/Other products for water installations

Content



"Regumaq" Stations for hot potable water preparation

8.84



"Regumaq X-30"
Heat exchanger system with electronic controller

Page 6.110



"Regumaq XZ-30"
Heat exchanger system with electronic controller
and connection for potable water circulation systems

Page 6.110



"Regumaq X-80"
Heat exchanger system with electronic controller
and connection for potable water circulation systems.
For higher discharge capacities.

Page 6.118



"Regudis W" Dwelling station
Dwelling station with plate heat
exchanger for heat transmission from
a central heat supply to the sanitary
and heating installation of a dwelling.

Page 6.85



DDC "CW-BS"
Control unit

Page 12.41

9.a "Regusol" stations and "Regtronic" controllers for solar thermal energy



Content	9.05
Summary	9.06
"Regusol SH-130" Station DN 20	9.07
"Regusol LH-130" Station DN 20	9.07
"Regusol PH-130" Station DN 25	9.08
"Regusol SH-130" Station DN 25	9.08
"Regusol LH-130" Station DN 25	9.09
"Regusol ELH-130-RC" Station DN 25	9.10
"Regusol ELH-130-RC-P" Station DN 25	9.11
"Regusol PH-180" Station DN 25	9.12
"Regusol SH-180" Station DN 25	9.13
"Regusol LH-180" Station DN 25	9.14
"Regusol ELH-180-RC" Station DN 25	9.15
"Regusol SH-180" Station DN 32	9.16
"Regusol X-Uno 25" with heat exchanger	9.17
"Regusol X-Duo 25" with heat exchanger	9.19
"Regtronic" - Electronic controllers, summary	9.21
"Regtronic" - Electronic controllers, pipework configurations, summary	9.22
"Regtronic" - Electronic controllers	9.21
Outside temperature sensor	9.26
Room controller	9.27
"Regumat" Heat exchangers	9.28

9.b Accessories for "Regusol" stations within the collector circuit



Content	9.29
"Hydrocontrol STR" Double regulating and commissioning valves PN 25	9.30
"Regusol" Compression fittings	9.31
"Regusol" Compression fittings with reinforcing sleeves	9.31
Tailpipe sets DN 32	9.32
Brass reinforcing sleeves	9.32
Tailpipe sets DN 20 for "Regusol X" and "Regumaq X/XZ" stations	9.32
Accessories	9.32
Circulation pumps 130 mm	9.37
Circulation pumps 180 mm	9.37



9.c "OKP" and "OKF" Collectors and accessories

Content	9.39
"OKP" Tube collectors	9.40
"OKP" Vertical freestanding installation	9.41
"OKP" Vertical freestanding / facade installation	9.41
"OKP" Roof hooks made of stainless steel	9.42
Accessories	9.42
"OKF" Flat-plate collectors	9.43
"OKF" Rooftop installation	9.44
"OKF-MQ25" Rooftop installation	9.44
"OKF" Vertical roof integration side by side	9.45
"OKF-CK22/CS22" Connection options	9.46
"OKF" Vertical freestanding installation	9.45
"OKF-MQ25" Freestanding installation	9.47
"OKF" Gravel plate set	9.48
"OKF" Roof hooks made of galvanised steel	9.49
Carrying handles for "OKF" flat-plate collectors	9.49
Accessories for flat-plate collector "OKF-MQ25"	9.50

9.d "Solcos" Solar packages

Content	9.51
"Solcos" Solar packages with "OKP" tube collectors	9.52
"Solcos" Solar packages with "OKF-CK22" flat-plate collectors	9.53
"Solcos" Solar packages with "OKF-CS22" flat-plate collectors	9.54

9.e "Solar" Diaphragm expansion tanks for solar thermal energy



Content	9.55
"Solar" Diaphragm expansion tanks	9.56
"Solar" In-line tanks	9.56
Accessories	9.56

9.f Pipes and connection fittings



Content	9.57
"OV-Flex ST" Flexible pipes for solar thermal energy	9.58
Connection fittings	9.59
Further connection accessories	9.60

9.g Valves, temperature controllers, actuators and other accessories for application outside the collector circuit



Content	9.61
"Tri-D TR" Three-way diverting valves PN 16	9.62
"Tri-CTR" Three-way diverting and mixing valves PN 16	9.62
Accessories sets for three-way valves "Tri-D TR", "Tri-M TR" and "Tri-CTR"	9.63
Temperature controllers	9.64
"Brawa-Mix"	9.65
"Y" type strainers PN 25	9.66
Spare parts	9.66
"Hygate ATR" Gate valves PN 25	9.67
"Optibal" High temperature ball valves	9.67
"Optiflex" Fill and drain ball valves for solar plants	9.67
Fill and drain cocks PN 16 heavy pattern - DIN 3848	9.67

9.h Further accessories



Content	9.69
Further accessories	9.70



9.a "Regusol" stations and "Regtronic" controllers for solar thermal energy

Content

Summary	9.06
"Regusol SH-130" Station DN 20	9.07
"Regusol LH-130" Station DN 20	9.07
"Regusol PH-130" Station DN 25	9.08
"Regusol SH-130" Station DN 25	9.08
"Regusol LH-130" Station DN 25	9.09
"Regusol ELH-130-RC" Station DN 25	9.10
"Regusol ELH-130-RC-P" Station DN 25	9.11
"Regusol PH-180" Station DN 25	9.12
"Regusol SH-180" Station DN 25	9.13
"Regusol LH-180" Station DN 25	9.14
"Regusol ELH-180-RC" Station DN 25	9.15
"Regusol SH-180" Station DN 32	9.16
"Regusol X-Uno 25" with heat exchanger	9.17
"Regusol X-Duo 25" with heat exchanger	9.19
"Regtronic" - Electronic controllers, summary	9.21
"Regtronic" - Electronic controllers, pipework configurations, summary	9.22
"Regtronic" - Electronic controllers	9.21
Outside temperature sensor	9.26
Room controller	9.27
"Regumat" Heat exchangers	9.28

"Regusol" Stations for the connection of collector and storage cylinder

Product assembly DN 20 for pump lengths 130 mm, distance between pipe centres 100 mm

Product assembly DN 25 for pump lengths 130/180 mm, distance between pipe centres 100 mm

Product assembly DN 32 for pump lengths 180 mm, distance between pipe centres 125 mm

You may choose between

"Regusol" station with our without electronic controller,




"Regusol" station with deaerator with and without electronic controller and

"Regusol" pump circuit (return pipe)

	"Regusol" Stations											
	Model with pump length L = 130 mm						Model with pump length L = 180 mm					
	"Regusol SH-130" DN 20	"Regusol LH-130" DN 20	"Regusol PH-130" DN 25	"Regusol SH-130" DN 25	"Regusol LH-130" DN 25	"Regusol ELH- 130-RC" DN 25	"Regusol ELH- 130-RC- P" DN 25	"Regusol PH-180" DN 25	"Regusol SH-180" DN 25	"Regusol LH-180" DN 25	"Regusol ELH-180- RC" DN 25	"Regusol SH-180" DN 32
Page	9.07	9.07	9.08	9.08	9.09	9.10	9.11	9.12	9.13	9.14	9.15	9.16
Connection G 3/4	X	X										
Connection G 1 "Regusol" compression fitting			X	X	X	X	X	X	X	X	X	
Connection G 2 male thread, flat sealing												X
Ball valve for the return pipe with integrated check valve, thermometer and connection for a safety group	X	X	X	X	X	X	X	X	X	X	X	X*
Ball valve for the supply pipe with integrated check valve and thermometer	X	X		X	X	X	X		X	X	X	X*
Flow measuring and regulating device with isolation, filling and draining facility	X	X	X	X	X	X		X	X	X	X	X*
Safety group with safety valve 6 bar, pressure gauge 10 bar, fill and drain ball valve, connection to expansion tank	X	X	X	X	X	X	X	X	X	X	X	X
Wall mounting device	X	X	X	X	X	X	X	X	X	X	X	X
Insulation	X	X	X	X	X	X	X	X	X	X	X	X
Insulation with integrated electronic controller. The stations without electronic controller can be combined with Oventrop controllers as well as controllers of other suppliers.						X	X				X	
Deaerator		X			X	X	X			X	X	
Installation dimensions	Height 365 mm	365 mm	375 mm	375 mm	375 mm	375 mm	375 mm	424 mm	424 mm	424 mm	424 mm	530 mm
	Width 200 mm	200 mm	180 mm	250 mm	250 mm	250 mm	250 mm	180 mm	250 mm	250 mm	250 mm	350 mm
	Depth 145 mm	145 mm	197 mm	197 mm	197 mm	197 mm	197 mm	197 mm	197 mm	197 mm	197 mm	221 mm

Controllers for the operation of the complete solar plant see page 9.21 up to 9.27.

*"Regusol SH-180" DN 32: Ball valves without integrated check valves, flanged pipe in the supply with check valve, flow measuring and regulating device without filling and draining facility.

Article	Article-No.	Hint
	<p>"Regusol SH-130" Station DN 20 with safety group</p> <p>consisting of:</p> <ul style="list-style-type: none"> -high-efficiency pump -ball valve for the return pipe with integrated check valve, thermometer and connection for safety group -ball valve for the supply pipe with integrated check valve and thermometer -flow measuring and regulating device with isolation and lateral fill and drain ball valve -safety valve 6 bar -outlet G 3/4" male thread to expansion tank -pressure gauge 10 bar -fill and drain ball valve -wall mounting device -insulation <p>Control range of the flow measuring and regulating device: 2-14 l/min.</p> <p>Grundfos UPM 3 Solar 15-75 PWM C 130 1360033</p>	<p>Complete, pre-assembled and leak tested unit for the connection to the solar circuit. With G 3/4 male thread according to DIN EN 16313 (cone "Euro").</p> <p>For copper and precision steel pipes.</p> <p>With the option to connect an expansion tank to the safety group.</p> <p>Distance between pipe centres: 100 mm Pump 130 mm long.</p> <p>Continuous operating temperature: 120 °C Max. short-term starting temperature: 160 °C</p> <p>Suitable for standard solar liquids.</p> <p>Controllers and accessories for the operation of the complete solar plant: from page 9.25</p>
	<p>"Regusol LH-130" Station DN 20 as "Regusol SH-130" station, but with deaerator</p> <p>consisting of:</p> <ul style="list-style-type: none"> -high-efficiency pump -ball valve for the return pipe with integrated check valve, thermometer and connection for safety group -ball valve for the supply pipe with integrated check valve and thermometer -flow measuring and regulating device with isolation and lateral fill and drain ball valve -safety valve 6 bar -outlet G 3/4" male thread to expansion tank -pressure gauge 10 bar -fill and drain ball valve -wall mounting device -insulation -deaerator <p>Control range of the flow measuring and regulating device: 2-14 l/min.</p> <p>Grundfos UPM 3 Solar 15-75 PWM C 130 1360573</p>	<p>To activate the pump, the controller must provide a PWM activation signal.</p> <p>Further information and ErP data:</p> 

Article	Article-No.	Hint
---------	-------------	------

"Regusol PH-130" Station DN 25
 Pump circuit with safety group



consisting of:

- high-efficiency pump
- ball valve for the return pipe with integrated check valve, thermometer and connection for safety group
- flow measuring and regulating device with isolation and lateral fill and drain ball valve
- safety valve 6 bar
- outlet G 3/4 male thread to expansion tank
- pressure gauge 10 bar
- fill and drain ball valve
- wall mounting device
- insulation

Control range of the flow measuring and regulating device: 2-15 l/min.

Complete, pre-assembled and leak tested unit for the connection to the solar circuit. With G 1 male threaded connection for "Regusol" compression fittings to the solar supply and return pipe.

For copper and precision steel pipes.

With the option to connect an expansion tank to the safety group.

Distance between pipe centres: 100 mm (station)
 Pump 130 mm long.

Continuous operating temperature: 120 °C
 Max. short-term starting temperature: 160 °C

Suitable for standard solar liquids.

Wilo-Yonos PARA ST 25/7 PWM 2 **1362063**
 Grundfos UPM 3 Solar 25-75 PWM C 130 **1362064**

When connecting the "Regusol" station to a flexible pipework (e. g. corrugated metal pipe), the locking shackle 1369090 (page 9.32) has to be used in addition to the wall mounting device.

Controllers and accessories for the operation of the complete solar plant: from page 9.25

To activate the pump, the controller must provide a PWM activation signal.

"Regusol SH-130" Station DN 25
 as "Regusol PH-130" station, but with supply pipe



consisting of:

- high-efficiency pump
- ball valve for the return pipe with integrated check valve, thermometer and connection for safety group
- ball valve for the supply pipe with integrated check valve and thermometer
- flow measuring and regulating device with isolation and lateral fill and drain ball valve
- safety valve 6 bar
- outlet G 3/4 male thread to expansion tank
- pressure gauge 10 bar
- fill and drain ball valve
- wall mounting device
- insulation

Control range of the flow measuring and regulating device: 2-15 l/min.

A controller location made of expanded polypropylene for upgrading the station with a controller "Regtronic RC/RC-P" is available on page 9.27.

Further information and ErP data:



Grundfos UPM 3 Solar 25-75 PWM C 130 **1360063**

Article	Article-No.	Hint
---------	-------------	------



"Regusol LH-130" Station DN 25
 as "Regusol SH-130" station, but with deaerator

- consisting of:
- high-efficiency pump
 - ball valve for the return pipe with integrated check valve, thermometer and connection for safety group
 - ball valve for the supply pipe with integrated check valve and thermometer
 - flow measuring and regulating device with isolation and lateral fill and drain ball valve
 - safety valve 6 bar
 - outlet G 3/4" male thread to expansion tank
 - pressure gauge 10 bar
 - fill and drain ball valve
 - wall mounting device
 - insulation
 - deaerator

Control range of the flow measuring and regulating device: 2-15 l/min.

Wilo-Yonos PARA ST 25/7 PWM 2 **1360557**
 Grundfos UPM 3 Solar 25-75 PWM C 130 **1360556**

Control range of the flow measuring and regulating device: 7-30 l/min.

Wilo-Yonos PARA ST 25/7.5 PWM 2 **1360558**



Complete, pre-assembled and leak tested unit for the connection to the solar circuit. With G 1 male threaded connection for "Regusol" compression fittings to the solar supply and return pipe.

For copper and precision steel pipes.

With the option to connect an expansion tank to the safety group.

Distance between the pipe centres: 100 mm
 Pump 130 mm long.

Continuous operating temperature: 120 °C
 Max. short-term starting temperature: 160 °C

Suitable for standard solar liquids.

When connecting the "Regusol" station to a flexible pipework (e.g. corrugated metal pipe), the locking shackle 1369090, (page 9.32) has to be used in addition to the wall mounting device.

Controllers and accessories for the operation of the complete solar plant: from page 9.25

To activate the pump, the controller must provide a PWM activation signal.

A controller location made of expanded polypropylene for upgrading the station with a controller "Regtronic RC/RC-P" is available on page 9.27.



Article	Article-No.	Hint
<p>"Regusol ELH-130-RC" Station DN 25 with safety group and electronic controller</p> <p>consisting of:</p> <ul style="list-style-type: none"> -high-efficiency pump -ball valve for the return pipe with integrated check valve, thermometer and connection for safety group -ball valve for the supply pipe with integrated check valve and thermometer -flow measuring and regulating device with isolation and lateral fill and drain ball valve -safety valve 6 bar -outlet G 3/4 male thread to expansion tank -pressure gauge 10 bar -fill and drain ball valve -wall mounting device -electronic controller -insulation -deaerator <p>Control range of the flow measuring and regulating device: 2-15 l/min.</p>		<p>Complete, pre-assembled and leak tested unit for the connection to the solar circuit. With integrated electronic controller for the control and monitoring of a solar thermal plant according to the temperature difference principle. These stations are mainly used for hot potable water preparation.</p> <p>With G 1 male threaded connection for "Regusol" compression fittings to the solar supply and return pipe.</p> <p>For copper and precision steel pipes.</p> <p>With the option to connect an expansion tank to the safety group.</p> <p>Distance between pipe centres: 100 mm Pump 130 mm long.</p>
<p>with Wilo-Yonos PARA ST 25/7 PWM 2 1366597 and controller "Regtronic RC" with data output (S-bus)</p>		<p>Continuous operating temperature: 120 °C Max. short-term starting temperature: 160 °C</p> <p>Suitable for standard solar liquids.</p> <p>When connecting the "Regusol" station to a flexible pipework (e. g. corrugated metal pipe), the locking shackle 1369090 (page 9.32) has to be used in addition to the wall mounting device.</p> <p>Inputs: 4 temperature sensors (PT1000) Outputs: 3 relays, 1 is a volt free relay</p> <p>The controller is already cabled with a temperature sensor (PT1000). Another temperature sensor (PT1000) for the connection to the collector is included.</p> <p>Temperature sensors PT1000 for the registration of additional temperatures are available as accessories.</p> <p>Further information and ErP data:</p>





Article	Article-No.	Hint
<p>"Regusol ELH-130-RC-P" Station DN 25 with safety group, electronic flow sensor and electronic controller</p> <p>consisting of:</p> <ul style="list-style-type: none"> -high-efficiency pump -ball valve for the return pipe with integrated check valve, thermometer and connection for safety group -ball valve with integrated check valve and thermometer -electronic flow sensor VFS (2-40 l/min.) -safety valve 6 bar -outlet G 3/4 male thread to expansion tank -pressure gauge 10 bar -fill and drain ball valve -wall mounting device -electronic controller -insulation -deaerator 		<p>Complete, pre-assembled and leak tested unit for the connection to the solar circuit. With integrated electronic controller for the control and monitoring of a solar thermal plant according to the temperature difference principle.</p> <p>With G 1 male threaded connection for "Regusol" compression fittings to the solar supply and return pipe.</p> <p>For copper and precision steel pipes.</p> <p>With the option to connect an expansion tank to the safety group.</p> <p>Distance between pipe centres: 100 mm Pump 130 mm long.</p>
<p>with Wilo-Yonos PARA ST 25/7 PWM 2 1360394 and controller OV-"Regtronic RC-P" with data output (S-bus)</p>		<p>Continuous operating temperature: 120 °C Max. short-term starting temperature: 160 °C</p>
		<p>Suitable for standard solar liquids.</p> <p>When connecting the "Regusol" station to a flexible pipework (e. g. corrugated metal pipe), the locking shackle 1369090 (page 9.32) has to be used in addition to the wall mounting device.</p> <p>Apart from hot potable water preparation, this station with high-efficiency pump offers additional functions. The integrated additional controller allows for a support of the heating system, a difference control or a circulation function. Yield measurement is possible via the electronic flow sensor.</p>
		<p>Flow sensor without lateral fill and drain ball valve, use filling and flushing device "Regusol": page 9.33</p>
		<p>Interfaces: S-bus for connection to the data logger "CS-BS", SD-card slot for data recording Inputs: 4 temperature sensors (PT1000), 1 input for electronic flow sensor (volume flow/temperature) Outputs: 4 relays, 1 is a volt free relay, 2 pulse-width modulation (PWM) outputs for the speed controlled activation of high-efficiency pumps.</p> <p>Further information and ErP data:</p>





Article	Article-No.	Hint
<p>"Regusol PH-180" Station DN 25 Pump circuit with safety group</p> <p>consisting of:</p> <ul style="list-style-type: none"> -high-efficiency pump -ball valve for the return pipe with integrated check valve, thermometer and connection for safety group -flow measuring and regulating device with isolation and lateral fill and drain ball valve -safety valve 6 bar -outlet G 3/4" male thread to expansion tank -pressure gauge 10 bar -fill and drain ball valve -wall mounting device -insulation <p>Control range of the flow measuring and regulating device: 2-15 l/min.</p> <p>Grundfos UPM 3 Solar 25-75 PWM C 180 1368163</p>	<p>Complete, pre-assembled and leak tested unit for the connection to the solar circuit. With G 1 male threaded connection for "Regusol" compression fittings to the solar supply and return pipe.</p> <p>For copper and precision steel pipes.</p> <p>With the option to connect an expansion tank to the safety group.</p> <p>Pump 180 mm long.</p> <p>Continuous operating temperature: 120 °C Max. short-term starting temperature: 160 °C</p> <p>Suitable for standard solar liquids.</p> <p>When connecting the station "Regusol" to a flexible pipework (e. g. corrugated metal pipe), the locking shackle 1369090 (page 9.32) has to be used in addition to the wall mounting device.</p> <p>Controllers and accessories for the operation of the complete solar plant: from page 9.25</p> <p>To activate the pump, the controller must provide a PWM activation signal.</p>	



Article	Article-No.	Hint
<p>"Regusol SH-180" Station DN 25 as "Regusol PH-180" station, but with supply pipe</p> <p>consisting of:</p> <ul style="list-style-type: none"> -high-efficiency pump -ball valve for the return pipe with integrated check valve, thermometer and connection for safety group -ball valve for the supply pipe with integrated check valve and thermometer -flow measuring and regulating device with isolation and lateral fill and drain ball valve -safety valve 6 bar -outlet G 3/4" male thread to expansion tank -pressure gauge 10 bar -fill and drain ball valve -wall mounting device -insulation 	<p>Control range of the flow measuring and regulating device: 2-15 l/min.</p> <p>Grundfos UPM 3 Solar 25-75 PWM C 180 1368064</p>	<p>Complete, pre-assembled and leak tested unit for the connection to the solar circuit. With G 1 male threaded connection for "Regusol" compression fittings to the solar supply and return pipe.</p> <p>For copper and precision steel pipes.</p> <p>With the option to connect an expansion tank to the safety group.</p> <p>Distance between pipe centres: 100 mm Pump 180 mm long.</p> <p>Continuous operating temperature: 120 °C Max. short-term starting temperature: 160 °C</p> <p>Suitable for standard solar liquids.</p> <p>When connecting the "Regusol" station to a flexible pipework (e.g. corrugated metal pipe), the locking shackle 1369090, (page 9.32) has to be used in addition to the wall mounting device.</p> <p>Controllers and accessories for the operation of the complete solar plant: page 9.25</p> <p>To activate the pump, the controller must provide a PWM activation signal.</p> <p>A controller location made of expanded polypropylene for upgrading the station with a controller "Regtronic RC/RC-P" is available on page 9.27.</p> <p>Further information and ErP data:</p>



Article	Article-No.	Hint
---------	-------------	------

"Regusol LH-180" Station DN 25
as "Regusol SH-180" station, but with deaerator



- consisting of:
- high-efficiency pump
 - ball valve for the return pipe with integrated check valve, thermometer and connection for safety group
 - ball valve for the supply pipe with integrated check valve and thermometer
 - flow measuring and regulating device with isolation and lateral fill and drain ball valve
 - safety valve 6 bar
 - outlet G 3/4" male thread to expansion tank
 - pressure gauge 10 bar
 - fill and drain ball valve
 - wall mounting device
 - insulation
 - deaerator

Control range of the flow measuring and regulating device: 2-15 l/min.

- | | |
|--------------------------------------|----------------|
| Wilo-Yonos PARA ST 25/7 PWM 2 | 1360851 |
| Grundfos UPM 3 Solar 25-75 PWM C 180 | 1360853 |
| Wilo-Yonos PARA ST 25/7 PWM 2 | 1360854 |
- with 10 bar safety valve

Control range of the flow measuring and regulating device: 7-30 l/min.

- | | |
|---------------------------------|----------------|
| Wilo-Yonos PARA ST 25/7.5 PWM 2 | 1360852 |
|---------------------------------|----------------|



Complete, pre-assembled and leak tested unit for the connection to the solar circuit. With G 1 male threaded connection for "Regusol" compression fittings to the solar supply and return pipe.

For copper and precision steel pipes.

With the option to connect an expansion tank to the safety group.

Distance between pipe centres: 100 mm
Pump 180 mm long.

Continuous operating temperature: 120 °C
Max. short-term starting temperature: 160 °C

Suitable for standard solar liquids.

When connecting the "Regusol" station to a flexible pipework (e. g. corrugated metal pipe), the locking shackle 1369090 (page 9.32) has to be used in addition to the wall mounting device.

Controllers and accessories for the operation of the complete solar plant: from page 9.25

To activate the pump, the controller must provide a PWM activation signal.

A controller location made of expanded polypropylene for upgrading the station with a controller "Regtronic RC/RC-P" is available on page 9.27.

Further information and ErP data:



Article	Article-No.	Hint
---------	-------------	------

"Regusol ELH-180-RC" Station DN 25
 as "Regusol LH-180" station, but with electronic controller



- consisting of:
- high-efficiency pump
 - ball valve in the return pipe with integrated check valve, thermometer and connection for safety group
 - ball valve in the supply pipe with integrated check valve and thermometer
 - flow measuring and regulating device with isolation and lateral fill and drain ball valve
 - safety valve 6 bar
 - outlet G 3/4 male thread to expansion tank
 - pressure gauge 10 bar
 - fill and drain ball valve
 - wall mounting device
 - electronic controller
 - insulation
 - deaerator

Control range of the flow measuring and regulating device: 2 - 15 l/min.

Wilo-Yonos PARA ST 25/7 PWM 2 **1360862**
 Wilo-Yonos PARA ST 25/7 PWM 2 **1360864**
 with 10 bar safety valve
 and controller "Regtronic RC"
 with data output (S-bus)

Complete, pre-assembled and leak tested unit for the connection to the solar circuit.
 With integrated electronic controller for the control and monitoring of a solar thermal plant according to the temperature difference principle.

These stations are mainly used for hot potable water preparation.
 With G 1 male threaded connection for "Regusol" compression fittings to the solar supply and return pipe.

For copper and precision steel pipes.

With the option to connect an expansion tank to the safety group.

Distance between pipe centres: 100 mm
 Pump 180 mm long.

Continuous operating temperature: 120 °C
 Max. short-term starting temperature: 160 °C

Suitable for standard solar liquids.

When connecting the "Regusol" station to a flexible pipework (e. g. corrugated metal pipe), the locking shackle 1369090 (page 9.32) has to be used in addition to the wall mounting device.

Inputs: 4 temperature sensors (PT1000)
 Outputs: 3 relays, 1 is a volt free relay

The controller is already cabled with a temperature sensor (PT1000).
 Another temperature sensor (PT1000) for the connection to the collector is included.

Temperature sensors PT1000 for the registration of additional temperatures are available as accessories.

Further information and ErP data:





Article	Article-No.	Hint
<p>"Regusol SH-180" Station DN 32 with safety group</p> <p>consisting of:</p> <ul style="list-style-type: none"> -high-efficiency pump -ball valve with thermometer -ball valve with thermometer -check valve -safety valve 6 bar -outlet G 3/4" male thread to expansion tank -pressure gauge 10 bar -flow measuring and regulating device -insulation <p>Control range of the flow measuring and regulating device: 10 - 40 l/min.</p> <p>Wilo-Stratos PARA 1-9 PWM 2</p>	<p>1368251</p>	<p>Complete, pre-assembled and leak tested unit for the connection to the solar circuit. With flat sealing male threaded connection G 2 to the solar supply and return pipe.</p> <p>With the option to connect an expansion tank to the safety group.</p> <p>Distance between pipe centres: 125 mm Pump 180 mm long.</p> <p>Continuous operating temperature: 120 °C Max. short-term starting temperature: 160 °C</p> <p>Suitable for standard solar liquids.</p> <p>Controllers and accessories for the operation of the complete solar plant: from page 9.25</p> <p>To activate the pump, the controller must provide a PWM activation signal.</p> <p>Further information and ErP data:</p>

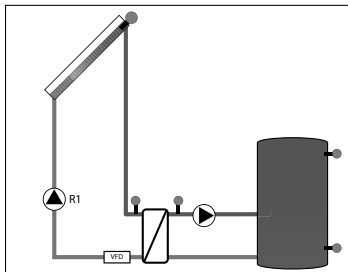


"Regusol X" Stations for the connection of collector and storage cylinder with heat exchanger

Models: "Regusol X-Duo 25" Electronically controlled station with heat exchanger for the transmission of the heat of a solar circuit (primary circuit) to two loading circuits (secondary circuit) activated by a conversion valve.
"Regusol X-Uno 25" Electronically controlled heat exchanger system for the transmission of the heat of a solar circuit (primary circuit) to a loading circuit (secondary circuit).

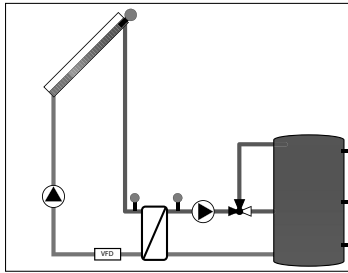
Installation dimensions: H = 860 mm, W = 500 mm, D = 260 mm

Characteristics	Heat exchanger system without conversion function 1 loading circuit	Heat exchanger system with conversion function to 2 nd loading circuit
	"Regusol X-Uno 25"	"Regusol X-Duo 25"
Catalogue page	9.19	9.19
Primary side:		
Filling and flushing connection	x	x
Electronic flow transducer	x	x
Ball valve with check valve, temperature sensor connection and thermometer inside handle, with connection for safety group	x	x
Safety group with safety valve (6 bar), pressure gauge, fill and drain ball valve and connection for an expansion tank	x	x
Ball valve with check valve, temperature sensor connection, thermometer inside handle and additional fill and drain valve in the elbow	x	x
Plate heat exchanger	25 kW	25 kW
Secondary side:		
Vent plug	x	x
Check valve	x	x
Three-way conversion valve with actuator		x
Ball valve with temperature sensor connection and thermometer inside handle	x	x
Ball valve with temperature sensor connection, thermometer inside handle and additional fill and drain valve	x	x
Safety valve (3 bar)	x	x
Solar controller with different programmable loading strategies – target loading of upper part of the storage cylinder – active loading section by section – loading of the complete storage cylinder	x	x
Insulation with integrated controller "Regtronic RX"	x	x



"Regusol X-Uno 25"
Heat exchanger capacity 25 kW
Primary circuit:
1 circuit for the connection of the collector fields
Secondary circuit:
1 circuit for the connection of the storage cylinder for simple operation

Storage cylinder connection for simple operation



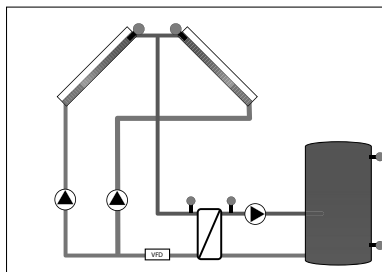
"Regusol X-Duo 25"
Heat exchanger capacity 25 kW
Primary circuit:
1 circuit for the connection of the collector fields
Secondary circuit:
2 circuits for the connection of the storage cylinder for loading section by section

Storage cylinder connection for loading section by section



"Regusol X-Duo 25"
Heat exchanger capacity 25 kW
Primary circuit:
1 circuit for the connection of the collector fields
Secondary circuit:
2 circuits but with loading operation of 2 separate storage cylinders

Storage cylinder connection for loading operation of 2 separate storage cylinders



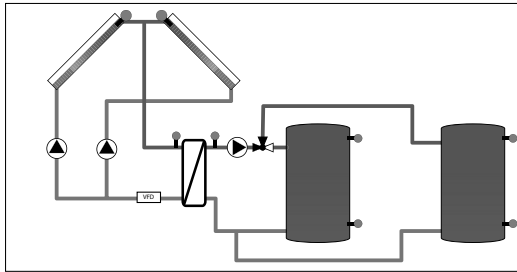
"Regusol X-Uno 25" with "Regusol X" supplementary set
Heat exchanger capacity 25 kW
Primary circuit:
2 circuits for the connection of the collector fields
Secondary circuit:
1 circuit for the connection of the storage cylinder for simple operation

For 2 collector fields with storage cylinder connection for simple operation



"Regusol X-Duo 25" with "Regusol X" supplementary set
Heat exchanger capacity 25 kW
Primary circuit:
2 circuits for the connection of the collector fields
Secondary circuit:
2 circuits for the connection of the storage cylinder for loading section by section

For 2 collector fields for storage cylinder connection for loading section by section



"Regusol X-Duo 25" with "Regusol X" supplementary set
Heat exchanger capacity 25 kW
Primary circuit:
2 circuits for the connection of the collector fields
Secondary circuit:
2 circuits but with loading operation of 2 separate storage cylinders

For 2 collector fields for storage cylinder connection for loading operation of 2 separate storage cylinders

9



Article Article-No. Hint

"Regusol X-Uno 25" with heat exchanger
 Station with heat exchanger
 1 solar circuit connection
 with electronic controller "Regtronic RX"
 with full graphic display and data output (S-bus)

Capacity: 25 kW
 Number of heat exchanger plates: 30

Connections:
 Primary side: G 1 "Regusol" compression fittings
 Secondary side: G 1 flat sealing

kvs = 2.4 m³/h primary side
 (with a glycol proportion of 40% in the solar liquid)
 kvs = 3.6 m³/h secondary side

with Wilo-Yonos high-efficiency pumps 1361060
 Primary side: ST PWM 15/7
 Secondary side: RS PWM 15/7

Product assembly with electronic controller, heat exchanger and three-way conversion valve ("Regusol X-Duo 25" only) for second loading circuit for the controlled transmission of the heat of the solar circuit (primary circuit) to a buffer storage cylinder (secondary circuit); for instance for existing storage cylinders without direct solar connection.

The three-way valve integrated in the supply pipe of the secondary circuit ("Regusol X-Duo 25" only) allows for the conversion to an additional loading circuit running in parallel, for instance for the loading section by section of the storage cylinder or the thermal loading of a second storage cylinder.

Primary circuit: up to PN 10 and 120 °
 Starting temperature: 160 °C
 Secondary circuit: up to PN 6 and 120 °C constant operation



"Regusol X-Duo 25" with heat exchanger
 Station with heat exchanger
 1 solar circuit connection/
 2 loading circuit connections
 with electronic controller "Regtronic RX"
 with full graphic display and data output (S-bus)

Capacity: 25 kW
 Number of heat exchanger plates: 30

Connections:
 Primary side: G 1 "Regusol" compression fittings
 Secondary side: G 1 flat sealing

kvs = 2.4 m³/h primary side
 (with a glycol proportion of 40% in the solar liquid)
 kvs = 3.2 m³/h secondary side

with Wilo-Yonos high-efficiency pumps 1361050
 Primary side: ST PWM 15/7
 Secondary side: RS PWM 15/7

The soldered plate heat exchanger complies with the requirements of the European Pressure Equipment Directive (2014/68/EU). Due to turbulent flow conditions, an excellent self-cleaning effect is produced and thus, a contamination is avoided.

The leak tested components of the heat exchanger system are pre-assembled on a board.

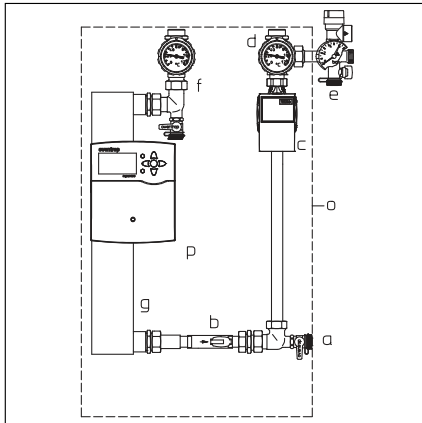
The controller is wired with the internal electric components and features the following connections:
 Output for solar circuit pump
 Output for loading pump
 Output for three-way conversion valve ("Regusol X-Duo 25" only)
 Apart from the mentioned outputs, the "Regtronic RX" features a data bus (S-bus) for the connection to the data logger "CS-BS".
 Temperature inputs for:
 Collector, heat exchanger entry point - primary side, heat exchanger exit point - secondary side, 3 temperature inputs for storage cylinder with loading operation section by section, interface for electronic flow transducer.
 Plain text is clearly shown on the display of the controller.
 The heat exchanger system is completely insulated.
 The indicated capacity for the heat transmission is valid for a usable global solar radiation of 500 W/m².
 The heat transmission depends on:
 - the reached flow temperature and the volume flow of the primary circuit
 - the flow temperature difference between the primary and secondary circuit
 - the required flow temperature and the volume flow of the secondary circuit.

For the extension of a "Regusol X" station with high-efficiency pump for the interconnection and regulation of different collector fields (e.g. east/west), see supplementary set "Regusol X": page 9.36

Further information and ErP data:



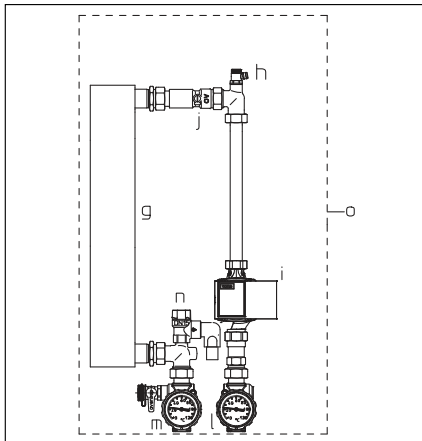
The stations described on the preceding pages consist of two connection levels:



Front level, solar circuit
(primary circuit X-Uno 25 and X-Duo 25)

1. Primary circuit (X-Uno 25 and X-Duo 25)

- a flushing, filling and draining connection
- b electronic volume flow sensor
- c pump (solar circuit)
- d ball valve, temperature sensor connection and thermometer inside handle, with connection for safety group
- e safety group with safety valve (6 bar), pressure gauge, fill and drain ball valve and connection for an expansion tank
- f ball valve with check valve, temperature sensor connection, thermometer inside handle and additional fill and drain valve in the elbow
- g plate heat exchanger
- o insulation with integrated controller
- p solar controller with different programmable loading strategies
 - target loading of upper part of the storage cylinder
 - active loading section by section
 - loading of the complete storage cylinder

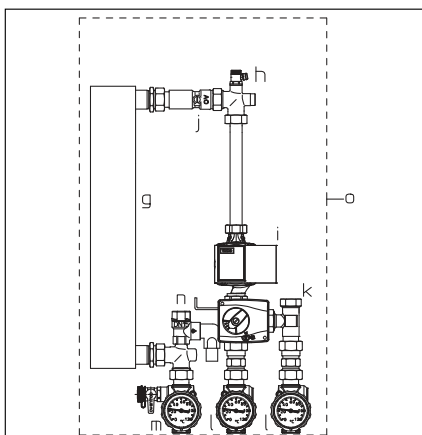


Back level, loading circuit
(secondary circuit X-Uno 25)

2. Secondary circuit (X-Uno 25)

- g plate heat exchanger
- h venting valve
- i pump (loading circuit)
- j check valve
- l ball valve with temperature sensor connection and thermometer inside handle
- m ball valve with temperature sensor connection, thermometer inside handle and additional fill and drain valve
- n safety valve (3 bar)
- o insulation

Dimensions (outer dimensions insulation)
width: approx. 500 mm
depth: approx. 260 mm
height: approx. 860 mm



Back level, loading circuit
(secondary circuit X-Duo 25)

3. Secondary circuit (X-Duo 25)

- g plate heat exchanger
- h venting valve
- i pump (loading circuit)
- j check valve
- k three-way conversion valve with actuator
- l ball valve with temperature sensor connection and thermometer inside handle
- m ball valve with temperature sensor connection, thermometer inside handle and additional fill and drain valve
- n safety valve (3 bar)
- o insulation

Dimensions (outer dimensions insulation)
width: approx. 500 mm
depth: approx. 260 mm
height: approx. 860 mm

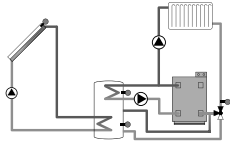
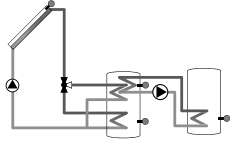
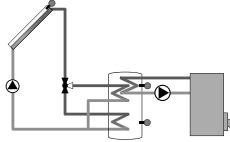
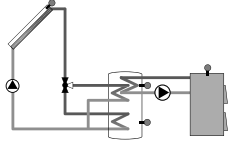
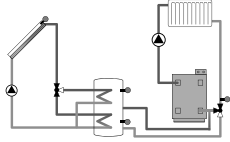
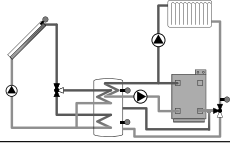
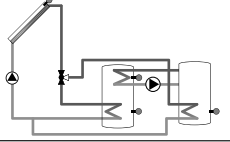
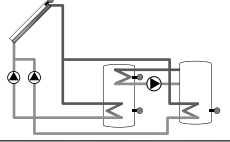
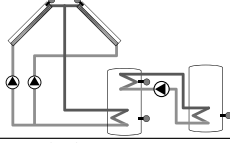
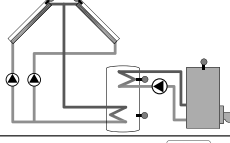
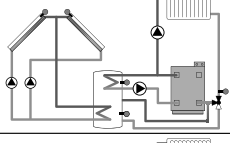
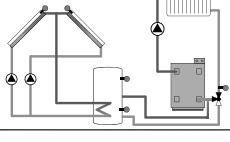
Controller	"Regtronic RC"	"Regtronic RC-P"	"Regtronic RM"
Item no.	1369549	1369551	1369555
Application	<ul style="list-style-type: none"> - Solar storage cylinder loading via a heat exchanger located inside the storage cylinder - Control with heat exchanger - Activation of high-efficiency pumps by PWM and 0-10 V signal - Automatic functional control according to VDI guideline 2169 	<ul style="list-style-type: none"> - Solar storage cylinder loading via a heat exchanger located inside the storage cylinder - Control with heat exchanger - Activation of high-efficiency pumps by PWM and 0-10 V signal - Additional functions, e.g. support of a heating system, differential control, control of a circulation pipe or a wood burning stove - Automatic functional control according to VDI guideline 2169 	<ul style="list-style-type: none"> - Solar storage cylinder loading via a heat exchanger located inside the storage cylinder - Control with heat exchanger - Freely programmable outputs - Heating systems - Activation of high-efficiency pumps by PWM and 0-10 V signal - 2 variable temperature heating circuits
Energy measurement (for instance using an electronic flow sensor)	-	X	X
Number of inputs (PT 1000)	4	4	12
Flow sensor (VFS)	-	1	2
Flow sensor (VFD)	-	-	2
Pulse input V40	1	1	-
Number of outputs	3	4	14
Speed controlled pump output (standard pump)	2	3	13
Speed controlled pump output (high-efficiency pump)	2	2	4
Data output (S-bus) for connection to the "Datalog CS-BS-1 / CS-BS-6"	X	X	X
Integrated in the stations	"Regusol ELH-RC"	"Regusol ELH-RC-P"	"Regucor WHS"

The Oventrop controllers allow for a number of possible pipework configurations. Amongst others, functions like return temperature increase, boiler activation, circulation function, threshold function as well as heating and cooling function can be easily realised.

The below mentioned pipework configurations can be realised with the Oventrop controllers.





Pipework configuration	"Regtronic RC"	"Regtronic RC-P"	"Regtronic RM"
	X	X	X
	X	X	X
	X	X	X
	X		X
	X	X	X
	X	X	X
		X	X
	X	X	X
		X	X
	X	X	X
	X	X	X

9

Pipework configuration	"Regtronic RC"	"Regtronic RC-P"	"Regtronic RM"
			X
			X
			X
			X
			X
			X
		X	X
		X	X
		X	X
		X	X
			X
			X

Pipework configuration	"Regtronic RC"	"Regtronic RC-P"	"Regtronic RM"
			X
		X	X
			X
			X
			X
			X
			X
			X
			X
			X
			X
		X	X

9

Article	Article-No.	Hint
"Regtronic" - Electronic controllers		
	<p>"Regtronic RC" 4 inputs PT 1000, PT 500 or KTY 1 pulse input 3 outputs, 1 is a volt free relay 2 PWM outputs for speed regulated high-efficiency pump control Data output S-bus 10 selectable basic systems Automatic functional control according to VDI 2169 With 1 collector sensor and 3 storage cylinder sensors</p>	<p>Simple solar controller for wall attachment for the control of a solar plant with one collector and one (maximum of 2) storage cylinder. The controller controls two PWM outputs. This controller is mainly used for the operation of small and medium-sized solar plants and heating systems. As the first controller in its class, the "Regtronic RC" allows the automatic functional control according to the VDI directive 2169.</p>
	1369549	
	<p>"Regtronic S-bus" Interface adapter for high-efficiency pumps</p>	<p>When combined with the interface adapter "Regtronic S-bus", standard solar controllers can be used for the speed control of high-efficiency pumps. Depending on the pump type, the control signal can be switched from PWM to 0-10 V.</p>
	1369531	
	<p>"Regtronic PSW" Signal converter for PWM/0 - 10 V pump control (high-efficiency pumps)</p>	<p>Signal converter for the conversion of an asynchronous signal to a high-efficiency pump control signal (PWM or 0 - 10 V)</p>
	1369532	
	<p>"Regtronic RC-P" 4 inputs for PT 1000, PT 500 or KTY 4 outputs, 1 is a volt free relay 1 analogue input Grundfos Direct Sensors™ 1 input flow rotor 1 pulse input V 40 (convertible to PT 1000, PT 500 or KTY) 2 PWM outputs Data output S-bus 4 solar basic systems, each with up to 3 hydraulic variants Automatic functional control according to VDI 2169</p>	<p>Flexible solar controller for wall attachment for the control of complex solar plants. Apart from the operation of solar plants for hot potable water preparation, this controller is mainly used for the realisation of additional functions such as:</p>
	1369551	<ul style="list-style-type: none"> - Zone loading - Support of the heating system - Control of a circulation pipe - Vacation function
		<p>The controller is preloaded with 27 pipework configurations which allow for the control of the majority of common pipework configurations. The "Regtronic RC-P" allows the automatic functional control according to the VDI directive 2169.</p>



"Regtronic RM"
 12 inputs PT 1000, PT 500 or KTY
 3 pulse inputs
 2 analogue inputs Grundfos Direct Sensors™
 2 digital inputs Grundfos Direct Sensors™
 14 outputs
 4 PWM outputs (convertible to 0-10 V)
 Data output S-bus

With 2 collector sensors and 6 storage cylinder sensors.
 The outdoor sensor is not included.

Solar system controller with full graphic display for use in solar and heating systems. Control of weather guided heating circuits.
 Operating current 100-240 V.

1369555

ErP classification "Regtronic RM"						
Item no.	Controller	Required accessories	Boiler control		ErP %	Class
			modulating (0-10 V)	On/Off		
1369555	"Regtronic RM"	1 x outside temperature sensor 1152099	X		2,0	II
		1 x outside temperature sensor 1152099		X	1,5	III
		1 x room temperature sensor 1152095	X		4,0	VI
		1 x outside temperature sensor 1152099				
		1 x room temperature sensor 1152095		X	3,5	VII
		1 x outside temperature sensor 1152099				
		3x room temperature sensor 1152095	X		5,0	VIII

The system controller "Regtronic RM" for wall attachment has 14 relay outputs (13 speed controlled solid-state relays and 1 volt free relay) and 4 PWM outputs for the speed control of high-efficiency pumps which are convertible to the output of a 0-10 V signal.

The controller "Regtronic RM" controls solar plants with East-West roof orientation and several storage cylinders as well as weather guided variable / constant temperature heating circuits.

Preloaded function blocks simplify the system parameterization and thus facilitate an integration of various heat generators (e. g. oil, gas or solid fuel boilers).

Different optional functions such as storage cylinder loading section by section, heat exchange, heat demand, boiler loading, solid fuel boiler, mixing valve control, measurement of heat consumption, tube collector function, drain back option, thermostat function, ΔT-regulation, thermal disinfection, circulation and further functions may be activated via the intuitive user guidance.

Interfaces: S-bus for the connection to the data logger "CS-BS".
 SD-card slot for data recording and transmission of set values as well as updating of the firmware.

Up to 5 extension modules "Regtronic EM" can be connected to the "Regtronic RM". Thus, there is a total number of 39 relay outputs for individual pipework configurations.

Further information and ErP data:










Outside temperature sensor **1152099**




Temperature sensor PT 1000 for connection to the heating circuit controller "Regtronic RH".



Room temperature sensor PT 1000 **1152095**

Room temperature sensor for fixing on level surfaces (surface mounting).

Article	Article-No.	Hint	
	<p>Remote control with room temperature sensor PT 1000</p>	<p>1152096</p>	<p>Remote control with room temperature sensor PT 1000 for the connection to the electronic controllers "Regtronic RH, RM and RS" for a comfortable control of the heating curve of the controller from the living area. When increasing the heating curve, the flow temperature is increased and vice versa. The remote control also features the functions "heating circuit off" and "party position".</p>
	<p>Room controller with operating mode switch, remote control and room temperature sensor PT 1000</p>	<p>1152087</p>	<p>Room controller with operating mode switch, remote control and room temperature sensor PT 1000 for the connection to the heating circuit controller "Regtronic RH" for a comfortable setting of the operating mode and heating curve of the controller from the living area.</p> <p>Operating mode switch: Setting of the operating modes "Automatic", "Night setback", "Summer" and "Off".</p> <p>Remote control: An increase of the heating curve provokes an increase of the flow temperature and vice versa. Furthermore, the remote control features the functions "Heating circuit off" and "Party position".</p>
	<p>Controller location for "Regtronic RC/ RC-P"</p>	<p>1369553</p>	<p>For upgrading the stations "Regusol SH/LH" DN 25 manufactured since 2015 with a "Regtronic RC/ RC-P" controller.</p>
	<p>"Sensor LW TH" Temperature sensor PT 1000</p>	<p>1369093</p>	<p>For electronic registration of the riser temperatures.</p>
	<p>Storage cylinder</p>	<p>1369093</p>	<p>Continuous temperature range: up to 105 °C L = 300 cm</p>
	<p>Collector</p>	<p>1369094</p>	<p>Continuous temperature range: up to 180 °C (for short periods up to 250 °C) L = 200 cm.</p>
	<p>Sensor socket with surge protection</p>	<p>1369591</p>	<p>The weatherproof socket protects the collector sensor from electric surge and lightning.</p>

Article	Article-No.	Hint
	<p>"Regumat" Heat exchangers High-capacity plate heat exchanger</p> <p>with connection fitting</p> <p>14 plates up to 14 kW 1351596 30 plates up to 28 kW 1351696</p> <p>The capacities are determined by the fixed default values in the primary circuit (70/50 °C) and the secondary circuit (40/50 °C).</p>	<p>Modular complement to the boiler connection systems "Regumat 130/180" DN 25 with a distance of 125 mm between pipe centres. System with plate heat exchanger for the separation of different product assemblies and individual components for:</p> <ul style="list-style-type: none"> - surface and underfloor heating and cooling - storage cylinder loading - fresh water loading <p>Connection distance: 125 mm One port 2 x pump flange with collar nut G 1½, one port 2 x G 1½ male thread with additional lateral connection facilities, including insulation.</p>
	<p>without connection fitting for higher capacities</p> <p>20 plates up to about 40 kW 1351790 30 plates up to about 55 kW 1351791</p> <p>40 plates up to about 70 kW 1351792 50 plates up to about 85 kW 1351793</p> <p>The capacities are determined by the fixed default values in the primary circuit (80/60 °C) and in the secondary circuit (50/70 °C).</p>	<p>Connection distance: 466 mm x 50 mm 4 x G 1 flat sealing</p> <p>As replacement for "Regusol X-15". As replacement for "Regusol X-25" and "Regumaq".</p>
	<p>Thermal insulation made of expanded polypropylene</p> <p>for heat exchangers 1351790/91 1359591 for heat exchangers 1351792/93 1359592</p>	



9.b Accessories for "Regusol" stations within the collector circuit

Content

"Hydrocontrol STR" Double regulating and commissioning valves PN 25	9.30
"Regusol" Compression fittings	9.31
"Regusol" Compression fittings with reinforcing sleeves	9.31
Tailpipe sets DN 32	9.32
Brass reinforcing sleeves	9.32
Tailpipe sets DN 20 for "Regusol X" and "Regumaq X/XZ" stations	9.32
Accessories	9.32
Circulation pumps 130 mm	9.37
Circulation pumps 180 mm	9.37

Article	Packing unit	kvs	Article-No.	Hint
---------	--------------	-----	-------------	------

"Hydrocontrol STR" Double regulating and commissioning valves PN 25

(solar, threaded connection, bronze)
 both ports compression connection for compression fittings "Regusol" (DN 25)



DN 20 LF	(10)	1.04	1369050	
DN 20 MF	(10)	2.60	1369055	

Application:
 Solar plants with closed circuits, for operation with non-aggressive, harmless fluids (e. g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).

Measuring method:
 Determination of the flow rate by measuring the differential pressure via the metering station.

Description "Hydrcontrol STR":
 Max. operating pressure p_g : 25 bar (PN 25)
 Operating temperature t_g : -20 °C up to +200 °C
 Especially for solar plants.

both ports female thread according to EN 10226



DN 20 LF	(10)	1.04	1369062	
DN 20 MF	(10)	2.60	1369065	

As the valve has no isolation function, a minimum flow rate is guaranteed.
 Is used for the hydronic balancing of collector fields.

For further information see
 "Technical information":



Accessories:
 "Regusol" compression fittings

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

"Regusol" Compression fittings

DN 20
brass



for copper and precision steel pipe,
collar nut G 3/4, collar nut unplated

Set = 4 compression fittings

12 mm	(25)	1367393
15 mm	(25)	1367395
16 mm	(25)	1367396
18 mm	(25)	1367397

For the connection of the solar circuit to "Regusol" valves and stations DN 20.

Attention: When installing copper pipes or precision steel pipes with a wall thickness of ≤ 1 mm, it is necessary to use reinforcing sleeves for the additional stabilisation of the pipe. Should the wall thickness exceed 1 mm, please contact the pipe manufacturer. Reinforcing sleeves for wall thickness = 1 mm: page 9.32

"Regusol" Compression fittings with reinforcing sleeves

DN 25
brass



for copper and precision steel pipe,
collar nut G 1, collar nut unplated

Set 1 = 1 compression fitting

12 mm	(10)	1367573
15 mm	(10)	1367575
16 mm	(10)	1367576
18 mm	(10)	1367577
22 mm	(10)	1367579

For the connection of the solar circuit to "Regusol" valves and "Regusol" stations DN 25.

Set 2 = 2 compression fittings












12 mm	(10)	1367583
15 mm	(10)	1367585
16 mm	(10)	1367586
18 mm	(10)	1367587
22 mm	(10)	1367589

Set 3 = 4 compression fittings



12 mm	(10)	1367593
15 mm	(10)	1367595
16 mm	(10)	1367596
18 mm	(10)	1367597
22 mm	(10)	1367599

Article	Packing unit	Article-No.	Hint
Tailpipe sets DN 32			For the connection of the solar circuit to "Regusol" stations DN 32.
Solder tailpipe sets 35 mm			
	2-fold: collar nut G 2 and solder tailpipe	1350474	
	4-fold: collar nut G 2 and solder tailpipe	1350475	
Threaded tailpipe sets Rp 1¼			
	2-fold: collar nut G 2 and threaded tailpipe	1350476	
	4-fold: collar nut G 2 and threaded tailpipe	1350477	
Brass reinforcing sleeves			
	12 mm	(100) 1029652	Is required for the installation of soft pipes with a wall thickness of 1 mm. Diameters are related to the outer diameter of the pipe.
	15 mm	(50) 1029654	
	16 mm	(50) 1029655	
	18 mm	(50) 1029656	
	22 mm	(50) 1029657	
Tailpipe sets DN 20 for "Regusol X" and "Regumaq X/XZ" stations			Are required for the connection of the "Regusol X" station to the loading circuit.
To be ordered separately: Tailpipe sets 3-fold with collar nut and ring gasket			
	Solder tailpipes 22 mm	1367465	Use "Regusol" compression fittings for the connection of the "Regusol X" station to the solar circuit. Also suitable for "Regumaq X/XZ-30" and accessories.
	Male threaded tailpipes R ¼	1367468	
Accessories			
	"Regusol" Connection nipple		For the connection of collector pipes (e. g. copper pipes).
	2 x G 1 with cone	(20) 1369089	
	Locking shackle		For use of the product assemblies "Regusol" with flexible pipe (e. g. corrugated pipe). Combined with the wall mounting device supplied with the product assemblies "Regusol".
		(25) 1369090	
	Wall mounting device		for solar stations "Regusol 130/180" (1 piece)
		1369080	
	for "Regusol" pump circuit	1369081	

Article	Packing unit	Article-No.	Hint
	<p>"Regusol" - Connection set Collar nut G 1 and G 3/4 male threaded tailpipe</p>	(10) 1369085	<p>Connection fitting for the connection of the flexible stainless steel corrugated pipe "2 in 2" DN 16 with G 3/4 collar nut to "Regusol" stations DN 25.</p>
	<p>Flat sealing insert for "Regusol" stations DN 20 for "Regusol" stations DN 25</p>	(100) 1369086 1659990	<p>For the conversion of a tapered (metal to metal sealing) connection to a flat sealing connection.</p>
	<p>"Regusol SG" Safety group manufactured up to 2015</p>	1364247	
	<p>with safety valve 10 bar manufactured since 2015 with safety valve 6 bar</p>	1364192	
	<p>"Regusol SB" Safety block with safety valve 6 bar</p>	1364140	<p>T-piece with safety valve for the additional protection of the solar circuit against excess pressure. Installation in the solar return pipe between the storage cylinder and the solar station.</p>
	<p>"Regusol" Filling and flushing device G 1 male thread x G 1 male thread</p>	1363051	<p>Isolating ball valve with lateral connection for filling and flushing pipes to be installed at the lowest point of the solar circuit.</p>
	<p>"Regusol" Filling pump manual filling pump, with hose connection, with ball valves on suction and pressure side</p>	1364250	
	<p>Connection set for "Regusol" filling pump</p>	1364290	<p>Consisting of: - wall bracket for filling pump with fixing material - flexible hose 300 mm long Application up to 150 °C.</p>
	<p>Check valve G 1 x G 1</p>	(10) 1364199	<p>Check valves avoid a gravity circulation if the pump is switched off. Opening pressure: 20 mbar Continuous operating temperature: 120 °C Short-term starting temperature: 160 °C</p>



Article	Packing unit	Article-No.	Hint
"Flow Stop Solar" Check valve	G 1 x G 1	(10) 1364186	Both ports G 1 for "Regusol" compression connection. Opening pressure: 20 mbar

Article	Article-No.	Hint
	<p>Flow measuring and regulating device with isolation</p> <p>1-6 l/min. 1364160 2-15 l/min. 1364161 7-30 l/min. 1364162 2-14 l/min. 1364163</p>	<p>G 1 ½ collar nut x G 1 for "Regusol" compression fitting</p> <p>Item no. 1364163: G 1 collar nut x G ¾ for "Regusol" compression fitting</p>
	<p>as replacement for old model "Regusol 180" (manufactured up to 2005, flat insulation)</p> <p>1-6 l/min. 1364149 2-14 l/min. 1364151</p>	
	<p>Electronic flow sensor VFS for replacement at existing "Regusol ELH-RC-P" DN 25 stations, with connecting cable</p> <p>2-40 l/min. 1364170</p>	<p>The electronic flow sensors may only be used in combination with a controller which is able to evaluate the signal of the Grundfos sensor.</p>
	<p>Electronic flow sensor VFD for replacement at existing "Regusol X-Uno 25/X-Duo 25" stations, with connecting cable</p> <p>2-40 l/min. 1369092*</p>	
	<p>"Regusol" Venting circuit DN 25 for replacement at existing "Regusol" stations consisting of: ball valve with integrated check valve, thermometer and deaerator</p> <p>manufactured up to 2015</p> <p>for "Regusol-130" 1364190 for "Regusol-180" 1364191</p>	<p>Both ports G 1 for "Regusol" compression fittings: page 9.31</p>
	<p>manufactured since 2015</p> <p>for "Regusol-130" 1364193 for "Regusol-180" 1364194</p>	
	<p>"Regusol" Deaerator 1364260</p>	<p>For the separate connection to the collector supply pipe. Both ports G 1 for "Regusol" compression fittings: page 9.31</p>

Article	Article-No.	Hint
---------	-------------	------

"Regusol" Pump ball valves DN 25



with check valve 20 mbar opening pressure
and connection facility for a "Regusol" safety group

manufactured up to 2015	1364198
manufactured since 2015	1364187

Thermometer



for "Regusol" stations manufactured up to 2015
Display range: 0 - 120 °C

1364195

for "Regusol" stations manufactured since 2015

red	1364188
blue	1364189

Pressure gauge



for "Regusol" stations
Display range: 0 - 10 bar








1364196

"Regusol X" Supplementary set



1361092

For the extension of a "Regusol X" station
with high-efficiency pump for the inter-
connection and regulation of different
collector fields (e. g. east-west).

Article	Article-No.	Hint
Circulation pumps 130 mm		
	Connection thread G 1 ½ DN 25, PN 10, 95 °C	Are only supplied as replacement for the "Regusol" stations. When using a PWM pump, it is to be observed that the used controller provides a PWM signal that matches the pump type. If this is not the case, the signal converter "Regtronic PSW" (item no. 1369532) can be alternatively used. The signal converter allows for the connection of speed controlled high-efficiency pumps with PWM or 0 - 10 V control input to controllers without appropriate output. Further information and ErP data: <div style="text-align: center;">  </div>
	Wilo-Yonos PARA ST 25/7 PWM 2 1360588	
	Grundfos UPM 3 Solar 25-75 PWM C 130 1360589	The circulation pump Grundfos UPM 3 can be operated without an external PWM signal (control type volume flow = constant).
	Connection thread G 1 Wilo-Yonos PARA ST 15-7 PWM2 1369008 DN 25, PN 10, 110 °C for the primary circuit (collector circuit)	Only supplied as replacement for the stations "Regumaq X-30/XZ-30" and "Regusol X-Uno/Duo 25".
	Wilo-Yonos PARA 15-7 PWM2 1389008 DN 15, PN 10, 95 °C for the secondary circuit (storage cylinder circuit) "Regusol" or the primary circuit (storage cylinder circuit) "Regumaq"	
Circulation pumps 180 mm		
	Connection thread G 1½ multi-speed control DN 25, PN 10, 110 °C	Are only supplied as replacement for the "Regusol" stations. When using a PWM pump, it is to be observed that the used controller provides a PWM signal that matches the pump type. If this is not the case, the signal converter "Regtronic PSW" (item no. 1369532) can be alternatively used. The signal converter allows for the connection of speed controlled high-efficiency pumps with PWM or 0 - 10 V control input to controllers without appropriate output.
	Wilo-Yonos PARA ST 25/7 PWM 2 1367258	
	Grundfos UPM 3 Solar 25-75 PWM C 180 1367259	The circulation pump Grundfos UPM 3 can be operated without an external PWM signal (control type volume flow = constant).
	"Regtronic PSW" Signal converter for PWM/0 - 10 V pump control (high-efficiency pumps)	Signal converter for the conversion of an asynchronous signal to a high-efficiency pump control signal (PWM or 0 - 10 V)
	1369532	



Power cord

for circulation pumps Grundfos UPM 3

1358149

Cable 2 m long.



Signal connection cable

for Grundfos UPM 3 and
 Wilo-Yonos PARA

1358180



9.c "OKP" and "OKF" Collectors and accessories

Content

"OKP" Tube collectors	9.40
"OKP" Vertical freestanding installation	9.41
"OKP" Vertical freestanding / facade installation	9.41
"OKP" Roof hooks made of stainless steel	9.42
Accessories	9.42
"OKF" Flat-plate collectors	9.43
"OKF" Rooftop installation	9.44
"OKF-MQ25" Rooftop installation	9.44
"OKF" Vertical roof integration side by side	9.45
"OKF-CK22/CS22" Connection options	9.46
"OKF" Vertical freestanding installation	9.45
"OKF-MQ25" Freestanding installation	9.47
"OKF" Gravel plate set	9.48
"OKF" Roof hooks made of galvanised steel	9.49
Carrying handles for "OKF" flat-plate collectors	9.49
Accessories for flat-plate collector "OKF-MQ25"	9.50

Article	Article-No.	Hint
---------	-------------	------

"OKP" Tube collectors
for solar heating of
domestic water
heating circuit
swimming pool water



"OKP-10" Tube collector
Set 1:
consisting of:

- a) 10 vacuum tubes
- b) collector
- c) tube bracket (foot rail)
- d) set of side rails (pre-assembled set of side rails for an easy and quick installation)
- e) solar supply and return with compression connection 4 x 22 mm

Dimensions:
Gross surface area: 1.70 m² (L = 1.995 m, W = 0.852 m)
Aperture surface area: 0.94 m²
Absorber surface area: 0.81 m²
Weight: 42 kg

Roof fixing devices are to be ordered separately: page 9.42

1361230

The "OKP" tube collector is a heat pipe tube collector. Due to its hydronic features, the collector can be fixed to the building (pitched or flat roof, facade or detached) with an inclination of the axis between 15 ° and 75 °. The tube collector can be used for heating of potable or swimming pool water, solar support of the heating system and the production of process heat.

Due to the high-selective absorber surface area, a high solar share is achieved. The vacuum inside the tube guarantees maximum insulation. The high quality corrosion resistant materials ensure a long service life of the "OKP" tube collector.

With no air inside the vacuum which may transport the heat from the absorber surface area to its surroundings, a high efficiency is achieved even with low radiation and low outside temperatures.

The heat pipe inside the glass tube is a quick acting heat transfer system working efficiently even with diffused radiation.

The heat is transmitted from the absorber to the heat pipe via an aluminium sheet. This way, the liquid inside the heat pipe evaporates and the steam rises into the condenser. The heat is transmitted to the passing fluid via the double tube heat exchanger (collector) in which the condenser is located. The steam condenses and flows back again inside the heat pipe and the procedure repeats itself.

To maintain this permanent heat transport, the minimum pitch of the roof must be observed when installing the tubes. As the heat pipe is a closed system, it is maintenance-free. The connection between the condenser and the collector is a "dry" connection (immersion pocket). Due to this system separation, individual tubes can be replaced without the necessity to drain the collector circuit. Installation can be carried out by one person.



The collector "OKP" is tested to DIN EN 12975-1 standard and is certified according to "Solar Keymark".

Award:



"OKP-20" Tube collector
Set 2:
consisting of:



- a) 20 vacuum tubes
- b) collector
- c) tube bracket (foot rail)
- d) set of side rails (pre-assembled set of side rails for an easy and quick installation)
- e) solar supply and return with compression connection 4 x 22 mm

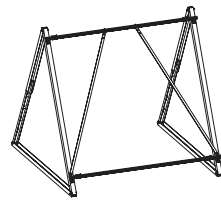



Dimensions:
Gross surface area: 3.25 m² (L = 1.995 m, W = 1.632 m)
Aperture surface area: 1.88 m²
Absorber surface area: 1.62 m²
Weight: 78 kg









Roof fixing devices are to be ordered separately: page 9.42

1361231

Further information and ErP data:



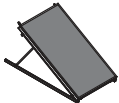
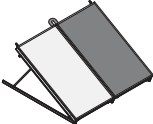




Article	Article-No.	Hint
"OKP" Vertical freestanding installation		
	Basic set "OKP-10"	1361270
		Pre-assembled hinged mounting triangles for flexible setting of the inclination angle (30 ° up to 60 °) for vertical flat roof installation of an "OKP" collector.
	Basic set "OKP-20"	1361275
	Extension set "OKP-10"	1361271
		A basic set is required for the installation of an extension set. Two collector couplings are included.
	Extension set "OKP-20"	1361276
	"OKP" Vertical freestanding / facade installation	
	Individual set 15° for the installation of one "OKP" tube collector	1361278
		The pre-assembled mounting set can be used for the tube collectors "OKP-10" and "OKP-20".
		<u>Possible types of installation:</u>
		1. Installation on a flat roof: The minimum axis inclination of the collector of 15° will be achieved by this.
		2. Installation on the facade: The tube collector can be installed directly on the facade with an angle of 75° (see illustration).

Article	Article-No.	Hint	
"OKP" Roof hooks made of stainless steel			
for pan tiled roofs			
	Basic set = 4 roof hooks 1361260	<p>Roof hooks to be screwed to the side rails. Roof hook reinforced against torsion with high resilience. The side rails of the vacuum tube collector can be easily screwed to the roof hooks from the side. The maximum permissible span of the roof hooks depends on the snow and wind load stressing zone and is related to each individual collector. Calculations according to DIN 1055-4 and DIN 1055-5. Please contact Oventrop for information on higher capacities.</p> <p>A suitable fixing base which can absorb the emerging forces (weight, wind and snow load stressing) is paramount for correct usage.</p>	
for pan tiled roofs, for high snow load stressing			
	Basic set = 4 roof hooks 1361262		
for pan tiled roofs, adjustable height			
	Basic set = 4 roof hooks 1361266		
for slate and plain tiled roofs			
	Basic set = 4 roof hooks 1361264		
Accessories			
Spare tube for tube collectors "OKP"			
	L = 1800 mm; D = 58 mm 1361290	Spare tube consisting of: Vacuum tube with heat conducting steel sheet and heat pipe.	
Cover sheet			
	for "OKP" tube collectors for covering the junction between two tube collectors 1361625	For the connection of two modules (collector housing).	
Heat transfer liquid			
	ready-mixed liquid for "OKP" and "OKF" collectors	<p>Ready-to-use, vaporisation-safe special heat transfer liquid on 1.2 propylene glycol basis especially designed for use in solar plants with a high thermal load (vacuum tube collectors). Heat transfer liquid for a long term and reliable protection against corrosion with a frost protection up to -28 °C. Available in 10 l or 25 l plastic disposable canisters.</p>	
	Content of canister 10 l 1361690 Content of canister 25 l 1361691		
"Regusol" Flushing and filling station			
	with connection hose and fill and drain cock 1364240	<p>The "Regusol" flushing and filling station with a tank content of 30 l is used for flushing and filling of solar thermal plants and heating systems.</p> <p>Pump output: 1000 W (230 V, 50 Hz) Pump head: 42 m Pump capacity: 5-47 l/min. Pumped fluid: Water, water-glycol, cleaning agents for solar plants</p>	
		Further "OKP" accessories and "OKP" connection alternatives: page 9.59	

Article	Packing unit Article-No.	Hint
<p>"OKF" Flat-plate collectors for solar heating of domestic water heating circuit swimming pool water</p>		<p>"OKF" flat-plate collector for use on pitched roofs and on level surfaces on freestanding installations.</p>
<p>"OKF-CK22" Flat-plate collector consisting of: a) antireflective glass b) supply and return connection with plug-in connection Ø 18 c) aluminium collector frame with insulation</p> <p>Also available with black outer frame on request.</p> <p>Dimensions: Gross surface area: 2.25 m² (L = 1933 mm, W = 1163 mm, H = 110 mm) Aperture surface area: 2.01 m² Weight: 37 kg</p>	<p>1361340</p>	<p>The laser welded aluminium absorber and high quality materials such as mineral wool of the thermal conductivity group 040 guarantee a high efficiency. "OKF" flat-plate collectors can be used for heating of potable and swimming pool water and solar support of the heating system. The flat-plate collectors "OKF-CK22" and "OKF-CS22" can be mounted horizontally or vertically and are suitable for rooftop installation or freestanding installation (flat roof installation).</p> <p>A vertical roof integration is possible with "OKF-CK22" only. The "OKF-MQ25" can only be used for horizontal rooftop or freestanding installation.</p>
<p>"OKF-CS22" Flat-plate collector consisting of: a) transparent solar safety glass b) supply and return connection with plug-in connection Ø 18 c) aluminium collector frame with insulation</p> <p>Dimensions: Gross surface area: 2.25 m² (L = 1933 mm, W = 1163 mm, H = 80 mm) Aperture surface area: 2.01 m² Weight: 33 kg</p>	<p>1361345</p>	<p>As for the flat-plate collector "OKF-MQ25", the serpentine patterned absorber made of aluminium heat conducting steel sheet and copper pipe is connected to the solar circuit via two collector connections Ø 22 mm with gripper clamps.</p> <p>The flat-plate collectors are connected with one another using flexible stainless steel corrugated pipes which also serve to compensate any thermal conditional expansions.</p> <p>As for the flat-plate collector "OKF-MQ25", a longer field compensator has to be used after the 6th collector.</p>
<p>"OKF-MQ25" Flat-plate collector consisting of: a) highly transparent solar safety glass b) collector connection for gripper clamp Ø 22 mm c) aluminium collector frame with insulation</p> <p>Dimensions: Gross surface area: 2.61 m² (L = 2151 mm, W = 1215 mm, H = 80 mm) Aperture surface area: 2.37 m² Weight: 44 kg</p>	<p>(11) 1361440</p>	<p>The collector is tested according to DIN EN 12975-1 and certified according to "Solar Keymark".</p> <p>Further information and ErP data:</p>  <p>Large solar plant: page 17.15.</p>

Article	Article-No.	Hint
 <p>"OKF" Rooftop installation for flat-plate collectors "OKF-CK22" and "OKF-CS22"</p> <p>Basic set for the installation of two collectors</p>	1361380	Pre-assembled aluminium mounting rails for vertical or horizontal rooftop installation of two collectors with a minimum axis inclination of 10°-85°. A collector coupling made of stainless steel with UV-resistant insulation is included. The collector connection pipes for roof conduit are to be ordered separately.
 <p>Extension set for each additional collector for stacked horizontal installation or vertical installation side by side</p>	1361381	A basic set is required for the installation of an extension set. A collector coupling made of stainless steel with UV-resistant insulation is included.
 <p>Individual set for the installation of one collector</p>	1361385	For vertical or horizontal installation of one collector (e.g. horizontal installation from left to right). The collector connection pipes for roof conduit are to be ordered separately.
 <p>"OKF-CK22/OKF-CS 22" Collector connection pipe with plug-in connection Ø 18</p> <p>Basic set for the connection of the first collector to the supply and return pipe of the solar station</p>	1361288	Two collector connection pipes with plug-in connection Ø 18, approx. length 940 mm (only for item no. 1361340 and 1361345)
 <p>"OKF-MQ25" Rooftop installation</p> <p>Basic set for the installation of one collector</p>	1361480	Pre-assembled aluminium mounting rails for horizontal rooftop installation of one collector with a minimum roof pitch of 15° - 75°. Two roof conduits with connection set are included.
 <p>Extension set for each additional collector for horizontal installation side by side</p>	1361481	A basic set is required for the installation of an extension set. A collector coupling with connection set is included.

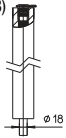
Article	Article-No.	Hint
 <p>"OKF" Vertical roof integration side by side for flat-plate collector "OKF-CK22"</p> <p>For pan tiled roofs</p> <p>Basic set for the installation of two collectors</p>	1361391	For roof integration with peripheral frame for roof covering made of anthracite aluminium for vertical installation with a minimum axis inclination of 27 °– 85 °. A collector coupling made of stainless steel with UV-resistant insulation is included. The collector connection pipes for roof conduit are to be ordered separately. Complete with screws, nails, sealing tapes and silicone T-profile.
<p>Extension set for each additional collector</p>	1361392	A basic set is required for the installation of an extension set.
 <p>For plain tile and slate roofs</p> <p>Basic set for the installation of two collectors</p>	1361393	
<p>Extension set for each additional collector</p>	1361394	A basic set is required for the installation of an extension set.
<p>"OKF" Vertical freestanding installation for flat-plate collectors "OKF-CK22" and "OKF-CS22"</p> <p>Basic set for vertical installation for the installation of one collector</p> 	1361387	Pre-assembled hinged mounting triangles for flexible setting of the inclination angle (37° up to 50°) for vertical flat roof installation of an "OKF" collector.
<p>Extension set for vertical installation for each additional collector</p> 	1361388	A basic set is required for the installation of an extension set. A collector coupling made of stainless steel with UV-resistant insulation is included.
<p>Individual set for horizontal installation for the installation of one collector</p> 	1361389	Due to the positioning of the collector supply and return pipe connections (see page 9.43), horizontal installation has to be carried out as individual unit.
<p>Installation set consisting of:</p> <ul style="list-style-type: none"> - 8 aluminium clamping brackets - 8 screws 8 x 80 and washers - 8 dowels S 12 	1361289	Aluminium clamping brackets required for fixing the mounting triangles (e. g. on truss or concrete blocks).

"OKF-CK22/CS22" - Connection alternatives

Connection with "OV-Flex ST" stainless steel corrugated pipe:



Flat-plate collectors with plug-in connection
"OKF-CK22", item no. 1361340
"OKF-CS22", item no. 1361345
(page 9.43)



Collector connection pipe with plug-in connection \varnothing 18 mm
item no. 1361288 (page 9.44)



"Regusol" Compression fitting
DN 25, \varnothing 18 mm, G 1,
item no. 1367577/87 (page 9.31)



Connection fitting
DN 16 G $\frac{3}{4}$ x G 1, item no. 1369076
DN 20 G 1 x G 1, item no. 1369078
(page 9.59)



"OV-Flex ST" Stainless steel corrugated pipe
DN 16 G $\frac{3}{4}$, item no. 1361651/52
DN 20 G 1, item no. 1361653/54
(page 9.58)

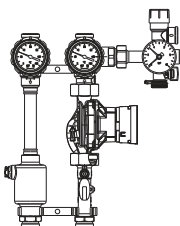


Connection and coupling set
DN 16 G $\frac{3}{4}$, item no. 1369083
DN 20 G 1, item no. 1369084
(page 9.60)



Flat sealing insert
for "Regusol" stations DN 20
item no. 1369086

for "Regusol" stations DN 25
item no. 1659990
(page 9.60)

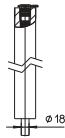


"Regusol" Stations DN 20/ DN 25

Connection with copper pipe:



Flat-plate collectors with plug-in connection
"OKF-CK22", item no. 1361340
"OKF-CS22", item no. 1361345
(page 9.43)



Collector connection pipe with plug-in connection \varnothing 18 mm
item no. 1361288 (page 9.44)



"Regusol" Compression fitting
DN 25, \varnothing 18 mm, G 1, item no.
1367577/87 (page 9.31)



Connection nipple
G 1 x G 1
item no. 136908 (page 9.32)



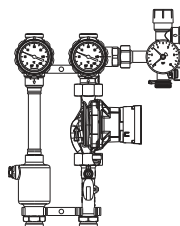
"Regusol" Compression fitting
DN 25, G 1
item no. 1367577/87 (page 9.31)



Copper pipe



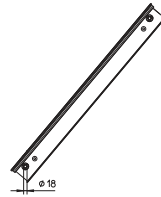
"Regusol" Compression fitting
DN 25, G 1
item no. 1367577/87 (page 9.31)



"Regusol" Stations DN 20/ DN 25

Alternative: Solder nipple connection and flat sealing insert

Connection with "OV-Flex ST" stainless steel corrugated pipe:



Flat-plate collectors with plug-in connection
"OKF-CK22", item no. 1361340
"OKF-CS22", item no. 1361345
(page 9.43)



Collector connection pipe with plug-in connection \varnothing 18 mm
item no. 1361288 (page 9.44)



"Regusol" Compression fitting
DN 25, \varnothing 18 mm, G 1,
item no. 1367577/87 (page 9.31)



Connection fitting
DN 16 G $\frac{3}{4}$ x G 1, item no. 1369076
DN 20 G 1 x G 1, item no. 1369078
(page 9.59)



"OV-Flex ST" Stainless steel corrugated pipe
DN 16 G $\frac{3}{4}$, item no. 1361651/52
DN 20 G 1, item no. 1361653/54
(page 9.58)

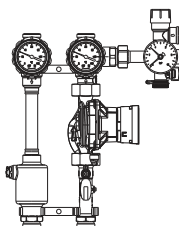


Connection and coupling set
DN 16 G $\frac{3}{4}$, item no. 1369083
DN 20 G 1, item no. 1369084
(page 9.60)



Flat sealing insert
for "Regusol" stations DN 20
item no. 1369086

for "Regusol" stations DN 25
item no. 1659990
(page 9.60)



"Regusol" Stations DN 20/ DN 25

Alternative: Solder nipple connection and flat sealing insert

Connection with copper pipe:



Flat-plate collectors with plug-in connection
"OKF-CK22", item no. 1361340
"OKF-CS22", item no. 1361345
(page 9.43)



Collector connection pipe with plug-in connection \varnothing 18 mm
item no. 1361288 (page 9.44)



"Regusol" Compression fitting
DN 25, \varnothing 18 mm, G 1,
item no. 1367577/87 (page 9.31)



Connection nipple
G 1 x G 1
item no. 1369089 (page 9.32)



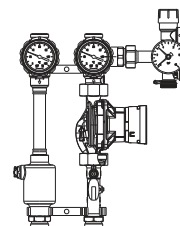
"Regusol" Compression fitting
DN 25, G 1
item no. 1367577/87 (page 9.31)



Copper pipe



"Regusol" Compression fitting
DN 25, G 1
item no. 1367577/87 (page 9.31)



"Regusol" Stations DN 20/ DN 25

Article	Article-No.	Hint
---------	-------------	------

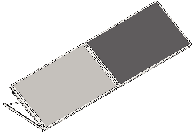
"OKF-MQ25" Freestanding installation
for "OKF-MQ25" flat-plate collectors



Basic set
for the installation of **one** collector

1361486




Pre-assembled aluminium mounting rails for horizontal freestanding installation of one collector with an inclination angle of 35° - 55°. A connection set is included.



Extension set
for each **additional** collector for horizontal installation side by side

1361487

A basic set is required for the installation of an extension set. A collector coupling with connection set is included.

Article	Article-No.	Hint
"OKF" Gravel plate set		
	Trapezoidal sheet for vertical installation (1300 x 1035 x 0.75)	1361283
	Trapezoidal sheet for horizontal installation (1035 x 1000 x 0.75)	1361284
	Installation set for vertical installation consisting of: -10 aluminium clamping brackets -14 rivets	1361228
	Installation set for horizontal installation consisting of: -16 aluminium clamping brackets -24 rivets	1361229

Trapezoidal sheets made of corrosion protected steel for floor anchoring of the "OKF" freestanding installation.
The mounting triangles are fixed on the trapezoidal sheets by use of clamping brackets and rivets.
Depending on the type of installation (vertical or horizontal) and the size of the collector field, the trapezoidal sheets and mounting sets have to be ordered separately - see below table.
Due to the positioning of the collector supply and return connections (see page 9.43), horizontal installation has to be carried out as an individual unit.





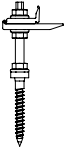
"OKF-CK22/OKF-CS22"

	Item no.	Number of vertical collectors					
		1	2	3	4	5	6
Trapezoidal sheet for vertical installation (1300 x 1035 x 0.75)	1361283	2 x	4 x	6 x	8 x	10 x	12 x
Installation set for vertical installation (10 clamping brackets, 14 rivets)	1361228	2 x	3 x	4 x	5 x	6 x	7 x
Vertical freestanding installation (basic set)	1361387	1 x	1 x	1 x	1 x	1 x	1 x
Vertical freestanding installation (extension set)	1361388	-	1 x	2 x	3 x	4 x	5 x


	Item no.	Number of horizontal collectors					
		1	2	3	4	5	6
Trapezoidal sheet for horizontal installation (1035 x 1000 x 0.75)	1361284	4 x	8 x	12 x	16 x	20 x	24 x
Installation set for horizontal installation (16 clamping brackets, 24 rivets)	1361229	1 x	2 x	3 x	4 x	5 x	6 x
Horizontal freestanding installation (individual set)	1361389	1 x	2 x	3 x	4 x	5 x	6 x


"OKF-MQ25"

	Item no.	Number of horizontal collectors									
		1	2	3	4	5	6	7	8	9	10
Trapezoidal sheet for horizontal installation (1035 x 1000 x 0.75)	1361284	2	3	4	5	6	7	8	9	10	11
Installation set for horizontal installation (16 clamping brackets, 24 rivets)	1361229	1	2	3	4	5	6	7	8	9	10
Horizontal freestanding installation (basic set)	1361486	1	1	1	1	1	1	1	1	1	1
Horizontal freestanding installation (extension set)	1361487	-	1	2	3	4	5	6	7	8	9

Article	Article-No.	Hint
"OKF" Roof hooks made of galvanised steel		
for pan tiled roofs		
	Basic set = 6 roof hooks	1361250
	Extension set = 2 roof hooks	1361251
for pan tiled roofs, adjustable height		
	Basic set = 6 roof hooks	1361252
	Extension set = 2 roof hooks	1361253
for plain tiled roofs		
	Basic set = 6 roof hooks	1361254
	Extension set = 2 roof hooks	1361255
for slate roofs		
	Basic set = 6 roof hooks	1361256
	Extension set = 2 roof hooks	1361257
for corrugated Eternit and sheet metal roofs		
	Basic set = 6 roof hooks	1361258
	Extension set = 2 roof hooks	1361259

Carrying handles for "OKF" flat-plate collectors
 Two carrying handles for an easy transport of the "OKF" flat-plate collectors on site. The carrying handles are connected to the collector frame laterally.

	Carrying handles for "OKF-CK22"	1361249
	Set = 2 pieces	

	Carrying handles for „OKF-CS22“ and "OKF-MQ25"	1361248
	Set = 2 pieces	

Article	Article-No.	Hint
---------	-------------	------

Accessories for flat-plate collector "OKF-MQ25"



Field compensator for "OKF-MQ25" 1361448
Field compensator for collector fields with more than 6 flat-plate collectors "OKF-MQ25" installed side by side (2 compensators are required)



"OKF-MQ25" Connection set 1361488
for one collector field



"OKF-MQ25" Mounting aid 1361489
To simplify the installation of the compensators for the collector couplings

9.d "Solcos" Solar packages

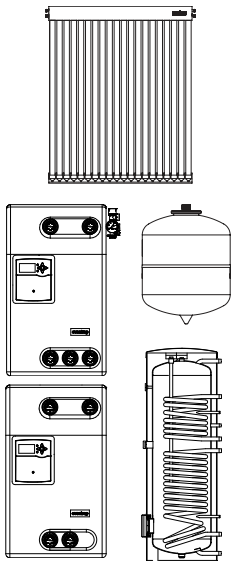
Content

"Solcos" Solar packages with "OKP" tube collectors	9.52
"Solcos" Solar packages with "OKF-CK22" flat-plate collectors	9.53
"Solcos" Solar packages with "OKF-CS22" flat-plate collectors	9.54

Article Article-No. Hint

"Solcos" Solar packages with "OKP" tube collectors

- consisting of:
- "OKP" tube collectors
- Pre-assembled mounting rails for rooftop installation
- Solar station
- Collector connection set
- Roof conduits
- Connection pieces for the connection of the roof conduits to the solar circuit
- Solar liquid
- Expansion tank
- Storage cylinder



Hot potable water preparation and support of the heating system

- Package 2: **1365040**
Living space up to approx. 130 m²
- Package 3: **1365050**
Living space up to approx. 200 m²
- Package 4: **1365060**
Living space up to approx. 240 m²

The "OKP" roof hooks (see page 9.42) are not included in the solar packages and have to be ordered separately depending on the roof construction and covering. The compression fittings for the connection of the fittings 1369076 and 1369078 to copper and precision steel pipes (12, 15, 16, 18 and 22 mm) are to be ordered separately: page 9.31

For installation, for instance on a flat roof, the basic and extension sets are to be ordered separately: page 9.41

For the connection of a diaphragm expansion tank to the "Regusol" pump groups, further components, such as angled wall brackets, quick-coupling and flexible hose are required: page 9.56

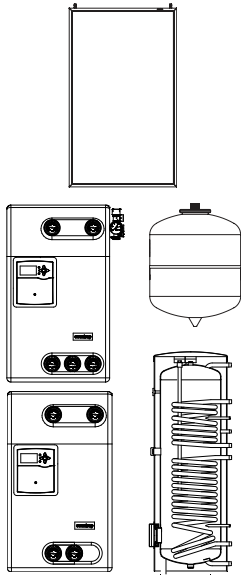
For further important advice regarding the design of a solar plant see "Thermal solar plant - Construction, initial operation and maintenance" at www.oventrop.de.

Further information and ErP data:



Item no.	Hot potable water preparation		Hot potable water preparation and heating system		
	Package 1 1365020	Package 2 1365040	Package 3 1365050	Package 4 1365060	
"OKP-20"	1361231	2	4	4	5
Collector connection set					
Connection set 100 mm (set = 2 pieces)	1361622	1	3	3	4
U-bend for the connection of supply and return	1361295	1	1	1	1
DN 16 roof conduit, G 3/4 collar nut	1361671	1			
DN 20 roof conduit, G 1 collar nut	1361672		1	1	1
Insulation					
Insulation set (set = 2 x 0.5 m)	1361623	1	2	2	2
Connection pieces					
DN 16, G 3/4 x G 1 (set = 2 pieces)	1369076	1			
DN 20, G 1 x G 1 (set = 2 pieces)	1369078		1	1	1
Expansion tank					
18 l	1361421	1			
25 l	1361422			1	1
33 l	1361423		1		
50 l	1361424				
80 l	1361425				
Connection set for diaphragm expansion tank	1369051	1	1	1	1
Solar liquid					
10 l	1361690		1		
25 l	1361691	1	1	1	1
Solar station					
"Regusol EL-130-RC" with controller "Regtronic RC"	1366597	1			
"Regusol ELH-130-RC-P" with controller "Regtronic RC-P"	1360394		1		
"Regusol X-Uno 25"	1361060			1	
"Regusol X-Duo 25"	1361050				1
Stations for hot potable water preparation					
"Regumaq X-30"	1381030		1	1	1
Storage cylinders					
Buffer storage cylinder (type: 1000, 1500)	1385010/15			Type 1.000	Type 1.500
Solar buffer storage cylinder (type: 800)	1385107		Type 800		
Bivalent solar storage cylinder (type: 300)	1387303	Type 300			
Energy efficiency class		B	corresponds to C	corresponds to C	corresponds to C

Article Article-No. Hint



"Solcos" Solar packages with "OKF-CK22" flat-plate collectors
consisting of:
"OKF-CK22" flat-plate collector with plug-in connection
Pre-assembled mounting rails for roof top installation
Solar station
Collector connection set
Collector connection pipe
Solar liquid
Expansion tank
Storage cylinder

The "OKF" roof hooks (see page 9.49) are not included in the solar packages and have to be ordered separately depending on the roof construction/roof covering.

For the connection of a diaphragm expansion tank to the "Regusol" pump groups, further components, such as angled wall brackets, quick-coupling and flexible hose are required: page 9.56

Hot potable water preparation and support for the heating system

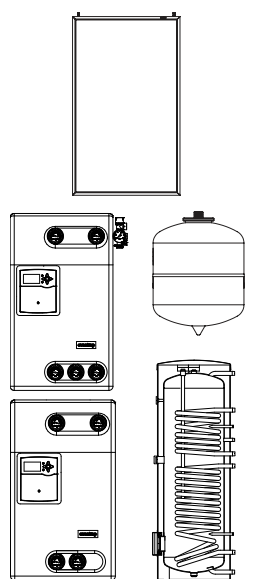
Package 6: **1365540**
Living space up to approx. 130 m²
Package 7: **1365550**
Living space up to approx. 200 m²
Package 8: **1365560**
Living space up to approx. 240 m²

For further important advice regarding the design of a solar plant see "Thermal solar plant - Construction, initial operation and maintenance" at www.oventrop.de.

