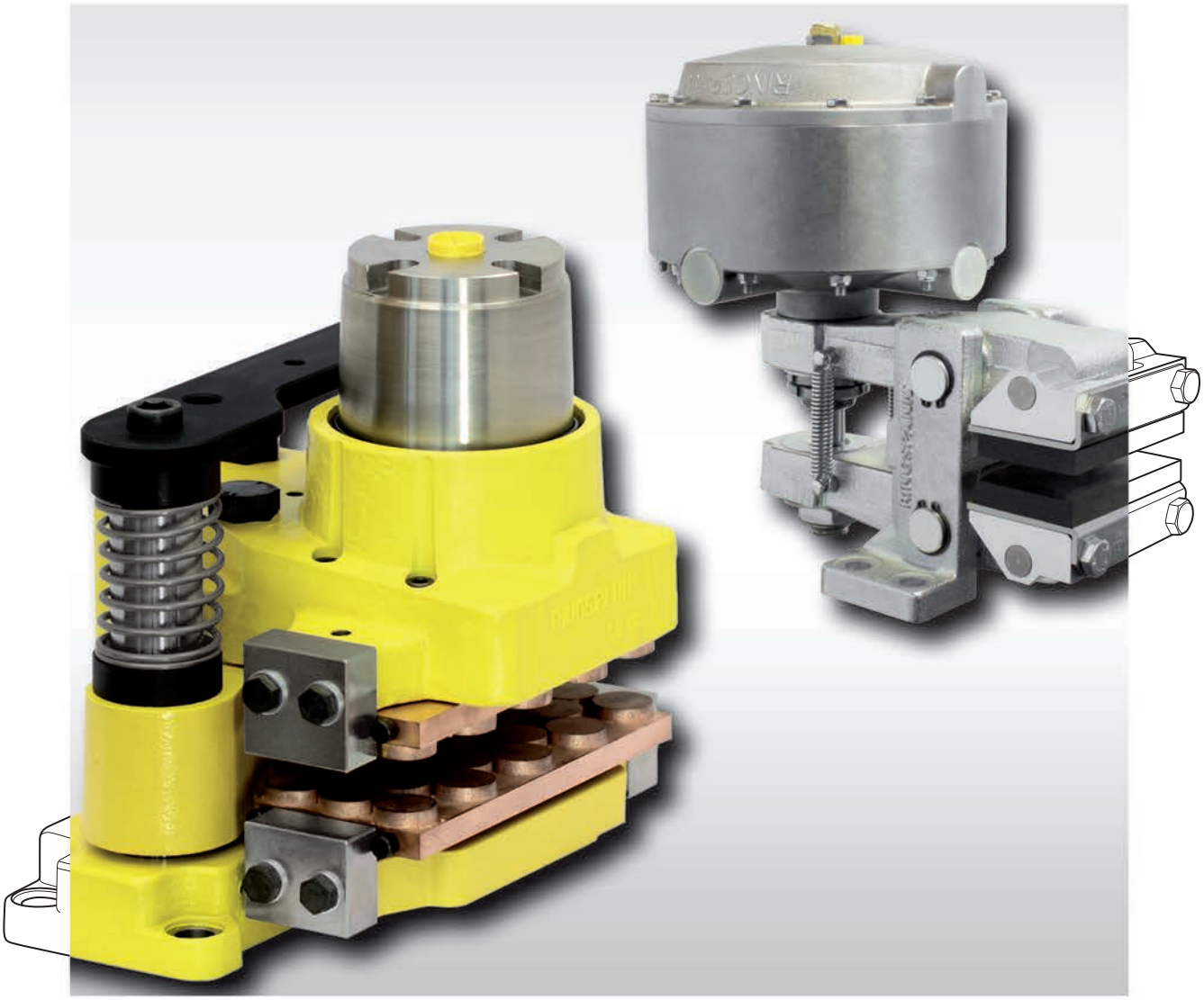
RINGSPANN®
Power Transmission

Industrial Brakes

Brake Calipers • Clamping Units



Edition 2017/2018

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Type of mounting brake at machine: Parallel to brake disc / At right angles to brake disc

Adjustment in case of friction block wear: Manual / Auto-matic

* The braking torques relate to the standard brake discs shown in this catalogue. Higher braking torques are possible by the use of several brake calipers or larger brake disc diameters.

Type	Design: S = Disc Brake T = Drum Brake	Braking torque* [Nm] 10^2 10^3 10^4 10^5 10^6	Type of mounting brake at machine: Parallel to brake disc	Type of mounting brake at machine: At right angles to brake disc	Adjustment in case of friction block wear: Manual	Adjustment in case of friction block wear: Auto-matic	Page
Brake Calipers		**pneumatically activated – spring released**					
DH 005 PFK	S	0,5 - 15		●			105
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Brake Calipers		**electromagnetically activated – spring released**					
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EV 038 EFM / EH 038 EFM	S	3 400 - 7 910	●	●	●		128
Brake Calipers		**manually activated – manually released**					
DH 010 MSM	S	20 - 75		●	●		131
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DV 020 MKM / DH 020 MKM	S	20 - 600	●	●	●		134
Brake Calipers		**spring activated – hydraulically released**					
HS 075 FHM	S	1 500 - 40 500	●		●		136
HW 075 FHM	S	1 500 - 40 500	●		●		138
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HW 075 HFK	S	740 - 40 500	●				152
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* The braking torques relate to the standard brake discs shown in this catalogue. Higher braking torques are possible by the use of several brake calipers or larger brake disc diameters.
Issue 01/2018 • Technical details subject to change without notice.

Design and Function of Brakes

No Drives without Disc Brakes

For a long time now Disc Brakes have been tried and tested in the aviation and automotive industry, and increasing awareness of operational safety and ever stricter rules on accident prevention have made them indispensable. After all, wherever there is acceleration, there must also be braking. A reliable and economic solution to these problems are RINGSPANN Disc Brakes.

Advantages of RINGSPANN Disc Brakes

The following features make the RINGSPANN Disc Brakes unique:

- The well thought-out design of RINGSPANN Disc Brakes permits a **simple and space-saving arrangement,** even in existing installations.
- Due to the even friction surfaces the RINGSPANN Disc Brakes are not subject to any automatic amplification effect which is always a problem with drum brakes. Therefore, disc brakes guarantee **high torque stability** even when friction variations occur.
- The open design of the RINGSPANN Disc Brakes with their excellent ventilation characteristics provides **ideal heat dissipation**; this is a precondition for high braking power with a compact design.
- The considerably **lower inertia moment** compared with that of drum brakes permits economical dimensioning, shortened cycle times and reduced energy consumption.
- Highly wear-resistant friction material and large braking surfaces ensure long intervals between maintenance. The practical and robust design of RINGSPANN Disc Brakes makes that **maintenance easy and uncomplicated.** The friction pads are easily replaced without the need to remove the brake.
- RINGSPANN Disc Brakes are fitted with **swivel mounted friction blocks;** this ensures that the friction blocks are always in full face contact with the brake disc. When the brake is released, the friction blocks are lifted safely off the disc by a spring, irrespective of the installation arrangement.

For each Application the right Solution

RINGSPANN Disc Brakes require minimal installation space. Brake Calipers or Brake Saddles may be arranged in any position on brake discs of varying diameters. By using several Brake Calipers on the same disc it is possible to increase the braking torque without the need to enlarge the installation space.

The universal concept of the RINGSPANN Disc Brake fulfills various functions:

- **Stopping brake**
- **Control brake**
- **Holding brake**

As a **stopping brake**, it brings a rotating shaft to a standstill in a short time, for example during a power failure or an emergency stop.

As a **control brake**, it effectively maintains material tension.

As a **holding brake**, it prevents the unintended start of a stationary shaft.

The Product Range

RINGSPANN offers a comprehensive range of Disc Brakes:

- **Spring activated Brake Calipers;** release is either pneumatic, hydraulic, electromagnetic or manual by means of a pull cable.
- **Pneumatically activated Brake Calipers;** spring released
- **Manually activated Brake Calipers;** manually released with a hand wheel or a pull cable
- **Hydraulically activated Brake Calipers;** spring released
- **Spring activated Clamping Unit;** hydraulically or pneumatically released

Accessories

Accessories are available for special applications:

- Two standard types of **brake discs** are available with diameters ranging from 125 mm up to 1 000 mm
- All brakes can be supplied with an **electric indicator for friction block wear**
- Inductive proximity switches for **monitoring the operating condition** "brake released" are available
- To prolong the operating life, **friction blocks with double the friction surface** are available for Brake Calipers sizes 12, 15, 20 and 30
- **Special friction linings** are available for special requirements


DH 010 FPM


DV 020 FPM / DH 020 FPM


DH 025 FPM


DH 025 FPA


DV 030 FPM / DH 030 FPM


DV 030 FPA / DH 030 FPA


DV 035 FPM / DH 035 FPM


DV 035 FPA / DH 035 FPA


DU 060 FPM


DV 020 FHM / DH 020 FHM


DV 030 FHM / DH 030 FHM


DV 030 FHA / DH 030 FHA


DV 035 FHM / DH 035 FHM


DV 035 FHA / DH 035 FHA


DU 060 FHM


DH 012 FEM


DV 020 FEM


EV 018 FEM / EH 018 FEM


EV 024 FEM / EH 024 FEM


EV 028 FEM / EH 028 FEM


EV 038 FEM / EH 038 FEM


DS … FEM / DS … FEA


DT … FEM … NC / DT … FEA … NC


DT … FEA … ST


DV 020 FKM / DH 020 FKM


DH 005 PFK


DH 010 PFK


DH 015 PFK


DV 020 PFK / DH 020 PFK


DH 025 PFM


DV 030 PFM / DH 030 PFM


DV 035 PFM / DH 035 PFM


DU 060 PFM


EV 018 EFM / EH 018 EFM


EV 024 EFM / EH 024 EFM


EV 028 EFM / EH 028 EFM


EV 038 EFM / EH 038 EFM


DH 010 MSM


DV 020 MSM / DH 020 MSM


DV 020 MKM / DH 020 MKM

HS 075 FHM

HW 075 FHM

HS 120 FHM

HW 120 FHM

HI 180 HUK

HW 180 HUK

HW 040 HFA

HW 063 HFA

HS 075 HFK

HW 075 HFK

HW 100 HFA

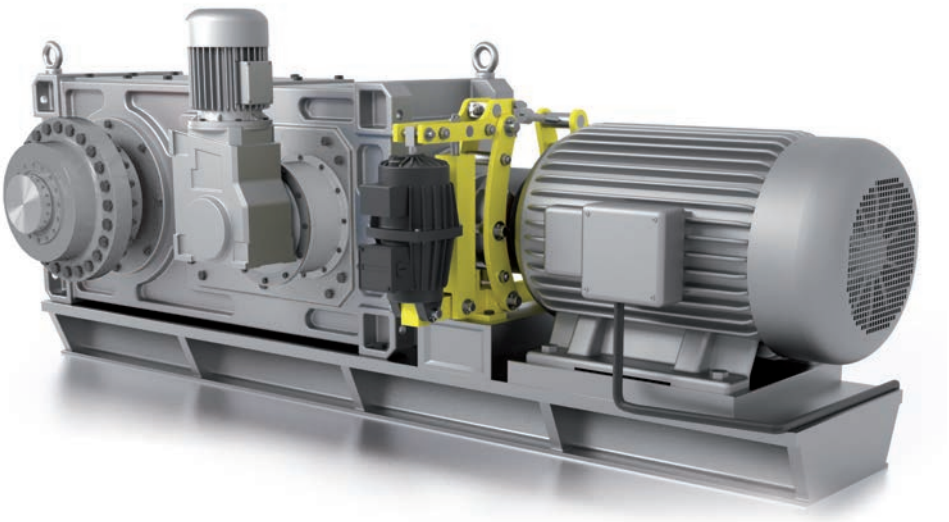
HS 120 HFK

HW 120 HFK

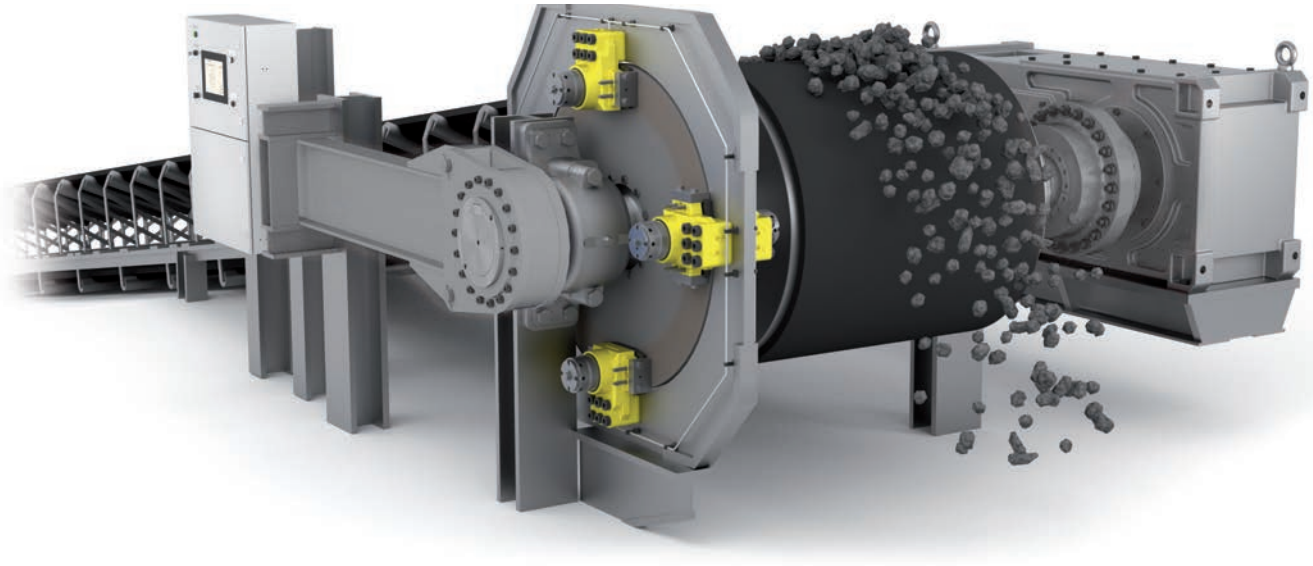
HW 180 HFA

Areas of Application for Brakes

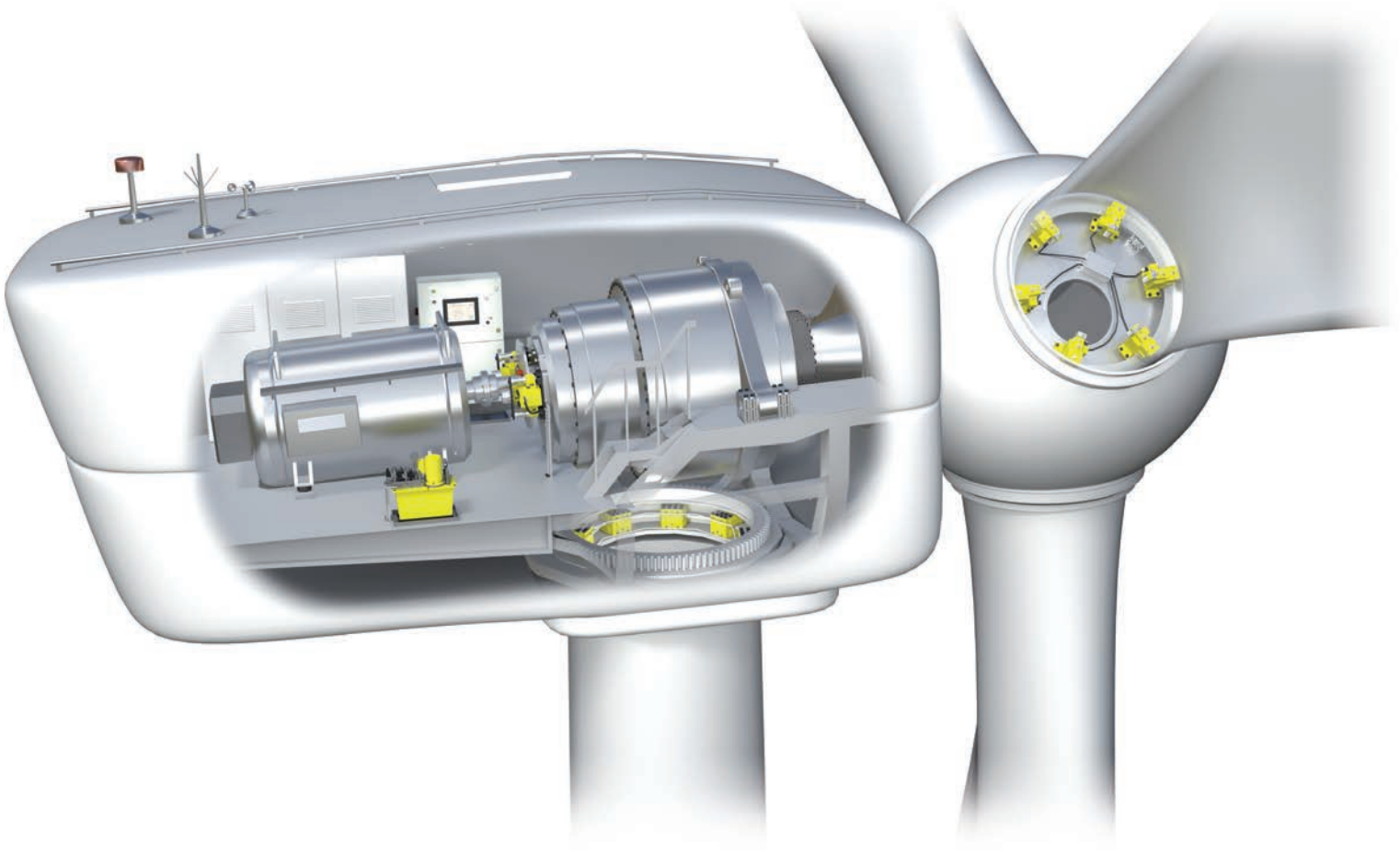
- Amusement rides
- Assembly stations
- Belt conveyors
- Construction machines
- Cranes
- Drive units
- Elevators and escalators
- Extruder, machines for rubber and plastics
- Fans and ventilators
- Foundry machines
- Machines for food industry
- Packaging machines
- Paper machines
- Printing machines
- Ship drives
- Shredders
- Steel mills
- Stranding lines
- Test benches
- Textile machines
- Wind turbines
- Wire and tube machines



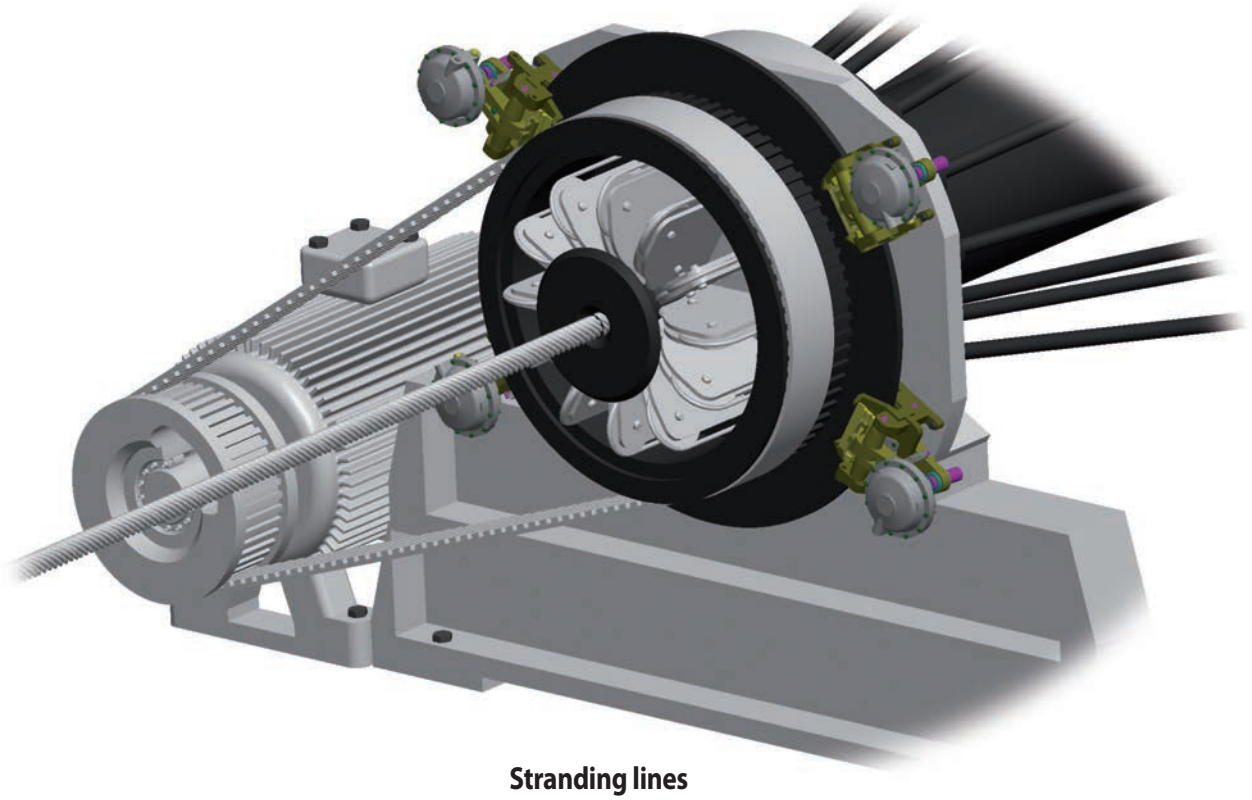
Drive units



Belt conveyors



Wind turbines



Stranding lines

Brake Caliper DH 010 FPM

spring activated – pneumatically released

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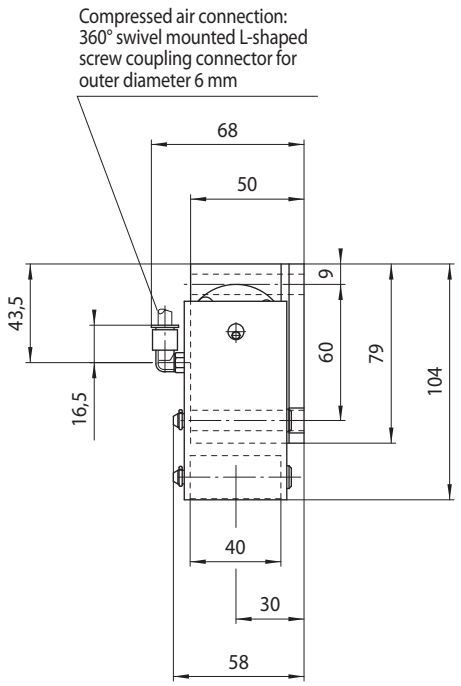
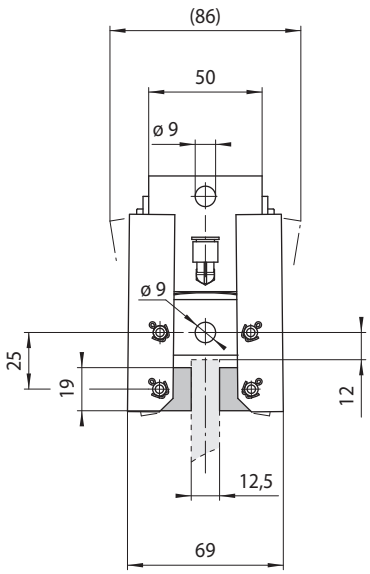
Features	Code
Brake Caliper	D
Mounting to the machine at right angles to the brake disc	H
Frame size 010	010
Spring activated	F
Pneumatically released	P
Manual adjustment to accommodate friction block wear	M
Designs 010 or 012 are available	010 012
Piston mounted in central position	M
Thickness of brake disc 12,5 mm	12

Example for ordering

Brake Caliper DH 010 FPM, design 010, piston mounted in central position, thickness of brake disc 12,5 mm:

DH 010 FPM - 010 M - 12





Values in brackets resulting with maximum friction block wear.