Further information and ErP data:



Item no.	Hot potable water preparation		Hot potable water preparation and heating system			
	Package 5 1365520	Package 6 1365540	Package 7 1365550	Package 8 1365560		
"OKF-CK22"	1361340	3	5	5	6	
"OKF" Rooftop installation including accessories						
Basic set for two collectors with pre-assembled mounting rails for rooftop installation including one collector coupling	1361380	1	1	1	2	
Extension set for each additional collector with pre-assembled mounting rails for rooftop installation including one collector coupling	1361381	1	3	3	2	
Collector connection pipe	1361288	1	1	1	1	
Expansion tank						
18 l	1361421	1				
25 l	1361422			1	1	
33 l	1361423		1			
50 l	1361424					
80 l	1361425					
Connection set for diaphragm expansion tank	1369051	1	1	1	1	
Solar liquid						
10 l	1361690		1			
25 l	1361691	1	1	1	1	
Solar station						
"Regusol ELH-130 RC" with controller "Regtronic RC"	1366597	1				
"Regusol ELH-130-RC-P" with controller "Regtronic RC-P"	1360394		1			
"Regusol X-Uno 25"	1361060			1		
"Regusol X-Duo 25"	1361050				1	
Station for hot potable water preparation						
"Regumaq X-30"	1381030		1	1	1	
Storage cylinder						
Buffer storage cylinder (type: 1000, 1500)	1385010/15			Type 1.000	Type 1.500	
Solar buffer storage cylinder (type: 800)	1385107		Type 800			
Bivalent solar storage cylinder (type: 300)	1387303	Type 300				
Energy efficiency class		B	corresponds to C	corresponds to C	corresponds to C	



"Solcos" Solar packages with "OKF-CS22" flat-plate collectors

- consisting of:
- "OKF-CS22" flat-plate collector with plug-in connection
- Pre-assembled mounting rails for rooftop installation
- Solar station
- Collector connection set
- Collector connection pipe
- Solar liquid
- Expansion tank
- Storage cylinder

The "OKF" roof hooks (see page 9.49) are not included in the solar packages and have to be ordered separately depending on the roof construction/roof covering.

For the connection of a diaphragm expansion tank to the "Regusol" pump groups, further components, such as angled wall brackets, quick-coupling and flexible hose are required: page 9.56

Hot potable water preparation and support of the heating system

- Package 10: **1366040**
Living space up to approx. 130 m²
- Package 11: **1366050**
Living space up to approx. 200 m²
- Package 12: **1366060**
Living space up to approx. 240 m²

For further important advice regarding the design of a solar plant see "Thermal solar plant - Construction, initial operation and maintenance" at www.oventrop.de.

Further information and ErP data:



	Item no.	Hot potable water preparation and heating system				
		Hot potable water preparation	Package 9 1366020	Package 10 1366040	Package 11 1366050	Package 12 1366060
"OKF-CS22"	1361345		3	5	5	6
"OKF" Rooftop installation including accessories						
Basic set for two collectors with pre-assembled mounting rails for rooftop installation including one collector coupling	1361380		1	1	1	2
Extension set for each additional collector with pre-assembled mounting rails for rooftop installation including one collector coupling	1361381		1	3	3	2
Collector connection pipe	1361288		1	1	1	1
Expansion tank						
18 l	1361421		1			
25 l	1361422				1	1
33 l	1361423			1		
50 l	1361424					
80 l	1361425					
Connection set for diaphragm expansion tank	1369051		1	1	1	1
Solar liquid						
10 l	1361690			1		
25 l	1361691		1	1	1	1
Solar station						
"Regusol ELH-130 RC" with controller "Regtronic RC"	1366597		1			
"Regusol ELH-130-RC-P" with controller "Regtronic RC-P"	1360394			1		
"Regusol X-Uno 25"	1361060				1	
"Regusol X-Duo 25"	1361050					1
Station for hot potable water preparation						
"Regumaq X-30"	1381030			1	1	1
Storage cylinder						
Buffer storage cylinder (type: 1000, 1500)	1385010/15				Type 1.000	Type 1.500
Solar buffer storage cylinder (type: 800)	1385107				Type 800	
Bivalent solar storage cylinder (type: 300)	1387303		Type 300			
Energy efficiency class			B	corresponds to C	corresponds to C	corresponds to C



9.e "Solar" Diaphragm expansion tanks for solar thermal energy

Content

"Solar" Diaphragm expansion tanks	9.56
"Solar" In-line tanks	9.56
Accessories	9.56

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

"Solar" Diaphragm expansion tanks



for wall attachment, G 3/4 male thread, inlet pressure 1.5 bar

Nominal volume 18 l	1361421
Nominal volume 25 l	1361422
Nominal volume 33 l	1361423

Diaphragm according to DIN 4803 T3.
 Permissible operating temperature: 70 °C
 Max. operating pressure p_s: 10 bar
 Max. diaphragm peak temperature: 100 °C
 For the connection of a diaphragm expansion tank to the "Regusol" pump groups, further components, such as angled wall brackets, quick-coupling and flexible hose are required: page 9.56.

Approval according to directive 2014/68/EU.



feet welded on, G 1 male thread, inlet pressure 3 bar

Nominal volume 50 l	1361424
Nominal volume 80 l	1361425

"Solar" In-line tanks



for wall attachment

Nominal volume 6 l	1361011
Nominal volume 12 l	1361012
Nominal volume 20 l	1361013

In-line tank for the protection of the diaphragm expansion tank and the solar station from excess temperatures.

The in-line tanks are for instance required if flat-plate collectors "OKF" are installed vertically or in central roof heating systems with short pipes. For further important advice regarding thermal protection see "Thermal solar plant - Construction, initial operation and maintenance" at www.oventrop.de.

Max. operating pressure p_s: 10 bar
 Approval according to directive 2014/68/EU.

Accessories



"Regusol" Connection set for diaphragm expansion tank

consisting of:
 - angled wall bracket made of steel
 - quick coupling for diaphragm expansion tank
 - flexible hose

1369051

For the connection of a diaphragm expansion tank to the "Regusol" solar station.



Quick coupling for diaphragm expansion tank

DN 20, G 3/4 F x G 3/4 M (25) 1088806

For the automatic separation of the expansion tank and the system.



"Expa Con" Solar valve with lead sealable cap

DN 20, Rp 3/4 x G 3/4 male thread (25) 1364185

9.f Pipes and connection fittings

Content



"OV-Flex ST" Flexible pipes for solar thermal energy	9.58
Connection fittings	9.59
Further connection accessories	9.60

Article	Article-No.	Hint
---------	-------------	------

"OV-Flex ST" Flexible pipes for solar thermal energy

Quick mounting pipe for a flexible roof conduit and the connection of the collector field to the pipe system. Supply and return in a two-part high temperature-resistant insulation covering with a UV-resistant foil coating. 2-core sensor cable inside the insulation covering for the connection of a temperature sensor (e. g. PT 1000). The stainless steel corrugated pipes may be cut to required length. Flat seals, collar nuts and spacer rings are included.

Stainless steel corrugated pipe "2 in 2"

DN 16, may be cut to required length
one port 22 mm stainless steel nipple
one port G 3/4 collar nut, flat sealing



length per roll 15 m
length per roll 25 m

1361651
1361652

Stainless steel corrugated pipe "2 in 2"

DN 20, may be cut to required length
one port 22 mm stainless steel nipple
one port G 1 collar nut, flat sealing



length per roll 15 m
length per roll 25 m

1361653
1361654

Max. operating pressure p_g : 16 bar
Continuous operating temperature t_s :
150 °C (for short periods up to 175 °C)

Oval clamp set

"2 in 2"
- 4 oval clamps, galvanised
- 4 dowels, 10 mm
- 4 screws, M 8 x 80



1361655

Oval clamps to fix the stainless steel corrugated pipes onto the wall or the ceiling.

"OKP" Stainless steel corrugated pipe set 1 m

Set = 2 pieces

DN 16
one port 22 mm stainless steel nipple
one port G 3/4 collar nut, flat sealing
DN 20

one port 22 mm stainless steel nipple
one port G 1 collar nut, flat sealing



1361671

1361672

Quick mounting pipe for a flexible roof conduit and the connection of the collector field to the pipe system. High temperature-resistant insulating covering with a UV-resistant foil coating. Flat seals are included

Max. operating pressure p_g : 16 bar
Continuous operating temperature t_s :
150 °C (for short periods up to 175 °C)

"OKP" Connection set 100 mm

Set = 2 pieces

DN 20
both ports 22 mm stainless steel nipple



1361622

The connection set allows a quick and safe pipe connection and the series coupling of several manifolds into a large collector field.

"OKP" U-bend

for the connection of the return pipe to the supply pipe



1361295

Both ports for 22 mm compression fitting, U-bend pre-insulated.

"OKF" Connection set

Set = 2 pieces

Two insulated T-shaped connection pieces for the horizontal connection of two "OKF" collectors side by side.

2 x G 1/2 collar nut for the connection of two "OKF" collectors and 1 x G 1/2 male thread for the connection to the roof conduit.



1361246

Two insulated T-shaped connection pieces for the horizontal connection of two "OKF" collectors side by side. 2 x G 1/2 collar nut for the connection of two "OKF" collectors and 1 x G 1/2 male thread for the connection to the roof conduit.

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

Connection fittings



for "OKP" tube collectors (flat sealing)

G ¾ x 22 mm pipe coupling DN 20	(25)	1361680	For the connection of "OKP" collectors to G ¾ corrugated metal pipes. For the connection of "OKP" collectors to G 1 corrugated metal pipes.
G 1 x 22 mm pipe coupling DN 20	(25)	1361681	



for "OKP" tube collectors + "OKF" flat-plate collectors (for compression fittings "Regusol")

G ¾ x G 1, DN 16 Set = 2 pieces	(10)	1369076	Connection fitting with flat seal for the connection of the stainless steel corrugated pipe 1 m to "Regusol" compression fittings (12, 15, 16, 18 and 22 mm). The compression fittings are to be ordered separately: page 9.31
G 1 x G 1, DN 20 Set = 2 pieces	(10)	1369078	



Double nipple set

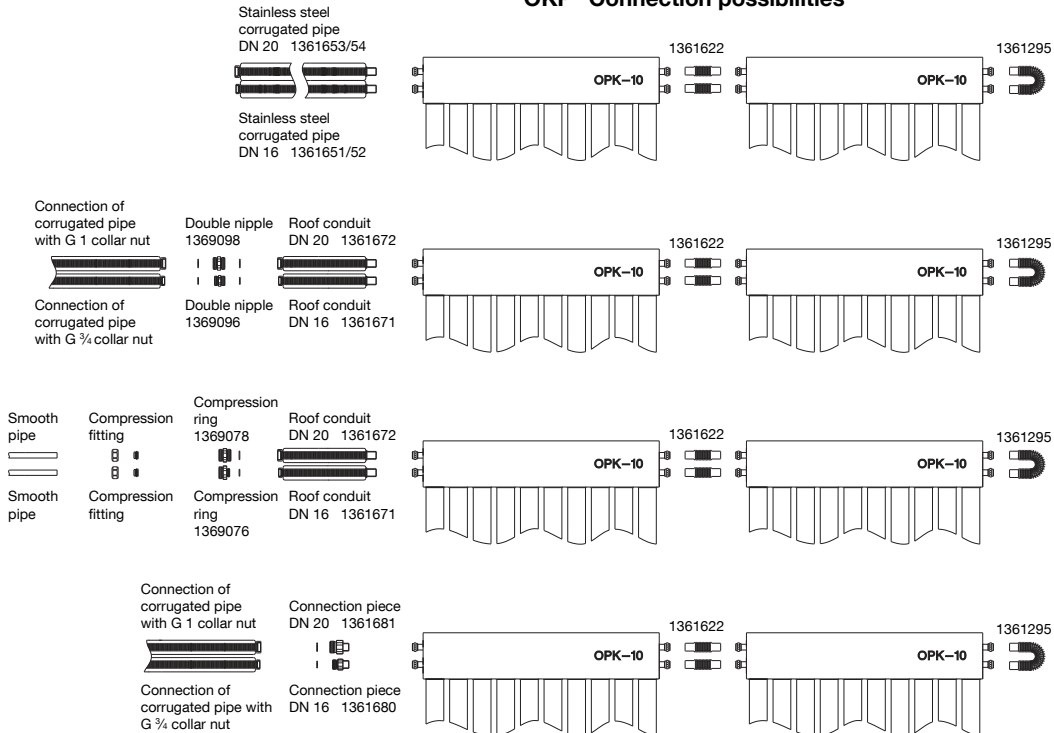
G ¾ x G ¾	(10)	1369096	Set consisting of 2 double nipples and 4 flat seals. Double nipple, for instance for the extension of stainless steel corrugated pipes "2 in 2".
G 1 x G 1	(10)	1369098	








for "OKF" flat-plate collectors (for compression fittings „Regusol“)

G ½ female thread x G 1 Set = 2 pieces	(10)	1361279	Connection fitting for the connection of the stainless steel corrugated pipe "2 in 2" and stainless steel corrugated pipe 1 m to the "OKF" flat-plate collectors (G ½ male thread). Apart from the connection fittings, the collar nut as well as the 22 mm compression rings are included.
---	------	----------------	--

"OKP" Connection possibilities



Article	Packing unit	Article-No.	Hint	
Further connection accessories				
		"Regusol" - Connection set Collar nut G 1 and G 3/4 male threaded tailpipe	(10) 1369085	Connection fitting for the connection of the flexible stainless steel corrugated pipe "2 in 2" DN 16 with G 3/4 collar nut to "Regusol" stations DN 25.
		Flat sealing insert for "Regusol" stations DN 20 for "Regusol" stations DN 25	(100) 1369086 1659990	For the conversion of a tapered (metal to metal sealing) connection to a flat sealing connection.
		Connection and coupling sets consisting of: 2 x collar nut, 2 x spacer ring and 2 x ring gasket		Spare part for the extension or shortening of corrugated stainless steel pipes "2 in 2".
		DN 16, G 3/4 collar nut DN 20, G 1 collar nut	1369083 1369084	
		Insulation set Solar EPDM insulation layer 2 x 0.5 m with tear-proof foil and adhesive roll	1361623	For the insulation of connection pieces and collector connections (for instance connection set 100 mm, item no. 1361622). The insulation is slotted on the entire length.
		Braiding set 2 x 1.2 m with adhesive roll	1361694	Braided sleeve/tissue made of polyamide 6.6 as additional protection against bird's pecking in the open. For instance suitable for the roof conduits 1361671 or 1361672.

**9.g Valves, temperature controllers, actuators and other accessories
for application outside the collector circuit**



Content		
"Tri-D TR" Three-way diverting valves PN 16		9.62
"Tri-CTR" Three-way diverting and mixing valves PN 16		9.62
Accessories sets for three-way valves "Tri-D TR", "Tri-M TR" and "Tri-CTR"		9.63
Temperature controllers		9.64
"Brawa-Mix"		9.65
"Y" type strainers PN 25		9.66
Spare parts		9.66
"Hygate ATR" Gate valves PN 25		9.67
"Optibal" High temperature ball valves		9.67
"Optiflex" Fill and drain ball valves for solar plants		9.67
Fill and drain cocks PN 16 heavy pattern - DIN 3848		9.67

Article	Packing unit	Article-No.	Hint
"Tri-D TR" Three-way diverting valves PN 16			
bronze connection thread M 30 x 1.5 with collar nuts, flat sealing			
	DN 20	1130206°	<p>Application:</p> <p>Max. operating pressure p_g: 16 bar (PN 16) Operating temperature t_g: 0 °C up to 120 °C Diverting or changing-over of volume flows in heating and cooling systems in combination with thermostatic or electric actuators. Application for instance for storage cylinder loading function or heating installations with two heat generators as for instance in solar plants or heat pump systems (bivalent heating systems).</p> <p>Male thread: DN 20, G 1 DN 25, G 1½ DN 40, G 2</p> <p>The valves can be used in combination with Oventrop temperature controllers or actuators.</p> <p>"Tri-CTR": Function: For use as diverting valve, the three-way valve has one inlet port (AB) and two outlet ports (A and B). Depending on the position of the valve disc, the direction of flow is diverted from one to the other outlet port. For use as mixing valve, the three-way valve has two inlet ports (A and B) and one outlet port (AB). Depending on the position of the valve disc, the cold and hot water is mixed.</p> <p>The three-way valves "Tri-CTR" can be used for high differential pressures.</p> <p>For further information see "Technical information":</p> 
	DN 25	1130208°	
	DN 40	1130212°	
"Tri-CTR" Three-way diverting and mixing valves PN 16			
bronze connection thread M 30 x 1.5 with collar nuts, flat sealing			
	DN 15	(10) 1131204	<p>The three-way valves "Tri-CTR" can be used for high differential pressures.</p> <p>For further information see "Technical information":</p> 
	DN 20	(10) 1131206	
	DN 25	(10) 1131208	
	DN 32	(5) 1131210	
	DN 40	(5) 1131212	
	DN 50	(5) 1131216	

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

Accessories sets for three-way valves "Tri-D TR", "Tri-M TR" and "Tri-CTR"

Weldables tailpipe 3-fold



for valve DN 15	(10)	1130091	
for valve DN 20	(10)	1130093	
for valve DN 25	(10)	1130094	
for valve DN 32	(5)	1130095	
for valve DN 40	(5)	1130096	
for valve DN 50	(5)	1130098	

Solder tailpipes 3-fold



15 mm for valve DN 15	(10)	1130191	
15 mm for valve DN 20	(10)	1130192	
18 mm for valve DN 20	(10)	1130193	
22 mm for valve DN 20	(10)	1130194	
28 mm for valve DN 25	(10)	1130195	
35 mm for valve DN 32	(5)	1130199	
35 mm for valve DN 40	(5)	1130196	
42 mm for valve DN 40	(5)	1130197	
54 mm for valve DN 50	(5)	1130198	

Threaded tailpipes 3-fold



R ½ for valve DN 15	(10)	1130291	
R ½ for valve DN 20	(10)	1130292	
R ¾ for valve DN 20	(10)	1130293	
R 1 for valve DN 25	(10)	1130294	
R 1¼ for valve DN 32	(5)	1130299	
R 1¼ for valve DN 40	(5)	1130295	
R 1½ for valve DN 40	(5)	1130296	
R 2 for valve DN 50	(5)	1130298	

Article Article-No. Hint

Temperature controllers
connection thread M 30 x 1.5
Temperature controller
with immersion sensor
Immersion pocket G 1/2 connection

Control range	Capillary length	Article-No.
20 - 50 °C	2 m	1140561
40 - 70 °C	2 m	1140562
50 - 80 °C	2 m	1140563
70 - 100 °C	2 m	1140564
20 - 50 °C	5 m	1140571
40 - 70 °C	5 m	1140572
70 - 100 °C	5 m	1140574
Immersion pocket only		1141091



Application:
Water, max. sensor temperature 30 K above the set value.
For industrial installations, water heaters, air heaters, hot cabinets, dish-washers, surface heating systems or similar.
The control range can be limited or locked.











For further information see "Technical information":








Temperature controller with contact sensor and heat transfer unit

Control range	Capillary length	Article-No.
20 - 50 °C	2 m	1142861
30 - 60 °C	2 m	1142862
40 - 70 °C	2 m	1142863
50 - 80 °C	2 m	1142864



Article	Packing unit	Article-No.	Hint
"Brawa-Mix"			
Thermostatic mixing valve with "fail-safe" function			
			Application: Potable water installations PN 10, up to 90 °C. Control range: 35 °C up to 65 °C Connection fittings: from page 8.66
	DN 20	1300306	
	DN 25	1300308	
	DN 32	1300310	
			Awards:  German Designer Club Good Design 08  universal design award
			Application: Potable water installations PN 10, up to 90 °C. Control range: 35 °C up to 50 °C
	DN 20	1300351	WRAS certified.
			
	without collar nuts (for compression fittings)	1300352	
			Only for item no. 1300352.
	Compression fittings – 3-fold – complete with 3 collar nuts		
	Ø 15 mm	(10) 1300381	
	Ø 18 mm	(10) 1300382	
	Ø 22 mm	(10) 1300383	
			For connection to the "Brawa-Mix".
	Bronze inline thermometer with dial		
	DN 20	1300952	Length: 74 mm
			Up to 95 °C
	Bronze non-return valve for cold water		Length: 61 mm
	DN 20	1302006	
			Application: Potable water installations PN 10, up to 90 °C, with lateral mixed water outlet. Control range: 30 °C up to 70°C
	without "fail-safe" function Bronze body, brass components resistant to dezincification, brass couplings		
	G 1 male thread without collar nuts	(25) 1300200	
			
	as above but with lead lockable protection cap, preset to 57 °C, with 3 collar nuts and gaskets	(20) 1300251	

Article	Packing unit	Article-No.	Hint
"Y" type strainers PN 25			
bronze			
with simple wire basket, 600 µm			
		DN 8 (10) 1120002	<p>Application: Central heating and cooling systems with closed circuits and industrial plants, for operation with non-aggressive, harmless fluids (e. g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).</p> <p>Strainers 11200/10: Material resistant to: mineral, heating and hydraulic oils, fuels, water vapour, as well as air and other harmless non-aggressive gases (not suitable for gaseous fluids group 1 according to directive 2014/68/EU)</p> <p>Max. operating pressure p_s: 25 bar (PN 25) Operating temperature t_s: -10 °C up to +150 °C</p> <p>(The valid rules and standards for the use of these media may restrict the temperature range.)</p> <p>The sizes DN 10 - DN 80 are WRAS (United Kingdom) certified for installation in potable water systems.</p> <p>CE-marking for size DN 65 and above according to directive 2014/68/EU. The strainers DN 10 - DN 20 are suitable for use with compression fittings, item no. 10271..., page .</p> <p>DN 8 – DN 50 bronze body, brass bonnet. DN 65 – DN 80 brass body and bonnet. Wire basket made of stainless chromium steel.</p> <p>Item no. 11200: Mesh size 0.6 mm 100 meshes/cm², \triangle 600 µm.</p> <p>Item no. 11210: Mesh size 0.25 mm 600 meshes/cm², \triangle 250 µm.</p> <p>For further information see "Technical information":</p> 
		DN 10 (10) 1120003	
		DN 15 (10) 1120004	
		DN 20 (10) 1120006	
		DN 25 (10) 1120008	
		DN 32 (5) 1120010	
		DN 40 (5) 1120012	
		DN 50 (5) 1120016	
		DN 65 1120020	
		DN 80 1120024	
with double wire basket for fine filtering, 250 µm			
		DN 8 (10) 1121002	
		DN 10 (10) 1121003	
		DN 15 (10) 1121004	
		DN 20 (10) 1121006	
		DN 25 (10) 1121008	
		DN 32 (5) 1121010	
		DN 40 (5) 1121012	
		DN 50 (5) 1121016	
		DN 65 1121020	
		DN 80 1121024	
Spare parts			
Wire basket (mesh size 600 µm)			
		DN 8 + DN 10 1123003	
		DN 15 1123004	
		DN 20 1123006	
		DN 25 1123008	
		DN 32 1123010	
		DN 40 1123012	
	(100)	DN 50 1123016	
		DN 65 1123020	
		DN 80 1123024	
Double wire basket (mesh size 250 µm)			
		DN 8 + DN 10 1123103	
		DN 15 1123104	
		DN 20 1123106	
		DN 25 1123108	
		DN 32 1123110	
		DN 40 1123112	
		DN 50 1123116	
		DN 65 1123120	
		DN 80 1123124	

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

"Hygate ATR" Gate valves PN 25
(with isolating facility, threaded connection, bronze)



DN 10	(50)	1043003	
DN 15	(50)	1043004	
DN 20	(50)	1043006	
DN 25	(25)	1043008	
DN 32	(20)	1043010	
DN 40	(10)	1043012	
DN 50	(5)	1043016	
DN 65	(5)	1043020	
DN 80	(2)	1043024	

"Optibal" High temperature ball valves
brass, nickel plated, reduced flow,
PN 16, max. continuous operating temperature 150 °C,
max. short-time starting temperature 180 °C,
extended plastic handle



both ports female thread

DN 20	(10)	1078706	
DN 25	(10)	1078708	
DN 32	(5)	1078710	

Accessories

Stem seal for replacement purposes (set of 5 pieces)
(not suitable for valves with marking "HT")



DN 20		1078790	
DN 25 / 32		1078791	

"Optiflex" Fill and drain ball valves for solar plants
brass, handle with stop
male thread, self sealing, with counter nut



with hose connection (soft seal)
and cap

DN 15 nickel plated	(50)	1033372	
---------------------	------	---------	--



Angle pattern,
with hose connection (soft seal)
and cap

DN 15 nickel plated	(50)	1033672	
---------------------	------	---------	--

Fill and drain cocks PN 16 heavy pattern - DIN 3848
bronze

Application:
For filling and draining of heating systems,
boilers, radiators and pipework also in solar
plants.

The brass ball valve is suitable for water and
mixtures of water and glycol up to PN 16 and
150°C.

Also suitable for the connection to plastic or
copper pipe.

Compression fittings and reinforcing sleeves:
pages 1.144 -1.147

The hose connection is made of plastic.

Application:
Fluids, steam and treated heating water (e. g.
district heating) up to PN 16 and 150 °C (for
short periods up to 180 °C)



Heavy pattern - bronze, PN 16
based on DIN 3848
with hose connection and cap

Article	Packing unit	Article-No.	Hint
DN 10	(50)	1032003	
DN 15	(50)	1032004	
DN 20	(25)	1032006	
DN 25	(10)	1032008	



Cap
with washer and fixing loop

DN 10	(50)	1034003	G 1/2
DN 15	(50)	1034052	G 3/4, also for "Optiflex" DN 10
DN 20	(25)	1034053	G 1
DN 25	(25)	1034008	G 1 1/4

Female thread of the cap



Square spanner

DN 10/DN 15	(10)	1035004	Spanner size: 12 mm
DN 20/DN 25	(5)	1035006	Spanner size: 14 mm

Spanner size: 12 mm
Spanner size: 14 mm



Hose connection

DN 10	(50)	1034551	G 1/2 (for hose DN 15)
DN 15	(50)	1034504	G 3/4
DN 20	(50)	1034506	G 1
DN 25	(25)	1034508	G 1 1/4

Female thread of the collar nut

G 1/2 (for hose DN 15)
G 3/4
G 1
G 1 1/4



9.h Further accessories

Content

Further accessories	9.70
---------------------	------

**“Regudis W-HTU” Dwelling station**

Dwelling station with plate heat exchanger for heat transmission from a central heat supply to the sanitary and heating installation of a dwelling.

Page 6.85

**“Regumaq” Stations for hot potable water preparation**

Electronically controlled product assembly with integrated plate heat exchanger for the hygienic heating of potable water on the flow principle.

Page 6.110

9

**“Hydrocor” Storage cylinders**

Page 10.20

**“Regucor” Energy storage centres**

for the supply of detached and semi-detached houses

Page 10.17



10.a "Regucor WHS" Energy storage centres

	Page
Content	10.03
System illustration	10.04
System illustration (zone loading)	10.05
"Regucor WHS" Energy storage centres	10.06
"Regucor "WH" Energy storage centres	10.08
Accessories	10.10
Accessories - zone loading	10.12



10.b "Regucor WHP" Energy storage centre ("Power to heat")

Content	10.15
System illustration	10.16
"Regucor WHP" Energy storage centre ("Power to heat")	10.17



10.c "Hydrocor" Storage cylinders

Content	10.19
"Hydrocor - HP" Buffer storage cylinder	10.20
"Hydrocor - HS" Solar buffer storage cylinder	10.20
Storage cylinder dimensions/connections	10.22
"Hydrocor - WB" Potable water storage cylinder	10.21
Accessories	10.23

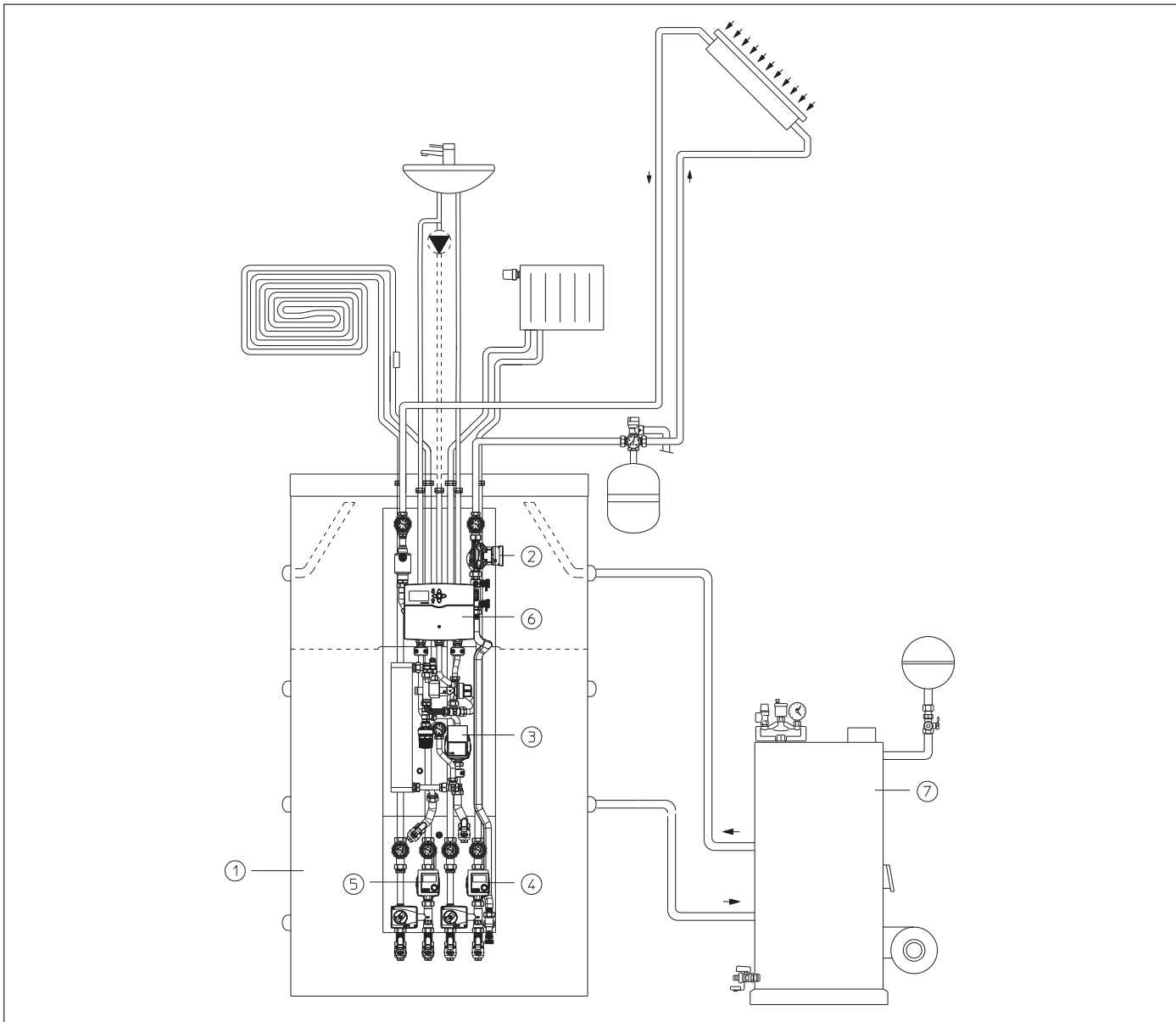


10.a "Regucor WHS" Energy storage centres

Content

System illustration	10.04
System illustration (zone loading)	10.05
"Regucor WHS" Energy storage centres	10.06
"Regucor "WH" Energy storage centres	10.08
Accessories	10.10
Accessories - zone loading	10.12

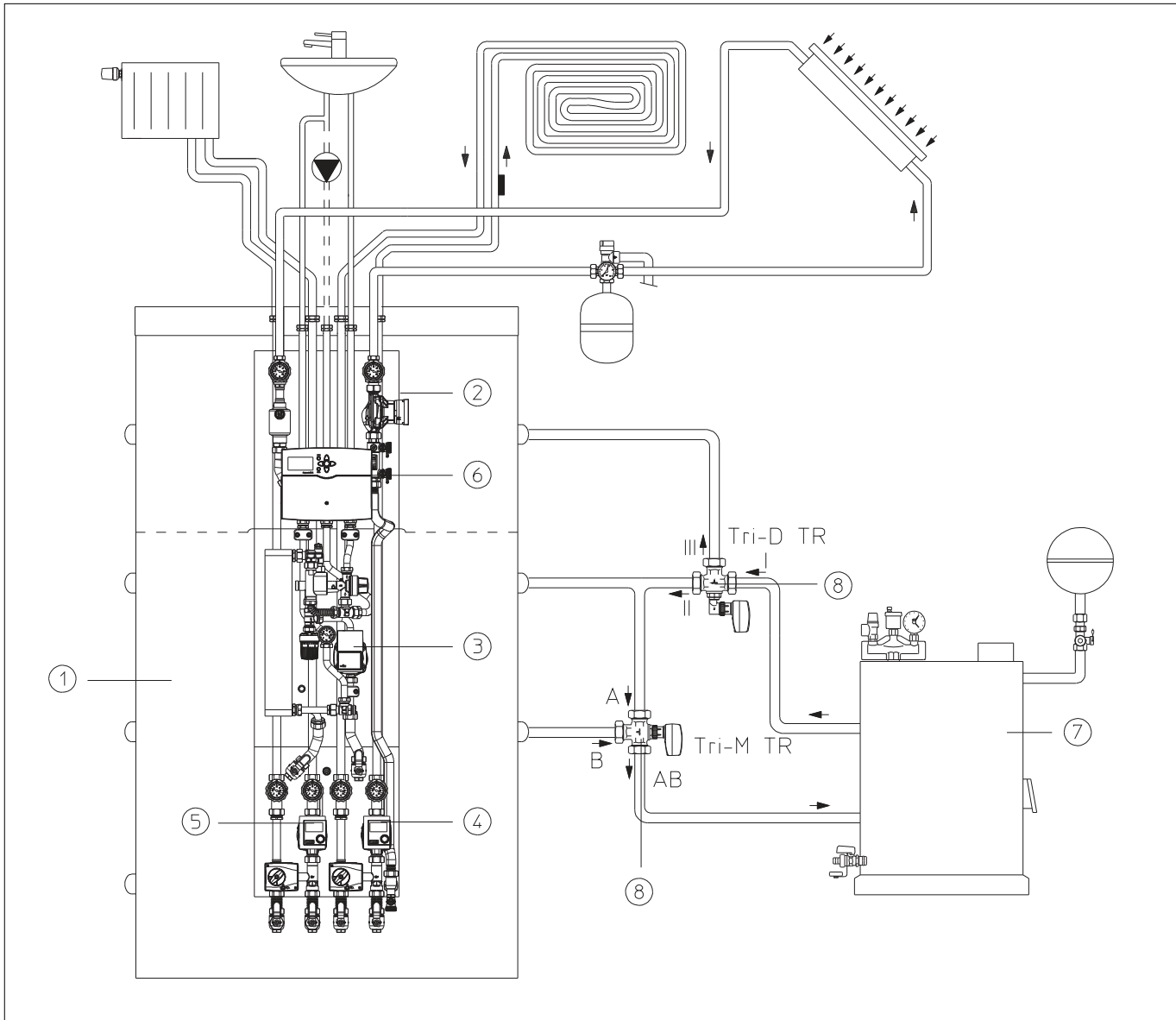
System illustration



"Regucor WHS" in combination with a conventional heat generator

- 1 System storage cylinder
- 2 Add-on group: Solar
- 3 Add-on group: Fresh water
- 4 Add-on group: Heating circuit 1
- 5 Add-on group: Heating circuit 2 (optional)
- 6 System controller "Regtronic RS"
- 7 Heat generator (e.g. oil/gas/heat pump/solid fuel)

System illustration



"Regucor "WHS" in combination with heat generator for an energy efficient storage cylinder loading

- 1 System storage cylinder
- 2 Add-on group: Solar
- 3 Add-on group: Fresh water
- 4 Add-on group: Heating circuit 1
- 5 Add-on group: Heating circuit 2 (optional)
- 6 System controller "Regtronic RS"
- 7 Heat generator (e.g. oil/gas/heat pump/solid fuel)
- 8 Motorised conversion valve for zone loading

Re-loading is activated by the system controller "Regtronic RS" as soon as the temperature in the centre of the storage cylinder below the separation sheet (heating circuit operation) or in the part above the separation sheet (domestic water in stand-by motion) drops below the minimum adjustable temperature.

The domestic water section and the heating circuit section of the storage cylinder are loaded separately via the two motorised conversion valves for zone loading. Moreover, re-loading of the heating circuits is independent of the calculated nominal flow temperature which guarantees an efficient re-loading and loading of the corresponding part of the storage cylinder. The controller only asks for the heat which is really required by the heat generator (e.g. oil/gas/heat pump/solid fuel).

In order to achieve a high solar share, the largest possible volume of buffer storage cylinder is used for the storage of solar energy.

Article	Article-No.	Hint
---------	-------------	------

"Regucor WHS" Energy storage centres
consisting of system storage cylinder
and storage cylinder add-on groups

Add-on group: Solar
"Regusol LH-130" DN 20 solar station
with high-efficiency pump Wilo-Yonos PARA ST 15/7 PWM,
flow measuring device 2-14 l/min.,
with safety group for riser installation 6 bar.
Connections:
G 3/4 male thread according to DIN EN 16313 (cone "Euro")
Suitable for standard solar liquids.

Add-on group: Hot potable water preparation
"Regumaq XH" DN 20 hydraulically controlled
heat exchanger system for the hygienic heating of
potable water according to the continuous flow
principle. With high-efficiency pump Wilo-Yonos
PARA RS 15-7 PWM2, temperature controller
40 - 60 °C and copper or nickel brazed heat
exchanger.
Connections: G 3/4 male thread, flat sealing
Recommended discharge capacity: 15-20 l/min.,
depending on the set potable water temperature and
the existing water temperature inside the buffer storage cylinder.

Add-on group: Heating circuit
"Regumat M3-130" DN 20 with high-efficiency pump
Wilo-Stratos PICO 15/1-6, three-way mixing valve
and actuator.
Connections: G 1 male thread, flat sealing
For weather guided flow temperature control.

System controller:
"Regtronic RS" for the control of the energy
storage centre "Regucor WHS" and further system
components. Up to 13 free inputs and up to 9 free
solid-state relay outputs. S-bus for the connection
to the data logger "CS-BS", SD-card slot for data
recording.

ErP classification "Regtronic RS" for "Regucor WHS"					
Controller	Required accessories	Boiler control modulating (0-10 V)		ErP %	Class
		On/Off			
"Regucor" controller "Regtronic RS"	-	X		4.0	VI
incl. remote control with room temperature sensor	2 x room temperature sensor 1152095	X	X	5.0	VIII

System storage cylinder:
Solar buffer storage cylinder with lifting eyes,
removable thermal insulation and integrated
temperature layer unit.
Connections and fixing positions co-ordinated
with "Regucor WHS" add-on groups.
Connections: 8 x G 1 1/2 female thread
Max. operating pressure p_s: 3 bar (coil 10 bar)
Operating temperature t_s: 95 °C (coil 110 °C)

Energy storage centre "Regucor WHS" for
solar-assisted supply of detached and semi-
detached houses with heat and hot potable
water.
Storage cylinder and add-on groups
co-ordinated functionally and
thermodynamically. With integrated piping and
plug-in cabling. For combination with classic
(e.g. gas/oil) and regenerative heat generators
(e.g. heat pump/solid fuel) in existing and new
buildings.

Included accessories:
1 remote control with room temperature sensor
(PT1000)
1 collector sensor (PT1000) L = 2 m
3 storage cylinder sensors (PT1000) L = 4 m
1 sensor attached to the pipe (PT1000)
L = 1.5 m
1 outdoor sensor (PT1000)
1 safety group - solar 6 bar
2 "Regusol" compression fittings
(18 mm, G 3/4 collar nut)
2 "Regusol" compression fittings
(18 mm, G 1 collar nut)

"Regusol" compression fittings and reinforcing
sleeves: page 9.31

Controller details: from page 7.20

Suitable tailpipes for the connection of the
heating circuit (G 1 collar nut, flat sealing) and
sanitary installations (G 3/4 collar nut, flat
sealing): from page 8.66

Suitable collectors "OKP" and "OKF":
from page 9.40

The energy storage centre "Regucor" is
supplied on a pallet sized 1.20 x 1.60 m.

Stations of the same function for wall mounting
are available for the individual design of a
system:

- "Regusol LH-130" DN 20 solar stations:
from page 9.07
- "Regumat M3-130" DN 20 heating circuit
groups: from page 6.07
- "Regumaq XH" stations for hot potable
water preparation:
from page 6.122
- Solar buffer storage cylinders:
from page 10.20

Award:



Further information and ErP data:



Article	Article-No.	Hint
---------	-------------	------

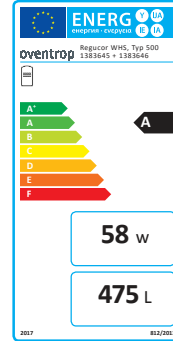


Type 500 Energy efficiency class A

System storage cylinder type 500, nominal content 475 l
 Total height (without insulation): 1720 mm
 Diameter (without insulation): 650 mm
 Total height (with insulation): 2070 mm
 Diameter (with insulation): 980 mm

Heat exchanger made of stainless steel, **1383645**
 copper brazed
 without insulation

As for the "Regucor" type 500 energy efficiency class A, the two-part insulation has to be ordered separately.



**Insulation for type 500
Energy efficiency class A**

1383646



Type 800

System storage cylinder type 800, nominal content 706 l
 Total height (without insulation): 1775 mm
 Diameter (without insulation): 790 mm
 Total height (with insulation): 1880 mm

Heat exchanger made of stainless steel, **1383550**
 copper brazed
 Heat exchanger made of stainless steel, **1383562**
 nickel brazed

Type 1000



System storage cylinder type 1000, nominal content 839 l
 Total height (without insulation): 2055 mm
 Diameter (without insulation): 790 mm
 Total height (with insulation): 2120 mm

Heat exchanger made of stainless steel, **1383555**
 copper brazed
 Heat exchanger made of stainless steel, **1383567**
 nickel brazed



Article	Article-No.	Hint
<p>"Regucor "WH" Energy storage centres as "Regucor WHS", but without solar station and without electronic controller</p>		
<p>System storage cylinder type 800, nominal content 706 l</p>		<p>Energy storage centre "Regucor WH" for the supply of detached and semi-detached houses with heat and hot potable water. Storage cylinder and add-on groups co-ordinated functionally and thermodynamically.</p>
<p>Heat exchanger made of stainless steel, copper brazed</p>	<p>1383460</p>	<p>Upgrading of the solar plant is prepared, a solar heat exchanger is integrated in the storage cylinder.</p>
<p>System storage cylinder type 1000, nominal content 900 l</p>		<p>By subsequent installation of the solar station "Regusol LH-130" (item no. 1383480) and the electronic controller "Regtronic RS" (item no. 1383485), the station can be upgraded to a "Regucor WHS".</p>
<p>Heat exchanger made of stainless steel, copper brazed</p>	<p>1383465</p>	<p>Suitable tailpipes for the connection of the heating circuit (G 1 collar nut, flat sealing) and sanitary installations (G ¾ collar nut, flat sealing): from page 8.66</p>
		<p>The energy storage centre "Regucor" is supplied on a pallet sized 1.20 x 1.60 m.</p>
		<p>Stations of the same function for wall mounting are available for the individual design of a system:</p>
		<p>- "Regumat M3-130" DN 20 heating circuit groups: from page 6.07</p>
		<p>- "Regumaq XH" stations for hot potable water preparation:</p>
		<p>from page 6.122</p>
		<p>- Solar buffer storage cylinders:</p>
		<p>from page 10.20</p>
		<p>Further information and ErP data:</p>



Article	Article-No.	Hint
	<p>"Regusol LH-130" Extension set solar "Regucor WH" "Regusol LH-130" DN 20 solar station with high-efficiency pump Wilo-Yonos PARA ST 15/7 PWM, flow measuring device 2-14 l/min., with safety group for riser installation 6 bar, connections G 3/4 male thread according to DIN EN 16313 (cone "Euro"), suitable for standard solar liquids</p> <p style="text-align: right;">1383480</p>	<p>"Regusol LH-130" for the connection of the solar collectors to the energy storage centre "Regucor WH". Included accessories: 1 collector sensor (PT1000) L = 2 m 1 safety group - solar 6 bar 2 connection elbows 2 connecting pipes 2 "Regusol" compression fittings (18 mm, G 3/4 collar nut) 2 "Regusol" compression fittings (18 mm, G 1 collar nut)</p> <p>"Regusol" compression fittings and reinforcing sleeves: page 9.31 Suitable collectors "OKP" and "OKF": from page 9.40 Further solar stations "Regusol": from page 9.07</p>
	<p>"Regtronic RS" Extension set "Regucor WH" 12 inputs PT1000, PT500 or KT 3 pulse inputs 14 outputs 4 PWM outputs (convertible to 0-10 bar) Data output S-bus</p> <p style="text-align: right;">1383485</p>	<p>For the control of the energy storage centre "Regucor WH" and further system components. Up to 13 free inputs and up to 9 free solid-state relay outputs. S-bus for the connection to the data logger "CS-BS", SD-card slot for data recording. Cabled. Included accessory: 1 outdoor sensor (PT1000) 1 collector sensor</p>

Article	Article-No.	Hint
---------	-------------	------

Accessories



**"Regucor "WH/WHS" -
Extension heating circuit**
"Regumat M3-130" DN 20 heating circuit, Wilo pump
Stratos PICO 15/1-6, with three-way mixing valve and actuator

1383575

Extension of the energy storage centres "Regucor WHS/WH" by an additional variable temperature heating circuit. Weather guided control via "Regtronic RS".



Safety group Solar **1364248**
for riser installation with safety valve 6 bar
for "Regusol" compression fitting

Connection facility for an expansion tank G 3/4. Display range pressure gauge: 10 bar

Suitable "Regusol" compression fittings: page 9.31



Insulation cap **1389001**
for G 1 1/2 connection sleeves

Insulation cap made of expanded polypropylene for buffer and solar buffer storage cylinders. For thermal insulation of unused connections.

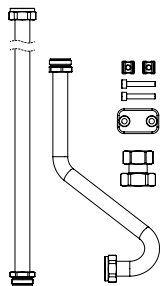


**"Regumaq XH"
Potable water circulation set** **1381047**
Connection set with circulation pump
Wilo Star Z Nova C and time switch
for the extension of the "Regumaq XH"
station by a potable water circulation

Extension of the energy storage centres "Regucor WHS/WH" by a potable water circulation. Control of the circulation pump via "Regtronic RS".



**"Regumaq XH"
Potable water circulation set** **1381049**
as above but without circulation pump
and without time switch



**Connection set potable water
circulation for "Regucor WHS/WH"** **1383584***
as above, but with
connecting pipe G 3/4 male x G 3/4 collar nut
and adapter G 3/4 collar nut x G 1 male

For the connection of the circulation of the add-on group "Regumaq XH" DN 20 to the potable water circulation pipe.



"Sensor LW TH" Electric sensor attached
to the pipe with concealed temperature setting

Control range 20-90 °C **1143000**

For max. limitation of the flow temperature of surface heating systems.



Connection set for "Regucor "WHS/WH" **1383580**

Connection:
- G 1 male x G 1 collar nut for heating circuit add-on group
- G 3/4 male x G 3/4 collar nut for hot potable water preparation add-on group including flat seals

For the connection of the heating circuit add-on group "Regumat M3-130" DN 20 to the heating circuit and for the connection of the hot potable water preparation add-on group "Regumaq XH" DN 20 to the potable water circuit.



Article	Article-No.	Hint
<p>Extension connection set for "Regucor WHS/WH"</p> <p>Connection: - G 1 male x G 1 collar nut for heating circuit add-on group including flat seals</p>	<p>1383581</p>	<p>For the connection of the heating circuit add-on group "Regumat M3-130" DN 20 to the heating circuit.</p>

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

Accessories - zone loading



"Regucor" Extension set zone loading
consisting of:

- 1 x "Tri-D TR" Three-way diverting valve DN 25
- 1 x "Tri-M TR" Three-way mixing valve DN 25
- 2 x "Aktor M" Electromotive actuator
- 1 x Angle pattern adapter
- Seals

1383583

The extension set allows for the connection of a boiler and the targeted loading of a buffer storage cylinder.
Layering can be carried out into different buffer storage cylinder sections.

"Tri-D TR" Three-way diverting valves PN 16 (diverting valve, threaded connection, bronze)

connection thread M 30 x 1.5
with collar nuts, flat sealing



DN 20

1130206°

Application:
Central heating and cooling systems with closed circuits, for operation with non-aggressive, harmless fluids (e.g. water or suitable water and glycol mixtures according to VDI 2035/ÖNORM 5195).
Max. operating pressure p_s : 16 bar (PN 16)
Operating temperature t_s : 0 °C up to 120 °C
Diverting or changing-over of volume flows in heating and cooling systems in combination with thermostatic or electric actuators.

Application, for instance for storage cylinder loading function or heating installations with two heat generators, for instance in solar plants or heat pump systems (bivalent heating systems).

The valves can be used in combination with Oventrop temperature controllers or actuators.

Further three-way valves: page 3.83

For further information see "Technical information":



"Aktor M" Electromotive actuators
connection thread M 30 x 1.5



"2P H", 230 V, two point actuator, without anti-blocking function

1012710

Short operating time (about 3 sec.).
Connecting cable 1.5 m.



Angle pattern adapter
M 30 x 1.5/ M 30 x 1.5

white
anthracite model

(25) 1011450
(25) 1641451

Connection to the valve: M 30 x 1.5
Connection to the thermostat: M 30 x 1.5



"Solar" Diaphragm expansion tanks

for wall attachment, G 3/4 male thread, inlet pressure 1.5 bar

Nominal volume 18 l	1361421
Nominal volume 25 l	1361422
Nominal volume 33 l	1361423

Diaphragm according to DIN 4807 T 3.
 Permissible operating temperature t_s : 70 °C
 Further components, such as angled wall brackets, quick couplings or flexible hoses (page 10.13) are required for the connection of a diaphragm expansion tank to the pump groups "Regusol".
 Max. operating pressure p_s : 10 bar
 Max. diaphragm peak temperature t_s : 100 °C
 Approval according to directive 2014/68/EU.



"Regusol" Connection set for diaphragm expansion tank

consisting of:
 - angled wall bracket made of steel
 - quick coupling for diaphragm expansion tank
 - flexible hose

1369051

For the connection of a diaphragm expansion tank to the "Regusol" solar station.



"Expa Con" Solar valve with lead sealable cap

DN 20, Rp 3/4 x G 3/4 male thread (25) **1364185**



"Sensor LW TH"
 Temperature sensor PT 1000

Storage cylinder **1369093**

Collector **1369094**

For electronic registration of the riser temperatures.

Continuous temperature range: up to 105 °C
 L = 300 cm
 Continuous temperature range: up to 180 °C
 (for short periods up to 250 °C)
 L = 200 cm.



Controlled immersion heater **1383594**

Controlled immersion heater for direct heating and warming up of the heating water in hot water storage cylinders, for instance in the energy storage centres "Regucor".
 Capacity (P): 9 kW
 $U_{required}$: 400 V
 Consisting of immersion heater with controller/limiter combination.
 25 °C - 70 °C



Extension for connection pipe for storage cylinder loading **1383593**

Extension for passing the loading nipple through the insulation.



Extension for electrical immersion heater **1383592**

Extension for passing the electrical immersion heater through the insulation.

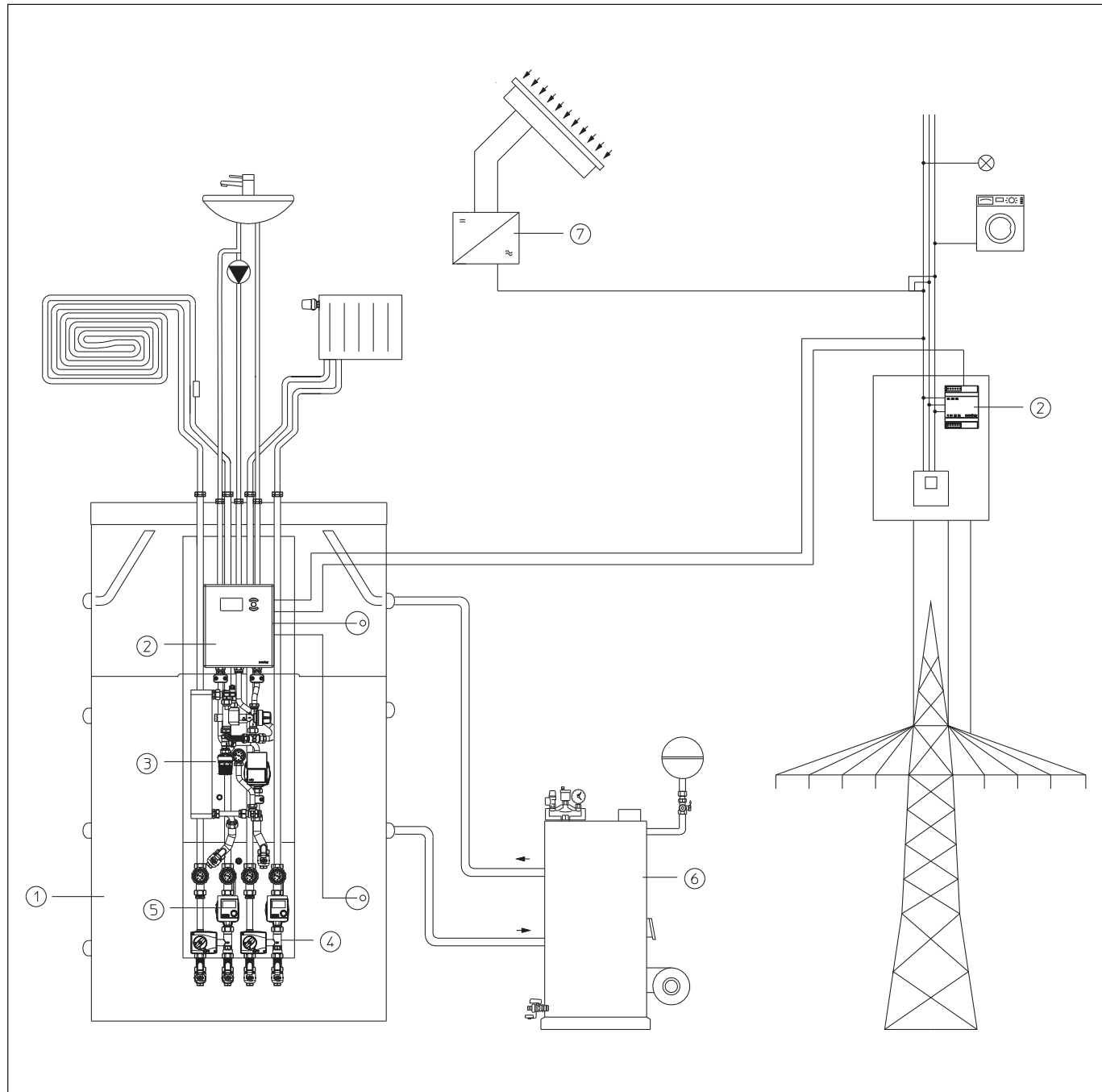


10.b "Regucor WHP" Energy storage centre ("Power to heat")

Content

System illustration	10.16
"Regucor WHP" Energy storage centre ("Power to heat")	10.17

System illustration



"Regucor WHP" in combination with a conventional heat generator

- 1 System storage cylinder
- 2 Add-on group: "Power to heat"
- 3 Add-on group: Fresh water
- 4 Add-on group: Heating circuit 1
- 5 Add-on group: Heating circuit 2 (optional)
- 6 Heat generator (e.g. oil/gas/heat pump/solid fuel)
- 7 Inverter

Article	Article-No.	Hint
---------	-------------	------



"Regucor WHP" Energy storage centre ("Power to heat")
consisting of system storage cylinder
and storage cylinder add-on groups

Type 500 Energy efficiency class C

Add-on group: "Power to heat"
Active power detection, power electronics and electrical immersion
heater.

Add-on group: Hot potable water preparation
"Regumaq XH" DN 20 hydraulically controlled
heat exchanger system for hygienic heating of
potable water according to the continuous flow
principle. With high-efficiency pump Wilo-Yonos
PARA RS 15-7 PWM2, temperature controller
40 - 60 °C and copper brazed heat exchanger.
Connections: G 3/4 male thread, flat sealing
Recommended discharge capacity: 15-20 l/min.,
depending on the set potable water temperature and
the existing water temperature inside the buffer storage cylinder.

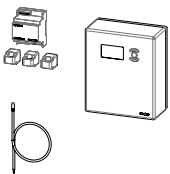
Add-on group: Heating circuit
"Regumat M3-130" DN 20 with high-efficiency pump
Wilo-Stratos PICO 15/1-6, three-way mixing valve and actuator.
Connections: G 1 male thread, flat sealing

System storage cylinder:
Buffer storage cylinder with lifting eyes,
removable thermal insulation and integrated temperature layer unit.
Connections and fixing positions co-ordinated
with "Regucor WHP" add-on groups.
Connections: 8 x G 1 1/2 female thread
System storage cylinder type 500, nominal content: 475 litres
Total height (without insulation): 1720 mm
Diameter (without insulation): 650 mm
Total height (with insulation): 1820 mm
Diameter (with insulation): 950 mm

Heat exchanger made of stainless steel, **1371000**
copper brazed

Energy storage centre "Regucor WHP" for
solar-assisted supply of heat generated by the
surplus electricity of a photovoltaic installation
or other regenerative electricity sources to
detached and semi-detached houses.
If more photovoltaic electricity is available than
required for the supply of the household
appliances, this electricity is used for heating
the energy storage centre "Regucor WHP".
Storage cylinder and add-on groups
coordinated functionally and
thermodynamically. With integrated piping and
plug-in cabling. For combination with
conventional (e.g. gas/oil) and regenerative
heat generators (e.g. heat pump/solid fuel) in
existing and new buildings.

Power (P): 0-3 kW (infinitely variable)
U_{reg}: 230 V

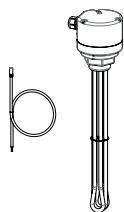


"Power to heat" module for wall attachment

- consisting of:
- 1 x "Active power detection"
 - 1 x "Power electronics"
 - 1 x Electrical immersion heater
(for further immersion heaters see extension set)
 - 1 x Temperature sensor

1371090

The module allows using surplus electricity (for
instance from a photovoltaic installation) for
buffer storage cylinder loading, for instance of
a "Hydrocor" storage cylinder.
The photovoltaic electricity is primarily used for
the supply of the electrical household
appliances. The buffer storage cylinder is only
loaded if surplus electricity is available. A
control function guarantees that no mains
current is used for storage cylinder loading.
Power (P): 0-3 kW (infinitely variable)
U_{reg}: 230 V



Extension set
consisting of:
1 x Electrical immersion heater
1 x Temperature sensor

1371091

The "power to heat" module for wall
attachment of the energy storage centre
"Regucor WHP" can be extended by a
maximum of one immersion heater for zone
loading of a buffer storage cylinder. Surplus
photovoltaic electricity is primarily used for
heating of the potable water reserve and then
for support of the heating system.
Power (P): 3 kW
U_{reg}: 230 V
Further accessories: from page 10.09



10.c "Hydrocor" Storage cylinders

Content

"Hydrocor - HP" Buffer storage cylinder	10.20
"Hydrocor - HS" Solar buffer storage cylinder	10.20
Storage cylinder dimensions/connections	10.22
"Hydrocor - WB" Potable water storage cylinder	10.21
Accessories	10.23

Article H D Article-No. Hint



"Hydrocor - HP" Buffer storage cylinder
 Buffer storage cylinder for storage of heating water

Storage cylinder without insulation

Type	H	D	Article-No.
500	1720 mm	650 mm	1387505

Insulation for item no. 1387505

Energy efficiency class:

A	2070 mm	980 mm	1387506
C	1820 mm	950 mm	1387006

**Storage cylinder with insulation
 (corresponds to energy efficiency class C)**

800	1775 mm	1090 mm	1385008
1000	2058 mm	1090 mm	1385010
1500	2097 mm	1300 mm	1385015



as above, but max. operating pressure p_s : 6 bar

800	1775 mm	1090 mm	1386008*
1000	2058 mm	1090 mm	1386010*
1500	2097 mm	1300 mm	1386015*

"Hydrocor - HS" Solar buffer storage cylinder
 Solar buffer storage cylinder for storage of heating water with internal tube heat exchanger



Storage cylinder without insulation

Type	H	D	Article-No.
500	1720 mm	650 mm	1385105

Insulations for item no. 1385105

Energy efficiency class:

A	2070 mm	980 mm	1387606
C	1820 mm	950 mm	1387106

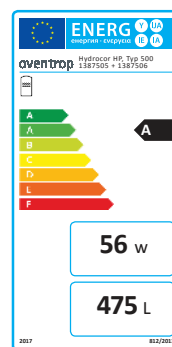
**Storage cylinder with insulation
 (corresponds to energy efficiency class C)**

Type	H	D	Article-No.
800	1775 mm	1090 mm	1385107
1000	2058 mm	1090 mm	1385110



Buffer storage cylinder for the connection of different heat generators (e.g. solar, solid fuel, heat pump or classic boilers).

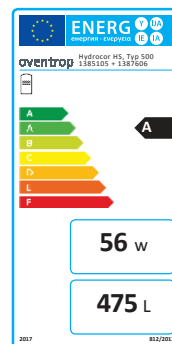
Suitable for the following stations: "Regusol X", "Regumaq X-30/XZ-30/XH/X-80" and "Regudis". Heat transmission from the solar collectors to the buffer storage cylinder and from the buffer storage cylinder to the potable water is carried out externally via the above stations. Max. operating pressure p_s : 3 bar
 Max. operating temperature t_s : 95 °C



Energy efficiency label is only valid for item no. 1387505 with 1387506.

Solar buffer storage cylinder for the connection of different heat generators (e.g. solar, solid fuel, heat pump or classic boilers).

Suitable for the following stations: "Regusol", "Regusol E", "Regumaq X-30/XZ-30/XH/X-80". Heat transmission from the solar collectors to the solar buffer storage cylinder via a tube heat exchanger located inside the storage cylinder. The potable water is heated externally via the stations "Regumaq X-30/XZ-30". Max. operating pressure p_s : 3 bar, (coil 10 bar)
 Max. operating temperature t_s : 95 °C, (coil 110 °C)



Energy efficiency class label is only valid for item no. 1385105 with 1387606.



Article	H	D	Article-No.	Hint
<p>"Hydrocor - WB" Potable water storage cylinder Bivalent potable water storage cylinder with internal heat exchanger for solar heating and after-heating</p> <p>Type</p> <p>Energy efficiency class B</p>				
300	1900 mm	650 mm	1387303	<p>Potable water storage cylinder for the connection of different heat generators (e.g. solar, heat pump or classic boilers). Suitable for the following stations: "Regusol", "Regusol E".</p> <p>Solar potable water storage cylinder with two internal tube heat exchangers. Heat transmission from the solar collectors to the potable water storage cylinder via a tube heat exchanger located inside the storage cylinder. A boiler for after-heating can for instance be connected to the upper tube heat exchanger. Max. operating pressure p_s solar return/solar supply/heating return/heating supply: 10 bar</p> <p>Max. operating temperature t_s solar return/solar supply/heating return/heating supply: 110/95 °C</p> <p>Further information and ErP data:</p>



Technical data:

Buffer storage cylinder "Hydrocor HP"

Type			500	800	1000	1500	Energy efficiency class A
H	Total height	mm	1820	1775	2058	2097	500 2070
D	Diameter (without insulation)	mm	650	790	790	1000	650
	Diameter (with insulation)	mm	950	1090	1090	1300	980
	Nominal content	l	475	739	895	1331	475
	Volume in stand-by motion	l	183	270	325	470	183
	Max. pivot height (without insulation)	mm	1770	1810	2100	2135	1770
	Thickness of storage cylinder insulation (fibre fleece)	mm	150	160	160	160	160**
	Permissible operating pressure	bar	3	3	3	3	3
	Permissible operating temperature	°C	95	95	95	95	95
	Weight (including insulation)	kg	approx. 110	approx. 122	approx. 134	approx. 206	approx. 110

Solar buffer storage cylinder "Hydrocor-HS"

Type			500	800	1000	500
H	Total height	mm	1720	1775	2058	2070
D	Diameter (without insulation)	mm	650	790	790	650
	Diameter (with insulation)	mm	950	1090	1090	980
	Nominal content	l	475	739	895	475
	Volume in stand-by motion	l	183	270	325	183
	Content solar heating coil	l	15.9	20	22.9	15.9
	Max. pivot height (without insulation)	mm	1770	1800	2100	1770
	Thickness of storage cylinder insulation (fibre fleece)	mm	160	160	160	160**
	Permissible operating pressure	bar	3	3	3	3
	Permissible operating pressure (coil)	bar	10	10	10	10
	Permissible operating temperature	°C	95	95	95	95
	Permissible operating temperature (coil)	°C	110	110	110	110
	Solar heating coil	m ²	2.4	3.1	3.4	2.4
	Weight (including insulation)	kg	approx. 128	approx. 166	approx. 186	approx. 130







Bivalent solar storage cylinder "Hydrocor-WB"

Type			300
H	Total height	mm	1900
D	Diameter (without insulation)	mm	500
	Diameter (with insulation)	mm	650
	Nominal content	l	301
	Volume in stand-by motion	l	132
	Content solar heating coil	l	9.5
	Content heating coil	l	5.8
	Max. pivot height	mm	1800
	Thickness of storage cylinder insulation (polyurethane rigid foam)*	mm	50
	Permissible operating temperature potable water	°C	95
	Permissible operating temperature (solar return/ solar supply/heating return/heating supply)	°C	110
	Permissible operating pressure potable water	bar	10
	Permissible operating pressure (solar return/ solar supply/heating return/heating supply)	bar	10
	Solar heating coil (solar return/solar supply)	m ²	1.55
	Heating coil (heating return/heating supply)	m ²	0.8
	Weight (including insulation)	kg	approx. 120

* Insulation (polyurethane rigid foam) cannot be removed.

** Compound insulation

For further information see "Technical information".

Article	Article-No.	Hint	
Accessories			
	Insulation cap for G 1½ connection sleeves	1389001	Insulation cap made of expanded polypropylene for buffer and solar buffer storage cylinders. For thermal insulation of unused connections.
	Controlled immersion heater	1383594	Controlled immersion heater for direct heating and warming up of the heating water in hot water storage cylinders, for instance in the energy storage centres "Regucor". Capacity (P): 9 kW U _{required} : 400 V Consisting of immersion heater with controller/limiter combination. 25 °C - 70 °C
	Retaining and fixing set "Regumaq X/XZ"	1389090	For fixing a potable water station "Regumaq X/XZ" to a buffer storage cylinder "Hydrocor - HP/HS".
	Storage cylinder connection set "Regumaq X/XZ"	1381185	For the hydronic connection of a potable water station "Regumaq X/XZ" fixed at a buffer storage cylinder "Hydrocor - HP/HS".
	Extension for connection pipe for storage cylinder loading	1383593	Extension for passing the loading nipple through the insulation.
	Extension for electrical immersion heater	1383592	Extension for passing the electrical immersion heater through the insulation.

11.a "Copipe", "Copex" and "Copert" pipes



Content	11.05
"Copipe HSC" Composition pipe	11.06
"Copipe HS" Composition pipe	11.08
"Copex" PE-Xc Plastic pipe	11.10
"Copert" PE-RT Plastic pipe	11.11

11.b "Cofit P" Press connection system (bronze)



Content	11.13
"Cofit P" Press fittings	11.14
"Cofit P" Press elbows	11.16
"Cofit P" Press T-pieces	11.17
"Cofit P" Press fittings	11.19
"Cofit P" Wall mounted connection pieces with press connection	11.21

11.c "Cofit PD" Press connection system (bronze, pressing must be carried out to tighten the connection)



Content	11.23
"Cofit PD" Press fittings	11.24
"Cofit PD" Press elbows	11.26
"Cofit PD" Press T-pieces	11.27
"Cofit PD" Press fittings	11.28
"Cofit PD" Wall mounted connection pieces with press connection	11.29

11.d "Cofit PDK" Press connection system (plastic, pressing must be carried out to tighten the connection)



Content	11.31
"Cofit PDK" Press fittings	11.32

11.e "Cofit S" Screwed connection system



Content	11.33
"Cofit S" Compression fittings	11.34
"Cofit S" Compression fittings, female thread	11.34
"Cofit S" Nipples	11.34
"Cofit S" Connection pieces	11.34
"Cofit S" Screwed fittings	11.35
"Cofit S" Wall mounted connection pieces	11.37
"Cofit S" Brackets with wall mounted connection pieces	11.37

11.f Fixing material and accessories for pipes



Content	11.39
Fixing material	11.40
Accessories	11.40

11.g Tools

Content	11.41
Tools	11.42
Press tools	11.46
Accessories	11.47



11.h "Copex HT" PE-Xc Plastic pipe

Content	11.49
"Copex HT" PE-Xc Plastic pipe	11.50



11.i "Cofit PD-HT" Press connection system

Content	11.51
"Cofit PD-HT" Press fittings made of bronze	11.52
"Cofit PD-HT" Press fittings made of bronze	11.53
"Cofit PDK-HT" Press fittings made of plastic (PPSU)	11.54
Tools	11.55



Pipe summary		Application		Approval	Fitting summary					
		Surface heating and cooling systems	Central heating systems		"Cofit P" Bronze	"Cofit PD" Bronze	"Cofit PDK" Plastic	"Cofit S" Brass + bronze	"Cofit PD-HT" Brass + bronze	"Cofit PDK-HT" Plastic
"Copex" PE-Xc plastic pipes with oxygen barrier	14 x 2 mm	X			X only double nipple			X		
	16 x 2 mm	X			X	X	X	X		
	17 x 2 mm	X			X only double nipple			X		
	20 x 2 mm	X			X only double nipple			X		
	20 x 2.5 mm	X	X		X	X	X	X		
	26 x 3 mm	X			X	X		X		
"Copert" PE-RT plastic pipes with oxygen barrier	12 x 2 mm	X								
	14 x 2 mm	X			X only double nipple			X		
	16 x 2 mm	X			X	X	X	X		
	17 x 2 mm	X			X only double nipple			X		
"Copipe HSC" PE-RT/AL/PE-RT composition pipes H: Heating systems S: Sanitary installations C: Cooling systems	14 x 2 mm	X	X	DVGW				X		
	16 x 2 mm	X	X	DVGW	X	X	X	X		
	20 x 2.5 mm	X	X	DVGW	X	X	X	X		
	26 x 3.0 mm	X	X	DVGW	X	X		X		
	32 x 3.0 mm	X	X	DVGW	X			X		
	40 x 3.5 mm	X	X	DVGW	X					
	50 x 4.5 mm	X	X	DVGW	X					
63 x 6.0 mm	X	X	DVGW	X						
"Copipe HS" PE-Xc/AL/PE-RT composition pipes H: Heating systems S: Sanitary installations	14 x 2.0 mm	X	X	DVGW				X		
	16 x 2.0 mm	X	X	DVGW	X	X	X	X		
	18 x 2.0 mm	X	X	DVGW				X		
	20 x 2.5 mm	X	X	DVGW	X	X	X	X		
	26 x 3.0 mm	X	X	DVGW	X	X	X	X		
	32 x 3.0 mm	X	X	DVGW	X			X		
40 x 3.5 mm	X	X	DVGW	X						
"Copex HT" PE-Xc plastic pipes with oxygen barrier T: thick walled	16 x 2.2 mm	X							X	X
	20 x 2.8 mm	X							X	X
	25 x 3.5 mm	X							X	
	32 x 4.4 mm	X							X	









Fittings: Additional letters: P: Press connection
 PD: Press connection / Drop (designed not to seal in an uncompressed condition)
 PDK: Press connection / Drop (designed not to seal in an uncompressed condition) / Plastic
 HT: High temperature
 S: Screwed connection

11.a "Copipe", "Copex" and "Copert" pipes


Content



"Copipe HSC" Composition pipe	11.06
"Copipe HS" Composition pipe	11.08
"Copex" PE-Xc Plastic pipe	11.10
"Copert" PE-RT Plastic pipe	11.11

Article	Packing unit	Article-No.	Hint
<p>"Copipe HSC" Composition pipe PE-RT/AL/PE-RT white</p> <p>for press connection systems "Cofit P/PD/PDK" and screwed connection system "Cofit S"</p> <p>rolls</p> <p>Dimension 14 x 2 mm</p> <p>length per roll 50 m (50) 1541054 length per roll 100 m (100) 1540154 length per roll 200 m (200) 1540254</p> 			<p>Application: Central heating systems with circulation pump, surface heating and cooling systems as well as sanitary installations.</p> <p>DVGW tested (dimension 14 x 2.0 mm). DVGW approved (dimension 16 x 2.0 mm and above). DVGW reg.-no. DW-8501AT2407.</p> <p>Max. operating pressure p_s: 6 bar at 90 °C p_s: 10 bar at 70 °C</p> <p>Diffusion tight three-layered composition pipe - inner layer made of PE-RT - aluminium pipe welded end to end - outer coating made of PE-RT bonded by adhesive layers.</p> <p>The pipework has to be insulated according to the valid laws, decrees, standards and guidelines.</p> <p>Suitable insulation material to be obtained from specialist stores.</p>
<p>Dimension 16 x 2 mm</p> <p>length per roll 50 m (50) 1541055 length per roll 100 m (100) 1540155 length per roll 200 m (200) 1540255 length per roll 500 m (500) 1540555</p> 			
<p>Dimension 20 x 2.5 mm</p> <p>length per roll 50 m (50) 1541060 length per roll 100 m (100) 1540160 length per roll 200 m (200) 1540260</p> 			
<p>Dimension 26 x 3.0 mm</p> <p>length per roll 50 m (50) 1541066</p> 			
<p>Dimension 32 x 3.0 mm</p> <p>length per roll 50 m (50) 1541072</p> 			
<p>with 4 mm insulation length per roll 50 m</p> <p>Dimension 16 x 2.0 mm (50) 1541155 Dimension 20 x 2.5 mm (50) 1541160</p> 			
<p>with 6 mm insulation length per roll 50 m</p> <p>Dimension 16 x 2.0 mm (50) 1541355 Dimension 20 x 2.5 mm (50) 1541360</p> 			
<p>with 9 mm insulation length per roll 50 m</p> <p>Dimension 16 x 2.0 mm (50) 1541455 Dimension 20 x 2.5 mm (50) 1541460</p> 			



Article	Packing unit	Article-No.	Hint	
within protective tube (corrugated tube) length per roll 50 m			The black corrugated tube made of polyethylene offers an additional protection against damage and UV rays.	
Dimension 14 x 2.0 mm	(50)	1541254		
Dimension 16 x 2.0 mm	(50)	1541255		
Dimension 20 x 2.5 mm	(50)	1541260		
rods length: 5 m			Fire protection: Tested fire protection systems of the Fire Resistance Regulations Class R90 for "Copipe HSC" composition pipes are available from specialist stores: – Fire protection tape Curaflam of the company Doyma – Pipe coating Conlit 150 u and continuing insulation shell Rockwool 800	
Dimension 16 x 2.0 mm 12 lengths	(5)	1541555		
Dimension 20 x 2.5 mm 10 lengths	(5)	1541560		
Dimension 26 x 3.0 mm 9 lengths	(5)	1541566		
Dimension 32 x 3.0 mm 6 lengths	(5)	1541572		
Dimension 40 x 3.5 mm 4 lengths	(5)	1541584		
Dimension 50 x 4.5 mm 4 lengths	(5)	1541582*		
Dimension 63 x 6.0 mm 3 lengths	(5)	1541585*		
Awards:				 Pragothem Prague

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

"Copipe HS" Composition pipe
PE-Xc/AL/PE-Xb
white

for press connection systems "Cofit P/PD/PDK" and
screwed connection system "Cofit S"

rolls

Dimension 14 x 2.0 mm



length per roll 50 m	(50)	1501054
length per roll 100 m	(100)	1500154
length per roll 200 m	(200)	1500254

Dimension 16 x 2.0 mm



length per roll 50 m	(50)	1501055
length per roll 100 m	(100)	1500155
length per roll 200 m	(200)	1500255
length per roll 500 m	(500)	1500555

Dimension 18 x 2.0 mm



length per roll 100 m	(100)	1500158
-----------------------	-------	----------------

Dimension 20 x 2.5 mm



length per roll 100 m	(100)	1500160
length per roll 50 m	(50)	1501060

Dimension 26 x 3.0 mm



length per roll 50 m	(50)	1501066
----------------------	------	----------------

Dimension 32 x 3.0 mm



length per roll 50 m	(50)	1501072
----------------------	------	----------------

with 4 mm insulation
length per roll 50 m



Dimension 16 x 2.0 mm	(50)	1501155
Dimension 20 x 2.5 mm	(50)	1501160

with 6 mm insulation
length per roll 50 m



Dimension 16 x 2.0 mm	(50)	1501355
Dimension 20 x 2.5 mm	(50)	1501360

Application:

Central heating systems with circulation pump, surface heating and cooling systems as well as sanitary installations.



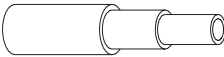

Max. operating pressure p_s : 10 bar at 95 °C
16 bar (PN 16) for cold water

DVGW reg. no. DW-8501AT2407

Diffusion tight three-layered composition pipe
– inner layer made of crosslinked polyethylene
– aluminium pipe welded end to end
– outer layer made of crosslinked polyethylene bonded by special layers.

The pipework has to be insulated according to the valid laws, decrees, standards and regulations.

Suitable insulation material available from specialist stores.

Article	Packing unit	Article-No.	Hint
	<p>with 9 mm insulation length per roll 50 m</p> <p>Dimension 16 x 2.0 mm (50) 1501455 Dimension 20 x 2.5 mm (50) 1501460</p>		<p>Pipe with 9 mm insulation layer for insulation requirements according to the German Energy Saving Directive (EnEV) and DIN 1988.</p>
	<p>within protective tube (corrugated tube) length per roll 50 m</p> <p>Dimension 14 x 2,0 mm (50) 1501254 Dimension 16 x 2.0 mm (50) 1501255 Dimension 20 x 2.5 mm (50) 1501260</p>		<p>The black corrugated tube made of polyethylene offers an additional protection against damage and UV rays.</p>
	<p>rods length: 5 m</p> <p>Dimension 16 x 2.0 mm (5) 1501555 20 lengths dimension 20 x 2.5 mm (5) 1501560 13 lengths Dimension 26 x 3.0 mm (5) 1501566 7 lengths Dimension 32 x 3.0 mm (5) 1501572 5 lengths Dimension 40 x 3.5 mm (5) 1501580 9 lengths</p>		<p>Fire protection: Tested fire protection systems of the Fire Resistance Regulations Class R90 for "Copipe HS" composition pipes are available from specialist stores:</p> <ul style="list-style-type: none"> - Fire protection tape Curaflam of the company Doyma - Pipe coating Conlit 150 and continuing insulation shell Rockwool 800
<p>Awards:</p>  Pragothem Prague			

Article	Packing unit	Article-No.	Hint
<p>"Copex" PE-Xc Plastic pipe with oxygen barrier</p> <p>for press connection systems "Cofit P/PD/PDK" and screwed connection system "Cofit S"</p> <p>rolls</p>			<p>Application: Central heating systems, surface heating and cooling systems.</p> <p>Pipes according to DIN 16892 / DIN 16893 / DIN EN ISO 15 875 / EN 1264-4 (except for dimensions 26 and 32). Oxygen tight according to DIN 4726 (all dimensions).</p>



Dimension 14 x 2 mm		
length per roll 120 m	(120)	1400051
length per roll 240 m	(240)	1400052
length per roll 600 m	(600)	1400054

Max. operating pressure p_s :
6 bar at 90 °C
10 bar at 60 °C



Dimension 16 x 2 mm		
length per roll 120 m	(120)	1400151
length per roll 240 m	(240)	1400152
length per roll 600 m	(600)	1400154

Max. operating pressure p_s :
6 bar at 90 °C
10 bar at 60 °C



Dimension 20 x 2.5 mm		
length per roll 50 m	(50)	1400460
length per roll 100 m	(100)	1400461

Max. operating pressure p_s :
8 bar at 90 °C
10 bar at 60 °C
13 bar at 20 °C



Dimension 26 x 3 mm		
length per roll 50 m	(50)	1400560
length per roll 200 m	(200)	1400562
length per roll 300 m	(300)	1400563

Max. operating pressure p_s :
6 bar at 90 °C
10 bar at 60 °C



Dimension 32 x 3 mm		
length per roll 50 m	(50)	1400660

Max. operating pressure p_s :
6 bar at 90 °C
8 bar at 60 °C
10 bar at 20 °C

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

"Copert" PE-RT Plastic pipe
with oxygen barrier

for press connection systems "Cofit P/PD/PDK" and
screwed connection system "Cofit S"

rolls

Dimension 14 x 2 mm



length per roll 240 m
length per roll 600 m

(240) **1402052**
(600) **1402054**

Application:
Surface heating and cooling systems.

Pipes according to DIN 16833/DIN 16834.
Oxygen tight according to DIN 4726.

Max. operating pressure p_s : 6 bar at 70 °C

Dimension 16 x 2 mm



length per roll 240 m
length per roll 600 m

(240) **1402152**
(600) **1402154**

11.b "Cofit P" Press connection system (bronze)

Content



"Cofit P" Press fittings	11.14
"Cofit P" Press elbows	11.16
"Cofit P" Press T-pieces	11.17
"Cofit P" Press fittings	11.19
"Cofit P" Wall mounted connection pieces with press connection	11.21

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

"Cofit P" Press fittings
bronze, dimension 40, 50 and 63 mm
made of brass,
stainless steel casing,
for composition pipe "Copipe"

Universal application for heating and cooling systems and sanitary installations.

Approvals:
DVGW for all dimensions.
ATEC, CSTBat and ÖNORM up to dimension 40.

For valves and fittings with female thread.

Press connection with male thread
unplated



16	x 2.0 mm	x R 1/2	(10)	1512043
16	x 2.0 mm	x R 3/8	(10)	1512044
20	x 2.5 mm	x R 1/2	(10)	1512045
20	x 2.5 mm	x R 3/4	(10)	1512046
20	x 2.5 mm	x R 5/8	(10)	1512047
26	x 3.0 mm	x R 3/4	(5)	1512048
26	x 3.0 mm	x R 1	(5)	1512049
32	x 3.0 mm	x R 1	(5)	1512051
40	x 3.5 mm	x R 1 1/4	(5)	1512054
50	x 4.5 mm	x R 1 1/2		1512056
63	x 6.0 mm	x R 2		1512057

Press connection with collar nut
unplated



16	x 2.0 mm	x G 3/8 c/nut	(10)	1512141
16	x 2.0 mm	x G 1/4 c/nut	(10)	1512143
20	x 2.5 mm	x G 1/2 c/nut	(10)	1512144
20	x 2.5 mm	x G 3/4 c/nut	(10)	1512145
26	x 3.0 mm	x G 3/4 c/nut	(5)	1512146
26	x 3.0 mm	x G 1 c/nut	(5)	1512147
32	x 3.0 mm	x G 1 c/nut	(5)	1512148
32	x 3.0 mm	x G 1 1/4 c/nut	(5)	1512149
40	x 3.5 mm	x G 1 1/2 c/nut	(5)	1512151
50	x 4.5 mm	x G 1 3/4 c/nut		1512156
63	x 6.0 mm	x G 2 3/8 c/nut		1512157

With flat seal.
For instance for flat sealing Oventrop valves and fittings.

Press connection with female thread



16	x 2.0 mm	x Rp 1/2	(10)	1512243
20	x 2.5 mm	x Rp 1/2	(10)	1512245
20	x 2.5 mm	x Rp 3/4	(10)	1512246
26	x 3.0 mm	x Rp 3/4	(5)	1512247
26	x 3.0 mm	x Rp 1	(5)	1512248
32	x 3.0 mm	x Rp 1	(5)	1512249
40	x 3.5 mm	x Rp 1 1/4	(5)	1512252
50	x 4.5 mm	x Rp 1 1/2		1512256
63	x 6.0 mm	x Rp 2		1512257

For changing over to different pipe material and for valves and fittings with male threaded connection for sealing.

For further information see "Technical information":



Press coupling



16 x 2 mm	x 16 x 2 mm	(10)	1512543
20 x 2.5 mm	x 20 x 2.5 mm	(10)	1512545
26 x 3 mm	x 26 x 3 mm	(5)	1512546
32 x 3 mm	x 32 x 3 mm	(5)	1512547
40 x 3.5 mm	x 40 x 3.5 mm	(5)	1512548
50 x 4.5 mm	x 50 x 4.5 mm		1512549
63 x 6 mm	x 63 x 6 mm		1512550

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

Press reducing coupling



20	x 16 mm	(10)	1512655
26	x 16 mm	(5)	1512656
26	x 20 mm	(5)	1512657
32	x 20 mm	(5)	1512659
32	x 26 mm	(5)	1512660
40	x 20 mm	(5)	1512662
40	x 26 mm	(5)	1512663
40	x 32 mm	(5)	1512664
50	x 40 mm		1512665
50	x 32 mm		1512666
63	x 40 mm		1512668
63	x 50 mm		1512669

Press connection coupling



16	x 2.0 mm	x 10 mm	(10)	1514041
16	x 2.0 mm	x 12 mm	(10)	1514042
16	x 2.0 mm	x 14 mm	(10)	1514040
16	x 2.0 mm	x 15 mm	(10)	1514043
16	x 2.0 mm	x 16 mm	(10)	1514044
20	x 2.5 mm	x 15 mm	(10)	1514054
20	x 2.5 mm	x 16 mm	(10)	1514055
20	x 2.5 mm	x 18 mm	(10)	1514045
20	x 2.5 mm	x 22 mm	(10)	1514046
26	x 3.0 mm	x 22 mm	(5)	1514047

For changing over from copper press systems and stainless steel press systems to composition pipe "Copepe".
Not suitable for solder connection.

For further information see
"Technical information":



Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

"Cofit P" Press elbows

bronze,
stainless steel casing,
for composition pipe "Copipe"

Universal application for heating and cooling systems and sanitary installations.

Approvals:
DVGW for all dimensions.
ATEC, CSTBat and ÖNORM up to dimension 40.

Press connection elbow with male thread



16	x 2.0 mm	x R 1/2	(10)	1512343
16	x 2.0 mm	x R 3/8	(10)	1512344
20	x 2.5 mm	x R 1/2	(10)	1512345
20	x 2.5 mm	x R 3/8	(10)	1512358
20	x 2.5 mm	x R 3/4	(10)	1512346
26	x 3.0 mm	x R 3/4	(5)	1512347
26	x 3.0 mm	x R 1	(5)	1512357
32	x 3.0 mm	x R 1	(5)	1512348
40	x 3.5 mm	x R 1 1/4	(5)	1512349

Male thread for sealing according to EN 10226.

Dimension:
40 mm made of brass.

Press connection elbow with female thread



16	x 2.0 mm	x Rp 1/2	(10)	1512443
20	x 2.5 mm	x Rp 1/2	(10)	1512445
20	x 2.5 mm	x Rp 3/4	(10)	1512446
26	x 3.0 mm	x Rp 3/4	(5)	1512447
26	x 3.0 mm	x Rp 1	(5)	1512448
32	x 3.0 mm	x Rp 1	(5)	1512449
50	x 4.5 mm	x Rp 1 1/2		1512456

Female thread for sealing according to DIN EN 10226.

Dimension:
50 mm made of brass.

Press angle pattern fitting with female thread



20	x 2.5 mm	x Rp 3/4	(5)	1512745
26	x 3.0 mm	x Rp 1	(5)	1512747

For instance for the connection of the composition pipe "Copipe" to hot water storage cylinders.

Press connection elbow with collar nut



16	x 2.0 mm	x G 3/8	(10)	1512751
16	x 2.0 mm	x G 1/2	(10)	1512752
16	x 2.0 mm	x G 3/4	(10)	1512753
20	x 2.5 mm	x G 3/4	(10)	1512755
26	x 3.0 mm	x G 3/4	(5)	1512757

With flat seal.
For instance for flat sealing Oventrop valves and fittings.

Press elbow 90°



16	x 16 mm		(10)	1512843
20	x 20 mm		(10)	1512845
26	x 26 mm		(5)	1512847
32	x 32 mm		(5)	1512849
40	x 40 mm		(5)	1512851
50	x 50 mm			1512852
63	x 63 mm			1512853

Dimension:
40 mm made of brass.
50 mm made of brass.
63 mm made of brass.

Press elbow 45°








32	x 32 mm		(5)	1512949
40	x 40 mm		(5)	1512951
50	x 50 mm			1512952
63	x 63 mm			1512953

Dimension:
40 mm made of brass.
50 mm made of brass.
63 mm made of brass.

For further information see
"Technical information":










Article			Packing unit	Article-No.	Hint
"Cofit P" Press T-pieces bronze, stainless steel casing, for composition pipe "Copipe"					Universal application for heating and cooling systems and sanitary installations. Approvals: DVGW for all dimensions. ATEC, CSTBat and ÖNORM up to dimension 40. Dimension: 40 mm made of brass. 50 mm made of brass. 63 mm made of brass.
Press T-piece					
	16	x 16	x 16 mm	(10) 1513043	
	20	x 20	x 20 mm	(10) 1513045	
	26	x 26	x 26 mm	(5) 1513046	
	32	x 32	x 32 mm	(5) 1513047	
	40	x 40	x 40 mm	(5) 1513048	
	50	x 50	x 50 mm	1513049	
	63	x 63	x 63 mm	1513050	
Press T-piece, reduced central port					
	20	x 16	x 20 mm	(10) 1513155	
	26	x 16	x 26 mm	(5) 1513156	
	26	x 20	x 26 mm	(5) 1513157	
	32	x 16	x 32 mm	(5) 1513158	
	32	x 20	x 32 mm	(5) 1513159	
	32	x 26	x 32 mm	(5) 1513160	
	40	x 20	x 40 mm	(5) 1513162	
	40	x 26	x 40 mm	(5) 1513163	
	40	x 32	x 40 mm	(5) 1513164	
	50	x 40	x 50 mm	1513165	
	63	x 40	x 63 mm	1513167	
Press T-piece, reduced straight port					
	20	x 20	x 16 mm	(10) 1513255	
	26	x 26	x 20 mm	(5) 1513257	
Press T-piece, reduced central and straight port					
	20	x 16	x 16 mm	(10) 1513354	
	26	x 16	x 20 mm	(5) 1513356	
	26	x 20	x 20 mm	(5) 1513358	
	32	x 20	x 26 mm	(5) 1513361	
	40	x 26	x 32 mm	(5) 1513365	
Press T-piece, enlarged central port					
	16	x 20	x 16 mm	(10) 1513454	
	20	x 26	x 20 mm	(5) 1513457	
	26	x 32	x 26 mm	(5) 1513460	















Article			Packing unit	Article-No.	Hint
Press connection T-piece with female thread					
16	x Rp 1/2	x 16 mm	(10)	1513643	Female thread for sealing according to DIN EN 10226.
20	x Rp 1/2	x 20 mm	(10)	1513645	
26	x Rp 1/2	x 26 mm	(5)	1513647	Dimension: 40 mm made of brass. 50 mm made of brass. 63 mm made of brass.
26	x Rp 3/4	x 26 mm	(5)	1513648	
32	x Rp 1/2	x 32 mm	(5)	1513649	
32	x Rp 1	x 32 mm	(5)	1513651	
40	x Rp 1/2	x 40 mm	(5)	1513652	
40	x Rp 1	x 40 mm	(5)	1513655	
50	x Rp 1	x 50 mm		1513656	
63	x Rp 1	x 63 mm		1513658	

For further information see "Technical information":









Article	Packing unit	Article-No.	Hint
<p>"Cofit P" Press fittings stainless steel casing, for composition pipe "Copipe"</p>			<p>Application: Central heating systems with circulation pump and cooling systems. Max. pressure and temperature: 10 bar, 95 °C. For valves and radiator lockshield valves "Combi 2, 3 and 4" as well as nickel plated valves and fittings of other manufacturers with Rp 1/2 female thread.</p>
<p>Press connection with male thread bronze, nickel plated</p>			
	16 x 2.0 mm x R 3/8	(10) 1512062	
	16 x 2.0 mm x R 1/2	(10) 1512063	
	20 x 2.5 mm x R 1/2	(10) 1512065	
<p>Press connection with collar nut bronze, nickel plated</p>			
	16 x 2.0 mm x G 3/4 c/nut	(10) 1512163	
	20 x 2.5 mm x G 3/4 c/nut	(10) 1512165	
<p>brass resistant to dezincification, nickel plated</p>			
	16 x 2.0 mm x G 3/4 c/nut	(10) 1512171	
	16 x 2.0 mm x G 1/2 c/nut	(10) 1512172	
<p>Cross fitting with press connection brass, unplated</p>			<p>With flat seal. For instance for flat sealing Oventrop valves and fittings.</p>
	16 x 16 mm x 16 mm	1514653	
	20 x 16 mm x 16 mm	1514654	
	20 x 16 mm x 20 mm	1514655	
<p>Pressure test plug with deaeration brass Set = 10 pieces, for composition pipe "Copipe"</p>			<p>With spherical sealing surface. Metal to metal seal against tapered surface, for instance for Oventrop distributors/collectors as well as valves and controls with G 3/4 compression connection.</p>
	16 x 2.0 mm	(10) 1506085	
	20 x 2.5 mm	(10) 1506087	
	26 x 3.0 mm	(10) 1506088	
	32 x 3.0 mm	(10) 1506089	
<p>Radiator connection block with composition pipe "Copipe" 16 x 2.0 mm insulation made of expanded polystyrene</p>			<p>With insulation box. For instance for flat sealing Oventrop valves and fittings.</p>
		(10) 1015645	
<p>"Multimodul" Radiator connection</p>			<p>Max. pressure 20 bar.</p>
		1015651	

Article	Packing unit	Article-No.	Hint
	<p>Radiator connection T-piece nickel plated, pipe made of copper, fitting made of brass for composition pipe "Copipe"</p> <p>16 x 2.0 mm (10) 1515143 20 x 2.5 mm (10) 1515146 16 x 2.0 mm (10) 1515144</p>		<p>Height = 300 mm. Copper pipe: Ø 15 x 1.0 mm, Suitable compression fittings for instance item no. 1027443. Valid for item no. 1515143, 1515146 and 1515243. Height: 750 mm</p>
	<p>Radiator connection elbow nickel plated, pipe made of copper, fitting made of brass for composition pipe "Copipe"</p> <p>16 x 2.0 mm (10) 1515243 16 x 2.0 mm (10) 1515244</p>		<p>For further information see "Technical information":</p>  <p>Height: 750 mm</p>
	<p>Fixing set for radiator connection elbow</p> <p>(10) 1515290</p>		

Article	Packing unit	Article-No.	Hint
<p>"Cofit P" Wall mounted connection pieces with press connection bronze, stainless steel casing, for composition pipe "Copipe"</p>			<p>Approvals: DVGW for all dimensions. ATEC, CSTBat and ÖNORM up to dimension 40. For the connection of apparatus, valves and fittings. Fixing and insulating material available from specialist stores.</p>
<p>Wall mounted connection piece with press connection, 90°, short model</p>			
	16 x 2.0 mm x Rp 1/2	(10) 1517053	
	20 x 2.5 mm x Rp 1/2	(10) 1517055	
	20 x 2.5 mm x Rp 3/4	(10) 1517056	
<p>Wall mounted connection piece with press connection, 90°, long model</p>			
	16 x 2.0 mm x Rp 1/2	(10) 1517043	
	20 x 2.5 mm x Rp 1/2	(10) 1517045	
<p>Sound absorbing set</p>			<p>For wall mounted connection pieces item no. 1517043/45. For wall mounted connection pieces item no. 1517053/55/56.</p>
		(10) 1518070	
		(10) 1518074	
<p>Wall mounted connection piece with press connection, angle pattern</p>			
	16 x 16 mm x Rp 1/2	(10) 1517143	
	20 x 20 mm x Rp 1/2	(10) 1517145	
<p>Wall mounted connection piece with press connection, straight pattern</p>			
	16 x 16 mm x Rp 1/2	(10) 1517243	For long model.
	20 x 20 mm x Rp 1/2	(10) 1517245	
	16 x 16 mm x Rp 1/2	(10) 1517253	For short model.
	20 x 20 mm x Rp 1/2	(10) 1517255	
<p>Wall traverse with press connection, 90° with fixing set G 3/4</p>			
	16 x 2.0 mm x Rp 1/2	(10) 1517343	
	20 x 2.5 mm x Rp 1/2	(10) 1517345	
<p>Flush-mounted elbow for cisterns with press connection with fixing set G 3/4</p>			
	16 x 2.0 mm x Rp 1/2	(10) 1517443	
<p>Press connection with female thread with locking device</p>			For flush mounting, for instance for outdoor taps.
	16 x 2.0 mm x Rp 1/2	(10) 1517643	<p>For further information see "Technical information":</p>
	20 x 2.5 mm x Rp 1/2	(10) 1517645	



Article	Packing unit	Article-No.	Hint
Brackets			
with wall mounted connection pieces, short model and sound insulation			
	Wall mounted connection piece	Gauge for bore holes	
16 x 2.0 mm	x Rp 1/2	153 mm (5)	1518183
16 x 2.0 mm	x Rp 1/2	80 mm (5)	1518184
16 x 2.0 mm	x Rp 1/2	100 mm (5)	1518185
			
16 x 2.0 mm	x Rp 1/2	153 mm (5)	1518186
20 x 2.5 mm	x Rp 1/2	153 mm (5)	1518187
16 x 2.0 mm	x Rp 1/2	80 mm (5)	1518188
16 x 2.0 mm	x Rp 1/2	100 mm (5)	1518189
with wall mounted connection pieces, long model with sound insulation			
			
16 x 2.0 mm	x Rp 1/2	80 mm (5)	1518198
16 x 2.0 mm	x Rp 1/2	100 mm (5)	1518199
			
16 x 2.0 mm	x Rp 1/2	153 mm (5)	1518196
20 x 2.5 mm	x Rp 1/2	153 mm (5)	1518197
	Pressure test plug plastic, self sealing		For further information see "Technical information":
G 1/2 M	(50)	1506092	
G 3/4 male thread	(50)	1506093	

**11.c "Cofit PD" Press connection system
(bronze, pressing must be carried out to tighten the connection)**

Content



"Cofit PD" Press fittings	11.24
"Cofit PD" Press elbows	11.26
"Cofit PD" Press T-pieces	11.27
"Cofit PD" Press fittings	11.28
"Cofit PD" Wall mounted connection pieces with press connection	11.29

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

"Cofit PD" Press fittings
designed not to seal
in an uncompressed condition,
bronze,
stainless steel casing,
for composition pipe "Copipe"

Universal application for heating and cooling systems and sanitary installations.

Approval: DVGW
Dimension 26: DVGW in preparation



Press connection with male thread
unplated

For valves with female threaded connection.

16	x 2.0 mm	x R 1/2	(10)	1532043
16	x 2.0 mm	x R 3/8	(10)	1532044
20	x 2.5 mm	x R 1/2	(10)	1532045
20	x 2.5 mm	x R 3/4	(10)	1532046
20	x 2.5 mm	x R 3/8	(10)	1532047
26	x 3.0 mm	x R 3/4	(5)	1532048
26	x 3.0 mm	x R 1	(5)	1532049
32	x 3.0 mm	x R 1		1532051*
40	x 3.5 mm	x R 1 1/4		1532054*
50	x 4.5 mm	x R 1 1/2		1532056*
63	x 6.0 mm	x R 2		1532057*



Press connection with collar nut
unplated

With flat seal.
For instance for flat sealing Oventrop valves and fittings.

16	x 2.0 mm	x G 3/8 c/nut	(10)	1532141
16	x 2.0 mm	x G 3/4 c/nut	(10)	1532143
20	x 2.5 mm	x G 1/2 c/nut	(10)	1532144
20	x 2.5 mm	x G 3/4 c/nut	(10)	1532145
26	x 3.0 mm	x G 3/4 c/nut		1532146*
26	x 3.0 mm	x G 1 c/nut	(5)	1532147
32	x 3.0 mm	x G 1 c/nut		1532148*
32	x 3.0 mm	x G 1 1/4 c/nut		1532149*
40	x 3.5 mm	x G 1 1/2 c/nut		1532151*
50	x 4.5 mm	x G 1 3/4 c/nut		1532156*
63	x 6.0 mm	x G 2 3/4 c/nut		1532157*



Press connection with female thread

For changing over to different pipe material and for valves and fittings with male threaded connection for sealing.

16	x 2.0 mm	x Rp 1/2	(10)	1532243
20	x 2.5 mm	x Rp 1/2	(10)	1532245
20	x 2.5 mm	x Rp 3/4	(10)	1532246
26	x 3.0 mm	x Rp 3/4	(5)	1532247
26	x 3.0 mm	x Rp 1	(5)	1532248
32	x 3.0 mm	x Rp 1		1532249*
40	x 3.5 mm	x Rp 1 1/4		1532252*
50	x 4.5 mm	x Rp 1 1/2		1532256*
63	x 6.0 mm	x Rp 2		1532257*



Press coupling

16	x 2 mm	x 16 x 2 mm	(10)	1532543
20	x 2.5 mm	x 20 x 2.5 mm	(10)	1532545
26	x 3 mm	x 26 x 3 mm	(5)	1532546
32	x 3 mm	x 32 x 3 mm		1532547*
40	x 3.5 mm	x 40 x 3.5 mm		1532548*
50	x 4.5 mm	x 50 x 4.5 mm		1532549*
63	x 6 mm	x 63 x 6 mm		1532550*

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------



Press reducing coupling

20	x 16 mm	(10)	1532655
26	x 16 mm	(5)	1532656
26	x 20 mm	(5)	1532657
32	x 20 mm		1532659*
32	x 26 mm		1532660*
40	x 20 mm		1532662*
40	x 26 mm		1532663*
40	x 32 mm		1532664*
50	x 40 mm		1532665*
50	x 32 mm		1532666*
63	x 40 mm		1532668*
63	x 50 mm		1532669*



Press connection coupling

16	x 2.0 mm	x 10 mm	(10)	1534041
20	x 2.5 mm	x 16 mm		1534055*
16	x 2.0 mm	x 12 mm	(10)	1534042
16	x 2.0 mm	x 14 mm	(10)	1534040
16	x 2.0 mm	x 15 mm	(10)	1534043
16	x 2.0 mm	x 16 mm	(10)	1534044
20	x 2.5 mm	x 15 mm	(10)	1534054
20	x 2.5 mm	x 18 mm	(10)	1534045
20	x 2.5 mm	x 22 mm	(10)	1534046
26	x 3.0 mm	x 22 mm	(5)	1534047

For changing over from copper press systems and stainless steel press systems to composition pipe "Copipe".
Not suitable for solder connection.

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

"Cofit PD" Press elbows
designed not to seal
in an uncompressed condition,
bronze,
stainless steel casing,
for composition pipe "Copipe"

Universal application for heating and cooling systems and sanitary installations.

Approval: DVGW
Dimension 26: DVGW in preparation

Press connection elbow with male thread

Male thread for sealing according to EN 10226.



16	x 2.0 mm	x R 1/2	(10)	1532343
16	x 2.0 mm	x R 3/8	(10)	1532344
20	x 2.5 mm	x R 1/2	(10)	1532345
20	x 2.5 mm	x R 3/8	(10)	1532346
32	x 3.0 mm	x R 1		1532348*
20	x 2.5 mm	x R 3/8	(10)	1532358
26	x 3.0 mm	x R 3/8	(5)	1532347
26	x 3.0 mm	x R 1	(5)	1532357

For further information see
"Technical information":



Press connection elbow with female thread

Female thread for sealing according to EN 10226.



16	x 2.0 mm	x Rp 1/2	(10)	1532443
20	x 2.5 mm	x Rp 1/2	(10)	1532445
20	x 2.5 mm	x Rp 3/8	(10)	1532446
26	x 3.0 mm	x Rp 3/8	(5)	1532447
26	x 3.0 mm	x Rp 1	(5)	1532448
32	x 3.0 mm	x Rp 1		1532449*

Press angle pattern fitting with female thread

For instance for the connection of the composition pipe "Copipe" to hot water storage cylinders.



20	x 2.5 mm	x Rp 3/8	(5)	1532745
26	x 3.0 mm	x Rp 1		1532747

Press connection elbow with collar nut

With flat seal.
For instance for flat sealing Oventrop valves and fittings.



16	x 2.0 mm	x G 3/8 c/nut	(10)	1532751
16	x 2.0 mm	x G 1/2 c/nut	(10)	1532752
16	x 2.0 mm	x G 3/4 c/nut	(10)	1532753
20	x 2.5 mm	x G 3/8 c/nut	(10)	1532755
26	x 3.0 mm	x G 3/4 c/nut	(5)	1532757

Press elbow 90°



16	x 16 mm		(10)	1532843
20	x 20 mm		(10)	1532845
26	x 26 mm		(5)	1532847
32	x 32 mm			1532849*
50	x 50 mm			1532851*
50	x 50 mm			1532852*
63	x 63 mm			1532853*

Press elbow 45°

32	x 32 mm			1532949*
40	x 40 mm			1532951*
50	x 50 mm			1532952*
63	x 63 mm			1532953*

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

"Cofit PD" Press T-pieces
designed not to seal
in an uncompressed condition,
bronze,
stainless steel casing,
for composition pipe "Copepe"

Universal application for heating and cooling systems and sanitary installations.

Approval: DVGW
Dimension 26: DVGW in preparation

For further information see
"Technical information":



Press T-piece

16	x 16	x 16 mm	(10)	1533043
20	x 20	x 20 mm	(10)	1533045
26	x 26	x 26 mm	(5)	1533046
32	x 32	x 32 mm		1533047*
40	x 40	x 40 mm		1533048*
50	x 50	x 50 mm		1533049*
63	x 63	x 63 mm		1533050*



Press T-piece, reduced central port

20	x 16	x 20 mm	(10)	1533155
26	x 16	x 26 mm	(5)	1533156
26	x 20	x 26 mm	(5)	1533157
32	x 16	x 32 mm		1533158*
32	x 20	x 32 mm		1533159*
32	x 26	x 32 mm		1533160*
40	x 20	x 40 mm		1533162*
40	x 26	x 40 mm		1533163*
40	x 32	x 40 mm		1533164*
50	x 40	x 50 mm		1533165*
63	x 40	x 63 mm		1533167*



Press T-piece, reduced straight port

20	x 20	x 16 mm	(10)	1533255
26	x 26	x 20 mm	(5)	1533257



Press T-piece, reduced central and straight port

20	x 16	x 16 mm	(10)	1533354
26	x 16	x 20 mm	(5)	1533356
26	x 20	x 20 mm	(5)	1533358
32	x 20	x 26 mm		1533361*



Press T-piece, enlarged central port

16	x 20	x 16 mm	(10)	1533454
20	x 26	x 20 mm	(5)	1533457
26	x 32	x 26 mm		1533460*



Press connection T-piece with female thread

16	x Rp 1/2	x 16 mm	(10)	1533643
20	x Rp 1/2	x 20 mm	(10)	1533645
26	x Rp 1/2	x 26 mm	(5)	1533647
26	x Rp 3/4	x 26 mm	(5)	1533648
32	x Rp 1/2	x 32 mm		1533649*
32	x Rp 1	x 32 mm		1533651*
40	x Rp 1/2	x 40 mm		1533652*
40	x Rp 1	x 40 mm		1533655*
50	x Rp 1	x 50 mm		1533656*
63	x Rp 1	x 63 mm		1533658*

Female thread for sealing according to
DIN EN 10226.

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

"Cofit PD" Press fittings

designed not to seal in an uncompressed condition, stainless steel casing, for composition pipe "Copipe"

Application:
Central heating systems with circulation pump and cooling systems.

Max. pressure and temperature:
10 bar, 95 °C



Press connection with male thread

brass resistant to dezincification, nickel plated

16	x 2.0 mm	x R 3/8	(10)	1532062
16	x 2.0 mm	x R 1/2	(10)	1532063
20	x 2.5 mm	x R 1/2	(10)	1532065

For valves and radiator lockshield valves "Combi 2, 3 and 4" as well as nickel plated valves and fittings with Rp 1/2 female thread of other manufacturers.



Press connection with collar nut

brass resistant to dezincification, nickel plated

16	x 2.0 mm	x G 3/4 c/nut	(10)	1532163
20	x 2.5 mm	x G 3/4 c/nut	(10)	1532165

With spherical sealing surface. Metal to metal seal against tapered surface, for instance for Oventrop distributors/collectors as well as valves and controls with compression connection G 3/4.



brass resistant to dezincification, nickel plated

16	x 2.0 mm	x G 3/4 c/nut	(10)	1532171
16	x 2.0 mm	x G 1/2 c/nut	(10)	1532172
20	x 2.5 mm	x G 1 c/nut	(10)	1532173

With flat seal. For instance flat sealing Oventrop valves and fittings.



Cross fitting with press connection

brass, unplated

16	x 16	x 16 mm		1534653
20	x 16	x 16 mm		1534654
20	x 16	x 20 mm		1534655

With insulation box.

Radiator connection T-piece

nickel plated, pipe made of copper, fitting made of brass for composition pipe "Copipe"

16	x 2.0 mm			1535143*
20	x 2.5 mm			1535146*
16	x 2.0 mm			1535144*

Height: 300 mm
Copper pipe: Ø 15 x 1.0 mm
Suitable compression fittings: e.g. item no. 1027443
Valid for item no. 1535143, 1535146 and 1535243.







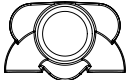


Height: 750 mm

Radiator connection elbow

nickel plated, pipe made of copper, fitting made of brass for composition pipe "Copipe"

16	x 2.0 mm			1535243*
16	x 2.0 mm			1535244*

Height: 750 mm

Article	Packing unit	Article-No.	Hint
<p>"Cofit PD" Wall mounted connection pieces with press connection designed not to seal in an uncompressed condition, bronze, stainless steel casing, for composition pipe "Copepe"</p>			<p>Universal application for heating and cooling systems and sanitary installations.</p> <p>Approval: DVGW Dimension 26: DVGW in preparation</p>
<p>Wall mounted connection piece with press connection, 90°, short model</p>			<p>Fixing and insulating material available from specialist stores. For the connection of apparatus, valves and fittings.</p>
	16 x 2.0 mm	x Rp 1/2 (10) 1537053	
	20 x 2.5 mm	x Rp 1/2 (10) 1537055	
	20 x 2.5 mm	x Rp 3/4 (10) 1537056	
<p>Wall mounted connection piece with press connection, 90°, long model</p>			<p>For further information see "Technical information":</p> 
	16 x 2.0 mm	x Rp 1/2 (10) 1537043	
	20 x 2.5 mm	x Rp 1/2 (10) 1537045	
<p>Sound absorbing set</p>			<p>For wall mounted connection pieces item no. 1517043/45. For wall mounted connection pieces item no. 1517053/55/56.</p>
		(10) 1518070	
		(10) 1518074	
<p>Wall mounted connection piece with press connection, angle pattern</p>			
	16 x 16 mm	x Rp 1/2 (10) 1537143	
	20 x 20 mm	x Rp 1/2 (10) 1537145	
<p>Wall mounted connection piece with press connection, U-shape</p>			
	20 x 16 mm	x Rp 1/2 (10) 1537146	
	26 x 20 mm	x Rp 1/2 (10) 1537147	
	26 x 26 mm	x Rp 1/2 (10) 1537148	
<p>Sound absorbing set for U-shaped wall mounting connection piece</p>			
		(10) 1539946	<p>For wall mounted connection piece item no. 1537146. For wall mounted connection pieces item no. 1537147/ 48.</p>
		(10) 1539947	
<p>Wall mounted connection piece with press connection, straight pattern</p>			
	16 x 16 mm	x Rp 1/2 (10) 1537243	<p>For long model.</p>
	20 x 20 mm	x Rp 1/2 (10) 1537245	
	16 x 16 mm	x Rp 1/2 (10) 1537253	<p>For short model.</p>
	20 x 20 mm	x Rp 1/2 (10) 1537255	
<p>Wall traverse with press connection, 90° with fixing set G 3/4</p>			
	16 x 2.0 mm	x Rp 1/2 (10) 1537343	
	20 x 2.5 mm	x Rp 1/2 (10) 1537345	

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------



Flush-mounted elbow for cisterns with press connection
with fixing set G ¾

16 x 2.0 mm	x Rp ½	(10) 1537443	
-------------	--------	--------------	--



Press connection with female thread
with locking device

16 x 2.0 mm	x Rp ½	(10) 1537643	
20 x 2.5 mm	x Rp ½	(10) 1537645	

For flush mounting, for instance for outdoor taps.

For further information see "Technical information":



Brackets
with wall mounted connection pieces,
short model and sound insulation



Wall mounted connection piece		Gauge for bore holes			
16 x 2.0 mm	x Rp ½	80 mm	(5)	1538184	
16 x 2.0 mm	x Rp ½	100 mm	(5)	1538185	
16 x 2.0 mm	x Rp ½	153 mm	(5)	1538183	

With flat bracket.



16 x 2.0 mm	x Rp ½	153 mm	(5)	1538186	
20 x 2.5 mm	x Rp ½	153 mm	(5)	1538187	
16 x 2.0 mm	x Rp ½	80 mm	(5)	1538188	
16 x 2.0 mm	x Rp ½	100 mm	(5)	1538189	

With cranked bracket.

**with wall mounted connection pieces,
long model and sound insulation**



16 x 2.0 mm	x Rp ½	80 mm	(5)	1538198	
16 x 2.0 mm	x Rp ½	100 mm	(5)	1538199	

With cranked bracket.

For further information see "Technical information":



16 x 2.0 mm	x Rp ½	153 mm	(5)	1538196	
20 x 2.5 mm	x Rp ½	153 mm	(5)	1538197	

**11.d "Cofit PDK" Press connection system
(plastic, pressing must be carried out to tighten the connection)**

Content



"Cofit PDK" Press fittings

11.32

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

"Cofit PDK" Press fittings
designed not to seal
in an uncompressed condition,
plastic (PPSU)
stainless steel casing
for composition pipe "Copipe"

Universal application for heating and cooling systems and sanitary installations.

DVGW approval in preparation.

Press coupling



16 x 2 mm	x 16 x 2 mm	(10)	1522543
20 x 2.5 mm	x 20 x 2.5 mm	(10)	1522545

Press reducing coupling



20 x 16 mm		(10)	1522655
------------	--	------	----------------

Press elbow 90°



16 x 16 mm		(10)	1522843
20 x 20 mm		(10)	1522845

Press T-piece



16 x 16 x 16 mm		(10)	1523043
20 x 20 x 20 mm		(10)	1523045

Press T-piece, reduced central port



20 x 16 x 20 mm		(10)	1523155
-----------------	--	------	----------------

Press T-piece, reduced straight port



20 x 20 x 16 mm		(10)	1523255
-----------------	--	------	----------------

Press T-piece, reduced central and straight port



20 x 16 x 16 mm		(10)	1523354
-----------------	--	------	----------------

Press T-piece, enlarged central port



16 x 20 x 16 mm		(10)	1523454
-----------------	--	------	----------------

11.e "Cofit S" Screwed connection system

Content



"Cofit S" Compression fittings	11.34
"Cofit S" Compression fittings, female thread	11.34
"Cofit S" Nipples	11.34
"Cofit S" Connection pieces	11.34
"Cofit S" Screwed fittings	11.35
"Cofit S" Wall mounted connection pieces	11.37
"Cofit S" Brackets with wall mounted connection pieces	11.37

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

"Cofit S" Compression fittings
 for G 3/4 male thread according to DIN EN 16313 (cone "Euro")
 DVGW reg. no. DW-8501AT2407



Collar nut nickel plated

14	x 2.0 mm	x G 3/4 c/nut	(10)	1507954
16	x 2.0 mm	x G 3/4 c/nut	(10)	1507955
18	x 2.0 mm	x G 3/4 c/nut	(10)	1507958
20	x 2.5 mm	x G 3/4 c/nut	(10)	1507960

Collar nut unplated

14	x 2.0 mm	x G 3/4 c/nut	(10)	1507974
16	x 2.0 mm	x G 3/4 c/nut	(10)	1507975
20	x 2.5 mm	x G 3/4 c/nut	(10)	1507980
26	x 3.0 mm	x G 1 c/nut	(10)	1507983
32	x 3.0 mm	x G 1 1/4 c/nut	(10)	1507985



Universal application for heating and cooling systems and sanitary installations.
 For DVGW approved composition pipe "Copipe" and PE-X plastic pipes for the same dimension and same processing.
 Installation instructions are to be followed.
 For nickel plated valves, radiator lockshield valves and other valves and fittings with G 3/4 male thread, with tapered seal and O-ring seal.

For distributors and fittings installed in risers and distributor pipes, with tapered seal and O-ring seal.

"Cofit S" Compression fittings, female thread
 outlet made of brass resistant to dezincification, brass compression ring, compression nut made of nickel plated brass



14	x 2.0 mm	x G 1/2 male	(10)	1507354
16	x 2.0 mm	x G 1/2 male	(10)	1507355

For Oventrop valves and radiator lockshield valves with female thread Rp 1/2 and compression ends.
 No sealing required.
 Not suitable for thermostatic valves "RF".

"Cofit S" Nipples
 bronze



nickel plated

R 3/8	x G 3/4 male thread	(25)	1503161
R 1/2	x G 3/4 male thread	(25)	1503162
R 3/4	x G 3/4 male thread	(25)	1503164

For the connection of composition pipes to valves and fittings with female thread according to EN 10226.

unplated
 DVGW reg. no. DW-8501AT2407




R 3/8	x G 3/4 male thread	(25)	1503151
R 1/2	x G 3/4 male thread	(25)	1503152
R 3/4	x G 1 M	(10)	1503155
R 1	x G 1 1/4 M	(10)	1503156
R 1	x G 1 M	(10)	1503157

"Cofit S" Connection pieces
 DVGW reg. no. DW-8501AT2407
 bronze
 with flat seal



G 3/8 female	x G 3/4 male thread	(25)	1503053
G 3/4 female	x G 3/4 male thread	(25)	1503054
G 1 female	x G 1 M	(10)	1503055
G 1 1/4 female	x G 1 1/4 M	(10)	1503056

For the connection of the composition pipe "Copipe" to valves and fittings with male thread.

Award:
 Pragothem Prague

For further information see "Technical information":



Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

"Cofit S" Screwed fittings
DVGW reg. no. DW-8501AT2407
bronze
for floor to floor distribution and risers

Universal application for heating and cooling systems and sanitary installations.

When using compression fittings with G 3/4 collar nut, the screwed fittings are suitable for use on composition pipe, copper, precision steel and plastic pipes.

Tapered and cylindrical sealing surface for metal to metal and O-ring sealing.



Double nipple, bronze, unplated

G 3/4 male thread	x G 3/4 male thread	(25)	1504054
G 1 M	x G 1 M	(10)	1504055
G 1 1/4 M	x G 1 1/4 M	(10)	1504056



reduced

G 1 M	x G 3/4 male thread	(10)	1504064
G 1 1/4 M	x G 1 M	(10)	1504065
G 1 1/4 M	x G 3/4 male thread	(10)	1504066

Connection piece



G 3/4 male thread	x Rp 1/2	(25)	1504153
G 3/4 male thread	x Rp 3/4	(25)	1504154
G 1 M	x Rp 1	(10)	1504155
G 1 1/4 M	x Rp 1 1/4	(10)	1504156

T pieces with male thread



a	b	c		
G 3/4	x G 3/4	x G 3/4	(10)	1504554
G 1	x G 1	x G 1	(10)	1504555
G 1 1/4	x G 1 1/4	x G 1 1/4	(5)	1504556

reduced



a	b	c		
G 3/4	x G 1	x G 3/4	(10)	1504552
G 3/4	x G 1 1/4	x G 3/4	(5)	1504553
G 1	x G 3/4	x G 3/4	(10)	1504565
G 1	x G 3/4	x G 1	(10)	1504564
G 1	x G 1	x G 3/4	(10)	1504563
G 1	x G 1 1/4	x G 3/4	(5)	1504575
G 1	x G 1 1/4	x G 1	(5)	1504572
G 1 1/4	x G 3/4	x G 3/4	(5)	1504570
G 1 1/4	x G 3/4	x G 1	(5)	1504574
G 1 1/4	x G 3/4	x G 1 1/4	(5)	1504568
G 1 1/4	x G 1	x G 3/4	(5)	1504573
G 1 1/4	x G 1	x G 1	(5)	1504567
G 1 1/4	x G 1	x G 1 1/4	(5)	1504566
G 1 1/4	x G 1 1/4	x G 3/4	(5)	1504569
G 1 1/4	x G 1 1/4	x G 1	(5)	1504571

T-bridging piece with male thread



G 3/4	x G 3/4	x G 3/4	(5)	1504754
-------	---------	---------	-----	----------------

To create junction points when using the T-piece, item no. 1504554.

For further information see "Technical information":



Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

Cross connection piece
brass



G 1	x G 1	x G 3/4	x G 3/4	(10)	1505565
G 1 1/4	x G 1 1/4	x G 3/4	x G 3/4	(10)	1505566
G 1 1/4	x G 1	x G 3/4	x G 3/4	(10)	1505567

Elbow 90°



G 3/4 male thread	x G 3/4 male thread	(10)	1504454
G 1 M	x G 1 M	(10)	1504455
G 1 1/4 M	x G 1 1/4 M	(10)	1504456

Connection elbow 90 °



G 3/4 male thread	x Rp 1/2	(10)	1504353
G 3/4 male thread	x Rp 3/4	(10)	1504354
G 1 M	x Rp 1	(10)	1504355
G 1 1/4 M	x Rp 1 1/4	(5)	1504356

To extend the sanitary distributor for one connection.

Connection elbow 90 °



G 3/4 male thread	x R 1/2	(10)	1504363
-------------------	---------	------	----------------

For instance for the connection of the composition pipe "Copipe" to flush-mounted valves and fittings.

For further information see "Technical information":



Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

"Cofit S" Wall mounted connection pieces
 DVGW reg. no. DW-8501AT2407
 bronze

For the connection of apparatus, valves and fittings.
 Fixing and insulating material available from specialist stores.

Wall mounted connection piece



G 3/4 male thread	x Rp 1/2	(25)	1506053
G 3/4 male thread	x Rp 3/4	(25)	1506054

Wall mounted connection piece, angle pattern



G 3/4 male thread	x Rp 1/2 x G 3/4 male thread	(25)	1506153
-------------------	------------------------------	------	----------------

Wall mounted connection piece, straight pattern



G 3/4 male thread	x Rp 1/2 x G 3/4 male thread	(25)	1506253
-------------------	------------------------------	------	----------------

Wall traverse 90°
 with fixing set G 3/4



G 3/4 male thread	x Rp 1/2	(5)	1506553
-------------------	----------	-----	----------------

Flush-mounted elbow for cisterns
 with fixing set G 3/4



G 3/4 male thread	x Rp 1/2	(10)	1506653
-------------------	----------	------	----------------

"Cofit S" Brackets with wall mounted connection pieces

Wall mounted connection piece Gauge for bore holes



G 3/4 male thread	x Rp 1/2	80 mm	(10)	1506073
-------------------	----------	-------	------	----------------

With flat bracket.



G 3/4 male thread	x Rp 1/2	100 mm	(10)	1506075
-------------------	----------	--------	------	----------------

With flat bracket.



G 3/4 male thread	x Rp 1/2	80 mm	(10)	1506176
-------------------	----------	-------	------	----------------

With cranked bracket.

G 3/4 male thread	x Rp 1/2	100 mm	(10)	1506177
-------------------	----------	--------	------	----------------

G 3/4 male thread	x Rp 1/2	153 mm	(10)	1506178
-------------------	----------	--------	------	----------------

Pressure test plug
 plastic, self sealing



G 1/2 M		(50)	1506092
G 3/4 male thread		(50)	1506093

For further information see "Technical information":












11.f Fixing material and accessories for pipes

Content

Fixing material	11.40
Accessories	11.40









Article	Packing unit	Article-No.	Hint
Fixing material for pipes			To fix the pipework on concrete flooring.
	Single dowel hook plastic		
for pipes with an outer diameter of up to 32 mm	(50)	1509091	
	Double dowel hook plastic		
for pipes with an outer diameter of up to 32 mm	(50)	1509092	
	Single dowel hook "Maxi" plastic		To fix insulated pipework on concrete flooring. No allowance for insulating material required.
for insulated pipes with an outer diameter of up to 55 mm	(50)	1509093	
	Single pipe clip plastic		With thread M 6. To fix the pipework on the wall.
for pipes with an outer diameter of			
14 mm	(100)	1509151	
16 mm	(100)	1509152	
20 mm	(100)	1509153	
Accessories for pipes			
	Protective tube made of LDPE		For protecting the pipe - at junction points of screed joints according to DIN EN 1264-4 / DIN 18560 T 2 - at the entry points when set in concrete - at the exit points when set in concrete
Length: 300 mm, slotted, for 14, 16 and 17 mm pipes	(20)	1501184	Only sold in units of 20 protective tubes per bag.
	Single rosette cover plastic		Outer diameter of the covers: 56 mm
for pipes with an outer diameter of			
14 mm		1509661	
16 mm		1509662	
	Distance between pipe centres 50 mm Perforation		
12 mm	(25)	1016671	
14 mm	(25)	1016672	
15 mm	(25)	1016673	
16 mm	(25)	1016674	
18 mm	(25)	1016675	



11.g Tools

Content

Tools	11.42
Press tools	11.46
Accessories	11.47

Article	Article-No.	Hint
Tools		
for pipes		
	Pipe cutter with special cutting wheel	For cutting the pipes at right angles, one tool for all diameters. Spare cutting wheel in the grip.
	up to 32 mm diameter 1509580	
	Spare cutting wheel 1509588	For pipe cutter 1509580.
	up to 63 mm diameter 1509589	
	Spare cutting wheel 1509593	For pipe cutter 1509589.
	Pipe shears up to 20 mm diameter	
	with protective tube cutter 1509567	
	Spare cutter for composition pipe 1509568	
	Spare cutter for protective tube 1509569	
Universal tool		
for deburring and calibrating mandrels made of stainless steel		
	for pipes 14 x 2.0 mm 1509594	For calibrating and deburring the pipes at the same time. By calibrating and chamfering the pipe ends, optimal fitting conditions are ensured for the reinforcing sleeves of the press fittings "Cofit P" and for the outlets of the compression fittings "Cofit S".
	for pipes 16 x 2.0 mm	
	for pipes 20 x 2.5 mm	
	for pipes 26 x 3.0 mm	
	for pipes 32 x 3.0 mm	
	for pipes 14 x 2.0 mm 1509596	
	for pipes 16 x 2.0 mm	
	for pipes 18 x 2.0 mm	
	for pipes 20 x 2.0 mm	
	for pipes 26 x 3.0 mm	
	for pipes 40 x 3.5 mm 1519593	
Mandrels		
for universal tool		
for deburring and calibrating		
made of stainless steel		
	for pipes 14 x 2.0 mm 1509570	
	for pipes 16 x 2.0 mm 1509571	
	for pipes 20 x 2.5 mm 1509573	
	for pipes 26 x 3.0 mm 1509574	
	for pipes 32 x 3.0 mm 1509575	

Article	Article-No.	Hint
---------	-------------	------

Smoothing tool
for deburring and smoothing
cutting edge made of hardened stainless steel



for pipes 40 x 3.5 mm **1519595**

Handgrip



for smoothing tool **1519596**

Universal tool
for deburring and calibrating



for pipes 50 x 4.5 mm **1519598**
for pipes 63 x 6.0 mm **1519599**

Tool case for deburring/calibrating



made of plastic **1519590**

Content:
Deburring and calibrating tools made of tempered stainless steel with protecting cover made of galvanised steel
for pipes 14 x 2 mm
for pipes 16 x 2 mm
for pipes 18 x 2 mm
for pipes 20 x 2.5 mm
for pipes 26 x 3 mm
for pipes 32 x 3 mm
for pipes 40 x 3.5 mm

Deburring and calibrating tool with 9 mm hexagon seating.
Deburring and calibrating tool for use with rechargeable battery screwdriver up to a max. speed of 500 revolutions/min.

Content: **1519594**



Deburring and calibrating tools made of tempered stainless steel with protecting cover made of galvanised steel with handgrip
for pipes 16 x 2 mm
for pipes 20 x 2.5 mm
for pipes 26 x 3 mm

Deburring and calibrating tool
made of tempered stainless steel
with protecting cover made of galvanised steel



for pipes 17 x 2 mm **1519589**
for pipes 20 x 2 mm **1519591**

Deburring and calibrating tool with 9 mm hexagon seating.

Handgrip
for deburring and calibrating tool **1519592**



With 9 mm hexagon seating.

Article Article-No. Hint

Pipe bending spring
made of stainless steel
length 600 mm



for pipes 14 x 2.0 mm
for pipes 16 x 2.0 mm
for pipes 20 x 2.5 mm

1509561
1509562
1509563

Prevents folding and kinking of the pipe, especially when bending small radii by hand. For bending the composition pipe to radii smaller than 5 x D.

Pipe bending tool
for pipes with an outer diameter



14, 16, 18, 20 and 26 mm

1509591

For the simple construction of even radii for outer pipe dimensions of 14 to 26 mm, mechanical transmission. Pipe bending tools for larger pipe diameters are available from specialist stores, e. g. Tube Bender Maxi of the company Rothenberger.

Holding key
aluminium



Spanner size 24/30

1509585

For holding the fittings. Simplifies the installation of the compression fittings.

Spanner size 26/37

1509586

For fittings with G 1¼ male thread or for tightening the G 1 collar nut of the dimension 26 x 3 mm.

Pipe straightener
for composition pipe "Copipe"



16-26 mm

1519461

Suitable for coil unwinder 1519460.

Ring spanner



Spanner size 30/32

1401091

For the installation of the compression fittings.

Coil unwinder
for pipes



16-26 mm

1519460

With location for pipe straightener 1519461.

Pipe straightener
for composition pipe "Copipe"



14-26 mm

1519462

Suitable for adapter and bench mounting set.

Adapter
for pipe straightener and coil unwinder



1519465

To fix the pipe straightener 1519462 to the coil unwinder 1402096.



Article	Article-No.	Hint
Bench mounting set for pipe straightener	1519466	To fix the pipe straightener 1519462 to a work bench or a table etc.

Article Article-No. Hint

Press tools
for "Cofit P" press fittings
and pipes

Press machine 230 V
(mains-operated)
in a sheet steel case



1519480

The sheet steel case has allowances for 6 press bits.
Machine only as replacement (without sheet steel case) available on demand.

Press machine 18 V
(Li-Ion rechargeable battery)
Battery charger
Rechargeable battery 18 V / 3.0 Ah
in a plastic case



1519476

Machine only as replacement (without plastic case and accessories) available on demand.

Manual press tool
for "Cofit P" 14, 16, 20 and 26 mm



1519482

Suitable press bits:
Item no. 1519489 (diameter 14 mm)
Item no. 1519491 (diameter 16 mm)
Item no. 1519492 (diameter 20 mm)
Item no. 1519493 (diameter 26 mm)
with two additional location holes.

Press system case
made of sheet steel
Content:
Press bits 16, 20, 26, 32 mm
Pipe cutter
Universal tool for deburring and calibrating



1519490

Press bits

Type H 16 A,
for pipe Ø 16 mm
Type H 20 A,
for pipe Ø 20 mm
Type H 26 A,
for pipe Ø 26 mm
Type H 32 A,
for pipe Ø 32 mm
Type H 40 A (2G),
for pipe Ø 40 mm



1519491

1519492

1519493

1519494

1519495

Suitable for use with the Oventrop press machines item no. 1519476 and 1519480. The Oventrop press bits may also be used with the press machines of the following companies: Geberit type PWH75, Klauke types UAP2, UAP3L, UP2EL, Mannesmann/Novopress types EFP2, ECO1, AFP2, ACO1, Polytherm, Rems, Roller, Rothenberger, Uponor/Unicor, Velta, Viega type 2.

Press bits

Type RN 14,
for pipe Ø 14 x 2 mm
Type RN 17,
for pipe Ø 17 x 2 mm
Type RN 20
for pipe Ø 20 x 2 mm



1519489

1519488

1519481

Only suitable for use with the following press couplings:

Item no. 1512542 (14 x 2 mm)

Item no. 1512544 (17 x 2 mm)

Item no. 1512541 (20 x 2 mm)

Article	Article-No.	Hint	
	<p>Press clamps with auxiliary bits in a sheet steel case for Ø 40 mm pipe</p>	<p>1519497</p>	<p>Suitable for use with the Oventrop press machines item no. 1519476 and 1519480 as well as the press machines of the following companies: Geberit type PWH75, Klauke types UAP2, UAP3L, Mannesmann/Novopress types EFP2, ECO1, AFP2, ACO1, Rems, Viega type 2.</p>
	<p>Press bits for pipe Ø 50 mm</p>	<p>1519445</p>	<p>Suitable for use with the Oventrop press machines item no. 1519476 and 1519480 well as the press machines of the following companies: Klauke types UAP2, UAP3L, Uponor/Unicor type UP 75.</p>
	<p>Pressing device for pipe Ø 63 mm</p>	<p>1519446</p>	
	<p>Press machine 18 V (Li-ion rechargeable battery) Battery charger Rechargeable battery 18 V / 1.5 V Ah in a plastic case</p>	<p>1519681</p>	<p>Suitable press bits: Item no. 1519691 (Ø 16 mm) Item no. 1519692 (Ø 20 mm) Item no. 1519693 (Ø 26 mm) Item no. 1519694 (Ø 32 mm) Machine only as replacement (without plastic case) available on demand.</p>
	<p>Press bits for press machine 18 V (Li-ion rechargeable battery)</p> <p>for pipe Ø 16 mm 1519691 for pipe Ø 20 mm 1519692 for pipe Ø 26 mm 1519693 for pipe Ø 32 mm 1519694</p>		<p>Suitable for use with the Oventrop press machine 18 V (rechargeable battery) (item no. 1519681).</p>
	<p>Accessories</p>		
	<p>Battery charger for press machine 18 V (Li-ion rechargeable battery)</p>	<p>1519483</p>	
	<p>Rechargeable battery 18 V / 3.0 Ah for press machine 18 V (Li-ion rechargeable battery)</p>	<p>1519484</p>	<p>For Oventrop press machines 18 V item no. 1519476 and 1519681.</p>

11.h "Copex HT" PE-Xc Plastic pipe

Content



"Copex HT" PE-Xc Plastic pipe

11.50





Article	Packing unit	Article-No.	Hint
<p>"Copex HT" PE-Xc Plastic pipe with oxygen barrier</p>	rolls	Dimension 16 x 2.2 mm	<p>Application: Potable water and heating systems.</p>
	length per roll 100 m	(100) 1410151	<p>Pipes according to DIN 16892/ DIN 16893/ DIN EN ISO 15875. Oxygen tight according to DIN 4726.</p>
		Dimension 20 x 2.8 mm	<p>Operational conditions: Max. operating pressure p_s: 10 bar Max. design temperature t_s: 90 °C</p>
	length per roll 100 m	(100) 1410461	<p>Attention: Observe "Technical information" advice!</p>
		Dimension 25 x 3.5 mm	<p>Connection system "Cofit PD-HT": from page 11.52</p>
	length per roll 50 m	(50) 1410560	
		Dimension 32 x 4.4 mm	
	length per roll 50 m	(50) 1410660	

11.i "Cofit PD-HT" Press connection system

Content



"Cofit PD-HT" Press fittings made of bronze	11.52
"Cofit PD-HT" Press fittings made of bronze	11.53
"Cofit PDK-HT" Press fittings made of plastic (PPSU)	11.54
Tools	11.55

Article	Packing unit	Article-No.	Hint
<p>"Cofit PD-HT" Press fittings made of bronze designed not to seal in an uncompressed condition, stainless steel casing for PE-Xc plastic pipes "Copex HT"</p>			<p>Universal application for heating systems and sanitary installations.</p>
<p>Press connection with male thread</p>			<p>For valves with female threaded connection.</p>
	16	x 2.2 mm x R 1/2 (10) 1562043	
	20	x 2.8 mm x R 1/2 (10) 1562045	
	20	x 2.8 mm x R 3/4 (10) 1562046	
	25	x 3.5 mm x R 3/4 (5) 1562048	
	25	x 3.5 mm x R 1 (5) 1562049	
	32	x 4.4 mm x R 1 (5) 1562051	
<p>Press connection with female thread</p>			<p>For changing over to different pipe material and for valves and fittings with male threaded connection for sealing.</p>
	16	x 2.2 mm x Rp 1/2 (10) 1562243	
	20	x 2.8 mm x Rp 3/4 (10) 1562246	
<p>Press coupling</p>			
	16 x 2.2 mm	x 16 x 2.2 mm (10) 1562543	
	20 x 2.8 mm	x 20 x 2.8 mm (10) 1562545	
	25 x 3.5 mm	x 25 x 3.5 mm (5) 1562546	
	32 x 4.4 mm	x 32 x 4.4 mm (5) 1562547	
<p>Press reducing coupling</p>			
	20 x 2.8 mm	x 16 x 2.2 mm (10) 1562655	
	25 x 3.5 mm	x 16 x 2.2 mm (5) 1562656	
	25 x 3.5 mm	x 20 x 2.8 mm (5) 1562657	
	32 x 4.4 mm	x 25 x 3.5 mm (5) 1562660	

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

"Cofit PD-HT" Press fittings made of bronze
designed not to seal
in an uncompressed condition,
stainless steel casing
for PE-Xc plastic pipes "Copex HT"

**Universal application for heating systems
and sanitary installations.**



Press elbow

16 x 2.2 mm	x 16 x 2.2 mm	(10)	1562843
20 x 2.8 mm	x 20 x 2.8 mm	(10)	1562845
25 x 3.5 mm	x 25 x 3.5 mm	(5)	1562847
32 x 4.4 mm	x 32 x 4.4 mm	(5)	1562849



Press T-piece

16 x 2.2 x 16 x 2.2 x 16 x 2.2 mm	(10)	1563043
20 x 2.8 x 20 x 2.8 x 20 x 2.8 mm	(10)	1563045
25 x 3.5 x 25 x 3.5 x 25 x 3.5 mm	(5)	1563046
32 x 4.4 x 32 x 4.4 x 32 x 4.4 mm	(5)	1563047



Press T-piece, reduced central port

20 x 2.8 x 16 x 2.2 x 20 x 2.8 mm	(10)	1563155
25 x 3.5 x 16 x 2.2 x 25 x 3.5 mm	(5)	1563156
25 x 3.5 x 20 x 2.8 x 25 x 3.5 mm	(5)	1563157



Press T-piece, reduced central and straight port

20 x 2.8 x 16 x 2.2 x 16 x 2.2 mm	(10)	1563354
25 x 3.5 x 16 x 2.2 x 20 x 2.8 mm	(5)	1563356



**Wall mounted connection piece with press connection,
90°, short model**

16 x 2.2 mm	x Rp 1/2	(10)	1567053
25 x 3.5 mm	x Rp 1/2	(10)	1567055

Fixing and insulating material available from
specialist stores.
For the connection of apparatus, valves and
fittings.

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

"Cofit PDK-HT" Press fittings made of plastic (PPSU)
designed not to seal
in an uncompressed condition,
stainless steel casing
for PE-Xc plastic pipes "Copex HT"

**Universal application for heating systems
and sanitary installations.**



Press coupling

16 x 2.2 mm	x 16 x 2.2 mm	(10)	1552543
20 x 2.8 mm	x 20 x 2.8 mm	(10)	1552545



Press reducing coupling

20 x 2.8 mm	x 16 x 2.2 mm	(10)	1552655
-------------	---------------	------	----------------



Press elbow 90°

16 x 2.2 mm	x 16 x 2.2 mm	(10)	1552843
20 x 2.8 mm	x 20 x 2.8 mm	(10)	1552845



Press T-piece

16 x 2.2 x 16 x 2.2 x 16 x 2.2 mm	(10)	1553043
20 x 2.8 x 20 x 2.8 x 20 x 2.8 mm	(10)	1553045







Press T-piece, reduced central port

20 x 2.8 x 16 x 2.2 x 20 x 2.8 mm	(10)	1553155
-----------------------------------	------	----------------



Press T-piece, reduced central and straight port

20 x 2.8 x 16 x 2.2 x 16 x 2.2 mm	(10)	1553354
-----------------------------------	------	----------------

Article	Article-No.	Hint
<p>Tools for PE-Xc plastic pipes "Copex" and press fittings "Cofit PHT"</p>		
	<p>Pipe cutter with special cutting wheel</p> <p>up to 32 mm diameter 1509580 Spare cutting wheel 1509588</p>	<p>For cutting the pipes at right angles, one tool for all diameters. Spare cutting wheel in the grip. For pipe cutter 1509580.</p>
	<p>Universal tool for deburring and calibrating mandrels made of stainless steel</p> <p>for pipes 16 x 2.2 mm 1569594 for pipes 20 x 2.8 mm for pipes 25 x 3.5 mm for pipes 32 x 4.4 mm</p>	<p>For calibrating and deburring the pipes at the same time.</p>
	<p>Press bits</p> <p>Type H 16 A, 1519491 for pipe Ø 16 mm Type H 20 A, 1519492 for pipe Ø 20 mm Type H 25 A 1569493 for pipe Ø 25 mm Type H 32 A, 1519494 for pipe Ø 32 mm</p>	<p>Suitable for use with the Oventrop press machines item no. 1519476 and 1519480. The Oventrop press bits may also be used with the press machines of the following companies: Geberit type PWH75, Klauke types UAP2, UAP3L, UP2EL, Mannesmann/Novopress types EFP2, ECO1, AFP2, ACO1, Polytherm, Rems, Roller, Rothenberger, Uponor/Unicor, Velta, Viega type 2.</p>
	<p>Press bits for press machine 18 V (Li-ion rechargeable battery)</p> <p>for pipe Ø 16 mm 1519691 for pipe Ø 20 mm 1519692 for pipe Ø 25 mm 1569693 for pipe Ø 32 mm 1519694</p>	<p>Suitable for use with the Oventrop press machine 18 V (rechargeable battery) (item no. 1519681).</p>

12.a "DynaTemp" Home and Building automation

Content	12.05
System summary	12.06

12.b "DynaTemp HA" Home Automation



Content	12.07
System summary	12.08
"OVbalance Home" Basic Set	12.10
"R-Tronic RT B" (ENOCEAN) Wireless thermostat for Smart Home applications	12.11
"R-Tronic RTF B" (ENOCEAN) Wireless thermostat for Smart Home applications	12.11
"Aktor MH CON B" (ENOCEAN) Wireless actuator for Smart Home applications	12.11
Accessories	12.12
"FK-C F" Wireless window contact	12.12
"RP-S F" Wireless repeater	12.12

12.c "DynaTemp BA" Building Automation

Content	12.13
System summary	12.14
System types	12.15



**12.d "DynaTemp BA" Building Automation
Local individual room temperature control via bus system "CR-BS"**

Content	12.17
System illustration	12.18
DDC "CR-BS" Control unit	12.19
TR-250 Transformer	12.19
TR-80 Transformer	12.19
"RM-C F" Room module	12.19
"RM-C K" Room module	12.20
"ABR-55" Cover frame	12.20
"RM-C F8" Room module	12.21
"RM-C K8" Room module	12.21
"FK-C F" Wireless window contact	12.21
"BWM-C F" Wireless movement sensor	12.21
"RP-C F" Wireless repeater	12.22
"RS-C F" Wireless temperature sensor	12.22
"FM-C WS" Outside temperature sensor	12.22
Thermostat "Uni LHZ"	12.23
Thermostat with remote control "Uni FHZ"	12.23
Wall connection set	12.23
"Aktor T 2P" Electrothermal actuators (two point)	12.24
Room thermostat - surface mounting	12.24



12.e "DynaTemp BA" Building Automation Central individual room temperature control via bus system "CR-BX"

Content	12.25
System illustration	12.26
DDC "CR-BX" Control unit	12.27
TR-250 Transformer	12.27
TR-80 Transformer	12.27
"RM-C F" Room module	12.27
"ABR-55" Cover frame	12.27
"RM-C F8" Room module	12.28
"RBG-C K" Room controller	12.28
"RBG-C F" Room controller	12.28
"BWM-C F" Movement sensor	12.28
"FK-C F" Wireless window contact	12.29
"RP-C F" Wireless repeater	12.29
"Aktor T 2P" Electrothermal actuators (two point)	12.30
"Aktor T ST" Electrothermal actuators (0-10 V)	12.30



12.f "DynaTemp BA" Building Automation Local and central individual room temperature control via bus system "CR-BSX"

Content	12.31
System illustration	12.32
DDC "CR-BSX" Control unit	12.33
TR-250 Transformer	12.33
TR-80 Transformer	12.33
"RM-C K" Room module	12.33
"RM-C K8" Room module	12.33
"RM-C F" Room module	12.33
"RM-C F8" Room module	12.34
"ABR-55" Cover frame	12.34
"RBG-C K" Room controller	12.34
"RBG-C F" Room controller	12.34
Room thermostat - surface mounting	12.34
"FK-C F" Wireless window contact	12.35
"BWM-C F" Wireless movement sensor	12.35
"RS-C F" Wireless temperature sensor	12.35
"FM-C WS" Outside temperature sensor	12.35
"RP-C F" Wireless repeater	12.35
"Aktor T" Electrothermal actuators	12.36
"Aktor T ST" Electrothermal actuator (0-10 V)	12.36
Thermostat "Uni LHZ"	12.37
Reinforcing cap	12.37
Thermostat with remote control "Uni FHZ"	12.37
Wall connection set	12.37



**12.g "DynaTemp BA" Building Automation
Automatic thermal balancing and thermal disinfection in potable water circulation systems
"CW-BS"**

Content	12.39
System illustration	12.40
DDC "CW-BS" Control unit	12.41
TR-250 Transformer	12.41
TR-80 Transformer	12.41
"Aquastron DT" Electronic circulation regulating valve	12.41
"FM-CW Plus" Field module	12.42
"REM-CW" Relay module	12.42
"FM-CW K" Field module	12.42



**12.h "DynaTemp BA" Building Automation
Network of stations for heat generator/heating circuit
and solar thermal energy "CS-BS"**

Content	12.43
System illustration	12.44
Datalog "CS-BS-1" (WLAN)	12.45
Datalog "CS-BS-6"	12.45
"Regtronic RH" Heating circuit controller	12.46
"Regtronic SV" Sensor distributor	12.46
"Regtronic RH" Heating circuit controller	12.47
"Regtronic EM" Extension module	12.48
Accessories	12.49
"Regusol ELH-130-RC" Station DN 25	12.51
"Regusol ELH-130-RC-P" Station DN 25 with high-efficiency pump	12.51
"Regusol X-Uno 25" with heat exchanger	12.52
"Regusol X-Duo 25" with heat exchanger	12.52
"Regumaq X-30" - without circulation connection	12.53
"Regumaq XZ-30" - with circulation connection	12.53
"Regumaq XZ-30" - with circulation connection and high-efficiency circulation pump	12.53

12.i Actuators, sensors, valves and fittings

Content	12.55
System summary	12.56

12.a "DynaTemp" Home and Building automation

Content

System summary 12.06

"DynaTemp" Home and Building Automation

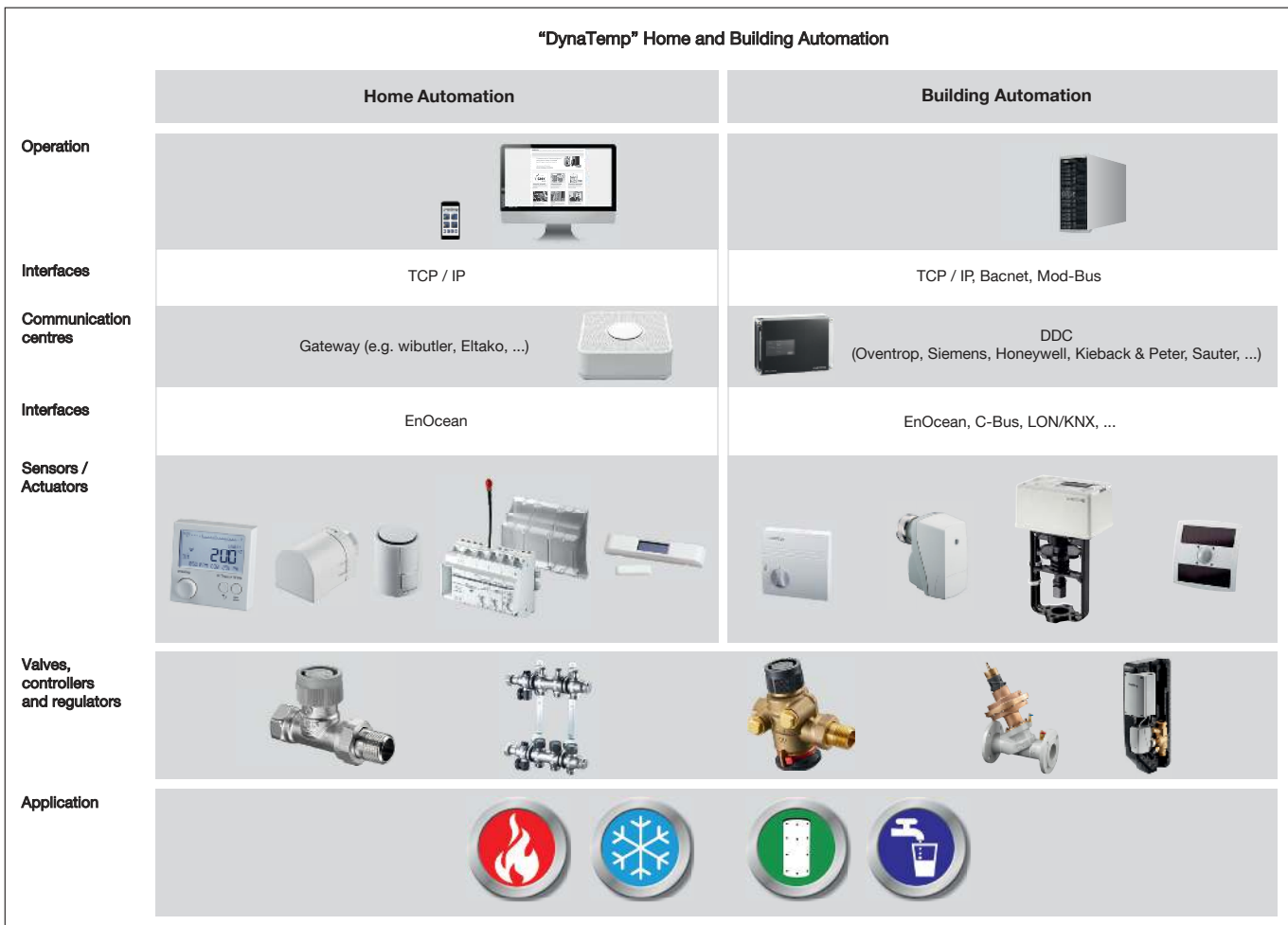
Communication-capable valves, actuators, sensors and controllers become more and more important, not only for new buildings but also for the renovation of existing buildings. Building automation systems with their monitoring, controlling and optimising devices are paramount for comfortable, energy-efficient and cost-saving building management.

The effectiveness of such systems is, however, only guaranteed if the above products are coordinated to the optimum and if they adapt to the different demands during heat transport and transmission.

Oventrop offers systems consisting of actuators, controllers and valves which can be combined for different tasks of building automation. The Oventrop products may also be integrated into the systems of other manufacturers.

The Oventrop systems cover the following areas:

- Individual room temperature control
- Potable water circulation
- Heat generation, storage, distribution and transmission



Summary Automation and System components



12.b "DynaTemp HA" Home Automation

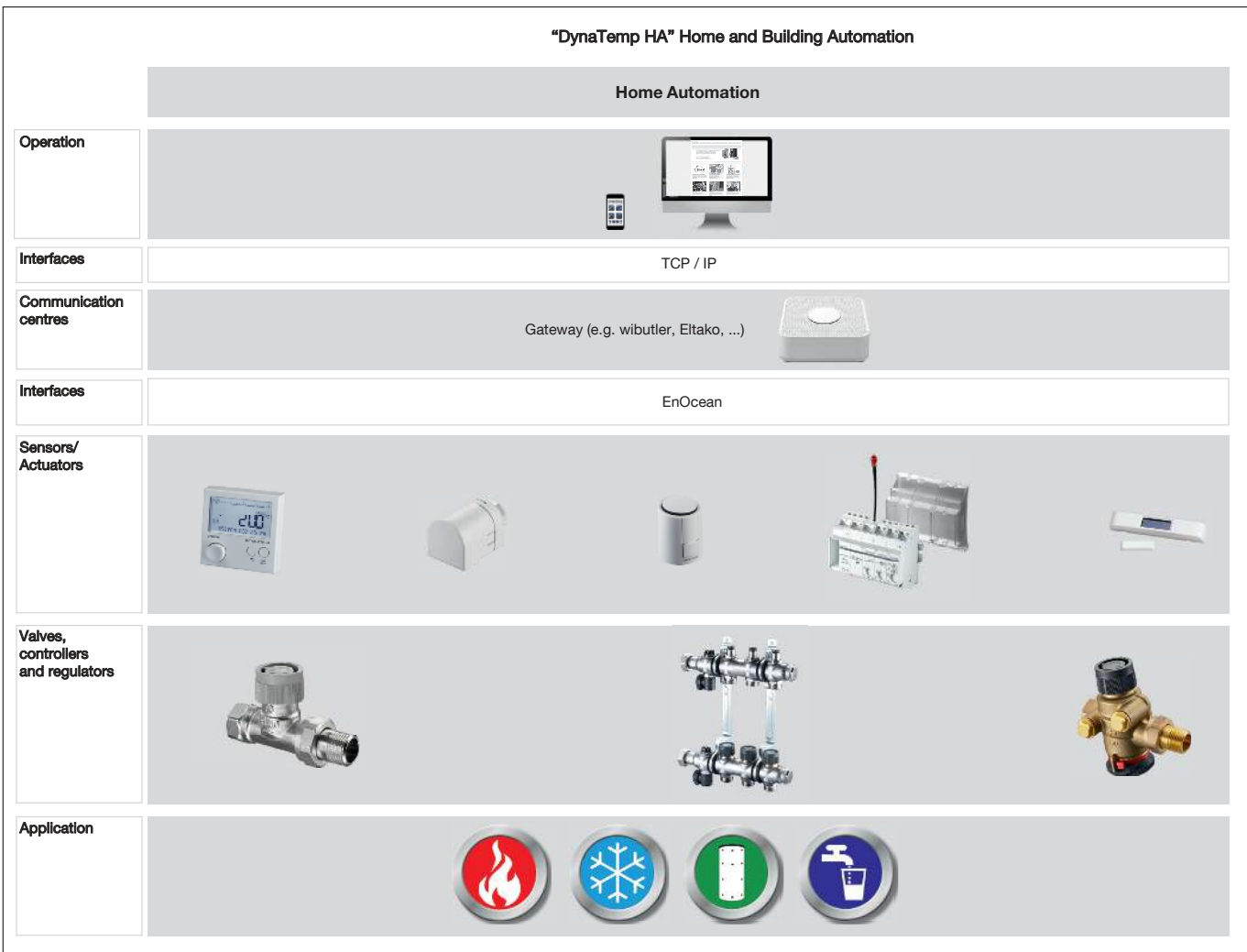
Content

System summary	12.08
"OVbalance Home" Basic Set	12.10
"R-Tronic RT B" (ENOCEAN) Wireless thermostat for Smart Home applications	12.11
"R-Tronic RTF B" (ENOCEAN) Wireless thermostat for Smart Home applications	12.11
"Aktor MH CON B" (ENOCEAN) Wireless actuator for Smart Home applications	12.11
Accessories	12.12
"FK-C F" Wireless window contact	12.12
"RP-S F" Wireless repeater	12.12

"DynaTemp HA" Home Automation

Components communicating with communication centres (gateways) are used in the area of Home Automation (for individual dwellings and detached houses). The gateways communicate with smartphones, tablets and personal computers using the "TCP/IP" protocol. Easy remote access is possible by connecting the gateways to common routers.

With their system "DynaTemp HA", Oventrop offers gateways and components for room temperature control. Components, such as the wireless actuator "Aktor MH CON B" (ENOCEAN) or the wireless thermostat "R-Tronic RT B" (ENOCEAN) and "R-Tronic RTF B" (ENOCEAN) can communicate with gateways of other manufacturers.



Summary Automation and System components

Hydronic balancing with "OVgateway" and "Q-Tech" in detached and semi-detached houses

Automatic presetting with "OVgateway":

Automatic presetting of thermostatic radiator valves, for instance in detached or semi-detached houses, can be carried out via a smartphone, tablet or PC with the help of the "OVgateway" and the wireless actuators "Aktor MH CON B" (ENOCEAN). Manual presetting at each radiator on the spot is thus not required.

The user may carry out automatic presetting within a few steps via his smartphone, tablet or PC with the help of the setup assistant.

Apart from room temperature control, the "OVgateway" allows for the calculation of the maximum required volume flow for each radiator. The "OVgateway" is preloaded with the calculation procedure (procedure according to "VdZ specialist rules for heating optimisation – procedure A").

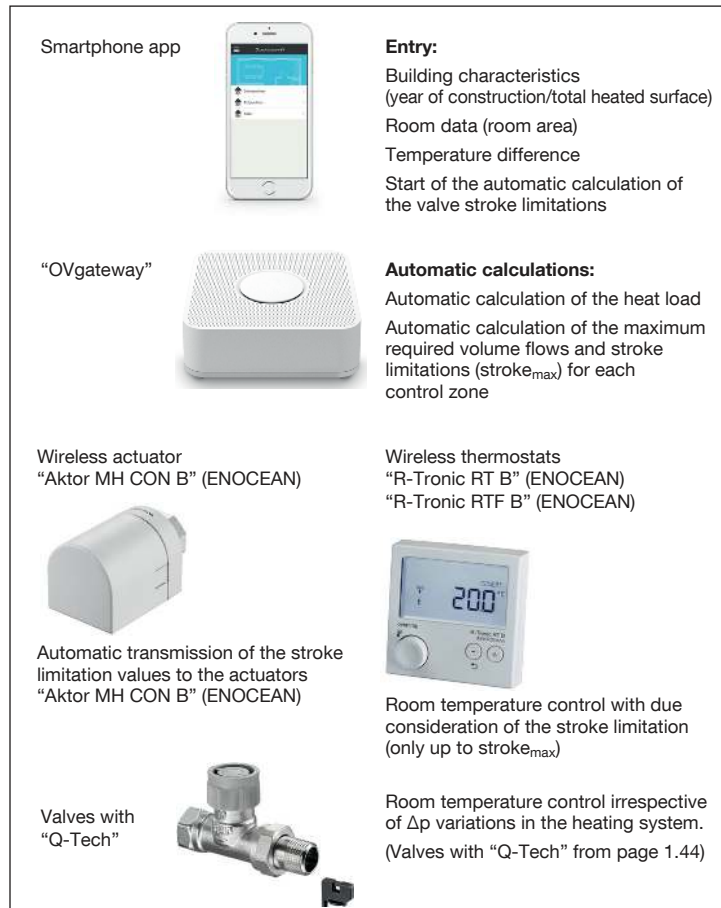
The valve characteristic line of the thermostatic valves with "Q-Tech" which allows for the conversion of the detected volume flows for the stroke limitation of the actuators "Aktor MH CON B" (ENOCEAN) is integrated in the "OVgateway".

Automatic balancing with "Q-Tech":

Irrespective of differential pressure variations in the heating system, the radiator volume flow required for room temperature control is constantly maintained by the control and regulating valve with "Q-Tech". After having carried out the automatic presetting described above, the volume flow is limited to a maximum value by the "OVgateway" and the actuator "Aktor MH CON B" (ENOCEAN) mounted onto the thermostatic valve with "Q-Tech".

Advantages:

- Automatic calculation of the required volume flow for each radiator and automatic presetting of the thermostatic valves with "Q-Tech" via the actuator "Aktor MH CON B" (ENOCEAN)
- Manual setting of the thermostatic valves at the radiator is not required
- Pipework calculation and regulation of the risers are not required
- Presetting of the valves in the riser is not required
- Hydronically balanced heating system during full and low demand periods
- Long battery life span as the "Aktor MH CON B" (ENOCEAN) only carries out control commands for room temperature control



Sequence of automatic presetting and balancing with "OVgateway" and "Q-Tech"

Article	Article-No.	Hint
---------	-------------	------

"OVbalance Home" Basic Set



consisting of:
 -"OVgateway"
 -1 x "R-Tronic RT B" (ENOCEAN) Wireless thermostat
 -1 x "Aktor MH CON B" (ENOCEAN) Wireless actuator

1150790*

The intelligent "OVgateway" is the heart of the solution. The EnOcean radio standard allows for a simple networking of products, a trouble-free combination of appliances of different standards and trades and the operation via smartphone, tablet or PC. The integral Smart Home solution with open system character is installed by qualified tradesmen.

Furthermore, automatic hydronic balancing is supported with the help of the valves with "Q-Tech" (see page 1.44). For this purpose, the heat load, the maximum required volume flows for each radiator as well as the required maximum stroke limitations at the actuators "Aktor MH CON B" (ENOCEAN) are calculated by the "OVgateway" after having entered the building and room data. The stroke limitations at the valves with "Q-Tech" are carried out automatically.

Access options:
 -Local access in the building
 -Worldwide mobile remote access via Internet

User interfaces:
 -App for iOS and Android terminals

Type of installation:
 - Wall attachment



App



"Aktor MH CON B"
(ENOCEAN)



"R-Tronic RT B"
(ENOCEAN)





"R-Tronic RT B" (ENOCEAN) Wireless thermostat for Smart Home applications

Wireless thermostat with 5 selectable EnOcean profiles, battery operated, surface mounting

traffic white (RAL 9016)

1150780*#

Electronic wireless thermostat for room temperature control. The wireless thermostat supports the EnOcean Equipment profiles (EEP) A5-10-02, A5-10-03, A5-10-04, A5-10-06 and RPS telegrams and can be connected to communication centres/gateways (e.g. "OVbalance Home" basic set) via the menu navigation. The nominal and actual temperature of the room are displayed. A supply via the network is an alternative, see accessories.



Individual control not only of the heating system but also of other appliances can be carried out via the plus/minus buttons (RPS telegram) with the help of configurations in the "OVgateway". This way, the light can, for instance, be switched on and off with the help of the wireless thermostat.



"R-Tronic RTF B" (ENOCEAN) Wireless thermostat for Smart Home applications

Wireless thermostat with integrated humidity sensor and 5 selectable EnOcean profiles, battery operated, surface mounting

traffic white (RAL 9016)

1150781*#

Electronic wireless thermostat for room temperature control. The wireless thermostat supports the EnOcean Equipment profiles (EEP) A5-10-11, A5-10-12, A5-10-22, A5-10-23 and RPS telegrams and can be connected to communication centres/gateways (e.g. "OVbalance Home" basic set) via the menu navigation. The nominal and actual temperature of the room are displayed. An integrated humidity sensor supplies information on the relative humidity RH in %. A supply via the network is an alternative, see accessories.



Individual control not only of the heating system but also of other appliances can be carried out via the plus/minus buttons (RPS telegram) with the help of configurations in the "OVgateway". This way, the light can, for instance, be switched on and off with the help of the wireless thermostat.



"Aktor MH CON B" (ENOCEAN) Wireless actuator for Smart Home applications

Connection thread M 30 x 1.5
Electronic actuator with bi-directional wireless communication, battery operated






traffic white (RAL 9016)

1150765#

Electronic actuator for room temperature control. The actuator supports the EnOcean profile A5-20-01 and can be connected to communication centres/gateways or room thermostats supporting the profile.



Only functions in combination with communication centres/gateways (e.g. "OVbalance Home" basic set) supporting the respective EEP (EnOcean Equipment Profile).

Article	Packing unit	Article-No.	Hint
Accessories			
		1150692	For the conversion of battery operated wireless thermostats "R-Tronic RT B/ RTF B" to an external power supply (100-240 V ~ / 50-60 Hz).
		1150694	For stationary use, suitable for "i-Tronic TFC" and "R-Tronic RT B/RTF B"
"FK-C F" Wireless window contact			
		1153070	A radio signal is transmitted when opening or closing the window. The solar powered energy storage ensures a maintenance-free operation. Compatible with: - "R-Tronic" Wireless thermostats ("DynaTemp HA") - Wireless room modules ("DynaTemp BA") Note: The wireless thermostats "R-Tronic" require the software version 01-06-02 or higher and have to be mains-operated.
"RP-S F" Wireless repeater			
		1150699	The wireless repeater "RP-S F" serves to amplify the signal between the wireless thermostat "R-Tronic" and the "OVgateway" as well as the wireless receiver "R-Con" / "R-Con 2P". Switching of electrical appliances (230 V) and registration of the current consumption data can be carried out with the help of the intermediate plug.
		(50) 1150693*	For panelling flush sockets (milling holes Ø 83 mm, e.g. in Switzerland) for surface-mounted installation of the wireless thermostats "R-Tronic".

12.c "DynaTemp BA" Building Automation

Content

System summary	12.14
System types	12.15

"DynaTemp BA" Building Automation

The system "DynaTemp BA" allows for the automation of control processes for heat generation, distribution and transmission in larger residential and non-residential buildings.

Compared with the system "DynaTemp HA" (for individual dwellings and detached houses), the "DynaTemp BA" components for control within the building automation system are determined by the type of use, degree of automation and the system technology.

Oventrop control units (DDC) and components, such as room thermostats, actuators and control valves can be integrated into the building automation systems of any manufacturer.



Summary Automation and System components

Models:**"CR-BS" Local room temperature control via bus technology****"CR-BX" Central room temperature control via bus technology**

As for the system "CR-BS", room temperature control is carried out locally with the help of classic thermostats. The user is familiar with their operation and they offer a good protection against vandalism. Temperature setback is carried out by the control unit (DDC) of the system "CR-BS" via the electric entry of classic thermostats, such as the thermostats "Uni LHZ" with liquid sensor.

As for the system "CR-BX", room temperature control is carried out centrally and electronically by the control unit. Temperature values as well as control commands are transmitted to the actuators by the field modules via a bus system between the DDC and the rooms. Both systems allow for an energy-saving operation with the help of time profiles and sensors for temperature control. The presence of people in a room and the opening of windows are also recognized.

"CR-BSX" Local and central room temperature control via bus technology

The control unit (DDC) allows for combined room temperature control with the help of sensors and actuators as well as temperature setback via the electric entry of classic thermostats, such as the thermostats with liquid sensor "Uni LHZ". The data is exchanged with the help of field modules via a bus system between the DDC and the individual rooms. This is done according to time profiles and by evaluating sensor data (e.g. movement sensors or window contacts). The system allows for an energy-saving operating with the help of time profiles and sensors for temperature control. The presence of people in a room and the opening of windows are also recognised. The combined local and central room temperature control allows for a flexible reaction to different requirements in a building.

"CW-BS" Automatic thermal balancing and thermal disinfection in potable water circulation systems

The installation hydraulics which is governed by the maintenance of an adequate potable water circulation temperature (according to DVGW 57 °C) is optimised by the control unit. Temperature detection is carried out by the Oventrop valve "Aquaström DT" for potable water circulation systems. The sensor temperatures are transmitted to the control units via the bus based field module and the control demands for the "Aquaström DT" are transmitted to the actuators by the "CW" via the field module.

Thermal disinfection is also controlled via the control unit. The latter transmits a starting signal to the boiler control; the potable water temperature is increased and thermal disinfection of the risers of the circulation installation is carried out.

The control unit can be connected to the centralised building control system for monitoring and visualization purposes. Warning messages can be transmitted via LAN or Internet.

"CS-BS" Networking of stations for heat generation and distribution

This system allows the linkage of up to six bus application controllers of stations for solar heat generation, hot water preparation and different heating circuits via a bus technology. The data from the different controllers is fed into the data logger "CS-BS" in order to store and view the operating status, temperatures, flow rates and energy data over a longer period. New parameter settings for the controllers can be determined with the help of this data and the operation behaviour of the complete installation, including the storage cylinder and the boiler can be improved. Error diagnosis can also be carried out.

The installation data can be viewed via a PC or a standard smartphone. The integrated Web interface allows access to the system via a standard web browser. The connection to the network (LAN) and the Internet can be carried out via a standard router. A flexible, even external, access to the installation is thus possible. It is, however, not necessary to integrate the data logger into a network, the direct connection of a PC is also possible.

Combination options of room temperature control "DynaTemp BA"

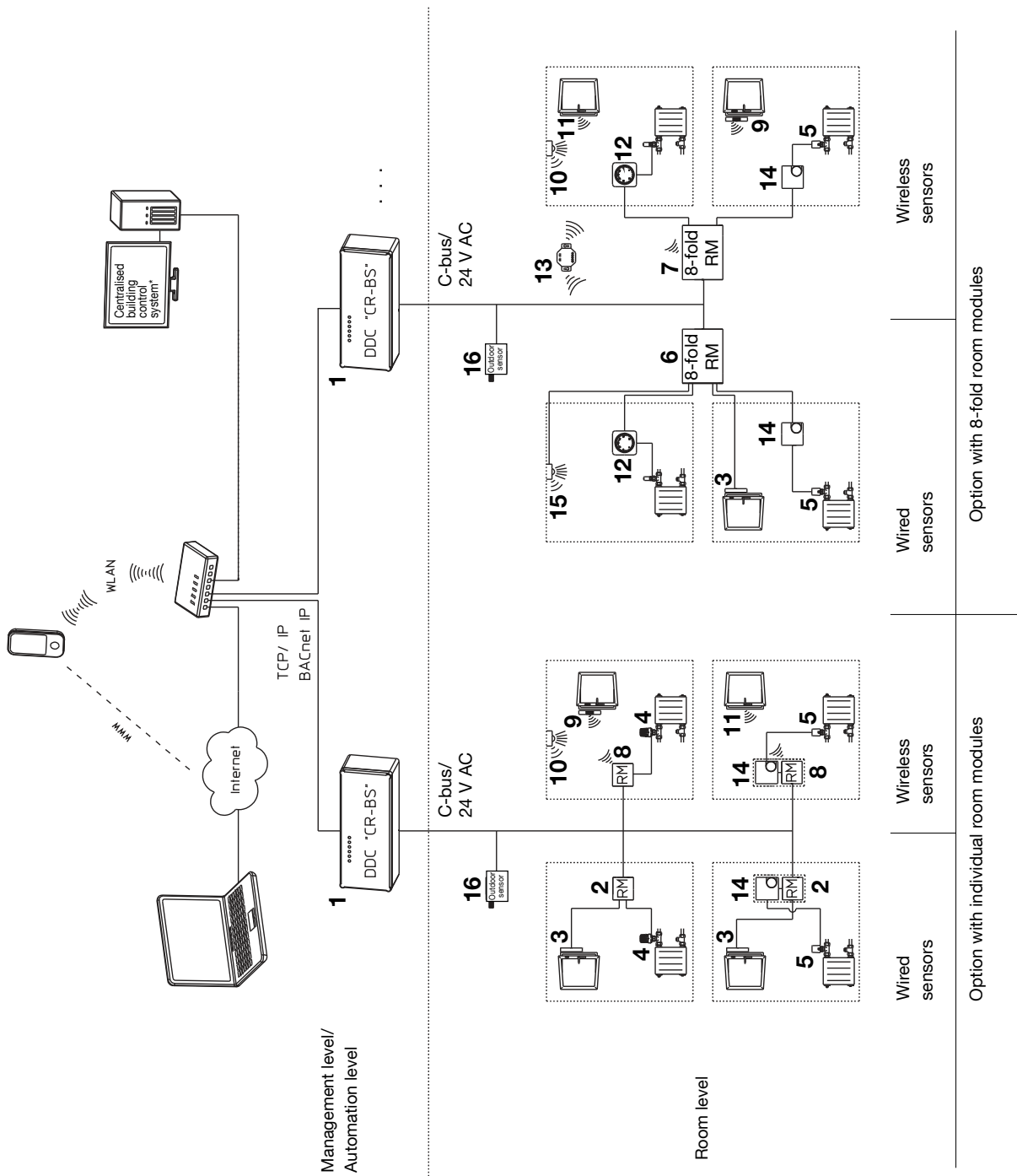
		Control units (The control units are also called DDC (Direct Digital Control))			
		CR-BS, local control via bus technology (C-bus)	CR-BX, central control via bus technology (C-bus)	CR-BSX, combined local and central control via bus technology (C-bus)	
		Item no. 1153150 (DDC for 31 rooms)	Item no. 1153250 (DDC for 31 rooms)	Item no. 1153100 (DDC for 31 rooms)	
		Item no. 1153151 (DDC for 62 rooms)	Item no. 1153251 (DDC for 62 rooms)	-	
		Local temperature control with classic thermostats (with liquid sensor and setback entry) and priority temperature setback via the DDC.	Central temperature control via the DDC with temperature sensors and actuators, which are integrated via a bus.	Combined temperature control via the DDC, i.e. combined local temperature control with classic thermostats (with liquid sensor and setback entry) and central temperature control with temperature sensors and actuators that are integrated via a bus.	
		Temperature setback is carried out by the DDC according to time profiles and by evaluating the data of connected sensors. The DDC is operated via a web browser, e.g. Mozilla Firefox.			
Suitable accessories		Combination options			Remarks
Power supply	"TR80"	x	x	x	Transformers* with 80 W
	"TR250"	x	x	x	Transformers* with 250 W
					*for power supply of the DDC and the room modules
Room modules (connection via C-bus)	"RM-C K"	x	-	x	Room module for one room
	"RM-C K8"	x	-	x	Room module for eight rooms
	"RM-C F"	x	x	x	Room module for one room*
	"RM-C F8"	x	x	x	Room module for eight rooms*
					*with EnOcean wireless technology
Room controllers (connection via C-bus)	"RBG-C K"	-	x	x	Room controller
	"RBG-C F"	-	x	x	Room controller*
					*with EnOcean wireless technology
Sensors and repeater	"FK-C F"	x	x	x	Window contact*
	"BWM-C F"	x	x	x	Movement sensor*
	"RS-C F"	x	-	x	Temperature sensor*
	"FM-C WS"	x	-	x	Outside temperature sensor
	Repeater	x	x	x	Serves to amplify the EnOcean radiograms
					*with EnOcean wireless technology
Actuators / Thermostats	Room thermostat	x			Room thermostat (two point)
	"Uni LHZ"	x	-	x	Thermostat for timed temperature setback
	Reinforcing cap	x	-	x	
	"Uni FHZ"	x	-	x	Thermostat with remote control for timed temperature setback
	Wall connection set	x	-	x	For "Uni LHZ"
	"Aktor T2P"	-	x	x	Electrothermal actuator, 0-10 V
	"Aktor TST"	-	x	x	Electrothermal actuator, two point
	Reinforcing cap	x	-	x	For "Uni LHZ"



**12.d "DynaTemp BA" Building Automation
Local individual room temperature control via bus system "CR-BS"**

Content

System illustration	12.18
DDC "CR-BS" Control unit	12.19
TR-250 Transformer	12.19
TR-80 Transformer	12.19
"RM-C F" Room module	12.19
"RM-C K" Room module	12.20
"ABR-55" Cover frame	12.20
"RM-C F8" Room module	12.21
"RM-C K8" Room module	12.21
"FK-C F" Wireless window contact	12.21
"BWM-C F" Wireless movement sensor	12.21
"RP-C F" Wireless repeater	12.22
"RS-C F" Wireless temperature sensor	12.22
"FM-C WS" Outside temperature sensor	12.22
Thermostat "Uni LHZ"	12.23
Thermostat with remote control "Uni FHZ"	12.23
Wall connection set	12.23
"Aktor T 2P" Electrothermal actuators (two point)	12.24
Room thermostat - surface mounting	12.24





* Integration into a centralised building control system of other manufacturers (e.g. Honeywell, Kieback & Peter, Sauter, Siemens etc.) via the standardized interface "BACnet IP".

DDC "CR-BS" control unit for central temperature setback with control signal transmission via radio (EnOcean) or cable.

- 1 DDC "CR-BS" Control unit
- 2 "RM-C K" Flush-mounted room module, wired, 1-fold
- 3 Window contact, wired (installation on site)
- 4 "Uni LHZ" Thermostat
- 5 "Aktor T 2P" Electrothermal actuator, 24 V, two point
- 6 "RM-C K8" Surface-mounted room module, wired, 8-fold
- 7 "RM-C F8" Surface-mounted room module, wireless, 8-fold
- 8 "RM-C F" Flush-mounted room module, wireless, 1-fold
- 9 "FK-C F" Solar powered window contact, wireless
- 10 "BWM-C F" Movement sensor, wireless
- 11 "SecuSignal" Window handle of the company Hoppe (installation on site)
- 12 "Uni FHZ" Thermostat with remote control
- 13 "RP-C F" Flush-mounted repeater, 230 V, wireless
- 14 Room thermostat with setback entry, 24 V
- 15 Movement sensor, wired (installation on site)
- 16 "FM-C WS" Outdoor temperature sensor

Article	Article-No.	Hint	
	<p>DDC "CR-BS" Control unit</p> <p>with bus technology, for the connection of 31 C-bus room modules, BACnet IP interface, surface mounting, operating/bus current: 24 V /50 Hz</p>	<p>1153150°</p>	<p>The control unit DDC "CR-BS" is used for central temperature setback with the help of thermostats with liquid sensor. The thermostats "Uni LHZ" or "Uni FHZ" respectively room thermostats (item no. 1152052/72) are connected to the control unit via the C-bus room modules ("RM-C F", "RM-C F8", "RM-C K" and "RM-C K8").</p>
<p>as item no. 1153150, but for 62 C-bus room modules</p>	<p>1153151°</p>	<p>The integrated web server allows for access to the system via a PC and a standard web browser (e.g. Mozilla Firefox). The parameters (e.g. setback temperature and time profiles) of the system can be set via the menu and the trend data as well as the current status can be queried. The integration of the system into the centralised building control system is possible via "BACnet IP".</p>	
	<p>TR-250 Transformer</p> <p>primary: 230 V; 50 Hz secondary: 24 V/ 250 VA</p>	<p>1153055</p>	<p>Transformer for the power supply of the DDC, field modules, thermostats and actuators.</p>
	<p>TR-80 Transformer</p> <p>primary: 230 V, 50-60 Hz secondary: 24 V / 80 VA</p>	<p>1153053</p>	<p>Transformer for the power supply of the DDC, field modules, thermostats and actuators.</p>
	<p>"RM-C F" Room module</p> <p>for one room with EnOcean wireless technology and C-bus communication, flush mounting, 24 V/50 Hz, white (RAL 9010), cover frame to be ordered separately</p>	<p>1153101</p>	<p>The "RM-C F" is a bus based wireless room module for the connection of actuators or thermostats "Uni LHZ" or "Uni FHZ" as well as wireless window contacts and wireless movement sensors with EnOcean wireless technology. Moreover, window contacts or movement sensors installed on site can be evaluated via a volt free contact by use of a cable.</p> <p>Connection module for one room (1-fold). Installation in a standard flush socket with cover plate, but without cover frame.</p>

Article	Article-No.	Hint	
	<p>"RM-C K" Room module</p> <p>for one room without wireless technology, with C-bus communication, wired, flush mounting, 24 V/50 Hz, white (RAL 9010), cover frame to be ordered separately</p>	<p>1153121</p>	<p>Comparable to item no. 1153101, but without EnOcean wireless technology. Window contacts or movement sensors installed on site can be evaluated via cable.</p>
	<p>"ABR-55" Cover frame</p> <p>white (RAL 9016)</p>	<p>1153170</p>	<p>Cover frame for item no. 1153101 and 1153121.</p>

Article	Article-No.	Hint
 <p>"RM-C F8" Room module for 8 rooms with EnOcean wireless technology and C-bus communication, surface mounting, 24 V/50 Hz</p>	1153118	<p>The "RM-C F8" is a bus based 8-fold wireless room module for the connection of thermostats "Uni LHZ" or "Uni FHZ" as well as wireless window contacts "FK-C F" or wireless movement sensors "BWM-C F" with EnOcean wireless technology. Moreover, cabled window contacts or cabled movement sensors installed on site can be evaluated. Connection module for 8 rooms (8-fold), for surface-mounted installation.</p>
 <p>"RM-C K8" Room module for 8 rooms without wireless technology, with C-bus communication, wired, surface mounting, 24 V/50 Hz</p>	1153128	<p>Comparable to "RM-C F8" but without EnOcean wireless technology. Cabled window contacts or cabled movement sensors installed on site can be evaluated.</p>
 <p>"FK-C F" Wireless window contact solar powered, white (similar to RAL 9003)</p>	1153070	<p>A radio signal is transmitted when opening or closing the window. The solar powered energy storage ensures a maintenance-free operation.</p> <p>Compatible with: - "R-Tronic" Wireless thermostats ("DynaTemp HA") - Wireless room modules ("DynaTemp BA")</p> <p>Note: The wireless thermostats "R-Tronic" require the software version 01-06-02 or higher and have to be mains-operated.</p>
 <p>"BWM-C F" Wireless movement sensor with EnOcean wireless technology surface mounting, solar powered, white (RAL 9010)</p>	1153180°	<p>The solar powered wireless ceiling sensor serves the presence detection. Transmission to the wireless room modules via EnOcean wireless technology. The solar powered energy storage ensures a maintenance-free operation. The device detects movements within a range of 360°.</p>
 <p>"BWM-C F" Wireless movement sensor with EnOcean wireless technology surface mounting, solar powered, white (RAL 9010)</p>	1153280*	<p>The solar powered wireless ceiling sensor serves the presence detection. Transmission to the wireless room modules via EnOcean wireless technology. The solar powered energy storage ensures a maintenance-free operation. The device detects movements within a range of 360°.</p>



"RP-C F" Wireless repeater

for EnOcean wireless technology, flush mounting, 230 V/ 50 Hz

Packing unit Article-No.

(50) **1153060**

Hint

The repeater serves to amplify the EnOcean radiograms and is for instance used to increase the radio range between wireless window contacts and the wireless room modules.



"RS-C F" Wireless temperature sensor

with EnOcean wireless technology

1153195

The solar powered wireless temperature sensor is used for room temperature monitoring. The temperature values or sequences can be viewed via the control unit DDC "CR-BS"/DDC "CR-BSX".







"FM-C WS" Outside temperature sensor

with C-bus communication, surface mouting, IP 65

1153130

Outside temperature sensor to use the "DDC" function "variable heating-up time". Power supply via the C-bus.