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Technical Data

	Brake Caliper DH 010 FPM	
	with design 010	with design 012
Brake disc diameter mm	Braking torque Nm	Braking torque Nm
125	10	15
150	14	19
200	20	26
250	26	34
300	32	41
355	38	50
Clamping force	290 N	375 N
Air pressure	min. 4 bar max. 8 bar	min. 5 bar max. 8 bar
Air volume per activation	max. 3 cm^3	max. 3 cm^3
Weight	1 kg	1 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

Brake Caliper DV 020 FPM

spring activated – pneumatically released

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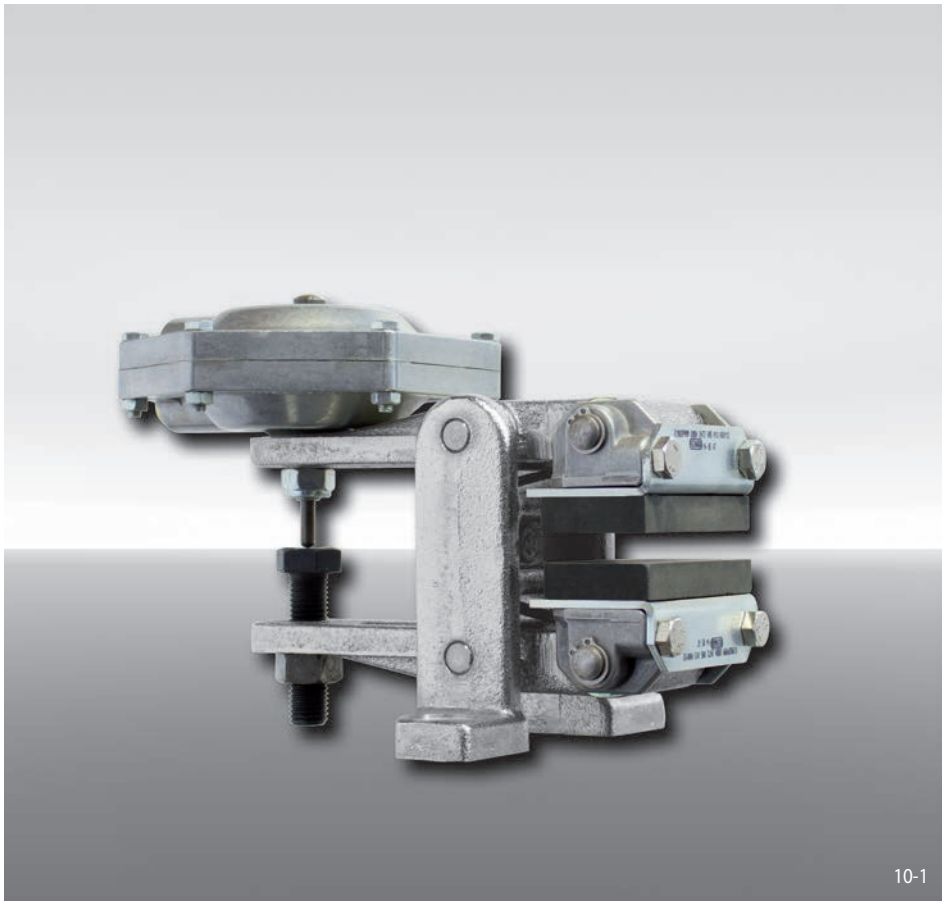
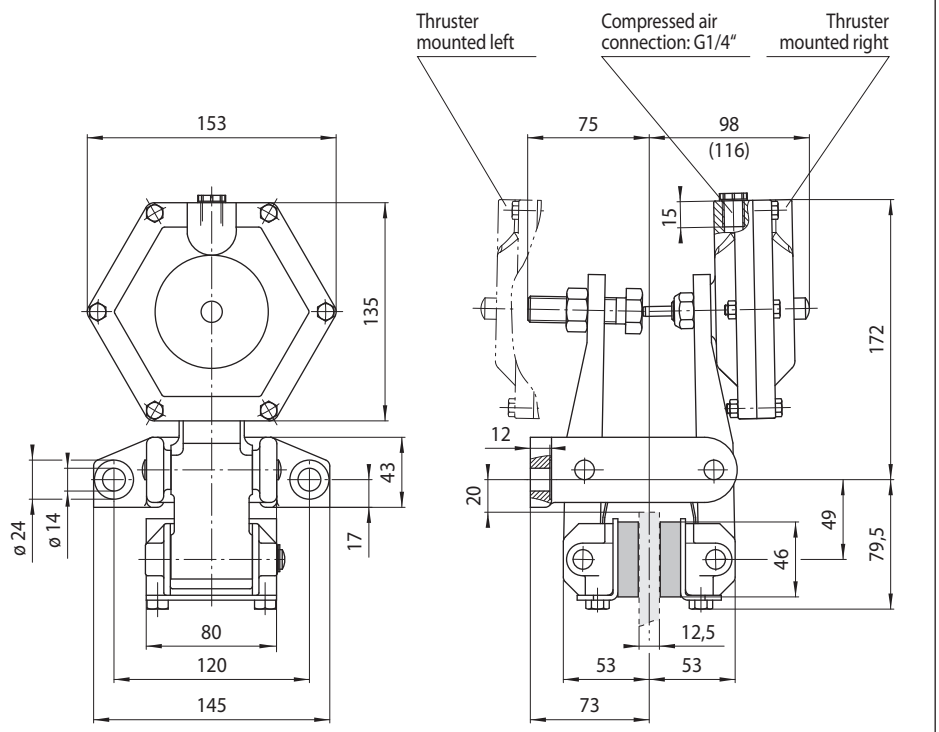


Features	Code
Brake Caliper	D
Mounting to the machine parallel to the brake disc	V
Frame size 020	020
Spring activated	F
Pneumatically released	P
Manual adjustment to accommodate friction block wear	M
Thrusters 020, 030 or 040 are available	020 030 040
Thruster mounted right or left available	R L
Thickness of brake disc 12,5 mm	12

Example for ordering

Brake Caliper DV 020 FPM, thruster 020, thruster mounted right, thickness of brake disc 12,5 mm:

DV 020 FPM - 020 R - 12



Values in brackets resulting with maximum friction block wear.

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Technical Data

	Brake Caliper DV 020 FPM		
	with thruster 020	with thruster 030	with thruster 040
Brake disc diameter mm	Braking torque Nm	Braking torque Nm	Braking torque Nm
200	97	130	200
250	130	180	270
300	170	220	340
355	200	270	420
430	250	340	520
520	310	430	650
Clamping force	1 700 N	2 300 N	3 500 N
Air pressure	min. 2,6 bar max. 7 bar	min. 3,5 bar max. 7 bar	min. 5 bar max. 7 bar
Air volume per activation	max. 17 cm^3	max. 17 cm^3	max. 17 cm^3
Weight	5,2 kg	5,2 kg	5,2 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

Brake Caliper DH 020 FPM

spring activated – pneumatically released

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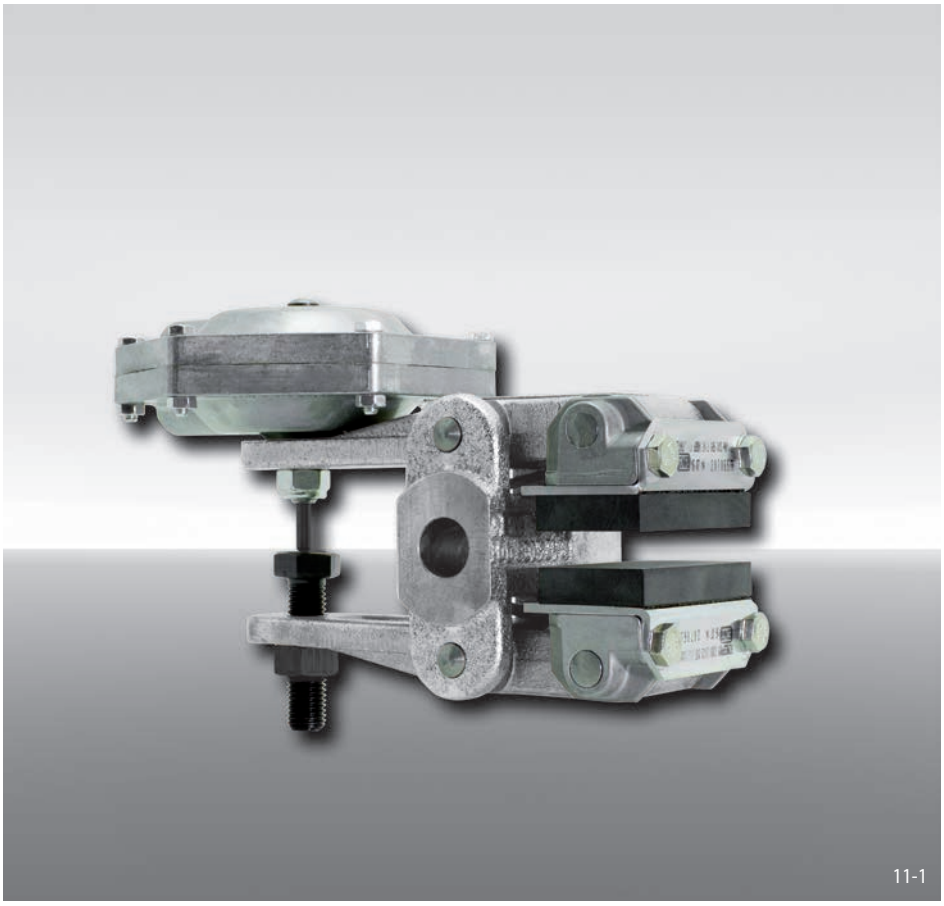

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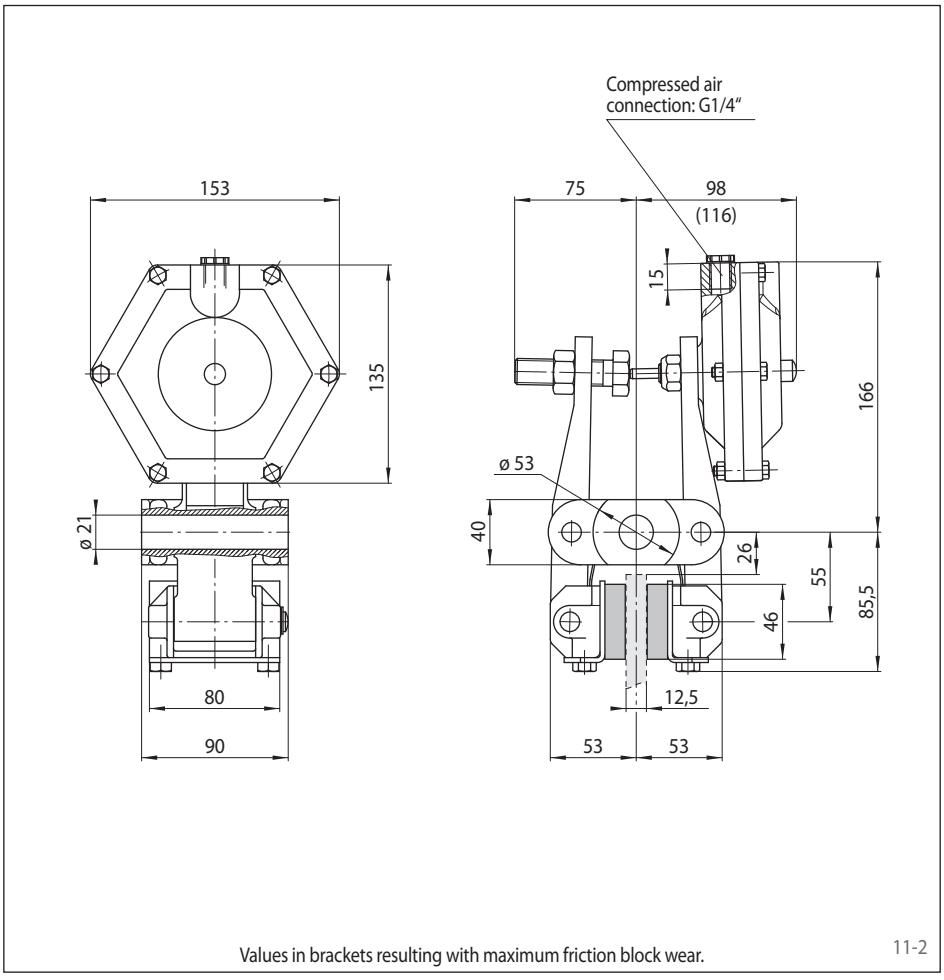

Values in brackets resulting with maximum friction block wear.

11-2

Features	Code
Brake Caliper	D
Mounting to the machine at right angles to the brake disc	H
Frame size 020	020
Spring activated	F
Pneumatically released	P
Manual adjustment to accommodate friction block wear	M
Thrusters 020, 030 or 040 are available	020 030 040
Position of the thruster to the right or left can be defined by turning the brake during installation	U
Thickness of brake disc 12,5 mm	12

Example for ordering

Brake Caliper DH 020 FPM, thruster 020, position of the thruster can be to the right or left, thickness of brake disc 12,5 mm:

DH 020 FPM - 020 U - 12

Technical Data

	Brake Caliper DH 020 FPM		
	with thruster 020	with thruster 030	with thruster 040
Brake disc diameter mm	Braking torque Nm	Braking torque Nm	Braking torque Nm
200	97	130	200
250	130	180	270
300	170	220	340
355	200	270	420
430	250	340	520
520	310	430	650
Clamping force	1 700 N	2 300 N	3 500 N
Air pressure	min. 2,6 bar max. 7 bar	min. 3,5 bar max. 7 bar	min. 5 bar max. 7 bar
Air volume per activation	max. 17 cm^3	max. 17 cm^3	max. 17 cm^3
Weight	5,2 kg	5,2 kg	5,2 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

Brake Caliper DH 025 FPM

spring activated – pneumatically released

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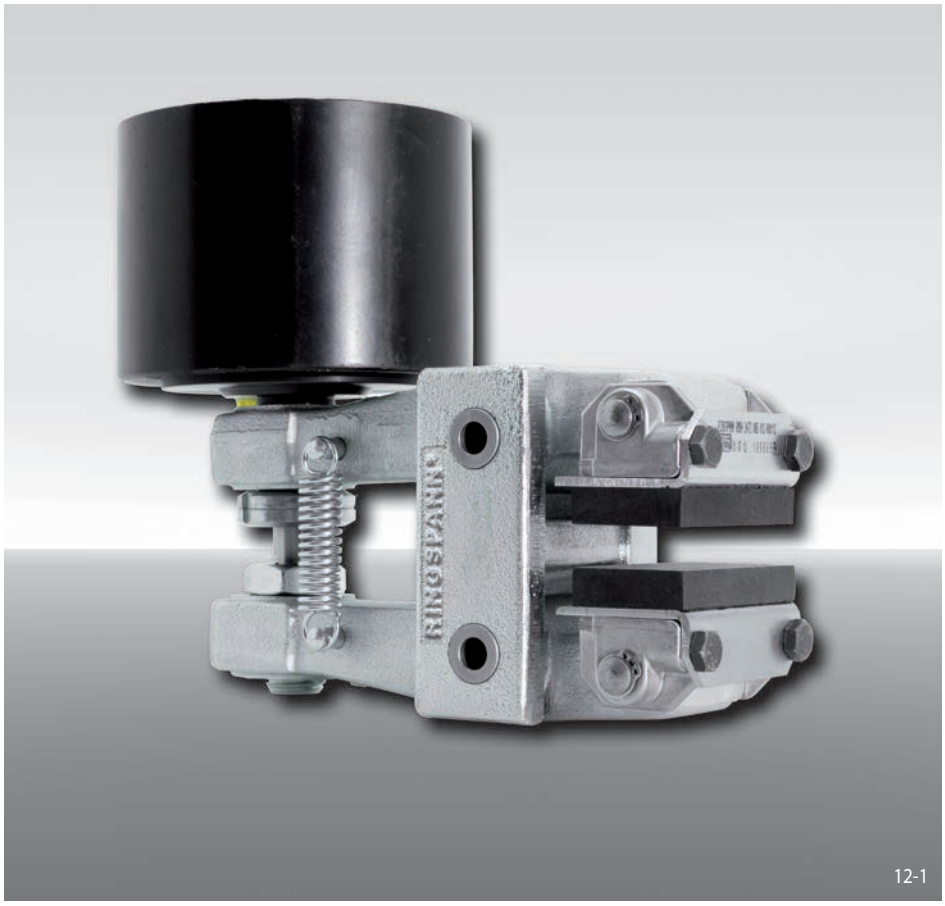


Features	Code
Brake Caliper	D
Mounting to the machine at right angles to the brake disc	H
Frame size 025	025
Spring activated	F
Pneumatically released	P
Manual adjustment to accommodate friction block wear	M
Thrusters 015, 025, 035 or 045 are available	015 to 045
Thruster mounted right or left available	R L
Thickness of brake disc 12,5 mm or 25 mm	12 25

Example for ordering

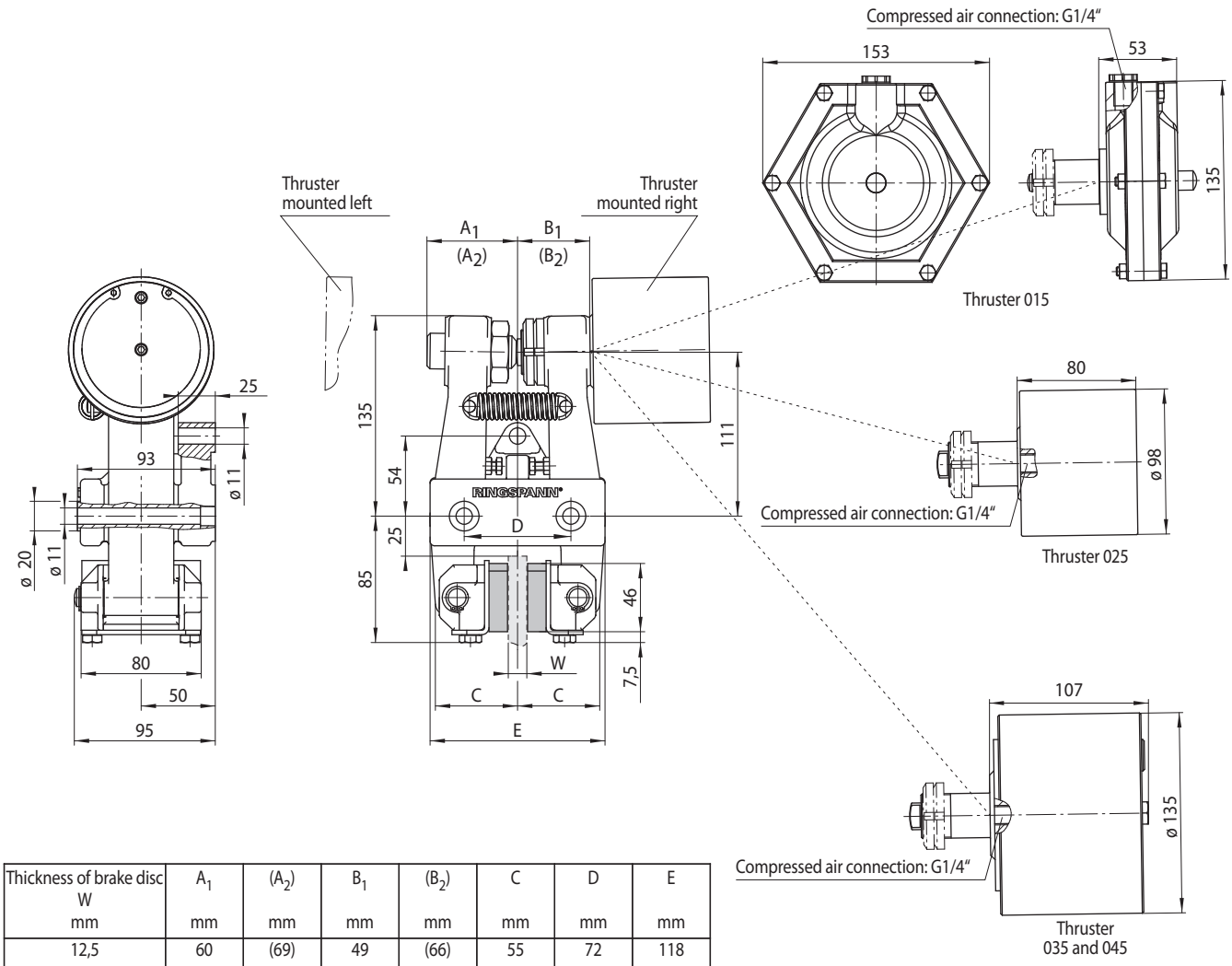
Brake Caliper DH 025 FPM, thruster 015, thruster mounted right, thickness of brake disc 12,5 mm:

DH 025 FPM - 015 R - 12

Technical Data

	Brake Caliper DH 025 FPM			
	with thruster 015	with thruster 025	with thruster 035	with thruster 045
Brake disc diameter mm	Braking torque Nm	Braking torque Nm	Braking torque Nm	Braking torque Nm
200	240	270	400	570
250	330	370	540	770
300	420	460	680	970
355	510	570	840	1 200
430	640	710	1 050	1 500
520	790	890	1 300	1 900
Clamping force	4 300 N	4 800 N	7 100 N	10 100 N
Air pressure	min. 5 bar max. 7 bar	min. 5 bar max. 8 bar	min. 4,2 bar max. 8 bar	min. 5 bar max. 8 bar
Air volume per activation	max. 17 cm^3	max. 120 cm^3	max. 185 cm^3	max. 185 cm^3
Weight	7,5 kg	8,6 kg	10,9 kg	11,0 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.