Article	Packing unit Article-No.	Hint
	<p>Thermostat "Uni LHZ"</p> <p>Connecting cable 1 m long connection thread M 30 x 1.5 marking "DynaTemp" on lower side of the handwheel</p> <p>1150300</p>	<p>In combination with the control unit DDC "CR-BS", the thermostats "Uni LHZ" and "Uni FHZ" allow for a timed temperature setback with the help of an integrated electrically heated liquid sensor. The operation is identical with that of a standard thermostat. If the thermostat is energized with a voltage of 24 V, it switches to temperature setback. The thermostats "Uni LHZ" and "Uni FHZ" can be activated via the control unit DDC "CR-BS" and the room modules via LAN networks or the Internet.</p> <p><u>without '0' setting</u> Temperature range: 7 - 28 °C Graduation on cap: * 1-4 Operating current: 24 V Temperature setback: about 7 K Connecting cable 1 m</p>
	<p>Reinforcing cap white</p> <p>for thermostats "Uni LH", "Uni LHZ" and "Uni LA"</p> <p>not lockable (10) 1011865 lockable (10) 1011866</p>	<p>The reinforcing caps are delivered with an Allen key.</p>
	<p>Thermostat with remote control "Uni FHZ"</p> <p>with liquid sensor connection thread M 30 x 1.5 connecting cable 1 m long capillary 2 m long</p> <p>1152265</p>	<p><u>without '0' setting,</u> Temperature range: 7 - 28 °C Graduation on cap: * 1-4 Operating current: 24 V Temperature setback: about 7 K Connecting cable 1 m</p>
	<p>Wall connection set</p> <p>for "Uni LHZ"</p> <p>1150390</p>	<p>Is used as additional protection for the wall installation (in a flush box) of the connecting cable of the thermostat "Uni LHZ".</p>

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------



"Aktor T 2P" Electrothermal actuators (two point)
connection thread M 30 x 1.5

"L NC", closed with current "off", 24 V **1012416**
"L NC", closed with current "off", 24 V **1012442**
cable 2 m long

Oventrop electrothermal actuators are used for heating, ventilation and air conditioning. The actuators serve to control the room temperature and can be used e. g. with conventional radiators, radiators with integrated distributor, distributors/collectors for surface heating, radiant ceiling panels, chilled ceiling systems and induction air systems in combination with two point room thermostats. Further applications in bivalent heating installations.
For zone and room temperature control.
Connecting cable 1 m.
With "First-Open" function (except for actuators "open with current off") and stroke index.
Simple plug-in connection with valve adapter. Actuators can be installed in any position. As for the model with auxiliary switch, a pump can for instance be switched via the integrated volt free contact. Due to their construction, the electrothermal actuators are secured against overvoltage which could occur when switching on fluorescent tubes. A varistor is thus not necessary.



Room thermostat - surface mounting

24 V (25) **1152052**

The electric room thermostat is used for individual room temperature control in combination with the electrothermal actuators (two point) "Aktor T 2P".
Temperature range: 5 °C up to 30 °C
Heating: Use electrothermal actuators (two point) "closed with current off".
As for item no. 1152051/52/55/71/72, the temperature may be set back by use of an external time switch (item no. 1152551/52 for 230 V, item no. 1152554 for 24 V).



Reinforcing cap

for electrothermal actuators (two point) and (0-10 V) **1012450**

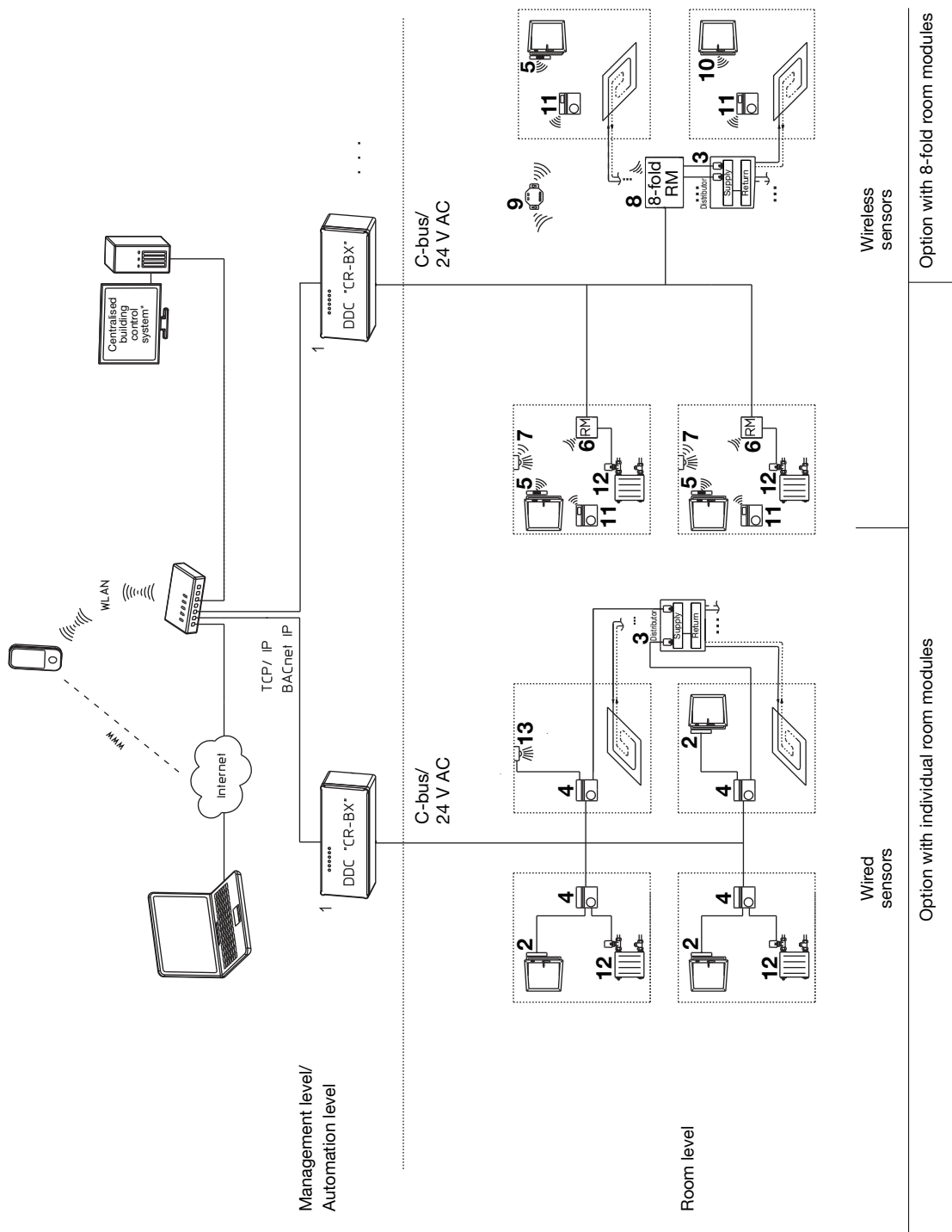
To protect electrothermal actuators against vandalism.
The special valve adapter with connection thread M 30 x 1.5 for fixing of the reinforcing cap is included.



**12.e "DynaTemp BA" Building Automation
Central individual room temperature control via bus system "CR-BX"**

Content

System illustration	12.26
DDC "CR-BX" Control unit	12.27
TR-250 Transformer	12.27
TR-80 Transformer	12.27
"RM-C F" Room module	12.27
"ABR-55" Cover frame	12.27
"RM-C F8" Room module	12.28
"RBG-C K" Room controller	12.28
"RBG-C F" Room controller	12.28
"BWM-C F" Movement sensor	12.28
"FK-C F" Wireless window contact	12.29
"RP-C F" Wireless repeater	12.29
"Aktor T 2P" Electrothermal actuators (two point)	12.30
"Aktor T ST" Electrothermal actuators (0-10 V)	12.30



DDC "CR-BX" control unit for individual room temperature control with control signal transmission via radio (EnOcean) or cable

- | | |
|---|---|
| <ul style="list-style-type: none"> 1 DDC "CR-BX" Control unit 2 Window contact, wired (installation on site) 3 "Aktor T 2P" Electrothermal actuator, 24 V, two point 4 "RBG-C K" Surface-mounted room controller, wired 5 "FK-C F" Solar powered window contact, wireless 6 "RM-C F" Flush-mounted room module, wireless, 1-fold 7 "BWM-C F" Movement sensor, wireless | <ul style="list-style-type: none"> 8 "RM-C F8" Surface-mounted room module, wireless, 8-fold 9 "RP-C F" Flush-mounted receiver, 230 V, wireless 10 "Secusignal" Window handle of the company Hoppe (installation on site) 11 "RBG-C F" Solar powered room controller, wireless 12 Electrothermal actuator, 0-10 V or two point 13 Movement sensor, wired (installation on site) |
|---|---|

* Integration into a centralised building control system of other manufacturers (e.g. Honeywell, Kieback & Peter, Sauter, Siemens etc.) via the standardized interface "BACnet IP".

Article	Article-No.	Hint
 <p>DDC "CR-BX" Control unit with bus technology, for the connection of 31 C-bus room modules, surface mounting, BACnet IP interface, operating/bus current: 24 V/50 Hz</p>	1153250°	The DDC "CR-BX" is used for central room temperature control. The actuators are connected to the control unit via the C-bus room modules. The integrated web server allows for access to the system via a PC and standard web browser (e.g. Mozilla Firefox). The parameters (e.g. nominal temperature and time profiles) of the system can be set via the menu and the trend data as well as the current status can be queried. The integration of the system into the centralised building control system is possible via "BACnet IP".
<p>as item no. 1153250, but for 62 C-bus room modules</p>	1153251°	
 <p>TR-250 Transformer primary: 230 V; 50 Hz secondary: 24 V/ 250 VA</p>	1153055	Transformer for the power supply of the DDC, field modules, thermostats and actuators.
 <p>TR-80 Transformer primary: 230 V, 50-60 Hz secondary: 24 V / 80 VA</p>	1153053	Transformer for the power supply of the DDC, field modules, thermostats and actuators.
 <p>"RM-C F" Room module for one room with EnOcean wireless technology and C-bus communication, flush mounting, 24 V/50 Hz, white (RAL 9010), cover frame to be ordered separately</p>	1153101	The "RM-C F" is a bus based wireless room module for the connection of actuators or thermostats "Uni LHZ" or "Uni FHZ" as well as wireless window contacts and wireless movement sensors with EnOcean wireless technology. Moreover, window contacts or movement sensors installed on site can be evaluated via a voltage free contact by use of a cable. Connection module for one room (1-fold). Installation in a standard flush socket with cover plate, but without cover frame.
 <p>"ABR-55" Cover frame white (RAL 9016)</p>	1153170	Cover frame for item no. 1153101 and 1153121.

Article	Article-No.	Hint
---------	-------------	------

"RM-C F8" Room module



for 8 rooms
with EnOcean wireless technology and
C-bus communication,
surface mounting,
24 V/50 Hz

1153118

The "RM-C F8" is a bus based 8-fold wireless room module for the connection of thermostats "Uni LHZ" or "Uni FHZ" respectively room thermostats (item no. 1152052/72) as well as wireless window contacts "FK-C F" or wireless movement sensors "BWM-C F" with EnOcean wireless technology.
Moreover, cabled window contacts or cabled movement sensors installed on site can be evaluated.

Connection module for 8 rooms (8-fold) for surface-mounted installation.

"RBG-C K" Room controller



with C-bus communication,
nominal room temperature setting device and
presence key button with LED,
wired,
surface mounting,
24 V/50 Hz,
white (RAL 9010)

1153271

The "RBG-C K" is a bus application room controller with room temperature sensor for the connection of actuators as well as window contacts or movement sensors installed on site via cable.

Connection module for 1 room (1-fold), for surface-mounted installation.

A nominal room temperature setting device and a presence key button with LED display and possibility to switch from comfort to setback operation are integrated.

"RBG-C F" Room controller



with EnOcean wireless technology,
nominal room temperature setting device
and presence key button,
solar powered,
white (RAL 9010)

1153050

Solar operated wireless room controller with room temperature sensor, nominal room temperature setting device and presence key button for setback and comfort operation, for surface-mounted installation.

The room controller transfers the data to the wireless room modules via EnOcean wireless technology.

"BWM-C F" Movement sensor



with EnOcean wireless technology
surface mounting,
solar powered,
white (RAL 9010)

1153180°

The solar powered wireless ceiling sensor serves the presence detection.

Transmission to the wireless room modules via EnOcean wireless technology.

The solar powered energy storage ensures a maintenance-free operation. The device detects movements within a range of 360°.

"BWM-C F" Wireless movement sensor





with EnOcean wireless technology
surface mounting,
solar powered,
white (RAL 9010)

1153280*

The solar powered wireless ceiling sensor serves the presence detection.

Transmission to the wireless room modules via EnOcean wireless technology.

The solar powered energy storage ensures a maintenance-free operation. The device detects movements within a range of 360°.

Article	Packing unit	Article-No.	Hint
<p>"FK-C F" Wireless window contact</p>			
<p>solar powered, white (similar to RAL 9003)</p>		<p>1153070</p>	<p>A radio signal is transmitted when opening or closing the window. The solar powered energy storage ensures a maintenance-free operation.</p>
			<p>Compatible with: - "R-Tronic" Wireless thermostats ("DynaTemp HA") - Wireless room modules ("DynaTemp BA")</p>
			<p>Note: The wireless thermostats "R-Tronic" require the software version 01-06-02 or higher and have to be mains-operated.</p>
<p>"RP-C F" Wireless repeater</p>			
<p>for EnOcean wireless technology, flush mounting, 230 V/ 50 Hz</p>		<p>(50) 1153060</p>	<p>The repeater serves to amplify the EnOcean radiograms and is for instance used to increase the radio range between wireless window contacts and the wireless room modules.</p>
			

Article	Article-No.	Hint
---------	-------------	------



"Aktor T 2P" Electrothermal actuators (two point)
connection thread M 30 x 1.5

"L NC", closed with current "off", 24 V **1012416**
 "L NC", closed with current "off", 24 V **1012442**
 cable 2 m long

Oventrop electrothermal actuators are used for heating, ventilation and air conditioning. The actuators serve to control the room temperature and can be used e. g. with conventional radiators, radiators with integrated distributor, distributors/collectors for surface heating, radiant ceiling panels, chilled ceiling systems and induction air systems in combination with two point room thermostats. Further applications in bivalent heating installations.
 For zone and room temperature control.
 Connecting cable 1 m.
 With "First-Open" function (except for actuators "open with current off") and stroke index.
 Simple plug-in connection with valve adapter. Actuators can be installed in any position.
 As for the model with auxiliary switch, a pump can for instance be switched via the integrated volt free contact. Due to their construction, the electrothermal actuators are secured against overvoltage which could occur when switching on fluorescent tubes. A varistor is thus not necessary.



"Aktor T ST" Electrothermal actuator (0-10 V)
Proportional actuator
connection thread M 30 x 1.5

"L NC", closed with current "off", 24 V **1012953**
 with automatic recognition of neutral point and valve travel

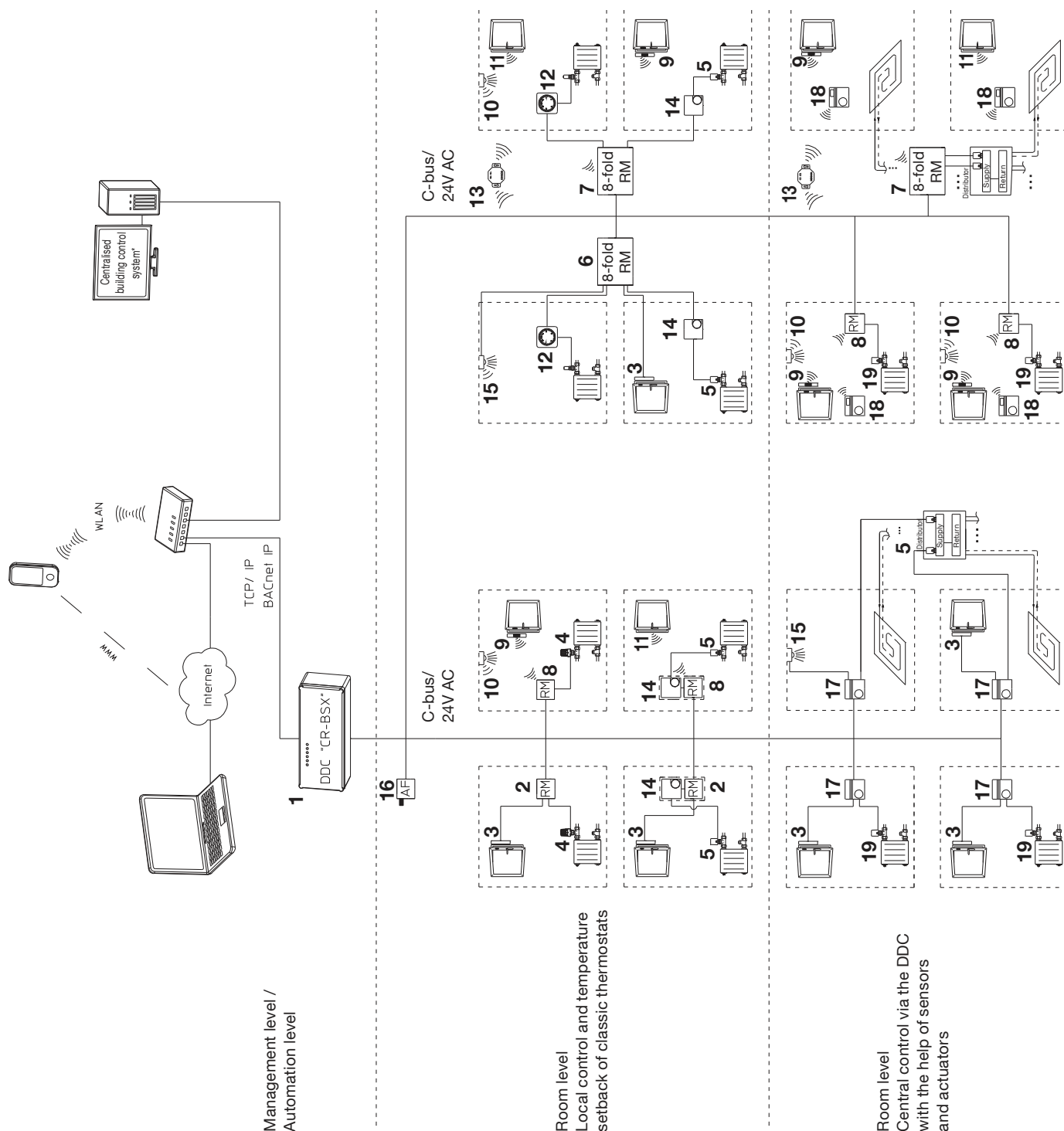
The actuator (0-10 V) can be used in centralised building control systems in combination with the electronic room thermostat, item no. 1152151/1152153, or with a central controller.
 Plug-in connecting cable 1 m.
 With "First-Open" function and stroke index.
 Easy plug-in connection with valve adapter. Due to their construction, the electrothermal actuators are secured against overvoltage which could occur when switching on fluorescent tubes. A varistor is thus not necessary.



**12.f "DynaTemp BA" Building Automation
Local and central individual room temperature control via bus system "CR-BSX"**

Content

System illustration	12.32
DDC "CR-BSX" Control unit	12.33
TR-250 Transformer	12.33
TR-80 Transformer	12.33
"RM-C K" Room module	12.33
"RM-C K8" Room module	12.33
"RM-C F" Room module	12.33
"RM-C F8" Room module	12.34
"ABR-55" Cover frame	12.34
"RBG-C K" Room controller	12.34
"RBG-C F" Room controller	12.34
Room thermostat - surface mounting	12.34
"FK-C F" Wireless window contact	12.35
"BWM-C F" Wireless movement sensor	12.35
"RS-C F" Wireless temperature sensor	12.35
"FM-C WS" Outside temperature sensor	12.35
"RP-C F" Wireless repeater	12.35
"Aktor T" Electrothermal actuators	12.36
"Aktor T ST" Electrothermal actuator (0-10 V)	12.36
Thermostat "Uni LHZ"	12.37
Reinforcing cap	12.37
Thermostat with remote control "Uni FHZ"	12.37
Wall connection set	12.37














*Integration into a centralised building control system of other manufacturers (e.g. Honeywell, Kieback & Peter, Sauter, Siemens etc) via the standardized interface "BACnet IP".

DDC "CR-BSX" Control unit for temperature control with control signal transmission via radio (EnOcean) or cable.

- | | |
|---|---|
| 1 DDC "CR-BSX" Control unit | 11 "SecuSignal" Window handle of the company Hoppe (installation on site) |
| 2 "RM-C K" Flush-mounted room module, wired, 1-fold | 12 "Uni FHZ" Thermostat with remote control |
| 3 Wired window contact (installation on site) | 13 "RP-C F" Flush-mounted repeater, 230 V, wireless |
| 4 "Uni LHZ" Thermostat | 14 Room thermostat with setback entry, 24 V |
| 5 "Aktor T 2P" Electrothermal actuator, 24 V, two point | 15 Movement sensor, wired (installation on site) |
| 6 "RM-C K8" Surface-mounted room module, wired, 8-fold | 16 "FM-C WS" Outside temperature sensor |
| 7 "RM-C F8" Surface-mounted room module, wireless, 8-fold | 17 "RBG-C K" Surface-mounted room controller, wired |
| 8 "RM-C F" Flush-mounted room module, wireless, 1-fold | 18 "RBG-C F" Solar powered room controller, wireless |
| 9 "FK-C F" Solar powered window contact, wireless | 19 Electrothermal actuator, 0-10 V or two point |
| 10 "BWM-C F" Movement sensor, wireless | |

Article	Article-No.	Hint	
	<p>DDC "CR-BSX" Control unit</p> <p>with bus technology, for the connection of 31 C-bus room modules, BACnet IP interface, surface mounting, operating/bus current: 24 V / 50 Hz</p>	<p>1153100*</p>	<p>The control unit DDC "CR-BSX" is used for combined temperature control with local, conventional thermostat technology (liquid sensor) and central temperature control with the help of bus-coupled sensors, actuators and thermostats.</p> <p>The integrated web server allows for access to the system via a PC and a standard web browser (e.g. Mozilla Firefox). The parameters (e.g. time profiles with setback values, user profiles etc.) of the system can be set via the menu and the trend data as well as the current status can be queried.</p> <p>The integration of the system into the central building control system is possible via "BACnet IP".</p>
	<p>TR-250 Transformer</p> <p>primary: 230 V; 50 Hz secondary: 24 V/ 250 VA</p>	<p>1153055</p>	<p>Transformer for the power supply of the DDC, field modules, thermostats and actuators.</p>
	<p>TR-80 Transformer</p> <p>primary: 230 V, 50-60 Hz secondary: 24 V / 80 VA</p>	<p>1153053</p>	<p>Transformer for the power supply of the DDC, field modules, thermostats and actuators.</p>
	<p>"RM-C K" Room module</p> <p>for one room without wireless technology, with C-bus communication, wired, flush mounting, 24 V/50 Hz, white (RAL 9010), cover frame to be ordered separately</p>	<p>1153121</p>	<p>Comparable to item no. 1153101, but without EnOcean wireless technology. Window contacts or movement sensors installed on site can be evaluated via cable.</p>
	<p>"RM-C K8" Room module</p> <p>for 8 rooms without wireless technology, with C-bus communication, wired, surface mounting, 24 V/50 Hz</p>	<p>1153128</p>	<p>Comparable to "RM-C F8" but without EnOcean wireless technology. Cabled window contacts or cabled movement sensors installed on site can be evaluated.</p>
	<p>"RM-C F" Room module</p> <p>for one room with EnOcean wireless technology and C-bus communication, flush mounting, 24 V/50 Hz, white (RAL 9010), cover frame to be ordered separately</p>	<p>1153101</p>	<p>The "RM-C F" is a bus based wireless room module for the connection of actuators or thermostats "Uni LHZ" or "Uni FHZ" as well as wireless window contacts and wireless movement sensors with EnOcean wireless technology. Moreover, window contacts or movement sensors installed on site can be evaluated via a voltage free contact by use of a cable.</p> <p>Connection module for one room (1-fold). Installation in a standard flush socket with cover plate, but without cover frame.</p>

Article	Packing unit	Article-No.	Hint
 <p>"RM-C F8" Room module for 8 rooms with EnOcean wireless technology and C-bus communication, surface mounting, 24 V/50 Hz</p>		1153118	<p>The "RM-C F8" is a bus based 8-fold wireless room module for the connection of thermostats "Uni LHZ" or "Uni FHZ" respectively room thermostats (item no. 1152052/72) as well as wireless window contacts "FK-C F" or wireless movement sensors "BWM-C F" with EnOcean wireless technology. Moreover, cabled window contacts or cabled movement sensors installed on site can be evaluated. Connection module for 8 rooms (8-fold) for surface-mounted installation.</p>
 <p>"ABR-55" Cover frame white (RAL 9016)</p>		1153170	<p>Cover frame for item no. 1153101 and 1153121.</p>
 <p>"RBG-C K" Room controller with C-bus communication, nominal room temperature setting device and presence key button with LED, wired, surface mounting, 24 V/50 Hz, white (RAL 9010)</p>		1153271	<p>The "RBG-C K" is a bus application room controller with room temperature sensor for the connection of actuators as well as window contacts or movement sensors installed on site via cable. Connection module for 1 room (1-fold), for surface-mounted installation. A nominal room temperature setting device and a presence key button with LED display and possibility to switch from comfort to setback operation are integrated.</p>
 <p>"RBG-C F" Room controller with EnOcean wireless technology, nominal room temperature setting device and presence key button, solar powered, white (RAL 9010)</p>		1153050	<p>Solar operated wireless room controller with room temperature sensor, nominal room temperature setting device and presence key button for setback and comfort operation, for surface-mounted installation. The room controller transfers the data to the wireless room modules via EnOcean wireless technology.</p>
 <p>Room thermostat - surface mounting 230 V 24 V</p>	(25)	1152051 1152052	<p>The electric room thermostat is used for individual room temperature control in combination with the electrothermal actuators (two point) "Aktor T 2P". Temperature range: 5 °C up to 30 °C Heating: Use electrothermal actuators (two point) "closed with current off". As for item no. 1152051/52/55/71/72, the temperature may be set back by use of an external time switch (item no. 1152551/52 for 230 V, item no. 1152554 for 24 V).</p>

Article	Packing unit	Article-No.	Hint
	solar powered, white (similar to RAL 9003)	1153070	<p>A radio signal is transmitted when opening or closing the window. The solar powered energy storage ensures a maintenance-free operation.</p> <p>Compatible with:</p> <ul style="list-style-type: none"> - "R-Tronic" Wireless thermostats ("DynaTemp HA") - Wireless room modules ("DynaTemp BA") <p>Note: The wireless thermostats "R-Tronic" require the software version 01-06-02 or higher and have to be mains-operated.</p>
	with EnOcean wireless technology surface mounting, solar powered, white (RAL 9010)	1153180°	<p>The solar powered wireless ceiling sensor serves the presence detection. Transmission to the wireless room modules via EnOcean wireless technology. The solar powered energy storage ensures a maintenance-free operation. The device detects movements within a range of 360°.</p>
	with EnOcean wireless technology surface mounting, solar powered, white (RAL 9010)	1153280*	<p>The solar powered wireless ceiling sensor serves the presence detection. Transmission to the wireless room modules via EnOcean wireless technology. The solar powered energy storage ensures a maintenance-free operation. The device detects movements within a range of 360°.</p>
	with EnOcean wireless technology	1153195	<p>The solar powered wireless temperature sensor is used for room temperature monitoring. The temperature values or sequences can be viewed via the control unit DDC "CR-BS"/DDC "CR-BSX".</p>
	with C-bus communication, surface mouting, IP 65	1153130	<p>Outside temperature sensor to use the "DDC" function "variable heating-up time". Power supply via the C-bus.</p>
	for EnOcean wireless technology, flush mounting, 230 V/ 50 Hz	(50) 1153060	<p>The repeater serves to amplify the EnOcean radiograms and is for instance used to increase the radio range between wireless window contacts and the wireless room modules.</p>

Article	Article-No.	Hint
---------	-------------	------

"Aktor T" Electrothermal actuators



"Aktor T 2P" Electrothermal actuators (two point)
connection thread M 30 x 1.5

"L NC", closed with current "off", 24 V **1012416**
"L NC", closed with current "off", 24 V **1012442**
cable 2 m long

Oventrop electrothermal actuators are used for heating, ventilation and air conditioning. The actuators serve to control the room temperature and can be used e. g. with conventional radiators, radiators with integrated distributor, distributors/collectors for surface heating, radiant ceiling panels, chilled ceiling systems and induction air systems in combination with two point room thermostats. Further applications in bivalent heating installations.
For zone and room temperature control. Connecting cable 1 m.
With "First-Open" function (except for actuators "open with current off") and stroke index.
Simple plug-in connection with valve adapter. Actuators can be installed in any position. As for the model with auxiliary switch, a pump can for instance be switched via the integrated volt free contact. Due to their construction, the electrothermal actuators are secured against overvoltage which could occur when switching on fluorescent tubes. A varistor is thus not necessary.

"Aktor T ST" Electrothermal actuator (0-10 V)



Proportional actuator
connection thread M 30 x 1.5

"L NC", closed with current "off", 24 V **1012953**
with automatic recognition of neutral point and valve travel

The actuator (0-10 V) can be used in centralised building control systems in combination with the electronic room thermostat, item no. 1152151/1152153, or with a central controller. Plug-in connecting cable 1 m.
With "First-Open" function and stroke index. Easy plug-in connection with valve adapter. Due to their construction, the electrothermal actuators are secured against overvoltage which could occur when switching on fluorescent tubes. A varistor is thus not necessary.





Reinforcing cap



for electrothermal actuators (two point) and (0-10 V)

1012450

To protect electrothermal actuators against vandalism. The special valve adapter with connection thread M 30 x 1.5 for fixing of the reinforcing cap is included.

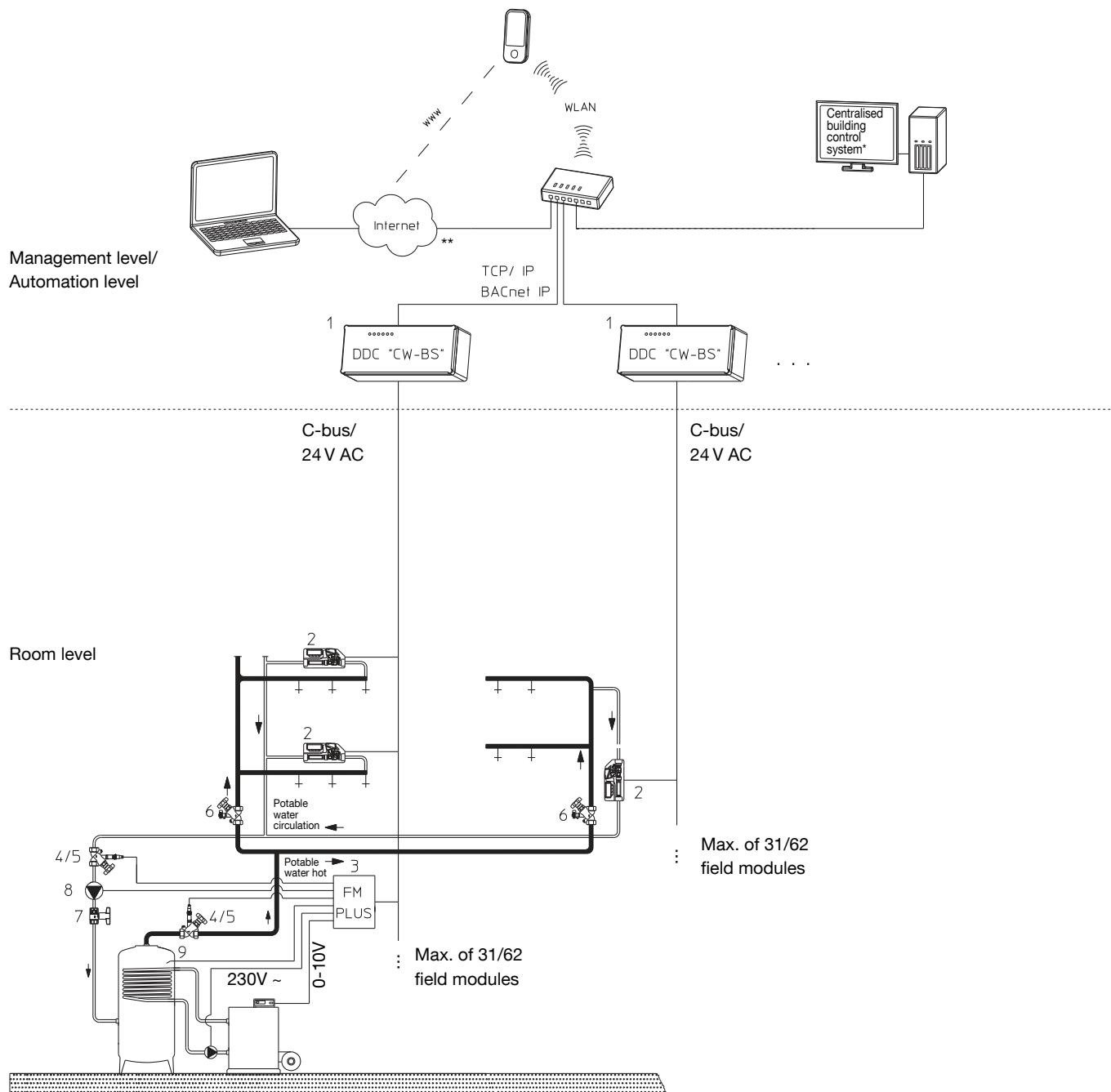
Article	Packing unit	Article-No.	Hint
	<p>Thermostat "Uni LHZ"</p> <p>Connecting cable 1 m long connection thread M 30 x 1.5 marking "DynaTemp" on lower side of the handwheel</p>	<p>1150300</p>	<p>In combination with the control unit DDC "CR-BSX", the thermostats "Uni LHZ" and "Uni FHZ" allow for a timed temperature setback with the help of an integrated electrically heated liquid sensor. The operation is identical with that of a standard thermostat. If the thermostat is energized with a voltage of 24 V, it switches to temperature setback. The thermostats "Uni LHZ" and "Uni FHZ" can be activated via the control unit DDC "CR-BSX" and the room modules via LAN networks or the Internet.</p> <p><u>without '0' setting</u> Temperature range: 7 - 28 °C Graduation on cap: * 1-4 Operating current: 24 V Temperature setback: about 7 K Connecting cable 1 m</p>
	<p>Reinforcing cap white</p> <p>for thermostats "Uni LH", "Uni LHZ" and "Uni LA"</p> <p>not lockable (10) 1011865 lockable (10) 1011866</p>	<p>The reinforcing caps are delivered with an Allen key.</p>	
	<p>Thermostat with remote control "Uni FHZ"</p> <p>with liquid sensor connection thread M 30 x 1.5 connecting cable 1 m long capillary 2 m long</p>	<p>1152265</p>	<p><u>without '0' setting</u> Temperature range: 7 - 28 °C Graduation on cap: * 1-4 Operating current: 24 V Temperature setback: about 7 K Connecting cable 1 m</p>
	<p>Wall connection set</p> <p>for "Uni LHZ" 1150390</p>	<p>Is used as additional protection for the wall installation (in a flush box) of the connecting cable of the thermostat "Uni LHZ".</p>	

12.g "DynaTemp BA" Building Automation Automatic thermal balancing and thermal disinfection in potable water circulation systems "CW-BS"



Content

System illustration	12.40
DDC "CW-BS" Control unit	12.41
TR-250 Transformer	12.41
TR-80 Transformer	12.41
"Aquastron DT" Electronic circulation regulating valve	12.41
"FM-CW Plus" Field module	12.42
"REM-CW" Relay module	12.42
"FM-CW K" Field module	12.42





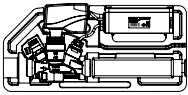






* Integration into a centralised building control system of other manufacturers (e.g. Honeywell, Kieback & Peter, Sauter, Siemens etc.) via the standardized interface "BACnet IP".

** Router configurations, such as port forwarding, are required to access the DDC.

DDC "CW-BS" for automatic thermal balancing and thermal disinfection in potable water circulation systems

- | | |
|--|--|
| 1 DDC "CW-BS" Control unit | 5 Temperature sensor G ¼ |
| 2 "Aquaström DT" Regulating valve including field module with actuator 24 V, 0-10 V and temperature sensor | 6 "Aquaström KFR" |
| 3 "FM-CW Plus" Field module for the connection of sensors and pumps | 7 "Optibal TW" Ball valve for potable water |
| 4 "Aquaström FR" | 8 Circulation pump |
| | 9 Storage cylinder temperature sensor, PT 1000 |

Article	Article-No.	Hint
DDC "CW-BS" Control unit		
	with bus technology, for the connection of 31 C-bus field modules, surface mounting, 24/ 50 Hz, bus current: 24 V/50 Hz	The control unit DDC "CW-BS" is used for automatic thermal balancing and thermal disinfection in potable water circulation systems. The control valves "Aquastrum DT" with electromotive actuator are connected to the C-bus via the bus application field modules. The integrated web server allows for access to the system via a PC and a standard web browser (e.g. Mozilla Firefox). The parameters (e.g. time profiles) of the system can be set via the menu and the trend data, the current status as well as the disinfection records can be queried. The integration of the system into the centralised building control system is possible via "BACnet IP".
	as item no. 1153350, but for 62 C-bus field modules	
TR-250 Transformer		
	primary: 230 V; 50 Hz secondary: 24 V/ 250 VA	Transformer for the power supply of the DDC, field modules, thermostats and actuators.
	1153055	
TR-80 Transformer		
	primary: 230 V, 50-60 Hz secondary: 24 V / 80 VA	Transformer for the power supply of the DDC, field modules, thermostats and actuators.
	1153053	
"Aquastrum DT" Electronic circulation regulating valve		
Potable water installations PN 10 Max. water temperature: 90 °C		
both ports female thread according to EN 10226-1		
	DN 15, Rp 1/2 x Rp 1/2	1150004
	DN 20, Rp 3/4 x Rp 3/4	1150006
	DN 25, Rp 1 x Rp 1	1150008
both ports male thread according to DIN ISO 228, flat sealing		
	DN 15, G 3/4 x G 3/4	1150104
	DN 20, G 1 x G 1	1150106
	DN 25, G 1 1/4 x G 1 1/4	1150108
Accessories		

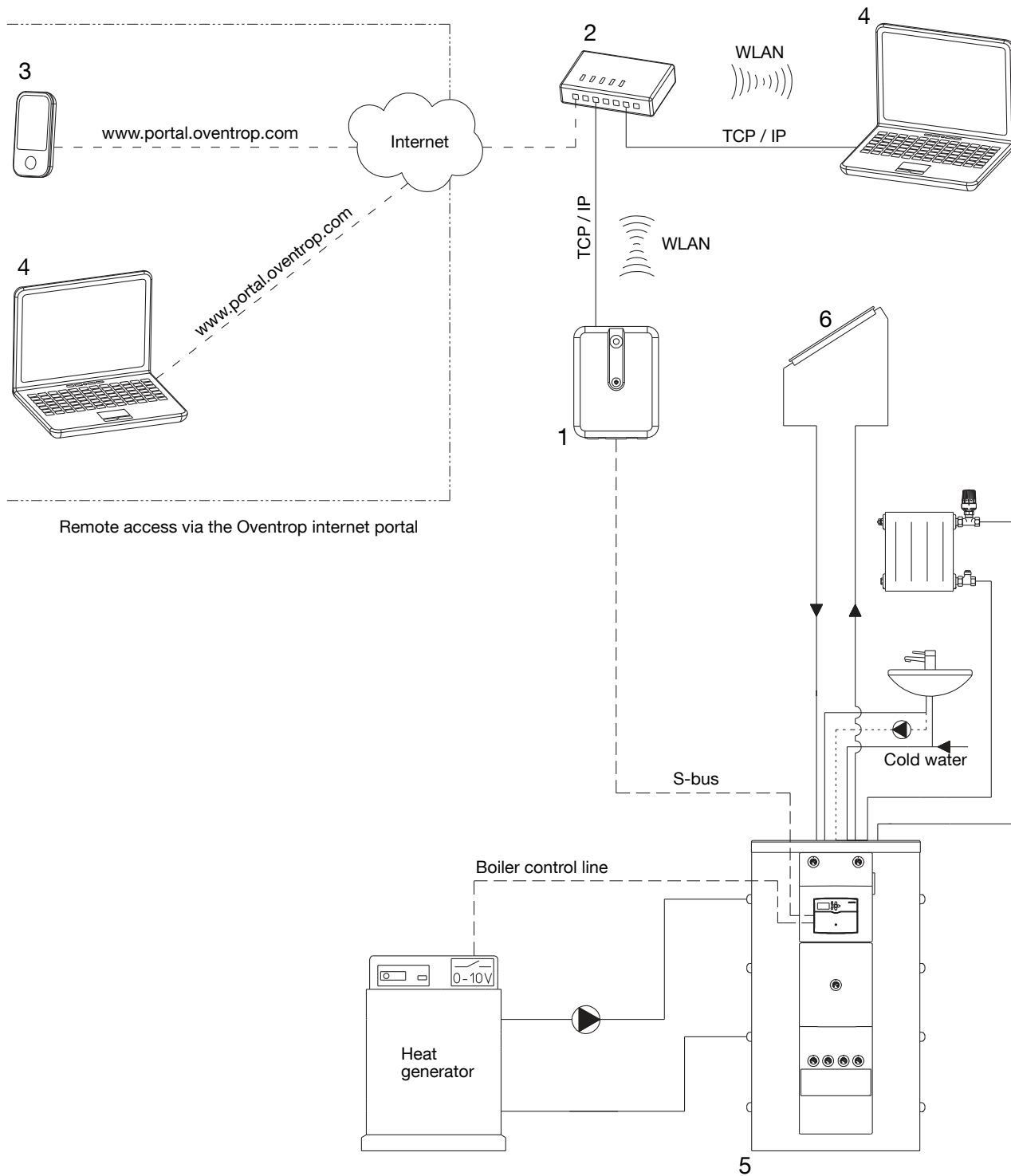
Article	Article-No.	Hint
	<p>"Sensor LW TQ"</p> <p>Sensor element PT 1000 G 1/4, bronze body, temperature sensor made of stainless steel, two wire system</p>	<p>For remote monitoring of the riser temperatures and integration into a centralised building control system.</p>
	<p>"FM-CW Plus" Field module</p> <p>for the connection of sensors and pumps with C-bus communication, 3 x PT 1000 temperature sensors/inputs, surface mounting, 24 V/50 Hz</p>	<p>The "FM-CW Plus" is a bus based field module for temperature detection, utilising 3 PT 1000 sensors. Two volt free relays can, for instance, be used for the control of the circulation/storage cylinder pump, a thermostatic mixing valve or the burner demand. Optionally, control of the burner demand can also be carried out via a 0-10 V signal.</p>
	<p>"REM-CW" Relay module</p> <p>with analogue outlet (0 - 10 V) Relay contact: closing contact, (max.) 230 V / 5 A, volt free</p>	<p>Volt free contact which is activated via a 0 - 10 V analogue inlet (e.g. of the "FM-CW Plus") and which can be used for boiler control.</p>
	<p>"FM-CW K" Field module</p> <p>only supplied as replacement, already comes with the regulating valve "Aquastron DT"</p> <p>with C-bus communication, surface mounting, 24 V/50 Hz</p>	<p>The "FM-CW K" is a bus based field module for the connection of the regulating valve "Aquastron DT" for one riser.</p>



**12.h "DynaTemp BA" Building Automation
Network of stations for heat generator/heating circuit
and solar thermal energy "CS-BS"**



Content

System illustration	12.44
Datalog "CS-BS-1" (WLAN)	12.45
Datalog "CS-BS-6"	12.45
"Regtronic RH" Heating circuit controller	12.46
"Regtronic SV" Sensor distributor	12.46
"Regtronic RH" Heating circuit controller	12.47
"Regtronic EM" Extension module	12.48
Accessories	12.49
"Regusol ELH-130-RC" Station DN 25	12.51
"Regusol ELH-130-RC-P" Station DN 25 with high-efficiency pump	12.51
"Regusol X-Uno 25" with heat exchanger	12.52
"Regusol X-Duo 25" with heat exchanger	12.52
"Regumaq X-30" - without circulation connection	12.53
"Regumaq XZ-30" - with circulation connection	12.53
"Regumaq XZ-30" - with circulation connection and high-efficiency circulation pump	12.53



Remote access via the Oventrop internet portal

- 1 Datalog "CS-BS-1" (WLAN)
- 2 Standard router/switch (e.g. FritzBox)
- 3 Mobile displays (iPhone, iPod touch, iPad, Blackberry etc.)
- 4 PC/Laptop
- 5 "Regucor WHS" with controller "Regtronic RS"
- 6 "OKF" Flat-plate collector or "OKP" tube collector

Article	Article-No.	Hint
	Datalog "CS-BS-1" (WLAN)	<p>Data logger for an easy networking and visualization of different components/controllers for solar thermal energy, heating and fresh water technology. The following controllers can be connected to the data logger "CS-BS":</p> <ul style="list-style-type: none"> "Regtronic RC/RC-P" "Regtronic RX" "Regtronic RQ" "Regtronic RH" "Regtronic RM" "Regtronic RS" ("Regucor") <p>Controller data can be read via an integrated web interface. The data can be transmitted to a standard file format and be evaluated via third party software (see CSV file format). Connection to the centralised building control system can be carried out via the Datalog "CS-BS-6". For the preparation of trend data, the sensor and relay states are cyclically transmitted to the Oventrop portal (www.portal.ventrop.com) by the datalogger. The connection is encrypted and supplies the following functions without additional router configurations:</p> <ul style="list-style-type: none"> -remote access -data/system visualization -backup of history data <p>Interfaces: LAN, WLAN (only item no. 1159097) Inputs: 3 temperature inputs (PT1000)</p> <p>The data logger can be easily operated via three keys and features a full graphic display for status visualization (only datalog "CS-BS-6").</p> <p>Power supply via an external mains adaptor.</p> <p>#Only for use inside the EU.</p>
<p>Data logger for data collection and reading of controller data (1 controller) A system visualization is possible via the Oventrop portal. Suitable for wall attachment</p>	1159097#	
	Datalog "CS-BS-6"	<p>Controller data can be read via an integrated web interface. The data can be transmitted to a standard file format and be evaluated via third party software (see CSV file format). Connection to the centralised building control system can be carried out via the Datalog "CS-BS-6". For the preparation of trend data, the sensor and relay states are cyclically transmitted to the Oventrop portal (www.portal.ventrop.com) by the datalogger. The connection is encrypted and supplies the following functions without additional router configurations:</p> <ul style="list-style-type: none"> -remote access -data/system visualization -backup of history data <p>Interfaces: LAN, WLAN (only item no. 1159097) Inputs: 3 temperature inputs (PT1000)</p> <p>The data logger can be easily operated via three keys and features a full graphic display for status visualization (only datalog "CS-BS-6").</p> <p>Power supply via an external mains adaptor.</p> <p>#Only for use inside the EU.</p>
<p>Data logger for data collection and parameterization of up to 6 controllers. Suitable for wall attachment</p>	1159095	

Article Article-No. Hint



"Regtronic RH" Heating circuit controller

with 1 outdoor sensor and 3 additional sensors (PT 1000)

1152093°

Weather-guided control of the flow temperature of the heating system by activation of a heat generator and/or a mixing valve (e. g. "Regumat M3" or "Regufloor HW" with three-way mixing valve).
Controller for wall attachment with data bus (S-bus) for connection to the data logger "CS-BS".

Basic functions: 1 variable and 1 constant temperature heating circuit with heat demand. Extension via "Regtronic EM".

with 1 outdoor sensor, 2 additional sensors (PT 1000) and remote control including room temperature sensor (PT 1000)

1152090°

Data can be viewed via a full graphics display. Interfaces: S-bus for connection to the data logger "CS-BS". SD-card slot for data recording.

Inputs: 8 inputs for sensors (PT1000, KTY, switch or remote control), 2 inputs for electronic flow sensor VFD (volume flow / temperature) and irradiation sensor.
Outputs: 4 solid-state relays (speed controlled), 1 standard relay (voltage free), 2 pulse-width modulation (PWM) outputs for the speed controlled activation of high-efficiency pumps. Both pulse-width modulation (PWM) outputs can be switched to 0 - 10 V.

ErP classification heating circuit controller "Regtronic RH"						
Item no.	Controller	Required accessories	Boiler control modulating (0-10 V)		ErP %	Class
			On/Off			
1152093	"Regtronic RH"	Adapter cable 1152086	X		2.0	II
1152093	"Regtronic RH"	-		X	1.5	III
1152090	"Regtronic RH" incl. remote control with room temperature sensor	Adapter cable 1152086	X		4.0	VI
1152090	"Regtronic RH" incl. remote control with room temperature sensor	-		X	3.5	VII
1152090	"Regtronic RH" incl. remote control with room temperature sensor	2 x room temperature sensor 1152095 Adapter cable 1152086	X		5.0	VIII

For the connection of high-performance pumps (> 1A) see load relay, page 6.80.



Adapter cable

PWM-/ 0-10 V

1152086

Adapter cable for signal transmission, for instance from the heating circuit controller "Regtronic RH" to a modulating heat generator with 0-10 V interface.
Accessory required for ErP classification II, VI and VIII.



Outside temperature sensor

1152099

Temperature sensor PT 1000 for connection to the heating circuit controller "Regtronic RH".

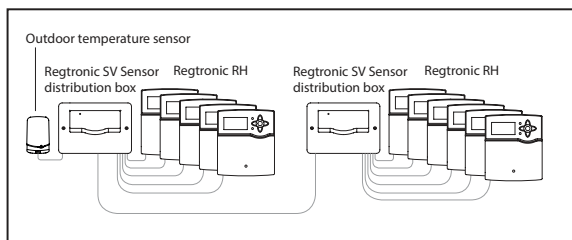


"Regtronic SV" Sensor distributor

for the distribution of one PT 1000 temperature sensor to up to 6 "Regtronic" controllers

1152088°

The sensor distributor "Regtronic SV" distributes the signal of one PT1000 outside temperature sensor to 6 outputs. This allows the transmission of the signal of one sensor to up to 6 controllers (e.g. heating circuit controller "Regtronic RH").



Example: Distribution of one temperature sensor (outside temperature sensor) to 5 respectively 6 heating circuit controllers "Regtronic RH".

Article

Article-No.

Hint

"Regtronic RH" Heating circuit controller



with 1 outdoor sensor (bus-compatible) and 3 additional sensors (PT1000) **1152083***

with 1 outdoor sensor (bus-compatible), 2 additional sensors (PT1000) and remote control including room temperature sensor (PT1000) **1152080***

Weather guided control of the flow temperature of the heating system via the demand of a heat generator and/or a mixing valve (e. g. "Regumat M3" or "Regufloor HW" with three-way mixing valve).

Controller for wall mounting with data bus (S-bus) for the connection to the data logger "CS-BS".

Basic functions: 1 variable and 1 constant temperature heating circuit with heat demand. Extendable by "Regtronic EM".

The status can be viewed via a full graphic display.

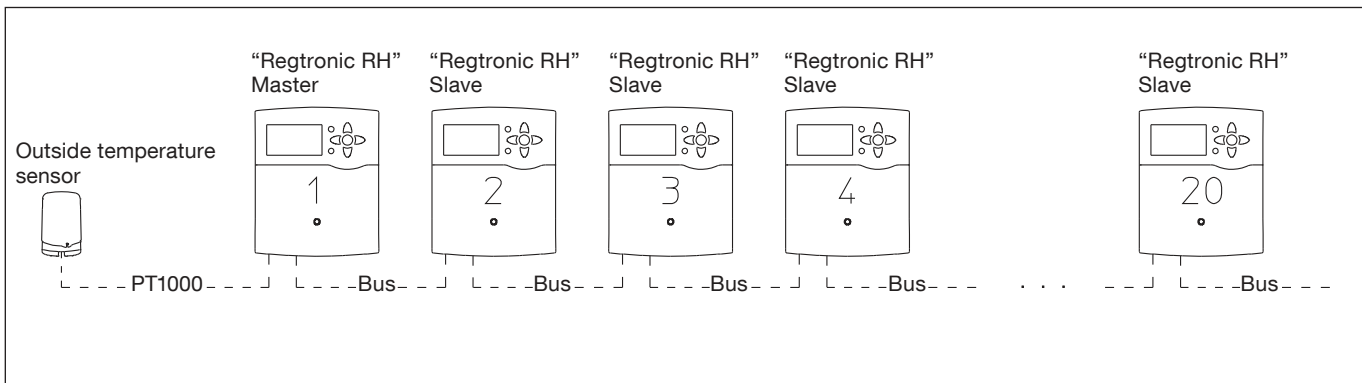
Interfaces: S-bus (optional connection to the data logger "CS-BS") , SD-card slot for data recording, a central outdoor sensor can also be connected at the heating circuit controller

Inputs: 8 sensor inputs (PT1000, KTY, switch or remote control), 2 inputs for electronic flow sensor VFD (volume flow/temperature)

Outputs: 3 solid-state relays (speed controlled), 2 standard relays, 1 volt free low voltage relay, 2 PWM outputs for the speed controlled activation of high-efficiency pumps. Both PWM outputs can be switched to 0-10 V.

For the connection of high-performance pumps (> 1A) see load relay, page 6.80.

Erp classification heating circuit controller "Regtronic RH"						
Item no.	Controller	Required accessories	Boiler control		ErP %	Class
			modulating (0-10 V)	On/Off		
1152083	"Regtronic RH"	Adapter cable 1152086	X		2.0	II
1152083	"Regtronic RH"	-		X	1.5	III
1152080	"Regtronic RH" incl. remote control with room temperature sensor	Adapter cable 1152086	X		4.0	VI
1152080	"Regtronic RH" incl. remote control with room temperature sensor	-		X	3.5	VII
1152080	"Regtronic RH" incl. remote control with room temperature sensor	2 x room temperature sensor 1152095 Adapter cable 1152086	X		5.0	VIII



Example: Distribution of a temperature sensor (outside temperature sensor, item no. 1152099) up to 20 heating circuit controllers "Regtronic RH" (item no. 1152080/1152083)

Article

Article-No.

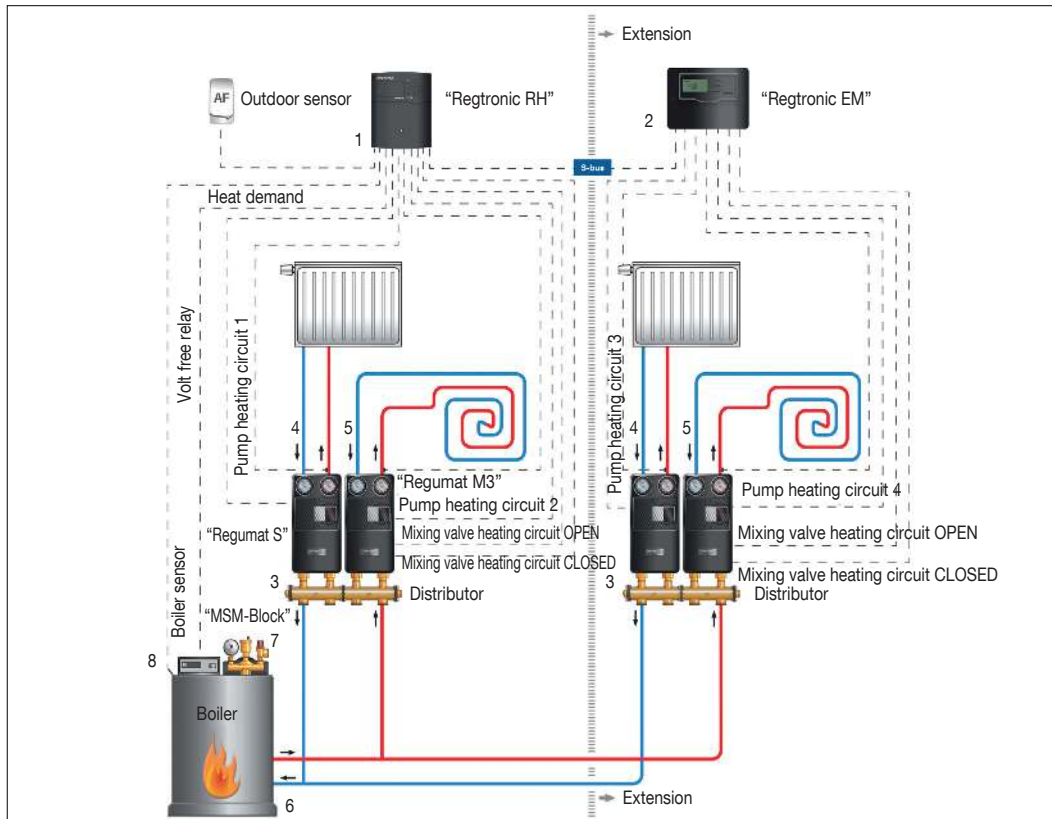
Hint

"Regtronic EM" Extension module



for the connection to the heating circuit controller "Regtronic RH" **1152098**




"Regtronic EM" for the extension of the heating circuit controller "Regtronic RH" by 6 sensor inputs and 5 relay outputs. This way, further variable or constant temperature heating circuits can be activated. Up to five extension modules can be connected to the heating circuit controller "Regtronic RH". 1 sensor attached to the pipe PT 1000 is included.







Example: Weather guided control of 2 variable and 2 constant temperature circuits with heat demand (e.g. via a conventional boiler, solid fuel or heat pump) consisting of the heating circuit controller "Regtronic RH-B" with outdoor sensor and the extension module "Regtronic EM-B".

Oventrop products:

- 1 "Regtronic RH-B" Heating circuit controller with outdoor sensor
- 2 "Regtronic EM-B" Extension module
- 3 Distributor for "Regumat"
- 4 "Regumat S"
- 5 "Regumat M3"
- 6 "Optiflex" Ball valve
- 7 "MSM-Block" Boiler safety device
- 8 "Expa-Con" Valve with lead sealable cap

Article	Article-No.	Hint	
Accessories			
	<p>Room temperature sensor PT 1000</p>	<p>1152095</p>	<p>Room temperature sensor for fixing on level surfaces (surface mounting).</p>
	<p>Remote control with room temperature sensor PT 1000</p>	<p>1152096</p>	<p>Remote control with room temperature sensor PT 1000 for the connection to the electronic controllers "Regtronic RH, RM and RS" for a comfortable control of the heating curve of the controller from the living area. When increasing the heating curve, the flow temperature is increased and vice versa. The remote control also features the functions "heating circuit off" and "party position".</p>
	<p>Room controller with operating mode switch, remote control and room temperature sensor PT 1000</p>	<p>1152087</p>	<p>Room controller with operating mode switch, remote control and room temperature sensor PT 1000 for the connection to the heating circuit controller "Regtronic RH" for a comfortable setting of the operating mode and heating curve of the controller from the living area.</p> <p>Operating mode switch: Setting of the operating modes "Automatic", "Night setback", "Summer" and "Off".</p> <p>Remote control: An increase of the heating curve provokes an increase of the flow temperature and vice versa. Furthermore, the remote control features the functions "Heating circuit off" and "Party position".</p>

Article	Packing unit	Article-No.	Hint
Room thermostat-clock - surface mounting (heating)			<p>The electric room thermostat-clock is required for individual room temperature control of heating systems in combination with the electrothermal actuators (two point) "Aktor T 2P". Output signal pulse-width modulation.</p> <p>Temperature range: 5 °C up to 30 °C</p> <p>Heating: Use electrothermal actuators (two point) "closed with current off". Central temperature setback is carried out according to a timed programme. Limitation of the control range by using the concealed limiting elements.</p>
with daily setting			
	230 V	(78) 1152551°	
with weekly setting			
	230 V	1152552	
	24 V	1152554°	
Room thermostat - surface mounting			<p>The surface- or flush-mounted model of the electric thermostat is used for individual room temperature control in combination with the electrothermal actuators (two point) "Aktor T 2P".</p> <p>Temperature range: 5 °C up to 30 °C</p> <p>Heating: Use electrothermal actuators (two point) "closed with current off". As for item no. 1152051/52/55/71/72, the temperature may be set back by use of an external time switch (item no. 1152551/52 for 230 V, item no. 1152554 for 24 V).</p> <p>Cooling: Use electrothermal actuators (two point) "open with current off".</p> <p>Limitation of the control range of item no. 1152051/52/71/72 by using the concealed limiting elements.</p> <p>The isolator terminals of the room thermostat can be connected to the sensor entry of the heating circuit controller "Regtronic RH". The heating circuit controller can for instance activate a 230 V actuator or can switch to reduced heating operation.</p>
	230 V	(25) 1152051	
	24 V	(25) 1152052	

Article	Article-No.	Hint
	<p>"Regusol ELH-130-RC" Station DN 25 with safety group and electronic controller consisting of:</p> <ul style="list-style-type: none"> a) high-efficiency pump b) ball valve with integrated check valve, thermometer and connection for safety group c) ball valve with integrated check valve and thermometer d) flow measuring and regulating device with isolation and lateral fill and drain ball valve e) safety valve 6 bar f) outlet G 3/4 male thread to expansion tank g) pressure gauge 10 bar h) fill and drain ball valve i) wall mounting device j) electronic controller k) insulation l) deaerator <p>Control range of the flow measuring and regulating device: 2-15 l/min</p> <p>with Wilo-Yonos PARA ST 25/7 PWM 2 1366597 and controller "Regtronic RC" with data output (S-bus)</p>	<p>Complete, pre-assembled and leak tested unit for the connection to the solar circuit. With integrated electronic controller for the control and monitoring of a solar thermal plant according to the temperature difference principle. These stations are mainly used for hot potable water preparation. With G 1 male threaded connection for "Regusol" compression fittings to the solar supply and return pipe. For copper and precision steel pipes. Alternatively, compression fittings according to DIN EN 16313 (cone "Euro") of other manufactures may also be used.</p> <p>With the option to connect an expansion tank to the safety group. Distance between pipe centres: 100 mm Pump 130 mm long. Continuous operating temperature: 120 °C Short-term max. starting temperature: 160 °C Suitable for standard solar liquids.</p> <p>The data output of the "Regtronic RC" can be connected to the data logger "CS-BS". Inputs: 4 temperature sensors (PT 1000) Outputs: 3 relays, 1 is a volt free relay</p>
	<p>"Regusol ELH-130-RC-P" Station DN 25 with high-efficiency pump with safety group and electronic flow sensor consisting of:</p> <ul style="list-style-type: none"> a) high-efficiency pump b) ball valve with integrated check valve, thermometer and connection for safety group c) ball valve with integrated check valve and thermometer d) electronic flow sensor (2-40 l/min.) e) safety valve 6 bar f) outlet G 3/4 male thread to expansion tank g) pressure gauge 10 bar h) fill and drain ball valve i) wall mounting device j) electronic controller k) insulation l) deaerator <p>with Wilo-Yonos PARA ST 25/7 PWM 2 1360394 and controller OV-"Regtronic RC-P" with data output (S-bus)</p>	<p>The controller is already cabled with a temperature sensor (PT1000). Another temperature sensor (PT 1000) for the connection to the collector is included. Temperature sensors PT 1000 for the registration of additional temperatures are available as accessories.</p> <p>Apart from hot potable water preparation, this station with high-efficiency pump offers additional functions. The integrated additional controller allows a support of the heating system, a difference control or a circulation function. Yield measurement is possible via the electronic flow sensor.</p> <p>Flow sensor without lateral fill and drain ball valve, use filling and flushing device "Regusol": page 9.33.</p> <p>Interfaces: S-bus for connection to the data logger "CS-BS", SD-card slot for data recording Inputs: 4 temperature sensors (PT 1000), 1 input for electronic flow sensor (volume flow / temperature) Outputs: 3 relays, 1 is a volt free relay, 2 pulse-width modulation (PWM) outputs for the speed controlled activation of high-efficiency pumps.</p> <p>For further information see "Technical information":</p>



Article	Article-No.	Hint
---------	-------------	------



"Regusol X-Uno 25" with heat exchanger
 Station with heat exchanger
 1 solar circuit connection
 with electronic controller "Regtronic RX"
 with full graphic display and data output (S-bus)

Capacity: 25 kW
 Number of heat exchanger plates: 30

Connections:
 Primary side: G 1 "Regusol" compression fittings
 Secondary side: G 1 flat sealing

kvs = 2.4 m³/h primary side
 (with a glycol proportion of 40 % in the solar liquid)
 kvs = 3.6 m³/h secondary side

with Wilo-Yonos high-efficiency pumps 1361060
 Primary side: ST PWM 15/7
 Secondary side: RS PWM 15/7

Product assembly with electronic controller, with heat exchanger, with three-way conversion valve for second secondary circuit ("Regusol X-Duo 25" only) for a controlled transmission of the heat of the solar circuit (primary circuit) to a buffer storage cylinder (secondary circuit), for instance for existing storage cylinders without direct solar connection.
 The three-way valve integrated in the supply pipe of the secondary circuit ("Regusol X-Duo 25" only) allows the conversion to an additional loading circuit running in parallel, for instance for the loading section by section of the storage cylinder or the thermal loading of another storage cylinder.
 Primary circuit: up to PN 10 and 120 °C
 Starting temperature: 160 °C
 Secondary circuit: up to PN 6 and 120 °C constant operation



"Regusol X-Duo 25" with heat exchanger
 Station with heat exchanger
 1 solar circuit connection/
 2 loading circuit connections
 with electronic controller "Regtronic RX"
 with full graphic display and data output (S-bus)

Capacity: 25 kW
 Number of heat exchanger plates: 30

Connections:
 Primary side: G 1 "Regusol" compression fittings
 Secondary side: G 1 flat sealing

kvs = 2.4 m³/h primary side
 (with a glycol proportion of 40 % in the solar liquid)
 kvs = 3.2 m³/h secondary side




with Wilo-Yonos high-efficiency pumps 1361050
 Primary side: ST PWM 15/7
 Secondary side: RS PWM 15/7

The soldered plate heat exchanger complies with the demands of the European Pressure Equipment Directive (PED). Due to turbulent flow conditions, an excellent self-cleaning effect is produced and a contamination is avoided.
 The solar circuit is protected against excess pressure by a safety group integrated in the heat exchanger system. The leak tested components of the heat exchanger system are pre-assembled on a board. The controller is cabled with the internal electric components and has the following connections:
 Output for solar circuit pump
 Output for loading pump
 Output for conversion valve ("Regusol X-Duo 25" only)
 Apart from the outputs mentioned above the "Regtronic RX" has a data bus (S-bus) for the connection to the data logger "CS-BS".
 Temperature inputs for:
 Collector, heat exchanger entry point - primary side, heat exchanger exit point - secondary side, 3 temperature inputs for storage cylinder with loading operation section by section, interfaces for electronic flow sensor.
 Plain text is clearly shown on the display of the controller.
 The heat exchanger system is completely insulated and can be quickly connected to the primary side using compression fittings and to the secondary circuit using flat seals and be put into operation.
 The indicated capacity for the heat transmission applies to a useable solar global radiation of 500 W/m².

The actual heat transmission depends on:

- the reached flow temperature and the volume flow of the primary circuit
- the flow temperature difference between the primary and the secondary circuit
- the required flow temperature and the flow rate of the secondary circuit

For the extension of a "Regusol X" station with high-efficiency pump for the interconnection and regulation of different collector fields (e.g. east/west), see supplementary set "Regusol X": page 9.36

Article	Article-No.	Hint
	<p>"Regumaq X-30" - without circulation connection Station for hot potable water preparation with electronic controller "Regtronic RQ" with full graphic display and data output (S-bus)</p> <p>with Wilo high-efficiency pump Yonos PARA RS 130 15/7 PWM2 for the buffer side Heat exchanger: 30 plates</p> <p>Discharge capacity: 2 - 45 l/min. depending on the set potable water temperature and the existing water temperature inside the buffer storage cylinder</p> <p>Control range of potable water temperature: 20 °C - 60 °C</p> <p>Connections: G 1 flat sealing for the connection to the buffer and potable water circuit</p> <p>Potable water circuit: with flow sensor, safety valve 10 bar, electronic resistance thermometer, 2 fill and drain cocks, ball valves and thermometer</p> <p>Buffer circuit: Fill and drain cocks, ball valves with and without check valve and thermometer, circulation pump</p> <p>Dimensions (outer dimensions of insulation): Width: 500 mm Height: 860 mm Depth: 260 mm</p> <p>Model with copper brazed heat exchanger 1381030 Model with heat exchanger completely made of stainless steel 1381032</p>	<p>Application: Electronically controlled product assembly with heat exchanger for the hygienic heating of potable water according to the continuous flow principle. The potable water is only heated at the moment when it is needed, i. e. "just in time". The stations are especially suitable for detached and semi-detached houses. They are connected to buffer storage cylinders which are heated up by solar energy, solid fuels, gas or oil. Depending on the temperature and the volume flow on the potable water side, the circulation pump on the heating side is speed regulated. The plate heat exchanger complies with the specifications of the European Pressure Equipment Directive (PED). Due to the turbulent flow, a good self-cleaning effect avoiding a contamination is achieved. The plate heat exchanger can be flushed using the fill and drain cocks integrated in the primary and secondary circuit. The potable water circuit is protected by a 10 bar safety valve. The components of the heat exchanger system have flat sealing connections, are pre-assembled on a mounting board and leak tested. The controller is wired up with the internal electric components and features a data bus (S-bus) for the connection to the data logger "CS-BS".</p>
	<p>"Regumaq XZ-30" - with circulation connection Station for hot potable water preparation with electronic controller "Regtronic RQ" and connection for potable water circulation systems</p> <p>with Wilo high-efficiency pump Yonos PARA RS 130 15/7 PWM2 for the buffer side</p> <p>with Wilo pump ZRS 130 15/4-3KU for the potable water side (circulation)</p> <p>Model with copper brazed heat exchanger 1381035 Model with heat exchanger completely made of stainless steel 1381037</p>	<p>Similar to "Regumaq X-30". The potable water circuit is additionally equipped with a circulation pump for the operation in a circulation system. With check valve in the circulation circuit. Control functions individually programmable: Adjustable circulation return temperature or adjustable time frames and daily programmes.</p>
	<p>"Regumaq XZ-30" - with circulation connection and high-efficiency circulation pump Station for hot potable water preparation with electronic controller "Regtronic RQ" and connection for potable water circulation systems</p> <p>with high-efficiency pump Wilo-Yonos PARA RS 130 15/7 PWM 2 for the buffer side</p> <p>with high-efficiency pump Wilo-Yonos PARA Z RKC 130 15/7 for the potable water side (circulation)</p> <p>Model with copper brazed heat exchanger 1381025 Model with heat exchanger completely made of stainless steel 1381027</p>	<p>Similar to "Regumaq X-30". The potable water circuit is additionally equipped with a high-efficiency circulation pump for the operation in a circulation system. With check valve in the circulation circuit. Control functions individually programmable: Adjustable circulation return temperature or adjustable time frames and daily programmes.</p> <p>Possible application of copper brazed plate heat exchangers has to be checked. For further information visit www.oventrop.com/to/trinkwasseranforderung.</p>

12.i Actuators, sensors, valves and fittings

Content

System summary	12.56
----------------	-------

“Aktor” Actuators

Different types of control and actuators are used for the building automation:

For a complete isolation of the volume flow, the installation of an actuator with two point control (“on”/“off”) on the flow valve is sufficient.

Short and long stroke periods are optional.

When using mixing- or diverting valves, intermediate actuator positions become necessary for the adaptation of two volume flows.

These actuators feature a steady control and any position between fully open and fully closed can be initiated.

Depending on whether a control voltage is supplied by the building automation permanently or only at the point of adjustment, distinction is made between the 0-10 V and three point control.

As before with the two point actuators, a long or short stroke period is optional.



“Aktor T 2P”
Electrothermal actuator (two point)

For room temperature control or as a zone valve.
Page 1.26.



“Aktor M 2P”
Electromotive actuator (two point)
230 V/24 V, two point actuator,
without anti-blocking function

With quick stroke.
Page 1.28.



“Aktor M 3P”
Electromotive actuator (three point)
230 V/24 V, three point actuator,
without anti-blocking function

Page 1.28.



“Aktor T ST L”
Electrothermal actuator (0-10 V)
24 V, steady control

For steady room temperature control.
Page 1.27.



“Aktor M ST L” with adjustable characteristic lines
Electromotive actuator (0-10 V)
24 V, steady control

Electromotive actuator with varied adjustable characteristic lines (linear, equal percentage).
Page 1.28.



Actuators with bus interface
“Aktor M ST EIB/KNX”
connection thread M 30 x 1.5

Page 1.29.

with one binary entry
with two binary entries



“Aktor M ST LON”
connection thread M 30 x 1.5

Page 1.29.

mit Adapter für Klemmverbindung

Legend: M: Electromotive actuator 2P: Two point control ST: Steady control L: 24V B: Battery
T: Electrothermal actuator 3P: Three point control CON: Controller integrated H: 230V
NO: Normal open
NC: Normal closed

“Sensor” Sensors

Different types of sensors for the detection of temperature, humidity, pressure and other physical values are used in centralised building control systems. Distinction is made between passive sensors (e.g. PT1000, N1000) and active sensors (e.g. 0-10 V output signal). Moreover, the sensors are used for different applications (e.g. potable water).



“Sensor GA FD”
Dew point control with alternating contact

Is required in conjunction with room thermostats to protect chilled surfaces against condensation.
Page 2.75.



“Sensor LW TH/pipe”
Temperature sensor, PT1000, cold

Sensor attached to the pipe with clip fixing.
Page 6.115.



“Sensor LW TH”
Electric sensor attached to pipe, bimetal

For max. limitation of the flow temperature of surface heating systems.
Page 6.107.



“Sensor LW TH”
Temperature sensor, PT1000
Solar collector
-50 °C up to +180 °C

For electronic detection of the solar collector temperature.
Page 6.79.



“Sensor LW TH”
Temperature sensor, PT1000
Heating systems
-10 °C up to +105 °C

For electronic temperature detection in storage cylinders or heating systems.
Page 6.79.



“Sensor LW TQ”
Temperature sensor G ¼, PT1000

For electronic temperature detection in storage cylinders or heating systems.
Page 12.42.



“Sensor LW TQ”
Insertion sensor element, PT1000

For electronic temperature detection in potable water risers. Suitable for all “Aquaström” valves with thermometer connection.
Page 8.30.

Legend: L: Liquid W: Water A: Air T: Temperature C: Concentration Q: Potable water D: Dew point
G: Gas O: Oil C: CO₂ content F: Humidity P: Pressure H: Heating water/cooling water U: Transformer

Valves and controls

For heating and cooling system control, the volume flows in the terminal units such as radiators, chilled ceilings, fan coils etc. are balanced by corresponding valves and controls.

At the same time, presetting for hydronic balancing can be carried out at the valves or the volume flow is limited automatically.

The list illustrates a choice of valves and controls for different applications.

The valves and controls can be combined with the preceding actuators.



“AQ/AV9” Thermostatic valves
DN 10 – DN 25

Thermostatic valve for room temperature control at radiators with classic valve connection. Can also be used as zone valve for smaller dimensions
Page 1.44/1.52.



“Multiblock TQ” Two pipe fitting
Straight pattern

Connection fittings “Multiblock T” for the control and isolation of radiators with a lower connection of 50 mm. For two and one pipe heating systems.
Page 1.47.



Valve insert (M 30 x 1.5)
for radiators with integrated distributor

Valve insert for radiators with integrated distributor.
Page 1.110.



“Multidis SH” Stainless steel distributor/collector for radiator connection
flat sealing

Stainless steel distributor/collector “Multidis SH” for radiator connection, surface temperature balance (heating/cooling). Connection of one actuator for each connected circuit.
Page 1.136.



“Cocon QTZ” Pressure independent control valve PN 25

Pressure independent control valve “Cocon QTZ” for central heating and cooling systems with closed circuits. The valve combination consists of an automatic flow regulator and a regulating valve. It is also used for room temperature control with the help of an actuator or can be used as a zone valve.
Page 3.56.



“Cocon QFC” Pressure independent control valve PN 16

The pressure independent control valve “Cocon QFC” is installed in heating and cooling systems with closed water circuit (e.g. central heating systems, surface heating systems, fan coil units, chilled ceilings and fan convectors) for an automatic flow control (hydraulic balancing) and for room temperature control via actuators with a modified flow rate.
Page 3.60.



“Cocon 2TZ” Regulating valve PN 10 “eco” measuring technique

Regulating valve “Cocon 2TZ” for chilled ceiling installations. The calculated flow rate is set at the regulating valve. It is also used for room temperature control with the help of an actuator or can be used as a zone valve.
Page 3.65.

Hydronic balancing of heating and cooling systems is of major importance for an efficient operation. This relates for instance to the regulation of radiators, chilled ceiling elements or pipework valves in heating and cooling systems. The status data is processed or monitored by the centralised building control system. Oventrop offers valves and controls for different applications which are displayed in the below list. The valves and controls can be combined with the preceding actuators.



“Tri-M plus TR” Four-way mixing valve with integrated T-piece PN 10

Page 3.82.



“Hycococon ETZ” Regulating valve PN 16 with infinitely variable presetting “eco” measuring technique

High kv value.
Page 3.14.



“Tri-D TR” Three-way diverting valve PN 16 DN 20 – DN 40

Page 3.83.



“Flypass” connection sets DN 15 – DN 20

Consisting of connection fitting, strainer and “Cocon QTZ”.
Page 3.73.



“Optibal W6” Six-way ball valve DN 15 – DN 20

Page 3.69.

14.a General information

Content	14.03
General information	14.04

14.b Deaerators, filters



Content	14.07
"Toc-Duo-3"	14.08
Combination heating oil filter/heating oil deaerator	
"Toc-Uno" Heating oil deaerators	14.09
Accessories for "Toc-Duo" and "Toc-Uno"	14.09
"Oilpur E A" Heating oil filters for one pipe systems with isolation	14.11
"Oilpur E A R" Heating oil filters for one pipe systems with isolation and return flow feed	14.12
"Oilpur E " Heating oil filters for one pipe systems without isolation	14.13
"Oilpur Z A " Heating oil filters for two pipe systems with isolation	14.14
Filter cups	14.15
Vacuum gauges	14.16
Filter inserts	14.17
"Oilpur" Heating oil filter for one pipe systems	14.20

14.c Tank equipment



Content	14.21
Screwed tank inlet caps	14.22
Fuel gauge lock	14.22
Caps with chain	14.22
Tank inlet cap with bayonet catch	14.23
Tank inlet caps for export	14.24
Vent caps	14.24
Mechanical level indicators	14.25
Condensate collector	14.25
Tank filling limiters -adjustable-	14.26
Accessories for tank filling limiters	14.28
"Flexo-Bloc" Oil draining facilities	14.29
Double ball foot valves (non-return check valves)	14.31
Double ball non-return ball check valves	14.31
Gland fittings	14.32
Flexible suction pipes	14.32
Liquid safety device	14.33
Steel bracket	14.33
Liquid safety device with condensate collector	14.33
Elbow	14.33
Spacer stud made of steel	14.34
Hose nozzles	14.34
Condensate collector	14.34

14.d Heating oil valves in the pipework



Content	14.35
"Oilstop" Anti-siphon valves	14.36
"Olex" Pressure compensation device	14.37
Isolating fittings	14.37
Isolating valve	14.38
Quick acting isolating valve	14.38
Change-over valve	14.38
Double change-over valve	14.38

14.e Fittings



Content	14.41
Connection system summary	14.42
"Ofix-Oil" Compression fittings	14.43
"Ofix-Oil" Couplings (steel, galvanised)	14.44
Brass reinforcing sleeves	14.45
"Ofix-Oil" Double nipples	14.45
"Ofix-Oil" Double nipple - elbow	14.45
Flexible hoses DIN EN ISO 6806	14.46
Sets of flexible hoses	14.47
Flexible hoses	14.47

14.f Heating oil kits for export

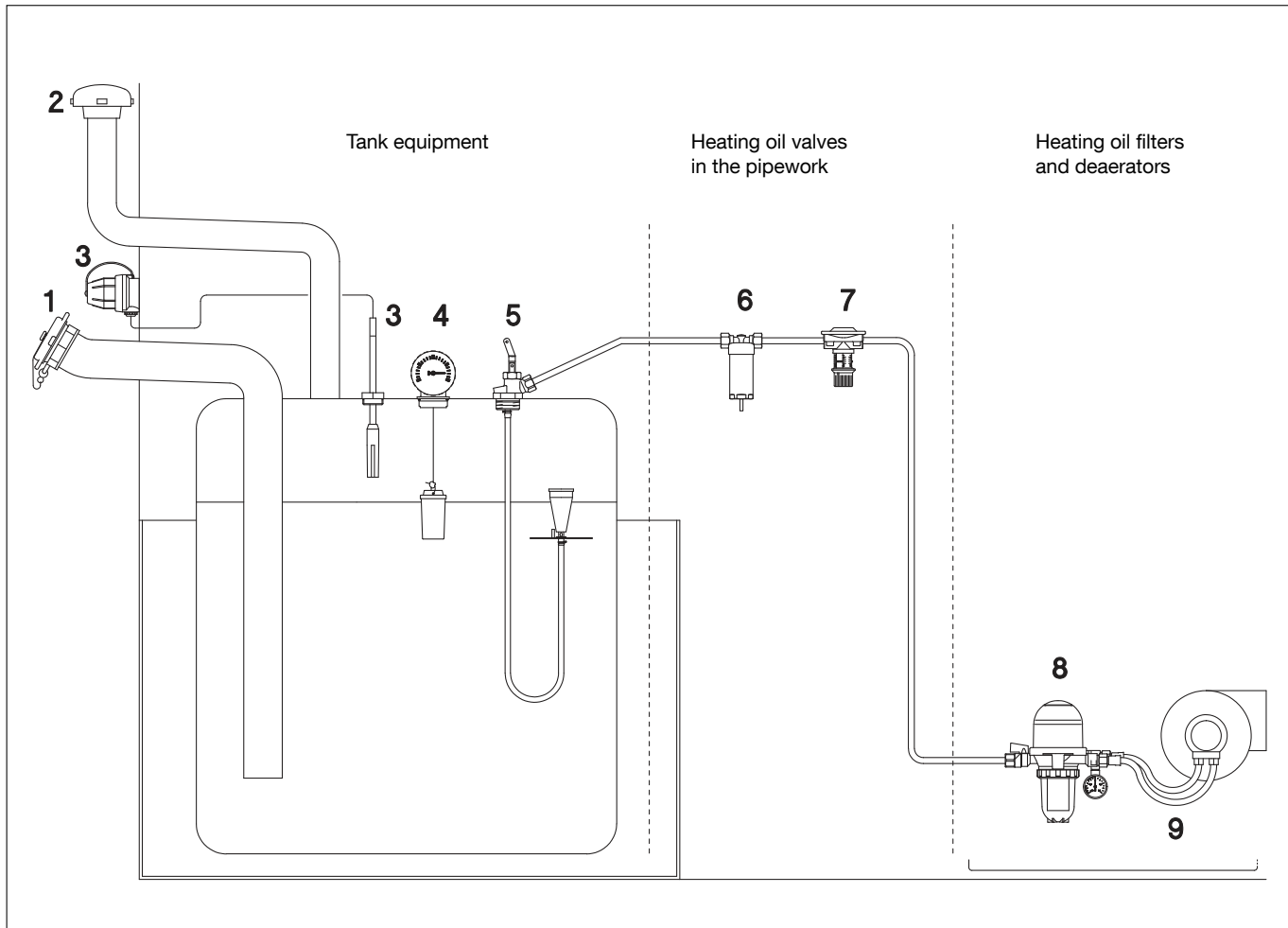


Content	14.49
Oil tank installation kit for the installation of a two pipe system with steel tank	14.50
Oil tank installation kit for the installation of a two pipe system with plastic tank	14.50
Heating oil filter kit for two pipe systems	14.51
Heating oil filter kit for one pipe systems with return flow feed	14.51
Heating oil filter kit for one pipe systems (without return flow feed)	14.51
"Ofix-Oil" Compression fittings (for export only)	14.51

14.a General information

Content

General information	14.04
---------------------	-------



Example one pipe system

1. Tank inlet cap
2. Vent cap
3. Tank filling limiter
4. Level indicator
5. Oil draining facility
6. Pressure compensation device (if required)
7. Anti-siphon valve
8. Combination heating oil filter/heating oil deaerator with vacuum gauge
9. Burner hoses

Further components:

- Connection elements of valves to the pipework
- Isolating device (in the suction pipe, if the isolating device at the tank cannot be reached directly or has to be actuated with the help of a release cord)
- Change-over valve (for installations with more than one tank)
- Isolation fittings (for underground tanks with corrosion protection by sacrificial anode)

The one pipe system:

There is only one oil pipe from the tank to the filter. The oil flow corresponds to the nozzle capacity, i.e. the heating oil consumption for a heating capacity of 10 kW only amounts to about 1 litre per hour. The oil pipe to the tank should be dimensioned accordingly.

One pipe system with return flow feed:

In general, this system features two pipes running from the heating oil filter or heating oil deaerator to the burner pump. The quantity of heating oil delivered by the burner pump is higher than the quantity of heating oil consumed. The surplus heating oil is fed back to the pump via the heating oil filter or heating oil deaerator.

One pipe system (without return flow feed):

There is only one pipe from the heating oil filter to the burner pump. The quantity of heating oil delivered by the burner pump is higher than the quantity of heating oil consumed, the pump must therefore feature an internal pressure relief device or a return flow feed. This type of installation is rare.

The two pipe system:

There are two oil pipes from the tank to the burner pump. The oil flow corresponds to that of the burner pump.

This system is no longer recommended for new installations.

Recommendations regarding the conversion of an existing two pipe system to a one pipe system:

- The suction pipe should be replaced by a correctly sized smaller one as the oil flow is much lower. This way, malfunctions caused by airlocks are avoided. According to DIN 4755, velocities between 0.2 and 0.5 m/s are recommended.
The advice in the installations instructions and data sheets must be observed.
- The installation of a heating oil deaerator or a combined heating oil filter/heating oil deaerator "Toc-Duo" is recommended.
Note: A two pipe filter cannot be used as one pipe filter with return flow feed!
- Old oil pipes should be removed.

Note regarding liquid fuels:

Heating oil is a liquid fuel produced from fossil mineral oil. In order to save the fossil deposits, liquid fuels which are extracted from regenerative raw materials, the so-called "alternative additives" or "bio oils" can be added to the heating oil. This is amongst others bio diesel (FAME = "fatty acid methyl esters").

The fatty acids of the bio oils may cause damage to conventional seals and hoses.

In general, the components in existing installations can be used for a bio proportion up to 5% and new components for a bio proportion up to 20% and more. The notes are to be observed.

Recommendations when changing to "bio heating oil" (low sulphur heating oil with bio proportion):

- A one pipe system is strongly recommended for the pipework.
- Check whether existing components are suitable for the designated bio proportion and replace them, if necessary.
- Before filling, the heating oil tank should be empty.
- The tank should be cleaned and the residual oil be disposed of.
- Filter inserts with a large filter surface should be used, for instance "opticlean". This does especially apply if the tank has not been cleaned.

Reasons:

- Bio proportions (FAME) may release existing deposits which may block the filter inserts.
- Heating oil returning in two pipe systems may have an adverse effect on the storage life of the oil.
- The mix of old, sulphurous and new, low sulphurous heating oil can lead to corrosion at the flame tubes of the burner (metal dusting).



14.b Deaerators, filters

Content

"Toc-Duo-3" Combination heating oil filter/heating oil deaerator	14.08
"Toc-Uno" Heating oil deaerators	14.09
Accessories for "Toc-Duo" and "Toc-Uno"	14.09
"Oilpur E A" Heating oil filters for one pipe systems with isolation	14.11
"Oilpur E A R" Heating oil filters for one pipe systems with isolation and return flow feed	14.12
"Oilpur E " Heating oil filters for one pipe systems without isolation	14.13
"Oilpur Z A " Heating oil filters for two pipe systems with isolation	14.14
Filter cups	14.15
Vacuum gauges	14.16
Filter inserts	14.17
"Oilpur" Heating oil filter for one pipe systems	14.20

Article	µm	Article-No.	Hint
---------	----	-------------	------

"Toc-Duo-3"

Combination heating oil filter/heating oil deaerator
with integrated isolation and wall bracket

Max. nozzle capacity: 110 l/h EL type of heating oil
Max. flow of returned heating oil: 120 l/h EL type of heating oil
Min. deaeration capacity: 6 l/h air

Connections:

- tank side G 3/4 female thread for connection of compression fittings 6, 8, 10 and 12 mm (sets of compression fittings to be ordered separately, item no. 21276..: page 14.43)
- burner side G 3/8 male thread with inner taper for burner hoses with G 3/8 collar nut

Siku (sintered plastic)	25 - 40	2142732
"opticlean" MC-7	5 - 20	2142735
"opticlean" long MX-11	~ 2	2142737



similar to 2142732,
but burner side female thread G 1/4

Siku (sintered plastic)	50 - 75	2142700
-------------------------	---------	----------------



similar to 2142732, but additionally
with vacuum gauge

"opticlean" MC-7	5 - 20	2142754
Siku (sintered plastic)	25 - 40	2142762



"Toc-Duo-3" Metal model
Combination heating oil filter/heating oil deaerator

similar to 2142754,
but with deaerator cap and filter cup made of metal
and vacuum gauge

"opticlean" MC-7	5 - 20	2152754
------------------	--------	----------------



TÜV tested according to DIN EN 12 514-2.
Sign of conformity (sign Ü) according to valid rules of construction.
DIN tested (reg.-no.: 2 Y 111).

Application:

Heating oil installations according to DIN 4755 for EL type of heating oil according to DIN 51603-1.



"Toc-Duo-3" also for heating oils with "alternative additives" or with a bio proportion up to 20% according to DIN SPEC 51603-1.

Combination of heating oil filter and deaerator for use in one pipe systems with return flow feed. For **suction systems** only. Deaerator body made of metal, filter cup and deaerator cap made of transparent plastic for easy function control.

The heating oil filter/heating oil deaerator features an isolation, a wall bracket, a vacuum gauge (optional) and a filter cup.

Installation is possible below and above the oil level.

Installation instructions are to be observed strictly.

Advantages:

- fine filtering
- long service life
- integrated isolation
- vacuum gauge to control the filter contamination (optional)



"Toc-Duo-3" with deaerator cap and filter cup made of metal also for EL A Bio type of heating oil according to DIN SPEC 51603-6 with a bio proportion up to 100%, FAME as well as various thin vegetable oils.

Article Article-No. Hint

"Toc-Uno" Heating oil deaerators



"Toc-Uno-A"
Heating oil deaerator
 with wall bracket

Max. nozzle capacity: 110 l/h EL type of heating oil
 Max. flow of returned heating oil: 120 l/h EL type of heating oil
 Min. deaeration capacity: 6 l/h air

Connections:
 - tank side G 1/4 female thread,
 with flexible hose for connection to heating oil filter,
 G 1/4 male thread x G 3/8 collar nut, 300 mm long
 - burner side G 3/8 male thread with inner taper
 for burner hoses with G 3/8 collar nut

2142951



Connections:
 - tank and burner side G 1/4 female thread,
 without accessories

2142901



Connections:
 - tank and burner side G 1/4 female thread,
 with the following accessories:
 2 double nipples G 1/4 male thread x G 3/4 male thread
 with inner taper for burner hoses with G 3/8 collar nut

2142900



"Toc-Uno-B"
Heating oil deaerator
 with wall bracket

similar to 2142951,
 but deaerator cap made of metal

2152951



Sign of conformity (sign Ü) according to valid rules of construction.
 DIN tested (reg.-no.: 2 Y 111).



Application:
 Heating oil installations according to DIN 4755 for EL type of heating oil according to DIN 51603-1.

"Toc-Uno-A" also for heating oils with "alterntive additives" or with a bio proportion up to 20% according to DIN SPEC 51603-1.

Heating oil deaerator for an automatic deaeration of heating oil installations.

For use in one pipe systems with return flow feed. For **suction systems** only. Body of deaerator made of metal with bracket for wall installation. Deaerator cap made of transparent plastic for an easy function control.

Installation is possible below and above the oil level.
 Installation instructions are to be observed strictly.



"Toc-Uno-B" with deaerator cap made of metal also for EL A Bio type of heating oil according to DIN SPEC 51603-1 with a bio proportion up to 100%, FAME as well as various thin vegetable oils.

Accessories for "Toc-Duo" and "Toc-Uno"



Flexible hose
 300 mm long, according to DIN EN ISO 6806 with ring gasket,
 G 1/4 male thread x G 3/8 collar nut



NI 8 (also for "Toc-Uno-B")

2162993

Flexible hose for the connection of the preinstalled heating oil filter.

Article	Packing unit	Article-No.	Hint
 Bracket and screws	(50)	2142992	For all "Toc-Uno/Duo" (manufactured since 2004)
 Hose nipple with 10 m hose		2142990	To expel vapour emissions in badly ventilated boiler-rooms. For "Toc-Duo"/"Toc-Uno".

Article	µm	Packing unit	Article-No.	Hint
---------	----	--------------	-------------	------

"Oilpur E A" Heating oil filters for one pipe systems with isolation

quick acting isolating valve with double O-ring seal, body made of brass, with bracket, with transparent filter cup for **suction**

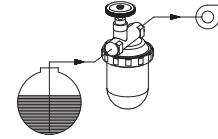


Sign of conformity (sign Ü) according to the valid rules of construction. DIN tested (reg.-no.: 2 Y 118).



DN 10, G 3/8 female thread x male thread

burner side male thread G 3/8 with inner taper for hose connection, tank side female thread G 3/8 (The female thread G 3/8 on the tank side can be connected with Oventrop brass compression fittings 6, 8, 10 or 12 mm. Sets of compression fittings to be ordered separately.)



Felt	50 - 75	(10)	2123503
Siku (sintered plastic)	50 - 75	(10)	2123561

Application:

Heating oil installations according to DIN 4755, for EL type of heating oil according to DIN 51603-1.



Also for heating oils with "alternative additives" or with a bio proportion up to 20 % according to DIN SPEC 51603-6 (marking A on the body). If this filter is equipped with a metal filter cup, the bio proportion may be up to 100 %.



Siku - Magnum	25 - 40	(10)	2123871
---------------	---------	------	----------------

The flow rates depending on the pressure loss and the filter insert can be obtained from the technical information "Heating oil filters".

similar to 2123503, but with metal cup PN 16 (not illustr.)

"opticlean"	5 - 20	(10)	2153554
-------------	--------	------	----------------



DN 10 G 3/8 female thread

(The female thread G 3/8 on the tank side can be connected with Oventrop brass compression fittings 6, 8, 10 or 12 mm. Sets of compression fittings to be ordered separately.)



Stainless steel	100 - 150	(10)	2123103
Siku (sintered plastic)	50 - 75	(10)	2123261

Award:

bd Busse Design Ulm
Longlife Design Award

DN 15 G 1/2 female thread

Stainless steel	100 - 150	(10)	2123104
-----------------	-----------	------	----------------



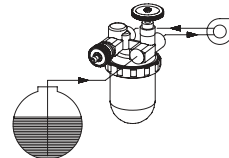
Article	µm	Packing unit	Article-No.	Hint
---------	----	--------------	-------------	------

"Oilpur E A R" Heating oil filters for one pipe systems with isolation and return flow feed

quick acting isolating valve with double O-ring seal, airvent expelling air prior to operation, body made of brass, with bracket, with transparent filter cup for **suction**



Sign of conformity (sign Ü) according to the valid rules of construction. DIN tested (reg.-no.: 2 Y 118).



Application:
 Heating oil installations according to DIN 4755, for EL type of heating oil according to DIN 51603-1.



Also for heating oils with "alternative additives" or with a bio proportion up to 20 % according to DIN SPEC 51603-6 (marking A on the body). If this filter is equipped with a metal filter cup, the bio proportion may be up to 100 %.

The flow rates depending on the pressure loss and the filter insert can be obtained from the technical information "Heating oil filters".

Function:
 In one pipe systems with return flow feed the heating oil fed back by the burner pump is directed to the suction side inside the heating oil filter. A partial quantity is fed through the filter insert again (multiple filtration). This partial quantity is automatically adjusted depending on the return flow quantity (patented). Possible airlocks are reduced by the repeated flow through the filter insert.

These filters may only be installed if the burner pump allows for a return pressure of 1 bar.

Advantages:

- Reduced airlocks due to multiple filtration
- No whistling sounds during constant operation.
- The burner is switched off in heating oil suction systems if the burner hose breaks (air is drawn in).

The suction pressure should be low as vapours expelled by the heating oil can only be vented manually.

If vapour emissions are to be expected, the installation of a heating oil deaerator (e. g. "Toc-Duo" page 14.08) is recommended. Care should be taken that the suction pipe is sized correctly.

Award:



DN 10, G 3/8 female thread x male thread

burner side male thread G 3/8 with inner taper for hose connection, tank side female thread G 3/8
 (The female thread G 3/8 on the tank side can be connected with Oventrop brass compression fittings 6, 8, 10 or 12 mm. Sets of compression fittings to be ordered separately.)

Stainless steel	100 - 150	(10)	2122403
Felt	50 - 75	(10)	2122503
Siku (sintered plastic)	50 - 75	(10)	2122561



Siku - Magnum 25 - 40 (10) **2121871**

similar to 2122403, but with metal cup PN 16



"opticlean" 5 - 20 (10) **2152554**



DN 10, G 3/8 female thread

(The female thread G 3/8 on the tank side can be connected with Oventrop brass compression fittings 6, 8, 10 or 12 mm. Sets of compression fittings to be ordered separately.)

Stainless steel	100 - 150	(10)	2122103
Siku (sintered plastic)	50 - 75	(10)	2122261

DN 15, G 1/2 female thread
 (not illustr.)

Siku (sintered plastic) 50 - 75 (10) **2122262**

Article	µm	Packing unit	Article-No.	Hint
---------	----	--------------	-------------	------

"Oilpur E " Heating oil filters for one pipe systems without isolation

body made of brass,
 transparent filter cup for **suction**



DN 8, G ¼ female thread

Siku (sintered plastic) 50 - 75 (10) **2124360**



DN 10, G ⅜ female thread

(The female thread G ⅜ on the tank side can be connected with Oventrop brass compression fittings 6, 8, 10 or 12 mm. Sets of compression fittings to be ordered seperately.)

Stainless steel 100 - 150 (10) **2124203**

Siku (sintered plastic) 50 - 75 (10) **2124361**



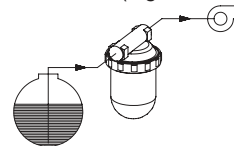
DN 15, G ½ female thread

Stainless steel 100 - 150 (10) **2124204**

Siku (sintered plastic) 50 - 75 (10) **2124362**



Sign of conformity (sign Ü) according to the valid rules of construction.
 DIN tested (reg.-no.: 2 Y 118).



Application:
 Heating oil installations according to DIN 4755, for EL type of heating oil according to DIN 51603-1.



Also for heating oils with "alternative additives" or with a bio proportion up to 20 % according to DIN SPEC 51603-6 (marking A on the body). If this filter is equipped with a metal filter cup, the bio proportion may be up to 100 %.
 The flow rates depending on the pressure loss and the filter insert can be obtained from the technical information "Heating oil filters".



Article	µm	Packing unit	Article-No.	Hint
---------	----	--------------	-------------	------

"Oilpur Z A " Heating oil filters for two pipe systems with isolation

quick acting isolating valve with double O-ring seal,
 non-return check valve on the return side,
 body made of brass, with bracket,
 transparent filter cup for **suction**



Sign of conformity (sign Ü) according to the valid rules of construction and DIN approval (reg.-no.: 2 Y 118)

DN 10, G 3/8 female thread x male thread



burner side male thread G 3/8 with inner taper for hose connection,
 tank side female thread G 3/8
 (The female thread G 3/8 on the tank side can be connected with Oventrop brass compression fittings 6, 8, 10 or 12 mm. Sets of compression fittings to be ordered separately.)

Stainless steel	100 - 150	(10)	2120403
Felt	50 - 75	(10)	2120503
Siku (sintered plastic)	50 - 75	(10)	2120561

Siku - Magnum	50 - 75	(10)	2120803
---------------	---------	------	----------------



DN 10, G 3/8 female thread



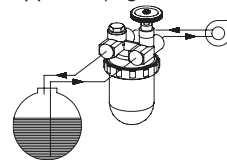
(The female thread G 3/8 on the tank side can be connected with Oventrop brass compression fittings 6, 8, 10 or 12 mm. Sets of compression fittings to be ordered separately.)

Sika 0 (sintered bronze)	50 - 100	(10)	2120003
Stainless steel	100 - 150	(10)	2120103
Siku (sintered plastic)	50 - 75	(10)	2120261

DN 15, G 1/2 female thread



Stainless steel	100 - 150	(10)	2120104
-----------------	-----------	------	----------------



Application:
 Heating oil installations according to DIN 4755, for EL type of heating oil according to DIN 51603-1.








Also for heating oils with "alternative additives" or with a bio proportion up to 20 % according to DIN V 51603-6 (marking A on the body). If this filter is equipped with a metal filter cup, the bio proportion may be up to 100 %.



The flow rates depending on the pressure loss and the filter insert can be obtained from the technical information "Heating oil filters":



Function:
 In two pipe systems the heating oil fed back by the burner pump is returned to the tank via a non-return check valve. If the hose on the return side is loosened for maintenance work, the non-return check valve keeps the oil in the return pipe.

Award:
 Busse Design Ulm
 Longlife Design Award

Article	Packing unit	Article-No.	Hint
Filter cups for heating oil filters "Oilpur" with collar nut and "Toc-Duo"			Application: Heating oil installations according to DIN 4755, for EL type of heating oil. Also suitable for bio heating oils.
	(10)	2166500	
Collar nut	(100)	2126600	
Transparent filter cup for suction systems	(25)	2126751	
Transparent filter cup for suction systems for "Magnum"	(25)	2126755	
Transparent filter cup for suction systems for "opticlean" long	(25)	2126774	
Metal filter cup for pressurised systems PN 16		2126754	
Conversion set for heating oil filters "Magnum" consisting of filter cup, filter insert (Siku 50 - 75 µm) and O-ring			
	(10)	2120891	
Bracket (not illustr.)			Not suitable for "Toc-Uno"/"Toc-Duo".
	DN 10 DN 15	(50) 2126803 (50) 2126804	
Handwheel (not illustr.)			
	DN 8/ 10 DN 15	(10) 2126951 (10) 2126952	
		2126691	To loosen the collar nut of the Oventrop heating oil filters and the "Toc-Duo".

Article	Packing unit	Article-No.	Hint
Vacuum gauges with connection fitting			
	for filters with female thread on the burner side	(10) 2120285	<p>The vacuum gauge serves to control the degree of contamination of the filter. It is installed directly behind the filter in the suction pipe to the burner.</p> <p>Pivoting display allowing any positioning.</p>
	for filters with male thread on the burner side	(10) 2120585	

Article	µm	Packing unit	Article-No.	Hint
---------	----	--------------	-------------	------

Filter inserts

The filter inserts have a bayonet catch. With due consideration of the size of the filter cup, they are interchangeable (except for filter cartridge PN 10).

Most of the filter inserts may not be cleaned and have to be replaced at the beginning of each heating period. According to DIN 4755, heating oil installations have to be installed frost-free as oil of low temperature expels paraffin which may block the filter. The finer the filter, the more this phenomena applies.



"opticlean" Fine filter insert

short MC-7	5 - 20	(25)	2126454
long** MC-18	5 - 20	(10)	2126474
long** MX-11	~ 2	(10)	2126484

** only suitable for filter cup "opticlean" long

The filter insert "opticlean" consists of a special paper and allows for the finest filtering with a very large surface.

The "opticlean" fine filter insert with a mesh size of 5 - 20 µm is especially recommended for small and medium burner capacities in one pipe systems. It is also recommended for installations which are operated with bio heating oils.

Bio heating oils may dissolve coarse deposits which may block filter inserts with a small surface.

The "opticlean" fine filter insert MX-11 with a mesh size of ~ 2 µm is a "high end" filter. The filter material developed by the car industry features a micro fibre fleece surface and is especially suitable for small pipes or very fine burner nozzles.

Filter surface:

MC-7 (short)	~ 700 cm ²
MC-18 (long**)	~ 1850 cm ²
MX-11 (long**)	~ 1200 cm ²

To avoid blocking of these fine filter inserts, they have to be operated at a frost-free location.

Sintered plastic



Siku	50 - 75	(25)	2126300
		(500)	2126351
	25 - 40	(25)	2126354
		(500)	2126356^o

The sintered plastic insert (Siku) consists of a mass of miniature plastic balls. Its surface is enlarged by the inwards drawn form. Possible burner malfunctions caused by erosion of fibre particles or similar are avoided. In case of heavily polluted heating oil, the longer model (Magnum) is recommended which increases the service life.

Filter surface: Siku ~ 100 cm²

Siku-Magnum ~ 185 cm²

The fine filter inserts (25-40 µm) have a red bayonet.



Siku for "Magnum"	50 - 75	(10)	2126355
	25 - 40	(10)	2126371



Article	µm	Packing unit	Article-No.	Hint
Felt	50 - 75	(25) (350)	2126200 2126251°	The felt insert provides very fine filtering and many ageing by-products of the heating oil are filtered out. A fine tissue almost completely retaining the felt fibres is integrated on the inside. Individual felt fibres may, however, not be retained by the tissue and reach the burner nozzle. The felt insert is not recommended for smaller burner capacities. Filter surface: ~ 53 cm ²





Stainless steel	100 - 150	(25)	2126100	The stainless steel insert is a rugged insert and provides good quality of filtering coarse impurities. It is a typically long lasting insert especially suitable for installations with higher capacities. It can be cleaned with heating oil or detergent. Filter surface: ~ 50 cm ²
-----------------	-----------	------	----------------	--









Sintered bronze Sika 0	50 - 100	(25)	2126051	The sintered bronze insert (Sika) consists of a mass of miniature bronze balls. It is dimensionally stable but is not easy to clean. Filter surface: ~ 50 cm ²
---------------------------	----------	------	----------------	--



Adapter for conversion to cartridges		(25)	2120691	Adapter to connect the cartridge to any Oventrop filter housing with bayonet catch (size DN 15 only for models manufactured since end of 1991).
--------------------------------------	--	------	----------------	---

Article		Article-No.	Hint	
	Cartridge PN 10	25	2126400	<p>The filter cartridge is a fine paper filter offering a long service life due to its large surface. Moreover, it can be installed in pressurised systems up to 10 bar.</p> <p>The Oventrop heating oil filters "Oilpur" can be converted using the adapter, item no. 2120691 for the filter cartridge.</p> <p>Filter surface: ~ 1020 cm²</p>
	Tool for cartridge	2126695	<p>The tool for cartridge includes with 2 spanners to hold the filter cartridge firm while tightening.</p>	

Article	Packing unit	Article-No.	Hint
"Oilpur" Heating oil filter for one pipe systems brass body, with isolating valve transparent filter cup for suction systems			Supply of EL type of heating oil to individual stoves from one central point of storage. Flow capacity: 100 l/h with $\Delta p = 50$ mbar 150 l/h with $\Delta p = 100$ mbar
both ports female thread, plastic fibre mesh insert 80 μ m			Only for suction systems . After replacing the transparent filter cup by a brass filter cup these filters can also be used for pressurised systems.
	DN 10	G 3/8	2125003
(The female threads G 3/8 can be connected with Oventrop brass compression fittings 6, 8, 10 or 12 mm. Sets of compression fittings to be ordered separately.)			
Accessories			With marking "A" also for heating oils with "alternative additives" or with a bio proportion up to 20 % according to DIN SPEC 51603-6. If this filter is equipped with a metal filter cup, the bio proportion may be up to 100%.
		Plastic fibre mesh insert 80 μ m	2129000
Transparent filter cup			2129102
			
Brass filter cup PN 6			(10) 2129152
			
O-ring			2129200
			

14.c Tank equipment

Content



Screwed tank inlet caps	14.22
Fuel gauge lock	14.22
Caps with chain	14.22
Tank inlet cap with bayonet catch	14.23
Tank inlet caps for export	14.24
Vent caps	14.24
Mechanical level indicators	14.25
Condensate collector	14.25
Tank filling limiters -adjustable-	14.26
Accessories for tank filling limiters	14.28
"Flexo-Bloc" Oil draining facilities	14.29
Double ball foot valves (non-return check valves)	14.31
Double ball non-return ball check valves	14.31
Gland fittings	14.32
Flexible suction pipes	14.32
Liquid safety device	14.33
Steel bracket	14.33
Liquid safety device with condensate collector	14.33
Elbow	14.33
Spacer stud made of steel	14.34
Hose nozzles	14.34
Condensate collector	14.34

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

Screwed tank inlet caps
suitable for padlocking, with seal and chain

flat sealing connection



G 2	x G 2	cap	(25)	2010152
Rp 2	x G 2½	cap	(25)	2010153
G 2	x G 2¾	cap	(5)	2010154
G 3	x G 3	cap	(2)	2010155

Application:
Heating oil installations according to DIN 4755.
If not stated otherwise, all products are made of brass.

*Filling nipples with tapered sealing are also suitable for flat sealing connection.

In Germany, tank inlet caps with bayonet according to DIN EN 14420-6 have to be used in new installations.

Fuel gauge lock
with seal and chain



G 1	x G 1¼	cap	(25)	2013051
-----	--------	-----	------	----------------

Universal fuel gauge lock G 1
quick acting lock with fixing device for fuel gauge, lockable



G 1			(20)	2014151
-----	--	--	------	----------------

Caps with chain



G 1¼	(thread of cap)			2018090
G 1½	(thread of cap)			2018091
G 2	(thread of cap)			2018092
G 2½	(thread of cap)			2018093
G 2¾	(thread of cap)			2018094
G 3	(thread of cap)			2018095

lockable in any position, therefore especially suitable for areas prone to flooding, also for subsequent installation



G 2½	(thread of cap)		(20)	2018073°
------	-----------------	--	------	-----------------

as above, but green powder coated and with additional red tag
"Also suitable for standard EL type of heating oil"



G 2½	(thread of cap)		(20)	2018083
------	-----------------	--	------	----------------

For marking of installations which are suitable for "low sulphur EL type of heating oil".

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

Tank inlet cap with bayonet catch based on DIN EN 14420-6
 consisting of coupling VK (brass) with thread Rp 2, cap MB (brass) and chain



DN 50 Rp 2 (10) **2010851**
 VK 50 + MB 50

The tank inlet caps according to DIN EN 14420-6 (formerly DIN 28450) are also called road tanker couplings. The hose couplings of the road tankers can be directly connected to the tank inlet caps without adapter.

The coupling with threaded connection Rp 2 complies with the specifications of the TRwS 791-1 for new tank installations.

Tank inlet caps with bayonet catch according to DIN 14420-6
 consisting of coupling VK (brass), cap MB (brass or aluminium) and chain



DN 50 G 2 (10) **2010816**
 VK 50 (brass) + MB 50 (brass)
 DN 80 G 3 (5) **2010824**
 VK 80 (brass) + MB 80 (brass)
 DN 100 G 4 (5) **2010832**
 VK 100 (brass) + MB 100 (aluminium)

similar to 2010816, but with green cap MB 50 for "low sulphur EL type of heating oil" and additional red tag "Also suitable for standard EL type of heating oil"



DN 50 G 2 (10) **2010882**
 VK 50 (brass) + MB 50 green (brass)

For marking of installations which are suitable for "low sulphur EL type of heating oil".

Tank inlet cap with bayonet catch according to DIN EN 14420-6
 cap MB (brass or aluminium) and chain








DN 50 (10) **2018192**
 MB 50 (brass)
 DN 80 (5) **2018195**
 MB 80 (brass)
 DN 100 (5) **2018197**
 MB 100 (aluminium)

similar to 2010816, but with green cap MB 50 for "low sulphur EL type of heating oil" and additional red tag "Also suitable for standard EL type of heating oil"



DN 50 (10) **2018182**
 MB 50 green (brass)

For marking of installations which are suitable for "low sulphur EL type of heating oil".

Article		Packing unit	Article-No.	Hint	
Tank inlet caps for export				According to French standard NF E-29-572. (System Guillemin, see also EN 14420-8).	
Brass tank inlet caps					
Coupling with male thread					
	DN 50	G 2	(20) 2010516		
Coupling with female thread					
	DN 50	G 2	(20) 2010616		
Cap					
	DN 50		(20) 2010716		
Vent caps				Application: Heating oil installations according to DIN 4755.	
brass					
without screen					
	DN 20	G 3/4	(50) 2020006		
	DN 25	G 1	(50) 2020008		
	DN 32	G 1 1/4	(50) 2020010		
	DN 40	G 1 1/2	(50) 2020012		
	DN 50	G 2	(20) 2020016		
	DN 65	G 2 1/2	(10) 2020020		
	DN 80	G 3	(5) 2020024		
with screen (export model)				According to DIN 4755 vent caps with screen are inadmissible. The screens of the vent caps DN 20 - DN 50 are made of plastic, the screens of the vent caps DN 65 and DN 80 are made of brass.	
	DN 20	G 3/4	(50) 2020106		
	DN 25	G 1	(50) 2020108		
	DN 32	G 1 1/4	(50) 2020110		
	DN 40	G 1 1/2	(50) 2020112		
	DN 50	G 2	(20) 2020116		
	DN 65	G 2 1/2	(10) 2020120		
	DN 80	G 3	(5) 2020124		

Article	Packing unit	Article-No.	Hint
Mechanical level indicators			
Mechanical level indicator	infinitely adjustable, for tank depths between 100 and 200 cm, square display	2060012	Application: Heating oil installations according to DIN 4755. Content measuring of cylindrical and rectangular tanks for EL type of heating oil. Diameter of float approx. 44 mm.
	G 1½		
Mechanical level indicator	odour-tight model, infinitely adjustable, for tank depths between 0 and 200 cm, round display	(300) 2060312	Also suitable for areas prone to flooding. Diameter of float approx. 38 mm.
	G 1½		
Mechanical level indicator	Set for subsequent installation, for plastic tanks without free screw-in opening with installation accessories odour-tight model, infinitely adjustable, for tank depths up to 200 cm	2060200	Recommended for plastic tanks which are no longer fully transparent so that the filling height can hardly be controlled.
			
Pneumatic level indicator	infinitely adjustable, for tank depths between 100 and 300 cm, with scale graduated in %	2060400	For cylindrical tanks in horizontal or vertical position as well as rectangular tanks. Max. length of level indicator pipe 50 m. Connection for pipe diameter 6 mm. Level indicator pipe not included.
			
Condensate collector	6 x 6 mm	(2) 2061051	
(Condensate collector with hose connection 4 mm: page 14.34)			
			

Article	Probe length	Packing unit	Article-No.	Hint
---------	--------------	--------------	-------------	------

Tank filling limiters -adjustable-



Tank filling limiter with fixed fitting for installation to pipe for the following tanks/underground tanks:
 -Cylindrical tanks in horizontal position made of steel according to DIN 6608, DIN 6616, DIN 6617, EN 12285-1, EN 12285-2 and DIN 6624
 -Cylindrical tanks in vertical position made of steel according to DIN 6619 and DIN 6623
 -Flat-bottom tanks according to DIN 4119
 cabled,
 with different probe lengths depending on the depth of the dome shaft

G 1	400 mm		2130051
G 1	700 mm		2130052
G 1	1000 mm		2130053
G 1	1500 mm		2130054

Application:
 Heating oil installations according to DIN 4755.

These tank filling limiters are defined as a sensor for tanks with current interface as part of an overfill protection device of type B and type of construction B 1 according to EN 13616.

Tank filling limiters are type tested and have a CE marking.

The overfill protection device being a part of a supply system, avoids that a maximum tank filling height is exceeded.

The tank filling limiters may be installed in metal or non-metal tanks below and above ground level with a maximum height of 5 m for fuels.

The tank filling limiters also comply with the specifications of TRbF 511.



Storage fluids:
 -EL type of heating oil (e.g. according to DIN 51603-1)
 -Diesel oil (e.g. according to EN 590)
 -Fatty acid methyl esters (FAME) as heating oil (e.g. according to EN 14213)
 -Fatty acid methyl esters (FAME) as bio diesel oil (e.g. according to EN 14214)
 -Mixtures of heating oil/diesel oil with FAME and/or vegetable oils



Tank filling limiter with ~ 5 m cable and fitting for wall installation for the following storage basins/tanks:
 -Storage basins according to DIN 6620 (battery tanks lower connection)
 -Storage basins according to DIN 6625 (height 1 - 4 m) ("tanks welded in the cellar")
 -Battery storage basins made of plastic with general construction approval, for installation of up to 25 individual storage basins in series
 -Tanks made of thermoplastics according to DIN EN 12573, parts 1-3
 -Tanks made of thermoplastics according to DIN EN 13341, parts 1-3
 -GFK tanks and storage basins above ground level according to DIN EN 13121, parts 1-3

G 1	385 mm	(10)	2130108
-----	--------	------	----------------



Tank filling limiter probe for replacement purposes, (as 2130108, but without screw-in fitting and without fitting for wall installation)

	385 mm		2130150
--	--------	--	----------------



Tank filling limiter with ~ 5 m cable, fitting for wall installation and mechanical level indicator, infinitely adjustable for storage basins/tanks with depths between 100 and 200 cm, for the following storage basins/tanks:
 -Storage basins according to DIN 6620 (battery tanks lower connection)
 -Storage basins according to DIN 6625 (height 1 - 2 m) ("tanks welded in cellars")
 -Battery storage basins made of plastic with general construction approval, for installation of up to 25 individual storage basins in series
 -Tanks made of thermoplastics according to DIN EN 12573, parts 1-3
 -Tanks made of thermoplastics according to DIN EN 13341, parts 1-3
 -GFK tanks and storage basins above ground level according to DIN EN 13121, parts 1-3

G 1½	385 mm		2130512
------	--------	--	----------------

Article	Article-No.	Hint
---------	-------------	------



"Flexo-Bloc"
 Oil draining facility for storage basins/tanks with a max. height of 2 m, with connections for one and two pipe systems, combined with tank filling limiter, probe length 385 mm, without level indicator pipe.
 Supply and return connection G 3/4 female thread and enclosed brass compression fittings 10 and 12 mm.
 Tank filling limiter with ~ 5 m cable and fitting for wall installation for the following storage basins/tanks:
 -Storage basins according to DIN 6620 (battery tanks lower connection)
 -Storage basins according to DIN 6625 (height 1 - 2 m) ("tanks welded in the cellar")
 -Battery storage basins made of plastic with general construction approval
 -Tanks made of thermoplastics according to DIN EN 12573, parts 1-3
 -Tanks made of thermoplastics according to DIN EN 13341, parts 1-3
 -GFK tanks and storage basins above ground level according to DIN EN 13121, parts 1-3

G 1½ **2052351**

Article	Article-No.	Hint
Accessories for tank filling limiters		
Plug-in fittings for tank filling limiters		
 <p>Fixed fitting for installation to pipe Type 904</p>	2133000	Includes the flanged socket, type 901.
 <p>Fitting for wall installation Type 905</p>	2133100	Includes the flanged socket, type 901.
Plug-in couplers for extension cables		
 <p>Coupler plug Type 902</p>	2133200	Includes the flanged socket, type 901.
 <p>Coupler socket Type 903</p>	2133300	To plug onto the tank filling limiter or accessories, see above.
 <p>Testing unit for tank filling limiters (pluggable) for checking the connections of tank filling limiters (short circuit, interruption)</p>	2134100	The battery operated unit may only be used for checking the tank filling limiters installed in heating oil or diesel oil tanks. The use is not allowed in hazardous locations or for tank filling limiters installed in tanks with potentially explosive media. The unit is supplied without batteries.

Article	Max. tank height	Packing unit	Article-No.	Hint
---------	------------------	--------------	-------------	------

"Flexo-Bloc" Oil draining facilities
May also be used for self-monitoring suction pipes after having removed the non-return ball.



"Flexo-Bloc"
for two pipe systems,
supply and return connection G 3/8 female thread with
brass compression fittings 10 and 12 mm,
with level indicator pipe

G 1	2000 mm	(10)	2052151
G 1	3000 mm	(10)	2052152
G 1 1/2	2000 mm	(10)	2052153
G 1 1/2	3000 mm	(10)	2052154



Sign of conformity (sign Ü) according to the valid rules of construction.

Application:

Heating oil installations according to DIN 4755, for EL type of heating oil according to DIN 51603-1.



With marking "A" also for heating oils with "alternative additives" or with a bio proportion up to 20 % according to DIN SPEC 51603-6.



"Flexo-Bloc"
Oil draining facility for storage basins/tanks with a max. height of 2 m,
with connections for one and two pipe systems,
combined with tank filling limiter, probe length 385 mm,
without level indicator pipe.

Supply and return connection G 3/8 female thread and enclosed
brass compression fittings 10 and 12 mm.

Tank filling limiter with ~ 5 m cable and fitting for wall installation
for the following storage basins/tanks:

- Storage basins according to DIN 6620 (battery tanks lower connection)
- Storage basins according to DIN 6625 (height 1 - 2 m) ("tanks welded in the cellar")
- Battery storage basins made of plastic with general construction approval
- Tanks made of thermoplastics according to DIN EN 12573, parts 1-3
- Tanks made of thermoplastics according to DIN EN 13341, parts 1-3
- GFK tanks and storage basins above ground level according to DIN EN 13121, parts 1-3

G 1 1/2			2052351
---------	--	--	----------------

Non-return ball check valve with quick acting isolation (can be operated by use of a release cord).

Brass compression fittings 6, 8, 10 or 12 mm can be connected to the connection threads G 3/8 (if not enclosed, connection sets have to be ordered separately: page 14.43).

In heating oil installations according to DIN 4755, reinforcing sleeves are to be used when installing copper pipes: page 14.45

"Flexo-Bloc" (floating suction)
for one pipe systems,
supply connection G 3/8 female thread,
brass compression fittings 6, 8, 10 or 12 mm
to be ordered separately



G 1 1/2	2000 mm	(10)	2052051
G 1	2000 mm	(10)	2052053



As for the model with floating suction, the heating oil is drawn off approx. 4 -6 cm below the oil level.

This way only the cleanest oil will be used.

Conversion set
consisting of hose and float



up to 3000		(50)	2052091
------------	--	------	----------------

Article	Max. tank height	Packing unit	Article-No.	Hint
 <p>"Flexo-Bloc" (export model) for two pipe systems, supply and return connection G 3/8 female thread with compression fittings with plastic compression rings for metal pipes 8, 10 and 12 mm, with level indicator pipe</p>				
G 2	2000 mm	(10)	2053051	Export models: The export models comply with the German regulations if brass compression fittings (page 14.43) are used.
G 2	3000 mm	(10)	2053052	
 <p>"Flexo-Bloc" (export model) for one pipe systems, supply connection G 3/8 female thread with compression fittings with plastic compression rings for metal pipes 6 and 8 mm, with level indicator pipe</p>				
G 2	2000 mm	(10)	2053351	
G 2	3000 mm	(10)	2053352	
G 1	2000 mm	(10)	2053353	
G 1	3000 mm	(10)	2053354	

Article Packing Article-No.
 unit

Hint

Double ball foot valves (non-return check valves)
 with distance spring (DN 10, DN, 15)
 or distance foot (DN 20, DN 25)
 and stainless steel balls



Sign of conformity (sign Ü) according to the valid rules of construction.



DN 10	Rp 3/8	(25)	2030003
DN 15	Rp 1/2	(25)	2030004
DN 20	Rp 3/4	(10)	2030006
DN 25	Rp 1	(10)	2030008

Application:
 Heating oil installations according to DIN 4755,
 for heating oil according to DIN 51603-1.



The valves can also be used for bio heating oils.

To avoid bimetallic corrosion, the distance springs are made of spring steel.

Example of the application: page 14.32

Double ball non-return ball check valves
 with stainless steel balls

For vertical installation.

DN 10	Rp 3/8	(25)	2031103
DN 15	Rp 1/2	(25)	2031104



Non-return ball check valves

with handwheel isolation,
 both ports female thread G 3/8



Sign of conformity (sign Ü) according to valid rules of construction.



G 3/8	(10)	2033053
-------	------	----------------

Application:
 Heating oil installations according to DIN 4755,
 for EL type of heating oil according to DIN 51603-1.



With marking "A" also for heating oils with "alternative additives" or with a bio proportion up to 20% according to DIN SPEC 51603-1.

with quick acting isolation,
 both ports female thread G 3/8 with
 brass compression fittings 10 and 12 mm



10/12 mm	(10)	2033151
----------	------	----------------

May also be used for self-monitoring suction pipes after having removed the non-return ball.

The connection threads G 3/8 can be equipped with brass compression fittings 6, 8, 10 or 12 mm (if not enclosed, connection sets to be ordered separately: page 14.43).

In heating oil installations according to DIN 4755, reinforcing sleeves are to be used when installing copper pipes: page 14.45

Example of the application: page 14.32

Release cord
 for remote operation of quick acting isolating valves
 with screws, dowels and lead seal



10 m	2052080
------	----------------

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

Gland fittings
for the introduction of steel, copper and iron pipes into the tank

single, for the following pipe dimensions:



R 1	x 6/ 8/ 10/ 12 mm	(25)	2040050
R 1	x 14, 15 mm and 1/4"	(50)	2040053
R 1	x 18 mm and 3/8"	(50)	2040055
			152164225
			5375
R 1	x 22 mm and 1/2"	(25)	2040056
R 3/8	x 6 mm	(50)	2041051

double, for supply and return pipe



R 1	x 8/ 10/ 12 mm	(25)	2040152
R 1	x 15 mm	(25)	2040154

Reducers made of anthracite plastic
Set in the following sizes



G 2 x G 1 1/2 and G 1 1/2 x G 1	(25)	2040090
---------------------------------	------	----------------

Flexible suction pipes
with weight,
upper connection for cutting ring,
lower connection G 3/8 for foot valve



10 mm x 1250	2050051
10 mm x 1500	2050052
10 mm x 1600	2050053
10 mm x 1750	2050054
10 mm x 2000	2050055
10 mm x 2500	2050056

Application:
Heating oil installations according to DIN 4755.

Example of the application: see below

If not stated otherwise, all products are made of brass.

The return connection is supplied with brass compression fittings. In heating oil installations according to DIN 4755 reinforcing sleeves are to be used when installing copper pipes: page 1.147

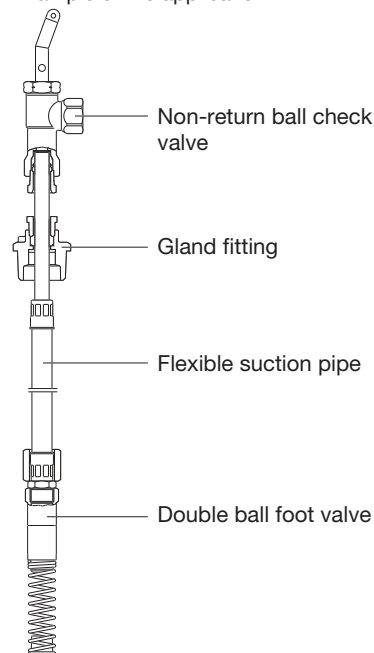
Not suitable for filling pipes.




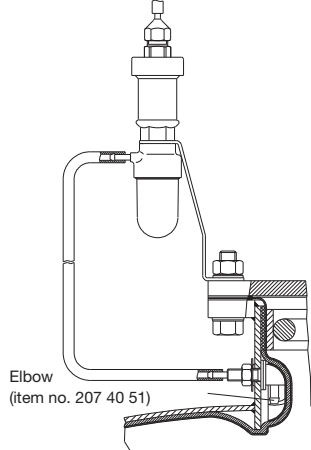



Application:
Heating oil installations according to DIN 4755,
for EL type of heating oil according to DIN 51603-1.



The suction pipes are also suitable for heating oils with "alternative additives" or with a bio proportion up to 20 % according to DIN SPEC 51603-6.

Example of the application:



Article	Packing unit	Article-No.	Hint
	(10)	2073051	<p>Only for holders of a type approval.</p> <p>Liquid safety devices have to be checked by an inspector and are thus TÜV approved.</p> <p>Note: The installation of a condensate collector with brass cup is recommended for tanks with inner jackets made of PVC in which petrol containing ethanol is stored. Ethanol can diffuse via the inner jacket and cause damage to the transparent cup in the long term. Brass cup, item no. 2129152: page 14.20</p>
	(100)	2076004	<p>Example of installation:</p>
	(10)	2076100	 <p>Elbow (item no. 207 40 51)</p>
	(10)	2073161	<p>Liquid safety device with condensate collector (item no. 2073151) fitted on the dome cover and connection pipes.</p> <p>If not stated otherwise, all products are made of brass.</p>
	(50)	2074061	<p>Elbow with counternut and two seals, for the introduction of the suction and the measuring pipe into the tank</p> <p>Outer hose connection 4 and 6 mm Hose connection in the tank 6 mm</p>
	(50)	2074261	<p>as above, but extended with copper pipes</p> <p>Outer hose connections 4 and 6 mm Hose connection in the tank 6 mm</p>

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

Spacer stud made of steel



with inner fixing device
 for the elbows item no. 2074051
 and 2074251 (25) **2076200**

Is required if the hose pipe is not led to the tank bottom.

Hose nozzles

with female thread M 18 x 1.5
 and inner taper for hose I.D.



4 and 6 mm (100) **2075061**
 10 mm (50) **2075053**

with male thread G 3/8
 for hose I.D.



4 and 6 mm (50) **2075161**
 10 mm (50) **2075153**

with male thread G 1/4
 for hose I.D.

4 and 6 mm (100) **2075261**

Condensate collector



Hose connections **2072061**
 4 and 6 mm I.D.
 Condensate collector with compression fitting 6 mm: page 14.25

Note:
 The installation of a condensate collector with brass cup is recommended for tanks with inner jackets made of PVC in which petrol containing ethanol is stored. Ethanol can diffuse via the inner jacket and cause damage to the transparent cup in the long term.
 Brass cup, item no. 2129152: page 14.20

14.d Heating oil valves in the pipework

Content



"Oilstop" Anti-siphon valves	14.36
"Olex" Pressure compensation device	14.37
Isolating fittings	14.37
Isolating valve	14.38
Quick acting isolating valve	14.38
Change-over valve	14.38
Double change-over valve	14.38

Article	Article-No.	Hint
---------	-------------	------

"Oilstop" Anti-siphon valves



"Oilstop V" Diaphragm anti-siphon valve

General construction supervising admission by DIBt: Z - 65.50 - 305.
 Infinitely adjustable safety heights between 1 m and 4 m, lead sealable, venting facility for initial operation, with isolating facility, pressure balanced in the direction of the tank, permissible ambient temperature: -25 °C up to +60 °C, therefore also suitable for use in the dome shaft.
 max. oil flow 200 l/h, both ports female thread G 3/8 for connection of compression fittings 6, 8, 10 or 12 mm (sets of compression fittings to be ordered separately)

2104203



Diaphragm anti-siphon valves are installed in the suction pipes of heating oil installations according to DIN 4755, where the maximum tank filling point is above the lowest point of the suction pipe. The infinitely adjustable safety height allows for an adaptation to the requirements of the system.

The valve is approved for EL type of heating oil and "bio heating oil" with a FAME proportion up to 15 % according to DIN SPEC 51603-6, e.g. heating oil DIN 51603-6 EL A Bio 15.

Installation instructions must be observed. TÜV tested according to DIN EN 12514-2.

For further information see "Technical information".



Awards:



Industrial Forum Design Hanover
iF-Ecology Design Award – TOP 3



Design Award Switzerland

"Oilstop MV" Solenoid valve

General construction supervising admission by DIBt: Z – 65.50 – 456.

2104553



for safety heights up to 3 m*, pressure balanced in the direction of the tank, closed with current "off", ~ 230 V / 50 Hz, protection: IP 65 with socket
 max. oil flow 100 l/h
 both ports female thread G 3/8



The solenoid valves "Oilstop MV" shut off the oil pipe between the tank and the subsequent installation of one and two pipe systems if the burner is not in operation. It is thus avoided that the oil in the tank is siphoned off in case of a leakage.

* These solenoid valves can be used on the suction pipe up to -0.9 bar.

The installation instructions must be observed.



The materials used are also suitable for heating oils with "alternative additives" or with a bio proportion up to 100 % according to DIN SPEC 51603-6.

Note regarding two-pipe systems:

Only the suction pipe to the boiler can be protected by anti-siphon valves. They do not impact the return pipes of two pipe systems. The return pipes in two pipe systems should have free drainage into the tank so that the tank cannot be siphoned off via the return pipe when the burner is not in operation.



Article Packing unit Article-No. Hint

"Olex" Pressure compensation device
both ports female thread G 3/8
for connection of compression fittings 6, 8, 10 und 12 mm
(sets of compression fittings to be ordered separately: page 14.43)

(5) **2107003**



Sign of conformity (sign Ü) according to valid rules of construction.
Application:
Heating oil installations according to DIN 4755, for EL type of heating oil according to DIN 51603-1.



With marking A also for heating oils with "alternative additives" or with a bio proportion up to 20 % according to DIN SPEC 51603-6.

"Olex" is a pressure compensation device according to DIN EN 12514-2 for oil pipes in which a thermal conditional volume expansion and therefore a pressure increase in the pipework may occur.

Pipe content to be compensated:
Max. 730 cm³ with a temperature increase of 40 K (e. g. from 0 °C to 40 °C).

Pipe dimension [mm]	Max. pipe length [m]
Ø 6 x 1	58
Ø 8 x 1	27
Ø 10 x 1	15,5
Ø 12 x 1	10

For further information see "Technical information":



Isolating fittings
both ports coupling





6	x 6 mm	(10)	2080851
8	x 8 mm	(10)	2080852
10	x 10 mm	(10)	2080853
12	x 12 mm	(10)	2080854
15	x 15 mm	(10)	2080855
18	x 18 mm	(10)	2080856

To avoid any harmful effects of galvanic and vagrant current, the DIN standard 4755 recommends the installation of such isolating fittings.

For suction systems.

TÜV tested according to TRbF 521/6.51-2.

Couplings made of galvanised steel, cutting rings made of brass.
In heating oil installations according to DIN 4755, reinforcing sleeves are to be used when installing copper pipes: page 14.45

Article	Packing unit	Article-No.	Hint
 Isolating valve brass needle type straight pattern valve			Application: Pipeworks PN 16 for mineral, heating and hydraulic oils, air PN 6.
DN 8	G ¼	(10) 2091002	
 Quick acting isolating valve for a quick isolation (quarter turn operation). Isolating valve made of brass according to DIN EN 12514-2 and DIN 4817-1, PN 16, straight pattern, with coupling according to DIN 2353, collar nut made of galvanised steel, brass cutting ring.			Application: Heating oil installations according to DIN 4755, for light heating oils on mineral oil basis, e. g. EL type of heating oil. Further applications: Liquid gas according to DIN 51622 (DVGW-G approved), as well as compressed air. In heating oil installations according to DIN 4755, reinforcing sleeves are to be used when installing copper pipes. Reinforcing sleeves for soft pipes with a wall thickness ≤ 1 mm: page 14.45
6 x 6 mm		(20) 2100051	
8 x 8 mm		(20) 2100052	
10 x 10 mm		(20) 2100053	
12 x 12 mm		(20) 2100054	
15 x 15 mm		(20) 2100055	
 Change-over valve brass (quick acting model), according to DIN EN 12514-2, PN 6, with coupling according to DIN 2353 made of galvanised steel, brass cutting ring.			Application: Heating oil installations according to DIN 4755, for light heating oils on mineral oil basis, e. g. EL type of heating oil. For the quick isolation or change-over of the fuel supply, for instance for heating oil installations (one pipe system) with 2 tanks.
6 x 6 x 6 mm		(10) 2102051	
8 x 8 x 8 mm		(10) 2102052	
10 x 10 x 10 mm		(10) 2102053	
12 x 12 x 12 mm		(10) 2102054	
 Double change-over valve ball type, brass			Application: Fuel installations. Temperature range: 0 °C up to 60 °C Pressure range: -0.6 bar up to 10 bar Oventrop double change-over valve (with compulsory change-over) for the connection of two storage tanks to one burner in two pipe systems. By throwing over the lever, the supply and the return pipe of one tank are isolated and the supply and return pipe of the other tank are released. Also for fuels with "alternative additives" or with a bio proportion up to 20 %, e.g. heating oil according to DIN SPEC 1606.6.
G ¾ (6 x)		2103260	



“Hygate” Gate valves

Page 5.12



Piston type spring assisted check valves

Page 5.26



“Optigas” Ball valves

Page 5.07

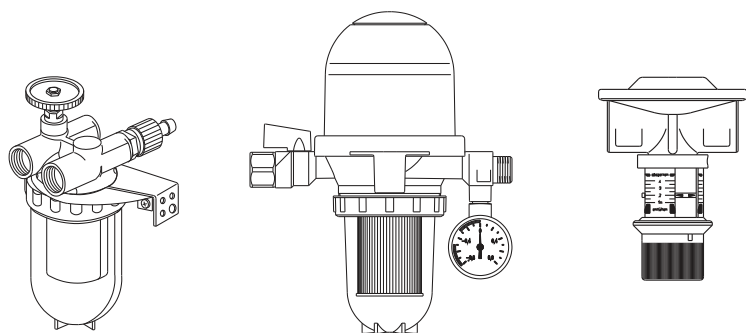


14.e Fittings

Content

Connection system summary	14.42
"Ofix-Oil" Compression fittings	14.43
"Ofix-Oil" Couplings (steel, galvanised)	14.44
Brass reinforcing sleeves	14.45
"Ofix-Oil" Double nipples	14.45
"Ofix-Oil" Double nipple - elbow	14.45
Flexible hoses DIN EN ISO 6806	14.46
Sets of flexible hoses	14.47
Flexible hoses	14.47

Connection of pipes and valves in heating oil installations



Valve connection			
Female thread	G 3/8 female thread with additional connection for Oventrop compression fittings	G 3/8 male thread with additional inner taper for hose connection	Coupling supplied with valve

Pipe		Additional couplings/connection fittings						
Material	Producer Examples	Type		Producer Examples				
Copper pipe	Wieland Kabelmetall	Compression or cutting ring	Compression fitting "Ofix-Oil" (page 14.43)			X		
			Couplings "Ofix-Oil" (page 14.44)		X	X		
		Not required if compression fitting is integrated in the valve						
Flexible hoses	Oventrop (Page 9.46)	Not required for flexible hose with female and/or male thread			X	X	X	
		Double nipple	Double nipple "Ofix-Oil" (page 14.43)		X	X		
Steel pipe	Mannesmann Thyssen	Not required for threaded connection			X			

Subject to alteration.

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

"Ofix-Oil" Compression fittings
brass



For two pipe filters "Oilpur", "Flexo-Bloc" (two pipe), diaphragm anti siphon valves, solenoid valves and pressure compensation devices
– size DN 10 –

Connection set
(set consisting of two compression fittings)

6 mm	(50)	2127050
8 mm	(50)	2127051
10 mm	(50)	2127052
12 mm	(50)	2127053

For "Oilpur" one pipe filters , one pipe filters with return flow feed, "Toc-Duo" as well as "Flexo-Bloc" (one pipe)
– size DN 10 –
(set consisting of one compression fitting)



6 mm	(50)	2127650
8 mm	(50)	2127651
10 mm	(50)	2127652
12 mm	(50)	2127653

Compression ring



6 mm	(50)	2127150
8 mm (with intermediate ring)	(50)	2127151
10 mm (with intermediate ring)	(50)	2127152
12 mm	(50)	2127153

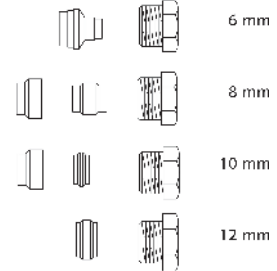
Compression nut










6 mm	(50)	2127250
8 mm	(50)	2127251
10 / 12 mm	(10)	2127253






Connection system
Brass and steel couplings,
brass reinforcing sleeves: from page 14.45

Application:
These compression fittings are only suitable for Oventrop products for heating oil installations with female thread G 3/4 with compression contour.
In heating oil installations according to DIN 4755 reinforcing sleeves are to be used when installing copper pipes: page 14.45.



The metal compression fittings are also resistant to bio heating oils.

Article	Packing unit	Article-No.	Hint
"Ofix-Oil" Couplings (steel, galvanised)			Application: Pipe connection for heating oil installations, compressed air, hydraulic, propane gas.
brass cutting ring series L, DIN 2353			Temperature range: -20 °C up to +120 °C Pressure: PN 100, up to Ø 15 PN 160
Straight coupling			In heating oil installations according to DIN 4755, reinforcing sleeves are to be used when installing copper pipes: page 14.45
	R 1/8 x 6 mm	(25) 2083051	The metal couplings are also resistant to bio heating oils.
	R 1/4 x 6 mm	(25) 2083061	
	x 8 mm	(25) 2083052	
	x 10 mm	(25) 2083063	
	R 3/8 x 6 mm	(25) 2083060	
	R 3/8 x 8 mm	(25) 2083053	
	x 10 mm	(25) 2083054	
	x 12 mm	(25) 2083055	
	R 1/2 x 10 mm	(25) 2083056	
	x 12 mm	(25) 2083057	
	x 15 mm	(10) 2083058	
Straight coupling, flat sealing			
	G 3/8 x 6 mm	(25) 2083074	
	x 8 mm	(25) 2083075	
	x 10 mm	(25) 2083076	
Straight coupling			
	6 x 6 mm	(25) 2083251	
	8 x 8 mm	(25) 2083252	
	10 x 10 mm	(25) 2083253	
	12 x 12 mm	(25) 2083254	
	15 x 15 mm	(10) 2083255	
Straight coupling, reduced			
	8 x 6 mm	(25) 2083350	
	10 x 8 mm	(25) 2083351	
	12 x 10 mm	(25) 2083353	
Elbow coupling			
	6 x 6 mm	(25) 2083451	
	8 x 8 mm	(25) 2083452	
	10 x 10 mm	(25) 2083453	
	12 x 12 mm	(25) 2083454	
	15 x 15 mm	(10) 2083455	
T-coupling			Other dimensions on demand.
	6 x 6	6 mm (25) 2083551	
	8 x 8	8 mm (25) 2083552	
	10 x 10	10 mm (25) 2083553	
	12 x 12	12 mm (25) 2083554	
Collar nut			Thread
	6 mm	(50) 2083751	M 12 x 1.5
	8 mm	(50) 2083752	M 14 x 1.5
	10 mm	(50) 2083753	M 16 x 1.5
	12 mm	(50) 2083754	M 18 x 1.5
	15 mm	(25) 2083755	M 22 x 1.5
	18 mm	(25) 2083756	M 26 x 1.5

Article	Packing unit	Article-No.	Hint
Cutting ring			
	6 mm	(50) 2083851	
	8 mm	(50) 2083852	
	10 mm	(50) 2083853	
	12 mm	(50) 2083854	
	15 mm	(25) 2083855	
	18 mm	(25) 2083856	
Brass reinforcing sleeves			
	6 mm	(100) 2083951	Is required for the installation of soft pipes with a wall thickness of 1 mm.
	8 mm	(100) 2083952	
	10 mm	(100) 1029651	Diameters are related to the outer diameter of the pipe.
	12 mm	(100) 1029652	
	15 mm	(50) 1029654	
	18 mm	(50) 1029656	
"Ofix-Oil" Double nipples			
brass			
both ports with inner taper for connection hose/hose			
	G 1/4 x G 3/8	(10) 2080050	Application: Heating oil installations according to DIN 4755 for EL type of heating oil.
	G 3/8 x G 3/8	(10) 2080051	
	G 3/8 x G 1/2	(10) 2080053	
	G 1/2 x G 1/2	(10) 2080052	The double nipples are also resistant to bio heating oils.
with one inner taper for connection hose/burner or valve			
	G 3/8* x NPT 1/8	(10) 2080251	
	G 3/8* x NPT 1/4	(10) 2080252	
	G 1/2* x NPT 1/4	(10) 2080255	
	G 1/4* x R 3/8	(10) 2080151	
	G 3/8* x R 3/8	(10) 2080352	
	G 3/8* x R 1/2	(10) 2080353	
	G 1/2* x R 1/2	(10) 2080354	
	G 3/8* x G 1/8	(10) 2080253	
	G 3/8* x G 1/4	(10) 2080254	
	G 1/4* x G 1/4	(10) 2080351	
*with inner taper			
"Ofix-Oil" Double nipple - elbow			
brass			
with one inner taper for connection hose/burner or hose/valve			
	G 3/8* x NPT 1/4	(10) 2080451	
	G 3/8* x R 3/8	(10) 2080452	
* with inner taper			

Article	Hose length	Article-No.	Hint
---------	-------------	-------------	------

Flexible hoses DIN EN ISO 6806

both ports with collar nut G 3/8 with tapered seal



NI 8	500 mm	2110051
	750 mm	2110052
	1,000 mm	2110053
	1,250 mm	2110054
	1,500 mm	2110055

both ports with collar nut G 1/2 with tapered seal



NI 12.5	750 mm	2110056
	1,000 mm	2110057
	1,250 mm	2110058
	1,500 mm	2110059

both ports with collar nut G 3/8 and tapered seal, one port straight, one port with 90 ° elbow



NI 8	500 mm	2110071
	750 mm	2110072
	1,000 mm	2110073

one port G 3/8 male thread, one port with collar nut G 3/8 with tapered seal



NI 8	500 mm	2110151
	750 mm	2110152
	1,000 mm	2110153
	1,250 mm	2110154
	1,500 mm	2110155

one port 1/4 NPT male thread, one port with collar nut G 3/8 with tapered seal



NI 8	500 mm	2110251
	750 mm	2110252
	1,000 mm	2110253
	1,250 mm	2110254
	1,500 mm	2110255

one port G 1/4 male thread, one port with collar nut G 3/8 with tapered seal



NI 8	300 mm	2110350
	500 mm	2110351
	750 mm	2110352
	1,000 mm	2110353
	1,250 mm	2110354
	1,500 mm	2110355

Application:
Heating oil installations according to DIN 4755, for EL type of heating oil according to DIN 51603-1.




Up to a maximum temperature of 70 °C, the flexible hoses are also suitable for heating oils with "alternative additives" or with a bio proportion up to 20 % according to DIN SPEC 51603-6.

For higher bio proportions or temperatures up to 100 °C, burner hoses with diffusion tight inner layer are for instance to be used.

Flexible hoses with outer sleeve made of galvanised wire mesh PN 10.

Flexible hoses may be used as connection between solid pipe and burner or feeder unit.



Article	Hose length	Article-No.	Hint
both ports with length of steel pipe for connection of coupling			<p>Application: Heating oil installations according to DIN 4755, for EL type of heating oil according to DIN 51603-1.</p> <p> Bio20</p> <p>Up to a max. temperature of 70 °C, the flexible hoses are also suitable for heating oils with "alternative additives" or with a bio proportion up to 20% according to DIN SPEC 51603-1.</p> <p>For higher bio proportions or temperatures up to 100 °C, burner hoses with diffusion tight inner layer are for instance to be used.</p> <p>Flexible hoses with outer sleeve made of galvanised wire mesh PN 10.</p> <p>Flexibles hoses may be used as connection between solid pipe and burner or feeder unit.</p> <p>Further flexible hoses with special connections for the different burner types on request.</p>
NI 8 x 8 mm	300 mm	2110551	
	500 mm	2110552	
	750 mm	2110553	
	1,000 mm	2110554	
NI 10 10 x 10 mm	300 mm	2110555	
	500 mm	2110556	
	750 mm	2110557	
	1,000 mm	2110558	
NI 10 12 x 12 mm	300 mm	2110559	
	500 mm	2110560	
	750 mm	2110561	
	1,000 mm	2110562	

Sets of flexible hoses

based on DIN EN ISO 6806.
Flexible rubber hoses with diffusion tight inner layer and outer sleeve made of galvanised wire mesh. They are resistant to bio heating oils and EL type of heating oil, PN 10, thermal resistance up to 100 °C.



both ports G 3/8 collar nut with tapered seal
Set = 2 pieces

NI 6.3	500 mm	2111051
	750 mm	2111052
	1,000 mm	2111053
	1,500 mm	2111055

Flexible hose

300 mm long, according to DIN EN ISO 6806 with ring gasket, G 1/4 male thread x G 3/8 collar nut



NI 8 (also for "Toc-Uno-B")	2162993
-----------------------------	---------

Application:

Heating oil installations according to DIN 4755.



Due to the diffusion tight inner layer also suitable for heating oils with "alternative additives" according to DIN V 51603-6 and other liquid fuels which are burned for heating purposes, such as FAME according to DIN EN 14213, RME, rape oil, palm oil, etc.

These flexible hoses are also suitable for systems with increased return temperatures, e. g. miniature CHP.

Flexible hose for the connection of the preinstalled heating oil filter.



14.f Heating oil kits for export

Content

Oil tank installation kit for the installation of a two pipe system with steel tank	14.50
Oil tank installation kit for the installation of a two pipe system with plastic tank	14.50
Heating oil filter kit for two pipe systems	14.51
Heating oil filter kit for one pipe systems with return flow feed	14.51
Heating oil filter kit for one pipe systems (without return flow feed)	14.51
"Ofix-Oil" Compression fittings (for export only)	14.51

Article	Article-No.	Hint
---------	-------------	------

Oil tank installation kit for the installation of a two pipe system with steel tank



consisting of:
 "Flexo-Bloc"
 with compression fittings 8, 10 and 12 mm
 item no. 2053051 G 2 x 2000 mm

"Oilpur" heating oil filter, both ports female thread,
 with nickel mesh insert,
 item no. 2120103 G 3/8

"Ofix-Oil" compression fitting
 for the connection of the heating oil filter to the tank side
 item no. 2127500 8, 10 and 12 mm

Coupling with female thread
 item no. 2010616 G 2

Cap
 item no. 2010716 G 2

Double nipple
 item no. 2080360 G 2

Vent cap
 item no. 2020110 G 1 1/4

packed in a carton **2064351**

Application:
 Heating oil installations

Plastic compression fittings are not approved in Germany.

Coupling and cap according to French standard NF E-25-572.

Oil tank installation kit for the installation of a two pipe system with plastic tank



consisting of:
 "Flexo-Bloc"
 with compression fittings 8, 10 and 12 mm
 item no. 2053051 G 2 x 2000 mm

"Oilpur" heating oil filter, both ports female thread
 with nickel mesh insert
 item no. 2120103 G 3/8

"Ofix-Oil" compression fitting
 for the connection of the heating oil filter to the tank side
 item no. 2127500 8, 10 and 12 mm

Vent cap
 item no. 2020110 G 1 1/4

packed in a carton **2065351**
 as above, but packed in a plastic case **2064051**

Article	Packing unit	Article-No.	Hint
---------	--------------	-------------	------

Heating oil filter kit for two pipe systems

consisting of:



„Oilpur“ heating oil filter, both ports female thread, with nickel mesh insert, item no. 2120103 G 3/8

„Ofix Oil“ compression fitting item no. 2127500 8, 10 and 12 mm

packed in a carton (10) **2120153**

Heating oil filter kit for one pipe systems with return flow feed

consisting of:



„Oilpur“ heating oil filter, both ports female thread with nickel mesh insert item no. 2122103 G 3/8

„Ofix Oil“ compression fitting item no. 2127700 8, 10 and 12 mm

packed in a carton (10) **2122153**

Heating oil filter kit for one pipe systems (without return flow feed)

consisting of:



„Oilpur“ heating oil filter, both ports female thread with nickel mesh insert, item no. 2123103 G 3/8

„Ofix-Oil“ compression fitting item no. 2127700 8, 10 and 12 mm

packed in a carton (10) **2123153**

"Ofix-Oil" Compression fittings (for export only)

plastic for metal pipes
 Compression fittings (interchangeable) for Oilpur" heating oil filters G 3/8, "Flexo-Bloc" and "Toc-Duo" - compression ring made of plastic, nuts made of brass - for metal pipes

2-fold, for two pipe filters (50) **2127500**
 8, 10 and 12 mm

plastic compression rings 1-fold, for one pipe filters (50) **2127700**
 8, 10 and 12 mm

plastic compression rings



Plastic compression fittings are not approved in Germany and must therefore not be installed.



8 mm



10 mm

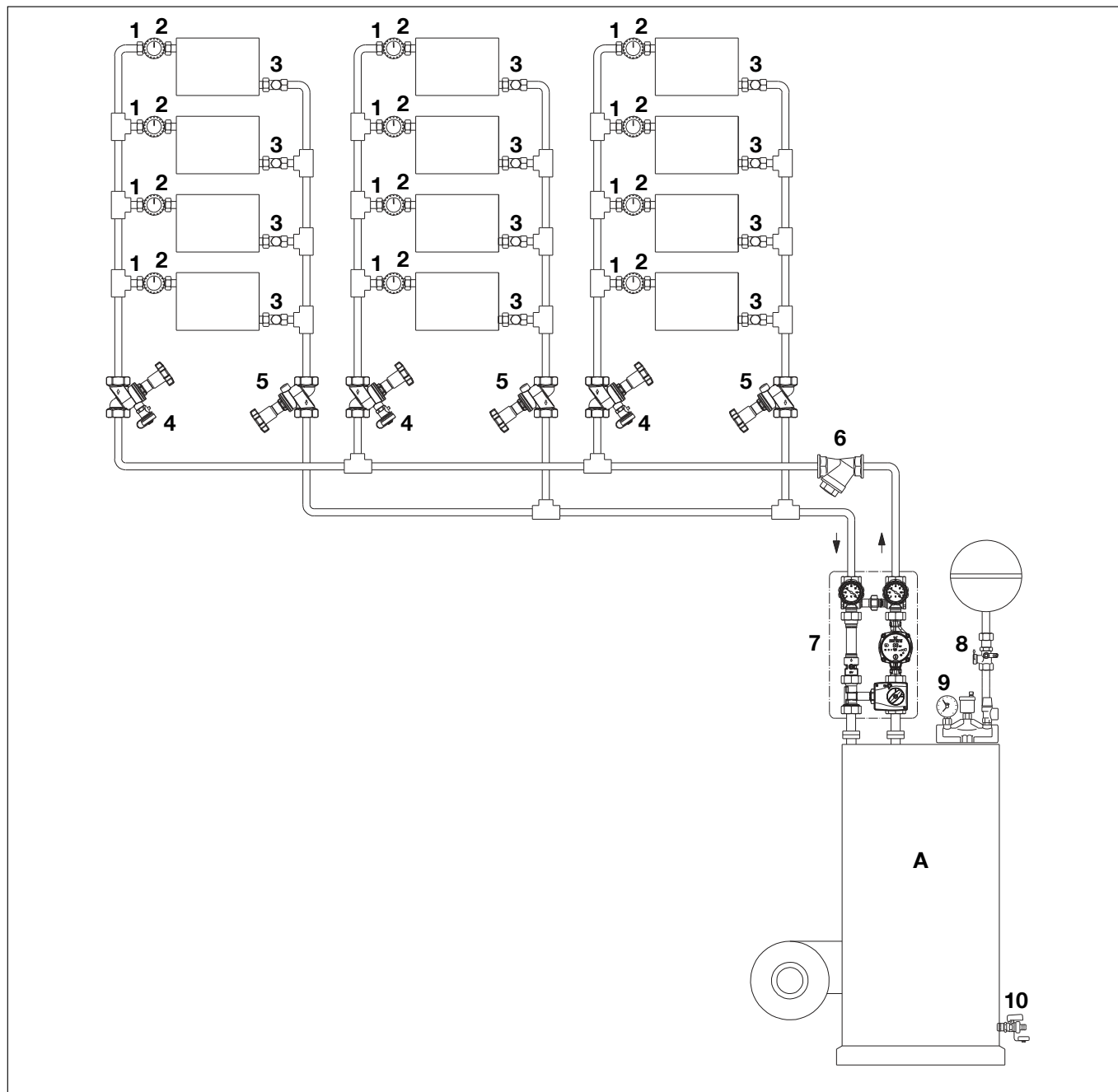


12 mm

	Page
17.a Different system applications	
Content	17.03
Heat distribution/Hydraulics	17.04
Air conditioning	17.05
Heat pump	17.08
Geothermics	17.09
Combined heat and power (CHP)	17.10
Photovoltaics/Smart Grid	17.11
Local heating/Domestic transmission station	17.12
District heating/biomass installations	17.13
Solar cooling	17.14
Large solar plant	17.15
Wood burning boiler	17.16
Visualization/Monitoring	17.17

17.a Different system applications**Content**

Heat distribution/Hydraulics	17.04
Air conditioning	17.05
Heat pump	17.08
Geothermics	17.09
Combined heat and power (CHP)	17.10
Photovoltaics/Smart Grid	17.11
Local heating/Domestic transmission station	17.12
District heating/biomass installations	17.13
Solar cooling	17.14
Large solar plant	17.15
Wood burning boiler	17.16
Visualization/Monitoring	17.17

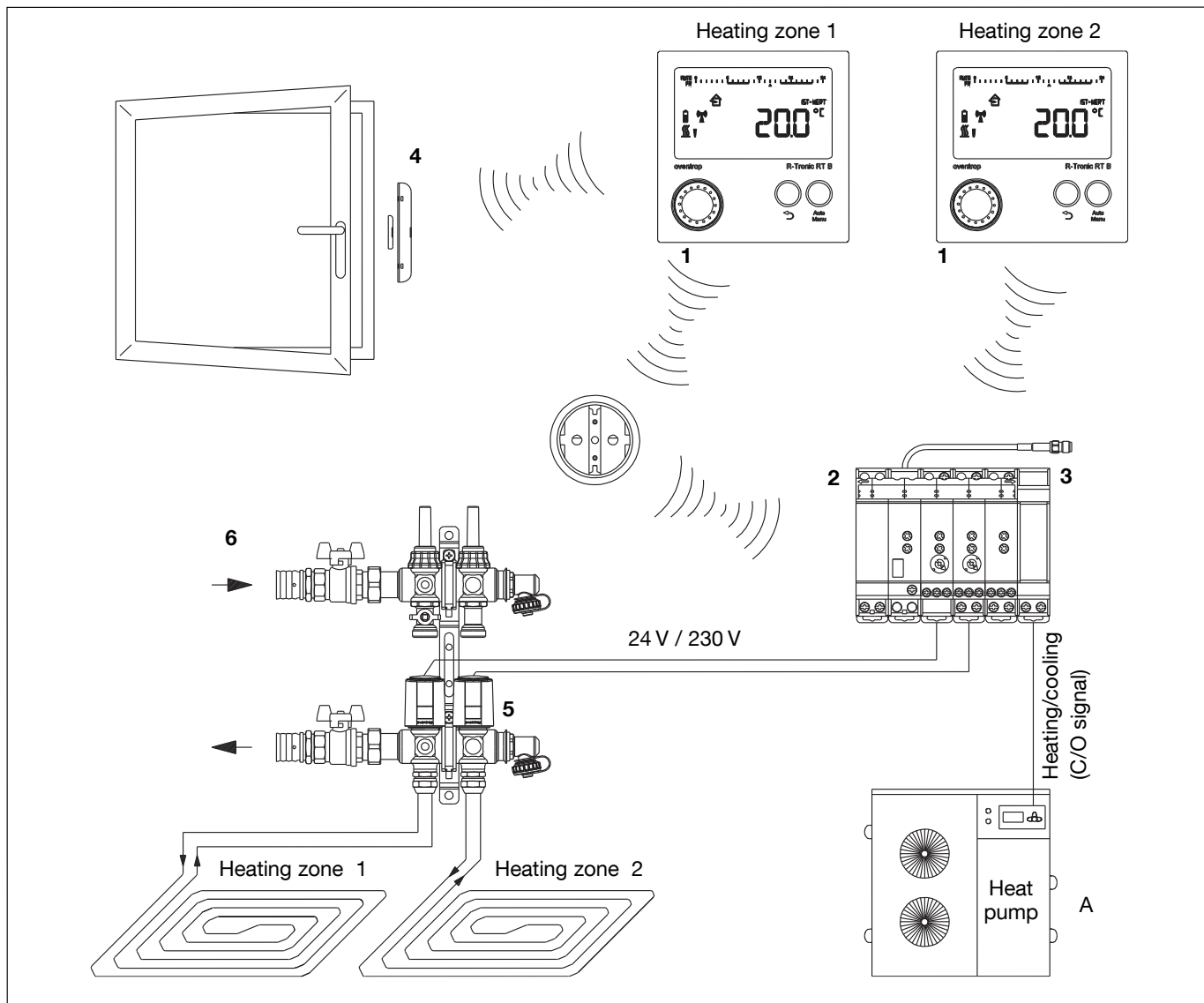


System heat distribution/hydraulics (example)

No.	Oventrop article	Item no.	Catalogue page
1	“AQ” Thermostatic valve	1183...	1.44
2	“Uni” Thermostat	1011...	1.08
3	Radiator lockshield valve with presetting	109...	1.132
4	Bronze oblique pattern globe valve PN 25 with draining facility (fill and drain ball valve G 1/4)	10503...	5.18
5	Bronze oblique pattern globe valve PN 25 without draining facility	10502...	5.18
6	Strainer PN 25	112...	5.32
7	“Regumat M3-180” Station	13562...	6.21
8	“Expa-Con” Valve with lead sealable cap	10890...	6.135
9	“MSM-Block” Boiler safety device with insulation	13510...	6.135
10	“Optiflex” Brass ball valve	1033...	6.136

Further component

A Heat generator (e.g. oil/gas/heat pump/solid fuels)

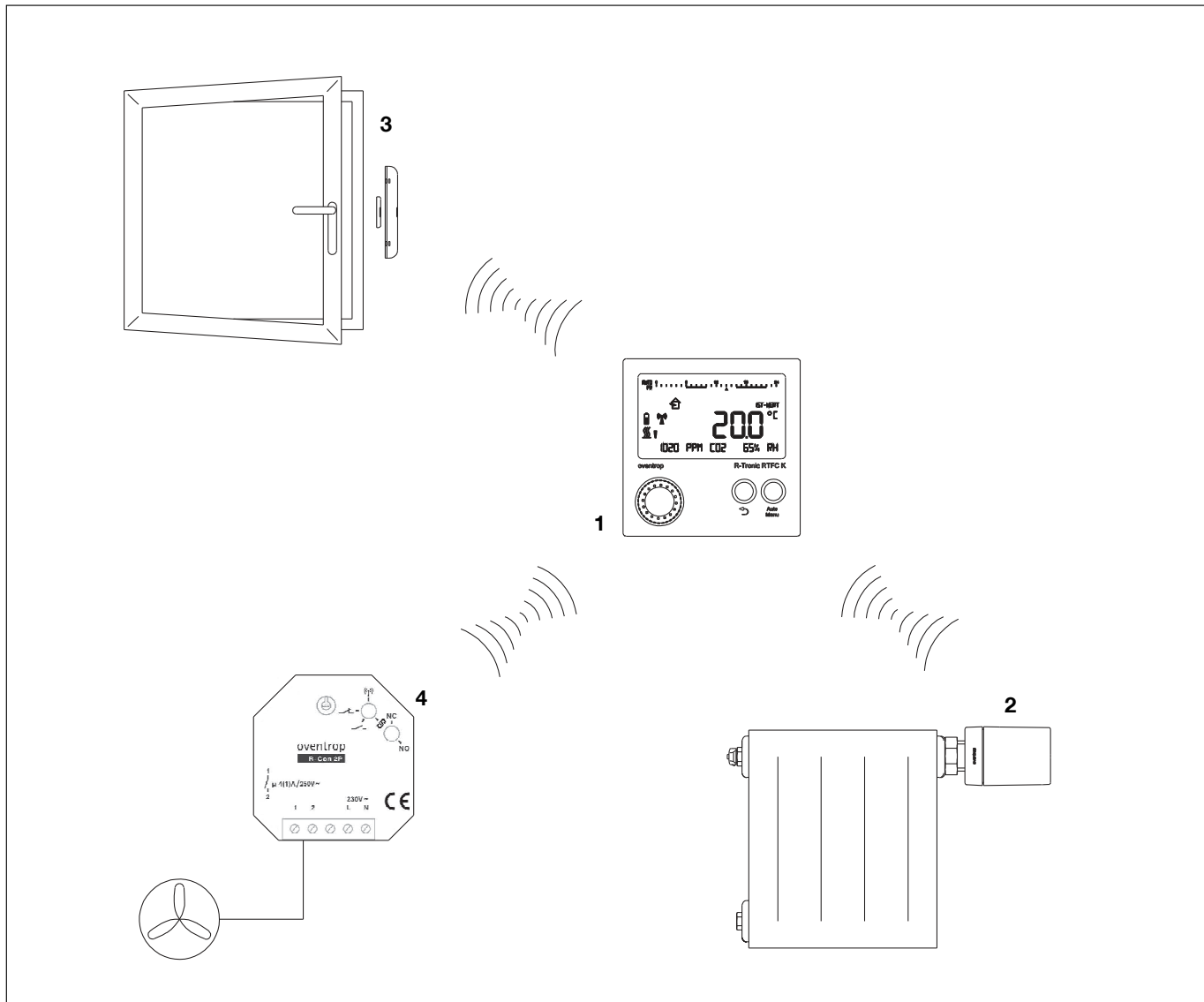


System climate (example 1)

No.	Oventrop article	Item no.	Catalogue page
1	“R-Tronic RT B” Wireless thermostat	1150680	1.35
	“R-Tronic RTF B”	1150681	1.35
	“R-Tronic RTFC K”	1150682	1.35
2	“R-Con” Wireless receiver	1150772	1.37
3	“R-Con HC” Extension module heating/cooling	1150774	1.37
4	“FK-C F” Wireless window contact	1153070	1.38
5	“Aktor T 2P” Electrothermal actuator	1012415	1.26
6	“Multidis SF” Stainless steel distributor/collector	14043..	2.60
7	“RP-S F” Wireless repeater	1150699	1.38

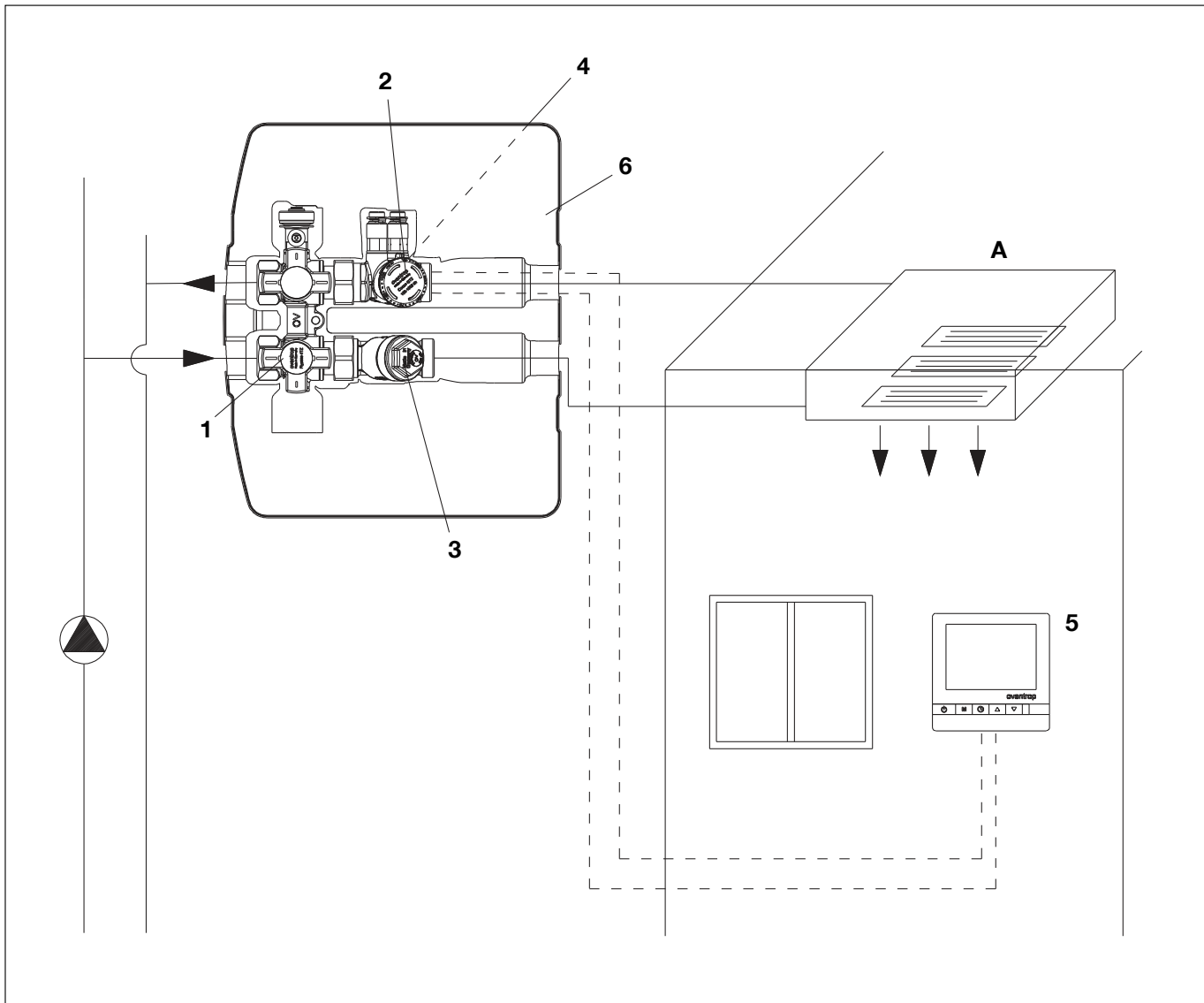
Further component

A Heat pump



System climate (example 2)

No.	Oventrop article	Item no.	Catalogue page
1	“R-Tronic RT B” Wireless thermostat	1150680	1.35
	“R-Tronic RTF B”	1150681	1.35
	“R-Tronic RTFC K”	1150682	1.35
2	“Aktor MH CON B” Electronic actuator for wireless thermostats	1150665	1.36
3	“FK-C F” Wireless window contact	1153070	1.38
4	“R-Con 2P” Wireless receiver (1 channel)	1150710	1.38

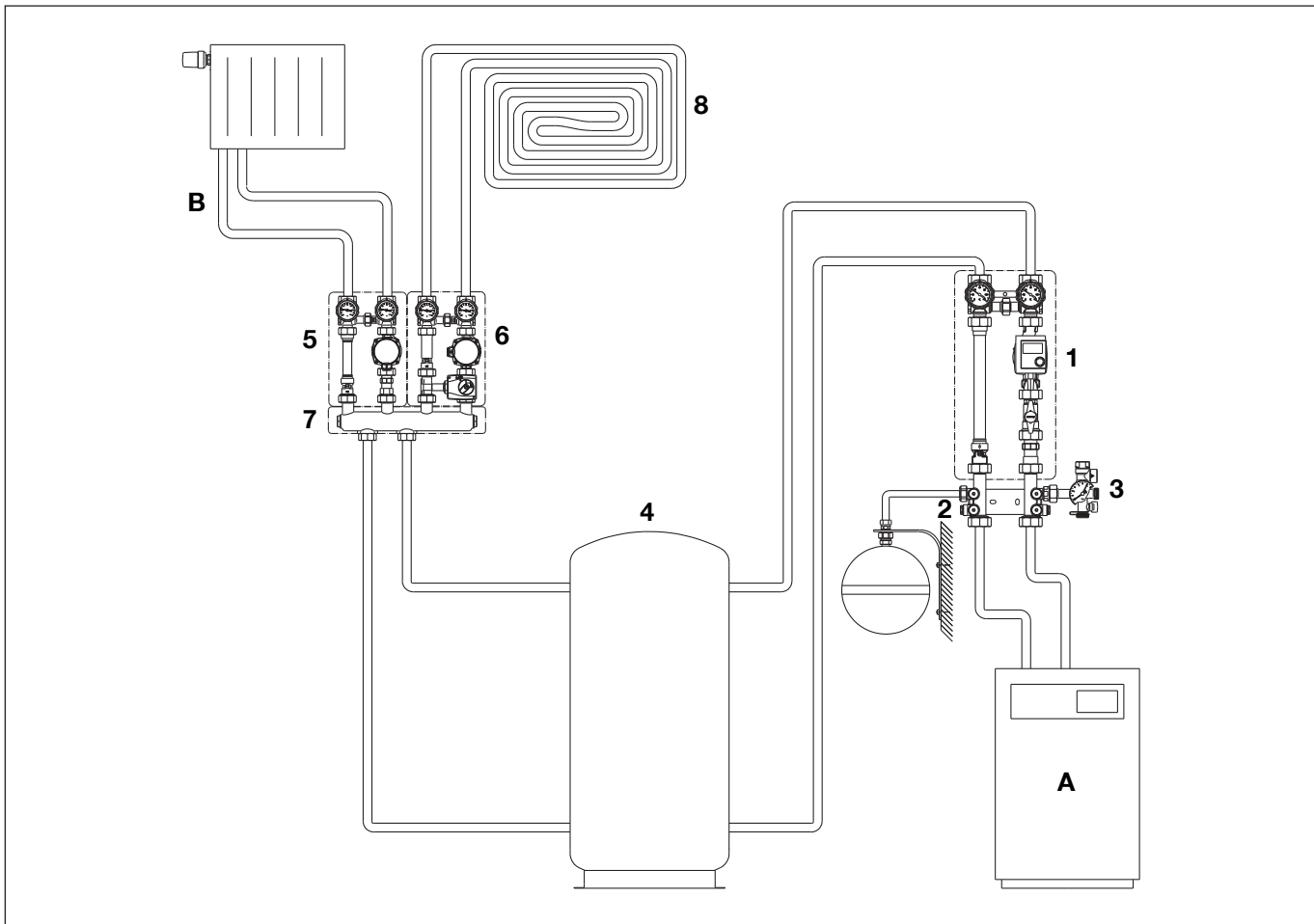


System climate (example 3)

No.	Oventrop article	Item no.	Catalogue page
1	“Flypass 4 TZ” Connection fitting	11495..	3.76
2	“Cocon QTZ” Pressure independent control valve	114...	3.76
3	Strainer	11410..	3.76
4	Electric actuator (two point)	1.....	3.93
5	Room thermostat (digital)	115...	3.91
6	Insulation shell for connection fitting “Flypass”	1149581	3.79

Further component

A Radiant/chilled ceiling

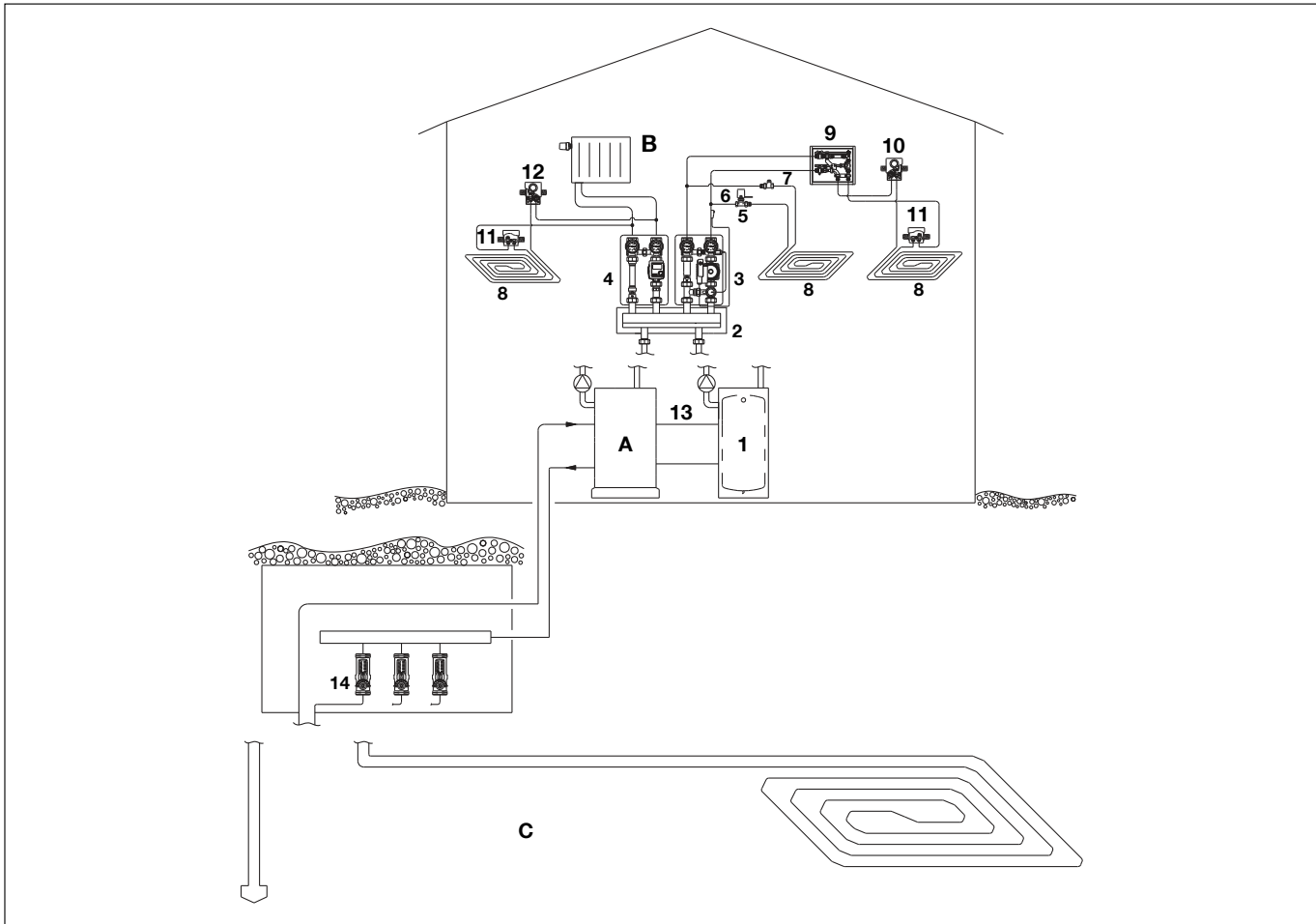


System with heat pump (example)

No.	Oventrop article	Item no.	Catalogue page
1	Heating circuit connection group for heat pumps	1356972	6.56
2	Connection set for safety group for diaphragm expansion tank	1356989	6.56
3	Safety group	1351598	6.56
4	"Hydrocor HP" Buffer storage cylinder	13850..	10.20
5	"Regumat S-130" Station	1355073	6.09
6	"Regumat M3-130" Station	1355273	6.10
7	Distributor DN 25	1351571	6.64
8	"Cofloor" Surface heating	140....	2.40

Further components

- A Heat pump
- B Radiator circuit

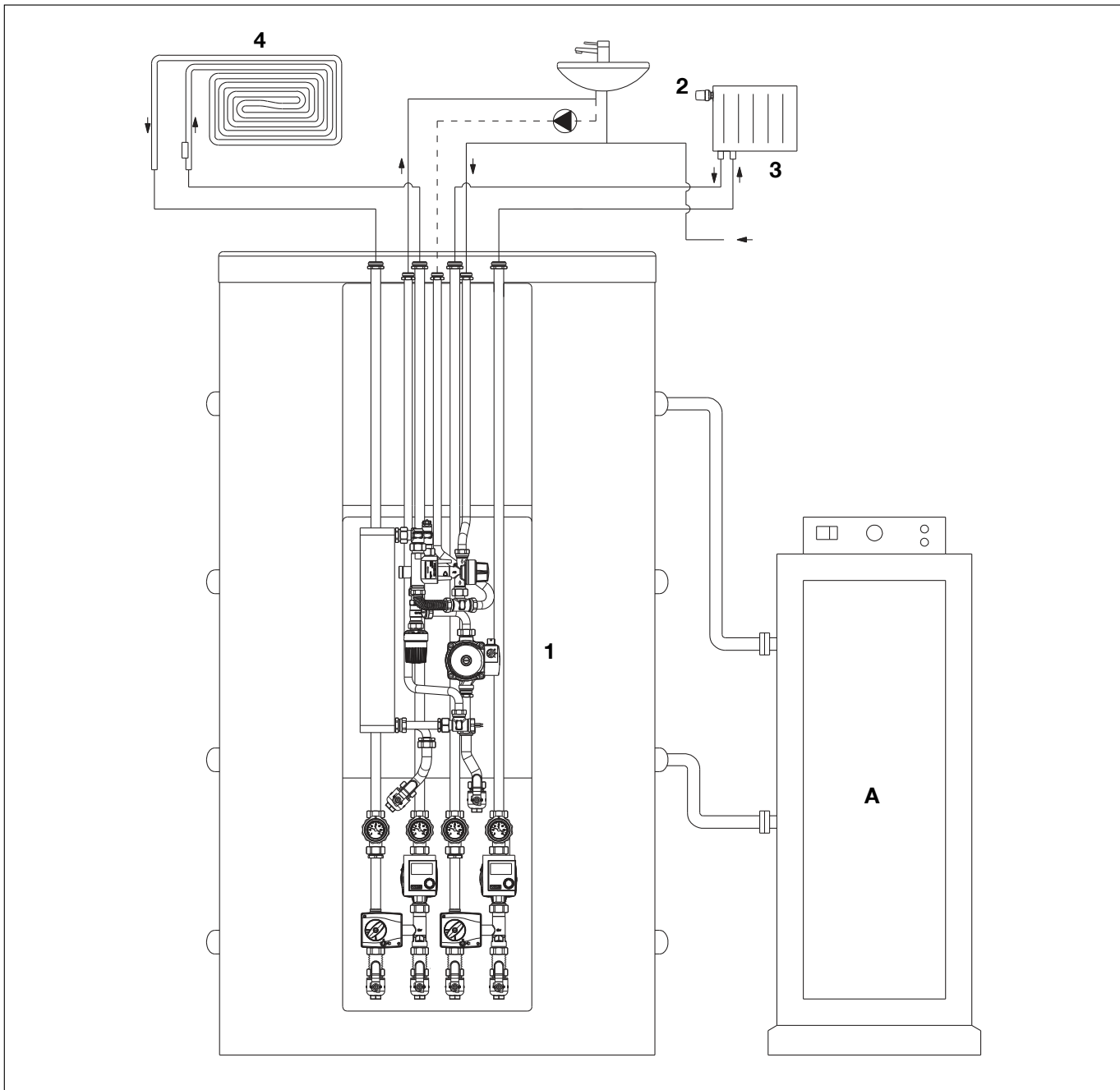


Geothermal system (example)

No.	Oventrop article	Item no.	Catalogue page
1	“Hydrocor” Storage cylinder	1385...	10.20
2	“HydroFixx” Hydronic header	1351...	6.66
3	“Regumat F” Station for thermally controlled surface heating systems	1354...	6.41
4	“Regumat S” Station	1355...	6.06 T
5	“A” Thermostatic valve	1181...	1.64
6	Actuator	1.....	1.26
7	“Combi 2/3/4” Radiator lockshield valves	109....	1.132-1.134
8	“Cofloor” Surface heating system	140....	2.40
9	“Floorbox” Return collector	102....	2.11
10	“Unibox E BV” Room temperature control	1022662	2.18
11	“Unibox RLA” Isolating and regulating function	1022663	2.18
12	“Unibox RTL” Return temperature limitation	10226..	2.21
13	Boiler – storage cylinder connection	1359...	6.132
14	“Hycoflow VTB” Double regulating and commissioning valve with flow display	10609..	3.54

Further components

- A Heat pump
- B Radiator circuit
- C Geothermal system with borehole collector/underground loop collector