Thickness of brake disc W	A_1	(A_2)	B_1	(B_2)	C	D	E
mm	mm	mm	mm	mm	mm	mm	mm
12,5	60	(69)	49	(66)	55	72	118
25	67	(76)	56	(73)	62	84	130

Values in brackets resulting with maximum friction block wear.

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Brake Caliper DH 025 FPA

spring activated – pneumatically released

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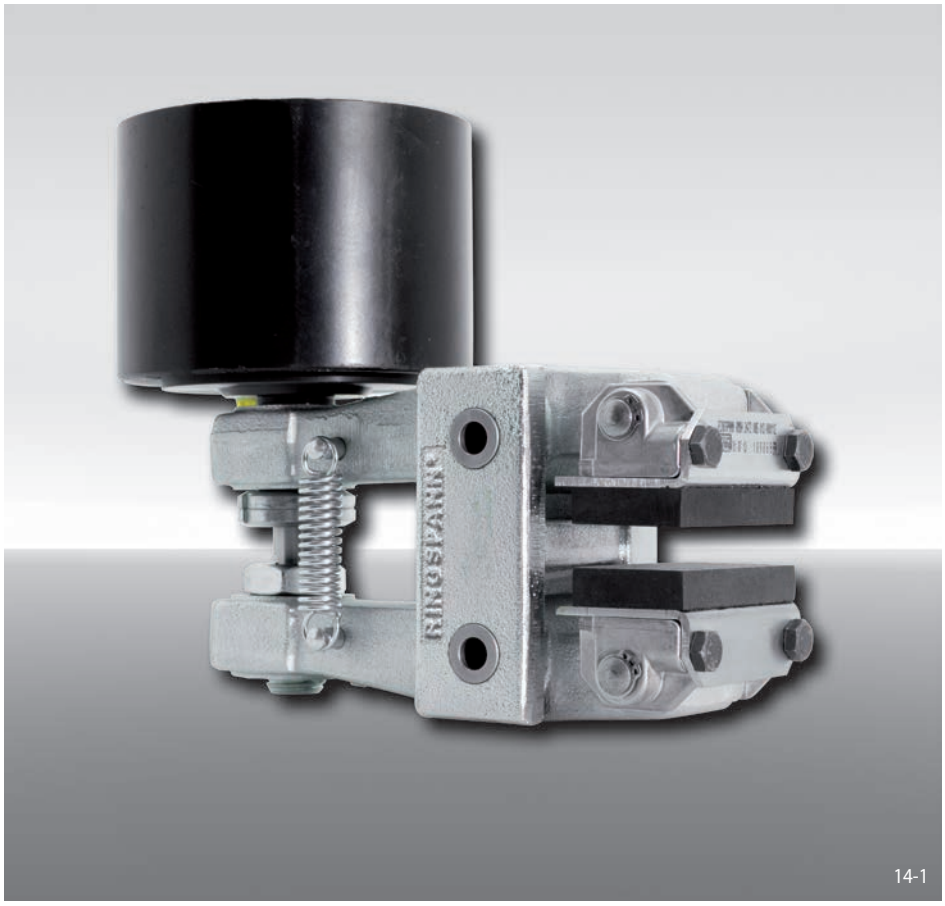


Features	Code
Brake Caliper	D
Mounting to the machine at right angles to the brake disc	H
Frame size 025	025
Spring activated	F
Pneumatically released	P
Automatic adjustment to accommodate friction block wear	A
Thrusters 065, 085 or 095 are available	065 to 095
Thruster mounted right or left available	R L
Thickness of brake disc 12,5 mm or 25 mm	12 25

Example for ordering

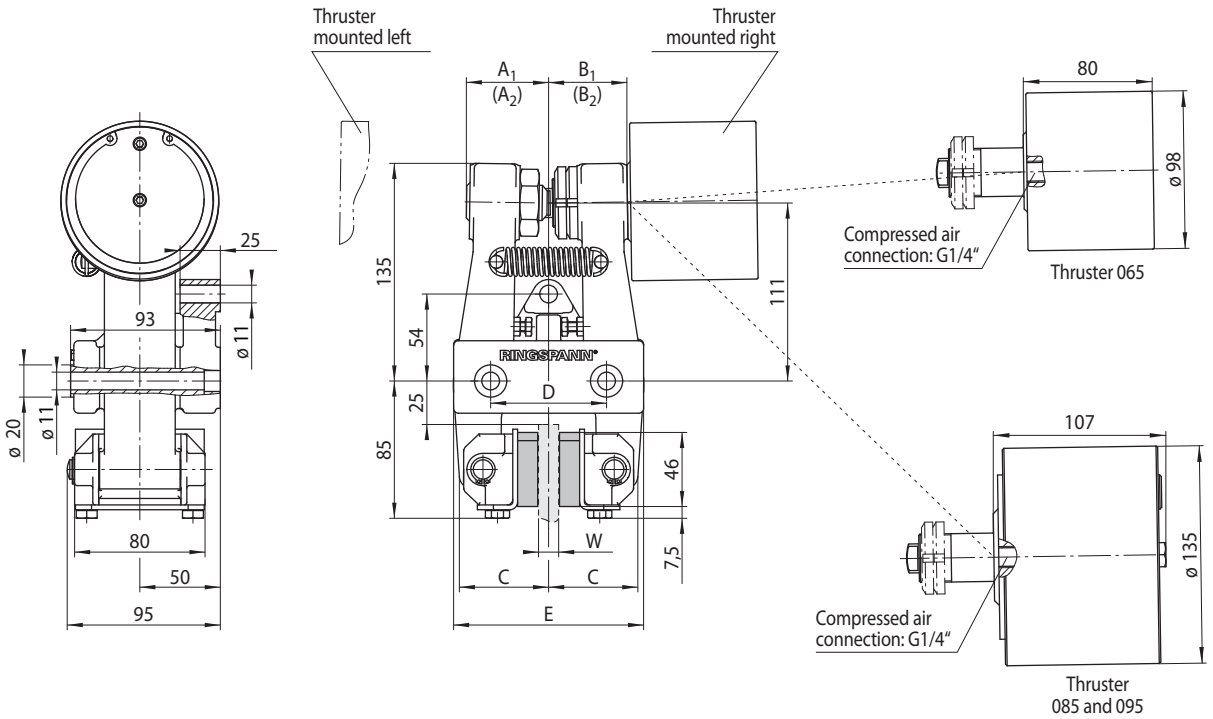
Brake Caliper DH 025 FPA, thruster 085, thruster mounted right, thickness of brake disc 12,5 mm:

DH 025 FPA - 085 R - 12

Technical Data

	Brake Caliper DH 025 FPA		
	with thruster 065	with thruster 085	with thruster 095
Brake disc diameter mm	Braking torque Nm	Braking torque Nm	Braking torque Nm
200	250	150	530
250	340	200	710
300	430	250	900
355	530	310	1 100
430	670	390	1 400
520	830	480	1 700
Clamping force	4 500 N	2 600 N	9 300 N
Air pressure	min. 5 bar max. 8 bar	min. 1,7 bar max. 8 bar	min. 5 bar max. 8 bar
Air volume per activation	max. 72 cm^3	max. 140 cm^3	max. 140 cm^3
Weight	8,9 kg	11,2 kg	11,2 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.



Thickness of brake disc W mm	A_1 mm	(A_2) mm	B_1 mm	(B_2) mm	C mm	D mm	E mm
12,5	51	(69)	49	(66)	55	72	118
25	57	(76)	56	(73)	62	84	130

Values in brackets resulting with maximum friction block wear.

15-1

Brake Caliper DV 030 FPM

spring activated – pneumatically released

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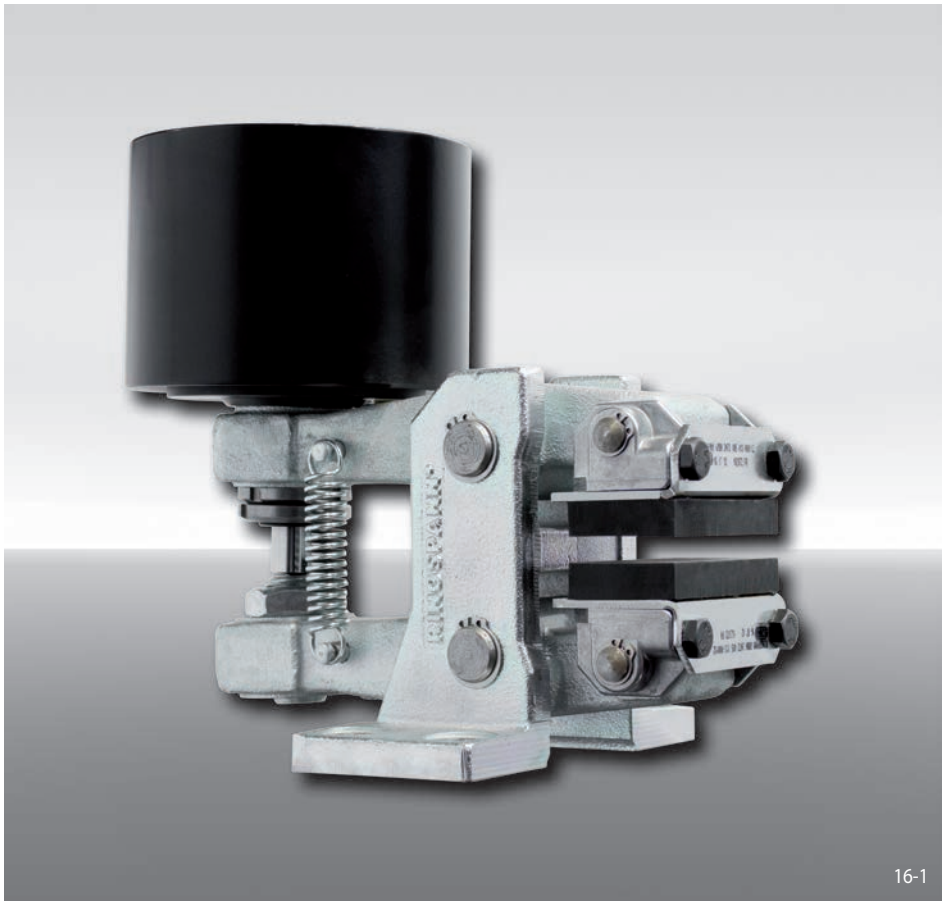


Features	Code
Brake Caliper	D
Mounting to the machine parallel to the brake disc	V
Frame size 030	030
Spring activated	F
Pneumatically released	P
Manual adjustment to accommodate friction block wear	M
Thrusters 025, 035, 045 or 101 are available	025 to 101
Thruster mounted right or left available	R L
Thickness of brake disc 12,5 mm or 25 mm	12 25

Example for ordering

Brake Caliper DV 030 FPM, thruster 035, thruster mounted right, thickness of brake disc 12,5 mm:

DV 030 FPM - 035 R - 12

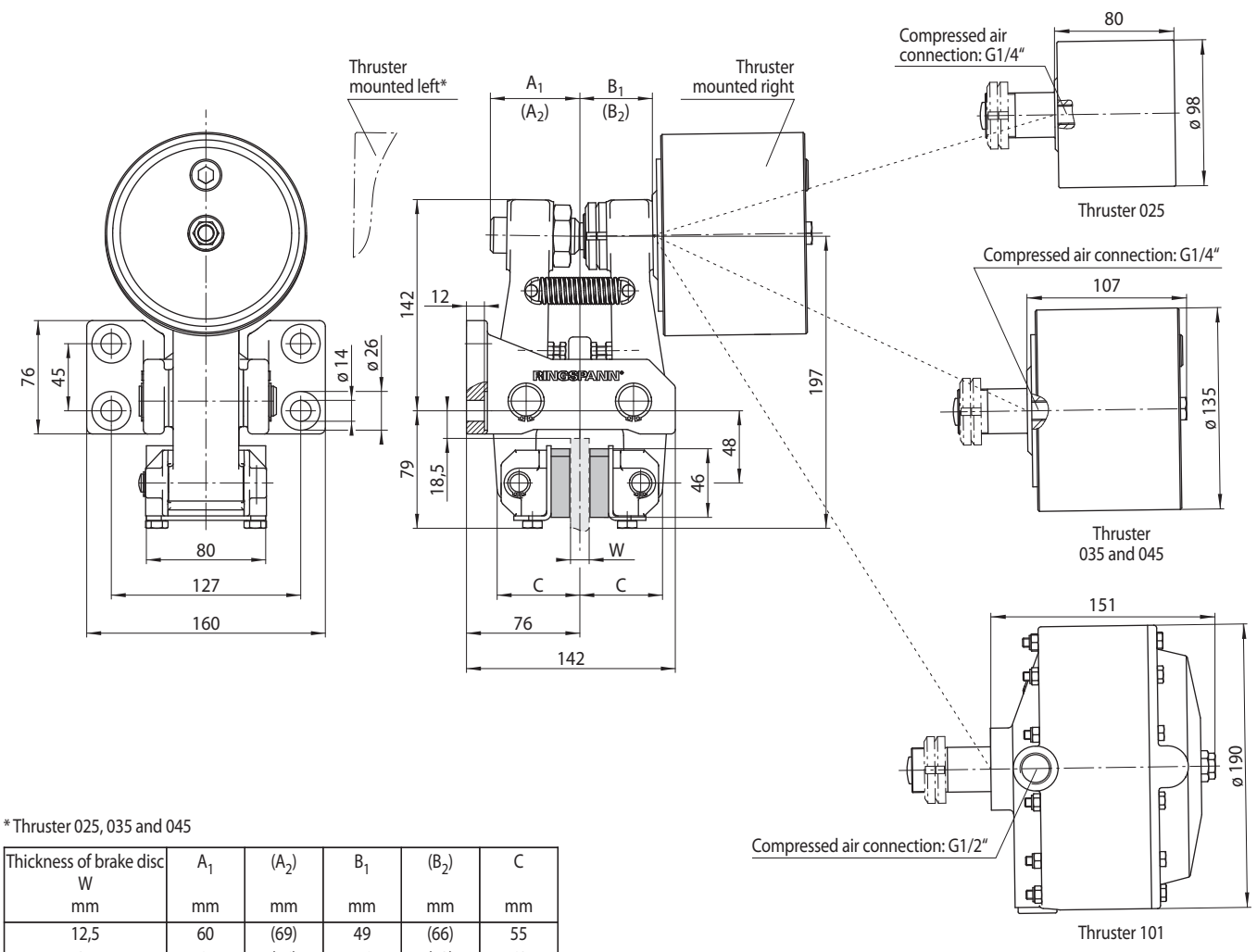
Technical Data

	Brake Caliper DV 030 FPM			
	with thruster 025	with thruster 035	with thruster 045	with thruster 101
Brake disc diameter mm	Braking torque Nm	Braking torque Nm	Braking torque Nm	Braking torque Nm
200	270	400	570	760
250	370	540	770	1050
300	460	680	970	1300
355	570	840	1200	1600
430	710	1050	1500	2000
520	890	1300	1900	2500
Arrangement	right / left	right / left	right / left	right
Clamping force	4800 N	7100 N	10100 N	13500 N
Air pressure	min. 5 bar max. 8 bar	min. 4,2 bar max. 8 bar	min. 5 bar max. 8 bar	min. 4,5 bar max. 8 bar
Air volume per activation	max. 120 cm^3	max. 185 cm^3	max. 185 cm^3	max. 540 cm^3
Weight	9,1 kg	11,2 kg	11,2 kg	12,4 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

Brake Caliper DV 030 FPM

spring activated – pneumatically released



* Thruster 025, 035 and 045

Thickness of brake disc W mm	A_1 mm	(A_2) mm	B_1 mm	(B_2) mm	C mm
12,5	60	(69)	49	(66)	55
25	67	(76)	56	(73)	62

Values in brackets resulting with maximum friction block wear.

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Brake Caliper DH 030 FPM

spring activated – pneumatically released

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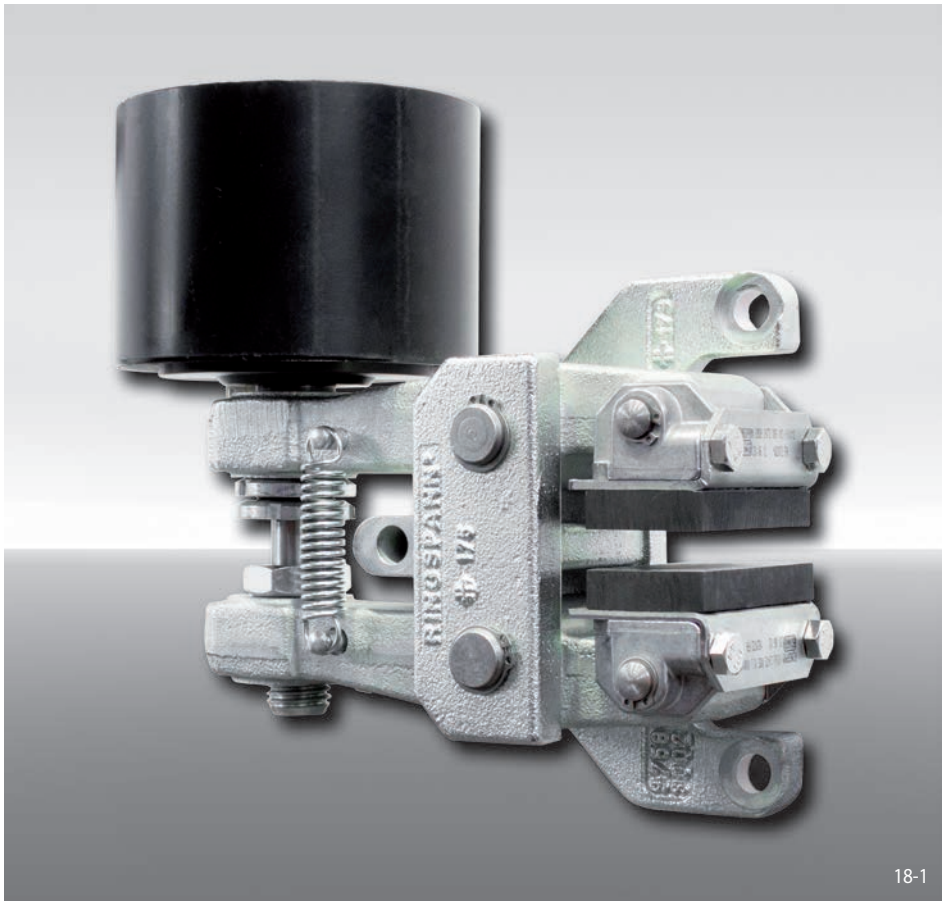


Features	Code
Brake Caliper	D
Mounting to the machine at right angles to the brake disc	H
Frame size 030	030
Spring activated	F
Pneumatically released	P
Manual adjustment to accommodate friction block wear	M
Thrusters 025, 035, 045 or 101 are available	025 to 101
Thruster mounted right or left available	R L
Thickness of brake disc 12,5 mm or 25 mm	12 25

Example for ordering

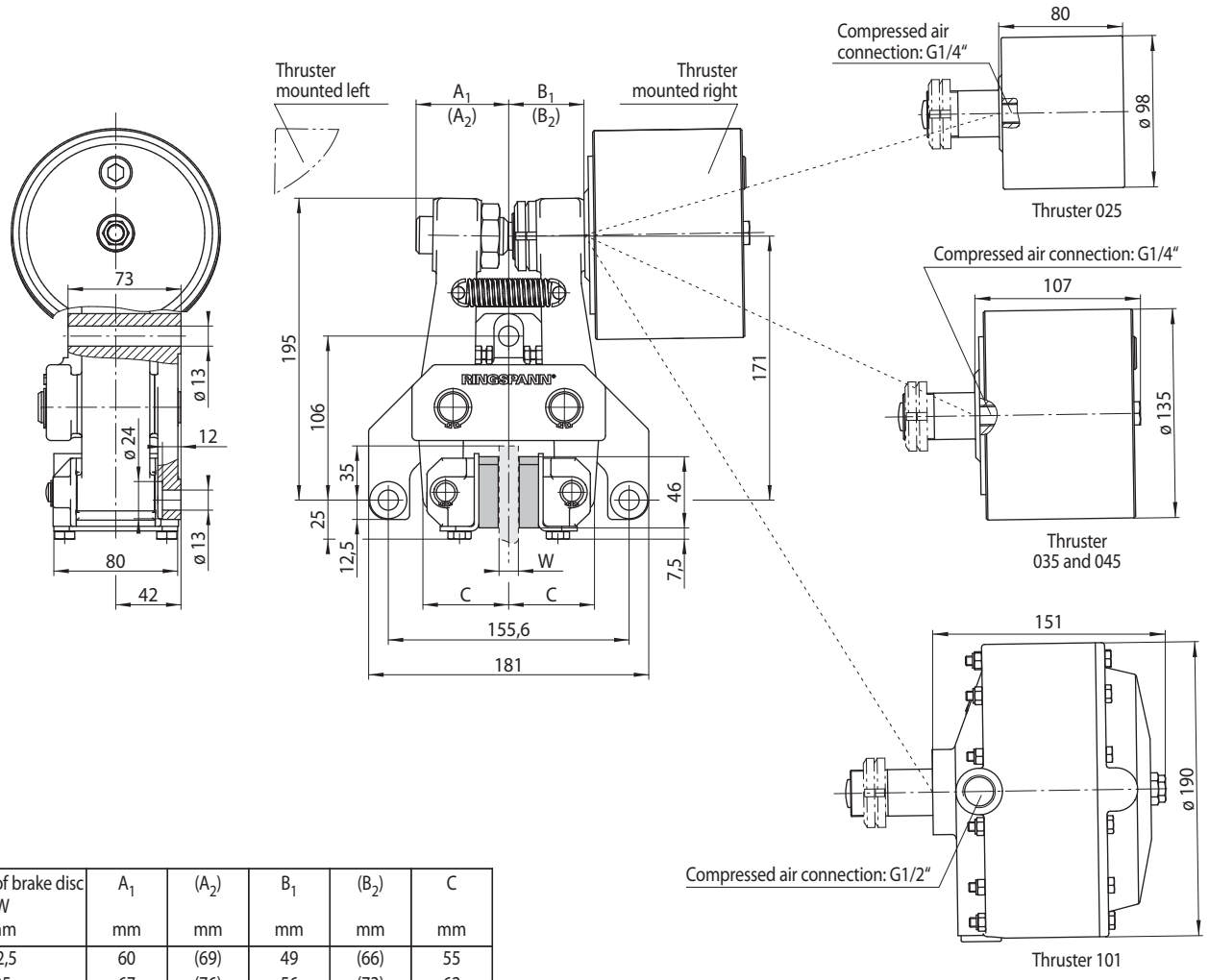
Brake Caliper DH 030 FPM, thruster 035, thruster mounted right, thickness of brake disc 12,5 mm:

DH 030 FPM - 035 R - 12

Technical Data

	Brake Caliper DH 030 FPM			
	with thruster 025	with thruster 035	with thruster 045	with thruster 101
Brake disc diameter mm	Braking torque Nm	Braking torque Nm	Braking torque Nm	Braking torque Nm
200	270	400	570	760
250	370	540	770	1050
300	460	680	970	1300
355	570	840	1200	1600
430	710	1050	1500	2000
520	890	1300	1900	2500
Clamping force	4800 N	7100 N	10100 N	13500 N
Air pressure	min. 5 bar max. 8 bar	min. 4,2 bar max. 8 bar	min. 5 bar max. 8 bar	min. 4,5 bar max. 8 bar
Air volume per activation	max. 120 cm^3	max. 185 cm^3	max. 185 cm^3	max. 540 cm^3
Weight	9,5 kg	11,6 kg	11,6 kg	12,8 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4



Thickness of brake disc W mm	A_1 mm	(A_2) mm	B_1 mm	(B_2) mm	C mm
12,5	60	(69)	49	(66)	55
25	67	(76)	56	(73)	62

Values in brackets resulting with maximum friction block wear.