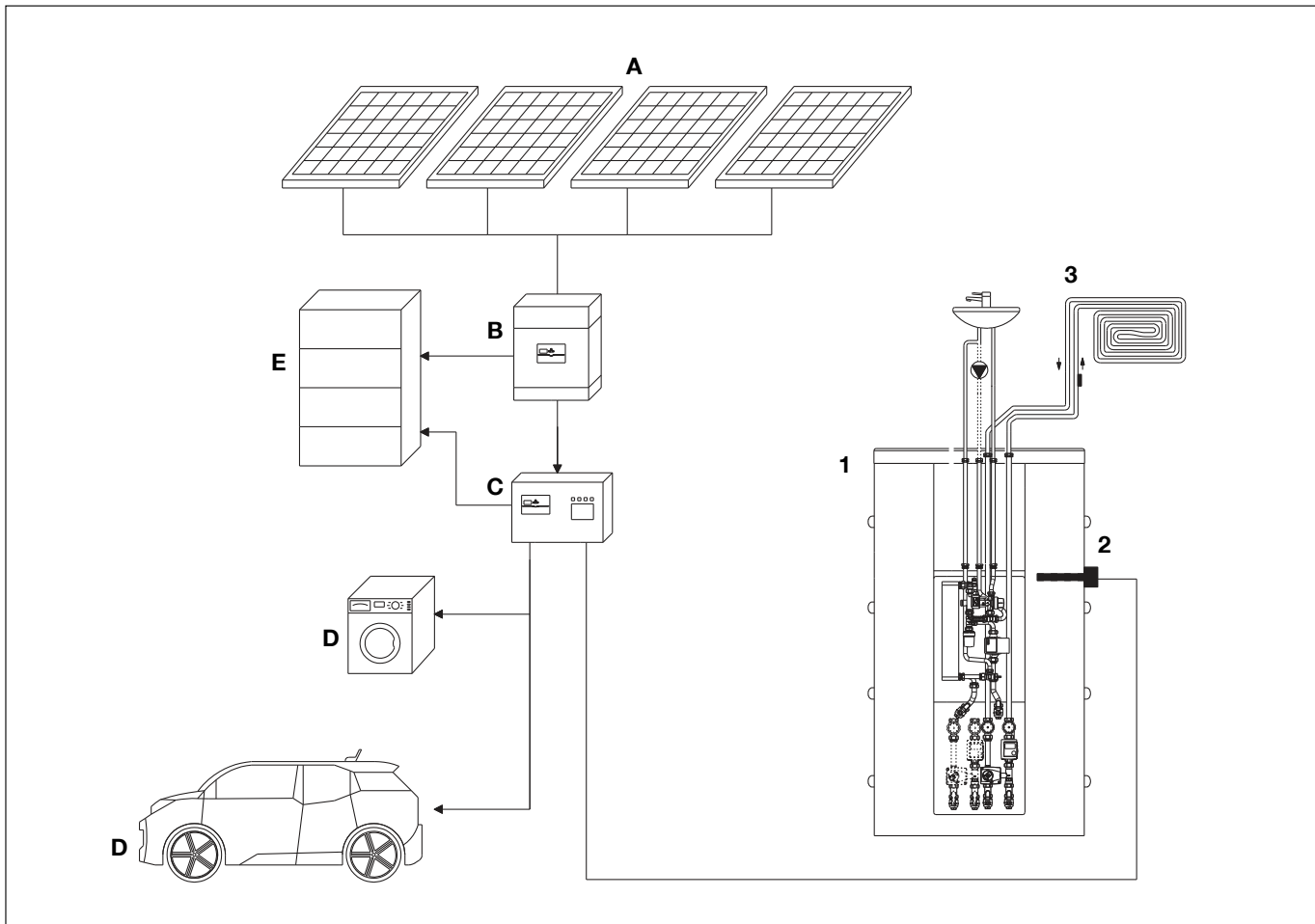


CHP system (example)

No.	Oventrop article	Item no.	Catalogue page
1	“Regucor WH” Energy storage centre	13834..	10.08
2	“Uni XH/LH” Thermostats	1011...	1.08
3	“Multiflex V/F” Fittings	1015...	1.126
4	“Cofloor” Surface heating system	140....	2.40

Further component

A CHP installation

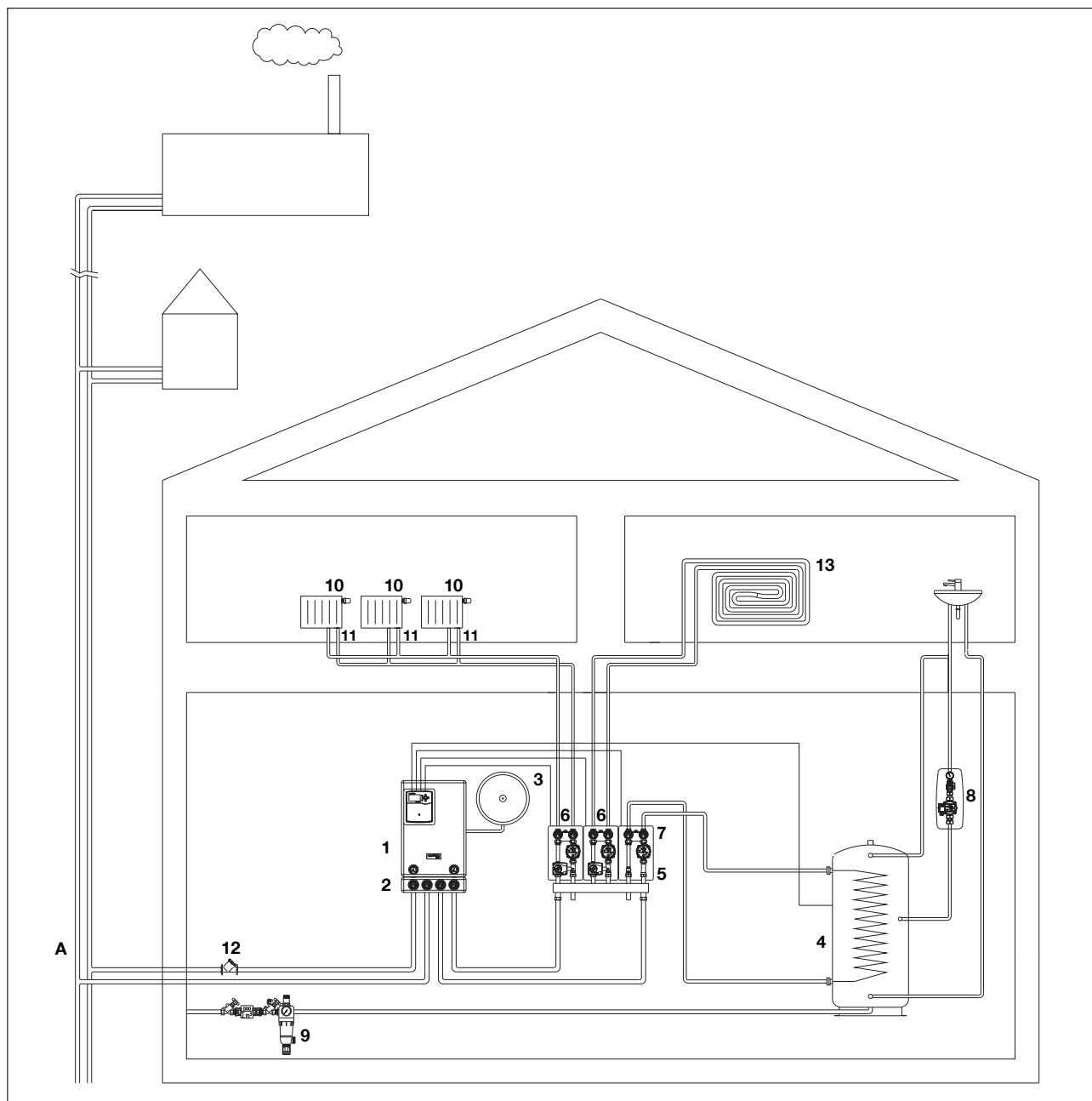


System photovoltaic/Smart Grid (example)

No.	Oventrop article	Item no.	Catalogue page
1	“Regucor WHS” Energy storage centre	138356.	10.07
2	Electric immersion heater	1383590	10.11
3	“Cofloor” Surface heating system	140....	2.40

Further components

- A Photovoltaic/solar module
- B Inverter
- C System manager
- D Terminal appliances
- E Li-ion storage

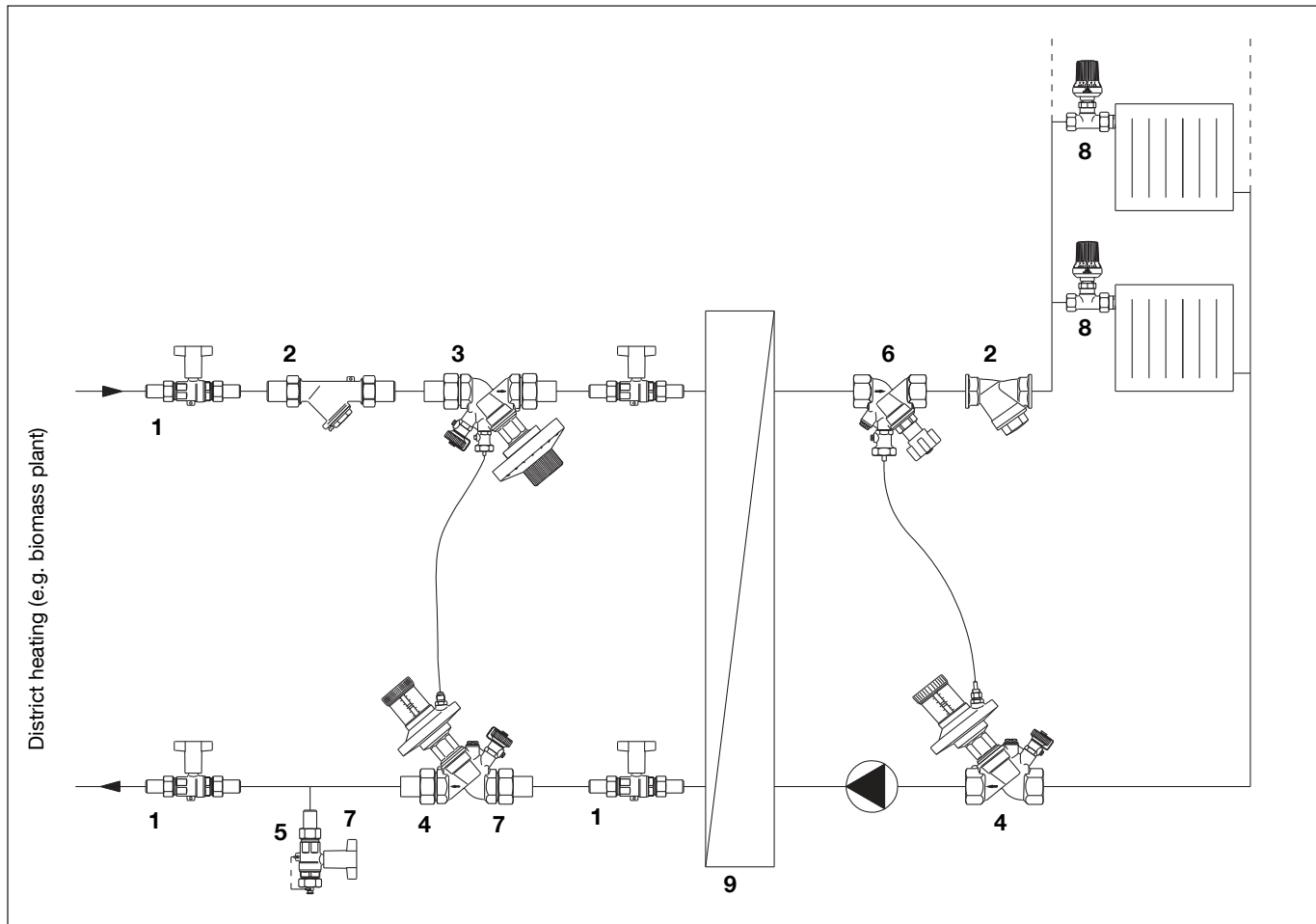


System district heating/domestic transmission station (example)

No.	Oventrop article	Item no.	Catalogue page
1	"Regudis H-HT" District heating station	1391025	7.08
2	Ball valve connection set	1399090	7.08
3	Diaphragm expansion tank	1399091	7.09
4	"Hydrocor WM" Monovalent potable water storage cylinder	139501.	7.09
5	Distributor	135....	6.64
6	"Regumat M3-180" Station	13562..	6.14
7	"Regumat S-180" Station	13560..	6.13
8	"Regucirc B" Circulation station	4206776	8.52
9	Domestic water station	42045..	8.68
10	"Uni XH/LH" Thermostats	1011...	1.08
11	"Multiflex F/V" Fittings	101....	1.126
12	Strainer	112....	5.32f
13	"Cofloor" Surface heating system	140...	2.40

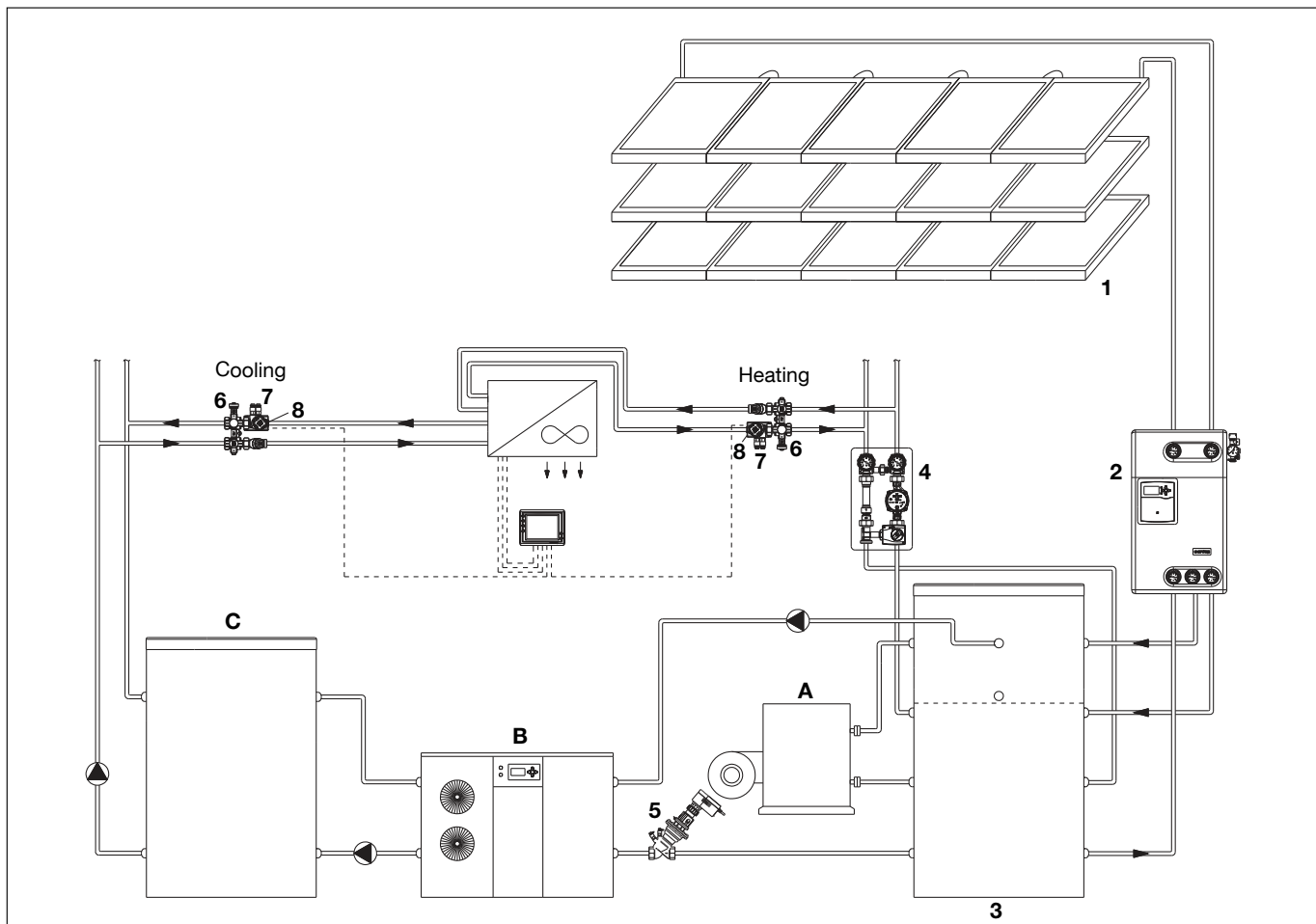
Further component

A District heating network



System district heating/biomass plant (example)

No.	Oventrop article	Item no.	Catalogue page
1	“Optibal” Ball valve PN 40 (alternatively isolating valve 10650..)	10656 ..	5.12
2	Strainers PN 16/PN 25	10680 ..	5.32
3	“Hydrostat QTR” Differential pressure regulator (female thread) (male thread with collar nut)	10615.. 10616..	3.36 3.36
4	“Hydrostat DTR” Differential pressure regulator (female thread) (male thread with collar nut)	10645.. 10646..	3.37 3.37
5	“Optibal” Ball valve PN 40 (alternatively isolating valve 10650..)	10666..	5.12
6	“Hydrocontrol ATR” Isolating and orifice valve (female thread) (male thread with collar nut)	10675.. 10676..	3.36 3.36
7	Tailpipes	106....	3.49
8	“AV 9” or “AQ” Thermostatic valve	118....	1.44/1.52
9	Heat exchanger	13517..	6.44

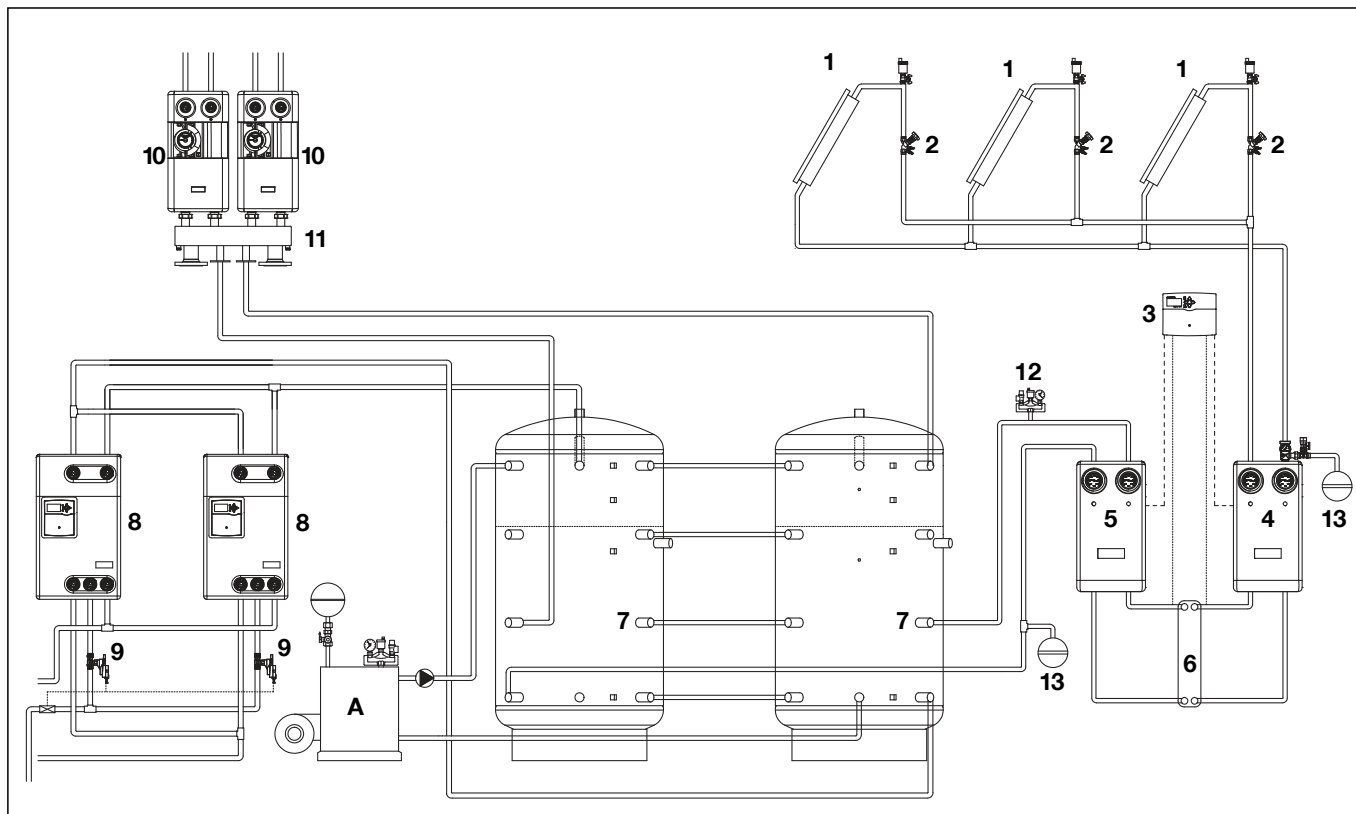


System solar cooling (example)

No.	Oventrop article	Item no.	Catalogue page
1	“OKF” Flat-plate collector	136134.	9.43
2	“Regusol X-Duo 25-B” Station	1361050	9.19
3	“Hydrocor HP” Buffer storage cylinder	13850..	10.20
4	“Regumat M3” Station	135....	6.07
5	“Cocon QTR” Pressure independent control valve	11461..	3.60
6	“Flypass” Connection system	11495..	3.76
7	“Cocon QTZ” Pressure independent control valve	11455..	3.58
8	Actuator (two point)	101....	3.93

Further components

- A Heat generator (e.g. oil/gas/heat pump/solid fuels)
- B Cooling generator
- C Cold storage cylinder
- D Fan coil

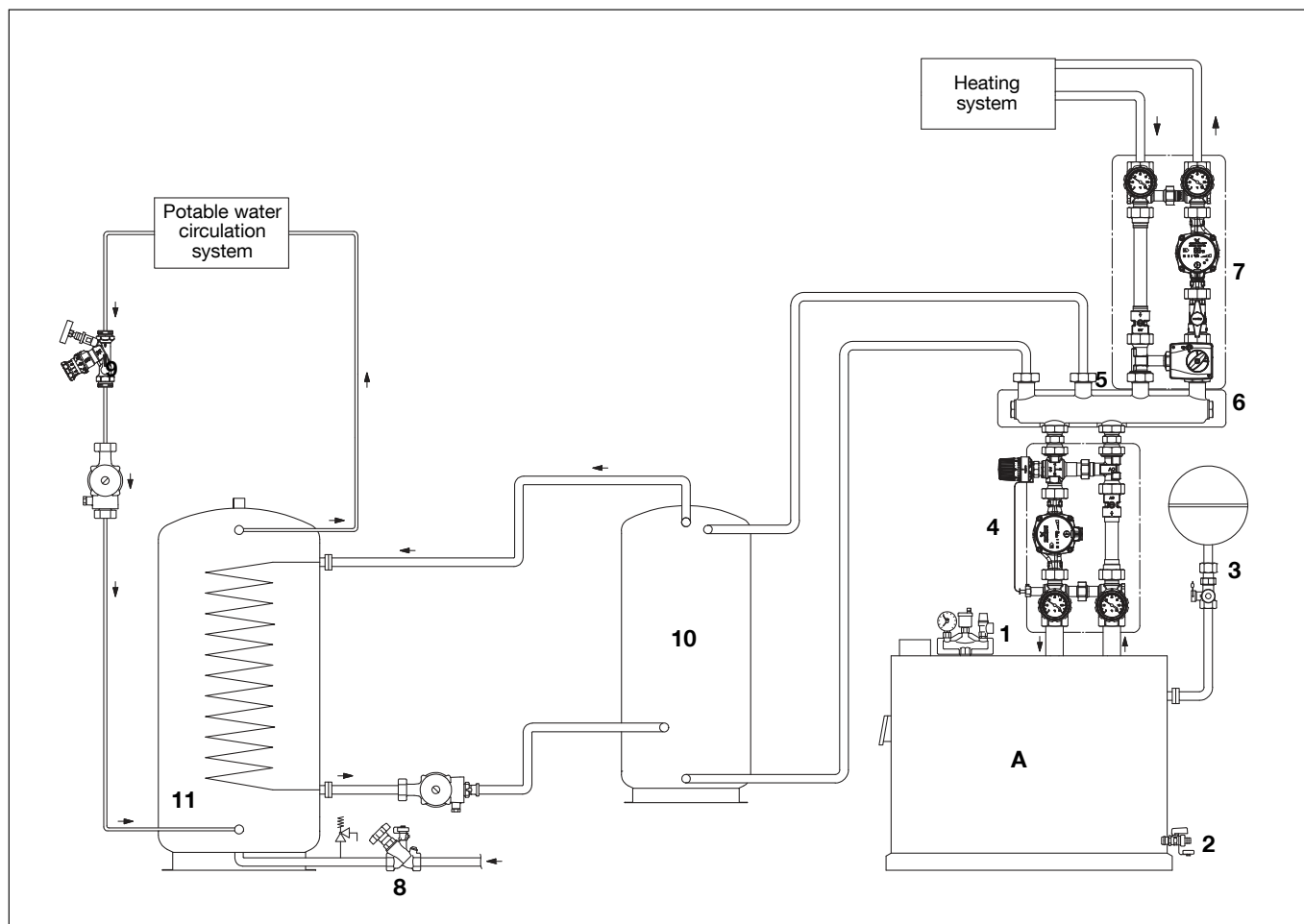


System large solar plant (example)

No.	Oventrop article	Item no.	Catalogue page
1	“OKF-MQ25” Flat-plate collector	1361440	9.43
2	“Hydrocontrol STR” Double regulating and commissioning valve	1369050	3.34
3	“Regtronic RM” Electronic controller	1369555	9.26
4	“Regusol SH-180” Station DN 32	1368251	9.16
5	“Regumat S-180” Station DN 32	1356072	6.21
6	Heat exchanger	1351792 1351793	9.28
7	“Hydrocor HP” Buffer storage cylinder	1385015	10.20
8	“Regumat XZ-30” Station for hot potable water preparation	1381035	6.110
9	“Regumaq K-3” Cascade control set	1381083	6.117
10	“Regumat M3-280” Station DN 50	1358640	6.36
11	“Regumat” Distributor DN 40/50	1351692	6.65
12	“MSM-Block” Boiler safety device	1351062	6.135
13	Diaphragm expansion tank	1361425	9.56

Further component

A Heat generator (e.g. oil/gas/heat pump/solid fuel)

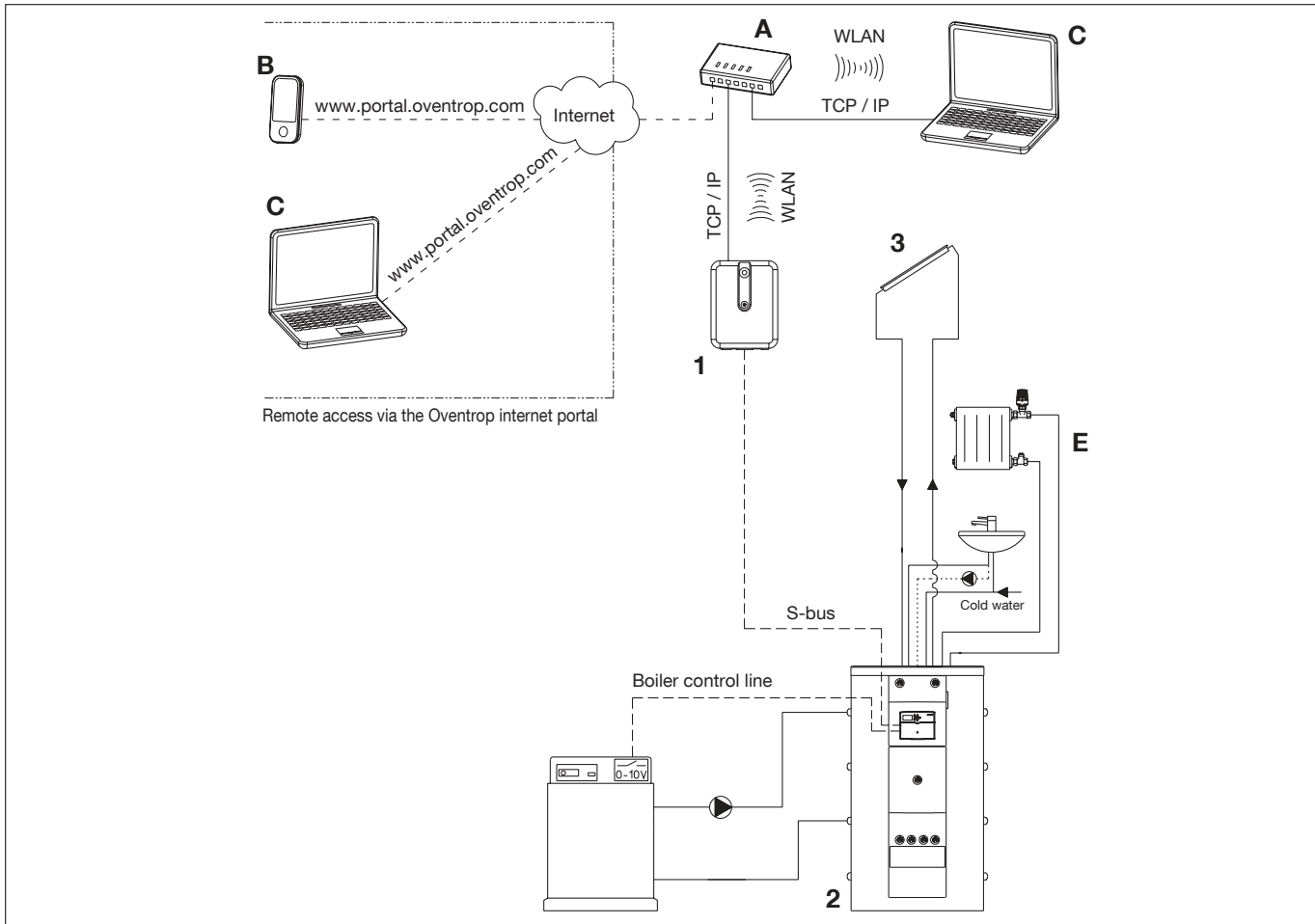


System with wood burning boiler (example)

No.	Oventrop article	Item no.	Catalogue page
1	“MSM-Block” Boiler safety device with insulation	13510..	6.135
2	“Optiflex” Fill and drain ball valve	1033...	6.136
3	“Expa-Con” Valve with lead sealable cap	10890..	6.135
4	“Regumat RTA-180” Station for solid fuel boilers	13545..	6.51
5	Connection fitting	1351655	6.68
6	Distributor with insulation	13515..	6.64
7	“Regumat M3-180” Station	13562..	6.21
8	“Aquastrom KFR” valve	420....	8.14 f.
9	“Aquastrom VT” Thermostatic regulating valve	42065..	8.29
10	“Hydrocor” Buffer storage cylinder	13850..	10.20
11	“Hydrocor WM” Monovalent potable water storage cylinder	139501.	7.09

Further component

A Wood burning boiler



System visualization/monitoring (example)

No.	Oventrop article	Item no.	Catalogue page
1	“Datalog CS-BS 1”	1159095	12.45
2	“Regucor WHS” Energy storage centre with controller “Regtronic RS”	13835..	10.07
3	“OKF” Flat-plate collector or “OKP” Tube collector	13612..	9.43

Further components

- A Standard router/switch (e.g. FritzBox)
- B Mobile displays (iPhone, iPod touch, iPad, BlackBerry etc.)
- C PC/Laptop
- D Heat generator (e.g. oil/gas/heat pump/solid fuels)
- E Radiator circuit

	Page
<hr/>	
19.a Software, data, data sets	
Content	19.03
Software	19.04
Oventrop App	19.04
Tender specifications	19.04
<hr/>	
19.b Measuring gauges	
Content	19.05
"OV-DMC 3" Measuring systems	19.06
<hr/>	
19.c Service	
Content	19.07
Slide rules	19.08
Catalogues	19.08

19.a Software, data, data sets

Content

Software	19.04
Oventrop App	19.04
Tender specifications	19.04

Item

Note



Software (Windows)

“OVplan”

Software for pipework calculation for heating, cooling, potable water and surface heating systems as well as dwelling stations “Regudis”

“OVe.r.p.”

Software for the calculation of the energy efficiency classes of packages according to the ErP Directives

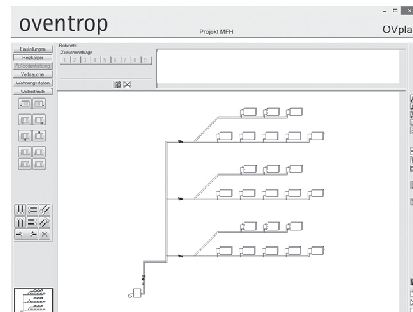
“OVsol”

Solar pipework calculation

“OVselect”

Software for valve design

The software can be downloaded from the Internet (www.oventrop.de) and is available on the Oventrop DVD.

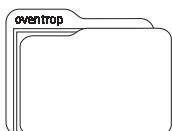


Oventrop App

- iOS
- Android

Functions of the Oventrop App:

- Calculation of the energy efficiency classes of packages according to the ErP Directives
- Rapid heat load calculation according to DIN EN 12831
- Determination of the radiator capacity
- Thermostatic valve design
- Double regulating and commissioning valve design
- Differential pressure regulator design
- Technical data
- Oventrop catalogue



Article data

BIM/CAD data

(Building Information Modelling)

Formats:

- Revit
- DWG
- VDI 3805

ETIM Classification

VDI 6805 – Data sets for technical software

- Heating
- Potable water
- Surface heating
- Solar thermal energy
- Storage cylinders

Article master data

Formats:

- Excel
- 2ba

All data can be downloaded from the Internet (www.oventrop.de) and is available on the Oventrop DVD.



19.b Measuring gauges

Content

"OV-DMC 3" Measuring systems	19.06
------------------------------	-------

Item	Note
------	------

Measuring systems

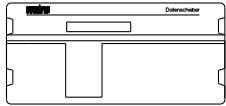


<p>“OV-DMC 3” Measuring system 1069278 with interfaces for communication with standard smartphones, tablets and personal computers</p>	999
---	-----

19.c Service

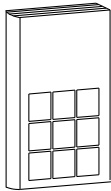
Content

Slide rules	19.08
Catalogues	19.08

**Slide rules**

for the design of
valves for hydronic balancing

for surface heating "Cofloor"

**Catalogue**

Catalogue "Products"

9999971

**Technical service****Design hotline**

Phone Mo–Fr 7.30–16.30:
+49 2962 82234

Fax: +49 2962 82602

Mailbox: +49 2962 82333

E-mail: plan@oventrop.de

Software hotline

Phone Mo–Fr 7.30–16.30:
+49 2962 82303

Fax: +49 2962 82602

Mailbox: +49 2962 82333

E-mail: software@oventrop.de

Technical hotline

Phone Mo–Fr 7.30–16.30:
+49 2962 82234

Fax: +49 2962 82602

Mailbox: +49 2962 82333

E-Mail: hotline@oventrop.de

FAQ (Internet)
www.oventrop.de

	Page
<hr/>	
20.a Indices	
Content	20.03
Alphabetical Index	20.04
Article number, EAN code	20.10
<hr/>	
20.b General conditions	
Content	20.51
Standard Terms and Conditions	20.52
<hr/>	
20.c Imprint	
Content	20.53
Imprint	20.54

20.a Indices

Content

Alphabetical Index	20.04
Article number, EAN code	20.10

Article	Page	Article	Page
A			
"ABR-55"	12.20, 12.27, 12.34	Bypass mixing valves	8.75
Adapter	1.17	C	
Adapter for "Cocon QTZ"	3.63	Cabinets	1.137, 2.64
Air conditioning and ventilation	3.103	Cascade control sets	6.117
Airvent PN 25	5.19	Change-over valves	14.38
Airvents	2.80, 5.30	Check valves	6.142
"Aktor M" Electromotive actuators	1.28, 2.76, 3.94, 6.107	Check valve - universal model	6.142
"Aktor MH/MD CON B" Electronic actuator for wireless thermostats	1.36	Circulation stations	8.52
"Aktor M ST EIB" Electromotive actuator system "EIB"	1.29, 3.96	Clamping rail	2.45
"Aktor M ST LON" Electromotive actuator system "LON"	1.29, 3.96	"classic" measuring technique	3.44, 3.66, 3.101
"Aktor T 2P" Electrothermal actuators (two point)	1.26	Climate meter "i-Tronic TFC"	1.32
"Aktor T ST" Electrothermal actuators (0-10 V)	1.27, 3.93, 12.30, 12.36	"Cocon 2TZ" Regulating valves	3.65
Angle pattern adapter	1.17, 10.12	"Cocon QFC" Pressure independent control valves	3.60
Angle pattern connection set	2.68	"Cocon QTR" Pressure independent control valves	3.60
Anti-siphon valves	14.36	"Cocon QTZ" Pressure independent control valves	1.105, 3.58
Anti-theft ring	1.17	"Cofit P"	11.14
"Aquamodul"	8.61	"Cofit PD"	11.24
"Aquamodul" Distributor system for potable water	8.59	"Cofit PD-HT"	11.52
"Aquanova Compact"	8.62, 8.70	"Cofit PDK-HT"	11.32
"Aquanova Magnum"	6.120, 8.71	"Cofit S"	2.53, 11.34
"Aquastron T plus"	8.29	"Cofloor" Surface heating and cooling	2.01
"Aquastron C"	8.32	Collar nut cover	1.17
"Aquastron DT"	12.41	Collectors "OKF", "OKP"	9.39
"Aquastron F"	8.10	"Combi 2"	1.134
"Aquastron FR"	8.22	"Combi 3"	1.133
"Aquastron KFR"	8.14	"Combi 3G"	1.61
"Aquastron M" Measuring and draining device	8.34	"Combi 4"	1.132
"Aquastron P"	6.120, 8.34	"Combi C"	1.132
"Aquastron R"	8.22	"Combi E"	1.76
"Aquastron UP"	8.36	"Combi LR"	1.134
"Aquastron UP-MS" Water meter installation set	8.40	"Combi-System" Connection system	11.01
"Aquastron VT"	8.28	Components for concrete core activation	2.91
Automatic hydronic balancing	1.43	Composition pipes "Copipe HS"	11.08
B			
Ball valves "Optibal" brass	5.04	Composition pipes "Copipe HSC"	2.50, 11.06
Ball valves "Optibal" bronze	5.12	Compression fittings "Cofit S"	1.96
Ball valves "Optibal TW"	8.24	Compression fittings "Ofix CEP"	1.144, 3.49
Ball valves "Optiflex"	2.62, 2.80, 2.94, 6.136	Compression fittings "Ofix K"	1.145, 2.53
Ball valves DZR "Optibal"	5.09	Compression fittings "Ofix-Oil"	14.43
Base mats	2.40	Compression fittings "Snap & Seal"	1.145
BIM	19.03	Concrete core activation	2.91
Blind plugs	1.142	Condensate collectors	14.25
Boiler connection systems "Regumat"	6.01, 6.09	Connection couplings "Cofit"	11.15
Boiler safety device "MSM-Block"	6.135	Connection fittings	1.130, 6.120, 8.66
Brass distributor/collector for industrial surface heating and cooling systems "Multidis SFI"	2.61, 2.93	Connection of heat generators to heating circuit/hot water supply	6.01
Brass reinforcing sleeves	1.147, 9.32, 14.45	Connection of the boiler and the storage cylinder to the pipework	6.132
"Brawa-Mix"	8.48, 9.65	Connection pieces	1.130
Bronze four-way mixing valve	6.12	Connection pieces "Cofit"	11.34
Buffer storage cylinders	10.20	Connection piping "Regumaq K"	6.117
Buffer storage cylinders "Hydrocor - HP"	10.20	Connection system "Combi-System"	11.01
Butterfly valves	5.23	Connection system for "Bypass-Combi" one pipe/two pipe	1.90, 1.94, 1.146
"BWM-C F"	12.21, 12.28, 12.35	Connection system for fittings "Multiflex"	1.90, 1.94, 1.144, 1.146, 3.49
"Bypass-Combi Duo"	1.91	Connection system for heating oil valves	14.41
"Bypass-Combi Uno"	1.95	Connection system for radiator lockshield valves "Combi 2/ 3/ 4"	1.144, 3.49
Bypass isolating valve	8.74	Connection system for thermostatic valves	1.144, 3.49
		Connection system for valves for water distribution	8.81
		Control unit "Regufloor H"	2.70
		Control unit "Regufloor HC"	2.75
		Control unit "Regufloor HX"	2.77
		Conversion fittings	1.140
		Conversion valves	1.98

Article	Page	Article	Page
"Copert"	2.52, 11.11	Electric sensor attached to the pipe	6.107, 10.10
"Copex"	2.50, 11.10	Electromotive actuator "LON"	1.29
"Copipe HS"	11.08	Electromotive actuators "Aktor M"	1.28, 2.76, 3.94, 6.107
"Copipe HSC"	2.50, 11.06	Electromotive actuator system "EIB" "Aktor M ST EIB"	1.29, 3.96
Cover	1.18	Electromotive actuator system "LON"	1.29, 3.96
"CS-BS" data logger	12.45	Electronic actuator for wireless thermostats	1.36
D		"Aktor MH/MD CON B"	
DDC "CR-BS"	12.19	Electronic flow sensor	9.35
DDC "CR-BX"	12.27	Electrothermal actuator (0-10 V) "Aktor T ST"	1.27, 3.93, 12.30, 12.36
DDC "CS-BS"	12.45	Electrothermal actuators (two point) "Aktor T 2P"	1.26
DDC "CW-BS"	12.41	Energy storage centre	10.07
Deaerator	2.80, 5.30	ETIM	19.03
"Demo-Bloc"	1.49, 1.62, 3.21	Exclusive radiator valves	1.74
Dew point control	2.75, 3.92	"Expa-Con"	6.135
Diaphragm anti-siphon valves "Oilstop"	14.36	Expansion strip	2.48
Diaphragm expansion tanks	9.56, 10.13	Expansion tanks	9.56, 10.13
Differential pressure regulators "Hycococon DTZ"	3.15	Expansion tanks "Solar"	9.56, 10.13
Differential pressure regulators "Hydromat DFC"	3.40	F	
Differential pressure regulators "Hydromat DFC"	3.40	Fill and drain ball valves	6.138, 8.63
Differential pressure regulators "Hydromat DTR"	3.39	Fill and drain ball valves for potable water	6.136, 8.63
Differential pressure relief valves	6.143	"Optiflex"	
Differential pressure transmitter "OV-Connect"	3.100	Filter inserts for heating oil filters	14.18
Different system applications	17.01	Filters	14.07
Distributor/collector for surface heating and cooling systems	2.60, 2.92	Fittings	14.41
Distributors for "Regumat"	6.64	Fixing channel	2.22
Distributor system for potable water	8.59	Fixing channel with isolating facility	2.13
"Aquamodul"		Fixing material for pipes	11.40
District heating	7.01, 7.03	"FK-C F"	1.38, 1.42, 2.34, 12.12, 12.21, 12.29, 12.35
Domestic water stations	8.68	Flanged pipes	6.11, 6.22, 6.43, 6.57
Double ball foot valves	14.31	Flat-plate collectors "OKF"	9.43
Double nipples "Cofit S"	2.54, 11.35	Flexible hoses	14.46
Double nipples "Ofix-Oil"	14.45	Flexible pipes	9.58
Double regulating and commissioning valves "Aquastrum C"	8.32	Flexible suction pipes	14.32
Double regulating and commissioning valves "Hycococon VPZ"	3.12	"Flexo-Bloc"	14.29
Double regulating and commissioning valves "Hycococon VTZ"	3.12	"Floorbox U"	2.11
Double regulating and commissioning valves "Hydrocontrol STR"	3.34, 9.30	Floor distributor/collector	1.137
Double regulating and commissioning valves "Hydrocontrol VFC"	3.29	Flow controller	6.98
Double regulating and commissioning valves "Hydrocontrol VFN"	3.33	Flow regulators "Hydromat QTR"	3.38
Double regulating and commissioning valves "Hydrocontrol VFR"	3.31	Flow sensor	9.35
Double regulating and commissioning valves "Hydrocontrol VGC"	3.33	Flow switch	6.123
Double regulating and commissioning valves "Hydrocontrol VPR"	3.28	Flushing station "Regudrain"	8.56
Double regulating and commissioning valves "Hydrocontrol VTR"	3.26	Flush-mounted valves "Aquastrum UP"	8.36
Double regulating and commissioning valves with flow display "Hycoflow"	3.54, 3.78	"Flypass 4TZ"	3.76
Double regulating and commissioning valves with metering station "Hydrocontrol MPR"	3.34	"FM-CW K"	12.42
Double regulating and commissioning valves with metering station "Hydrocontrol MTR"	3.34	"FM-CW Plus"	12.42
Draining and venting valves	6.138	Four-port mixing valves "Tri-M plus TR"	3.82
Dry-build system "Cofloor"	2.47	Four-way mixing valve	6.12
"DynaTemp BA"	12.19	Free-flow valves "Aquastrum F"	8.10
"DynaTemp HA"	1.36	Fuel gauge locks	14.22
E		G	
"eco" measuring technique	3.44, 3.66, 3.101	Gate valves	5.14
Elbows "Cofit"	11.16	Gate valves "Hygate"	5.14
Elbows "Cofit PD"	11.26	Gauge cock, button type	6.140
		Gauge cocks	6.140
		Gauge isolating valves	6.141
		General conditions	1.08
		Gland fittings	14.32
		Graduated collar "Uni Clip"	1.17
		Gravel plate set "OKF"	9.48

Article	Page	Article	Page
H			
Heat exchangers "Regumat"	6.44, 9.28	Isolating and orifice valves "Hycococon APZ"	3.13
Heating circuit controller "Regtronic RH"	2.72, 6.74, 6.107, 12.46	Isolating and orifice valves "Hycococon ATZ"	3.13
Heating oil deaerator "Toc-Uno-A"	14.09	Isolating and orifice valves "Hydrocontrol AFC"	3.36
Heating oil deaerator "Toc-Uno-B"	14.09	Isolating and orifice valves "Hydrocontrol APR"	3.36
Heating oil filter/Heating oil deaerator "Toc-Duo-3"	14.08	Isolating and orifice valves "Hydrocontrol ATR"	3.36
Heating oil filters "Oilpur"	14.12	Isolating and other pipe fittings	5.01
Heating oil filters for two pipe systems	14.14	Isolating ball valves "Optigas"	5.07
Heating oil flexible hoses	14.46	Isolating valves	14.38
Heating oil kits	14.49	"i-Tronic TFC" Climate meter	1.32
Heating oil sets	14.50	K	
Heating oil technology	14.01	KFR-valves "Aquaström KFR"	8.14
Heating oil valves in the pipework	14.35	L	
Heating system filling station	6.135, 8.68	Level indicators	14.25
Heat meter connection set	6.60	Liquid safety device	14.33
Heat meter connection sets	2.66	Local and district heating technology	7.01, 7.03
Heat pump installation products	6.55	Lockshield valves "Combi 2"	1.134
Heat pump installations	6.56	Lockshield valves "Combi LR"	1.134
Heat transfer liquid	9.42	M	
High-efficiency pumps	6.42, 6.80	Manual heads	1.18, 2.82
High-efficiency pump Wilo-Yonos PARA	2.71	Manual radiator valves	1.122
High pressure ball valves "Optibal"	5.12	Manual radiator valves "HR"	1.122
High-temperature ball valves "Optibal"	5.11, 6.130, 9.67	Manual radiator valves "HRV"	1.122
"Hycococon APZ"	3.13	Measuring and draining device "Aquaström M"	8.34
"Hycococon ATZ"	3.13	Measuring system "OV-DMC 3"	3.98
"Hycococon DTZ"	3.15	Measuring systems	3.97
"Hycococon ETZ"	3.14	Mechanical level indicators	14.25
"Hycococon HTZ"	3.14	Metering stations	3.50
"Hycococon VPZ"	3.12	Mixing valve "Tri-M plus TR"	3.82
"Hycococon VTZ"	3.12	Mixing valves	6.11, 6.22, 6.61
"Hycoflow VTB"	3.54, 3.78	"MSM-Block"	6.135
"Hydrocontrol AFC"	3.36	"Multiblock T"	1.80
"Hydrocontrol APR"	3.36	"Multiblock TF"	1.84
"Hydrocontrol ATR"	3.36	"Multiblock TQ" Two pipe fitting	1.47
"Hydrocontrol MFC"	3.35	"Multiblock TQ-RTL"	1.48
"Hydrocontrol MPR"	3.34	"Multiblock T-RTL"	1.85
"Hydrocontrol MTR"	3.34	"Multiblock TU"	1.81
"Hydrocontrol STR"	3.34, 9.30	"Multidis Fix B" Pre-assembled stainless steel distributor/collector fixed in a cabinet	2.56
"Hydrocontrol STR" Double regulating and commissioning valves	3.34, 9.30	"Multidis R" Sanitary distributor	8.78
"Hydrocontrol VFC"	3.29	"Multidis SF"	2.60, 2.92
"Hydrocontrol VFN"	3.33	"Multidis SFB"	2.61
"Hydrocontrol VFR"	3.31	"Multidis SFI"	2.61, 2.93
"Hydrocontrol VGC"	3.33	"Multidis SFQ"	2.58
"Hydrocontrol VPR"	3.28	"Multiflex F"	1.126
"Hydrocontrol VTR"	3.26	"Multiflex FQ"	1.124
"Hydrocor - HP"	10.20	"Multimodul"	1.129, 11.19
"Hydrocor - HS"	10.20	N	
"Hydrocor - WM"	7.09	Nipples "Cofit S"	2.53, 11.34
"HydroFixx" Hydronic header	6.66	Non-return ball check valves	14.31
"Hydromat DFC"	3.40	O	
"Hydromat DFC" Differential pressure regulators	3.40	Oblique pattern drain valves PN 25	5.19
"Hydromat DTR"	3.39	Oblique pattern globe valves bronze	5.18
"Hydromat QTR"	3.38	Oblique pattern globe valves PN 25	5.19
Hydronic balancing in heating and cooling systems	3.01	"Ofix" connection system	1.144, 3.49
Hydronic header	6.66	"Ofix-Oil" Compression fittings	14.43
Hydronic headers	6.67	"Ofix-Oil" Double nipples	14.45
"Hygate AFC"	5.15	Oil draining facilities "Flexo-Bloc"	14.29
"Hygate ATB"	5.14	"Oilpur"	14.12, 14.14
"Hygate ATR"	5.14, 9.67	"Oilstop"	14.36
I			
Indices	1.08	"Oilstop MV"	14.36
Industrial surface heating and cooling	2.61, 2.93	"Oilstop V"	14.36
Inserts for pressure relief device	6.11, 6.22	"OKF" Flat-plate collectors	9.43
		"OKF" Gravel plate set	9.48
		"OKP" Tube collectors	9.40
		"Olex"	14.37

Article	Page	Article	Page
One pipe system	14.12	"Regtronic RC plus"	9.25
"Optibal"	5.04, 5.11, 6.130, 9.67	"Regtronic RD-W"	6.105
"Optibal TW"	8.23, 8.24	"Regtronic RH"	2.72, 6.74, 6.107, 12.46
"Optibal W6" Six-way ball valve	3.69	"Regtronic RM"	6.77, 9.26
"Optiflex"	2.62, 2.80, 2.94, 6.136	"Regtronic S-bus"	9.25
"Optiflex" Fill and drain ball valves for potable water	6.136, 8.63	"Regubox" Exclusive cabinet	2.65, 6.95
"Optigas" Isolating ball valves	5.07	"Regucirc B"	8.52
Oval clamps	9.58	"Regucirc M"	8.53
"OVbalance Home" Basic set	1.40, 12.10	"Regucor WH"	10.08
"OV-DMC 3"	3.98	"Regucor WHP" Energy storage centre	10.17
"OV-Flex"	9.58	"Regucor WHS"	10.07
"OV-Flex ST"	9.58	"Regudis H-HT" Local heating station	7.08
"OVgateway"	1.40, 12.10	"Regudis W-HTE" Dwelling station	6.100
"OVLOND"	1.29	"Regudis W-HTF"	6.89, 6.91
"OVLONH"	1.29, 3.96	"Regudis W-HTO" Dwelling stations	6.86
P		"Regudis W-HTU Basic"	6.88
"pinox D"	1.14	"Regudis W-HTU Duo"	6.87
"pinox H"	1.11	"Regudis WK" Cooling station	6.128
Pipe connection elbow	2.14	"Regudis W-TU"	6.86
Pipe connection T-piece	2.14	"Regudrain" Flushing station	8.56
Pipes "Copert"	2.52, 11.11	"Regufloor H"	2.70
Pipes "Copex"	2.50, 11.10	"Regufloor HC"	2.75
Pipes "Copipe HS"	11.08	"Regufloor HN"	2.70
Pipes "Copipe HSC"	2.50, 11.06	"Regufloor HW"	2.70
Piston type spring assisted check valves	5.26	"Regufloor HX"	2.77
Plastic pipes	2.52, 11.11	Regulating sets for surface heating systems	2.83, 2.84
Pneumatic level Indicators	14.25	Regulating valves "Hycocoon ETZ"	3.14
Potable water station "Regumaq XH"	6.122	Regulating valves "Hycocoon HTZ"	3.14
Potable water technology "Aquanova-System"	8.01	"Regumaq K"	6.117
"Power to heat"	10.15, 10.00	"Regumaq K" Connection piping	6.117
Pre-assembled stainless steel distributor/collector "Multidis Fix B" fixed in a cabinet	2.56	"Regumaq X-30"	6.110, 12.53
Press fittings	11.14, 11.24	"Regumaq X-80"	6.118
Press tools	11.46	"Regumaq XH"	6.122
Pressure balance device "Olex"	14.37	"Regumaq XZ-30"	6.110, 12.53
Pressure independent control valves "Cocon"	3.55	"Regumat"	6.09
Pressure test plug	11.22, 11.37	"Regumat" Modular distributor	6.64
Products for air conditioning and ventilation	3.103	"Regumat F/FR"	6.41
Products for heat pump installations	6.55	"Regumat RTA"	6.50
Protective tube for "Copipe"	2.48, 11.40	"Regusol" Flushing and filling station	9.42
Pump ball valves "Optibal P"	6.130	"Regusol FSA"	9.33
Q		"Regusol MAG"	9.56, 10.13
Quick acting isolating valves	14.38	"Regusol SB"	9.33
R		"Regusol SG"	9.33
Radiant and chilled ceiling systems	3.107	"Regusol X" Supplementary set	9.36
Radiator connection	1.129, 11.19	"Regusol X-Duo 25"	9.19, 12.52
Radiator connection "Multimodul"	1.129, 11.19	"Regusol X-Uno 25"	9.19, 12.52
Radiator connection block	11.19	Reinforcing cap	1.18, 12.23, 12.37
Radiator connection elbow	11.20	Relay module "REM-CW"	12.42
Radiator lockshield valve "Combi 3G"	1.61	"REM-CW" Relay module	12.42
Radiator lockshield valves "Combi 2"	1.134	Return temperature limiters	1.120, 2.88
Radiator lockshield valves "Combi 3"	1.133	"RM- C F"	12.19, 12.27, 12.33
Radiator lockshield valves "Combi 4"	1.132	"RM- C F8"	12.21, 12.28, 12.34
Radiator lockshield valves "Combi C"	1.132	"RM- C K"	12.20, 12.33
Radiator lockshield valves "Combi E"	1.76	"RM- C K8"	12.21, 12.33
Radiator lockshield valves "Combi LR"	1.134	Roof fixing devices "OKF"	9.49
Radiator valve sets "Uniset"	1.61	Roof hooks	9.42
Radiator valves with insertion tube	1.92	Room temperature control "Unibox"	2.17
"RBG-C F"	12.28, 12.34	Room temperature sensor	2.74, 6.77, 9.26, 12.49
"RBG-C K"	12.28, 12.34	Room temperature sensor with remote control	2.74, 6.78, 6.107, 9.27, 12.49
"R-Con" Wireless receiver	1.37, 2.35	Rosette covers	1.130, 11.40
"R-Con 2P" Wireless receiver	1.38	"RP-C F"	2.34, 12.22, 12.29, 12.35
"Regtronic EM"	2.74, 6.77, 12.48	"R-Tronic" Climate display device/control	1.35, 2.33
"Regtronic RC"	9.25	"R-Tronic RT B"	1.35, 2.33
		"R-Tronic RTF B"	1.35, 2.33
		"R-Tronic RTFC K"	1.35, 2.33

Article	Page	Article	Page
S			
Sanitary distributor "Multidis R"	8.78	Thermostat "Uni LI"	1.16
S-connection fittings	1.101, 1.140	Thermostat "Uni LK"	1.16
Screwed fittings "Cofit"	11.24	Thermostat "Uni LM"	1.16
Screwed fittings "Cofit S"	2.54, 11.35	Thermostat "Uni LO"	1.16
"Sensor GA FD" Dew point control	2.75, 3.92	Thermostat "Uni LR"	1.16
"Sensor LW TH/pipe" Temperature sensors	6.115	Thermostat "Uni LV"	1.16
"Sensor LW TH" Electric sensor attached to the pipe	6.107, 10.10	Thermostat "Uni RTL"	1.118, 2.88
"Sensor LW TH" Temperature sensor	6.79, 6.106, 8.53, 9.27, 10.13	Thermostat "Uni RTLH"	1.118, 2.23, 2.88
"Sensor LW TQ" Plug-in sensor element	8.30	Thermostat "Uni SH"	1.10
"Sensor LW TQ" Temperature sensor	8.56, 12.42	Thermostat "Uni XD"	1.13
Service	19.01	Thermostat "Uni XH"	1.08
"SH-Cap"	1.10	Thermostat "Uni XHM"	1.08
Smart Home, centralised building control systems and other electronic controls	12.01	Thermostat "vindo TD"	1.14
"Solar" expansion tanks	9.56, 10.13	Thermostat "vindo TH"	1.11
Solar buffer storage cylinder "Hydrocor - HS"	10.20	Thermostatic mixing valve	8.48, 9.65
Solar buffer storage cylinders	10.20	Thermostatic mixing valves "Brawa-Mix"	8.48, 9.65
Solar packages "Solcos"	9.52	Thermostatic regulating valves "Aquaström T plus"	8.29
Solar thermal energy	9.01	Thermostatic valve "RFV 9"	1.59
Solenoid valve "Oilstop MV"	14.36	Thermostatic valves "A"	1.64
Special thermostats	1.16	Thermostatic valves "ADV 9"	1.58
Stainless steel corrugated pipes	9.58	Thermostatic valves "AF"	1.55
Stainless steel distributor/collector for surface heating and cooling systems "Multidis SF"	2.60, 2.92	Thermostatic valves "AQ"	1.44
Stainless steel distributor/collector for surface heating and cooling systems "Multidis SFB"	2.61	Thermostatic valves "AV 9"	1.52
Stations for hot potable water preparation "Regumaq"	6.109	Thermostatic valves "AZ H"	1.66
Stem extension	5.08	Thermostatic valves "AZ V"	1.66
Storage cylinder loading set	6.132	Thermostatic valves "CV 9"	1.54
Storage cylinders	10.20	Thermostatic valves "E"	1.74
Storage cylinders "Hydrocor"	10.20	Thermostatic valves "EQ"	1.46
Straight pattern globe valves bronze	5.18	Thermostatic valves "KTB"	3.88
Strainers	5.32, 8.49, 8.53, 9.66	Thermostatic valves "RF"	1.67
Suction pipes	14.32	Thermostatic valves "RFQ"	1.45
Surface heating and cooling "Cofloor"	2.01	Thermostat with remote control "Uni FD"	1.15
Surface heating without flow distributor "Unidis"	2.09	Thermostat with remote control "Uni FHZ"	12.23, 12.37
Swing type check valves	5.27	Thermostat with remote control and additional remote sensor	1.12, 2.82, 3.88
System applications	17.01	Thermostat with remote sensor "Uni LH"	1.09, 3.88
T			
Tacker system "Cofloor"	2.44	Thermostat with remote sensor "Uni XH"	1.08
Tailpipe set	1.56, 1.101, 3.49	Thin layer system	2.43
Tank filling limiters	14.26	Three-way conversion valves	1.98
Tank inlet caps	14.22	Three-way diverting and mixing valves "Tri-CTR"	2.76, 3.83, 9.62
Temperature controllers	3.85, 9.64	Three-way diverting valves "Tri-D TR"	2.76, 3.83, 9.62, 10.12
Temperature sensors	6.79, 6.106, 8.53, 9.27, 10.13	Three-way mixing valve	6.11, 6.22, 6.61
Thermal drainage protection device	6.53	"TKM" Valves	1.97
Thermostats for radiant and chilled ceiling systems	3.107	"TKM" valves	1.92
Thermostat "pinox D"	1.14	"Toc-Duo-3" Heating oil filter/heating oil deaerator	14.08
Thermostat "pinox H"	1.11	"Toc-Duo-3" Metal model	14.08
Thermostat "Uni CH"	1.11	"Toc-Uno-A"	14.09
Thermostat "Uni FD"	1.15	"Toc-Uno-B"	14.09
Thermostat "Uni FH"	1.12, 2.82, 3.88	Tools for pipes	11.42, 11.55
Thermostat "Uni FHZ"	12.23, 12.37	T-pieces "Cofit P"	11.17
Thermostat "Uni L"	1.16	T-pieces "Cofit PD"	11.27
Thermostat "Uni LA"	1.16	TR-250	12.19, 12.27, 12.33, 12.41
Thermostat "Uni LDV"	1.15	TR-80	12.19, 12.27, 12.33, 12.41
Thermostat "Uni LDVL"	1.15	"Tri-CTR" Three-way diverting and mixing valves	2.76, 3.83, 9.62
Thermostat "Uni LH"	1.09, 2.23	"Tri-D TR"	2.76, 3.83, 9.62, 10.12
Thermostat "Uni LHB"	1.10	"Tri-M plus TR"	3.82
Thermostat "Uni LHZ"	12.23, 12.37	Tube collectors	9.40
U			
		Two pipe system	14.14
		Two-way valve PN 16	3.85
		Underfloor control unit "Regufloor H"	2.70

Article	Page	Article	Page
Underfloor control unit "Regufloor HC"	2.75	Valves "RFV 9"	1.59
Underfloor control unit "Regufloor HW"	2.70	Valves for "TKM" system one pipe	1.97
Underfloor control unit "Regufloor HX"	2.77	Valves for "TKM" system two pipe	1.92
"Unibox E BV"	2.10, 2.18	Valves for cooling	3.88
"Unibox E plus"	2.20	Valves for cooling systems	3.87
"Unibox E RTL"	2.20	Valves for water softening	8.73
"Unibox E T"	2.10, 2.18	Valves PN 16/ 25	5.18
"Unibox E vario"	2.20	Valves with lead sealable cap "Expa-Con"	6.135
"Unibox plus"	2.21	Vent caps	14.24
"Unibox Q plus"	2.16	Ventilation and air conditioning	3.103
"Unibox RLA"	2.10, 2.18	Venting screws	1.142, 8.64, 8.70, 8.72
"Unibox RTL"	2.21	"vindo RTD"	1.14
"Unibox T"	2.10, 2.18	"vindo TD"	1.14
"Unibox TQ"	2.16	"vindo TH"	1.11
"Unibox TSH"	2.19		
"Uni CH"	1.11	W	
"Uni Clip"	1.17	Wall connection set	12.23, 12.37
"Unidis" Surface heating without flow distributor	2.09	Wall mounted connection pieces "Cofit P"	11.21
"Uni EIB D"	1.29	Wall mounted connection pieces "Cofit S"	11.37
"Uni EIB H"	1.29, 3.96	Wall mounting device for "Regumat"	6.11, 6.22, 6.43, 6.52, 6.57, 6.61
"Uni FD" Thermostat with remote control	1.15	Water meter installation set "Aquastrum UP-MS"	8.40
"Uni FH" Thermostat with remote control	1.12, 2.82, 3.88	Wilo-Yonos PARA high-efficiency pump	2.71
"Uni FHZ"	12.23, 12.37	Wireless receiver "R-Con"	1.37, 2.35
"Uni L"	1.16	Wireless receiver "R-Con 2P"	1.38
"Uni LA"	1.16	Wireless thermostat "R-Tronic RT B"	1.35, 2.33
"Uni LD"	1.13	Wireless thermostat "R-Tronic RTF B"	1.35, 2.33
"Uni LDV"	1.15	Wireless thermostat "R-Tronic RTFC K"	1.35, 2.33
"Uni LDVL"	1.15		
"Uni LH"	1.09, 2.23		
"Uni LHB"	1.10		
"Uni LHZ"	12.23, 12.37		
"Uni LI"	1.16		
"Uni LK"	1.16		
"Uni LM"	1.16		
"Uni LO"	1.16		
"Uni LR"	1.16		
"Uni LV"	1.16		
"Uni RTL"	1.118, 2.88		
"Uni RTLH"	1.118, 2.23, 2.88		
"Uniset" Radiator valve sets	1.61		
"Uni SH"	1.10		
Universal fuel gauge lock	14.22		
Universal tool	1.18, 1.53, 11.42		
"Uni XD"	1.13		
"Uni XH"	1.08		
"Uni XHM"	1.08		
"Uni XHT"	1.08		
"Unofix" Refurbishment of one pipe heating systems	1.103		
V			
Vacuum gauge	14.16		
Valve inserts	1.110		
Valve inserts "GHQ"	1.108		
Valves "A"	1.64		
Valves "ADV 9"	1.58		
Valves "AQ"	1.44		
Valves "AV 9"	1.52		
Valves "AZ H"	1.66		
Valves "AZ V"	1.66		
Valves "CV 9"	1.54		
Valves "E"	1.74		
Valves "EQ"	1.46		
Valves "F"	1.55		
Valves "HR"	1.122		
Valves "HRV"	1.122		
Valves "KTB"	3.88		
Valves "RF"	1.67		
Valves "RFQ"	1.45		

Art.-No.	EAN/Code	Page	Art.-No.	EAN/Code	Page
1010558	4026755285321	1.99	1011688	4026755227765	1.09
1010559	4026755285338	1.99	1011698	4026755232035	1.18
1010568	4026755285345	1.99	1011766	4026755232042	1.17
1010569	4026755285352	1.99	1011775	4026755234237	1.17
1010599	4026755114348	1.98	1011801	4026755115246	1.18
1010988	4026755114645	1.57	1011811	4026755115253	1.18
1010989	4026755114652	1.57	1011865	4026755115277	1.18
1010990	4026755114669	1.57	1011865	4026755115277	12.23
1010991	4026755114676	1.57	1011865	4026755115277	12.37
1010992	4026755114683	1.57	1011866	4026755187519	1.18
1010993	4026755114690	1.57	1011866	4026755187519	12.23
1010994	4026755114706	1.57	1011866	4026755187519	12.37
1010995	4026755114713	1.57	1011875	4026755115284	1.18
1010996	4026755114720	1.57	1012065	4026755295030	1.10
1010997	4026755114737	1.57	1012066	4026755382181	1.10
1010998	4026755114744	1.57	1012069	4026755355222	1.10
1010999	4026755114751	1.141	1012080	4026755301236	1.10
1011265	4026755114850	1.11	1012081	4026755301243	1.10
1011300	4026755249118	1.08	1012082	4026755320039	1.10
1011360	4026755276916	1.08	1012085	4026755316001	1.10
1011364	4026755219838	1.08	1012165	4026755396461	1.11
1011365	4026755219845	1.08	1012166	4026755414233	1.11
1011374	4026755231830	1.13	1012175	4026755402018	1.14
1011375	4026755225068	1.13	1012176	4026755440416	1.14
1011380	4026755353433	1.17	1012275	4026755115437	1.15
1011381	4026755353440	1.17	1012295	4026755115444	1.12
1011382	4026755353457	1.17	1012295	4026755115444	2.82
1011383	4026755353464	1.17	1012295	4026755115444	3.88
1011393	4026755248494	1.17	1012296	4026755187526	1.12
1011396	4026755254518	1.17	1012296	4026755187526	2.82
1011397	4026755254525	1.17	1012296	4026755187526	3.88
1011401	4026755114904	1.16	1012297	4026755187533	1.12
1011410	4026755318043	1.10	1012297	4026755187533	2.82
1011445	4026755228717	1.17	1012297	4026755187533	3.88
1011450	4026755208160	1.17	1012395	4026755187540	1.12
1011450	4026755208160	10.12	1012395	4026755187540	2.82
1011452	4026755232004	1.17	1012395	4026755187540	3.88
1011461	4026755296969	1.09	1012396	4026755187557	1.12
1011464	4026755182972	1.09	1012396	4026755187557	2.82
1011465	4026755114959	1.09	1012396	4026755187557	3.88
1011465	4026755114959	2.23	1012415	4026755415520	1.26
1011467	4026755114973	1.09	1012415	4026755415520	1.105
1011468	4026755175387	1.09	1012415	4026755415520	2.38
1011469	4026755175349	1.09	1012415	4026755415520	2.75
1011469	4026755175349	2.23	1012415	4026755415520	3.93
1011470	4026755296976	1.13	1012415	4026755415520	6.108
1011472	4026755208801	1.13	1012416	4026755415537	1.26
1011475	4026755114980	1.13	1012416	4026755415537	1.105
1011478	4026755175363	1.13	1012416	4026755415537	2.38
1011479	4026755175332	1.13	1012416	4026755415537	2.75
1011480	4026755175394	1.13	1012416	4026755415537	3.93
1011488	4026755227758	1.09	1012416	4026755415537	12.24
1011489	4026755419467	1.18	1012416	4026755415537	12.30
1011489	4026755419467	1.53	1012416	4026755415537	12.36
1011493	4026755232011	1.17	1012418	4026755420715	1.26
1011497	4026755342741	1.10	1012419	4026755420722	1.26
1011497	4026755342741	1.18	1012420	4026755418965	1.26
1011565	4026755229455	1.08	1012420	4026755418965	3.93
1011566	4026755231847	1.08	1012425	4026755415544	1.26
1011575	4026755229462	1.13	1012425	4026755415544	3.93
1011582	4026755231854	1.08	1012426	4026755415551	1.26
1011651	4026755115093	1.16	1012426	4026755415551	3.93
1011665	4026755115123	1.09	1012435	4026755415568	1.26
1011665	4026755115123	3.88	1012435	4026755415568	3.93
1011666	4026755187489	1.09	1012442	4026755415988	1.26
1011666	4026755187489	3.88	1012442	4026755415988	3.93
1011667	4026755187496	1.09	1012442	4026755415988	12.24
1011667	4026755187496	3.88	1012442	4026755415988	12.30
1011682	4026755187502	1.09	1012442	4026755415988	12.36
1011682	4026755187502	3.88	1012450	4026755422122	1.27
1011685	4026755115185	1.13	1012450	4026755422122	12.24

Art.-No.	EAN/Code	Page	Art.-No.	EAN/Code	Page
1012450	4026755422122	12.36	1015994	4026755228380	1.126
1012452	4026755415995	1.26	1016166	4026755302547	1.128
1012452	4026755415995	3.93	1016168	4026755302554	1.128
1012452	4026755415995	6.108	1016175	4026755302561	1.126
1012455	4026755416008	1.26	1016177	4026755302578	1.126
1012455	4026755416008	3.93	1016194	4026755116878	1.98
1012459	4026755416015	1.26	1016196	4026755116885	1.98
1012459	4026755416015	3.93	1016254	4026755116939	1.100
1012461	4026755422139	1.27	1016256	4026755116946	1.100
1012462	4026755422146	1.27	1016284	4026755116977	1.100
1012462	4026755422146	3.93	1016286	4026755116984	1.100
1012565	4026755115567	1.18	1016295	4026755117028	1.100
1012565	4026755115567	2.82	1016297	4026755117042	1.100
1012575	4026755182965	1.18	1016304	4026755117059	1.130
1012703°	4026755331776	3.94	1016362	4026755117141	1.129
1012705	4026755388961	1.28	1016363	4026755229677	1.129
1012705	4026755388961	2.76	1016372	4026755117158	1.129
1012705	4026755388961	3.94	1016394	4026755117226	1.99
1012706	4026755400991	1.28	1016452	4026755117257	1.129
1012706	4026755400991	2.76	1016462	4026755179569	1.129
1012706	4026755400991	3.94	1016463	4026755229684	1.129
1012708	4026755401196	1.28	1016567	4026755302585	1.128
1012708	4026755401196	2.76	1016569	4026755302592	1.128
1012708	4026755401196	3.94	1016575	4026755302608	1.127
1012709	4026755414127	1.28	1016577	4026755302615	1.127
1012709	4026755414127	2.76	1016662	4026755117370	1.130
1012709	4026755414127	3.94	1016671	4026755117387	1.130
1012709	4026755414127	6.107	1016671	4026755117387	11.40
1012710	4026755332285	1.28	1016672	4026755117394	1.130
1012710	4026755332285	3.94	1016672	4026755117394	11.40
1012710	4026755332285	10.12	1016673	4026755117400	1.130
1012711	4026755372182	1.28	1016673	4026755117400	11.40
1012711	4026755372182	3.94	1016674	4026755117417	1.130
1012717	4026755424744	1.28	1016674	4026755117417	11.40
1012717	4026755424744	3.94	1016675	4026755117424	1.130
1012735	4026755449471	3.94	1016675	4026755117424	11.40
1012736	4026755449488	3.94	1016684	4026755252804	1.96
1012890	4026755357851	1.27	1016813	4026755250343	1.96
1012953	4026755423365	1.27	1016823	4026755250350	1.96
1012953	4026755423365	3.93	1016824	4026755250367	1.96
1012953	4026755423365	12.30	1016840	4026755281866	1.146
1012953	4026755423365	12.36	1016841	4026755281873	1.146
1013066	4026755327588	1.11	1016842	4026755281880	1.146
1013076	4026755327595	1.14	1016843	4026755281897	1.146
1013161	4026755115611	1.95	1016844	4026755281903	1.146
1013162	4026755115628	1.95	1016845	4026755281910	1.146
1013164	4026755370867	1.95	1016853	4026755117653	1.90
1013361	4026755115642	1.91	1016853	4026755117653	1.94
1015500	4026755116694	1.16	1016853	4026755117653	1.146
1015645	4026755262537	11.19	1016860	4026755117660	1.146
1015651	4026755162479	1.129	1016861	4026755117677	1.146
1015651	4026755162479	11.19	1016862	4026755117684	1.146
1015711	4026755183931	1.128	1016863	4026755117691	1.146
1015781	4026755183924	1.126	1016864	4026755117707	1.146
1015803	4026755443080	1.124	1016865	4026755117714	1.146
1015804	4026755443097	1.124	1016870	4026755117721	1.146
1015805	4026755443103	1.124	1016873	4026755117738	1.146
1015813	4026755228878	1.128	1016874	4026755117745	1.146
1015814	4026755228885	1.128	1016876	4026755117769	1.146
1015873	4026755443110	1.124	1016877	4026755117776	1.146
1015874	4026755443127	1.124	1016879	4026755117790	1.146
1015875	4026755443134	1.124	1016882	4026755117820	1.146
1015883	4026755228892	1.126	1016883	4026755117837	1.146
1015884	4026755228908	1.126	1016885	4026755117844	1.146
1015896	4026755330649	1.126	1016951	4026755117851	1.90
1015896	4026755330649	1.128	1016951	4026755117851	1.94
1015933	4026755254181	1.126	1016953	4026755117868	1.90
1015934	4026755254198	1.126	1016953	4026755117868	1.94
1015943	4026755228359	1.128	1016954	4026755117875	1.90
1015944	4026755228366	1.128	1016954	4026755117875	1.94
1015993	4026755228373	1.126	1017056	4026755117943	1.99

Art.-No.	EAN/Code	Page	Art.-No.	EAN/Code	Page
1017057	4026755117950	1.116	1022637	4026755208009	2.21
1017060	4026755117967	1.116	1022639	4026755277838	2.22
1017069	4026755118056	1.116	1022641	4026755250404	2.20
1017351	4026755118162	1.116	1022643	4026755250428	2.20
1017501	4026755232059	1.116	1022644	4026755299175	2.20
1018080	4026755118247	1.110	1022650	4026755208047	2.22
1018082	4026755298949	1.110	1022652	4026755330465	2.22
1018083	4026755118261	1.111	1022653	4026755394139	2.12
1018084	4026755333510	1.112	1022653	4026755394139	2.22
1018086	4026755171846	1.112	1022654	4026755401202	2.13
1018090	4026755118278	1.110	1022655	4026755313000	2.25
1018094	4026755333527	1.112	1022655	4026755313000	2.43
1018096	4026755182996	1.112	1022662	4026755318050	2.10
1018097	4026755236934	1.110	1022662	4026755318050	2.18
1018098	4026755308037	1.111	1022663	4026755324457	2.10
1018099	4026755333534	1.112	1022663	4026755324457	2.18
1018561	4026755216493	1.09	1022668	4026755330618	2.11
1019003	4026755118469	1.140	1022669	4026755330625	2.11
1019004	4026755118476	1.140	1022673	4026755360813	2.20
1019006	4026755118483	1.140	1022676	4026755401516	2.13
1019052	4026755118490	1.140	1022679	4026755299625	2.22
1019080	4026755424362	1.108	1022684	4026755423372	2.16
1019082	4026755424379	1.108	1022686	4026755423389	2.16
1019083	4026755424386	1.108	1022687	4026755250435	2.22
1019084	4026755454246	1.109	1022688	4026755224627	2.22
1019086	4026755454253	1.109	1022689	4026755224634	2.23
1019099	4026755454277	1.109	1022690	4026755250442	2.23
1019103	4026755118506	1.140	1022691	4026755202021	2.23
1019104	4026755118513	1.140	1022692	4026755202038	2.23
1019106	4026755118520	1.140	1022693	4026755208054	2.23
1019194	4026755118551	1.99	1022694	4026755208061	2.23
1019196	4026755118568	1.99	1022697	4026755383959	2.23
1019204	4026755356595	1.140	1022698	4026755221954	1.18
1019251	4026755118599	1.140	1022698	4026755221954	2.24
1019252	4026755118605	1.140	1022699	4026755221961	1.119
1019253	4026755118612	1.140	1022699	4026755221961	2.24
1019254	4026755118629	1.140	1024363	4026755187649	1.118
1019303	4026755118636	1.140	1024363	4026755187649	2.88
1019304	4026755118643	1.140	1024364	4026755187656	1.118
1019304	4026755118643	2.82	1024364	4026755187656	2.88
1019306	4026755118650	1.140	1024463	4026755187663	1.118
1019308	4026755118667	1.140	1024463	4026755187663	2.88
1019351	4026755118674	1.140	1024464	4026755187670	1.118
1019352	4026755118681	1.140	1024464	4026755187670	2.88
1019353	4026755118698	1.140	1026970	4026755295054	2.24
1019362	4026755118704	1.140	1026981	4026755187687	1.119
1019365	4026755118728	1.140	1026981	4026755187687	2.24
1019372	4026755366624	1.140	1026981	4026755187687	2.89
1019374	4026755118742	1.98	1026981	4026755187687	3.19
1019376	4026755118759	1.98	1026986	4026755232066	1.119
1019384	4026755118773	1.98	1026986	4026755232066	2.25
1019386	4026755118780	1.98	1026986	4026755232066	2.89
1019394	4026755118797	1.98	1027100	4026755119350	1.118
1019396	4026755118803	1.98	1027100	4026755119350	2.88
1019451	4026755118827	1.140	1027150	4026755207200	3.49
1019497	4026755356601	1.101	1027151	4026755207217	1.144
1019498	4026755356618	1.101	1027151	4026755207217	3.49
1019903	4026755118919	1.141	1027152	4026755207224	1.144
1019904	4026755118926	1.141	1027152	4026755207224	3.49
1019906	4026755118933	1.141	1027153	4026755207231	3.49
1019908	4026755118940	1.141	1027154	4026755207248	3.49
			1027155	4026755207255	3.49
1022612	4026755383942	2.19	1027156	4026755207262	3.49
1022631	4026755250374	2.20	1027157	4026755207279	1.144
1022632	4026755250381	2.10	1027157	4026755207279	3.49
1022632	4026755250381	2.18	1027158	4026755207286	1.144
1022633	4026755250398	2.20	1027158	4026755207286	3.49
1022634	4026755299168	2.20	1027165	4026755187700	1.118
1022635	4026755207989	2.21	1027165	4026755187700	2.23
1022636	4026755207996	2.10	1027165	4026755187700	2.88
1022636	4026755207996	2.18	1027172	4026755217209	1.118

Art.-No.	EAN/Code	Page	Art.-No.	EAN/Code	Page
1027172	4026755217209	2.23	1029652	4026755119930	14.45
1027172	4026755217209	2.88	1029653	4026755119947	1.147
1027440	4026755281927	1.145	1029654	4026755119954	1.147
1027441	4026755281934	1.145	1029654	4026755119954	9.32
1027442	4026755281941	1.145	1029654	4026755119954	14.45
1027443	4026755281958	1.145	1029655	4026755119961	1.147
1027444	4026755281965	1.145	1029655	4026755119961	9.32
1027445	4026755281972	1.145	1029656	4026755119978	1.147
1027472	4026755207293	1.145	1029656	4026755119978	9.32
1027473	4026755207309	1.145	1029656	4026755119978	14.45
1027474	4026755207316	1.145	1029657	4026755119985	1.147
1027475	4026755207323	1.145	1029657	4026755119985	9.32
1027476	4026755207330	1.145			
1027477	4026755207347	1.145	1032003	4026755120141	6.139
1027562	4026755245400	1.134	1032003	4026755120141	9.68
1027564	4026755245417	1.134	1032004	4026755120158	6.139
1027566	4026755245424	1.134	1032004	4026755120158	9.68
1027568	4026755245431	1.134	1032006	4026755120165	6.139
1027662	4026755245448	1.134	1032006	4026755120165	9.68
1027662	4026755245448	3.85	1032008	4026755120172	6.139
1027664	4026755192827	1.134	1032008	4026755120172	9.68
1027664	4026755192827	3.85	1032403	4026755120226	6.138
1027666	4026755192834	1.134	1032403	4026755120226	8.63
1027666	4026755192834	3.85	1032404	4026755120233	6.138
1027668	4026755192841	1.134	1033091	4026755120318	6.138
1027668	4026755192841	3.85	1033152	4026755400311	6.136
1027752	4026755119695	1.145	1033152	4026755400311	8.63
1027755	4026755119701	1.145	1033308	4026755120387	6.136
1027755	4026755119701	2.53	1033313	4026755199581	2.80
1027757	4026755119718	1.145	1033313	4026755199581	6.136
1027757	4026755119718	2.53	1033314	4026755199598	2.62
1027759	4026755119725	1.145	1033314	4026755199598	2.94
1027759	4026755119725	2.53	1033314	4026755199598	6.136
1027761	4026755119732	1.145	1033315	4026755199833	6.136
1027763	4026755119749	1.145	1033316	4026755199840	6.136
1027763	4026755119749	2.53	1033351	4026755205718	6.136
1027767	4026755119756	1.145	1033352	4026755199864	6.136
1027768	4026755119763	1.145	1033354	4026755199871	6.136
1027772	4026755119770	1.145	1033372	4026755394764	6.137
1027772	4026755119770	2.43	1033372	4026755394764	9.67
1027775	4026755119787	1.145	1033413	4026755208283	6.136
1027775	4026755119787	2.53	1033414	4026755208290	6.136
1027777	4026755119794	1.145	1033672	4026755394771	6.137
1027777	4026755119794	2.53	1033672	4026755394771	9.67
1027779	4026755119800	1.145	1033814	4026755199888	6.136
1027779	4026755119800	2.53	1033852	4026755199895	6.136
1027781	4026755119817	1.145	1033914	4026755199901	6.136
1027783	4026755119824	1.145	1034003	4026755120547	6.139
1027783	4026755119824	2.53	1034003	4026755120547	9.68
1027787	4026755207354	1.145	1034008	4026755120578	1.141
1027788	4026755207361	1.145	1034008	4026755120578	6.137
1028152	4026755295979	1.144	1034008	4026755120578	6.139
1028153	4026755295986	1.144	1034008	4026755120578	9.68
1028154	4026755295993	1.144	1034052	4026755317459	1.141
1028155	4026755296006	1.144	1034052	4026755317459	6.137
1028156	4026755296013	1.144	1034052	4026755317459	6.139
1028161	4026755119862	1.130	1034052	4026755317459	9.68
1028252	4026755248876	1.130	1034053	4026755317466	1.141
1028253	4026755248883	1.130	1034053	4026755317466	6.137
1028263	4026755119886	1.130	1034053	4026755317466	6.139
1028263	4026755119886	2.54	1034053	4026755317466	9.68
1028364	4026755187724	1.120	1034091	4026755120585	6.139
1028364	4026755187724	2.88	1034092	4026755120592	6.137
1028464	4026755187748	1.120	1034092	4026755120592	6.139
1028464	4026755187748	2.88	1034093	4026755120608	6.137
1028750	4026755119893	1.91	1034093	4026755120608	6.139
1028851	4026755119916	1.91	1034094	4026755120615	6.137
1029651	4026755119923	1.147	1034094	4026755120615	6.139
1029651	4026755119923	14.45	1034315	4026755324785	6.136
1029652	4026755119930	1.147	1034504	4026755120639	6.139
1029652	4026755119930	9.32	1034504	4026755120639	9.68

Art.-No.	EAN/Code	Page	Art.-No.	EAN/Code	Page
1034506	4026755120646	6.139	1046253°	4026755121759	5.23
1034506	4026755120646	9.68	1046254°	4026755121766	5.23
1034508	4026755120653	6.139	1046255°	4026755121773	5.23
1034508	4026755120653	9.68	1046256°	4026755121780	5.23
1034551	4026755120660	6.139	1046450*	4026755440010	5.22
1034551	4026755120660	9.68	1046451*	4026755440027	5.22
1034552	4026755120677	6.137	1046452*	4026755440034	5.22
1034553	4026755317473	6.137	1046453*	4026755440041	5.22
1034554	4026755317480	6.137	1046454*	4026755440058	5.22
1034562	4026755317497	6.137	1046455*	4026755440065	5.22
1035004	4026755120707	6.139	1046456*	4026755440072	5.22
1035004	4026755120707	9.68	1046953°	4026755122213	5.23
1035006	4026755120714	6.139	1046954°	4026755122220	5.23
1035006	4026755120714	9.68	1046955°	4026755122237	5.23
1036154	4026755275261	6.137	1046956°	4026755122244	5.23
1036156	4026755275278	6.137	1046957°	4026755122251	5.23
1036158	4026755275285	6.137	1046958°	4026755122268	5.23
1038002	4026755120806	6.138	1047255*	4026755440102	5.22
1038003	4026755120813	6.138	1047256*	4026755440119	5.22
1040003	4026755120882	5.14	1047257*	4026755456356	5.22
1040004	4026755120899	5.14	1047258*	4026755456363	5.22
1040006	4026755120905	5.14	1048250°	4026755123241	5.23
1040008	4026755120912	5.14	1048251°	4026755123258	5.23
1040010	4026755120929	5.14	1048252°	4026755123265	5.23
1040012	4026755120936	5.14	1048253°	4026755123272	5.23
1040016	4026755120943	5.14	1048254°	4026755123289	5.23
1040020	4026755120950	5.14	1048255°	4026755123296	5.23
1040024	4026755120967	5.14	1048256°	4026755123302	5.23
1040032	4026755120974	5.14	1048291°	4026755339802	5.23
1043003	4026755121209	5.14	1048292°	4026755339819	5.23
1043003	4026755121209	9.67	1048293°	4026755339826	5.23
1043004	4026755121216	5.14	1048450*	4026755302011	5.22
1043004	4026755121216	9.67	1048451*	4026755301922	5.22
1043006	4026755121223	5.14	1048452*	4026755301939	5.22
1043006	4026755121223	9.67	1048453*	4026755301946	5.22
1043008	4026755121230	5.14	1048454*	4026755301953	5.22
1043008	4026755121230	9.67	1048455*	4026755301960	5.22
1043010	4026755121247	5.14	1048456*	4026755301977	5.22
1043010	4026755121247	9.67	1048491*	4026755457346	5.22
1043012	4026755121254	5.14	1048492*	4026755457353	5.22
1043012	4026755121254	9.67	1048953°	4026755123678	5.23
1043016	4026755121261	5.14	1048954°	4026755123685	5.23
1043016	4026755121261	9.67	1048955°	4026755123692	5.23
1043020	4026755121278	5.14	1048956°	4026755123708	5.23
1043020	4026755121278	9.67	1048957°	4026755123715	5.23
1043024	4026755121285	5.14	1048958°	4026755123722	5.23
1043024	4026755121285	9.67	1048959°	4026755123739	5.23
1045049	4026755250954	5.15	1048960°	4026755123746	5.23
1045050	4026755121377	5.15	1048991°	4026755346398	5.24
1045051	4026755121384	5.15	1048992°	4026755346404	5.24
1045052	4026755121391	5.15	1048993°	4026755346411	5.24
1045053	4026755121407	5.15	1048994°*	4026755348897	5.24
1045054	4026755121414	5.15	1049255*	4026755440140	5.22
1045055	4026755121421	5.15	1049256*	4026755440157	5.22
1045056	4026755121438	5.15	1049257*	4026755456370	5.22
1045057	4026755121445	5.15	1049258*	4026755456387	5.22
1045058	4026755121452	5.15	1049259*	4026755456394	5.22
1045149	4026755250961	5.15	1049260*	4026755456400	5.22
1045150	4026755121469	5.15	1049261*	4026755456417	5.22
1045151	4026755121476	5.15	1049262*	4026755456424	5.22
1045152	4026755121483	5.15	1049263*	4026755456431	5.22
1045153	4026755121490	5.15	1049850*	4026755457377	5.22
1045154	4026755121506	5.15	1049853*	4026755457384	5.22
1045155	4026755121513	5.15	1049950°	4026755321166	5.24
1045156	4026755121520	5.15	1049953°	4026755321296	5.24
1045157	4026755121537	5.15	1049956°	4026755321173	5.24
1045158	4026755121544	5.15	1049957°	4026755321302	5.24
1046250°	4026755121728	5.23	1049959°	4026755321180	5.24
1046251°	4026755121735	5.23	1049960°	4026755321197	5.24
1046252°	4026755121742	5.23	1050203	4026755335491	5.18