19-1

Brake Caliper DV 030 FPA

spring activated – pneumatically released

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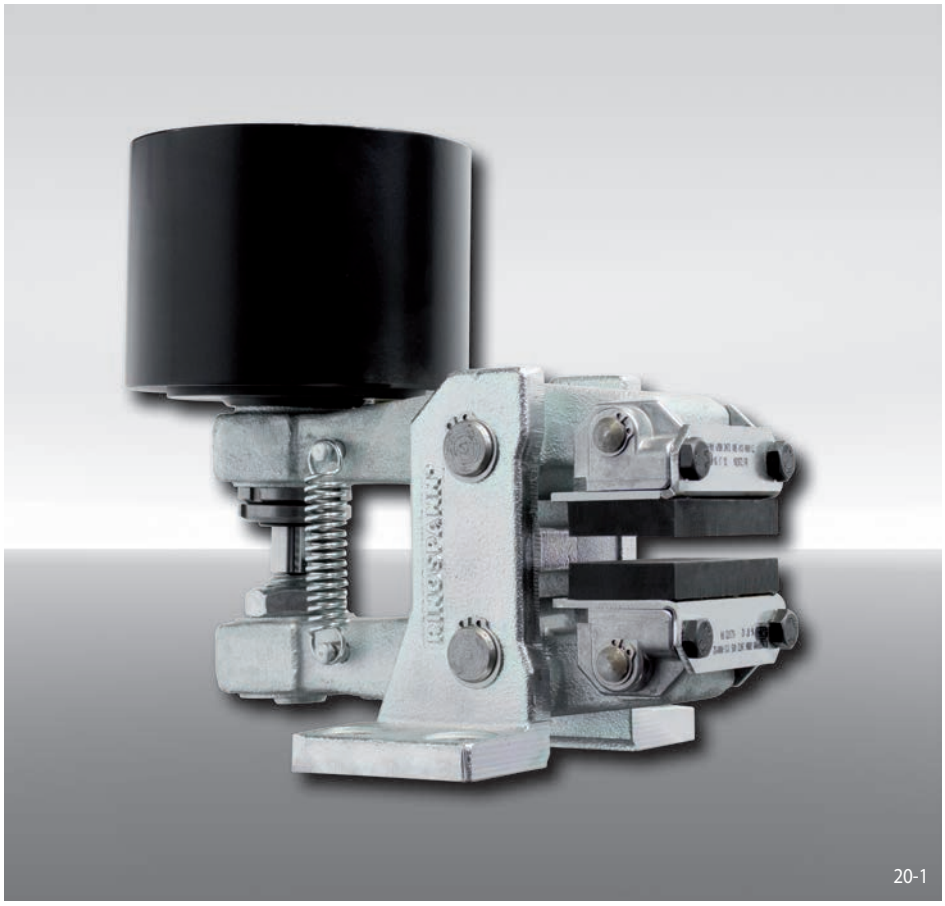


Features	Code
Brake Caliper	D
Mounting to the machine parallel to the brake disc	V
Frame size 030	030
Spring activated	F
Pneumatically released	P
Automatic adjustment to accommodate friction block wear	A
Thrusters 065, 085, 095 or 105 are available	065 to 105
Thruster mounted right or left available	R L
Thickness of brake disc 12,5 mm or 25 mm	12 25

Example for ordering

Brake Caliper DV 030 FPA, thruster 085, thruster mounted right, thickness of brake disc 12,5 mm:

DV 030 FPA - 085 R - 12

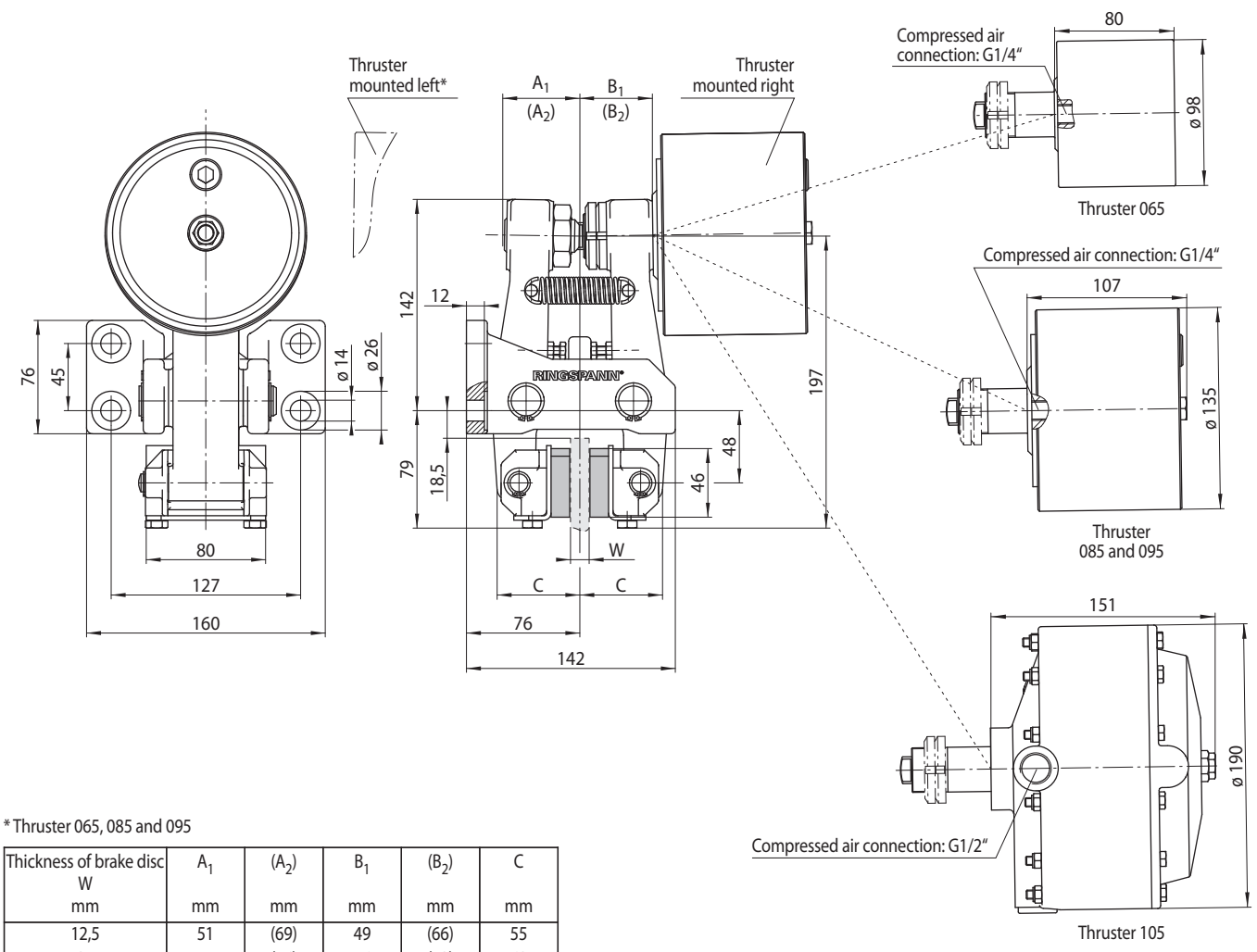
Technical Data

	Brake Caliper DV 030 FPA			
	with thruster 065	with thruster 085	with thruster 095	with thruster 105
Brake disc diameter mm	Braking torque Nm	Braking torque Nm	Braking torque Nm	Braking torque Nm
200	250	150	530	760
250	340	200	710	1050
300	430	250	900	1300
355	530	310	1100	1600
430	670	390	1400	2000
520	830	480	1700	2500
Arrangement	right / left	right / left	right / left	right
Clamping force	4500 N	2600 N	9300 N	13500 N
Air pressure	min. 5 bar max. 8 bar	min. 1,7 bar max. 8 bar	min. 5 bar max. 8 bar	min. 4,7 bar max. 8 bar
Air volume per activation	max. 72 cm^3	max. 140 cm^3	max. 140 cm^3	max. 460 cm^3
Weight	9,1 kg	11,5 kg	11,5 kg	13,1 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

Brake Caliper DV 030 FPA

spring activated – pneumatically released



* Thruster 065, 085 and 095

Thickness of brake disc W	A_1	(A_2)	B_1	(B_2)	C
mm	mm	mm	mm	mm	mm
12,5	51	(69)	49	(66)	55
25	57	(76)	56	(73)	62

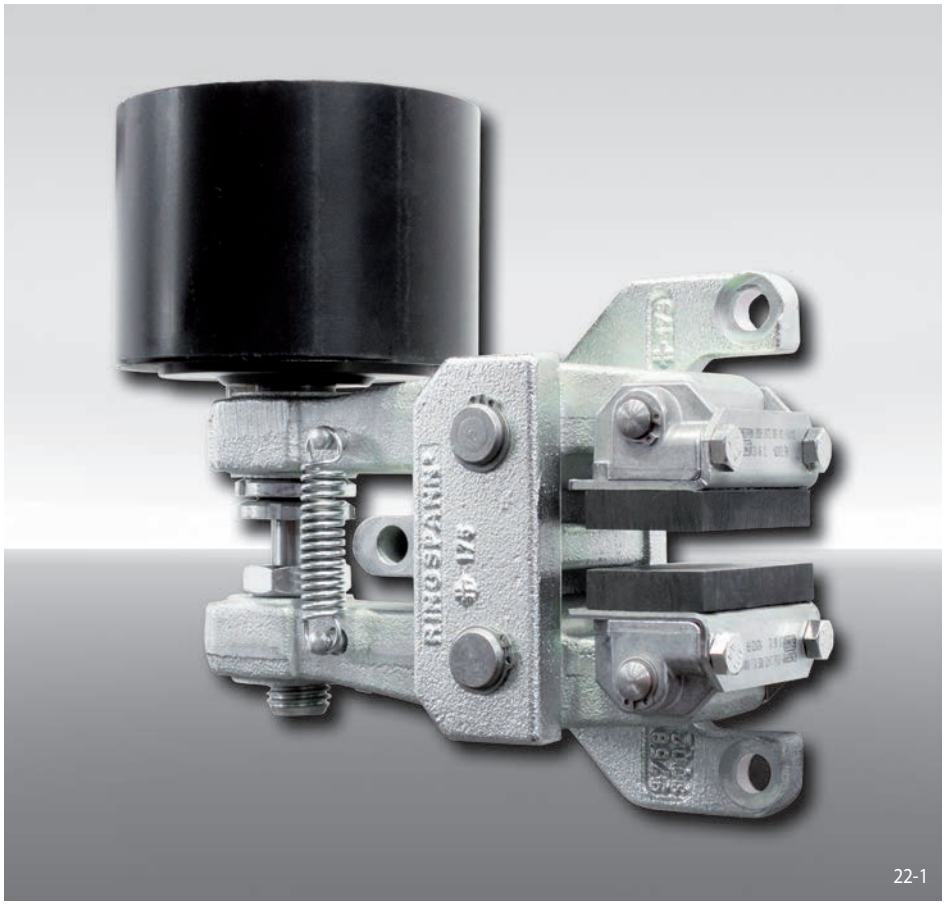
Values in brackets resulting with maximum friction block wear.

21-1

Brake Caliper DH 030 FPA

spring activated – pneumatically released

RINGSPANN®



Features	Code
Brake Caliper	D
Mounting to the machine at right angles to the brake disc	H
Frame size 030	030
Spring activated	F
Pneumatically released	P
Automatic adjustment to accommodate friction block wear	A
Thrusters 065, 085, 095 or 105 are available	065 to 105
Thruster mounted right or left available	R L
Thickness of brake disc 12,5 mm or 25 mm	12 25

Example for ordering

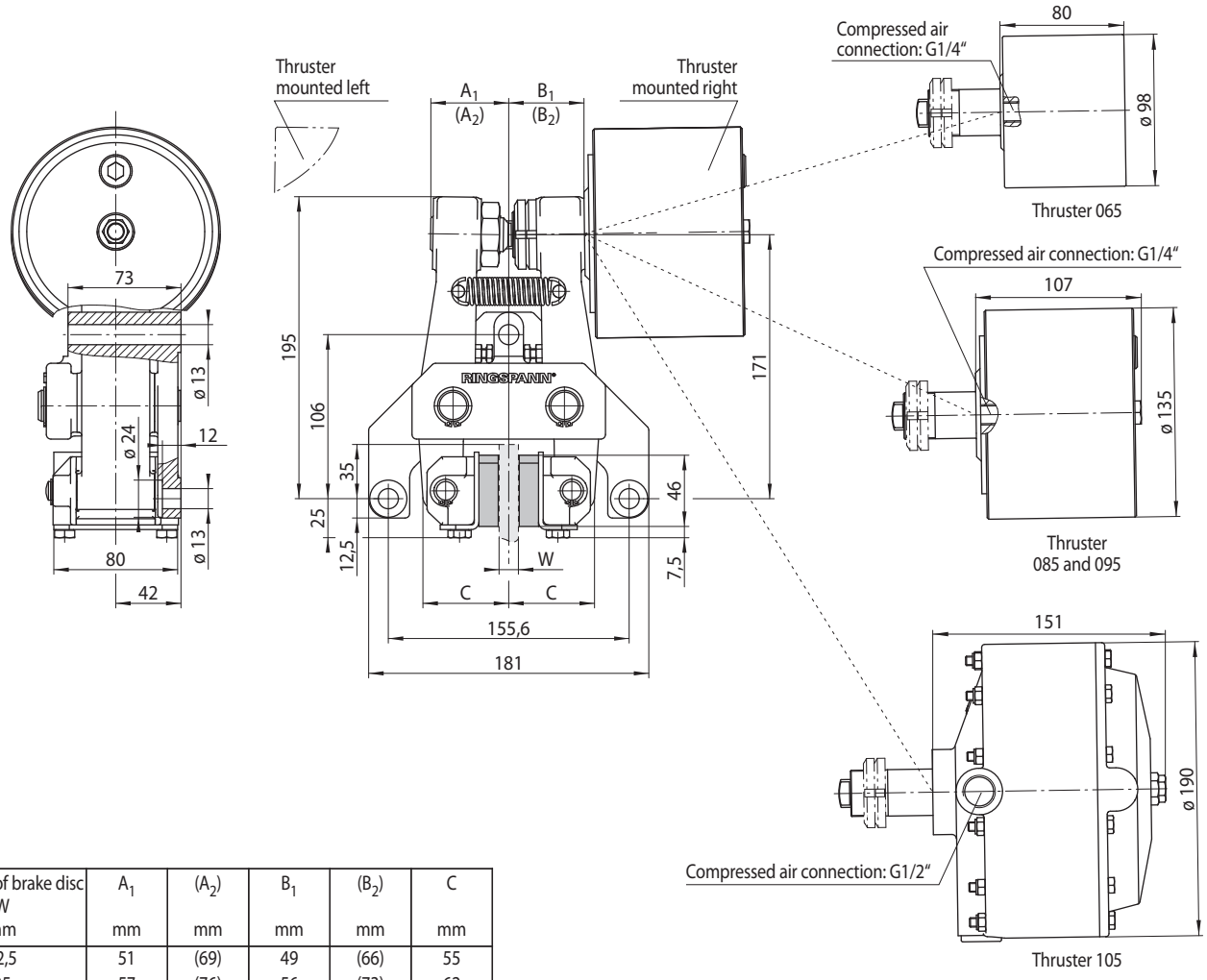
Brake Caliper DH 030 FPA, thruster 085, thruster mounted right, thickness of brake disc 12,5 mm:

DH 030 FPA - 085 R - 12

Technical Data

	Brake Caliper DH 030 FPA			
	with thruster 065	with thruster 085	with thruster 095	with thruster 105
Brake disc diameter mm	Braking torque Nm	Braking torque Nm	Braking torque Nm	Braking torque Nm
200	250	150	530	760
250	340	200	710	1 050
300	430	250	900	1 300
355	530	310	1 100	1 600
430	670	390	1 400	2 000
520	830	480	1 700	2 500
Clamping force	4 500 N	2 600 N	9 300 N	13 500 N
Air pressure	min. 5 bar max. 8 bar	min. 1,7 bar max. 8 bar	min. 5 bar max. 8 bar	min. 4,7 bar max. 8 bar
Air volume per activation	max. 72 cm^3	max. 140 cm^3	max. 140 cm^3	max. 460 cm^3
Weight	9,5 kg	11,9 kg	11,9 kg	13,5 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.



Thickness of brake disc W mm	A_1 mm	(A_2) mm	B_1 mm	(B_2) mm	C mm
12,5	51	(69)	49	(66)	55
25	57	(76)	56	(73)	62

Values in brackets resulting with maximum friction block wear.

23-1

Brake Caliper DV 035 FPM

spring activated – pneumatically released

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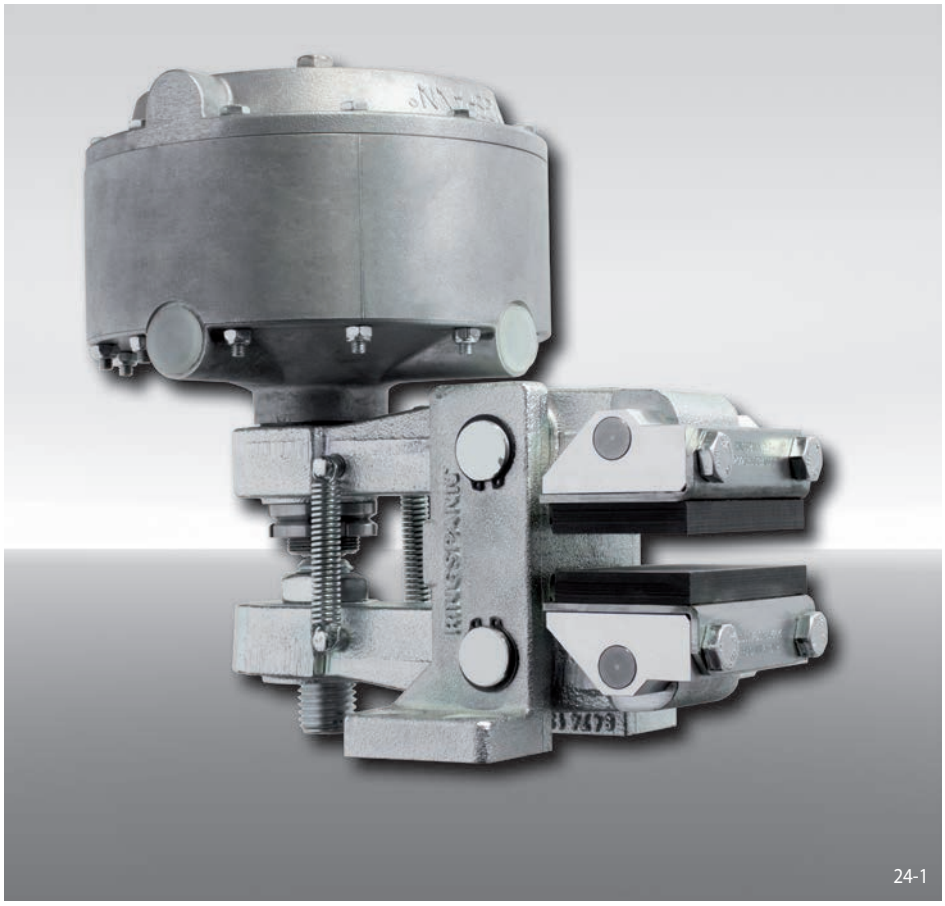


Features	Code
Brake Caliper	D
Mounting to the machine parallel to the brake disc	V
Frame size 035	035
Spring activated	F
Pneumatically released	P
Manual adjustment to accommodate friction block wear	M
Thrusters 025, 035, 045, 102, 111 or 122 are available	025 to 122
Thruster mounted right available	R
Thickness of brake disc 12,5 mm, 25 mm, 30 mm or 40 mm	12 to 40

Example for ordering

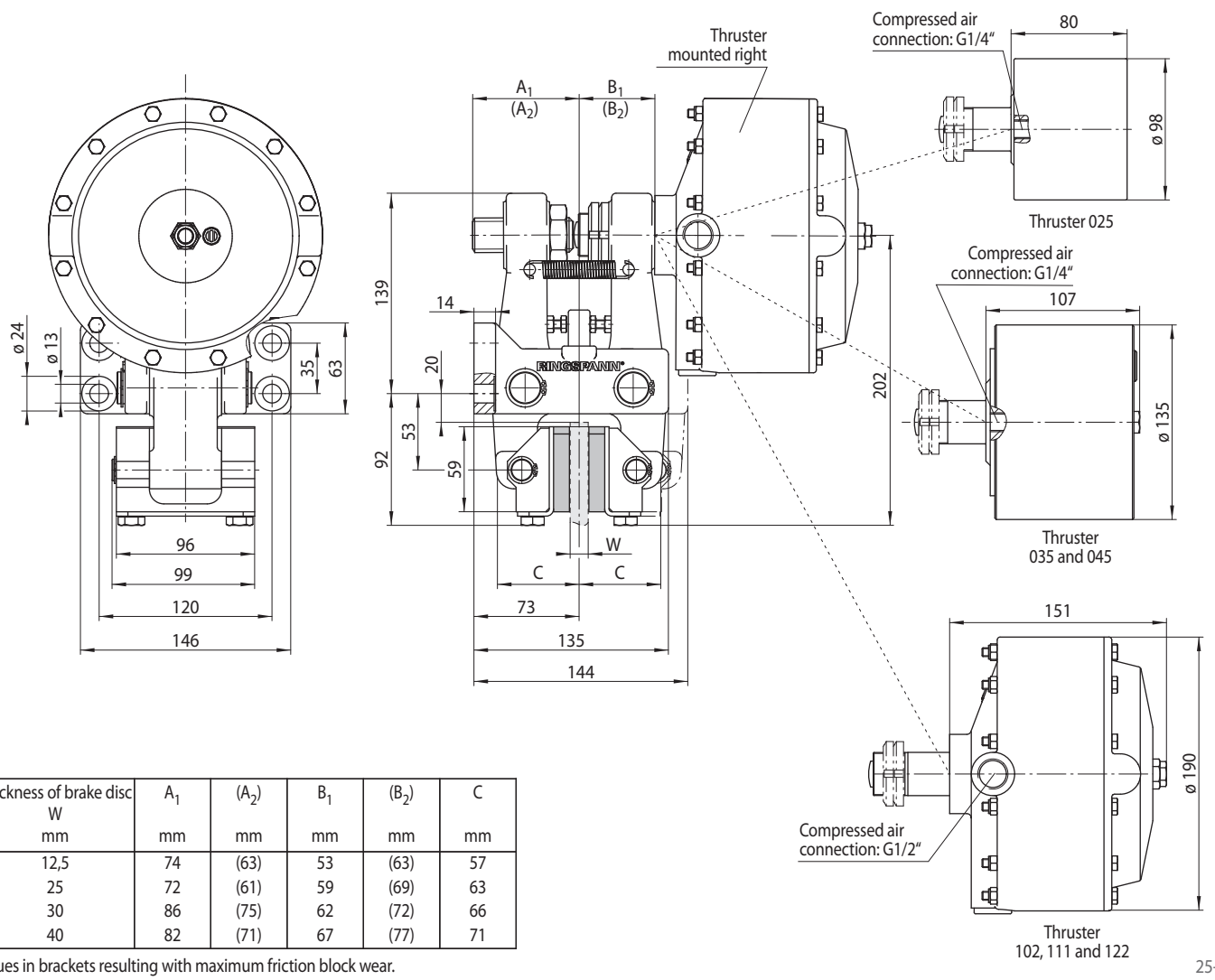
Brake Caliper DV 035 FPM, thruster 111, thruster mounted right, thickness of brake disc 12,5 mm:

DV 035 FPM - 111 R - 12

Technical Data

	Brake Caliper DV 035 FPM					
	with thruster 025	with thruster 035	with thruster 045	with thruster 102	with thruster 111	with thruster 122
Brake disc diameter mm	Braking torque Nm	Braking torque Nm	Braking torque Nm	Braking torque Nm	Braking torque Nm	Braking torque Nm
300	430	640	900	820	1450	1850
355	530	790	1100	1000	1750	2250
430	670	990	1400	1300	2250	2850
520	840	1250	1750	1600	2800	3550
630	1050	1550	2150	2000	3450	4400
710	1200	1750	2450	2250	3950	5000
800	1350	2000	2800	2600	4500	5750
Clamping force	4600 N	6800 N	9600 N	8800 N	15300 N	19500 N
Air pressure	min. 5 bar max. 8 bar	min. 4,2 bar max. 8 bar	min. 5 bar max. 8 bar	min. 3 bar max. 8 bar	min. 5 bar max. 8 bar	min. 6,5 bar max. 8 bar
Air volume per activation	max. 120 cm^3	max. 185 cm^3	max. 185 cm^3	max. 540 cm^3	max. 540 cm^3	max. 540 cm^3
Weight	10,6 kg	13,0 kg	13,0 kg	14,2 kg	14,2 kg	14,2 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.



Thickness of brake disc W mm	A_1 mm	(A_2) mm	B_1 mm	(B_2) mm	C mm
12,5	74	(63)	53	(63)	57
25	72	(61)	59	(69)	63
30	86	(75)	62	(72)	66
40	82	(71)	67	(77)	71

Values in brackets resulting with maximum friction block wear.

25-1

Brake Caliper DH 035 FPM

spring activated – pneumatically released

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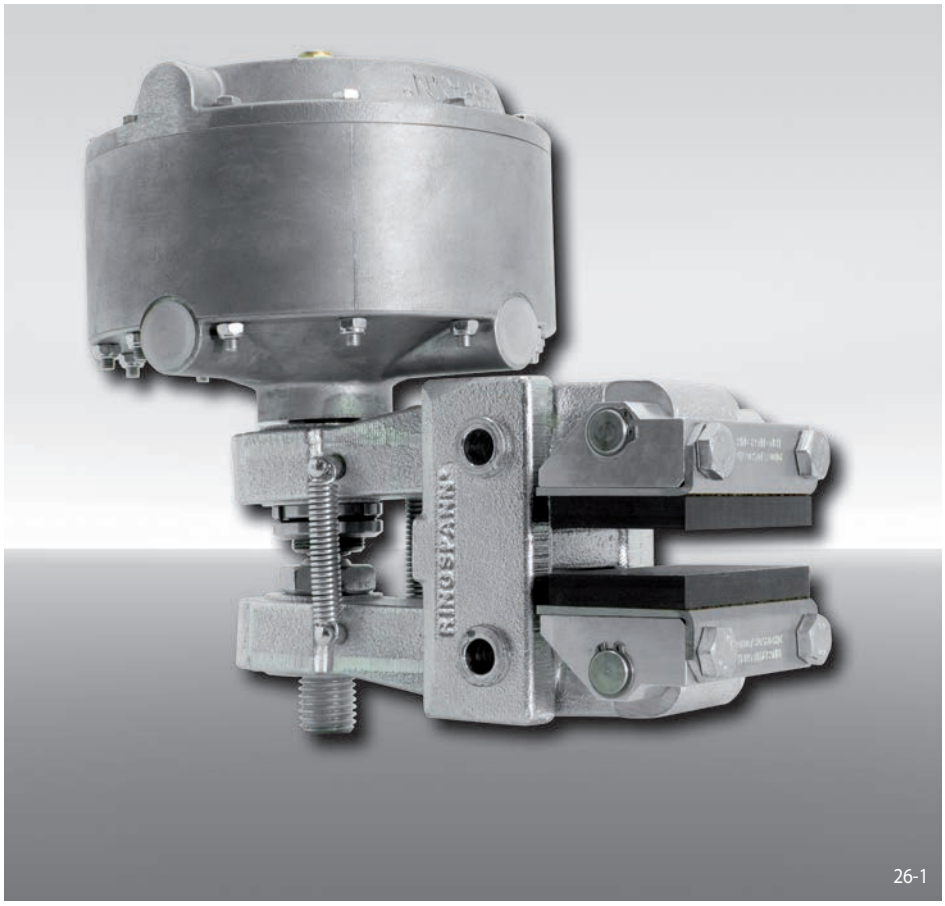


Features	Code
Brake Caliper	D
Mounting to the machine at right angles to the brake disc	H
Frame size 035	035
Spring activated	F
Pneumatically released	P
Manual adjustment to accommodate friction block wear	M
Thrusters 025, 035, 045, 102, 111 or 122 are available	025 to 122
Thruster mounted right or left available	R L
Thickness of brake disc 12,5 mm, 25 mm, 30 mm or 40 mm	12 to 40

Example for ordering

Brake Caliper DH 035 FPM, thruster 111, thruster mounted right, thickness of brake disc 12,5 mm:

DH 035 FPM - 111 R - 12

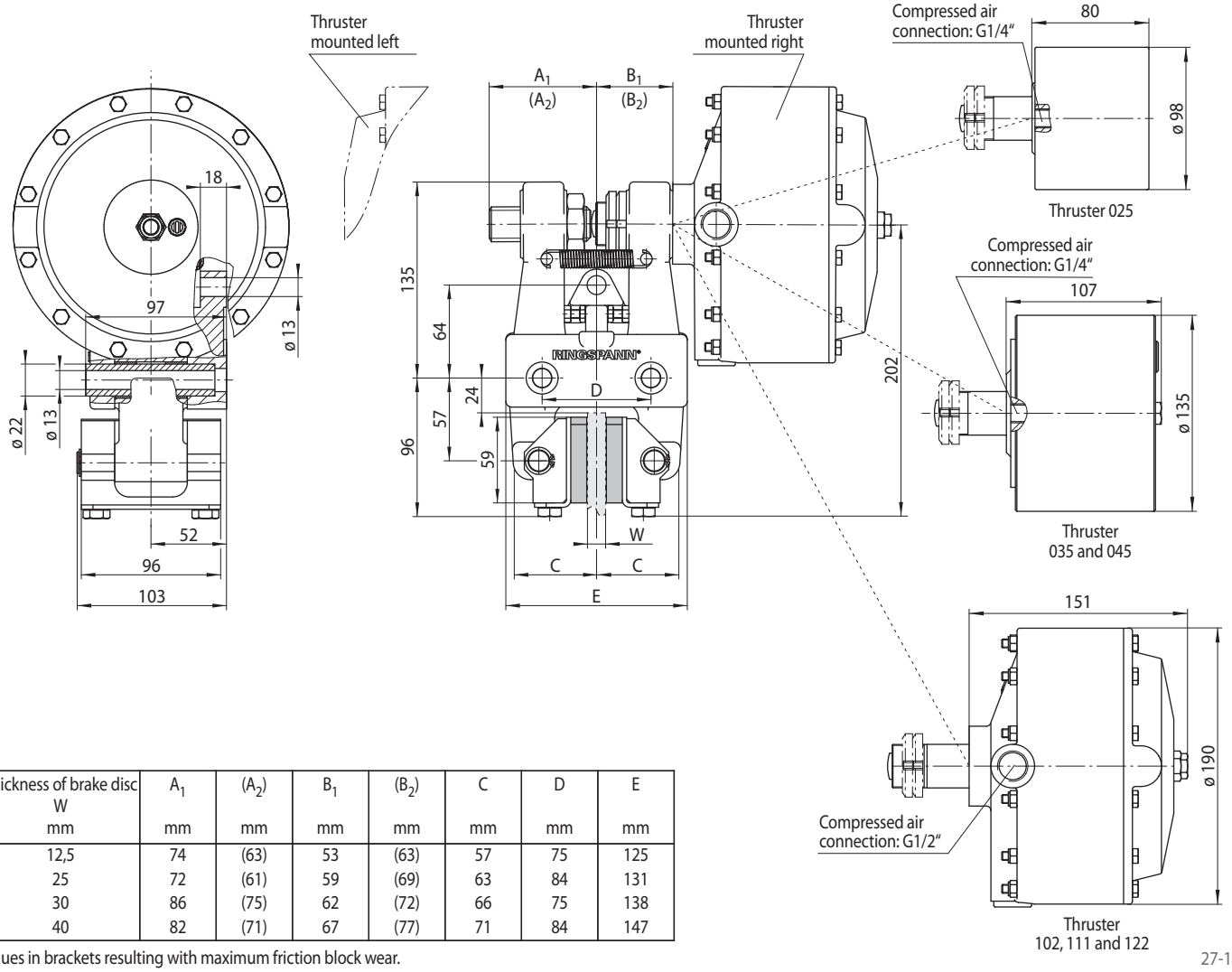
Technical Data

	Brake Caliper DH 035 FPM					
	with thruster 025	with thruster 035	with thruster 045	with thruster 102	with thruster 111	with thruster 122
Brake disc diameter mm	Braking torque Nm	Braking torque Nm	Braking torque Nm	Braking torque Nm	Braking torque Nm	Braking torque Nm
300	430	640	900	820	1450	1850
355	530	790	1100	1000	1750	2250
430	670	990	1400	1300	2250	2850
520	840	1250	1750	1600	2800	3550
630	1050	1550	2150	2000	3450	4400
710	1200	1750	2450	2250	3950	5000
800	1350	2000	2800	2600	4500	5750
Clamping force	4600 N	6800 N	9600 N	8800 N	15300 N	19500 N
Air pressure	min. 5 bar max. 8 bar	min. 4,2 bar max. 8 bar	min. 5 bar max. 8 bar	min. 3 bar max. 8 bar	min. 5 bar max. 8 bar	min. 6,5 bar max. 8 bar
Air volume per activation	max. 120 cm^3	max. 185 cm^3	max. 185 cm^3	max. 540 cm^3	max. 540 cm^3	max. 540 cm^3
Weight	10,6 kg	13,0 kg	13,0 kg	14,2 kg	14,2 kg	14,2 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

Brake Caliper DH 035 FPM

spring activated – pneumatically released



Thickness of brake disc W mm	A_1 mm	(A_2) mm	B_1 mm	(B_2) mm	C mm	D mm	E mm
12,5	74	(63)	53	(63)	57	75	125
25	72	(61)	59	(69)	63	84	131
30	86	(75)	62	(72)	66	75	138
40	82	(71)	67	(77)	71	84	147

Values in brackets resulting with maximum friction block wear.

27-1

Brake Caliper DV 035 FPA

spring activated – pneumatically released

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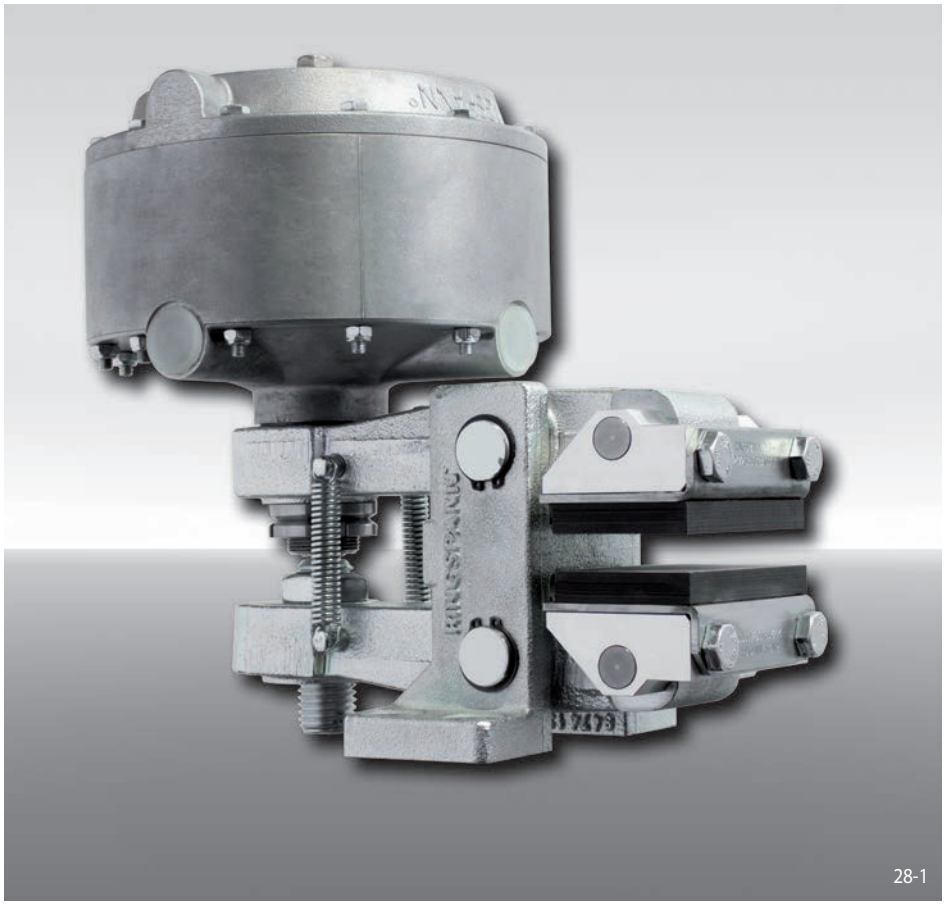


Features	Code
Brake Caliper	D
Mounting to the machine at right angles to the brake disc	V
Frame size 035	035
Spring activated	F
Pneumatically released	P
Automatic adjustment to accommodate friction block wear	A
Thrusters 065, 085, 095, 115 or 125 are available	065 to 125
Thruster mounted right available	R
Thickness of brake disc 12,5 mm, 25 mm, 30 mm or 40 mm	12 to 40

Example for ordering

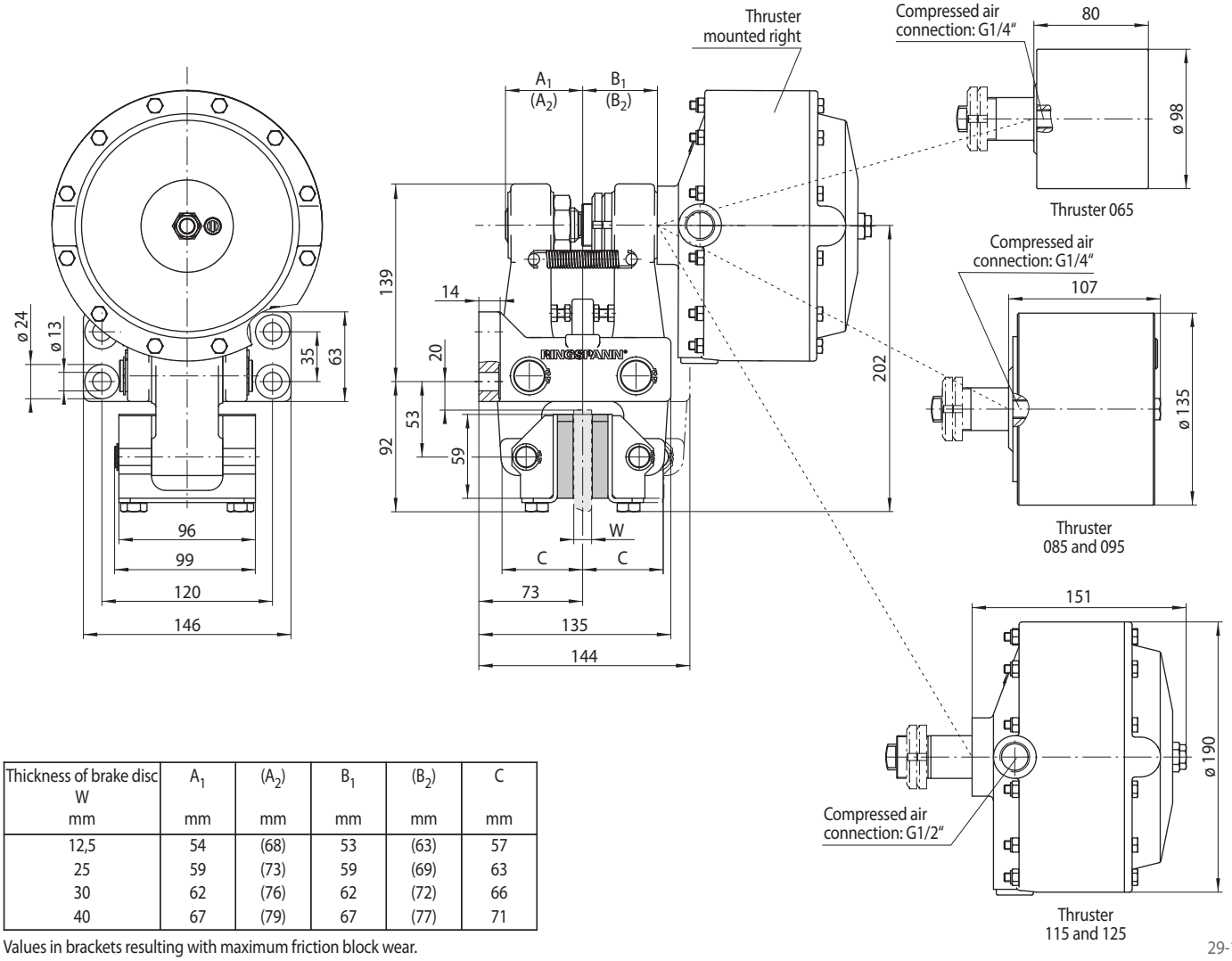
Brake Caliper DV 035 FPA, thruster 095, thruster mounted right, thickness of brake disc 12,5 mm:

DV 035 FPA - 095 R - 12

Technical Data

	Brake Caliper DV 035 FPA				
	with thruster 065	with thruster 085	with thruster 095	with thruster 115	with thruster 125
Brake disc diameter mm	Braking torque Nm	Braking torque Nm	Braking torque Nm	Braking torque Nm	Braking torque Nm
300	400	230	830	1350	1750
355	500	290	1050	1700	2150
430	630	360	1300	2100	2700
520	780	450	1600	2650	3350
630	970	560	2000	3250	4150
710	1100	640	2300	3750	4750
800	1250	730	2600	4250	5450
Clamping force	4300 N	2500 N	8900 N	14500 N	18500 N
Air pressure	min. 5 bar max. 8 bar	min. 1,7 bar max. 8 bar	min. 5 bar max. 8 bar	min. 5 bar max. 8 bar	min. 6,5 bar max. 8 bar
Air volume per activation	max. 72 cm^3	max. 140 cm^3	max. 140 cm^3	max. 460 cm^3	max. 460 cm^3
Weight	10,9 kg	13,3 kg	13,3 kg	14,9 kg	14,9 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.