Art.-No.	EAN/Code	Page	Art.-No.	EAN/Code	Page
1050204	4026755335507	5.18	1060216	4026755125122	3.26
1050206	4026755335514	5.18	1060281	4026755179149	3.44
1050208	4026755335521	5.18	1060282	4026755335378	3.45
1050210	4026755335538	5.18	1060291	4026755125146	3.44
1050212	4026755335545	5.18	1060295	4026755125160	3.45
1050216	4026755335552	5.18	1060296	4026755231113	3.44
1050303	4026755335569	5.18	1060297	4026755125177	3.17
1050304	4026755335576	5.18	1060297	4026755125177	3.101
1050306	4026755335583	5.18	1060298	4026755192230	3.44
1050308	4026755335590	5.18	1060298	4026755192230	3.66
1050310	4026755335606	5.18	1060298	4026755192230	3.101
1050312	4026755335613	5.18	1060299	4026755324471	3.44
1050316	4026755335620	5.18	1060303	4026755191622	3.26
1052002°	4026755124538	5.18	1060304	4026755191639	3.26
1052003°	4026755124545	5.18	1060306	4026755191646	3.26
1052004°	4026755124552	5.18	1060308	4026755191653	3.26
1052006°	4026755124569	5.18	1060310	4026755191660	3.26
1052008°	4026755124576	5.18	1060312	4026755191677	3.26
1052010°	4026755124583	5.18	1060316	4026755191684	3.26
1052012°	4026755124590	5.18	1060381	4026755179156	3.44
1052016°	4026755124606	5.18	1060391	4026755125184	3.45
1052020°	4026755124613	5.18	1060404	4026755348026	3.34
1052102	4026755335637	5.18	1060406	4026755348033	3.34
1052103	4026755335644	5.18	1060408	4026755348040	3.34
1052104	4026755335651	5.18	1060410	4026755348057	3.34
1052106	4026755335668	5.18	1060412	4026755348064	3.34
1052108	4026755335675	5.18	1060416	4026755348071	3.34
1052110	4026755335682	5.18	1060434	4026755372038	3.34
1052112	4026755335699	5.18	1060451	4026755375343	3.34
1052116	4026755335705	5.18	1060452°	4026755375350	3.34
1055004	4026755372403	6.135	1060454	4026755375367	3.34
1055004	4026755372403	8.68	1060456	4026755375374	3.34
1055095	4026755371741	8.68	1060458	4026755375381	3.34
1055096	4026755371758	8.68	1060460	4026755375398	3.34
			1060462	4026755375404	3.34
1060081	4026755167870	3.47	1060464	4026755372045	3.34
1060081	4026755167870	8.20	1060481	4026755356625	3.47
1060082	4026755167887	3.47	1060482	4026755356632	3.47
1060082	4026755167887	8.20	1060483	4026755356649	3.47
1060083	4026755167894	3.47	1060484	4026755356656	3.47
1060083	4026755167894	8.20	1060485	4026755356663	3.47
1060084	4026755167900	3.47	1060486	4026755356670	3.47
1060084	4026755167900	8.20	1060503	4026755125207	3.26
1060085	4026755167917	3.47	1060504	4026755125214	3.26
1060085	4026755167917	8.20	1060506	4026755125221	3.26
1060086	4026755167924	3.47	1060508	4026755125238	3.26
1060086	4026755167924	8.20	1060510	4026755125245	3.26
1060103	4026755124934	3.26	1060512	4026755125252	3.26
1060104	4026755124941	3.26	1060516	4026755125269	3.26
1060106	4026755124958	3.26	1060564°	4026755395747	3.76
1060108	4026755124965	3.26	1060566°	4026755395754	3.76
1060110	4026755124972	3.26	1060591	4026755125276	3.49
1060112	4026755124989	3.26	1060592	4026755125283	1.56
1060116	4026755124996	3.26	1060592	4026755125283	1.101
1060120	4026755125009	3.26	1060592	4026755125283	3.49
1060151°	4026755344264	3.28	1060593	4026755125290	1.101
1060152°	4026755344271	3.28	1060593	4026755125290	3.49
1060154°	4026755344288	3.28	1060594	4026755125306	3.49
1060156°	4026755344295	3.28	1060595	4026755125313	3.49
1060158°	4026755344301	3.28	1060596	4026755125320	3.49
1060160°	4026755344318	3.28	1060597	4026755125337	3.49
1060162°	4026755344325	3.28	1060604	4026755216332	3.50
1060180	4026755273809	3.47	1060606	4026755216349	3.50
1060180	4026755273809	8.34	1060608	4026755216356	3.50
1060191	4026755125023	3.44	1060610	4026755216363	3.50
1060203	4026755125061	3.26	1060612	4026755216370	3.50
1060204	4026755125078	3.26	1060616	4026755216387	3.50
1060206	4026755125085	3.26	1060634	4026755272666	3.50
1060208	4026755125092	3.26	1060644	4026755125344	3.50
1060210	4026755125108	3.26	1060651	4026755375411	3.34
1060212	4026755125115	3.26	1060751	4026755125351	3.50

Art.-No.	EAN/Code	Page	Art.-No.	EAN/Code	Page
1060752	4026755125368	3.50	1061594°	4026755125771	3.46
1060753	4026755125375	3.50	1061595°	4026755125788	3.46
1060754	4026755125382	3.50	1061596°	4026755125795	3.46
1060755	4026755125399	3.50	1061604°	4026755125801	3.38
1060756	4026755125405	3.50	1061606°	4026755125818	3.38
1060757	4026755125412	3.50	1061608°	4026755125825	3.38
1060758	4026755125429	3.50	1061610°	4026755125832	3.38
1060759	4026755260052	3.50	1061612°	4026755125849	3.38
1060760	4026755248043	3.50	1061651	4026755375428	3.34
1060761	4026755260069	3.50	1061704	4026755238235	3.12
1060762	4026755248050	3.50	1061706	4026755238242	3.12
1060763	4026755270662	3.50	1061708	4026755238259	3.12
1060764	4026755260076	3.50	1061710	4026755250473	3.12
1060765	4026755274257	3.50	1061712	4026755250480	3.12
1060766	4026755274264	3.50	1061716	4026755364057	3.12
1060767	4026755298413	3.50	1061751°	4026755343687	3.12
1060771	4026755258516	3.50	1061752°	4026755343694	3.12
1060772	4026755258523	3.50	1061754°	4026755343700	3.12
1060773	4026755258530	3.50	1061756°	4026755343717	3.12
1060774	4026755258547	3.50	1061758°	4026755343724	3.12
1060775	4026755258554	3.50	1061760°	4026755343731	3.12
1060776	4026755258561	3.50	1061771	4026755250497	3.16
1060777	4026755258578	3.50	1061772	4026755250503	3.16
1060778	4026755258585	3.50	1061773	4026755250510	3.16
1060853	4026755275735	3.50	1061774	4026755250527	3.16
1060854	4026755275742	3.50	1061775	4026755250534	3.16
1060855	4026755125436	3.50	1061781	4026755250541	3.16
1060856	4026755275940	3.50	1061782	4026755250558	3.16
1060857	4026755275957	3.50	1061783	4026755250565	3.16
1060858	4026755125443	3.50	1061784	4026755250572	3.16
1060859	4026755275964	3.50	1061785	4026755250589	3.16
1060860	4026755275971	3.50	1061790	4026755263619	3.20
1060861	4026755275988	3.50	1061791	4026755250596	3.17
1060862	4026755275995	3.50	1061791	4026755250596	3.66
1060863	4026755276008	3.50	1061791	4026755250596	3.101
1060906	4026755381672	3.54	1061792	4026755250602	3.17
1060906	4026755381672	3.78	1061792	4026755250602	8.30
1060908	4026755381689	3.54	1061793	4026755250619	3.17
1060908	4026755381689	3.78	1061794	4026755250626	3.17
1060910	4026755381696	3.54	1061795	4026755250633	3.17
1060925	4026755381412	3.54	1061796	4026755250640	3.17
1061091	4026755282108	3.49	1061797	4026755262209	3.17
1061092	4026755125474	3.49	1061798	4026755263626	3.20
1061093	4026755125481	3.49	1061799	4026755250657	3.17
1061094	4026755125498	3.49	1061799	4026755250657	3.66
1061095	4026755125504	3.49	1061799	4026755250657	3.101
1061096	4026755125511	3.49	1061804	4026755238266	3.12
1061097	4026755125528	3.49	1061806	4026755238273	3.12
1061098	4026755125535	3.49	1061808	4026755238280	3.12
1061392	4026755400205	1.101	1061810	4026755250664	3.12
1061392	4026755400205	3.49	1061812	4026755250671	3.12
1061393	4026755400212	1.101	1061816	4026755364064	3.12
1061393	4026755400212	3.49	1061854°	4026755395761	3.78
1061394	4026755125627	3.49	1061856	4026755306392	2.68
1061395	4026755125634	3.49	1061856	4026755306392	3.78
1061491	4026755125641	3.49	1061904	4026755395778	3.77
1061492	4026755125658	1.101	1061906	4026755395785	3.77
1061492	4026755125658	3.49	1061934	4026755395792	3.77
1061493	4026755125665	1.101	1061964	4026755395808	3.77
1061493	4026755125665	3.49	1062004	4026755250688	3.15
1061494	4026755125672	3.49	1062006	4026755250695	3.15
1061495	4026755125689	3.49	1062008	4026755250701	3.15
1061496	4026755125696	3.49	1062010	4026755250718	3.15
1061497	4026755169065	3.49	1062012	4026755250725	3.15
1061504°	4026755125702	3.38	1062016	4026755364071	3.15
1061506°	4026755125719	3.38	1062051	4026755370591	3.36
1061508°	4026755125726	3.38	1062052	4026755370607	3.36
1061510°	4026755125733	3.38	1062053	4026755370614	3.36
1061512°	4026755125740	3.38	1062054	4026755370621	3.36
1061592°	4026755125757	3.46	1062055	4026755370638	3.36
1061593°	4026755125764	3.46	1062082	4026755250732	3.17

Art.-No.	EAN/Code	Page	Art.-No.	EAN/Code	Page
1062085	4026755250749	3.17	1062679	4026755329292	3.31
1062090	4026755281231	3.17	1062680	4026755329308	3.31
1062092	4026755272000	3.17	1062681	4026755329315	3.31
1062095	4026755283907	3.17	1062682	4026755329322	3.31
1062095	4026755283907	3.46	1062683	4026755329339	3.31
1062097	4026755423723	3.17	1062684	4026755329346	3.31
1062097	4026755423723	3.46	1062685	4026755329353	3.31
1062104	4026755250756	3.15	1062686	4026755329360	3.31
1062106	4026755250763	3.15	1062946	4026755277531	3.29
1062108	4026755250770	3.15	1062947	4026755275759	3.29
1062110	4026755250787	3.15	1062948	4026755275766	3.29
1062112	4026755250794	3.15	1062949	4026755275773	3.29
1062116	4026755364088	3.15	1062950	4026755275780	3.29
1062156	4026755306408	2.68	1062951	4026755179415	3.29
1062204	4026755263664	3.15	1062952	4026755179422	3.29
1062206	4026755263671	3.15	1062953	4026755179439	3.29
1062208	4026755263688	3.15	1062954	4026755179446	3.29
1062210	4026755263695	3.15	1062955	4026755179453	3.29
1062212	4026755263701	3.15	1062956	4026755179460	3.29
1062216	4026755364095	3.15	1062957	4026755179477	3.29
1062282	4026755262216	3.17	1062958	4026755179484	3.29
1062285	4026755262223	3.17	1062959	4026755333138	3.29
1062304	4026755263718	3.15	1062960	4026755430363	3.29
1062306	4026755263725	3.15	1063051	4026755225099	3.33
1062308	4026755263732	3.15	1063052	4026755225105	3.33
1062310	4026755263749	3.15	1063053	4026755225112	3.33
1062312	4026755263756	3.15	1063054	4026755225129	3.33
1062316	4026755364101	3.15	1063055	4026755225136	3.33
1062350	4026755253832	3.31	1063056	4026755225143	3.33
1062351	4026755251623	3.31	1063057	4026755225150	3.33
1062352	4026755251630	3.31	1063058	4026755225167	3.33
1062353	4026755251647	3.31	1063964	4026755395815	3.78
1062354	4026755251654	3.31	1063966	4026755395822	3.78
1062355	4026755251661	3.31	1064051	4026755231861	3.33
1062356	4026755252422	3.31	1064054	4026755231878	3.33
1062451	4026755241112	3.33	1064055	4026755231885	3.33
1062452	4026755241129	3.33	1064264	4026755395839	3.78
1062453	4026755241136	3.33	1064266	4026755395846	3.78
1062454	4026755241143	3.33	1064267	4026755395853	3.78
1062455	4026755241150	3.33	1064504	4026755127133	3.39
1062456	4026755241167	3.33	1064506	4026755127140	3.39
1062457	4026755241174	3.33	1064508	4026755127157	3.39
1062458	4026755241181	3.33	1064510	4026755127164	3.39
1062581	4026755125993	3.47	1064512	4026755127171	3.39
1062582	4026755126006	3.47	1064516	4026755216912	3.39
1062583	4026755126013	3.47	1064592	4026755127188	3.46
1062584	4026755126020	3.47	1064593	4026755127195	3.46
1062585	4026755126037	3.47	1064594	4026755127201	3.46
1062586	4026755126044	3.47	1064595	4026755127218	3.46
1062587	4026755126051	3.47	1064596	4026755127225	3.46
1062588	4026755126068	3.47	1064597	4026755304251	3.46
1062589	4026755126075	3.47	1064604	4026755127232	3.39
1062590	4026755126082	3.47	1064606	4026755127249	3.39
1062646	4026755173154	3.29	1064608	4026755127256	3.39
1062647	4026755173178	3.29	1064610	4026755127263	3.39
1062648	4026755173215	3.29	1064612	4026755127270	3.39
1062649	4026755126105	3.29	1064616	4026755292176	3.39
1062650	4026755126112	3.29	1064651	4026755305432	3.40
1062651	4026755126129	3.29	1064652	4026755305449	3.40
1062652	4026755126136	3.29	1064653	4026755305456	3.40
1062653	4026755126143	3.29	1064654	4026755332124	3.40
1062654	4026755126150	3.29	1064655	4026755332131	3.40
1062655	4026755126167	3.29	1064704	4026755324594	3.39
1062656	4026755126174	3.29	1064706	4026755324600	3.39
1062657	4026755180190	3.29	1064708	4026755324617	3.39
1062658	4026755180206	3.29	1064710	4026755324624	3.39
1062659	4026755324570	3.29	1064712	4026755324631	3.39
1062660	4026755324587	3.29	1064716	4026755305586	3.39
1062676	4026755329261	3.31	1064751	4026755246018	3.40
1062677	4026755329278	3.31	1064752	4026755246025	3.40
1062678	4026755329285	3.31	1064753	4026755301076	3.40

Art.-No.	EAN/Code	Page	Art.-No.	EAN/Code	Page
1064754	4026755333145	3.40	1067085	4026755264913	3.20
1064755	4026755333152	3.40	1067304	4026755250800	3.13
1064756	4026755377453	3.40	1067306	4026755250817	3.13
1064792	4026755340105	3.46	1067308	4026755250824	3.13
1064793	4026755340112	3.46	1067310	4026755250831	3.13
1064794	4026755340129	3.46	1067312	4026755250848	3.13
1064795	4026755340136	3.46	1067316	4026755364118	3.13
1064796	4026755340143	3.46	1067351°	4026755343748	3.13
1064797	4026755340488	3.46	1067352°	4026755343755	3.13
1064804	4026755333046	3.39	1067354°	4026755343762	3.13
1064806	4026755333053	3.39	1067356°	4026755343779	3.13
1064808	4026755333060	3.39	1067358°	4026755343786	3.13
1064810	4026755333077	3.39	1067360°	4026755343793	3.13
1064812	4026755333084	3.39	1067404	4026755250879	3.13
1064816	4026755305593	3.39	1067406	4026755250886	3.13
1064951	4026755407952	3.40	1067408	4026755250893	3.13
1064952	4026755407969	3.40	1067410	4026755250909	3.13
1064953	4026755407976	3.40	1067412	4026755250916	3.13
1064954	4026755407983	3.40	1067416	4026755364125	3.13
1064955	4026755407990	3.40	1067503	4026755127942	3.36
1065004	4026755127287	5.19	1067504	4026755127959	3.36
1065006	4026755127294	5.19	1067506	4026755127966	3.36
1065008	4026755127300	5.19	1067508	4026755127973	3.36
1065010	4026755127317	5.19	1067510	4026755127980	3.36
1065504	4026755127409	5.12	1067512	4026755127997	3.36
1065506	4026755127416	5.12	1067516	4026755128000	3.36
1065508	4026755127423	5.12	1067520	4026755330755	3.36
1065510	4026755127430	5.12	1067551°	4026755344332	3.36
1065604	4026755127447	5.12	1067552°	4026755344349	3.36
1065606	4026755127454	5.12	1067554°	4026755344356	3.36
1065608	4026755127461	5.12	1067556°	4026755344363	3.36
1065610	4026755127478	5.12	1067558°	4026755344370	3.36
1065851	4026755390520	3.35	1067560°	4026755344387	3.36
1065852	4026755390537	3.35	1067562°	4026755344394	3.36
1065853	4026755390544	3.35	1067603	4026755128017	3.36
1065854	4026755390551	3.35	1067604	4026755128024	3.36
1065855	4026755390568	3.35	1067606	4026755128031	3.36
1065856	4026755390575	3.35	1067608	4026755128048	3.36
1065857	4026755390582	3.35	1067610	4026755128055	3.36
1065858	4026755390599	3.35	1067612	4026755128062	3.36
1065904	4026755127485	5.19	1067616	4026755128079	3.36
1065906	4026755127492	5.19	1068004	4026755128086	5.34
1065908	4026755127508	5.19	1068006	4026755128093	5.34
1065910	4026755127515	5.19	1068008	4026755128109	5.34
1066004	4026755127522	5.19	1068010	4026755128116	5.34
1066006	4026755127539	5.19	1068364	4026755260939	3.14
1066008	4026755127546	5.19	1068366	4026755260946	3.14
1066010	4026755127553	5.19	1068368	4026755260953	3.14
1066151	4026755127607	5.19	1068464	4026755260960	3.14
1066504	4026755127614	5.12	1068466	4026755260977	3.14
1066506	4026755127621	5.12	1068468	4026755260991	3.14
1066508	4026755127638	5.12	1068564	4026755264920	3.14
1066510	4026755127645	5.12	1068566	4026755264937	3.14
1066604	4026755127652	5.12	1068568	4026755264944	3.14
1066606	4026755127669	5.12	1068570	4026755264951	3.14
1066608	4026755127676	5.12	1068572	4026755264968	3.14
1066610	4026755127683	5.12	1068585	4026755270457	3.18
1066904	4026755127690	5.12	1068664	4026755264975	3.14
1066904	4026755127690	5.19	1068666	4026755264982	3.14
1066906	4026755127706	5.12	1068667	4026755264999	3.14
1066906	4026755127706	5.19	1068668	4026755265002	3.14
1066908	4026755127713	5.12	1068670	4026755265019	3.14
1066908	4026755127713	5.19	1068672	4026755265026	3.14
1066910	4026755127720	5.12	1068804	4026755128147	5.34
1066910	4026755127720	5.19	1068806	4026755128154	5.34
1067004	4026755127775	5.19	1068808	4026755128161	5.34
1067065	4026755264869	3.20	1068810	4026755128178	5.34
1067066	4026755264876	3.20	1069003	4026755163872	3.46
1067067	4026755264883	3.20	1069004	4026755163889	3.46
1067068	4026755264890	3.20	1069006	4026755163896	3.46
1067069	4026755264906	3.20	1069008	4026755163902	3.46

Art.-No.	EAN/Code	Page	Art.-No.	EAN/Code	Page
1069010	4026755163919	3.46	1072654	4026755357622	5.28
1069012	4026755163926	3.46	1072655	4026755357639	5.28
1069016	4026755163933	3.46	1072656	4026755357646	5.28
1069178	4026755280340	3.99	1072657	4026755357653	5.28
1069179	4026755248920	3.99	1072658	4026755357660	5.28
1069180	4026755325409	3.100	1072659	4026755357677	5.28
1069186	4026755273984	3.99	1072660	4026755357684	5.28
1069197	4026755329919	3.99	1072661	4026755357691	5.28
1069199	4026755202779	3.44	1072662	4026755357707	5.28
1069199	4026755202779	3.66	1072663	4026755357714	5.28
1069199	4026755202779	3.101	1073049	4026755251357	5.28
1069278	4026755419603	3.98	1073050	4026755128666	5.28
1069279	4026755439007	3.98	1073051	4026755128673	5.28
1069292	4026755402551	5.19	1073052	4026755128680	5.28
1069293	4026755402568	5.19	1073053	4026755128697	5.28
1069294	4026755402575	5.19	1073054	4026755128703	5.28
1069295	4026755402582	5.19	1073055	4026755128710	5.28
1069299	4026755419610	3.99	1073056	4026755128727	5.28
1069650	4026755355505	3.48	1073057	4026755128734	5.28
1069650	4026755355505	8.34	1073058	4026755128741	5.28
1069651	4026755355512	3.48	1075004	4026755128758	5.27
1069651	4026755355512	8.34	1075006	4026755128765	5.27
1069652	4026755355529	3.48	1075008	4026755128772	5.27
1069652	4026755355529	8.34	1075010	4026755128789	5.27
1069653	4026755355536	3.48	1075012	4026755128796	5.27
1069653	4026755355536	8.34	1075016	4026755128802	5.27
			1075020	4026755128819	5.27
1070006	4026755128321	6.142	1075704	4026755277548	5.06
1070008	4026755128338	6.142	1075706	4026755277555	5.06
1070010	4026755128345	6.142	1075708	4026755277562	5.06
1070108	4026755128352	6.142	1075710	4026755277579	5.06
1070110	4026755128369	6.142	1075804	4026755327755	5.08
1070208	4026755128376	6.142	1075806	4026755327762	5.08
1070210	4026755128383	6.142	1075808	4026755128833	5.08
1070308	4026755128390	6.142	1075810	4026755335057	5.08
1070310	4026755128406	6.142	1076002	4026755128840	5.07
1071008	4026755128451	6.142	1076003	4026755128857	5.07
1071010	4026755128468	6.142	1076004	4026755128864	5.07
1071012	4026755128475	6.142	1076006	4026755128871	5.07
1071016	4026755128482	6.142	1076008	4026755128888	5.07
1072003	4026755128499	5.26	1076010	4026755128895	5.07
1072004	4026755128505	5.26	1076012	4026755128901	5.07
1072006	4026755128512	5.26	1076016	4026755128918	5.07
1072008	4026755128529	5.26	1076020	4026755128925	5.07
1072010	4026755128536	5.26	1076024	4026755128932	5.07
1072012	4026755128543	5.26	1076032	4026755128949	5.07
1072016	4026755128550	5.26	1076071	4026755283365	5.08
1072103	4026755335729	5.26	1076072	4026755283372	5.08
1072104	4026755335736	5.26	1076073	4026755283389	5.08
1072106	4026755335743	5.26	1076081	4026755317503	5.08
1072108	4026755335750	5.26	1076082	4026755317510	5.08
1072110	4026755335767	5.26	1076083	4026755317527	5.08
1072112	4026755335774	5.26	1076084	4026755370874	5.08
1072116	4026755335781	5.26	1076103	4026755128956	5.08
1072549	4026755335132	5.28	1076104	4026755128963	5.08
1072550	4026755128574	5.28	1076106	4026755128970	5.08
1072551	4026755128581	5.28	1076108	4026755128987	5.08
1072552	4026755128598	5.28	1076110	4026755128994	5.08
1072553	4026755128604	5.28	1076203	4026755129021	5.07
1072554	4026755128611	5.28	1076204	4026755129038	5.07
1072555	4026755128628	5.28	1076206	4026755129045	5.07
1072556	4026755128635	5.28	1076208	4026755129052	5.07
1072557	4026755128642	5.28	1076210	4026755129069	5.07
1072558	4026755128659	5.28	1076303	4026755129076	5.08
1072559	4026755310368	5.28	1076304	4026755129083	5.08
1072560	4026755310375	5.28	1076306	4026755129090	5.08
1072561	4026755310382	5.28	1076308	4026755129106	5.08
1072650	4026755357585	5.28	1076310	4026755129113	5.08
1072651	4026755357592	5.28	1077103	4026755129274	5.04
1072652	4026755357608	5.28	1077104	4026755129281	5.04
1072653	4026755357615	5.28	1077106	4026755129298	5.04

Art.-No.	EAN/Code	Page	Art.-No.	EAN/Code	Page
1077108	4026755129304	5.04	1078710	4026755317558	9.67
1077110	4026755129311	5.04	1078760	4026755345094	5.11
1077112	4026755129328	5.04	1078761	4026755344493	5.11
1077116	4026755129335	5.04	1078761	4026755344493	6.131
1077152	4026755370645	5.05	1078762	4026755344509	5.11
1077153	4026755370652	5.05	1078762	4026755344509	6.131
1077154	4026755370669	5.05	1078790	4026755317565	5.11
1077155	4026755370676	5.05	1078790	4026755317565	9.67
1077156	4026755370683	5.05	1078791	4026755333589	5.11
1077162	4026755344400	5.05	1078791	4026755333589	9.67
1077163	4026755344417	5.05	1079004	4026755232073	5.09
1077164	4026755344424	5.05	1079006	4026755232080	5.09
1077165	4026755344431	5.05	1079008	4026755232097	5.09
1077166	4026755344448	5.05	1079010	4026755232103	5.09
1077171	4026755358377	5.06	1079012	4026755232110	5.09
1077172	4026755358384	5.06	1079016	4026755232127	5.09
1077173	4026755358391	5.06	1079104	4026755232134	5.09
1077181	4026755283396	5.06	1079106	4026755232141	5.09
1077182	4026755283402	5.06	1079108	4026755232158	5.09
1077183	4026755283419	5.06	1079110	4026755232165	5.09
1077303	4026755129502	5.04	1079112	4026755232172	5.09
1077304	4026755129519	5.04	1079116	4026755232189	5.09
1077306	4026755129526	5.04	1079254	4026755353006	5.09
1077308	4026755129533	5.04	1079255	4026755353013	5.09
1077310	4026755129540	5.04	1079256	4026755353020	5.09
1077312	4026755367706	5.04	1079404	4026755232196	5.09
1077316	4026755367713	5.04	1079406	4026755232202	5.09
1077804	4026755262650	5.04	1079704	4026755232295	5.09
1077806	4026755262667	5.04	1079706	4026755232301	5.09
1077808	4026755262674	5.04	1079708	4026755232318	5.09
1077810	4026755357721	5.04	1079710	4026755232325	5.09
1077904	4026755393675	5.10			
1077906	4026755393682	5.10	1085206	4026755129885	6.143
1077908	4026755393699	5.10	1085208	4026755129892	6.143
1077910	4026755393705	5.10	1085210	4026755129908	6.143
1077912	4026755393712	5.10	1088203	4026755130102	5.30
1077916	4026755393729	5.10	1088303	4026755130119	2.80
1078003	4026755305678	5.04	1088303	4026755130119	5.30
1078004	4026755305685	5.04	1088304	4026755130126	5.30
1078006	4026755305692	5.04	1088306	4026755130133	5.30
1078008	4026755305708	5.04	1088404	4026755130157	5.30
1078010	4026755305715	5.04	1088806	4026755238792	6.135
1078012	4026755305722	5.04	1088806	4026755238792	9.56
1078016	4026755305739	5.04	1089006	4026755130164	6.135
1078092	4026755382624	5.06	1089008	4026755130171	6.135
1078093	4026755382631	5.06	1089010	4026755130188	6.135
1078094	4026755382648	5.06	1089012	4026755130195	6.135
1078094	4026755382648	6.130	1089052	4026755130201	6.135
1078095	4026755382655	5.06	1089091	4026755130218	3.47
1078095	4026755382655	6.130	1089091	4026755130218	6.135
1078096	4026755382662	5.06	1089091	4026755130218	8.30
1078097	4026755382679	5.06	1089091	4026755130218	8.34
1078171	4026755360431	6.130			
1078172	4026755360448	6.130	1090361	4026755130225	1.133
1078173	4026755360455	6.130	1090362	4026755130232	1.133
1078182	4026755328530	6.130	1090363	4026755130249	1.133
1078194	4026755382686	6.130	1090374	4026755344516	1.133
1078195	4026755382693	6.130	1090461	4026755130256	1.133
1078371	4026755360462	6.130	1090462	4026755130263	1.133
1078372	4026755360479	6.130	1090463	4026755130270	1.133
1078373	4026755360486	6.130	1090474	4026755344523	1.133
1078382	4026755283426	5.11	1090551	4026755130287	1.128
1078382	4026755283426	6.130	1090551	4026755130287	1.132
1078382	4026755283426	8.25	1090551	4026755130287	1.133
1078706	4026755317534	5.11	1090551	4026755130287	3.66
1078706	4026755317534	9.67	1090661	4026755130294	1.132
1078708	4026755317541	5.11	1090662	4026755130300	1.132
1078708	4026755317541	6.130	1090663	4026755130317	1.132
1078708	4026755317541	9.67	1090672	4026755130324	1.132
1078710	4026755317558	5.11	1090761	4026755130348	1.132
1078710	4026755317558	6.130	1090762	4026755130355	1.132

Art.-No.	EAN/Code	Page	Art.-No.	EAN/Code	Page
1090763	4026755130362	1.132	1120016	4026755131628	9.66
1090772	4026755130379	1.132	1120020	4026755131635	5.32
1091061	4026755130461	1.134	1120020	4026755131635	9.66
1091062	4026755130478	1.134	1120024	4026755131642	5.32
1091063	4026755130485	1.134	1120024	4026755131642	9.66
1091072	4026755130492	1.134	1121002	4026755131659	5.32
1091161	4026755130522	1.134	1121002	4026755131659	9.66
1091162	4026755130539	1.134	1121003	4026755131666	5.32
1091163	4026755130546	1.134	1121003	4026755131666	9.66
1091172	4026755130553	1.134	1121004	4026755131673	5.32
1098362	4026755130904	1.61	1121004	4026755131673	9.66
			1121006	4026755131680	5.32
1100101	4026755130966	1.142	1121006	4026755131680	9.66
1100102	4026755130973	1.142	1121008	4026755131697	5.32
1100103	4026755130980	1.142	1121008	4026755131697	9.66
1100104	4026755130997	1.142	1121010	4026755131703	5.32
1101603	4026755131253	1.142	1121010	4026755131703	9.66
1101604	4026755131260	1.142	1121012	4026755131710	5.32
1101703	4026755131277	1.142	1121012	4026755131710	9.66
1101704	4026755131284	1.142	1121016	4026755131727	5.32
1101706	4026755131291	1.142	1121016	4026755131727	9.66
1102002	4026755299519	1.142	1121020	4026755131734	5.32
1102003	4026755299526	1.142	1121020	4026755131734	9.66
1102004	4026755328882	1.142	1121024	4026755131741	5.32
1103051	4026755131345	1.142	1121024	4026755131741	9.66
1103151	4026755131352	1.142	1122045	4026755251364	5.33
1109001	4026755172379	1.142	1122046	4026755251371	5.33
1109001	4026755172379	8.64	1122047	4026755251388	5.33
1109001	4026755172379	8.70	1122048	4026755251395	5.33
1109001	4026755172379	8.72	1122049	4026755251401	5.33
1109002	4026755172386	1.142	1122050	4026755202076	5.33
1109002	4026755172386	8.64	1122051	4026755131819	5.33
1109003	4026755172393	1.142	1122052	4026755131826	5.33
1109003	4026755172393	8.64	1122053	4026755131833	5.33
			1122054	4026755131840	5.33
1110003°	4026755131369	6.140	1122055	4026755131857	5.33
1110102°	4026755131376	6.140	1122056	4026755131864	5.33
1110103°	4026755131383	6.140	1122057	4026755131871	5.33
1110104	4026755131390	6.140	1122058	4026755131888	5.33
1110152°	4026755131413	6.140	1122059	4026755171624	5.33
1110174	4026755131420	6.140	1122060	4026755340082	5.33
1110204	4026755131437	6.140	1122061	4026755340150	5.33
1110504	4026755131444	6.140	1122062	4026755340167	5.33
1111904	4026755131451	6.140	1122063	4026755340174	5.33
1115004	4026755131468	6.141	1122085	4026755279221	5.33
1115104	4026755131475	6.141	1122087	4026755279245	5.33
1115204	4026755131482	6.141	1122088	4026755279252	5.33
1116004	4026755131499	6.141	1122089	4026755279269	5.33
1116104	4026755131505	6.141	1122090	4026755279276	5.33
1116204	4026755131512	6.141	1122091	4026755279283	5.33
1117204	4026755131543	6.141	1122092	4026755279290	5.33
			1122093	4026755279306	5.33
1120002	4026755131550	5.32	1122094	4026755279313	5.33
1120002	4026755131550	9.66	1122095	4026755279320	5.33
1120003	4026755131567	5.32	1122096	4026755279337	5.33
1120003	4026755131567	9.66	1122097	4026755279344	5.33
1120004	4026755131574	5.32	1122098	4026755279351	5.33
1120004	4026755131574	9.66	1122159	4026755408027	5.33
1120006	4026755131581	5.32	1122160	4026755408034	5.33
1120006	4026755131581	8.49	1122161	4026755408041	5.33
1120006	4026755131581	8.53	1122162	4026755408058	5.33
1120006	4026755131581	9.66	1122163	4026755408065	5.33
1120008	4026755131598	5.32	1123003	4026755131895	5.32
1120008	4026755131598	8.49	1123003	4026755131895	9.66
1120008	4026755131598	9.66	1123004	4026755131901	5.32
1120010	4026755131604	5.32	1123004	4026755131901	9.66
1120010	4026755131604	8.49	1123006	4026755131918	5.32
1120010	4026755131604	9.66	1123006	4026755131918	9.66
1120012	4026755131611	5.32	1123008	4026755131925	5.32
1120012	4026755131611	9.66	1123008	4026755131925	9.66
1120016	4026755131628	5.32	1123010	4026755131932	5.32

Art.-No.	EAN/Code	Page	Art.-No.	EAN/Code	Page
1123010	4026755131932	9.66	1130292	4026755132199	9.63
1123012	4026755131949	5.32	1130293	4026755132205	3.84
1123012	4026755131949	9.66	1130293	4026755132205	9.63
1123016	4026755131956	5.32	1130294	4026755132212	3.84
1123016	4026755131956	9.66	1130294	4026755132212	9.63
1123020	4026755131963	5.32	1130295	4026755132229	3.84
1123020	4026755131963	9.66	1130295	4026755132229	9.63
1123024	4026755131970	5.32	1130296	4026755132236	3.84
1123024	4026755131970	9.66	1130296	4026755132236	9.63
1123103	4026755131987	5.32	1130298	4026755401950	3.84
1123103	4026755131987	9.66	1130298	4026755401950	9.63
1123104	4026755131994	5.32	1130299	4026755401967	3.84
1123104	4026755131994	9.66	1130299	4026755401967	9.63
1123106	4026755132007	5.32	1130845	4026755367065	3.85
1123106	4026755132007	9.66	1130846	4026755367072	3.85
1123108	4026755132014	5.32	1130847	4026755367089	3.85
1123108	4026755132014	9.66	1130848	4026755367096	3.85
1123110	4026755132021	5.32	1130849	4026755367102	3.85
1123110	4026755132021	9.66	1130850	4026755367218	3.85
1123112	4026755132038	5.32	1130851	4026755366242	3.85
1123112	4026755132038	9.66	1130852	4026755366259	3.85
1123116	4026755132045	5.32	1130853	4026755366266	3.85
1123116	4026755132045	9.66	1130854	4026755366273	3.85
1123120	4026755132052	5.32	1130855	4026755366280	3.85
1123120	4026755132052	9.66	1130865	4026755406900	3.85
1123124	4026755132069	5.32	1130866	4026755406917	3.85
1123124	4026755132069	9.66	1130875	4026755406924	3.85
1130091	4026755401882	3.84	1131204	4026755397390	2.76
1130091	4026755401882	9.63	1131204	4026755397390	3.83
1130093	4026755132106	3.84	1131204	4026755397390	9.62
1130093	4026755132106	9.63	1131206	4026755397406	2.76
1130094	4026755132113	3.84	1131206	4026755397406	3.83
1130094	4026755132113	9.63	1131206	4026755397406	9.62
1130095	4026755401899	3.84	1131208	4026755397413	2.76
1130095	4026755401899	9.63	1131208	4026755397413	3.83
1130096	4026755132120	3.84	1131208	4026755397413	9.62
1130096	4026755132120	9.63	1131210	4026755397420	2.76
1130098	4026755401905	3.84	1131210	4026755397420	3.83
1130098	4026755401905	9.63	1131210	4026755397420	9.62
1130191	4026755401912	3.84	1131212	4026755397437	2.76
1130191	4026755401912	9.63	1131212	4026755397437	3.83
1130192	4026755132137	3.84	1131212	4026755397437	9.62
1130192	4026755132137	9.63	1131216	4026755397444	2.76
1130193	4026755132144	3.84	1131216	4026755397444	3.83
1130193	4026755132144	9.63	1131216	4026755397444	9.62
1130194	4026755132151	3.84	1132004	4026755440782	3.69
1130194	4026755132151	9.63	1132006	4026755443608	3.69
1130195	4026755132168	3.84	1132020	4026755446616	3.69
1130195	4026755132168	9.63	1132030	4026755446623	3.69
1130196	4026755132175	3.84	1140181	4026755263763	3.64
1130196	4026755132175	9.63	1140181	4026755263763	3.69
1130197	4026755132182	3.84	1140182	4026755263770	3.64
1130197	4026755132182	9.63	1140182	4026755263770	3.69
1130198	4026755401929	3.84	1140183	4026755263787	3.64
1130198	4026755401929	9.63	1140183	4026755263787	3.69
1130199	4026755401936	3.84	1140184	4026755263794	3.64
1130199	4026755401936	9.63	1140184	4026755263794	3.69
1130206°	4026755187755	2.76	1140191	4026755250923	3.82
1130206°	4026755187755	3.83	1140192	4026755250930	3.82
1130206°	4026755187755	9.62	1140281	4026755447293	3.62
1130206°	4026755187755	10.12	1140282	4026755263800	3.62
1130208°	4026755187762	2.76	1140284	4026755263817	3.62
1130208°	4026755187762	3.83	1140285	4026755447309	3.62
1130208°	4026755187762	9.62	1140286	4026755447316	3.62
1130212°	4026755187779	2.76	1140292	4026755250947	3.82
1130212°	4026755187779	3.83	1140351	4026755382198	3.66
1130212°	4026755187779	9.62	1140352	4026755382204	3.66
1130291	4026755401943	3.84	1140380	4026755263824	3.64
1130291	4026755401943	9.63	1140380	4026755263824	3.69
1130292	4026755132199	3.84	1140381	4026755263831	3.64

Art.-No.	EAN/Code	Page	Art.-No.	EAN/Code	Page
1140381	4026755263831	3.69	1141951	4026755248449	3.92
1140382	4026755263848	3.64	1142504	4026755183108	3.82
1140382	4026755263848	3.69	1142561	4026755271591	3.82
1140383	4026755263855	3.64	1142751	4026755299236	3.82
1140383	4026755263855	3.69	1142752	4026755299243	3.82
1140384	4026755263862	3.64	1142753	4026755299250	3.82
1140384	4026755263862	3.69	1142861	4026755187991	3.85
1140390	4026755251418	3.82	1142861	4026755187991	6.44
1140391	4026755251425	3.82	1142861	4026755187991	9.64
1140392	4026755251432	3.82	1142862	4026755188004	3.85
1140551	4026755387605	3.66	1142862	4026755188004	6.44
1140552	4026755387612	3.66	1142862	4026755188004	9.64
1140561	4026755187847	3.85	1142863	4026755188011	3.85
1140561	4026755187847	9.64	1142863	4026755188011	6.44
1140562	4026755187854	3.85	1142863	4026755188011	9.64
1140562	4026755187854	9.64	1142864	4026755188028	3.85
1140563	4026755187861	3.85	1142864	4026755188028	6.44
1140563	4026755187861	9.64	1142864	4026755188028	9.64
1140564	4026755187878	3.85	1143000	4026755132656	6.107
1140564	4026755187878	9.64	1143000	4026755132656	10.10
1140571	4026755187885	3.85	1143104	4026755421569	3.56
1140571	4026755187885	9.64	1143116	4026755428889	3.60
1140572	4026755187892	3.85	1143154	4026755438833	3.60
1140572	4026755187892	9.64	1143155	4026755438840	3.60
1140574	4026755187908	3.85	1143163	4026755421583	3.56
1140574	4026755187908	9.64	1143164	4026755421590	3.56
1140591	4026755370942	3.62	1143204	4026755421613	3.56
1140592	4026755370959	3.62	1143206	4026755421620	3.56
1140593	4026755370966	3.62	1143208	4026755421637	3.56
1140594	4026755370973	3.62	1143210	4026755421644	3.56
1140595	4026755370980	3.62	1143263	4026755421651	3.56
1140596	4026755370997	3.62	1143264	4026755421668	3.56
1140597	4026755371000	3.62	1143266	4026755421675	3.56
1140691	4026755371017	3.62	1143268	4026755421682	3.56
1140692	4026755371024	3.62	1143270	4026755421699	3.56
1140693	4026755371031	3.62	1143304	4026755421705	3.56
1140694	4026755371048	3.62	1143364	4026755421712	3.56
1140695	4026755371055	3.62	1143504	4026755421729	3.56
1140696	4026755371062	3.62	1143563	4026755421743	3.56
1140697	4026755371079	3.62	1143564	4026755421750	3.56
1140698	4026755371086	3.62	1143604	4026755421774	3.56
1140791	4026755371093	3.62	1143606	4026755421781	3.56
1140792	4026755371109	3.62	1143608	4026755421798	3.56
1140793	4026755371116	3.62	1143610	4026755421804	3.56
1140794	4026755371123	3.62	1143663	4026755421811	3.56
1140795	4026755371130	3.62	1143664	4026755421828	3.56
1140796	4026755371147	3.62	1143666	4026755421835	3.56
1140797	4026755371154	3.62	1143668	4026755421842	3.56
1140892	4026755371161	3.62	1143670	4026755421859	3.56
1140893	4026755371178	3.62	1143704	4026755421866	3.56
1140894	4026755371185	3.62	1143764	4026755421873	3.56
1140895	4026755371192	3.62	1144251	4026755188035	2.84
1141004	4026755395860	3.76	1144252	4026755188042	2.84
1141004	4026755395860	5.32	1144253	4026755306415	2.85
1141006	4026755395877	3.76	1144564°	4026755411676	3.59
1141006	4026755395877	5.32	1144566°	4026755411683	3.59
1141091	4026755191691	3.85	1144664°	4026755411690	3.59
1141091	4026755191691	9.64	1144666°	4026755411706	3.59
1141292	4026755447323	3.62	1144764°	4026755411713	3.59
1141293	4026755447330	3.62	1144864	4026755421880	3.57
1141294	4026755447347	3.62	1144964	4026755421903	3.57
1141295	4026755447354	3.62	1144966	4026755421910	3.57
1141704	4026755187915	3.88	1145004	4026755212228	3.65
1141706	4026755187922	3.88	1145064	4026755421927	3.57
1141708	4026755187939	3.88	1145074	4026755277043	3.65
1141804	4026755187946	3.88	1145085	4026755330762	3.65
1141806	4026755187953	3.88	1145085	4026755330762	3.101
1141808	4026755187960	3.88	1145099	4026755278705	3.65
1141904	4026755187977	3.88	1145099	4026755278705	3.101
1141906	4026755187984	3.88	1145104	4026755212235	3.65
1141951	4026755248449	2.75	1145174	4026755277050	3.65

Art.-No.	EAN/Code	Page	Art.-No.	EAN/Code	Page
1145204	4026755230697	3.65	1146650	4026755411737	3.61
1145274	4026755277067	3.65	1146651	4026755411744	3.61
1145371	4026755277074	3.65	1146652	4026755411751	3.61
1145372	4026755277081	3.65	1146653	4026755411768	3.61
1145373	4026755277098	3.65	1146654	4026755411775	3.61
1145475	4026755280593	3.65	1146655	4026755411782	3.61
1145504°	4026755347500	1.105	1146656	4026755411799	3.61
1145504°	4026755347500	3.58	1147169	4026755191257	3.20
1145506°	4026755347517	1.105	1147169	4026755191257	3.88
1145506°	4026755347517	3.58	1147204	4026755305623	3.56
1145563°	4026755363975	1.105	1147304	4026755421941	3.56
1145563°	4026755363975	3.58	1147306	4026755421958	3.56
1145564°	4026755347524	1.105	1147308	4026755421965	3.56
1145564°	4026755347524	3.58	1147310	4026755421972	3.56
1145564°	4026755347524	3.76	1147404	4026755421989	3.56
1145566°	4026755347531	1.105	1147504°	4026755394849	3.58
1145566°	4026755347531	3.58	1147506°	4026755394856	3.58
1145566°	4026755347531	3.76	1147604°	4026755394863	3.58
1145604°	4026755347548	1.105	1147606°	4026755394870	3.58
1145604°	4026755347548	3.58	1147608°	4026755394887	3.58
1145606°	4026755347555	1.105	1147610°	4026755394894	3.58
1145606°	4026755347555	3.58	1147704°	4026755394900	3.58
1145608°	4026755347562	3.58	1148504°	4026755414448	3.59
1145610°	4026755347579	3.58	1148506°	4026755414455	3.59
1145663°	4026755363982	1.105	1148604°	4026755414462	3.59
1145663°	4026755363982	3.58	1148606°	4026755414479	3.59
1145664°	4026755347586	1.105	1148608°	4026755414486	3.59
1145664°	4026755347586	3.58	1148610°	4026755414493	3.59
1145664°	4026755347586	3.76	1148704°	4026755414509	3.59
1145666°	4026755347593	1.105	1149004	4026755342765	3.66
1145666°	4026755347593	3.58	1149011	4026755411034	3.63
1145666°	4026755347593	3.76	1149021	4026755411041	3.63
1145704°	4026755347623	1.105	1149031	4026755411058	3.63
1145704°	4026755347623	3.58	1149041	4026755411065	3.63
1145764°	4026755347630	1.105	1149068	4026755400380	1.106
1145764°	4026755347630	3.58	1149068	4026755400380	1.118
1145764°	4026755347630	3.76	1149070	4026755395884	3.79
1146004°	4026755244960	3.58	1149071	4026755395891	3.79
1146006°	4026755306699	3.58	1149075	4026755395907	3.78
1146063°	4026755363999	3.58	1149076	4026755395914	3.78
1146064°	4026755347647	3.58	1149090	4026755367232	1.106
1146064°	4026755347647	3.76	1149091	4026755394146	1.106
1146066°	4026755347654	3.58	1149095	4026755407075	3.63
1146066°	4026755347654	3.76	1149104	4026755393965	3.63
1146091	4026755357875	1.106	1149106	4026755393972	3.63
1146104°	4026755244977	3.58	1149108	4026755393989	3.63
1146106°	4026755347661	3.58	1149190	4026755394009	3.63
1146108°	4026755340181	3.58	1149190	4026755394009	3.79
1146110°	4026755340198	3.58	1149204	4026755421996	3.57
1146112	4026755353051	3.60	1149304	4026755422016	3.57
1146149	4026755372465	3.60	1149306	4026755422023	3.57
1146150	4026755355246	3.60	1149308	4026755422030	3.57
1146151	4026755355253	3.60	1149310	4026755422047	3.57
1146152	4026755355260	3.60	1149404	4026755422054	3.57
1146153	4026755355277	3.60	1149450	4026755430097	3.73
1146154	4026755355284	3.60	1149504	4026755395921	3.76
1146155	4026755355291	3.60	1149506	4026755395938	3.76
1146156	4026755391176	3.60	1149550	4026755408683	3.73
1146163°	4026755364002	3.58	1149551	4026755408690	3.73
1146164°	4026755347678	3.58	1149552	4026755430035	3.73
1146164°	4026755347678	3.76	1149553	4026755436686	3.73
1146166°	4026755347685	3.58	1149554	4026755437010	3.73
1146166°	4026755347685	3.76	1149560	4026755408614	3.74
1146168°	4026755347692	3.58	1149561	4026755408621	3.74
1146170°	4026755347708	3.58	1149562	4026755436693	3.74
1146172	4026755353068	3.60	1149563	4026755436709	3.74
1146174	4026755372472	3.60	1149564	4026755436716	3.74
1146204°	4026755244984	3.58	1149581	4026755414387	3.79
1146264°	4026755347715	3.58	1149650	4026755430103	3.73
1146264°	4026755347715	3.76	1149651	4026755430110	3.73
1146649	4026755411720	3.61			

Art.-No.	EAN/Code	Page	Art.-No.	EAN/Code	Page
1150004	4026755428988	12.41	1151085	4026755306477	2.71
1150006	4026755372052	12.41	1151086	4026755390605	2.71
1150008	4026755428995	12.41	1151087	4026755390612	2.71
1150090	4026755388688	8.56	1151087	4026755390612	2.75
1150090	4026755388688	12.42	1151088	4026755407488	2.71
1150104	4026755429008	12.41	1151089	4026755435368	2.71
1150106	4026755429015	12.41	1151300°	4026755395181	2.70
1150108	4026755429022	12.41	1151500	4026755340006	2.70
1150300	4026755320282	12.23	1151600	4026755401523	2.70
1150300	4026755320282	12.37	1151800	4026755404944	2.70
1150390	4026755332292	12.23	1152000	4026755306880	2.75
1150390	4026755332292	12.37	1152051	4026755132748	1.20
1150665	4026755400151	1.36	1152051	4026755132748	2.28
1150675	4026755420050	1.36	1152051	4026755132748	3.90
1150680	4026755400557	1.35	1152051	4026755132748	6.78
1150680	4026755400557	2.33	1152051	4026755132748	6.108
1150681	4026755409130	1.35	1152051	4026755132748	12.34
1150681	4026755409130	2.33	1152051	4026755132748	12.50
1150682	4026755410778	1.35	1152052	4026755227017	1.20
1150682	4026755410778	2.33	1152052	4026755227017	2.28
1150683	4026755410822	1.32	1152052	4026755227017	3.90
1150684	4026755414790	1.35	1152052	4026755227017	6.78
1150684	4026755414790	2.33	1152052	4026755227017	12.24
1150685	4026755406665	1.32	1152052	4026755227017	12.34
1150688	4026755423396	1.32	1152052	4026755227017	12.50
1150692	4026755414073	1.38	1152055	4026755434088	1.20
1150692	4026755414073	1.42	1152055	4026755434088	2.28
1150692	4026755414073	2.34	1152055	4026755434088	3.90
1150692	4026755414073	12.12	1152055	4026755434088	6.78
1150693*	4026755453409	1.42	1152064	4026755425550	1.22
1150693*	4026755453409	2.34	1152064	4026755425550	3.92
1150693*	4026755453409	12.12	1152065	4026755425567	1.22
1150694	4026755414080	1.38	1152065	4026755425567	3.92
1150694	4026755414080	1.42	1152071	4026755308082	1.20
1150694	4026755414080	2.34	1152071	4026755308082	2.28
1150694	4026755414080	12.12	1152071	4026755308082	3.91
1150699	4026755430370	1.38	1152072°	4026755308099	1.20
1150699	4026755430370	1.42	1152072°	4026755308099	2.28
1150699	4026755430370	2.34	1152072°	4026755308099	3.91
1150699	4026755430370	12.12	1152080*	4026755459340	2.73
1150710	4026755448245	1.38	1152080*	4026755459340	6.76
1150765	4026755430387	1.29	1152080*	4026755459340	12.47
1150765	4026755430387	1.41	1152083*	4026755459357	2.73
1150765	4026755430387	3.96	1152083*	4026755459357	6.76
1150765	4026755430387	12.11	1152083*	4026755459357	6.107
1150770	4026755421095	1.37	1152083*	4026755459357	12.47
1150770	4026755421095	2.35	1152086	4026755436723	6.74
1150771	4026755421101	1.37	1152086	4026755436723	12.46
1150771	4026755421101	2.35	1152087	4026755436389	6.78
1150772	4026755421118	1.37	1152087	4026755436389	9.27
1150772	4026755421118	2.35	1152087	4026755436389	12.49
1150773	4026755421125	1.37	1152088°	4026755432824	6.75
1150773	4026755421125	2.35	1152088°	4026755432824	12.46
1150774	4026755425543	1.37	1152089	4026755429756	6.26
1150774	4026755425543	2.35	1152089	4026755429756	6.29
1150775*	4026755451580	1.37	1152089	4026755429756	6.34
1150775*	4026755451580	2.35	1152089	4026755429756	6.37
1150776*	4026755451597	1.37	1152089	4026755429756	6.80
1150776*	4026755451597	2.35	1152089	4026755429756	6.119
1150780*	4026755449693	1.41	1152090°	4026755423402	2.72
1150780*	4026755449693	12.11	1152090°	4026755423402	6.74
1150781*	4026755449709	1.41	1152090°	4026755423402	12.46
1150781*	4026755449709	12.11	1152093°	4026755383966	2.72
1150790*	4026755459623	1.40	1152093°	4026755383966	6.74
1150790*	4026755459623	12.10	1152093°	4026755383966	6.107
1151000	4026755281613	2.70	1152093°	4026755383966	12.46
1151060	4026755332148	2.77	1152095	4026755393163	2.74
1151065	4026755404937	2.77	1152095	4026755393163	6.77
1151080	4026755306422	2.71	1152095	4026755393163	9.26
1151081	4026755306439	2.71	1152095	4026755393163	12.49
1151082	4026755306446	2.71	1152096	4026755375923	2.74

Art.-No.	EAN/Code	Page	Art.-No.	EAN/Code	Page
1152096	4026755375923	6.78	1153118	4026755384505	12.21
1152096	4026755375923	6.107	1153118	4026755384505	12.28
1152096	4026755375923	9.27	1153118	4026755384505	12.34
1152096	4026755375923	12.49	1153121	4026755382341	12.20
1152098	4026755375947	2.74	1153121	4026755382341	12.33
1152098	4026755375947	6.77	1153128	4026755382358	12.21
1152098	4026755375947	12.48	1153128	4026755382358	12.33
1152099	4026755413229	6.78	1153130	4026755394153	12.22
1152099	4026755413229	6.106	1153130	4026755394153	12.35
1152099	4026755413229	9.26	1153150°	4026755382365	12.19
1152099	4026755413229	12.46	1153151°	4026755392890	12.19
1152100	4026755405101	2.75	1153170	4026755392906	12.20
1152151	4026755217216	1.21	1153170	4026755392906	12.27
1152151	4026755217216	2.29	1153170	4026755392906	12.34
1152151	4026755217216	3.90	1153180°	4026755359053	12.21
1152153°	4026755424751	1.22	1153180°	4026755359053	12.28
1152153°	4026755424751	3.90	1153180°	4026755359053	12.35
1152265	4026755364019	12.23	1153195	4026755393354	12.22
1152265	4026755364019	12.37	1153195	4026755393354	12.35
1152351°	4026755309935	1.22	1153250°	4026755372106	12.27
1152351°	4026755309935	3.91	1153251°	4026755392913	12.27
1152451	4026755336092	1.22	1153271	4026755382471	12.28
1152451	4026755336092	3.91	1153271	4026755382471	12.34
1152551°	4026755132762	1.20	1153280*	4026755431001	12.21
1152551°	4026755132762	2.28	1153280*	4026755431001	12.28
1152551°	4026755132762	3.90	1153280*	4026755431001	12.35
1152551°	4026755132762	6.108	1153301	4026755382488	12.42
1152551°	4026755132762	12.50	1153321	4026755382495	12.42
1152552	4026755132779	1.20	1153331	4026755398960	12.42
1152552	4026755132779	2.28	1153350	4026755382501	12.41
1152552	4026755132779	3.90	1153351	4026755392920	12.41
1152552	4026755132779	6.108	1156051	4026755168402	1.29
1152552	4026755132779	12.50	1156051	4026755168402	3.96
1152554°	4026755338843	1.20	1156065	4026755215557	1.29
1152554°	4026755338843	2.28	1156065	4026755215557	3.96
1152554°	4026755338843	3.90	1156066	4026755256475	1.29
1152554°	4026755338843	12.50	1156066	4026755256475	3.96
1152561	4026755363395	1.20	1156075	4026755215564	1.29
1152561	4026755363395	1.106	1156076	4026755256482	1.29
1152561	4026755363395	2.28	1157065°	4026755215571	1.29
1152561	4026755363395	3.91	1157065°	4026755215571	3.96
1152561	4026755363395	6.107	1157075°	4026755232356	1.29
1152562	4026755363401	1.20	1158010	4026755370799	3.95
1152562	4026755363401	1.106	1158011	4026755409239	3.95
1152562	4026755363401	2.28	1158020	4026755409147	3.95
1152562	4026755363401	3.91	1158021	4026755409154	3.95
1153050	4026755359039	12.28	1158022	4026755409161	3.95
1153050	4026755359039	12.34	1158025*	4026755455601	3.95
1153053	4026755393514	12.19	1158030	4026755370805	3.95
1153053	4026755393514	12.27	1158031	4026755370812	3.95
1153053	4026755393514	12.33	1158032	4026755399202	3.95
1153053	4026755393514	12.41	1158033	4026755436792	3.95
1153055	4026755392883	12.19	1159095	4026755383973	12.45
1153055	4026755392883	12.27	1159097	4026755448054	12.45
1153055	4026755392883	12.33			
1153055	4026755392883	12.41	1162054	4026755436341	1.54
1153060	4026755332308	2.34	1162154	4026755436358	1.54
1153060	4026755332308	12.22	1162472	4026755436730	1.54
1153060	4026755332308	12.29	1162473	4026755436747	1.54
1153060	4026755332308	12.35	1163032	4026755200157	1.74
1153070	4026755336238	1.38	1163042	4026755191066	1.74
1153070	4026755336238	1.42	1163052	4026755172096	1.74
1153070	4026755336238	2.34	1163062	4026755172102	1.74
1153070	4026755336238	12.12	1163072	4026755191073	1.74
1153070	4026755336238	12.21	1163082	4026755330175	1.74
1153070	4026755336238	12.29	1163132	4026755200164	1.74
1153070	4026755336238	12.35	1163142	4026755191080	1.74
1153100*	4026755453362	12.33	1163152	4026755172119	1.74
1153101	4026755384499	12.19	1163162	4026755172126	1.74
1153101	4026755384499	12.27	1163172	4026755191097	1.74
1153101	4026755384499	12.33	1163182	4026755330182	1.74

Art.-No.	EAN/Code	Page	Art.-No.	EAN/Code	Page
1163232	4026755200171	1.74	1180955	4026755186352	1.56
1163252	4026755172133	1.74	1180957	4026755246032	1.56
1163262	4026755172140	1.74	1180964	4026755186369	1.56
1163432	4026755200188	1.74	1180965	4026755186376	1.56
1163433	4026755204667	1.74	1180967	4026755186390	1.56
1163452	4026755172157	1.74	1181003	4026755401219	1.64
1163453	4026755172171	1.74	1181004	4026755401226	1.64
1163462	4026755172164	1.74	1181006	4026755401233	1.64
1163463	4026755172188	1.74	1181008	4026755401240	1.64
1163482	4026755330199	1.74	1181010	4026755401257	1.64
1163483	4026755330205	1.74	1181097	4026755401264	1.65
1163552	4026755423419	1.46	1181103	4026755401271	1.64
1163562	4026755423426	1.46	1181104	4026755401288	1.64
1163652	4026755423433	1.46	1181106	4026755401295	1.64
1163662	4026755423440	1.46	1181108	4026755401301	1.64
1164052	4026755332629	1.78	1181110	4026755401318	1.64
1164152	4026755332636	1.78	1181197	4026755401325	1.65
1164352	4026755332643	1.78	1181304	4026755407730	1.94
1164452	4026755332650	1.78	1181304	4026755407730	1.94
1164554	4026755436365	1.132	1181390	4026755401561	1.64
1165554	4026755436372	1.132	1181391	4026755401578	1.64
1166032	4026755200195	1.76	1181392	4026755401585	1.64
1166042	4026755133080	1.76	1181392	4026755401585	1.90
1166052	4026755133103	1.76	1181392	4026755401585	1.94
1166062	4026755133127	1.76	1181393	4026755401592	1.64
1166072	4026755133141	1.76	1181393	4026755401592	1.90
1166082	4026755330212	1.76	1181393	4026755401592	1.94
1167032	4026755200201	1.76	1181396	4026755401349	1.65
1167042	4026755133165	1.76	1181397	4026755401356	1.65
1167052	4026755133189	1.76	1181403	4026755420753	1.64
1167062	4026755133202	1.76	1181404	4026755420760	1.64
1167072	4026755133226	1.76	1181404	4026755420760	1.90
1167082	4026755330229	1.76	1181404	4026755420760	1.94
1167552	4026755173512	1.76	1181406	4026755420777	1.64
1167562	4026755173529	1.76	1181460	4026755224665	1.55
1168052	4026755279740	1.75	1181461	4026755224672	1.55
1168152	4026755279757	1.75	1181462	4026755224689	1.55
1169092	4026755133325	1.76	1181463	4026755224696	1.55
1169093	4026755133332	1.76	1181492	4026755420784	1.65
1169094	4026755133349	1.76	1182051	4026755251463	1.96
1169192	4026755133363	1.76	1182151	4026755251470	1.96
1169193	4026755133370	1.76	1182551	4026755251487	1.92
1169194	4026755133387	1.76	1182651	4026755251494	1.92
1169292	4026755133400	1.76	1183063	4026755416107	1.44
1169293	4026755133417	1.76	1183064	4026755416114	1.44
1169294	4026755133424	1.76	1183066	4026755416121	1.44
1169392	4026755133448	1.76	1183068	4026755440799	1.44
1169393	4026755133455	1.76	1183163	4026755416138	1.44
1169394	4026755133462	1.76	1183164	4026755416145	1.44
1169492	4026755304114	1.76	1183166	4026755416152	1.44
1169493	4026755304121	1.76	1183168	4026755440805	1.44
1169553	4026755286557	1.77	1183263	4026755416169	1.44
1169563	4026755286564	1.77	1183264	4026755418972	1.44
1169592	4026755333541	1.76	1183266	4026755431544	1.44
1169593	4026755333558	1.76	1183360	4026755431551	1.44
			1183361	4026755431568	1.44
1180584	4026755186222	1.98	1183362	4026755424768	1.44
1180585	4026755186239	1.98	1183363	4026755424775	1.44
1180586	4026755186246	1.98	1183446	4026755422153	1.53
1180587	4026755186253	1.98	1183447	4026755422160	1.53
1180603	4026755186260	1.55	1183470	4026755407211	1.52
1180604	4026755186277	1.55	1183471	4026755407228	1.52
1180606	4026755186284	1.55	1183472	4026755407235	1.52
1180703	4026755186291	1.55	1183473	4026755407242	1.52
1180704	4026755186307	1.55	1183561	4026755186406	1.97
1180706	4026755186314	1.55	1183571	4026755186413	1.97
1180791	4026755186321	1.55	1183581	4026755186420	1.92
1180791	4026755186321	1.111	1183661	4026755186444	1.92
1180793	4026755205497	1.55	1183671	4026755248975	1.97
1180903	4026755420739	1.55	1183703	4026755407259	1.52
1180904	4026755420746	1.55	1183704	4026755407266	1.52

Art.-No.	EAN/Code	Page	Art.-No.	EAN/Code	Page
1183706	4026755407273	1.52	1184704	4026755401370	1.67
1183708	4026755407280	1.52	1184706	4026755401387	1.67
1183747	4026755422177	1.53	1184803	4026755401394	1.67
1183775	4026755407297	1.52	1184804	4026755401400	1.67
1183793	4026755431629	1.60	1184806	4026755401417	1.67
1183794	4026755431636	1.60	1185003	4026755422719	1.59
1183803	4026755407303	1.52	1185004	4026755422726	1.59
1183804	4026755407310	1.52	1185006	4026755422733	1.59
1183806	4026755407327	1.52	1185103	4026755422740	1.59
1183808	4026755407334	1.52	1185104	4026755422757	1.59
1183847	4026755422184	1.53	1185106	4026755422764	1.59
1183875	4026755407341	1.52	1185503	4026755430394	1.45
1183893	4026755431643	1.60	1185504	4026755430400	1.45
1183894	4026755431650	1.60	1185506	4026755430417	1.45
1183903	4026755407358	1.52	1185603	4026755430424	1.45
1183904	4026755407365	1.52	1185604	4026755430431	1.45
1183906	4026755407372	1.52	1185606	4026755430448	1.45
1183942	4026755422191	1.53	1186001	4026755191806	1.115
1183961	4026755191790	1.111	1186001	4026755191806	3.19
1183961	4026755191790	1.116	1186002	4026755431674	1.115
1183962	4026755414110	1.53	1186052	4026755251500	1.115
1183962	4026755414110	3.18	1186052	4026755251500	3.20
1184005	4026755431667	1.90	1186053	4026755251517	1.115
1184013	4026755241655	1.80	1186053	4026755251517	3.20
1184014	4026755241662	1.80	1186054	4026755297980	1.115
1184016	4026755384284	1.85	1186054	4026755297980	3.20
1184023	4026755291087	1.81	1186200	4026755191813	1.115
1184024	4026755291094	1.81	1186200	4026755191813	3.20
1184025	4026755312089	1.84	1187047	4026755414424	1.114
1184033	4026755291100	1.81	1187047	4026755414424	2.24
1184034	4026755291117	1.81	1187047	4026755414424	3.19
1184035	4026755312096	1.84	1187049	4026755407747	1.114
1184073	4026755423457	1.47	1187056	4026755191820	1.115
1184074	4026755423464	1.47	1187057	4026755167566	1.114
1184076	4026755431476	1.48	1187057	4026755167566	2.24
1184077	4026755384291	1.48	1187057	4026755167566	3.19
1184077	4026755384291	1.85	1187059	4026755429817	1.114
1184083	4026755241679	1.80	1187065	4026755417975	1.49
1184084	4026755241686	1.80	1187065	4026755417975	1.114
1184086	4026755384307	1.85	1187065	4026755417975	3.19
1184087	4026755384314	1.48	1187070	4026755191844	1.115
1184087	4026755384314	1.85	1187070	4026755191844	3.20
1184088	4026755348835	1.82	1187071	4026755235104	1.115
1184089	4026755348842	1.82	1187071	4026755235104	3.20
1184090	4026755316018	1.82	1187078	4026755432862	1.82
1184091	4026755316025	1.82	1187078	4026755432862	1.115
1184092	4026755312102	1.84	1187078	4026755432862	2.24
1184093	4026755312119	1.84	1187090	4026755436402	1.49
1184094	4026755417623	1.48	1187090	4026755436402	1.114
1184094	4026755417623	1.86	1187352	4026755169430	1.114
1184095	4026755271607	1.82	1187352	4026755169430	3.19
1184096	4026755268942	1.82	1187504	4026755393521	1.66
1184097	4026755277302	1.82	1187506	4026755393538	1.66
1184098	4026755277319	1.82	1187604	4026755391589	1.66
1184135	4026755319583	1.84	1187606	4026755391596	1.66
1184183	4026755314977	1.83	1187608	4026755391602	1.66
1184184	4026755314984	1.83	1188051	4026755182279	1.49
1184185	4026755422641	1.83	1188051	4026755182279	1.62
1184186	4026755420586	1.83	1188051	4026755182279	3.21
1184188	4026755422658	1.87	1188089*	4026755454123	1.62
1184189	4026755431186	1.87	1188091*	4026755311143	1.62
1184235	4026755319590	1.84	1188092°	4026755252828	1.62
1184283	4026755314991	1.83	1188093	4026755311150	1.49
1184284	4026755315004	1.83	1188093	4026755311150	1.62
1184285	4026755422665	1.83	1188093	4026755311150	3.21
1184286	4026755420593	1.83	1188094	4026755417630	1.49
1184288	4026755422672	1.87	1188094	4026755417630	1.62
1184289	4026755431193	1.87	1188095*	4026755379129	1.62
1184383	4026755332490	1.83	1188363	4026755431681	1.58
1184384	4026755332506	1.83	1188364	4026755431698	1.58
1184703	4026755401363	1.67	1188366	4026755431704	1.58

Art.-No.	EAN/Code	Page	Art.-No.	EAN/Code	Page
1188400	4026755191868	1.62	1340931	4026755423211	6.88
1188400	4026755191868	3.21	1340932	4026755423228	6.88
1188406	4026755416466	1.66	1340950	4026755423235	6.88
1188408	4026755416473	1.66	1340951	4026755423242	6.88
1188463	4026755431711	1.58	1340952	4026755423259	6.88
1188464	4026755431728	1.58	1341030	4026755358544	6.85
1188466	4026755431735	1.58	1341031	4026755358551	6.85
1188585	4026755390629	1.61	1341032	4026755358568	6.85
1189077	4026755435405	1.48	1341050	4026755384857	6.85
1189077	4026755435405	1.85	1341051	4026755384864	6.85
1189087	4026755432909	1.48	1341052	4026755384871	6.85
1189087	4026755432909	1.85	1341070	4026755371772	6.96
1189094	4026755418927	1.48	1341071	4026755413168	6.94
1189094	4026755418927	1.86	1341072	4026755435658	6.94
1189361	4026755231625	1.92	1341074	4026755441109	6.95
1189361	4026755231625	1.97	1341080	4026755358445	6.92
1189381	4026755217230	1.18	1341081	4026755402506	6.99
1189785	4026755390636	1.61	1341082	4026755417043	6.92
			1341083	4026755422818	6.92
1190503	4026755232370	1.122	1341084	4026755425437	6.92
1190504	4026755232387	1.122	1341088	4026755446630	6.97
1190506	4026755232394	1.122	1341089	4026755446647	6.97
1190603	4026755232400	1.122	1341091	4026755410693	6.98
1190604	4026755232417	1.122	1341092	4026755410723	6.99
1190606	4026755232424	1.122	1341093	4026755412574	6.99
1191503	4026755251678	1.122	1341094	4026755419627	6.98
1191504	4026755251685	1.122	1341095	4026755358469	6.94
1191506	4026755296457	1.122	1341097	4026755422337	6.94
1191603	4026755251692	1.122	1341098	4026755424522	2.65
1191604	4026755251708	1.122	1341098	4026755424522	6.95
1191606	4026755296464	1.122	1341099	4026755428117	2.65
1194503	4026755257953	1.122	1341099	4026755428117	6.95
1194504	4026755257960	1.122	1341121	4026755398328	6.91
1194506	4026755304152	1.122	1341130	4026755383140	6.89
1194603	4026755257977	1.122	1341131	4026755383157	6.89
1194604	4026755257984	1.122	1341132	4026755383164	6.89
1194606	4026755304169	1.122	1341140	4026755383171	6.89
			1341141	4026755383188	6.89
1300200	4026755133516	8.48	1341142	4026755383195	6.89
1300200	4026755133516	9.65	1341150	4026755394245	6.89
1300251	4026755133523	8.48	1341151	4026755394252	6.89
1300251	4026755133523	9.65	1341152	4026755394269	6.89
1300306	4026755372533	8.48	1341160	4026755394276	6.89
1300306	4026755372533	9.65	1341161	4026755394283	6.89
1300308	4026755372540	8.48	1341162	4026755394290	6.89
1300308	4026755372540	9.65	1341170	4026755396607	6.96
1300310	4026755372557	8.48	1341175	4026755396614	6.96
1300310	4026755372557	9.65	1341177	4026755435412	6.96
1300351	4026755133530	8.48	1341180	4026755394306	6.92
1300351	4026755133530	9.65	1341182	4026755398342	6.91
1300352	4026755133547	8.48	1341183	4026755412710	6.92
1300352	4026755133547	9.65	1341184	4026755412734	6.92
1300381	4026755133554	8.49	1341185	4026755435429	6.92
1300381	4026755133554	9.65	1341187	4026755396621	6.98
1300382	4026755133561	8.49	1341188	4026755446654	6.97
1300382	4026755133561	9.65	1341189	4026755443561	6.98
1300383	4026755133578	8.49	1341191	4026755417876	6.97
1300383	4026755133578	9.65	1341195	4026755397819	6.91
1300385	4026755399080	8.49	1341195	4026755397819	6.94
1300386	4026755399097	8.49	1341196	4026755401974	6.91
1300952	4026755133684	8.49	1341197	4026755405040	6.94
1300952	4026755133684	9.65	1341198	4026755411577	6.94
1300953	4026755389784	8.49	1341199	4026755430462	2.65
1300954	4026755389791	8.49	1341199	4026755430462	6.95
1302006	4026755133745	8.49	1341220	4026755421002	6.86
1302006	4026755133745	9.65	1341231	4026755393552	6.86
1302008	4026755389807	8.49	1341251	4026755431810	6.86
1302010	4026755389814	8.49	1341252	4026755392098	6.86
			1341257	4026755400564	6.86
1340920	4026755431209	6.88	1341262	4026755399943	6.86
1340930	4026755423204	6.88	1341267	4026755431827	6.86

Art.-No.	EAN/Code	Page	Art.-No.	EAN/Code	Page
1341271	4026755399981	6.86	1349053	4026755408744	6.97
1341274	4026755405057	6.86	1349054	4026755413748	6.97
1341280	4026755392104	6.97	1349096*	4026755450682	6.98
1341281	4026755392111	6.97	1349097	4026755438642	6.98
1341282	4026755392128	6.97	1349098	4026755431575	6.98
1341282	4026755392128	6.97	1349099	4026755431483	6.98
1341283	4026755407808	6.97	1349980	4026755434385	6.98
1341284	4026755407815	6.97	1349981	4026755434392	6.98
1341290	4026755392135	6.97	1349982	4026755434408	6.98
1341291	4026755392142	6.97			
1341292	4026755392159	6.97	1350106	4026755433036	6.132
1341292	4026755392159	6.97	1350108	4026755433043	6.132
1341295	4026755399998	6.94	1350260	4026755407501	6.52
1341296	4026755424256	6.94	1350271	4026755363043	6.11
1341298	4026755441116	2.65	1350271	4026755363043	6.22
1341298	4026755441116	6.102	1350281	4026755133776	6.11
1341299*	4026755455397	2.65	1350281	4026755133776	6.22
1341332	4026755411805	6.87	1350281	4026755133776	6.61
1341340	4026755411812	6.90	1350285	4026755336269	6.12
1341341	4026755411829	6.90	1350285	4026755336269	6.23
1341342	4026755411836	6.90	1350285	4026755336269	6.62
1341360	4026755411843	6.90	1350289	4026755283136	6.12
1341361	4026755411850	6.90	1350289	4026755283136	6.23
1341362	4026755411867	6.90	1350289	4026755283136	6.61
1341372	4026755430974	6.87	1350290	4026755425734	6.16
1341383	4026755407839	6.97	1350290	4026755425734	6.19
1341384	4026755407846	6.97	1350292	4026755391442	6.12
1341442	4026755412239	6.90	1350292	4026755391442	6.23
1341462	4026755412260	6.90	1350292	4026755391442	6.62
1341542	4026755412666	6.90	1350294	4026755336276	6.12
1341562	4026755412697	6.90	1350295	4026755336283	6.12
1341630	4026755435436	6.128	1350296	4026755336290	6.08
1341631	4026755435443	6.128	1350296	4026755336290	6.12
1341632	4026755435450	6.128	1350296	4026755336290	6.23
1341642	4026755435467	6.90	1350296	4026755336290	6.26
1341662	4026755435474	6.90	1350296	4026755336290	6.61
1341680	4026755447903	6.128	1350297	4026755336306	6.08
1341681	4026755447910	6.128	1350297	4026755336306	6.12
1341980	4026755430479	6.92	1350297	4026755336306	6.23
1341980	4026755430479	6.101	1350297	4026755336306	6.62
1341981	4026755430486	6.92	1350299	4026755283150	6.12
1341981	4026755430486	6.101	1350299	4026755283150	6.23
1342093	4026755422825	6.105	1350435	4026755395396	6.68
1343050	4026755336252	6.98	1350436	4026755395402	6.68
1343092	4026755422832	6.98	1350443	4026755343823	6.60
1344030	4026755446890	6.100	1350444	4026755343830	6.60
1344031	4026755446906	6.100	1350445	4026755395419	6.68
1344032	4026755446913	6.100	1350446	4026755395426	6.68
1344050	4026755446920	6.100	1350447	4026755395433	6.69
1344051	4026755446937	6.100	1350448	4026755395440	6.68
1344052	4026755446944	6.100	1350449	4026755395457	6.68
1344097*	4026755459418	6.102	1350450	4026755342369	6.70
1344098*	4026755459425	6.104	1350451	4026755342376	6.70
1344470*	4026755457223	6.102	1350455	4026755342383	6.70
1344480	4026755447361	6.101	1350456	4026755342390	6.70
1344484*	4026755456257	6.101	1350457	4026755342406	6.70
1344485	4026755447378	6.101	1350465	4026755342413	6.70
1344490	4026755447385	6.101	1350466	4026755342420	6.70
1344550	4026755447392	6.100	1350467	4026755342437	6.70
1344551*	4026755459432	6.100	1350470	4026755342444	6.71
1344555	4026755447408	6.100	1350471	4026755342451	6.71
1344595*	4026755454338	6.102	1350474	4026755342468	6.71
1344597*	4026755454420	6.103	1350474	4026755342468	9.32
1344598*	4026755454437	6.103	1350475	4026755342475	6.71
1344599*		6.103	1350475	4026755342475	9.32
1344697*	4026755454451	6.104	1350476	4026755342482	6.71
1344698*	4026755454468	6.104	1350476	4026755342482	9.32
1344699*	4026755454475	6.104	1350477	4026755342499	6.71
1349051	4026755384758	6.97	1350477	4026755342499	9.32
1349052	4026755392180	6.98	1350481	4026755384468	6.71
1349052	4026755392180	6.101	1350490	4026755372137	6.60

Art.-No.	EAN/Code	Page	Art.-No.	EAN/Code	Page
1350594	4026755133820	6.70	1351672	4026755394986	6.65
1350951	4026755347210	6.08	1351673	4026755394993	6.65
1350951	4026755347210	6.11	1351674	4026755395006	6.65
1350951	4026755347210	6.16	1351675	4026755396638	6.65
1350951	4026755347210	6.19	1351678*	4026755458084	6.66
1350951	4026755347210	6.22	1351679*	4026755458091	6.66
1350951	4026755347210	6.26	1351690	4026755306491	6.11
1350951	4026755347210	6.61	1351690	4026755306491	6.34
1350952	4026755336313	6.08	1351690	4026755306491	6.37
1350952	4026755336313	6.11	1351690	4026755306491	6.43
1350952	4026755336313	6.16	1351690	4026755306491	6.52
1350952	4026755336313	6.19	1351690	4026755306491	6.53
1350952	4026755336313	6.22	1351690	4026755306491	8.53
1350952	4026755336313	6.26	1351691	4026755407860	6.22
1350952	4026755336313	6.61	1351691	4026755407860	6.43
1350953	4026755336320	6.08	1351691	4026755407860	6.52
1350953	4026755336320	6.11	1351691	4026755407860	6.57
1350953	4026755336320	6.16	1351691	4026755407860	6.61
1350953	4026755336320	6.19	1351692	4026755370027	6.65
1350953	4026755336320	6.22	1351693	4026755373035	6.65
1350953	4026755336320	6.26	1351694	4026755373042	6.65
1350953	4026755336320	6.61	1351695	4026755407518	6.65
1350954	4026755336337	6.12	1351696	4026755333169	6.44
1350956	4026755394160	6.29	1351696	4026755333169	9.28
1350956	4026755394160	6.34	1351697	4026755371529	6.65
1350956	4026755394160	6.37	1351698	4026755332704	6.66
1350958	4026755432992	6.29	1351699	4026755332711	6.66
1350958	4026755432992	6.34	1351701	4026755400755	6.08
1350958	4026755432992	6.37	1351702	4026755400762	6.08
1351055*	4026755454840	6.21	1351703	4026755400779	6.08
1351062	4026755133868	6.135	1351704	4026755400786	6.08
1351072	4026755251531	6.135	1351705	4026755400793	6.131
1351095	4026755133882	6.70	1351758	4026755396157	6.66
1351096	4026755133899	6.71	1351759	4026755396164	6.66
1351394	4026755133981	6.70	1351770	4026755411584	6.65
1351396	4026755133998	6.71	1351771	4026755411591	6.65
1351470	4026755348422	6.64	1351778	4026755371550	6.66
1351471	4026755348439	6.64	1351779	4026755371567	6.66
1351472	4026755348446	6.64	1351783	4026755407082	6.64
1351482	4026755395464	6.64	1351785	4026755407099	6.64
1351483	4026755395471	6.64	1351790	4026755358575	6.44
1351568	4026755395488	6.66	1351790	4026755358575	6.112
1351569	4026755395495	6.66	1351790	4026755358575	9.28
1351571	4026755134018	6.64	1351791	4026755358582	6.44
1351582	4026755400861	6.64	1351791	4026755358582	6.112
1351583	4026755249514	6.64	1351791	4026755358582	9.28
1351584	4026755280777	6.64	1351792	4026755358599	6.44
1351585	4026755280784	6.64	1351792	4026755358599	9.28
1351586	4026755355574	6.64	1351793	4026755369977	6.44
1351587	4026755355581	6.64	1351793	4026755369977	9.28
1351588	4026755355598	6.64	1352088	4026755442250	6.71
1351589	4026755408010	6.67	1352088	4026755442250	6.106
1351590	4026755280791	6.67	1352089	4026755442267	6.71
1351591	4026755336429	6.67	1352089	4026755442267	6.106
1351592	4026755306484	6.64	1352096	4026755258677	6.11
1351593	4026755348453	6.64	1352096	4026755258677	6.22
1351596	4026755318074	6.44	1352096	4026755258677	6.43
1351596	4026755318074	9.28	1352096	4026755258677	6.52
1351597	4026755328547	6.44	1352096	4026755258677	6.57
1351598	4026755330663	6.44	1352096	4026755258677	6.61
1351598	4026755330663	6.56	1352098	4026755382389	6.34
1351651	4026755134025	6.68	1352098	4026755382389	6.37
1351652	4026755343137	6.68	1352250	4026755429039	6.16
1351654	4026755409246	6.68	1352250	4026755429039	6.60
1351655	4026755305401	6.68	1352258	4026755435184	6.16
1351657	4026755381580	6.68	1352258	4026755435184	6.62
1351658	4026755381597	6.68	1352259	4026755435191	6.16
1351662*	4026755458046	6.65	1352259	4026755435191	6.62
1351663*	4026755458053	6.65	1352272	4026755318944	6.43
1351664*	4026755458060	6.65	1352273	4026755318951	6.22
1351665*	4026755458077	6.65	1352273	4026755318951	6.43

Art.-No.	EAN/Code	Page	Art.-No.	EAN/Code	Page
1352296	4026755280814	6.11	1356098	4026755381351	6.22
1352297	4026755280821	6.57	1356098	4026755381351	6.43
1353181	4026755273830	6.11	1356098	4026755381351	6.72
1353181	4026755273830	6.43	1356223	4026755422528	6.21
1353390	4026755249347	6.11	1356250	4026755399615	6.60
1353390	4026755249347	6.22	1356872	4026755386769	6.56
1353583	4026755401424	6.131	1356972	4026755386776	6.56
1353584	4026755401431	6.131	1356989	4026755386783	6.56
1353771	4026755134339	6.43	1357020	4026755438659	6.17
1353771	4026755134339	6.57	1357027	4026755438666	6.17
1353771	4026755134339	6.61	1357029	4026755438673	6.17
1354070	4026755439267	6.42	1357070	4026755419009	6.13
1354087	4026755385205	6.42	1357072	4026755423471	6.13
1354097	4026755385212	6.42	1357073	4026755423488	6.13
1354165°	4026755355604	6.41	1357086	4026755433050	6.16
1354166*	4026755454291	6.41	1357087	4026755433067	6.16
1354171	4026755356878	6.41	1357088	4026755433074	6.16
1354270	4026755391459	6.41	1357088	4026755433074	6.20
1354272	4026755422511	6.41	1357089	4026755430516	6.15
1354274	4026755391466	6.41	1357090	4026755430523	6.15
1354276	4026755386271	6.41	1357090	4026755430523	6.19
1354571	4026755383355	6.53	1357091	4026755430530	6.15
1354580	4026755396904	6.51	1357092	4026755430547	6.15
1354586	4026755383393	6.51	1357092	4026755430547	6.19
1354587	4026755406986	6.51	1357093	4026755430554	6.15
1354691*	4026755455014	6.51	1357093	4026755430554	6.19
1354692	4026755401608	6.51	1357094	4026755430561	6.16
1354693°	4026755400816	6.51	1357094	4026755430561	6.20
1354699	4026755370348	6.53	1357095	4026755430578	6.16
1354783	4026755407112	6.50	1357095	4026755430578	6.20
1354795	4026755407136	6.50	1357096	4026755430585	6.15
1354798	4026755407143	6.50	1357097	4026755430592	6.15
1355051	4026755387629	6.06	1357097	4026755430592	6.19
1355057	4026755387636	6.06	1357098	4026755430608	6.15
1355059	4026755387643	6.06	1357098	4026755430608	6.19
1355070*	4026755456943	6.27	1357098	4026755430608	6.26
1355071	4026755249170	6.09	1357098	4026755430608	6.29
1355073°	4026755343847	6.09	1357099	4026755430615	6.15
1355074	4026755343854	6.09	1357099	4026755430615	6.19
1355075	4026755381320	6.24	1357099	4026755430615	6.26
1355076	4026755383201	6.24	1357099	4026755430615	6.29
1355079	4026755383218	6.24	1357153	4026755407532	6.80
1355080*	4026755451344	6.27	1357154	4026755407549	6.80
1355081*	4026755451351	6.27	1357157	4026755344080	6.80
1355090	4026755263510	6.11	1357159	4026755383249	6.42
1355090	4026755263510	6.43	1357159	4026755383249	6.80
1355090	4026755263510	6.72	1357160	4026755383256	6.42
1355091	4026755280845	6.72	1357160	4026755383256	6.80
1355092	4026755280852	6.72	1357161	4026755395150	6.80
1355158	4026755407525	6.80	1357220	4026755438680	6.18
1355251	4026755387650	6.07	1357227	4026755438697	6.18
1355257	4026755387667	6.07	1357229	4026755438703	6.18
1355259	4026755387674	6.07	1357270	4026755419016	6.14
1355270*	4026755290578	6.28	1357272	4026755423495	6.14
1355271	4026755249217	6.10	1357273	4026755423501	6.14
1355273°	4026755343885	6.10	1357290	4026755423792	6.15
1355274	4026755343892	6.10	1357290	4026755423792	6.19
1355275	4026755381337	6.25	1357290	4026755423792	6.74
1355276	4026755383225	6.25	1357291	4026755440645	6.106
1355279	4026755383232	6.25	1357292	4026755446500	6.106
1355280*	4026755451368	6.28	1358149	4026755434781	9.38
1355281*	4026755451375	6.28	1358150	4026755381955	6.80
1355299	4026755446494	6.26	1358155	4026755344103	6.80
1356050	4026755399608	6.60	1358157	4026755370690	6.80
1356090	4026755352139	6.72	1358161	4026755358605	6.80
1356091	4026755352146	6.72	1358162	4026755358612	6.80
1356092	4026755352153	6.72	1358163	4026755407556	6.80
1356093	4026755352160	6.72	1358164	4026755407563	6.80
1356097	4026755381344	6.43	1358165	4026755431506	6.26
1356097	4026755381344	6.61	1358165	4026755431506	6.29
1356097	4026755381344	6.72	1358165	4026755431506	6.80

Art.-No.	EAN/Code	Page	Art.-No.	EAN/Code	Page
1358170	4026755434798	6.80	1360588	4026755431216	9.37
1358171	4026755434804	6.80	1360589	4026755447835	9.37
1358180	4026755434811	9.38	1360851	4026755391497	9.14
1358240	4026755379136	6.32	1360852	4026755422900	9.14
1358251	4026755355710	6.32	1360853	4026755422917	9.14
1358252	4026755414134	6.32	1360854	4026755427448	9.14
1358340	4026755379143	6.33	1360862	4026755430905	9.15
1358351	4026755355734	6.33	1360864	4026755427455	9.15
1358352	4026755414141	6.33	1361011	4026755373486	9.56
1358540	4026755379150	6.35	1361012	4026755373493	9.56
1358551	4026755371970	6.35	1361013	4026755373509	9.56
1358552	4026755414158	6.35	1361050	4026755401981	9.19
1358640	4026755379167	6.36	1361050	4026755401981	12.52
1358651	4026755371994	6.36	1361060	4026755401998	9.19
1358652	4026755414165	6.36	1361060	4026755401998	12.52
1359040	4026755337266	6.134	1361092	4026755413236	9.36
1359041	4026755337273	6.133	1361098	4026755349153	6.08
1359042	4026755337280	6.133	1361098	4026755349153	6.11
1359043	4026755352795	6.132	1361098	4026755349153	6.16
1359050	4026755317350	6.132	1361098	4026755349153	6.19
1359060	4026755318135	6.132	1361098	4026755349153	6.22
1359061	4026755318142	6.132	1361098	4026755349153	6.26
1359062	4026755318159	6.132	1361098	4026755349153	6.61
1359063	4026755318166	6.132	1361228	4026755406993	9.48
1359064	4026755318173	6.132	1361229	4026755407006	9.48
1359065	4026755318180	6.132	1361230	4026755346831	9.40
1359066	4026755318197	6.132	1361231	4026755346848	9.40
1359067	4026755318203	6.132	1361246	4026755373516	9.58
1359068	4026755318210	6.133	1361248	4026755389302	9.49
1359069	4026755318227	6.133	1361249	4026755373523	9.49
1359070	4026755318234	6.133	1361250	4026755366419	9.49
1359071	4026755318241	6.133	1361251	4026755366426	9.49
1359072	4026755318258	6.133	1361252	4026755405231	9.49
1359073	4026755352801	6.133	1361253	4026755405248	9.49
1359080	4026755318265	6.133	1361254	4026755366433	9.49
1359081	4026755318272	6.133	1361255	4026755366440	9.49
1359085	4026755318289	6.133	1361256	4026755366457	9.49
1359086	4026755437614	6.133	1361257	4026755366464	9.49
1359090	4026755318296	6.134	1361258	4026755366471	9.49
1359091	4026755318302	6.119	1361259	4026755366488	9.49
1359091	4026755318302	6.134	1361260	4026755350739	9.42
1359094	4026755328554	6.134	1361262	4026755350753	9.42
1359095	4026755318319	6.134	1361264	4026755356007	9.42
1359096	4026755318326	6.134	1361266	4026755405132	9.42
1359097	4026755318333	6.134	1361270	4026755364439	9.41
1359098	4026755318340	6.134	1361271	4026755364446	9.41
1359099	4026755318357	6.70	1361275	4026755364453	9.41
1359101	4026755318364	6.134	1361276	4026755364460	9.41
1359102	4026755318388	6.134	1361278	4026755385533	9.41
1359103	4026755318395	6.134	1361279	4026755379174	9.59
1359104	4026755318401	6.134	1361283	4026755400328	9.48
1359105	4026755318418	6.134	1361284	4026755400335	9.48
1359551	4026755318463	6.71	1361288	4026755400342	9.44
1359552	4026755318470	6.71	1361289	4026755366365	9.45
1359553	4026755359077	6.71	1361290	4026755363623	9.42
1359554	4026755375688	6.71	1361295	4026755364026	9.58
1359591	4026755359114	6.44	1361340	4026755416923	9.43
1359591	4026755359114	9.28	1361345	4026755416930	9.43
1359592	4026755359121	6.44	1361380	4026755416947	9.44
1359592	4026755359121	9.28	1361381	4026755416954	9.44
1359995*	4026755455762	6.80	1361385	4026755416961	9.44
1359996*	4026755455779	6.80	1361387	4026755385557	9.45
			1361388	4026755417050	9.45
			1361389	4026755417067	9.45
1360033	4026755422849	9.07	1361391	4026755416978	9.45
1360063	4026755422856	9.08	1361392	4026755416985	9.45
1360394	4026755420463	9.11	1361393	4026755416992	9.45
1360394	4026755420463	12.51	1361394	4026755417005	9.45
1360556	4026755422863	9.09	1361421	4026755350777	9.56
1360557	4026755422870	9.09	1361421	4026755350777	10.13
1360558	4026755422887	9.09	1361422	4026755350784	9.56
1360573	4026755422894	9.07			