Thickness of brake disc W mm	A_1 mm	(A_2) mm	B_1 mm	(B_2) mm	C mm
12,5	54	(68)	53	(63)	57
25	59	(73)	59	(69)	63
30	62	(76)	62	(72)	66
40	67	(79)	67	(77)	71

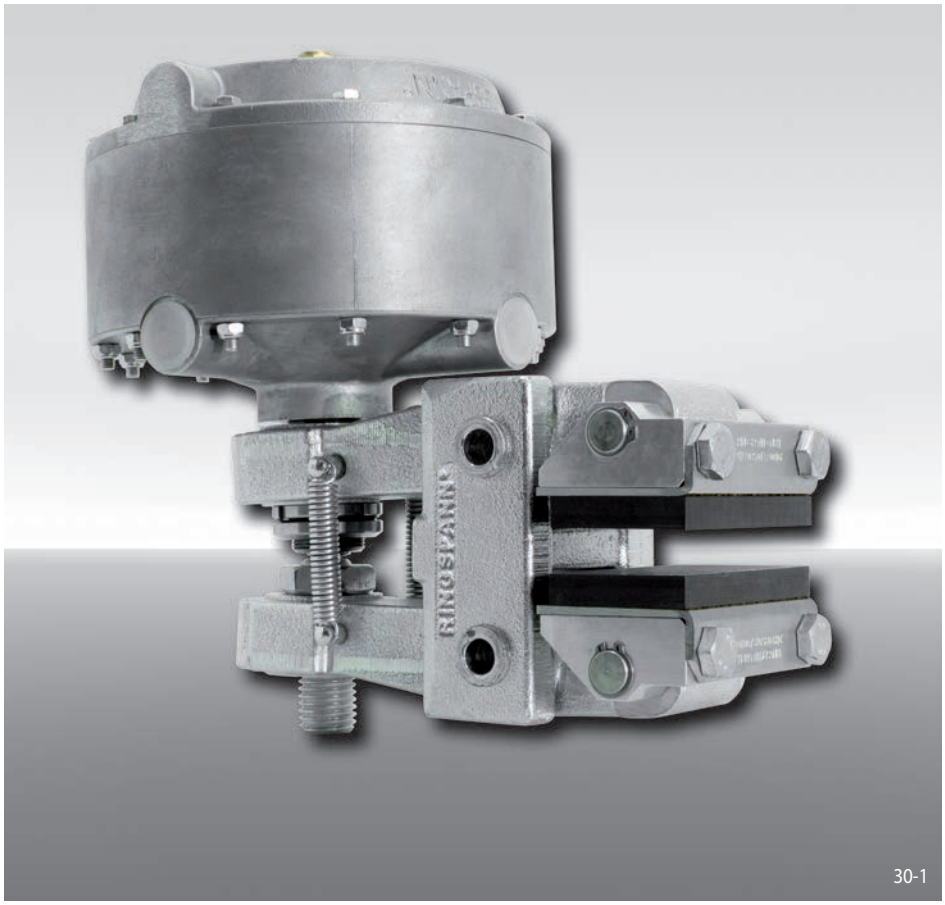
Values in brackets resulting with maximum friction block wear.

29-1

Brake Caliper DH 035 FPA

spring activated – pneumatically released

RINGSPANN®



Features	Code
Brake Caliper	D
Mounting to the machine at right angles to the brake disc	H
Frame size 035	035
Spring activated	F
Pneumatically released	P
Automatic adjustment to accommodate friction block wear	A
Thrusters 065, 085, 095, 115 or 125 are available	065 to 125
Thruster mounted right or left available	R L
Thickness of brake disc 12,5 mm, 25 mm, 30 mm or 40 mm	12 to 40

Example for ordering

Brake Caliper DH 035 FPA, thruster 095, thruster mounted right, thickness of brake disc 12,5 mm:

DH 035 FPA - 095 R - 12

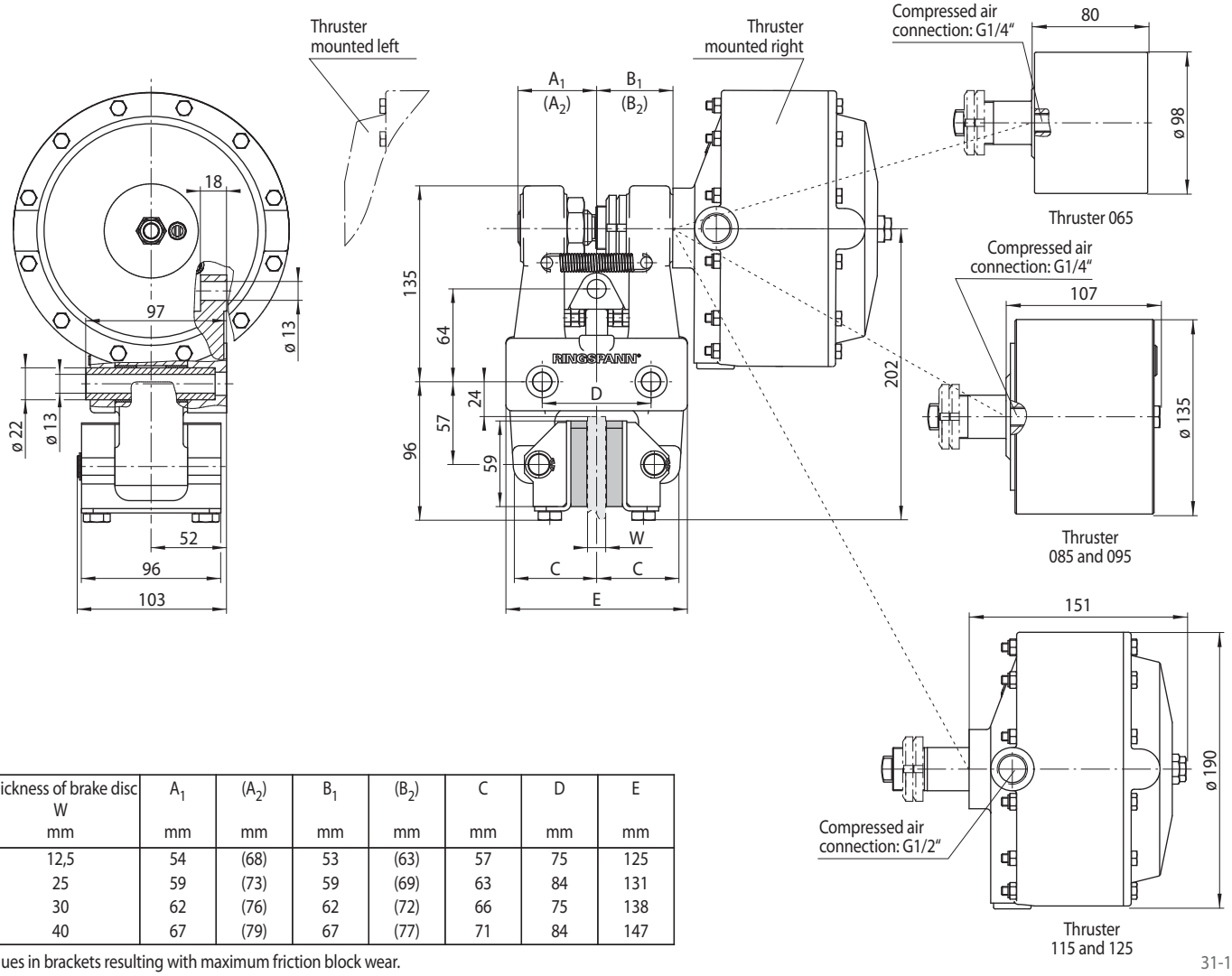
Technical Data

	Brake Caliper DH 035 FPA				
	with thruster 065	with thruster 085	with thruster 095	with thruster 115	with thruster 125
Brake disc diameter mm	Braking torque Nm	Braking torque Nm	Braking torque Nm	Braking torque Nm	Braking torque Nm
300	400	230	830	1350	1750
355	500	290	1050	1700	2150
430	630	360	1300	2100	2700
520	780	450	1600	2650	3350
630	970	560	2000	3250	4150
710	1100	640	2300	3750	4750
800	1250	730	2600	4250	5450
Clamping force	4300 N	2500 N	8900 N	14500 N	18500 N
Air pressure	min. 5 bar max. 8 bar	min. 1,7 bar max. 8 bar	min. 5 bar max. 8 bar	min. 5 bar max. 8 bar	min. 6,5 bar max. 8 bar
Air volume per activation	max. 72 cm^3	max. 140 cm^3	max. 140 cm^3	max. 460 cm^3	max. 460 cm^3
Weight	10,9 kg	13,3 kg	13,3 kg	14,9 kg	14,9 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

Brake Caliper DH 035 FPA

spring activated – pneumatically released



Thickness of brake disc W mm	A_1 mm	(A_2) mm	B_1 mm	(B_2) mm	C mm	D mm	E mm
12,5	54	(68)	53	(63)	57	75	125
25	59	(73)	59	(69)	63	84	131
30	62	(76)	62	(72)	66	75	138
40	67	(79)	67	(77)	71	84	147

Values in brackets resulting with maximum friction block wear.

31-1

Brake Caliper DU 060 FPM

spring activated – pneumatically released

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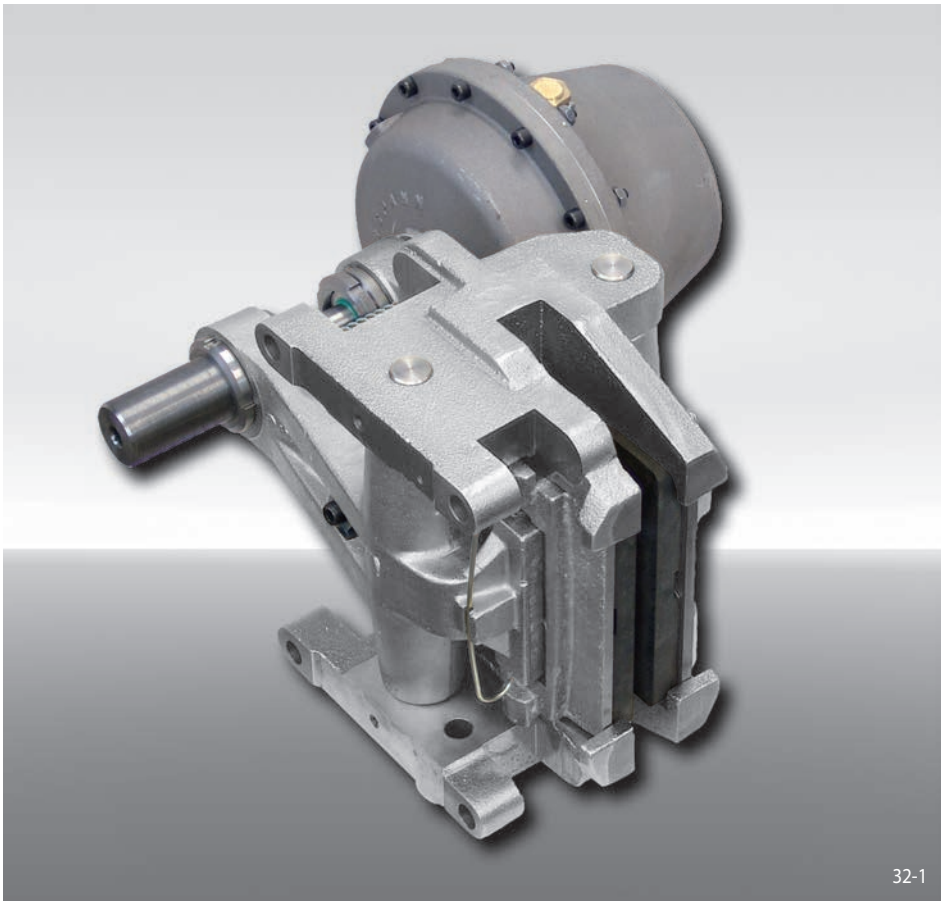

Features	Code
Brake Caliper	D
Mounting to the machine, can be made either parallel or at the right angles to the brake disc	U
Frame size 060	060
Spring activated	F
Pneumatically released	P
Manual adjustment to accommodate friction block wear	M
Thrusters 111, 122, 130, 135, 140, 150, 155 or 160 are available	111 to 160
Thruster mounted right or left available	R L
Thickness of brake disc 25 mm or 40 mm	25 40

Example for ordering

Brake Caliper DU 060 FPM, thruster 130, thruster mounted right, thickness of brake disc 25 mm:

DU 060 FPM - 130 R - 25

Technical Data

	Brake Caliper DU 060 FPM							
	with thruster 111	with thruster 122	with thruster 130	with thruster 135	with thruster 140	with thruster 150	with thruster 155	with thruster 160
Brake disc diameter mm	Braking torque Nm	Braking torque Nm	Braking torque Nm	Braking torque Nm	Braking torque Nm	Braking torque Nm	Braking torque Nm	Braking torque Nm
630	4900	6300	2700	5400	7800	7300	10300	13000
710	5600	7300	3100	6200	9000	8500	12000	15500
800	6500	8400	3600	7200	10300	9700	14000	17500
900	7400	9700	4100	8300	11900	11200	16000	20500
1000	8400	10900	4700	9300	13500	12500	18000	23000
1250	10700	14000	6000	12000	17000	16000	23000	29500
1600	14000	18500	7800	16000	22500	21000	30000	38500
Clamping force	24000 N	31000 N	13200 N	26500 N	38000 N	36000 N	51000 N	65000 N
Air pressure	min. 5 bar max. 8 bar	min. 6,5 bar max. 8 bar	min. 2,8 bar max. 8,5 bar	min. 5,5 bar max. 8,5 bar	min. 8,5 bar max. 10 bar	min. 4,5 bar max. 8,5 bar	min. 5,5 bar max. 8,5 bar	min. 7,6 bar max. 8,5 bar
Air volume per activation	max. 80 cm^3	max. 80 cm^3	max. 200 cm^3	max. 200 cm^3	max. 200 cm^3	max. 400 cm^3	max. 400 cm^3	max. 400 cm^3
Weight	60 kg	60 kg	62 kg	62 kg	62 kg	70 kg	70 kg	70 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

Brake Caliper DU 060 FPM

spring activated – pneumatically released

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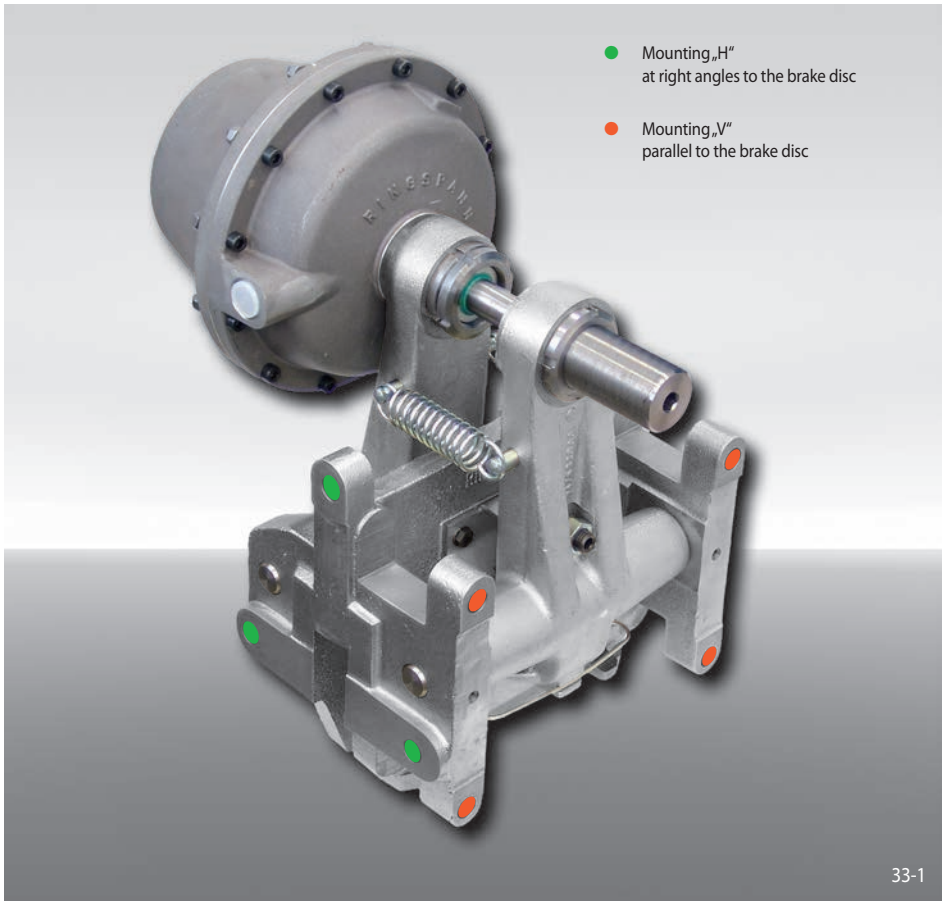
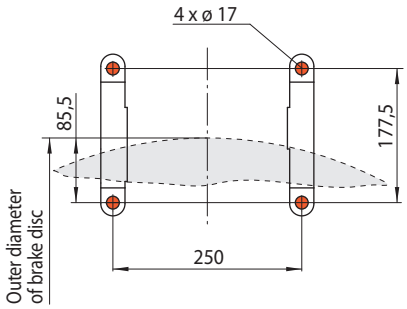
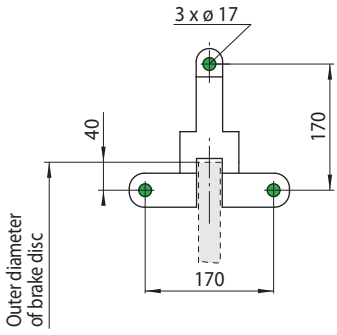


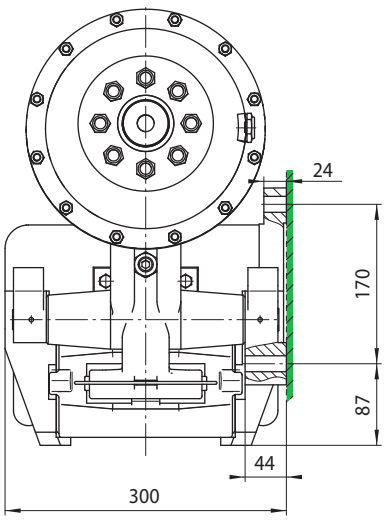
Frame Design

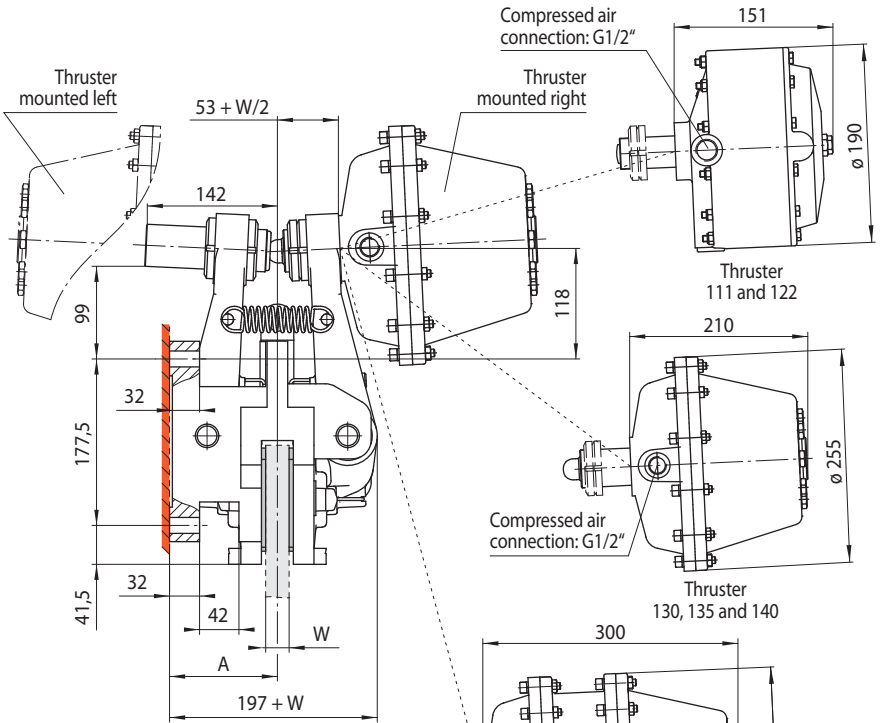
Mounting „V“ parallel to the brake disc



Mounting „H“ at right angles to the brake disc







W mm	A mm
25	115
40	122

W = Thickness of brake disc

- Mounting „H“ at right angles to the brake disc
- Mounting „V“ parallel to the brake disc

33-4

Brake Caliper DV 020 FHM

spring activated – hydraulically released

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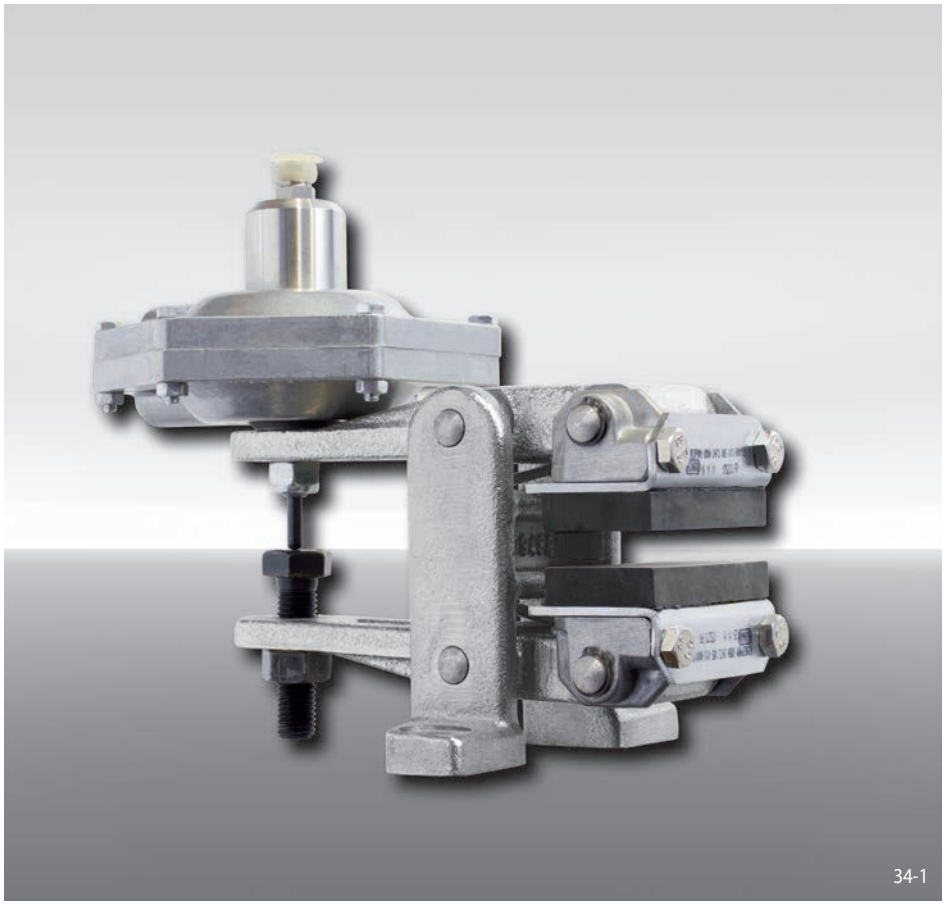

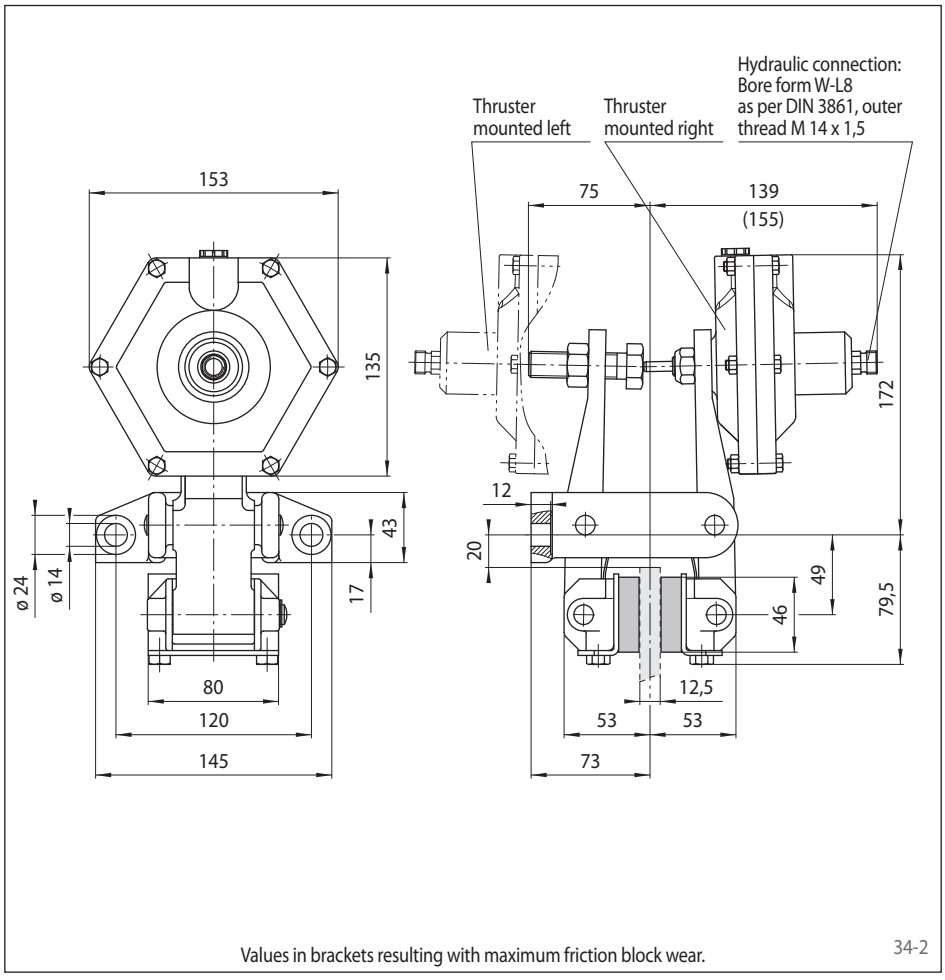

Values in brackets resulting with maximum friction block wear.

Features	Code
Brake Caliper	D
Mounting to the machine parallel to the brake disc	V
Frame size 020	020
Spring activated	F
Hydraulically released	H
Manual adjustment to accommodate friction block wear	M
Thruster 210	210
Thruster mounted right or left available	R L
Thickness of brake disc 12,5 mm	12

Example for ordering

Brake Caliper DV 020 FHM, thruster 210, thruster mounted right, thickness of brake disc 12,5 mm:

DV 020 FHM - 210 R - 12

Technical Data

	Brake Caliper DV 020 FHM with thruster 210
Brake disc diameter mm	Braking torque Nm
200 250 300 355 430 520	200 270 340 420 520 650
Clamping force	3 500 N
Oil pressure	min. 65 bar max. 100 bar
Oil volume	max. 2,5 cm^3
Weight	5,4 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

Brake Caliper DH 020 FHM

spring activated – hydraulically released

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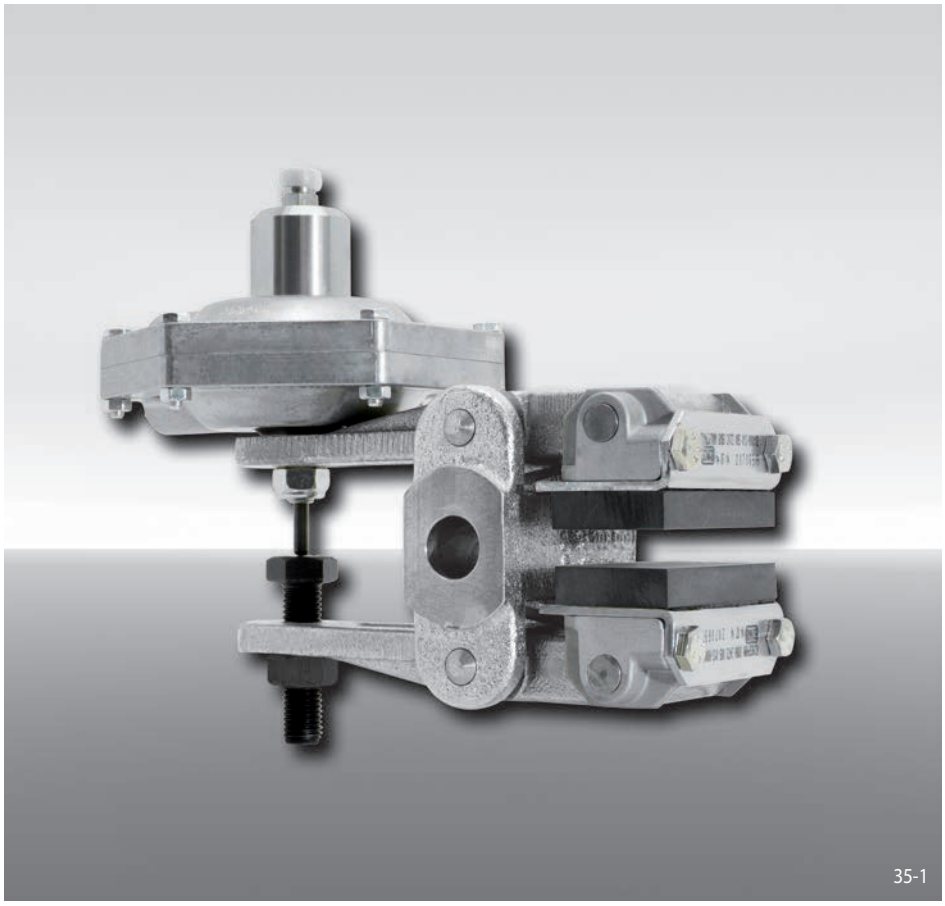
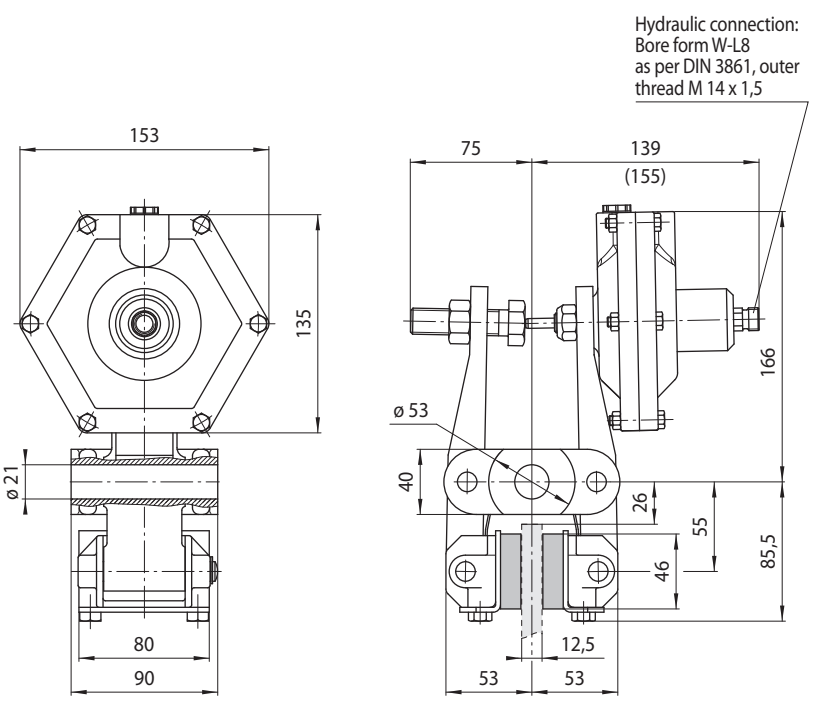


Features	Code
Brake Caliper	D
Mounting to the machine at right angles to the brake disc	H
Frame size 020	020
Spring activated	F
Hydraulically released	H
Manual adjustment to accommodate friction block wear	M
Thruster 210	210
Position of the thruster to the right or left can be defined by turning the brake around during installation	U
Thickness of brake disc 12,5 mm	12

Example for ordering

Brake Caliper DH 020 FHM, thruster 210, position of the thruster can be to the right or left, thickness of brake disc 12,5 mm:

DH 020 FHM - 210 U - 12



Values in brackets resulting with maximum friction block wear.

35-2

Technical Data

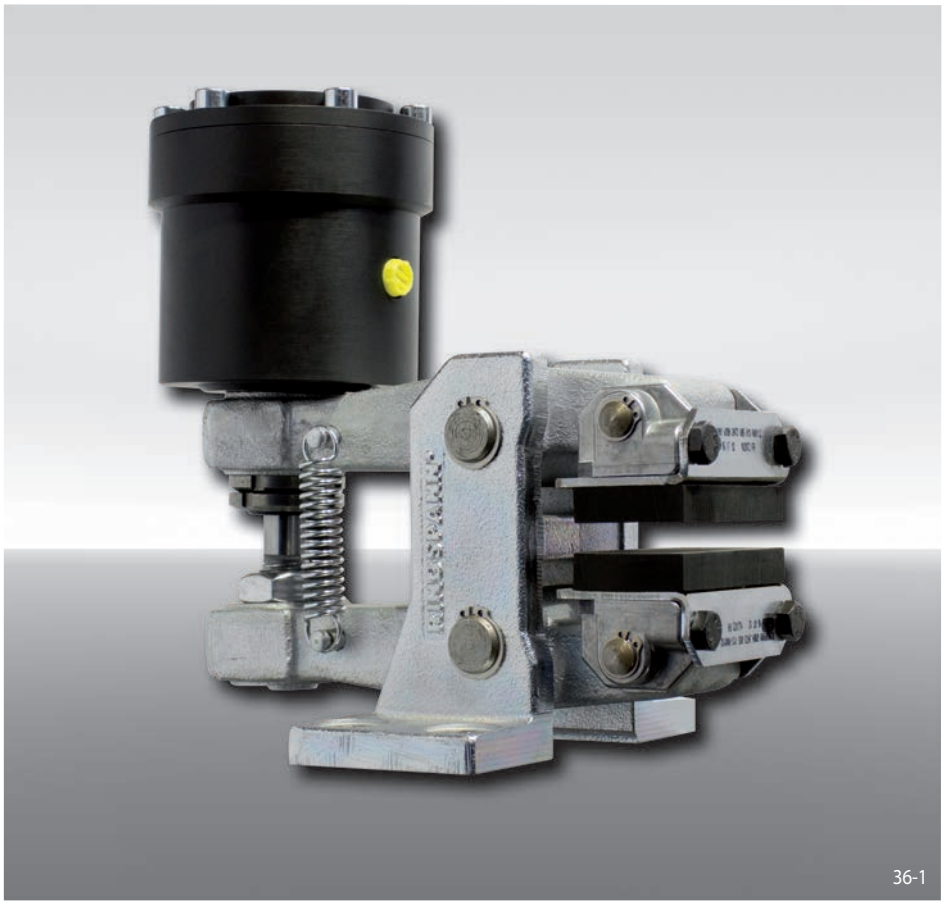
	Brake Caliper DH 020 FHM with thruster 210
Brake disc diameter mm	Braking torque Nm
200	200
250	270
300	340
355	420
430	520
520	650
Clamping force	3 500 N
Oil pressure	min. 65 bar max. 100 bar
Oil volume	max. 2,5 cm^3
Weight	5,4 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

Brake Caliper DV 030 FHM

spring activated – hydraulically released

RINGSPANN®

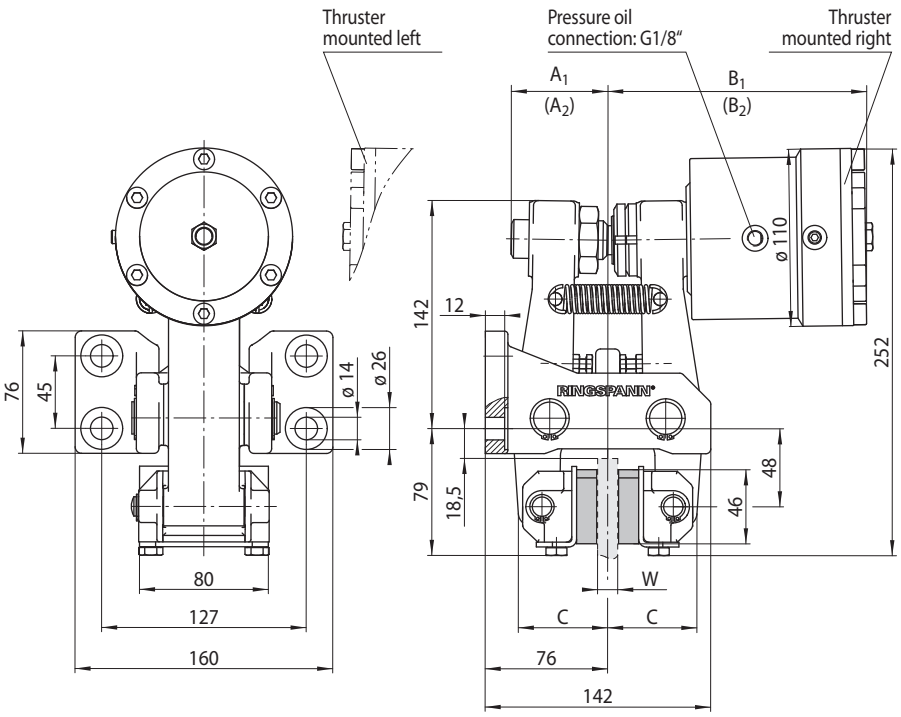


Features	Code
Brake Caliper	D
Mounting to the machine parallel to the brake disc	V
Frame size 030	030
Spring activated	F
Hydraulically released	H
Manual adjustment to accommodate friction block wear	M
Thruster 250	250
Thruster mounted right or left available	R L
Thickness of brake disc 12,5 mm or 25 mm	12 25

Example for ordering

Brake Caliper DV 030 FHM, thruster 250, thruster mounted right, thickness of brake disc 12,5 mm:

DV 030 FHM - 250 R - 12



Thickness of brake disc W mm	A_1 mm	(A_2) mm	B_1 mm	(B_2) mm	C mm
12,5	60	(69)	161	(180)	55
25	67	(76)	168	(187)	62

Values in brackets resulting with maximum friction block wear.

36-2

Technical Data

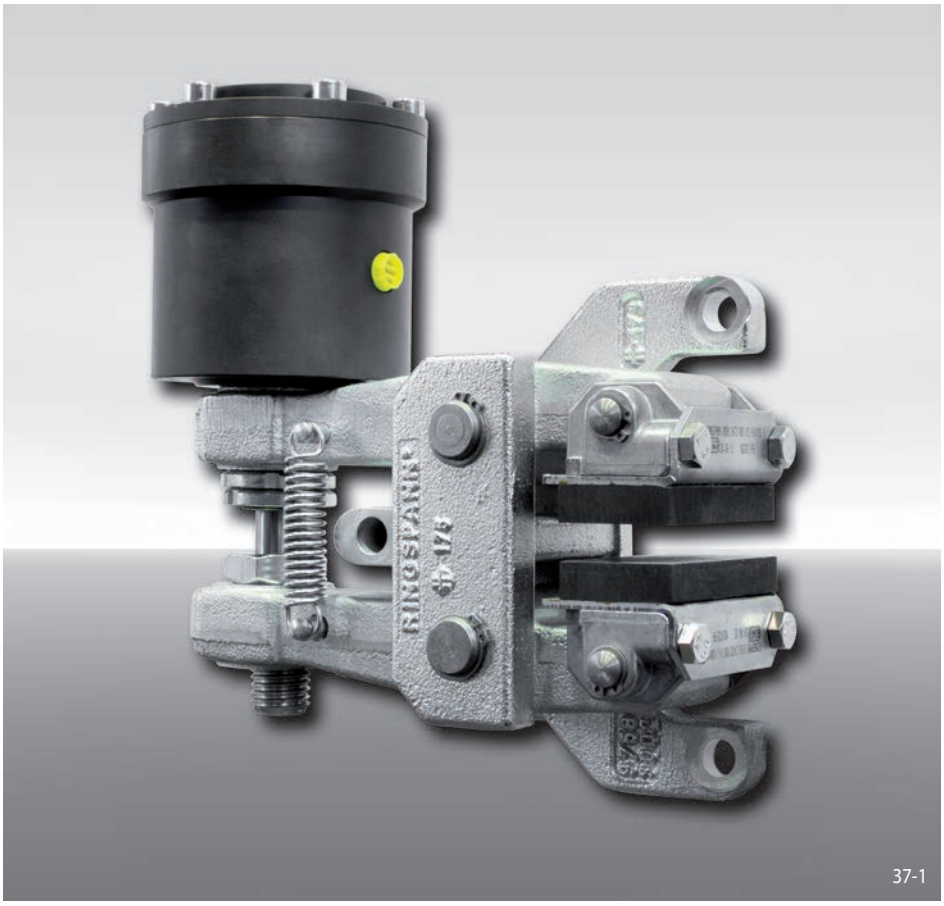
	Brake Caliper DV 030 FHM with thruster 250
Brake disc diameter mm	Braking torque Nm
200	620
250	840
300	1 100
355	1 300
430	1 600
520	2 000
Clamping force	11 000 N
Oil pressure	min. 40 bar max. 120 bar
Oil volume	max. 6 cm^3
Weight	14,5 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

Brake Caliper DH 030 FHM

spring activated – hydraulically released

RINGSPANN®

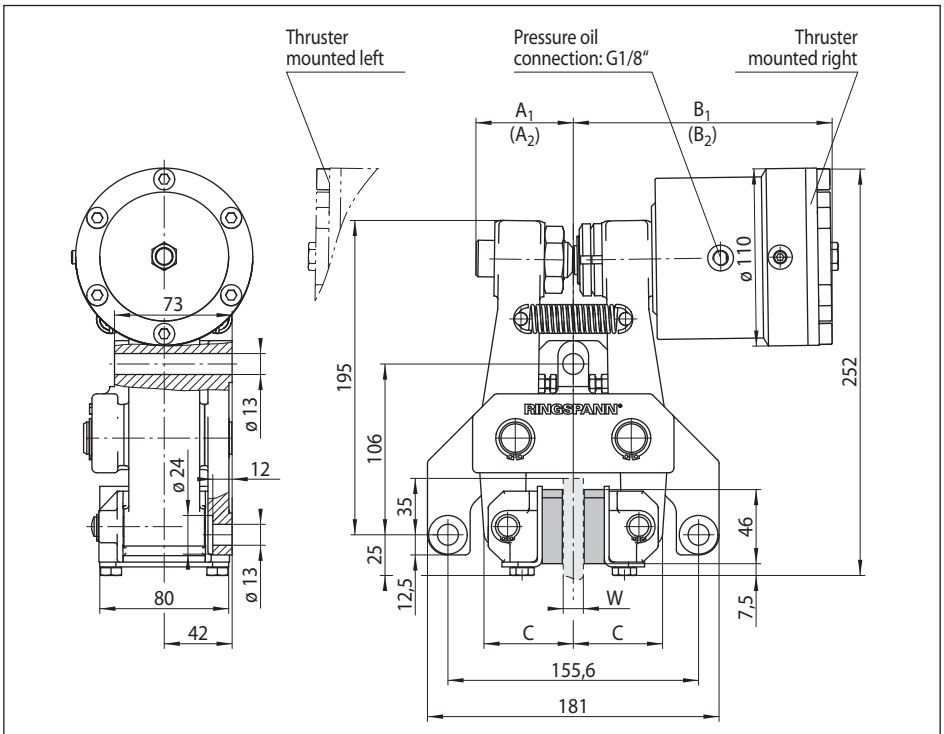


Features	Code
Brake Caliper	D
Mounting to the machine at right angles to the brake disc	H
Frame size 030	030
Spring activated	F
Hydraulically released	H
Manual adjustment to accommodate friction block wear	M
Thruster 250	250
Thruster mounted right or left available	R L
Thickness of brake disc 12,5 mm or 25 mm	12 25

Example for ordering

Brake Caliper DH 030 FHM, thruster 250, thruster mounted right, thickness of brake disc 12,5 mm:

DH 030 FHM - 250 R - 12



Thickness of brake disc W mm	A_1 mm	(A_2) mm	B_1 mm	(B_2) mm	C mm
12,5	60	(69)	161	(180)	55
25	67	(76)	168	(187)	62

Values in brackets resulting with maximum friction block wear.