Art.-No.	EAN/Code	Page	Art.-No.	EAN/Code	Page
1361422	4026755350784	10.13	1367258	4026755431223	9.37
1361423	4026755350791	9.56	1367259	4026755447842	9.37
1361423	4026755350791	10.13	1367393	4026755371628	9.31
1361424	4026755350807	9.56	1367395	4026755371635	9.31
1361425	4026755350814	9.56	1367396	4026755371642	9.31
1361440	4026755415148	9.43	1367397	4026755371659	9.31
1361448	4026755415247	9.50	1367465	4026755332735	6.116
1361480	4026755415155	9.44	1367465	4026755332735	9.32
1361481	4026755415261	9.44	1367468	4026755332742	6.116
1361486	4026755415278	9.47	1367468	4026755332742	9.32
1361487	4026755415285	9.47	1367573	4026755386455	9.31
1361488	4026755415292	9.50	1367575	4026755386462	9.31
1361489	4026755415308	9.50	1367576	4026755386479	9.31
1361622	4026755350838	9.58	1367577	4026755386486	9.31
1361623	4026755362329	9.60	1367579	4026755386493	9.31
1361625	4026755379181	9.42	1367583	4026755386509	9.31
1361651	4026755350845	9.58	1367585	4026755386516	9.31
1361652	4026755350852	9.58	1367586	4026755386523	9.31
1361653	4026755350869	9.58	1367587	4026755386530	9.31
1361654	4026755350876	9.58	1367589	4026755386547	9.31
1361655	4026755352399	9.58	1367593	4026755386554	9.31
1361671	4026755359145	9.58	1367595	4026755386561	9.31
1361672	4026755359152	9.58	1367596	4026755386578	9.31
1361680	4026755359169	9.59	1367597	4026755386585	9.31
1361681	4026755359176	9.59	1367599	4026755386592	9.31
1361690	4026755350883	9.42	1368064	4026755422931	9.13
1361691	4026755350890	9.42	1368163	4026755422948	9.12
1361694	4026755379822	9.60	1368251	4026755394320	9.16
1362063	4026755417012	9.08	1369008	4026755417029	9.37
1362064	4026755422924	9.08	1369050	4026755363135	3.34
1363051	4026755166286	9.33	1369050	4026755363135	9.30
1364140	4026755369922	9.33	1369051	4026755225259	9.56
1364149	4026755200249	9.35	1369051	4026755225259	10.13
1364151	4026755200263	9.35	1369055	4026755371222	3.34
1364160	4026755280869	9.35	1369055	4026755371222	9.30
1364161	4026755280876	9.35	1369062	4026755399288	3.34
1364162	4026755281651	9.35	1369062	4026755399288	9.30
1364163	4026755372571	9.35	1369065	4026755399295	3.34
1364170	4026755365054	9.35	1369065	4026755399295	9.30
1364185	4026755370034	9.56	1369076	4026755364279	9.59
1364185	4026755370034	10.13	1369078	4026755364286	9.59
1364186	4026755370041	9.34	1369080	4026755330847	9.32
1364187	4026755430271	9.36	1369081	4026755330854	9.32
1364188	4026755430288	9.36	1369083	4026755367119	9.60
1364189	4026755430295	9.36	1369084	4026755367126	9.60
1364190	4026755283570	9.35	1369085	4026755330861	9.33
1364191	4026755330687	9.35	1369085	4026755330861	9.60
1364192	4026755430301	9.33	1369086	4026755364293	9.33
1364193	4026755430318	9.35	1369086	4026755364293	9.60
1364194	4026755430325	9.35	1369089	4026755350906	9.32
1364195	4026755319897	9.36	1369090	4026755315936	9.32
1364196	4026755319903	9.36	1369092*	4026755415940	9.35
1364198	4026755344141	9.36	1369093	4026755331004	6.79
1364199	4026755343533	9.33	1369093	4026755331004	6.106
1364240	4026755393743	9.42	1369093	4026755331004	8.53
1364247	4026755347388	9.33	1369093	4026755331004	9.27
1364248	4026755387469	10.10	1369093	4026755331004	10.13
1364250	4026755305470	9.33	1369094	4026755331011	6.79
1364260	4026755332179	9.35	1369094	4026755331011	6.106
1364290	4026755318487	9.33	1369094	4026755331011	9.27
1365040	4026755358650	9.52	1369094	4026755331011	10.13
1365050	4026755358667	9.52	1369095	4026755418323	6.79
1365060	4026755358674	9.52	1369095	4026755418323	6.106
1365540	4026755372229	9.53	1369095	4026755418323	8.56
1365550	4026755372236	9.53	1369096	4026755364316	9.59
1365560	4026755372243	9.53	1369098	4026755364323	9.59
1366040	4026755386387	9.54	1369531	4026755400144	9.25
1366050	4026755386394	9.54	1369532	4026755417647	9.25
1366060	4026755386400	9.54	1369532	4026755417647	9.37
1366597	4026755420470	9.10	1369549	4026755420487	9.25
1366597	4026755420470	12.51	1369551	4026755420494	9.25

Art.-No.	EAN/Code	Page	Art.-No.	EAN/Code	Page
1369553	4026755435054	9.27	1381597	4026755438918	6.121
1369555	4026755396379	6.77	1381599	4026755443349	6.121
1369555	4026755396379	9.26	1383460	4026755400571	10.08
1369591	4026755344189	9.27	1383465	4026755400588	10.08
			1383480	4026755413199	10.09
1371000	4026755440812	10.17	1383485	4026755413205	10.09
1371090	4026755447859	10.17	1383550	4026755401813	10.07
1371091	4026755447866	10.17	1383555	4026755401820	10.07
			1383562	4026755394917	10.07
1381025	4026755415742	6.111	1383567	4026755394924	10.07
1381025	4026755415742	12.53	1383575	4026755402025	10.10
1381027	4026755415759	6.111	1383580	4026755396317	10.10
1381027	4026755415759	12.53	1383581	4026755396324	10.11
1381030	4026755400878	6.110	1383582	4026755418347	6.123
1381030	4026755400878	12.53	1383583	4026755427097	10.12
1381032	4026755400885	6.110	1383584*	4026755455403	10.10
1381032	4026755400885	12.53	1383592	4026755410518	10.13
1381035	4026755400892	6.110	1383592	4026755410518	10.23
1381035	4026755400892	12.53	1383593	4026755412826	10.13
1381037	4026755400908	6.110	1383593	4026755412826	10.23
1381037	4026755400908	12.53	1383594	4026755429763	10.13
1381042	4026755400397	6.122	1383594	4026755429763	10.23
1381043	4026755418330	6.123	1383645	4026755422535	10.07
1381044	4026755417395	6.123	1383646	4026755435481	10.07
1381045	4026755406931	6.123	1385008	4026755373240	10.20
1381046	4026755406948	6.123	1385010	4026755352498	10.20
1381047	4026755391268	6.123	1385015	4026755352504	10.20
1381047	4026755391268	10.10	1385105	4026755352528	10.20
1381048	4026755415315	6.123	1385107	4026755352535	10.20
1381049	4026755391275	6.123	1385110	4026755352542	10.20
1381049	4026755391275	10.10	1386008*	4026755417654	10.20
1381066	4026755396645	6.116	1386010*	4026755417661	10.20
1381068	4026755400403	6.112	1386015*	4026755417678	10.20
1381078	4026755429046	6.116	1387006	4026755435498	10.20
1381078	4026755429046	6.118	1387106	4026755435504	10.20
1381079*	4026755397680	6.115	1387303	4026755420876	10.21
1381080	4026755395310	6.115	1387505	4026755420883	10.20
1381082	4026755356915	6.117	1387506	4026755435511	10.20
1381083	4026755356922	6.117	1387606	4026755435528	10.20
1381084	4026755356939	6.117	1389001	4026755382211	10.10
1381088	4026755381368	6.114	1389001	4026755382211	10.23
1381089	4026755380408	6.114	1389008	4026755413250	6.113
1381091	4026755366945	6.113	1389008	4026755413250	9.37
1381092	4026755366969	6.113	1389050	4026755391282	6.115
1381093	4026755366976	6.113	1389051	4026755391299	6.115
1381094	4026755366983	6.114	1389052	4026755426861	6.115
1381095	4026755366990	6.114	1389082	4026755401448	6.117
1381096	4026755367003	6.114	1389085	4026755413403	6.117
1381097	4026755367010	6.114	1389090	4026755389166	6.112
1381185	4026755409406	6.112	1389090	4026755389166	10.23
1381185	4026755409406	10.23	1389095	4026755419412	6.113
1381191	4026755430622	6.116	1389099*	4026755450088	6.113
1381191	4026755430622	6.119	1389901	4026755413267	6.113
1381192	4026755430639	6.116	1389902	4026755414608	6.113
1381192	4026755430639	6.119			
1381193	4026755430646	6.116	1391025	4026755424201	7.08
1381193	4026755430646	6.119	1391035	4026755449761	7.08
1381194	4026755430653	6.116	1394010	4026755449778	7.08
1381194	4026755430653	6.119	1394015	4026755449785	7.08
1381199	4026755431742	6.116	1394020	4026755449792	7.09
1381199	4026755431742	6.119	1394021	4026755449808	7.09
1381580	4026755419634	6.118	1394022	4026755449815	7.09
1381581	4026755434422	6.118	1394023	4026755449822	7.09
1381585	4026755439670	6.119	1394090	4026755449839	7.09
1381587	4026755439694	6.119	1394091	4026755449846	7.09
1381590	4026755422955	6.118	1395010	4026755424218	7.09
1381591	4026755434439	6.119	1399090	4026755424232	7.08
1381592	4026755434446	6.119	1399091	4026755424249	7.09
1381593*	4026755438871	6.121	1399092	4026755438321	7.09
1381595	4026755438895	6.121	1399095	4026755449853	7.08
1381596	4026755438901	6.121			

Art.-No.	EAN/Code	Page	Art.-No.	EAN/Code	Page
1400051	4026755278361	2.50	1401952	4026755395532	2.43
1400051	4026755278361	11.10	1401990	4026755395549	2.43
1400052	4026755278378	2.50	1402010	4026755342796	2.43
1400052	4026755278378	11.10	1402052	4026755371239	2.52
1400054	4026755333596	2.50	1402052	4026755371239	11.11
1400054	4026755333596	11.10	1402054	4026755371246	2.52
1400151	4026755278385	2.50	1402054	4026755371246	11.11
1400151	4026755278385	11.10	1402070*	4026755460049	2.46
1400152	4026755278392	2.50	1402071*	4026755460056	2.46
1400152	4026755278392	11.10	1402090	4026755279078	2.48
1400154	4026755296983	2.50	1402091	4026755279085	2.48
1400154	4026755296983	11.10	1402092	4026755286953	2.48
1400164	4026755188158	2.80	1402096	4026755307979	2.52
1400251	4026755280609	2.50	1402098	4026755384734	2.52
1400251	4026755280609	2.92	1402099	4026755384741	2.52
1400252	4026755280616	2.50	1402110°	4026755335064	2.40
1400252	4026755280616	2.92	1402130	4026755446661	2.42
1400254	4026755338591	2.50	1402152	4026755371253	2.52
1400254	4026755338591	2.92	1402152	4026755371253	11.11
1400352	4026755303001	2.50	1402154	4026755371260	2.52
1400352	4026755303001	2.93	1402154	4026755371260	11.11
1400354	4026755303018	2.50	1402162*	4026755460063	2.46
1400354	4026755303018	2.93	1402191	4026755422207	2.48
1400392	4026755134490	2.80	1402210°	4026755335071	2.40
1400460	4026755359190	11.10	1402252	4026755371277	2.52
1400461	4026755359206	11.10	1402254	4026755371284	2.52
1400554	4026755134513	2.80	1402290°	4026755300024	2.40
1400560	4026755359213	2.50	1402310°	4026755335088	2.40
1400560	4026755359213	2.93	1402330	4026755446685	2.42
1400560	4026755359213	11.10	1402352	4026755380163	2.52
1400562	4026755360493	2.50	1402390°	4026755300031	2.41
1400562	4026755360493	2.93	1402391	4026755338607	2.41
1400562	4026755360493	11.10	1402392	4026755338614	2.41
1400563	4026755366372	2.50	1402393	4026755446692	2.42
1400563	4026755366372	2.93	1402394	4026755446708	2.42
1400563	4026755366372	11.10	1402410°	4026755416831	2.40
1400652	4026755134520	2.80	1402430	4026755446715	2.42
1400653	4026755134537	2.81	1402490°	4026755418187	2.40
1400654	4026755134544	2.81	1402500	4026755306538	2.44
1400660	4026755359220	2.93	1402505	4026755328813	2.44
1400660	4026755359220	11.10	1402507	4026755336351	2.44
1400691	4026755134551	2.81	1402510	4026755328820	2.44
1400692	4026755134568	2.82	1402515	4026755336368	2.44
1400692	4026755134568	8.78	1402520	4026755412192	2.44
1400693	4026755134575	2.82	1402580	4026755306545	2.45
1400980	4026755435016	2.38	1402581	4026755306552	2.45
1400981	4026755435023	2.38	1402591	4026755306569	2.44
1400981	4026755435023	6.108	1402592	4026755306576	2.44
1400982	4026755435030	2.38	1402594	4026755446951	2.45
1400983*	4026755441123	2.38	1402596	4026755443288	2.45
1400983*	4026755441123	6.108	1402597	4026755306583	2.44
1401061	4026755134681	2.81	1402598	4026755306590	2.45
1401091	4026755134698	1.137	1402598	4026755306590	2.46
1401091	4026755134698	2.82	1402599	4026755306606	2.45
1401091	4026755134698	11.44	1402599	4026755306606	2.46
1401151	4026755369366	1.137	1402600	4026755306613	2.44
1401151	4026755369366	2.64	1402605	4026755424409	2.44
1401152	4026755369427	1.137	1402607	4026755424416	2.44
1401152	4026755369427	2.64	1402610	4026755424423	2.44
1401153	4026755369434	1.137	1402620	4026755424430	2.44
1401153	4026755369434	2.64	1402800	4026755306620	2.47
1401154	4026755369441	1.137	1402850	4026755306637	2.47
1401154	4026755369441	2.64	1402855	4026755306644	2.47
1401171	4026755369571	2.64	1402857	4026755306651	2.47
1401172	4026755369588	2.64	1402891	4026755306668	2.47
1401173	4026755369595	2.64	1402895	4026755306675	2.47
1401174	4026755369601	2.64	1403507*	4026755459951	2.46
1401190	4026755367737	2.65	1403520*	4026755459968	2.46
1401191	4026755395297	2.65	1404091	4026755395327	2.63
1401194	4026755134704	2.80	1404095	4026755277104	2.82
1401704	4026755134735	2.82	1404578	4026755350371	2.66

Art.-No.	EAN/Code	Page	Art.-No.	EAN/Code	Page
1404579	4026755350401	2.66	1405559	4026755437942	2.60
1404580	4026755288834	2.66	1405559	4026755437942	2.92
1404581	4026755288841	2.66	1405560	4026755437959	2.60
1404680	4026755288858	2.66	1405560	4026755437959	2.92
1404681	4026755288865	2.66	1405561	4026755437966	2.60
1404682	4026755450699	2.66	1405561	4026755437966	2.92
1404683*	4026755450705	2.66	1405562	4026755437973	2.60
1404752	4026755423587	2.58	1405562	4026755437973	2.92
1404753	4026755423594	2.58	1406152	4026755439465	2.56
1404754	4026755423600	2.58	1406153	4026755439472	2.56
1404755	4026755423617	2.58	1406154	4026755439489	2.56
1404756	4026755423624	2.58	1406155	4026755439496	2.56
1404757	4026755423631	2.58	1406156	4026755439502	2.56
1404758	4026755423648	2.58	1406157	4026755439519	2.56
1404759	4026755423655	2.58	1406158	4026755439526	2.56
1404760	4026755423662	2.58	1406159	4026755439533	2.56
1404761	4026755423679	2.58	1406160	4026755439540	2.56
1404762	4026755423686	2.58	1406161	4026755439557	2.56
1404780	4026755329926	2.68	1406162	4026755439564	2.56
1404790	4026755342802	2.68	1406383	4026755249873	1.136
1404852*	4026755458442	2.58	1406383	4026755249873	2.63
1404853*	4026755458459	2.58	1406384	4026755249880	1.136
1404854*	4026755458466	2.58	1406384	4026755249880	2.63
1404855*	4026755458473	2.58	1406394	4026755134971	2.81
1404856*	4026755458480	2.58	1406483	4026755360615	1.136
1404857*	4026755458497	2.58	1406483	4026755360615	2.63
1404858*	4026755458503	2.58	1406484	4026755360622	1.136
1404859*	4026755458510	2.58	1406484	4026755360622	2.63
1404860*	4026755458527	2.58	1406504	4026755343144	1.136
1404861*	4026755458534	2.58	1406504	4026755343144	2.63
1404862*	4026755458541	2.58	1406583	4026755360646	1.136
1404880	4026755350579	2.67	1406583	4026755360646	2.63
1404881	4026755350586	2.67	1406584	4026755360653	1.136
1404882	4026755388169	2.67	1406584	4026755360653	2.63
1404883	4026755388176	2.67	1406586	4026755379587	2.62
1405352	4026755437652	2.60	1406586	4026755379587	2.94
1405353	4026755437669	2.60	1406708	4026755172409	1.136
1405354	4026755437676	2.60	1406708	4026755172409	2.63
1405355	4026755437683	2.60	1407152	4026755437980	1.136
1405356	4026755437690	2.60	1407153	4026755437997	1.136
1405357	4026755437706	2.60	1407154	4026755438000	1.136
1405358	4026755437713	2.60	1407155	4026755438017	1.136
1405359	4026755437720	2.60	1407156	4026755438024	1.136
1405360	4026755437737	2.60	1407157	4026755438031	1.136
1405361	4026755437744	2.60	1407158	4026755438048	1.136
1405362	4026755437751	2.60	1407159	4026755438055	1.136
1405452	4026755437768	2.61	1407160	4026755438062	1.136
1405453	4026755437775	2.61	1407161	4026755438079	1.136
1405454	4026755437782	2.61	1407162	4026755438086	1.136
1405455	4026755437799	2.61	1407206	4026755278712	2.63
1405456	4026755437805	2.61	1408652	4026755419061	1.137
1405457	4026755437812	2.61	1408653	4026755419078	1.137
1405458	4026755437829	2.61	1408654	4026755419085	1.137
1405459	4026755437836	2.61	1408655	4026755419092	1.137
1405460	4026755437843	2.61	1409082	4026755299182	2.41
1405461	4026755437850	2.61	1409085	4026755279115	2.48
1405462	4026755437867	2.61	1409086	4026755431759	2.48
1405552	4026755437874	2.60	1409087	4026755431766	2.48
1405552	4026755437874	2.92	1409090	4026755279122	2.48
1405553	4026755437881	2.60	1409095	4026755385847	2.49
1405553	4026755437881	2.92			
1405554	4026755437898	2.60	1410151	4026755436419	11.50
1405554	4026755437898	2.92	1410461	4026755436556	11.50
1405555	4026755437904	2.60	1410560	4026755436426	11.50
1405555	4026755437904	2.92	1410660	4026755436433	11.50
1405556	4026755437911	2.60	1414452	4026755373141	2.61
1405556	4026755437911	2.92	1414452	4026755373141	2.93
1405557	4026755437928	2.60	1414453	4026755373158	2.61
1405557	4026755437928	2.92	1414453	4026755373158	2.93
1405558	4026755437935	2.60	1414454	4026755373165	2.61
1405558	4026755437935	2.92	1414454	4026755373165	2.93

Art.-No.	EAN/Code	Page	Art.-No.	EAN/Code	Page
1414455	4026755373172	2.61	1504456	4026755135404	11.36
1414455	4026755373172	2.93	1504552	4026755135411	11.35
1414456	4026755373257	2.61	1504553	4026755135428	11.35
1414456	4026755373257	2.93	1504554	4026755135435	11.35
1414490	4026755371789	2.62	1504555	4026755135442	11.35
1414490	4026755371789	2.94	1504556	4026755135459	11.35
1414493	4026755384024	2.62	1504563	4026755135466	11.35
1414493	4026755384024	2.94	1504564	4026755135473	11.35
1500154	4026755134988	11.08	1504565	4026755135480	11.35
1500155	4026755172430	11.08	1504566	4026755135497	11.35
1500158	4026755251784	11.08	1504567	4026755135503	11.35
1500160	4026755225266	11.08	1504568	4026755135510	11.35
1500254	4026755135008	11.08	1504569	4026755135527	11.35
1500255	4026755172447	11.08	1504570	4026755135534	11.35
1500555	4026755310610	11.08	1504571	4026755135541	11.35
1501054	4026755135039	11.08	1504572	4026755135558	11.35
1501055	4026755172423	11.08	1504573	4026755135565	11.35
1501060	4026755135053	11.08	1504574	4026755135572	11.35
1501066	4026755135060	11.08	1504575	4026755135589	11.35
1501072	4026755234701	11.08	1504754	4026755164039	11.35
1501155	4026755217742	11.08	1505565	4026755178319	11.36
1501160	4026755217759	11.08	1505566	4026755178326	11.36
1501184	4026755135077	2.48	1505567	4026755178333	11.36
1501184	4026755135077	11.40	1506053	4026755135596	11.37
1501254	4026755238365	11.09	1506054	4026755135602	11.37
1501255	4026755238372	11.09	1506073	4026755135619	11.37
1501260	4026755238389	11.09	1506075	4026755135626	11.37
1501355	4026755291575	11.08	1506085	4026755276015	11.19
1501360	4026755291582	11.08	1506087	4026755276022	11.19
1501455	4026755291599	11.09	1506088	4026755348859	11.19
1501460	4026755291605	11.09	1506089	4026755390643	11.19
1501555	4026755172454	11.09	1506092	4026755135633	11.22
1501560	4026755135091	11.09	1506092	4026755135633	11.37
1501566	4026755135107	11.09	1506093	4026755166149	11.22
1501572	4026755135114	11.09	1506093	4026755166149	11.37
1501580	4026755205503	11.09	1506153	4026755135640	11.37
1503053	4026755135121	11.34	1506176	4026755332186	11.37
1503054	4026755135138	11.34	1506177	4026755332193	11.37
1503055	4026755135145	11.34	1506178	4026755135657	11.37
1503056	4026755135152	11.34	1506253	4026755135664	11.37
1503151	4026755135169	11.34	1506553	4026755135671	11.37
1503152	4026755135176	11.34	1506653	4026755219043	11.37
1503155	4026755135183	11.34	1507354	4026755135688	11.34
1503156	4026755135190	11.34	1507355	4026755192162	11.34
1503157	4026755135206	11.34	1507854	4026755342819	1.96
1503161	4026755135213	11.34	1507855	4026755342826	1.96
1503162	4026755135220	11.34	1507934	4026755135725	1.147
1503164	4026755135237	11.34	1507934	4026755135725	2.54
1504054	4026755135244	2.54	1507935	4026755192179	1.147
1504054	4026755135244	11.35	1507935	4026755192179	2.54
1504055	4026755135251	11.35	1507937	4026755349214	1.147
1504056	4026755135268	11.35	1507937	4026755349214	2.54
1504064	4026755135275	11.35	1507937	4026755349214	2.92
1504065	4026755135282	11.35	1507938	4026755254266	1.147
1504066	4026755135299	11.35	1507938	4026755254266	2.54
1504153	4026755135305	11.35	1507939	4026755288773	1.147
1504154	4026755135312	11.35	1507939	4026755288773	2.54
1504155	4026755135329	11.35	1507940	4026755135749	1.147
1504156	4026755135336	11.35	1507940	4026755135749	2.54
1504353	4026755135343	8.78	1507954	4026755135787	2.53
1504353	4026755135343	11.36	1507954	4026755135787	11.34
1504354	4026755135350	8.78	1507955	4026755172461	2.53
1504354	4026755135350	11.36	1507955	4026755172461	11.34
1504355	4026755135367	8.78	1507958	4026755253313	11.34
1504355	4026755135367	11.36	1507959	4026755349221	2.53
1504356	4026755135374	8.78	1507960	4026755135800	11.34
1504356	4026755135374	11.36	1507969	4026755379594	2.62
1504363	4026755170177	11.36	1507969	4026755379594	2.93
1504454	4026755135381	11.36	1507974	4026755135817	2.53
1504455	4026755135398	11.36	1507974	4026755135817	11.34
			1507975	4026755172478	2.53

Art.-No.	EAN/Code	Page	Art.-No.	EAN/Code	Page
1507975	4026755172478	11.34	1512247	4026755216189	11.14
1507979	4026755379600	2.62	1512248	4026755248982	11.14
1507979	4026755379600	2.93	1512249	4026755216196	11.14
1507980	4026755135831	11.34	1512252	4026755216202	11.14
1507983	4026755135848	11.34	1512256	4026755276350	11.14
1507985	4026755135855	11.34	1512257	4026755276367	11.14
1509091	4026755135862	11.40	1512343	4026755188325	11.16
1509092	4026755135879	11.40	1512344	4026755314663	11.16
1509093	4026755135886	11.40	1512345	4026755188332	11.16
1509151	4026755135893	11.40	1512346	4026755225617	11.16
1509152	4026755135909	11.40	1512347	4026755218053	11.16
1509153	4026755135916	11.40	1512348	4026755218060	11.16
1509561	4026755135992	11.44	1512349	4026755218077	11.16
1509562	4026755136005	11.44	1512357	4026755248999	11.16
1509563	4026755136012	11.44	1512358	4026755314670	11.16
1509567	4026755262544	11.42	1512443	4026755188349	11.16
1509568	4026755262551	11.42	1512445	4026755188356	11.16
1509569	4026755262568	11.42	1512446	4026755245356	11.16
1509570	4026755188165	11.42	1512447	4026755218084	11.16
1509571	4026755188172	11.42	1512448	4026755223569	11.16
1509573	4026755188196	11.42	1512449	4026755218091	11.16
1509574	4026755188202	11.42	1512456	4026755276374	11.16
1509575	4026755188219	11.42	1512541	4026755434149	2.54
1509580	4026755170184	11.42	1512542	4026755329933	2.54
1509580	4026755170184	11.55	1512543	4026755181951	2.54
1509585	4026755172799	11.44	1512543	4026755181951	11.14
1509586	4026755172805	11.44	1512544	4026755347418	2.54
1509588	4026755170191	11.42	1512545	4026755181968	2.54
1509588	4026755170191	11.55	1512545	4026755181968	11.14
1509589	4026755263527	11.42	1512546	4026755204438	11.14
1509591	4026755136036	11.44	1512547	4026755204445	11.14
1509593	4026755264159	11.42	1512548	4026755204452	11.14
1509594	4026755188226	11.42	1512549	4026755246865	11.14
1509596	4026755219463	11.42	1512550	4026755256130	11.14
1509661	4026755136067	11.40	1512655	4026755188363	11.15
1509662	4026755136074	11.40	1512656	4026755224702	11.15
			1512657	4026755216219	11.15
1511946	4026755353471	6.70	1512659	4026755224719	11.15
1511949	4026755353488	6.70	1512660	4026755216226	11.15
1512043	4026755188233	11.14	1512662	4026755246872	11.15
1512044	4026755314366	11.14	1512663	4026755246889	11.15
1512045	4026755188240	11.14	1512664	4026755216233	11.15
1512046	4026755188257	11.14	1512665	4026755246896	11.15
1512047	4026755314373	11.14	1512666	4026755302110	11.15
1512048	4026755204407	11.14	1512668	4026755256154	11.15
1512049	4026755245332	11.14	1512669	4026755256161	11.15
1512051	4026755204414	11.14	1512745	4026755228397	11.16
1512054	4026755204421	11.14	1512747	4026755228403	11.16
1512056	4026755246858	11.14	1512751	4026755329049	11.16
1512057	4026755255881	11.14	1512752	4026755329056	11.16
1512062	4026755269741	11.19	1512753	4026755329063	11.16
1512063	4026755181937	11.19	1512755	4026755329070	11.16
1512065	4026755182255	11.19	1512757	4026755329087	11.16
1512141	4026755329032	11.14	1512843	4026755188370	11.16
1512143	4026755188264	11.14	1512845	4026755188387	11.16
1512144	4026755337648	11.14	1512847	4026755216097	11.16
1512145	4026755188271	11.14	1512849	4026755216103	11.16
1512146	4026755311754	11.14	1512851	4026755216110	11.16
1512147	4026755217476	11.14	1512852	4026755246902	11.16
1512148	4026755359725	11.14	1512853	4026755255904	11.16
1512149	4026755217483	11.14	1512949	4026755216127	11.16
1512151	4026755217490	11.14	1512951	4026755216134	11.16
1512156	4026755276336	11.14	1512952	4026755246919	11.16
1512157	4026755276343	11.14	1512953	4026755255911	11.16
1512163	4026755188288	11.19	1513043	4026755188394	11.17
1512165	4026755188295	11.19	1513045	4026755188400	11.17
1512171	4026755229721	11.19	1513046	4026755204469	11.17
1512172	4026755269512	11.19	1513047	4026755204476	11.17
1512243	4026755188301	11.14	1513048	4026755204483	11.17
1512245	4026755188318	11.14	1513049	4026755246926	11.17
1512246	4026755245349	11.14	1513050	4026755255928	11.17

Art.-No.	EAN/Code	Page	Art.-No.	EAN/Code	Page
1513155	4026755188417	11.17	1518070	4026755200300	11.29
1513156	4026755228410	11.17	1518074	4026755304268	11.21
1513157	4026755218107	11.17	1518074	4026755304268	11.29
1513158	4026755228014	11.17	1518183	4026755314380	11.22
1513159	4026755228021	11.17	1518184	4026755188547	11.22
1513160	4026755218114	11.17	1518185	4026755188554	11.22
1513162	4026755218121	11.17	1518186	4026755188561	11.22
1513163	4026755218138	11.17	1518187	4026755223132	11.22
1513164	4026755225624	11.17	1518188	4026755332209	11.22
1513165	4026755246933	11.17	1518189	4026755332216	11.22
1513167	4026755276381	11.17	1518196	4026755339086	11.22
1513255	4026755188424	11.17	1518197	4026755339093	11.22
1513257	4026755217766	11.17	1518198	4026755339109	11.22
1513354	4026755188431	11.17	1518199	4026755339116	11.22
1513356	4026755225631	11.17	1519445	4026755277432	11.47
1513358	4026755217506	11.17	1519446	4026755278736	11.47
1513361	4026755225648	11.17	1519460	4026755331783	11.44
1513365	4026755225655	11.17	1519461	4026755331837	11.44
1513454	4026755188448	11.17	1519462	4026755335309	11.44
1513457	4026755218145	11.17	1519465	4026755335316	11.44
1513460	4026755218152	11.17	1519466	4026755335323	11.45
1513643	4026755245363	11.18	1519476	4026755371369	11.46
1513645	4026755188455	11.18	1519480	4026755191011	11.46
1513647	4026755218169	11.18	1519481	4026755434156	11.46
1513648	4026755399660	11.18	1519482	4026755262599	11.46
1513649	4026755218176	11.18	1519483	4026755371376	11.47
1513651	4026755329094	11.18	1519484	4026755371383	11.47
1513652	4026755218183	11.18	1519488	4026755347425	11.46
1513655	4026755329100	11.18	1519489	4026755329940	11.46
1513656	4026755276398	11.18	1519490	4026755219470	11.46
1513658	4026755285833	11.18	1519491	4026755188578	11.46
1514040	4026755297539	11.15	1519491	4026755188578	11.55
1514041	4026755291056	11.15	1519492	4026755188585	11.46
1514042	4026755288230	11.15	1519492	4026755188585	11.55
1514043	4026755247855	11.15	1519493	4026755216004	11.46
1514044	4026755297546	11.15	1519494	4026755216011	11.46
1514045	4026755247862	11.15	1519494	4026755216011	11.55
1514046	4026755247879	11.15	1519495	4026755328295	11.46
1514047	4026755247886	11.15	1519497	4026755219487	11.47
1514054	4026755307856	11.15	1519589	4026755359237	11.43
1514055	4026755351729	11.15	1519590	4026755337792	11.43
1514653	4026755271164	11.19	1519591	4026755337808	11.43
1514654	4026755271171	11.19	1519592	4026755337815	11.43
1514655	4026755271188	11.19	1519593	4026755227475	11.42
1515143	4026755268959	11.20	1519594	4026755348866	11.43
1515144	4026755411522	11.20	1519595	4026755228434	11.43
1515146	4026755268966	11.20	1519596	4026755228441	11.43
1515153	4026755407570	2.14	1519598	4026755277449	11.43
1515156	4026755407587	2.14	1519599	4026755278743	11.43
1515243	4026755268973	11.20	1519681	4026755427462	11.47
1515244	4026755411539	11.20	1519691	4026755328929	11.47
1515290	4026755269987	11.20	1519691	4026755328929	11.55
1515353	4026755407594	2.14	1519692	4026755328936	11.47
1515356	4026755407600	2.14	1519692	4026755328936	11.55
1517043	4026755188462	11.21	1519693	4026755328943	11.47
1517045	4026755188479	11.21	1519694	4026755328950	11.47
1517053	4026755223323	11.21	1519694	4026755328950	11.55
1517055	4026755223330	11.21			
1517056	4026755252194	11.21	152164029		3.99
1517143	4026755188486	11.21	5593		
1517145	4026755188493	11.21	152164225		14.32
1517243	4026755188509	11.21	5375		
1517245	4026755188516	11.21	1522543	4026755316742	11.32
1517253	4026755288780	11.21	1522545	4026755316759	11.32
1517255	4026755288797	11.21	1522655	4026755317404	11.32
1517343	4026755188523	11.21	1522843	4026755316773	11.32
1517345	4026755188530	11.21	1522845	4026755316780	11.32
1517443	4026755206203	11.21	1523043	4026755317046	11.32
1517643	4026755253320	11.21	1523045	4026755317053	11.32
1517645	4026755228427	11.21	1523155	4026755316797	11.32
1518070	4026755200300	11.21	1523255	4026755316803	11.32

Art.-No.	EAN/Code	Page	Art.-No.	EAN/Code	Page
1523354	4026755316810	11.32	1532665*	4026755458633	11.25
1523454	4026755316827	11.32	1532666*	4026755458640	11.25
1532043	4026755353495	11.24	1532668*	4026755458657	11.25
1532044	4026755353501	11.24	1532669*	4026755458664	11.25
1532045	4026755353518	11.24	1532745	4026755353990	11.26
1532046	4026755353525	11.24	1532747	4026755354003	11.26
1532047	4026755353532	11.24	1532751	4026755354010	11.26
1532048	4026755353549	11.24	1532752	4026755354027	11.26
1532049	4026755353556	11.24	1532753	4026755354034	11.26
1532051*	4026755353563	11.24	1532755	4026755354041	11.26
1532054*	4026755458312	11.24	1532757	4026755354058	11.26
1532056*	4026755458329	11.24	1532843	4026755354065	11.26
1532057*	4026755458336	11.24	1532845	4026755354072	11.26
1532062	4026755354492	11.28	1532847	4026755354089	11.26
1532063	4026755354508	11.28	1532849*	4026755354096	11.26
1532065	4026755354515	11.28	1532851*	4026755458671	11.26
1532141	4026755353570	11.24	1532852*	4026755458688	11.26
1532143	4026755353587	11.24	1532853*	4026755458695	11.26
1532144	4026755353594	11.24	1532949*	4026755354102	11.26
1532145	4026755353600	11.24	1532951*	4026755458701	11.26
1532146*	4026755353617	11.24	1532952*	4026755458718	11.26
1532147	4026755353624	11.24	1532953*	4026755458725	11.26
1532148*	4026755458343	11.24	1533043	4026755354119	11.27
1532149*	4026755353631	11.24	1533045	4026755354126	11.27
1532151*	4026755458350	11.24	1533046	4026755354133	11.27
1532156*	4026755458367	11.24	1533047*	4026755354140	11.27
1532157*	4026755458374	11.24	1533048*	4026755458732	11.27
1532163	4026755354522	11.28	1533049*	4026755458749	11.27
1532165	4026755354539	11.28	1533050*	4026755458756	11.27
1532171	4026755354546	11.28	1533155	4026755354157	11.27
1532172	4026755354553	11.28	1533156	4026755354164	11.27
1532173	4026755412369	11.28	1533157	4026755354171	11.27
1532243	4026755353648	11.24	1533158*	4026755354188	11.27
1532245	4026755353655	11.24	1533159*	4026755354195	11.27
1532246	4026755353662	11.24	1533160*	4026755354201	11.27
1532247	4026755353679	11.24	1533162*	4026755458763	11.27
1532248	4026755353686	11.24	1533163*	4026755458770	11.27
1532249*	4026755353693	11.24	1533164*	4026755458787	11.27
1532252*	4026755458381	11.24	1533165*	4026755458794	11.27
1532256*	4026755458398	11.24	1533167*	4026755458800	11.27
1532257*	4026755458404	11.24	1533255	4026755354218	11.27
1532343	4026755353808	11.26	1533257	4026755354225	11.27
1532344	4026755353815	11.26	1533354	4026755354232	11.27
1532345	4026755353822	11.26	1533356	4026755354249	11.27
1532346	4026755353839	11.26	1533358	4026755354256	11.27
1532347	4026755353846	11.26	1533361*	4026755354263	11.27
1532348*	4026755353853	11.26	15333454	4026755354270	11.27
1532357	4026755353860	11.26	1533457	4026755354287	11.27
1532358	4026755353877	11.26	1533460*	4026755354294	11.27
1532443	4026755353884	11.26	1533643	4026755354300	11.27
1532445	4026755353891	11.26	1533645	4026755354317	11.27
1532446	4026755353907	11.26	1533647	4026755354324	11.27
1532447	4026755353914	11.26	1533648	4026755419399	11.27
1532448	4026755353921	11.26	1533649*	4026755354331	11.27
1532449*	4026755353938	11.26	1533651*	4026755354348	11.27
1532543	4026755353709	11.24	1533652*	4026755458824	11.27
1532545	4026755353716	11.24	1533655*	4026755458831	11.27
1532546	4026755353723	11.24	1533656*	4026755458848	11.27
1532547*	4026755353730	11.24	1533658*	4026755458855	11.27
1532548*	4026755458572	11.24	1534040	4026755354355	11.25
1532549*	4026755458589	11.24	1534041	4026755354362	11.25
1532550*	4026755458596	11.24	1534042	4026755354379	11.25
1532655	4026755353945	11.25	1534043	4026755354386	11.25
1532656	4026755353952	11.25	1534044	4026755354393	11.25
1532657	4026755353969	11.25	1534045	4026755354409	11.25
1532659*	4026755353976	11.25	1534046	4026755354416	11.25
1532660*	4026755353983	11.25	1534047	4026755354423	11.25
1532662*	4026755458602	11.25	1534054	4026755354430	11.25
1532663*	4026755458619	11.25	1534055*	4026755458862	11.25
1532664*	4026755458626	11.25	1534653	4026755354560	11.28
			1534654	4026755354577	11.28

Art.-No.	EAN/Code	Page	Art.-No.	EAN/Code	Page
1534655	4026755354584	11.28	1541455	4026755383683	11.06
1535143*	4026755458879	11.28	1541460	4026755383690	11.06
1535144*	4026755458886	11.28	1541555	4026755383706	11.07
1535146*	4026755458893	11.28	1541560	4026755383713	11.07
1535243*	4026755354591	11.28	1541566	4026755383720	11.07
1535244*	4026755458909	11.28	1541572	4026755383737	11.07
1537043	4026755354607	11.29	1541582*	4026755460209	11.07
1537045	4026755354614	11.29	1541584	4026755383744	11.07
1537053	4026755354621	11.29	1541585*	4026755460216	11.07
1537055	4026755354638	11.29			
1537056	4026755354645	11.29	1552543	4026755437027	11.54
1537143	4026755354652	11.29	1552545	4026755437034	11.54
1537145	4026755354669	11.29	1552655	4026755437041	11.54
1537146	4026755419528	11.29	1552843	4026755437058	11.54
1537147	4026755419535	11.29	1552845	4026755437065	11.54
1537148	4026755419542	11.29	1553043	4026755437072	11.54
1537243	4026755354676	11.29	1553045	4026755437089	11.54
1537245	4026755354683	11.29	1553155	4026755437096	11.54
1537253	4026755354690	11.29	1553354	4026755437102	11.54
1537255	4026755354706	11.29			
1537343	4026755354713	11.29	1562043	4026755437119	11.52
1537345	4026755354720	11.29	1562045	4026755437126	11.52
1537443	4026755354737	11.30	1562046	4026755437133	11.52
1537643	4026755354744	11.30	1562048	4026755437140	11.52
1537645	4026755354751	11.30	1562049	4026755437157	11.52
1538183	4026755354799	11.30	1562051	4026755437164	11.52
1538184	4026755354768	11.30	1562243	4026755437171	11.52
1538185	4026755354775	11.30	1562246	4026755437188	11.52
1538186	4026755354805	11.30	1562543	4026755437195	11.52
1538187	4026755354812	11.30	1562545	4026755437201	11.52
1538188	4026755354829	11.30	1562546	4026755437218	11.52
1538189	4026755354836	11.30	1562547	4026755437225	11.52
1538196	4026755354843	11.30	1562655	4026755437232	11.52
1538197	4026755354850	11.30	1562656	4026755437249	11.52
1538198	4026755354867	11.30	1562657	4026755437256	11.52
1538199	4026755354874	11.30	1562660	4026755437263	11.52
1539946	4026755430783	11.29	1562843	4026755437270	11.53
1539947	4026755430790	11.29	1562845	4026755437287	11.53
			1562847	4026755437294	11.53
			1562849	4026755437300	11.53
1540154	4026755383492	2.50	1563043	4026755437317	11.53
1540154	4026755383492	11.06	1563045	4026755437324	11.53
1540155	4026755383508	2.50	1563046	4026755437331	11.53
1540155	4026755383508	11.06	1563047	4026755437348	11.53
1540160	4026755383522	2.51	1563155	4026755437355	11.53
1540160	4026755383522	11.06	1563156	4026755437362	11.53
1540254	4026755383539	2.50	1563157	4026755437379	11.53
1540254	4026755383539	11.06	1563354	4026755437386	11.53
1540255	4026755383546	2.50	1563356	4026755437393	11.53
1540255	4026755383546	11.06	1567053	4026755436440	11.53
1540257	4026755424782	2.51	1567055	4026755436457	11.53
1540260	4026755396669	2.51	1569493	4026755446722	11.55
1540260	4026755396669	11.06	1569594	4026755446739	11.55
1540355*	4026755460070	2.46	1569693	4026755446746	11.55
1540555	4026755383553	2.50			
1540555	4026755383553	11.06	1609302	4026755284539	3.17
1540557	4026755424799	2.51			
1541054	4026755383560	2.50	1613066	4026755369236	1.14
1541054	4026755383560	11.06	1613401	4026755136876	1.16
1541055	4026755383577	2.50	1613465	4026755237498	1.16
1541055	4026755383577	11.06	1613501	4026755171655	1.16
1541060	4026755383584	2.51	1616001	4026755222531	1.16
1541060	4026755383584	11.06	1616100	4026755192759	1.16
1541066	4026755383591	11.06	1616200	4026755205404	1.16
1541072	4026755383607	11.06	1616301	4026755210330	1.16
1541155	4026755383614	11.06	1616500	4026755329957	1.16
1541160	4026755383621	11.06	1616575	4026755330779	1.15
1541254	4026755383638	11.07	1616675	4026755330786	1.15
1541255	4026755383645	11.07			
1541260	4026755383652	11.07	1627965	4026755211832	1.18
1541355	4026755383669	11.06			
1541360	4026755383676	11.06			

Art.-No.	EAN/Code	Page	Art.-No.	EAN/Code	Page
1641451	4026755308013	1.17	1694891	4026755385625	2.67
1641451	4026755308013	10.12	1694892	4026755391756	2.67
1643561	4026755334609	1.92	1694893	4026755391879	2.67
1648077	4026755303070	1.110	1696081	4026755361995	5.06
			1696082	4026755362008	5.06
1650793	4026755388732	3.63	1696083	4026755362015	5.06
1650793	4026755388732	3.69			
1650793	4026755388732	3.79	1703063	4026755448740	1.71
1651500	4026755163797	6.12	1703064	4026755448757	1.71
1651500	4026755163797	6.22	1703163	4026755448764	1.71
1651500	4026755163797	6.61	1703164	4026755448771	1.71
1659990	4026755281019	9.33			
1659990	4026755281019	9.60	1713063	4026755448788	1.70
			1713064	4026755448795	1.70
1661100	4026755171853	1.130	1713163	4026755448801	1.70
1661100	4026755171853	3.69	1713164	4026755448818	1.70
1661100	4026755171853	3.79	1715813	4026755448825	1.71
1661445	4026755340624	1.17	1715814	4026755448832	1.71
			1715883	4026755448849	1.71
			1715884	4026755448856	1.71
1670851	4026755419689	3.86			
1670852	4026755419696	3.86	1879850	4026755320329	1.111
1670853	4026755419702	3.86			
1670854	4026755419719	3.86	1900051	4026755146493	5.36
1670855	4026755419726	3.86	1900052	4026755146509	5.36
1671003	4026755388428	1.70	1900053	4026755146516	5.36
1671004	4026755388435	1.70	1900054	4026755146523	5.36
1672003	4026755388442	1.70	1900055	4026755146530	5.36
1672004	4026755388497	1.70	1900056	4026755146547	5.36
1673703	4026755427820	1.70	1902051°	4026755146554	5.36
1673704	4026755427837	1.70	1902052°	4026755146561	5.36
1675103	4026755427882	1.70	1902053°	4026755146578	5.36
1675104	4026755427899	1.70	1902054°	4026755146585	5.36
1676149	4026755392753	3.60	1902055°	4026755146592	5.36
1676150	4026755392760	3.60	1902056°	4026755146608	5.36
1676151	4026755392777	3.60	1902057°	4026755146615	5.36
1676152	4026755392784	3.60	1902058°	4026755146622	5.36
1676153	4026755392791	3.60	1905051	4026755146639	6.140
1676154	4026755392807	3.60	1905551	4026755146646	6.140
1676155	4026755392814	3.60	1905552	4026755146653	6.141
1676156	4026755427677	3.60			
1676251	4026755396034	3.61	1989100	4026755147667	1.18
1676252	4026755396041	3.61			
1676253	4026755396058	3.61			
			2010152	4026755148268	14.22
1681650	4026755219579	1.130	2010153	4026755148275	14.22
1683703	4026755448702	1.71	2010154	4026755148282	14.22
1683704	4026755448719	1.71	2010155	4026755148299	14.22
1683803	4026755448726	1.71	2010516	4026755148329	14.24
1683804	4026755448733	1.71	2010616	4026755148343	14.24
1685121		6.98	2010716	4026755148367	14.24
1688290	4026755384031	3.44	2010816	4026755288889	14.23
1688291	4026755434187	3.51	2010824	4026755288896	14.23
1688295	4026755256789	3.45	2010832	4026755288902	14.23
1688296	4026755256796	3.46	2010851	4026755432879	14.23
1688297	4026755256802	3.46	2010882	4026755289022	14.23
1688350	4026755419733	3.32	2013051	4026755148381	14.22
1688356	4026755419740	3.32	2014151	4026755148411	14.22
1688703	4026755419757	3.27	2018073°	4026755283211	14.22
1688704	4026755419764	3.27	2018083	4026755286199	14.22
1688706	4026755419771	3.27	2018090	4026755192292	14.22
1688708	4026755419788	3.27	2018091	4026755192308	14.22
1688710	4026755419795	3.27	2018092	4026755192315	14.22
1688712	4026755419801	3.27	2018093	4026755192322	14.22
1688716	4026755419818	3.27	2018094	4026755192339	14.22
1688746	4026755419825	3.30	2018095	4026755192346	14.22
1688747	4026755419832	3.30	2018182	4026755288919	14.23
1688748	4026755419849	3.30	2018192	4026755288926	14.23
1688749	4026755419856	3.30	2018195	4026755288933	14.23
1688750	4026755419863	3.30	2018197	4026755288940	14.23
			2020006	4026755148428	14.24

Art.-No.	EAN/Code	Page	Art.-No.	EAN/Code	Page
2020008	4026755148435	14.24	2075153	4026755149395	14.34
2020010	4026755148442	14.24	2075161	4026755419924	14.34
2020012	4026755148459	14.24	2075261	4026755419931	14.34
2020016	4026755148466	14.24	2076004	4026755149418	14.33
2020020	4026755148473	14.24	2076100	4026755149425	14.33
2020024	4026755148480	14.24	2076200	4026755149432	14.34
2020106	4026755148497	14.24			
2020108	4026755148503	14.24	2080050	4026755149487	14.45
2020110	4026755148510	14.24	2080051	4026755149494	14.45
2020112	4026755148527	14.24	2080052	4026755149500	14.45
2020116	4026755148534	14.24	2080053	4026755149517	14.45
2020120	4026755148541	14.24	2080151	4026755149524	14.45
2020124	4026755148558	14.24	2080251	4026755149531	14.45
			2080252	4026755149548	14.45
2030003	4026755148565	14.31	2080253	4026755149555	14.45
2030004	4026755148572	14.31	2080254	4026755149562	14.45
2030006	4026755148589	14.31	2080255	4026755149579	14.45
2030008	4026755148596	14.31	2080351	4026755149586	14.45
2031103	4026755148602	14.31	2080352	4026755149593	14.45
2031104	4026755148619	14.31	2080353	4026755149609	14.45
2033053	4026755148671	14.31	2080354	4026755149616	14.45
2033151	4026755148688	14.31	2080451	4026755149647	14.45
			2080452	4026755149654	14.45
2040050	4026755379389	14.32	2080851	4026755149678	14.37
2040053	4026755148718	14.32	2080852	4026755149685	14.37
2040055	4026755148725	14.32	2080853	4026755149692	14.37
2040056	4026755148732	14.32	2080854	4026755149708	14.37
2040090	4026755394719	14.32	2080855	4026755149715	14.37
2040152	4026755148770	14.32	2080856	4026755149722	14.37
2040154	4026755148787	14.32	2083051	4026755150230	14.44
2041051	4026755148800	14.32	2083052	4026755150247	14.44
			2083053	4026755150254	14.44
2050051	4026755148817	14.32	2083054	4026755150261	14.44
2050052	4026755148824	14.32	2083055	4026755150278	14.44
2050053	4026755148831	14.32	2083056	4026755150285	14.44
2050054	4026755148848	14.32	2083057	4026755150292	14.44
2050055	4026755148855	14.32	2083058	4026755150308	14.44
2050056	4026755148862	14.32	2083060	4026755421453	14.44
2052051	4026755166996	14.29	2083061	4026755421460	14.44
2052053	4026755182989	14.29	2083063	4026755421477	14.44
2052080	4026755394726	14.31	2083074	4026755422344	14.44
2052091	4026755183948	14.29	2083075	4026755422351	14.44
2052151	4026755148930	14.29	2083076	4026755422368	14.44
2052152	4026755148947	14.29	2083251	4026755150377	14.44
2052153	4026755148954	14.29	2083252	4026755150384	14.44
2052154	4026755148961	14.29	2083253	4026755150391	14.44
2052351	4026755148978	14.27	2083254	4026755150407	14.44
2052351	4026755148978	14.29	2083255	4026755150414	14.44
2053051	4026755148985	14.30	2083350	4026755421484	14.44
2053052	4026755148992	14.30	2083351	4026755421491	14.44
2053351	4026755149029	14.30	2083353	4026755421507	14.44
2053352	4026755149036	14.30	2083451	4026755150438	14.44
2053353	4026755149043	14.30	2083452	4026755150445	14.44
2053354	4026755149050	14.30	2083453	4026755150452	14.44
			2083454	4026755150469	14.44
2060012	4026755149067	14.25	2083455	4026755150476	14.44
2060200	4026755394733	14.25	2083551	4026755150483	14.44
2060312	4026755279368	14.25	2083552	4026755150490	14.44
2060400	4026755359718	14.25	2083553	4026755150506	14.44
2061051	4026755202069	14.25	2083554	4026755150513	14.44
2064051	4026755232448	14.50	2083751	4026755150537	14.44
2064351	4026755232479	14.50	2083752	4026755150544	14.44
2065351	4026755290790	14.50	2083753	4026755150551	14.44
			2083754	4026755150568	14.44
2072061	4026755419870	14.34	2083755	4026755150575	14.44
2073051	4026755149319	14.33	2083756	4026755150582	14.44
2073161	4026755419887	14.33	2083851	4026755150599	14.45
2074061	4026755419894	14.33	2083852	4026755150605	14.45
2074261	4026755419900	14.33	2083853	4026755150612	14.45
2075053	4026755149371	14.34	2083854	4026755150629	14.45
2075061	4026755419917	14.34	2083855	4026755150636	14.45

Art.-No.	EAN/Code	Page	Art.-No.	EAN/Code	Page
2083856	4026755150643	14.45	2120261	4026755151459	14.14
2083951	4026755150650	1.147	2120285	4026755271256	14.16
2083951	4026755150650	14.45	2120403	4026755151480	14.14
2083952	4026755150667	1.147	2120503	4026755151497	14.14
2083952	4026755150667	14.45	2120561	4026755151503	14.14
2091002	4026755150711	14.38	2120585	4026755271263	14.16
2100051	4026755150766	14.38	2120691	4026755151527	14.18
2100052	4026755150773	14.38	2120803	4026755151558	14.14
2100053	4026755150780	14.38	2120891	4026755151572	14.15
2100054	4026755150797	14.38	2121871	4026755151619	14.12
2100055	4026755150803	14.38	2122103	4026755151664	14.12
2102051	4026755150865	14.38	2122153	4026755290813	14.51
2102052	4026755150872	14.38	2122261	4026755151701	14.12
2102053	4026755150889	14.38	2122262	4026755151718	14.12
2102054	4026755150896	14.38	2122403	4026755151732	14.12
2103260	4026755425857	14.38	2122503	4026755151749	14.12
2104203	4026755240474	14.36	2122561	4026755151756	14.12
2104553	4026755355369	14.36	2123103	4026755151886	14.11
2107003	4026755279047	14.37	2123104	4026755151893	14.11
2110051	4026755151022	14.46	2123153	4026755290820	14.51
2110052	4026755151039	14.46	2123261	4026755151930	14.11
2110053	4026755151046	14.46	2123503	4026755151985	14.11
2110054	4026755151053	14.46	2123561	4026755151992	14.11
2110055	4026755151060	14.46	2123871	4026755152050	14.11
2110056	4026755151077	14.46	2124203	4026755152104	14.13
2110057	4026755151084	14.46	2124204	4026755152111	14.13
2110058	4026755151091	14.46	2124360	4026755152159	14.13
2110059	4026755151107	14.46	2124361	4026755152166	14.13
2110071	4026755317572	14.46	2124362	4026755152173	14.13
2110072	4026755317589	14.46	2125003	4026755152197	14.20
2110073	4026755317596	14.46	2126051	4026755152241	14.18
2110151	4026755151114	14.46	2126100	4026755152272	14.18
2110152	4026755151121	14.46	2126200	4026755152296	14.18
2110153	4026755151138	14.46	2126251°	4026755181623	14.18
2110154	4026755151145	14.46	2126300	4026755152302	14.17
2110155	4026755151152	14.46	2126351	4026755152319	14.17
2110251	4026755151169	14.46	2126354	4026755344226	14.17
2110252	4026755151176	14.46	2126355	4026755152326	14.17
2110253	4026755151183	14.46	2126356°	4026755388374	14.17
2110254	4026755151190	14.46	2126371	4026755152333	14.17
2110255	4026755151206	14.46	2126400	4026755152340	14.19
2110350	4026755151213	14.46	2126454	4026755279054	14.17
2110351	4026755151220	14.46	2126474	4026755371437	14.17
2110352	4026755151237	14.46	2126484	4026755394740	14.17
2110353	4026755151244	14.46	2126600	4026755152364	14.15
2110354	4026755151251	14.46	2126691	4026755152371	14.15
2110355	4026755151268	14.46	2126695	4026755279061	14.19
2110551	4026755151275	14.47	2126751	4026755152388	14.15
2110552	4026755151282	14.47	2126754	4026755344233	14.15
2110553	4026755151299	14.47	2126755	4026755152401	14.15
2110554	4026755151305	14.47	2126774	4026755371444	14.15
2110555	4026755151312	14.47	2126803	4026755152418	14.15
2110556	4026755151329	14.47	2126804	4026755152425	14.15
2110557	4026755151336	14.47	2126951	4026755152432	14.15
2110558	4026755151343	14.47	2126952	4026755152449	14.15
2110559	4026755151350	14.47	2127050	4026755152456	14.43
2110560	4026755151367	14.47	2127051	4026755152463	14.43
2110561	4026755151374	14.47	2127052	4026755152470	14.43
2110562	4026755151381	14.47	2127053	4026755152487	14.43
2111051	4026755328677	14.47	2127150	4026755152494	14.43
2111052	4026755328684	14.47	2127151	4026755152500	14.43
2111053	4026755328691	14.47	2127152	4026755152517	14.43
2111055	4026755328707	14.47	2127153	4026755152524	14.43
2120003	4026755151398	14.14	2127250	4026755152531	14.43
2120103	4026755151411	14.14	2127251	4026755152548	14.43
2120104	4026755151428	14.14	2127253	4026755152555	14.43
2120153	4026755290806	14.51	2127500	4026755152562	14.51
			2127650	4026755152586	14.43
			2127651	4026755152593	14.43
			2127652	4026755152609	14.43
			2127653	4026755152616	14.43

Art.-No.	EAN/Code	Page	Art.-No.	EAN/Code	Page
2127700	4026755152623	14.51	4200554	4026755431254	8.79
2129000	4026755152678	14.20	4200571	4026755439847	8.79
2129102	4026755152685	14.20	4200572°	4026755155532	8.66
2129152	4026755152708	14.20	4200573°	4026755155549	8.66
2129200	4026755152715	14.20	4200574°	4026755155556	8.66
			4200575°	4026755155563	8.66
2130051	4026755152722	14.26	4200576°	4026755155570	8.66
2130052	4026755152739	14.26	4200577°	4026755155587	8.66
2130053	4026755152746	14.26	4200590	4026755435597	8.79
2130054	4026755152753	14.26	4200804	4026755155594	8.10
2130108	4026755152760	14.26	4200806	4026755155600	8.10
2130150	4026755394757	14.26	4200808	4026755155617	8.10
2130512	4026755152777	14.26	4200810	4026755155624	8.10
2133000	4026755152784	14.28	4200812	4026755155631	8.10
2133100	4026755152791	14.28	4200816	4026755155648	8.10
2133200	4026755152807	14.28	4201004	4026755399141	8.10
2133300	4026755152814	14.28	4201006	4026755399158	8.10
2134100	4026755152821	14.28	4201008	4026755399165	8.10
			4201010	4026755399172	8.10
2142700	4026755407679	14.08	4201012	4026755399189	8.10
2142732	4026755407686	14.08	4201016	4026755399196	8.10
2142735	4026755407693	14.08	4201071	4026755218565	8.78
2142737	4026755407709	14.08	4201081	4026755218589	8.78
2142754	4026755403435	14.08	4201082	4026755218596	8.78
2142762	4026755403442	14.08	4201204	4026755155716	8.10
2142900	4026755309874	14.09	4201206	4026755155723	8.10
2142901	4026755298512	14.09	4201208	4026755155730	8.10
2142951	4026755298529	14.09	4201210	4026755155747	8.10
2142990	4026755298536	14.10	4201212	4026755155754	8.10
2142992	4026755420951	14.10	4201216	4026755155761	8.10
			4201252	4026755344851	8.10
2152554	4026755388381	14.12	4201253	4026755344868	8.10
2152754	4026755407716	14.08	4201254	4026755344875	8.10
2152951	4026755356182	14.09	4201255	4026755344882	8.10
2153554	4026755388404	14.11	4201256	4026755344899	8.10
			4201257	4026755344905	8.10
2162993	4026755347173	14.09	4201258	4026755344912	8.10
2162993	4026755347173	14.47	4201372	4026755155839	8.66
2166500	4026755344240	14.15	4201373	4026755155846	8.66
			4201374	4026755155853	8.66
3016404	4026755262834	5.07	4201375	4026755155860	8.66
3016406	4026755262841	5.07	4201376	4026755340464	8.66
3016408	4026755262858	5.07	4201377	4026755340471	8.66
3016410	4026755262865	5.07	4201378	4026755318562	8.66
3016412	4026755262872	5.07	4201379	4026755318579	8.66
3016416	4026755262889	5.07	4201471	4026755166910	8.66
			4201472	4026755155877	8.66
4200191	4026755155525	8.63	4201473	4026755155884	8.66
4200208	4026755166699	8.62	4201474	4026755155891	8.66
4200211	4026755166705	8.62	4201475	4026755155907	6.120
4200212	4026755166712	8.62	4201475	4026755155907	8.66
4200252	4026755166248	8.61	4201476	4026755155914	8.66
4200253	4026755179132	8.61	4201477	4026755155921	8.66
4200254	4026755166231	8.61	4201804	4026755155938	8.12
4200255	4026755166262	8.61	4201806	4026755155945	8.12
4200256	4026755166255	8.61	4201808	4026755155952	8.12
4200272	4026755167696	8.66	4201810	4026755155969	8.12
4200273	4026755167702	8.66	4201812	4026755155976	8.12
4200282	4026755167672	8.66	4201816	4026755155983	8.12
4200283	4026755167757	8.64	4201820	4026755332537	8.18
4200284	4026755167764	8.64	4201824	4026755332544	8.18
4200285	4026755167740	8.64	4201852°	4026755155990	8.11
4200288	4026755183474	8.64	4201853°	4026755156003	8.11
4200289	4026755166903	8.64	4201854°	4026755156010	8.11
4200290	4026755167788	8.64	4201855°	4026755156027	8.11
4200291	4026755167771	8.64	4201856°	4026755156034	8.11
4200295	4026755166637	8.63	4201857°	4026755156041	8.11
4200308	4026755166729	8.62	4201858°	4026755156058	8.11
4200453	4026755165395	8.78	4202072	4026755156065	8.66
4200552	4026755431230	8.79	4202073	4026755156072	8.66
4200553	4026755431247	8.79	4202074	4026755156089	8.66

Art.-No.	EAN/Code	Page	Art.-No.	EAN/Code	Page
4202075	4026755156096	8.66	4203858	4026755156683	8.11
4202076	4026755156102	8.66	4204252°	4026755156690	8.11
4202077	4026755156119	8.66	4204253°	4026755156706	8.11
4202078	4026755156126	8.66	4204254°	4026755156713	8.11
4202204	4026755156133	8.12	4204255°	4026755156720	8.11
4202206	4026755156140	8.12	4204256°	4026755156737	8.11
4202208	4026755156157	8.12	4204257°	4026755156744	8.11
4202210	4026755156164	8.12	4204258°	4026755156751	8.11
4202212	4026755156171	8.12	4204351	4026755332797	8.19
4202216	4026755156188	8.12	4204352	4026755332803	8.19
4202220	4026755332551	8.18	4204451	4026755332810	8.19
4202224	4026755332568	8.18	4204452	4026755332827	8.19
4202252°	4026755156195	8.11	4204506	4026755191363	8.68
4202253°	4026755156201	8.11	4204508	4026755191370	8.68
4202254°	4026755156218	8.11	4204510	4026755191387	8.68
4202255°	4026755156225	8.11	4204590	4026755328714	8.68
4202256°	4026755156232	8.11	4204591	4026755328721	8.68
4202257°	4026755156249	8.11	4204592	4026755328738	8.68
4202258°	4026755156256	8.11	4204593	4026755328745	8.68
4202304°	4026755341959	8.22	4205404	4026755392685	8.29
4202306°	4026755341966	8.22	4205406	4026755392692	8.29
4202308°	4026755341973	8.22	4205504	4026755288964	8.29
4202310°	4026755341980	8.22	4205506	4026755288971	8.29
4202463	4026755156263	8.12	4205508	4026755288988	8.29
4202464	4026755156270	8.12	4205552	4026755347760	8.29
4202465	4026755156287	8.12	4205553	4026755347777	8.29
4202466	4026755156294	8.12	4205554	4026755347784	8.29
4202467	4026755156300	8.12	4205555	4026755347791	8.29
4202468	4026755156317	8.12	4205581	4026755306033	8.30
4202508	4026755166033	8.62	4205583	4026755306057	8.30
4202508	4026755166033	8.70	4205591	4026755306064	8.30
4202663°	4026755156324	8.12	4205591	4026755306064	8.52
4202664°	4026755156331	8.12	4205592	4026755306071	8.30
4202665°	4026755156348	8.12	4205593	4026755307528	8.30
4202666°	4026755156355	8.12	4205604	4026755312522	8.29
4202667°	4026755156362	8.12	4205606	4026755312539	8.29
4202668°	4026755156379	8.12	4205608	4026755312546	8.29
4202704	4026755341997	8.22	4205704	4026755332230	8.28
4202706	4026755342000	8.22	4205706	4026755332247	8.28
4202708	4026755342017	8.22	4205752	4026755347807	8.28
4202710	4026755342024	8.22	4205753	4026755347814	8.28
4202804	4026755156386	8.13	4205754	4026755347821	8.28
4202806	4026755156393	8.13	4205781	4026755332575	8.30
4202808	4026755156409	8.13	4205804	4026755156799	8.14
4202810	4026755156416	8.13	4205806	4026755156805	8.14
4202812	4026755156423	8.13	4205808	4026755156812	8.14
4202816	4026755156430	8.13	4205810	4026755156829	8.14
4202904°	4026755156447	8.13	4205812	4026755156836	8.14
4202906°	4026755156454	8.13	4205816	4026755156843	8.14
4202908°	4026755156461	8.13	4205904	4026755359305	8.46
4202910°	4026755156478	8.13	4205990	4026755385243	8.46
4202912°	4026755156485	8.13	4205991	4026755390018	8.46
4202916°	4026755156492	8.13	4205992	4026755412932	8.46
4203204°	4026755156508	8.13	4206204	4026755156881	8.14
4203206°	4026755156515	8.13	4206206	4026755156898	8.14
4203208°	4026755156522	8.13	4206208	4026755156904	8.14
4203210°	4026755156539	8.13	4206210	4026755156911	8.14
4203212°	4026755156546	8.13	4206212	4026755156928	8.14
4203216°	4026755156553	8.13	4206216	4026755156935	8.14
4203304°	4026755156560	8.13	4206252°	4026755344929	8.14
4203306°	4026755156577	8.13	4206253°	4026755344936	8.14
4203308°	4026755156584	8.13	4206254°	4026755344943	8.14
4203310°	4026755156591	8.13	4206255°	4026755344950	8.14
4203312°	4026755156607	8.13	4206256°	4026755344967	8.14
4203316°	4026755156614	8.13	4206257°	4026755344974	8.14
4203852	4026755156621	8.11	4206258°	4026755344981	8.14
4203853	4026755156638	8.11	4206304	4026755412949	8.46
4203854	4026755156645	8.11	4206504	4026755288995	8.29
4203855	4026755156652	8.11	4206506	4026755289008	8.29
4203856	4026755156669	8.11	4206508	4026755289015	8.29
4203857	4026755156676	8.11	4206604	4026755312553	8.29

Art.-No.	EAN/Code	Page	Art.-No.	EAN/Code	Page
4206606	4026755312560	8.29	4208106	4026755295184	8.32
4206608	4026755312577	8.29	4208108	4026755295191	8.32
4206704	4026755332254	8.28	4208110	4026755295207	8.32
4206706	4026755332261	8.28	4208152	4026755347265	8.32
4206776	4026755369847	8.52	4208154	4026755347272	8.32
4206780	4026755375978	8.53	4208156	4026755347289	8.32
4206790	4026755370768	8.52	4208158	4026755347296	8.32
4206790	4026755370768	8.53	4208181	4026755308044	8.32
4206795	4026755370775	8.52	4208182	4026755308051	8.32
4206797	4026755382600	8.53	4208183	4026755308068	8.32
4206804	4026755156942	8.17	4208192	4026755314182	8.33
4206806	4026755156959	8.17	4208193	4026755314199	8.33
4206808	4026755156966	8.17	4208194	4026755314205	8.33
4206810	4026755156973	8.17	4208195	4026755314212	8.33
4206812	4026755156980	8.17	4208204	4026755157314	8.16
4206816	4026755156997	8.17	4208206	4026755157321	8.16
4206904°	4026755157000	8.17	4208208	4026755157338	8.16
4206906°	4026755157017	8.17	4208210	4026755157345	8.16
4206908°	4026755157024	8.17	4208212	4026755157352	8.16
4206910°	4026755157031	8.17	4208216	4026755157369	8.16
4206912°	4026755157048	8.17	4208220	4026755332605	8.18
4206916°	4026755157055	8.17	4208224	4026755332612	8.18
4207004	4026755421354	8.56	4208352°	4026755157376	8.15
4207005	4026755418033	8.56	4208353°	4026755157383	8.15
4207089°	4026755432756	8.57	4208354°	4026755157390	8.15
4207090	4026755418040	8.57	4208355°	4026755157406	8.15
4207091	4026755418057	8.57	4208356°	4026755157413	8.15
4207092	4026755418064	8.57	4208357°	4026755157420	8.15
4207093	4026755418071	8.57	4208358°	4026755157437	8.15
4207094	4026755421361	8.56	4208363	4026755157444	8.16
4207095	4026755421378	8.56	4208364	4026755157451	8.16
4207096	4026755421385	8.57	4208365	4026755157468	8.16
4207097	4026755421521	8.57	4208366	4026755157475	8.16
4207098	4026755422542	8.56	4208367	4026755157482	8.16
4207099	4026755422559	8.56	4208368	4026755157499	8.16
4207104	4026755289046	8.32	4208504	4026755314137	8.32
4207106	4026755289053	8.32	4208506	4026755314144	8.32
4207108	4026755289060	8.32	4208508	4026755314151	8.32
4207110	4026755289077	8.32	4208510	4026755314168	8.32
4207204°	4026755157062	8.17	4208563°	4026755157505	8.16
4207206°	4026755157079	8.17	4208564°	4026755157512	8.16
4207208°	4026755157086	8.17	4208565°	4026755157529	8.16
4207210°	4026755157093	8.17	4208566°	4026755157536	8.16
4207212°	4026755157109	8.17	4208567°	4026755157543	8.16
4207216°	4026755157116	8.17	4208568°	4026755157550	8.16
4207304°	4026755157123	8.17	4208604	4026755340655	8.22
4207306°	4026755157130	8.17	4208606	4026755340662	8.22
4207308°	4026755157147	8.17	4208608	4026755340693	8.22
4207310°	4026755157154	8.17	4208610	4026755340709	8.22
4207312°	4026755157161	8.17	4208612	4026755340716	8.22
4207316°	4026755157178	8.17	4208616	4026755340723	8.22
4207504	4026755314090	8.32	4208704	4026755340662	8.22
4207506	4026755314106	8.32	4208706	4026755340730	8.22
4207508	4026755314113	8.32	4208708	4026755340747	8.22
4207510	4026755314120	8.32	4208710	4026755340754	8.22
4207804	4026755157185	8.16	4208712	4026755340761	8.22
4207806	4026755157192	8.16	4208716	4026755340778	8.22
4207808	4026755157208	8.16	4208804	4026755324860	8.24
4207810	4026755157215	8.16	4208806	4026755324877	8.24
4207812	4026755157222	8.16	4208808	4026755324884	8.24
4207816	4026755157239	8.16	4208810	4026755324891	8.24
4207820	4026755332582	8.18	4208812	4026755324907	8.24
4207824	4026755332599	8.18	4208816	4026755324914	8.24
4207952°	4026755157246	8.15	4208820	4026755363357	8.24
4207953°	4026755157253	8.15	4208824	4026755363364	8.24
4207954°	4026755157260	8.15	4208852	4026755344998	8.24
4207955°	4026755157277	8.15	4208853	4026755345001	8.24
4207956°	4026755157284	8.15	4208854	4026755345018	8.24
4207957°	4026755157291	8.15	4208855	4026755345025	8.24
4207958°	4026755157307	8.15	4208856	4026755345032	8.24
4208104	4026755295177	8.32	4208857	4026755345049	8.24

Art.-No.	EAN/Code	Page	Art.-No.	EAN/Code	Page
4208858	4026755345056	8.24	4220304	4026755357127	8.37
4208881	4026755356793	8.25	4220306	4026755357134	8.37
4208882	4026755356809	8.25	4220308	4026755391428	8.37
4208883	4026755356816	8.25	4220310	4026755391435	8.37
4208884	4026755356823	8.25	4220352	4026755357141	8.37
4208885	4026755369458	8.25	4220353	4026755357158	8.37
4208886	4026755369465	8.25	4220354	4026755357165	8.37
4208890	4026755422566	8.24	4221090	4026755357462	8.41
4208893	4026755404333	8.25	4223116	4026755412970	8.40
4208904	4026755340990	8.24	4223190	4026755418095	8.44
4208906	4026755341034	8.24	4223191	4026755421392	8.41
4208908	4026755341041	8.24	4223192	4026755421408	8.43
4208910	4026755341058	8.24	4223193	4026755421415	8.43
4208912	4026755341065	8.24	4223194	4026755421422	8.44
4208916	4026755341072	8.24	4223195	4026755421439	8.43
4209004	4026755157567	8.20	4223196	4026755425468	8.43
4209006	4026755157574	8.20	4223197	4026755435603	8.43
4209008	4026755157581	8.20	4223216	4026755418101	8.40
4209010	4026755157598	8.20	4223290	4026755418118	8.44
4209012	4026755157604	8.20	4225004	4026755357271	8.38
4209016	4026755157611	8.20	4225090	4026755357479	8.41
4209020	4026755334616	8.20	4225104	4026755357288	8.38
4209024	4026755334623	8.20	4225152	4026755357295	8.38
4209090	4026755363821	3.45	4225204	4026755357301	8.39
4209090	4026755363821	8.33	4225304	4026755357318	8.39
4209102	4026755309959	6.120	4225352	4026755357325	8.39
4209102	4026755309959	8.34	4225504	4026755357332	8.38
4209103	4026755309966	8.34	4225590	4026755357486	8.41
4209202	4026755412963	8.34	4225704	4026755357349	8.39
4209204	4026755405064	8.34	4225804	4026755357356	8.39
4209206	4026755405071	8.34	4226004	4026755357363	8.38
4209208	4026755405088	8.34	4226504	4026755357370	8.38
4209210	4026755405095	8.34	4229001	4026755357493	8.42
4209351	4026755332834	8.19	4229002	4026755396393	8.42
4209352	4026755332841	8.19	4229010	4026755357509	8.42
4209451	4026755332858	8.19	4229011	4026755396409	8.42
4209452	4026755332865	8.19	4229015	4026755357516	8.42
4209504	4026755157628	8.20	4229016	4026755396416	8.42
4209506	4026755157635	8.20	4229020	4026755357523	8.42
4209508	4026755157642	8.20	4229021	4026755396423	8.42
4209510	4026755157659	8.20	4229035	4026755407785	8.44
4209512	4026755157666	8.20	4229040	4026755396485	8.42
4209516	4026755157673	8.20	4229041	4026755396492	8.42
4209520	4026755334630	8.20	4229050	4026755357530	8.44
4209524	4026755334647	8.20	4229050	4026755357530	8.46
4209602	4026755413779	8.64	4229051	4026755396430	8.44
4209603	4026755413786	8.64	4229052	4026755407181	8.44
4209604	4026755413793	8.64			
4220004	4026755356977	8.36	6100508	4026755159158	8.74
4220006	4026755356984	8.36	6100606	4026755159165	8.74
4220052	4026755356991	8.36	6100608	4026755159172	8.74
4220053	4026755357004	8.36	6101008	4026755159196	8.75
4220054	4026755357011	8.36	6101051	4026755159202	8.75
4220104	4026755357028	8.36	6101053	4026755159219	8.75
4220106	4026755357035	8.36	6102010	4026755159233	8.76
4220108	4026755391374	8.36	6102016	4026755159240	8.76
4220110	4026755391381	8.36	6102051	4026755159257	8.75
4220152	4026755357042	8.36	6102051	4026755159257	8.76
4220153	4026755357059	8.36	6102053	4026755285079	8.76
4220154	4026755357066	8.36	6105008	4026755159271	8.74
4220155	4026755391398	8.36	6105108	4026755248821	8.74
4220190	4026755357455	8.41	6105751	4026755159288	8.74
4220191	4026755396386	8.41	6109052	4026755159301	8.76
4220204	4026755357073	8.37	6109152	4026755159325	8.76
4220206	4026755357080	8.37	6109551	4026755159349	8.74
4220208	4026755391404	8.37	6109551	4026755159349	8.75
4220210	4026755391411	8.37	6109552	4026755295764	8.74
4220252	4026755357097	8.37	6109552	4026755295764	8.75
4220253	4026755357103	8.37	6109851	4026755159363	8.76
4220254	4026755357110	8.37	6120008	4026755159370	6.120

Art.-No.	EAN/Code	Page
6120008	4026755159370	8.71
6120010	4026755159387	6.120
6120010	4026755159387	8.71
6120012	4026755159394	6.120
6120012	4026755159394	8.71
6120016	4026755159400	6.120
6120016	4026755159400	8.71
6120058	4026755236170	8.71
6120060	4026755236187	8.71
6120062	4026755236194	8.71
6120066	4026755236200	8.71
6120108	4026755267433	8.71
6120508	4026755159455	8.70
6120581	4026755159462	8.70
6120591	4026755159479	8.70
6120595	4026755159486	8.70
6122006	4026755159578	8.71
6122008	4026755159585	8.71
6122010	4026755159592	6.120
6122010	4026755159592	8.71
6122506	4026755163490	8.70
6122508	4026755163506	8.70
6122510	4026755163513	8.70
6124000	4026755159639	8.72
6124100	4026755159646	8.70
6125000	4026755159660	8.72
6125100	4026755159677	8.72
6125101	4026755159684	6.120
6125101	4026755159684	8.72
6125161	4026755159691	8.72
6125163	4026755159707	8.72
6125200	4026755159714	8.72
6125300	4026755159721	8.72
6125361	4026755159738	8.72
6125363	4026755159745	8.72
6125400	4026755159752	8.72
6125500	4026755159769	8.72
6126000	4026755159806	8.72
6127000	4026755159813	8.72
6127200	4026755159837	8.72

20.b General conditions

Content

Standard Terms and Conditions

20.52

STANDARD TERMS AND CONDITIONS**PREAMBLE**

These Standard Terms and Conditions for the Sales of Export Goods shall exclusively apply, unless varied by express agreement accepted in writing by both parties. The offer, order acknowledgment, order acceptance or sale of any products covered herein is conditioned upon the terms contained in this instrument. Any conditional or different terms proposed by the Purchaser are objected to and will not be binding upon the Supplier unless assented in writing by the Supplier.

These conditions shall govern any future individual contract of sale between the Supplier and the Purchaser to the exclusion of any other terms and conditions subject to which any such order is made or purported to be made, by the Purchaser.

Any typographical, clerical or other error or omission in any sales literature, quotation, price list, acceptance of offer, invoice or other documents of information issued by the Supplier shall be subject to correction without any liability on the part of the Supplier.

The provisions of these Standard Terms and Conditions extend to standard contract conditions which are used in a contract with a merchant in the course of business only.

1. ORDERS AND SPECIFICATIONS

1. No order submitted by the Purchaser shall be deemed to be accepted by the Supplier unless and until confirmed in writing by the Supplier or the Supplier's representative within 21 days after submittal.
2. The quantity, quality and description of an any specification for the goods shall be those set out in the Supplier's quotation (if accepted by the Purchaser) or the Purchaser's order (if accepted by the Supplier). Any such specification, sales literature, quotation etc. shall be strictly confidential and must not be made available to third parties.
3. The Purchaser shall be responsible for the Supplier for ensuring the accuracy of the terms of any order submitted by the Purchaser, and for giving the Supplier any necessary information relating to the goods within a sufficient time to enable the Supplier to perform the contract in accordance with its terms.
4. If the goods are to be manufactured or any process is to be applied to the goods by the Supplier in accordance with a specification submitted by the Purchaser, the Purchaser shall indemnify the Supplier against all losses, damages, costs and expenses awarded against or incurred by the Supplier in connection with or paid or agreed to be paid by the Supplier in settlement of any claim for infringement of any patent, copyright, design, trade mark or other industrial or intellectual rights of any other person which results from the Supplier's use of the Purchaser's specification.
5. The Supplier reserves the right to make any changes in the specification of the goods which are required to conform with any applicable statutory requirements or, where the goods are to be supplied to the Supplier's specification, which do not materially affect their quality or performance.

2. PRICE OF THE GOODS; PAYMENT

1. Unless specifically agreed, the prices and conditions in force on the date of delivery will apply. Prices apply ex works plus statutory VAT at the applicable statutory rate. Prices confirmed in non-commercial transactions, are binding if delivery is made within four months after order confirmation. After this period, if production costs have risen the Supplier reserves the right to increase the prices accordingly. In commercial transactions, if production costs have risen, the Supplier reserves the right to adapt prices also within the 4 month period. Insofar as the Supplier quotes prices for resale, they are a non-binding retail price.
2. Freight with a net value of goods from €1,000.00, are delivered with freight and packaging paid within the territory of Germany, otherwise we will charge any additional freight costs incurred, such as express delivery, guaranteed deadline and/or notification costs. For deliveries to third parties, we will charge for any additional costs incurred. In the case of third party deliveries / deliveries to building sites, the Purchaser is responsible for the immediate unloading of the goods. A charge will be made for waiting times. Third party deliveries will be made on condition that heavy goods vehicles are able to reach the delivery address without any difficulty. The Supplier is entitled to choose the mode of shipment at its discretion. Export deliveries are subject to prior arrangement.
3. For deliveries with a net value of goods under €1,000.00, freight and packing will be charged at cost.
4. Unless agreed otherwise by the parties, payment is due to the Supplier's designated account within 30 days without any deduction and free of transaction charges. 14 days from the date of invoice with a 2% discount, 30 days net, unless otherwise indicated. Arrears interest will be charged at 4% above the respective base interest rate of the ECB.
5. All invoices will be made out in and payable in €. For bills of exchange or cheques the Supplier will not accept any liability for the timely presentation or provision of the relative deed of protest. Collection costs will be borne by the Purchaser. Any cost approaches incurred will be refunded. The Supplier's representatives are entitled to collect payments. In the event of payment difficulties or the suspension of payments on the part of the Purchaser, all receivables will become due immediately. The right of retention is excluded. Off-setting is only admissible with claims that are undisputed or legally enforceable

3. DELIVERY

1. All delivery periods indicated are only binding if they have been designated as binding.
2. A delivery time begins when the order confirmation is sent, however, not before the documents, permits and approvals to be procured by the Purchaser have been provided and not before any agreed down payments have been received.
3. The delivery period is met if before expiry of this period, the delivery item has left the factory premises or notification has been sent that it is ready for delivery.
4. The delivery period will be extended accordingly in the case of measures taken in relation to labour disputes, in particular strikes and lockouts, and in the event of unforeseeable hindrances that are beyond the Supplier's control if such hindrances can demonstrably be shown to have a considerable influence on the production or delivery of the delivery item. This also applies if the circumstances arise for sub-suppliers.
5. If the shipment is delayed at the Purchaser's request, the latter will be charged with any storage costs incurred, however, at least 1 percent of the invoice amount in the case of storage on the Supplier's premises, for each month starting one month after notification of readiness for delivery. However, after a suitable deadline has been set and expired without results, the Supplier is entitled to dispose of the delivery item otherwise and to deliver to the Purchaser with an adequate extended delivery time.
6. For any claims of the Purchaser due to non-compliance with a delivery period to be valid, the latter must have complied with its contractual obligations.

4. TRANSFER OF RISKS

Risk of damage to or loss of the goods shall pass to the Purchaser as follows:

- in the case of goods to be delivered otherwise than at the Supplier's premises, at the time of delivery or, if the Purchaser wrongfully fails to take delivery of the goods, the time when the Supplier has tendered delivery of the goods;
- in the case of goods to be delivered at the Supplier's premises ("ex works", Incoterms 2010) at that time when the Supplier notifies the Purchaser that the goods are available for collection.

5. RETENTION OF TITLE

1. Notwithstanding delivery and the passing of risk in the Goods, or any other provision of these conditions, the property in the Goods shall not pass to the Purchaser until the Supplier has received payment in full of the price of the Goods and all other Goods agreed to be sold by the Supplier to the Purchaser for which payment is then due.
2. After termination of the contract the Supplier shall have absolute authority to retake, sell or otherwise deal with or dispose of all or any part of the goods; Until such time as the property in the Goods passes to the Purchaser, the Purchaser shall hold the Goods as the Supplier's fiduciary agent, and shall keep the Goods properly stored, protected and insured.
3. Until that time the Purchaser shall be entitled to resell or use the Goods in the ordinary course of its business, but shall account to the Supplier for the proceeds of sale or otherwise of the Goods including insurance proceeds, and shall keep all such proceeds separate from any moneys or properties of the Purchaser and third parties.

4. If the Goods are processed or reshaped by the Purchaser and if processing is done with Goods that Supplier has no property in, Supplier shall become co-owner of the Goods. The same shall apply if Supplier's Goods are completely reshaped and mixed with other goods.
5. If third parties take up steps to pledge to otherwise dispose of the goods, the Purchaser shall immediately notify the Supplier in order to enable the Supplier to seek a court injunction. If the Purchaser fails to do so in due time he will be held liable for any damages caused.
6. The Supplier shall on demand of the Purchaser release any part of the collateral if the value of the collateral held in favor of the Supplier exceeds the value of the claims being secured. It is to the Supplier's decision to release those parts of the collateral suitable for him.
7. For business abroad, the following also applies: The Supplier retains the right of ownership to the goods delivered until the sale price has been paid in full in compliance with the respective legal provisions in force in the country of destination. This retention of ownership is deemed to have been expressly agreed between the Supplier and the Purchaser. Insofar as the country of destination admits other liens in lieu of the retention of ownership, the lien that comes closest to the effect of the retention of ownership will be deemed to have been agreed.

§ 6 WORKPIECE RELATED PRODUCTION UNITS

1. Insofar as workpiece related models or production units are manufactured or procured by the Supplier on behalf of the Purchaser, the Supplier will invoice them. Insofar as only cast components have been charged, the Purchaser will also bear any remaining costs if he does not accept the quantities it promised when concluding the contract or if the Purchaser wishes the withdrawal of the models or production units.
2. The models and production units are the property of the Purchaser but will still remain in the Supplier's possession.
3. The models and production units will only be used for deliveries to the Purchaser, if the latter fulfills its acceptance and payment obligations towards the Supplier.
4. The Supplier will treat all models and production units with care. At the Purchaser's request, its models and production units will be insured at its expenses. Any further claims deriving from damage to or the loss of models and production units are excluded.
5. If deliveries are made in accordance with drawings or other specifications of the Purchaser and if property rights of third parties are violated as a result, the Purchaser will release the Supplier from any claims.

§ 7 WARRANTIES AND EXCLUSION CLAUSES

For defects in delivery the supplier will be liable subject to the exclusion of all further claims as follows:

1. All parts that within 24 months of commissioning turn out to be unusable or only usable with major impairment due to a circumstance that existed prior to the transfer of risk, in particular due to faulty construction, poor construction materials or defective design, are to be repaired or re-supplied without charge at the reasonable discretion of the Supplier. If such defects are found, the Supplier must be notified immediately in writing. Replaced parts will become property of the Supplier. If the dispatch, installation or commissioning is delayed at no fault of the Supplier, this liability will expire at the latest 30 months after the transfer of risk. For deliveries in Germany and to Austria only; with the exception of electric components or products that are connected with electric components, the above liability will expire after 60 months provided that the products have been installed by a company specialised in sanitary, heating and air-conditioning technology and approved in accordance with the "Handwerksordnung" [Crafts Code] in Germany and in Austria according to similar provisions.
2. The Purchaser's right to assert claims due to defects will in all cases become time-barred 24 months after the date on which the complaint is made in a timely manner, however, at the earliest on the expiry of the warranty period.
3. No warranty is given for damage that occurs for the following reasons: Unsuitable or improper use, faulty installation or commissioning by the Purchaser or third parties, natural wear and tear, defective or negligent handling, unsuitable operating equipment or replacement materials, defective construction work, chemical, electro-chemical or electric influences, non-compliance with standards and regulations, etc. and the information and advice provided by the Supplier, unless they are the Supplier's fault.
4. After informing the Supplier, the Purchaser must give the Supplier the necessary time and opportunity to carry out any repairs and replacement deliveries that appear necessary at the Supplier's discretion, otherwise the Supplier will be released from liability for defect. Only in urgent cases where there is a risk to operational safety and to avert disproportionately large damage does the Supplier have the right to remedy the defect itself or have the defect remedied by third parties and to demand that Supplier reimburses any costs incurred, whereby the Supplier must be informed immediately of the remedy. It is also the case if the Supplier is late remedying the defect.
5. Of the costs incurred for repairs or replacement deliveries, the Supplier will bear the costs of the replacement part including shipment provided that as the complaint proves to be justified. For the rest, the costs will be borne by the Purchaser.
6. The warranty period for the replacement part and the repair will be 12 months. It will run at least until the expiry of the original warranty period for the delivery item. The period of liability for defects to the delivery item will be extended by the duration of interruption to business due to the repair works.
7. In the case modifications or maintenance work carried out incorrectly by the Purchaser or third parties without the prior authorization of the Supplier, the liability for any resulting consequences will be excluded.
8. Any further claims of the Purchaser, in particular a claim for compensation for damage that has not occurred to the delivery item itself, are excluded. This exclusion of liability will not apply in the case of intent or gross negligence, the culpable breach of essential contractual obligations and in cases in which liability exists under the product liability law for damage to persons or property for privately used objects in the case of defects of the delivery item.
9. The limitation of warranty to the repair or new delivery (supplementary performance) will be omitted if the supplementary performance fails.
10. The Supplier will not be liable for consequential damage resulting from defective software.
11. Only for the "Copepe" multi-layer composite pipe, the "Copex" PE-Xc-synthetic pipe and the "Cofit" connection as well as the "Cofloor" system of panel heating and air conditioning; provided they have been installed together in the system by a company that is demonstrably specialized in sanitary, heating and air-conditioning technology and approved in accordance with the "Handwerksordnung" [Crafts Code] in Germany or according to similar provisions in Austria: Throughout an extended warranty period of ten years after the date of production, the Supplier will be liable for the maximum total amount of 1 million euro per loss and 5 million euro per year. In all other cases, the provisions of clauses 1 to 9 apply.

§ 8 RETURN SHIPMENTS

1. Return shipments will only be accepted after prior, specific agreement in writing, indicating proof of delivery. The goods must be in their unopened and undamaged original packaging and must meet the state of the art. The goods may not be any older than 12 months after the delivery date. Returns will be accepted subject to an inspection by the Supplier. For items returned carriage-paid, a credit note will be issued to the amount of the invoice with a deduction of 20% for processing charges, however, at least 20.00 € per return shipment.
2. The possibility of return shipments of custom-made productions or modified serial fittings as well as electric or electronic control components is excluded.

§ 9 CHOICE OF LAW; PLACE OF JURISDICTION;

1. For any disputes arising from the contractual relationship, if the Purchaser is a merchant, a legal entity under public law or a special fund under public law, law suits must be filed at the court which has jurisdiction over the Supplier's head office or its branch office that carried out the delivery. The Supplier is also entitled to file a suit at the place in which the Purchaser has its head offices.
2. The Purchaser will acknowledge these General Terms and Conditions of the Supplier when issuing orders. Any conditions of purchase of the Purchaser that contradict those herein do not apply. Any diverging agreements must be made in writing. If individual clauses of the above conditions are fully or partially invalid, it will not affect the validity of the remaining clauses and/or parts of such clauses. Any invalid provision shall be deemed to be replaced by a valid provision that comes closest to the economic purpose of the invalid provision.

20.c Imprint

Content

Imprint	20.54
---------	-------

Oventrop GmbH & Co. KG
Paul-Oventrop-Straße 1
D-59939 Olsberg
Germany
Telephone +49 2962 82 0
Fax +49 2962 82 450
Internet www.oventrop.com
E-Mail mail@oventrop.de

Limited partnership, seat Olsberg, commercial register: Court of Arnsberg HRA 4050
Personally liable partner: OV Verwaltungs-GmbH, seat Olsberg, commercial register: Court of Arnsberg HRB 3860

Managing directors: Jochen Fähnrich, Johannes Rump

VAT ID no.: DE 124283065

Subject to modifications without notice.
Printed on paper free from chlorine bleaching.