37-2

Technical Data

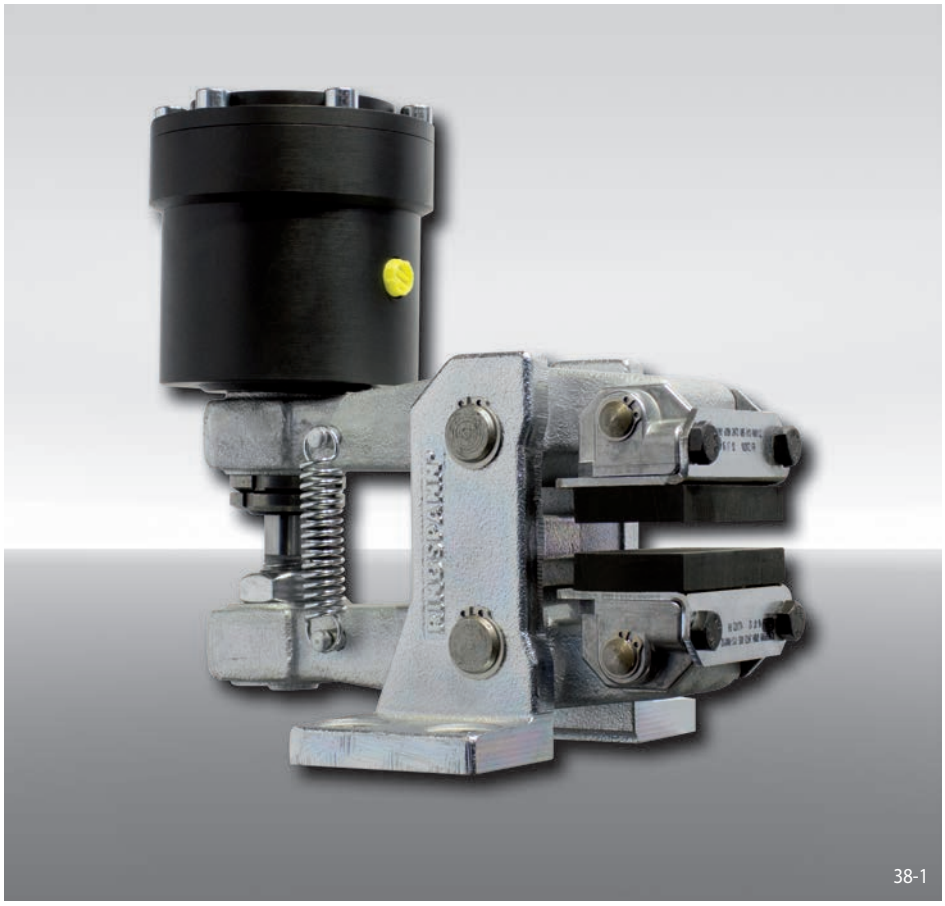
	Brake Caliper DH 030 FHM with thruster 250
Brake disc diameter mm	Braking torque Nm
200	620
250	840
300	1 100
355	1 300
430	1 600
520	2 000
Clamping force	11 000 N
Oil pressure	min. 40 bar max. 120 bar
Oil volume	max. 6 cm^3
Weight	14,5 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

Brake Caliper DV 030 FHA

spring activated – hydraulically released

RINGSPANN®

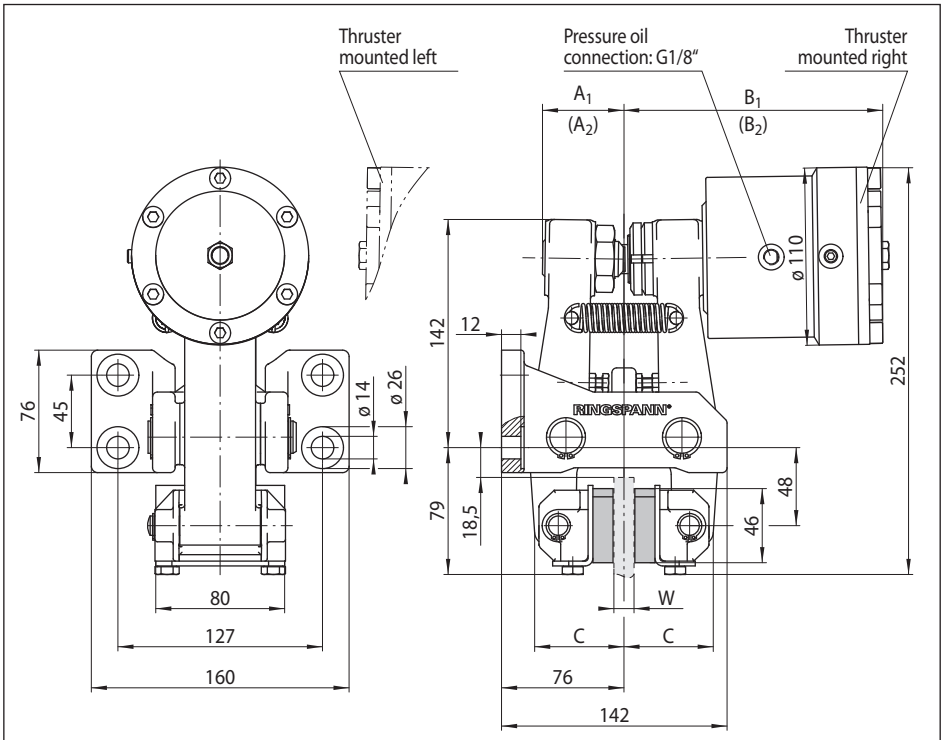


Features	Code
Brake Caliper	D
Mounting to the machine parallel to the brake disc	V
Frame size 030	030
Spring activated	F
Hydraulically released	H
Automatic adjustment to accommodate friction block wear	A
Thruster 240	240
Thruster mounted right or left available	R L
Thickness of brake disc 12,5 mm or 25 mm	12 25

Example for ordering

Brake Caliper DV 030 FHA, thruster 240, thruster mounted right, thickness of brake disc 12,5 mm:

DV 030 FHA - 240 R - 12



Thickness of brake disc W mm	A_1 mm	(A_2) mm	B_1 mm	(B_2) mm	C mm
12,5	51	(69)	161	(180)	55
25	57	(76)	168	(187)	62

Values in brackets resulting with maximum friction block wear.

38-2

Technical Data

	Brake Caliper DV 030 FHA with thruster 240
Brake disc diameter mm	Braking torque Nm
200	620
250	840
300	1 100
355	1 300
430	1 600
520	2 000
Clamping force	11 000 N
Oil pressure	min. 40 bar max. 120 bar
Oil volume	max. 6 cm^3
Weight	14,2 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

Brake Caliper DH 030 FHA

spring activated – hydraulically released

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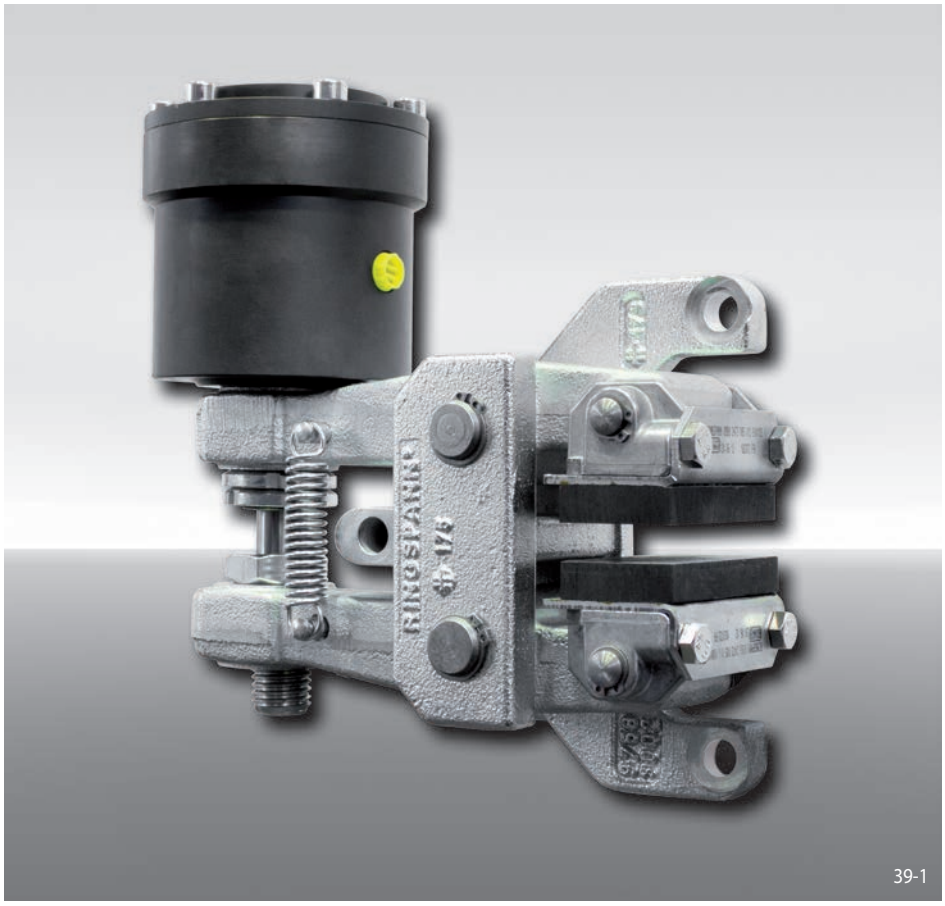
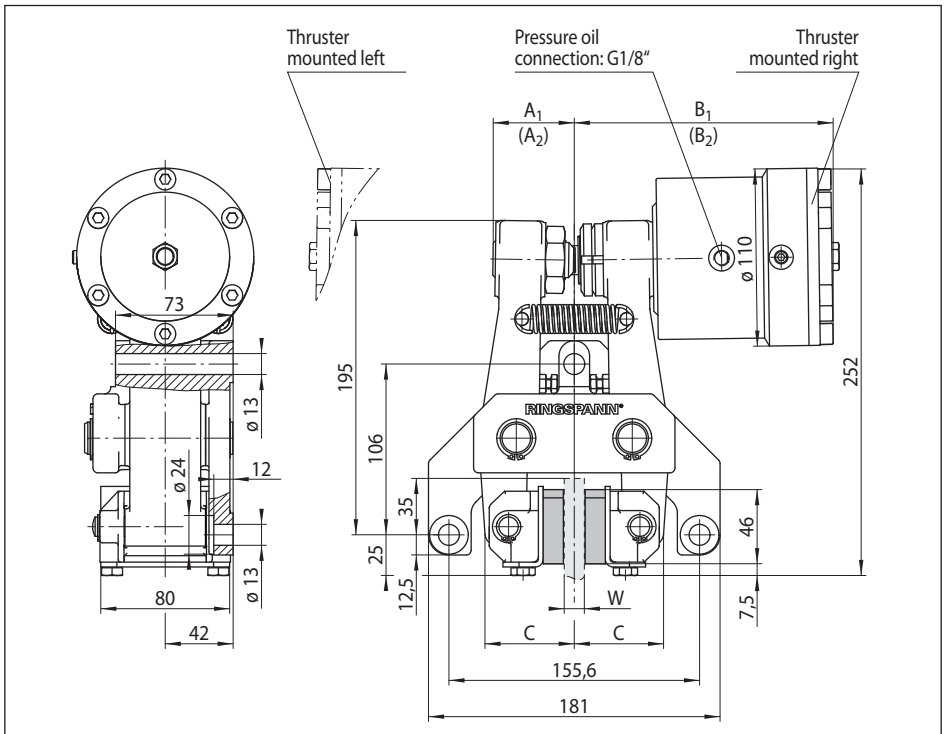


Features	Code
Brake Caliper	D
Mounting to the machine at right angles to the brake disc	H
Frame size 030	030
Spring activated	F
Hydraulically released	H
Automatic adjustment to accommodate friction block wear	A
Thruster 240	240
Thruster mounted right or left available	R L
Thickness of brake disc 12,5 mm or 25 mm	12 25

Example for ordering

Brake Caliper DH 030 FHA, thruster 240, thruster mounted right, thickness of brake disc 12,5 mm:

DH 030 FHA - 240 R - 12



Thickness of brake disc W mm	A_1 mm	(A_2) mm	B_1 mm	(B_2) mm	C mm
12,5	51	(69)	161	(180)	55
25	57	(76)	168	(187)	62

Values in brackets resulting with maximum friction block wear.

39-2

Technical Data

	Brake Caliper DH 030 FHA with thruster 240
Brake disc diameter mm	Braking torque Nm
200	620
250	840
300	1 100
355	1 300
430	1 600
520	2 000
Clamping force	11 000 N
Oil pressure	min. 40 bar max. 120 bar
Oil volume	max. 6 cm^3
Weight	13,8 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

Brake Caliper DV 035 FHM

spring activated – hydraulically released

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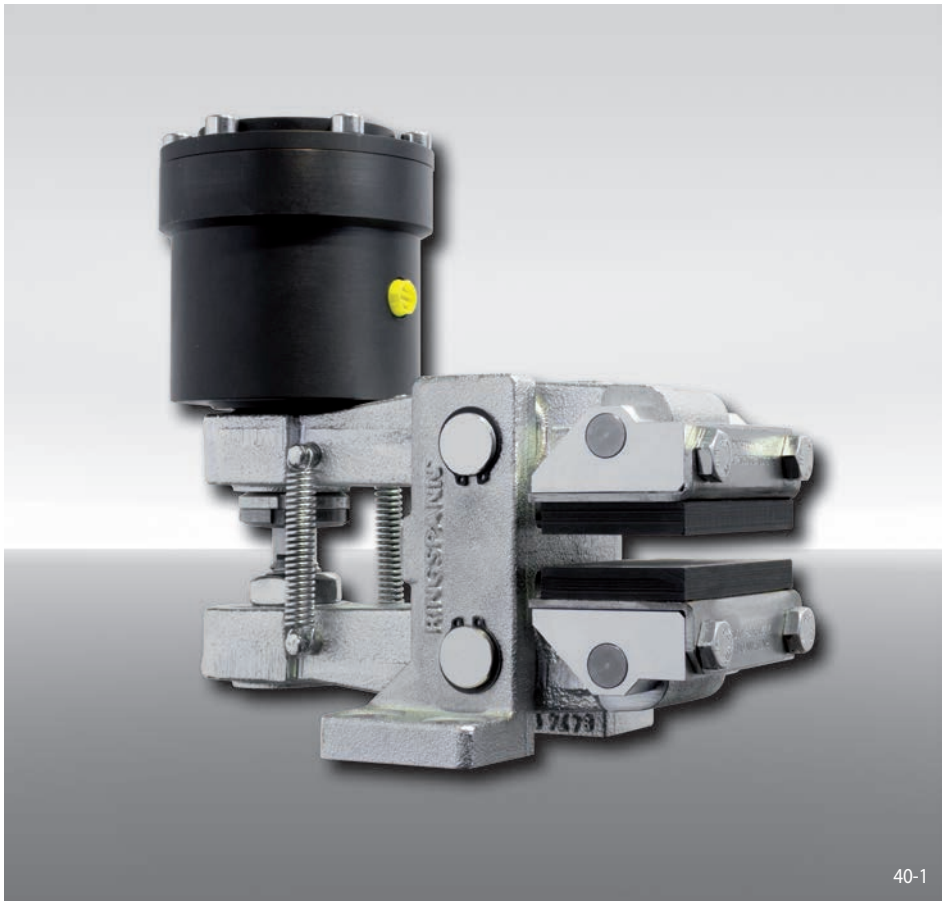
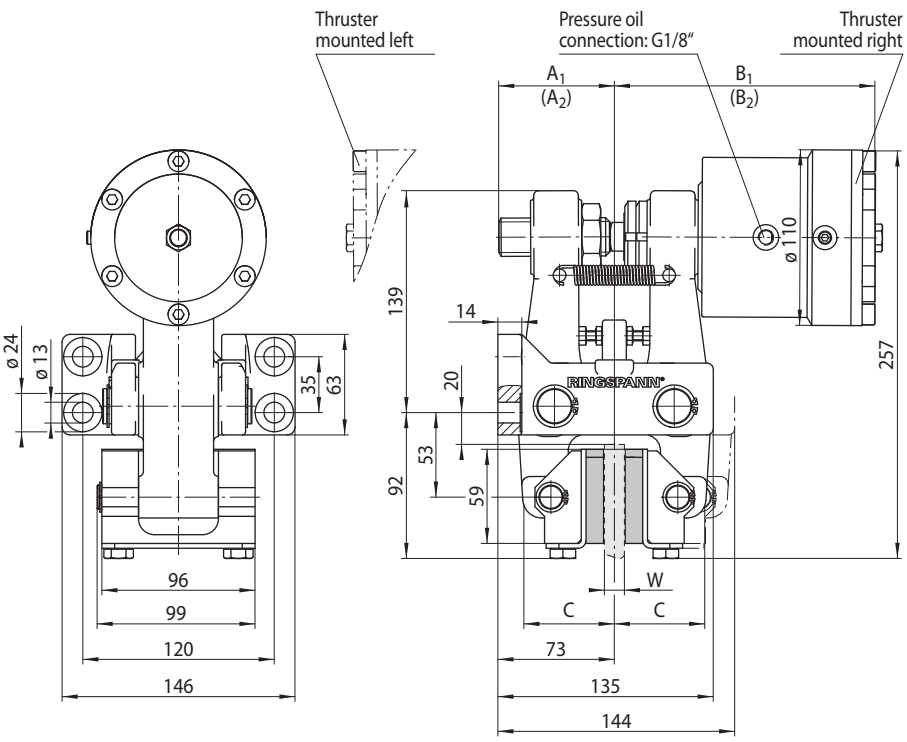


Features	Code
Brake Caliper	D
Mounting to the machine parallel to the brake disc	V
Frame size 035	035
Spring activated	F
Hydraulically released	H
Manual adjustment to accommodate friction block wear	M
Thruster 270	270
Thruster mounted right or left available	R L
Thickness of brake disc 12,5 mm or 25 mm	12 25

Example for ordering

Brake Caliper DV 035 FHM, thruster 270, thruster mounted right, thickness of brake disc 12,5 mm:

DV 035 FHM - 270 R - 12



Thickness of brake disc W mm	A_1 mm	(A_2) mm	B_1 mm	(B_2) mm	C mm
12,5	74	(63)	164	(174)	57
25	72	(61)	171	(181)	63

Values in brackets resulting with maximum friction block wear.

40-2

Technical Data

Brake Caliper DV 035 FHM with thruster 270	
Brake disc diameter mm	Braking torque Nm
300	1 500
355	1 850
430	2 350
520	3 000
630	3 600
710	4 100
800	4 700
Clamping force	16 000 N
Oil pressure	min. 55 bar max. 120 bar
Oil volume	max. 6 cm^3
Weight	13,7 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

Brake Caliper DH 035 FHM

spring activated – hydraulically released

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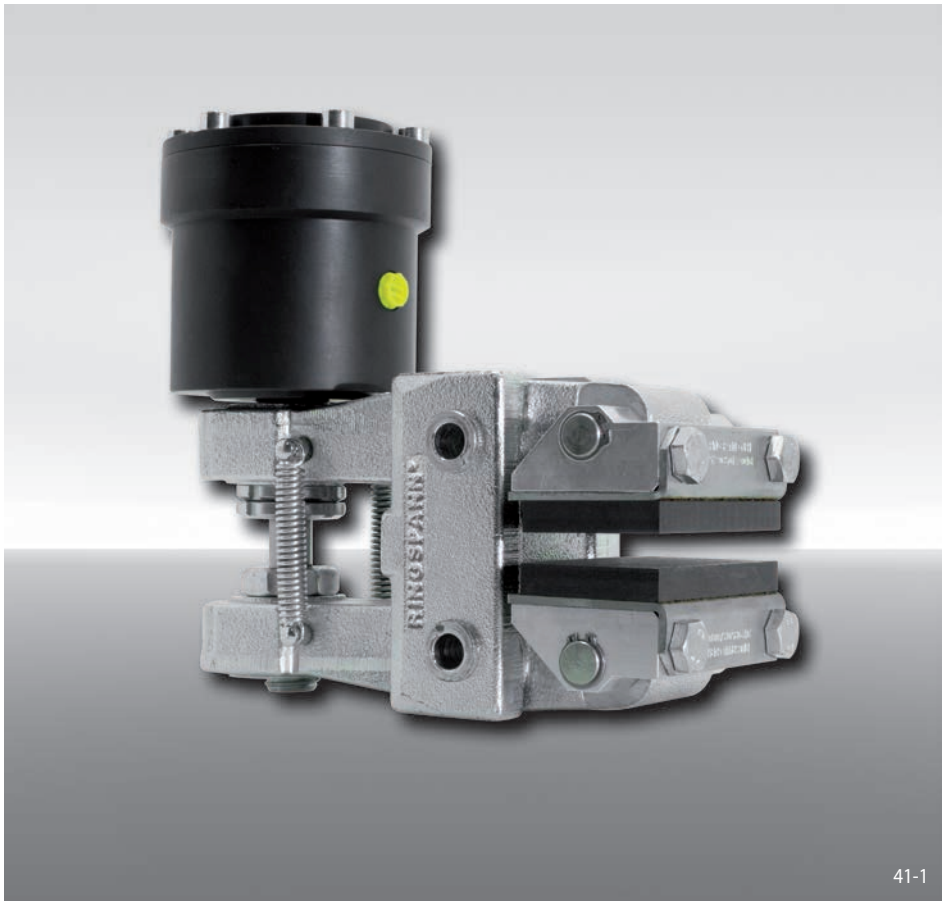
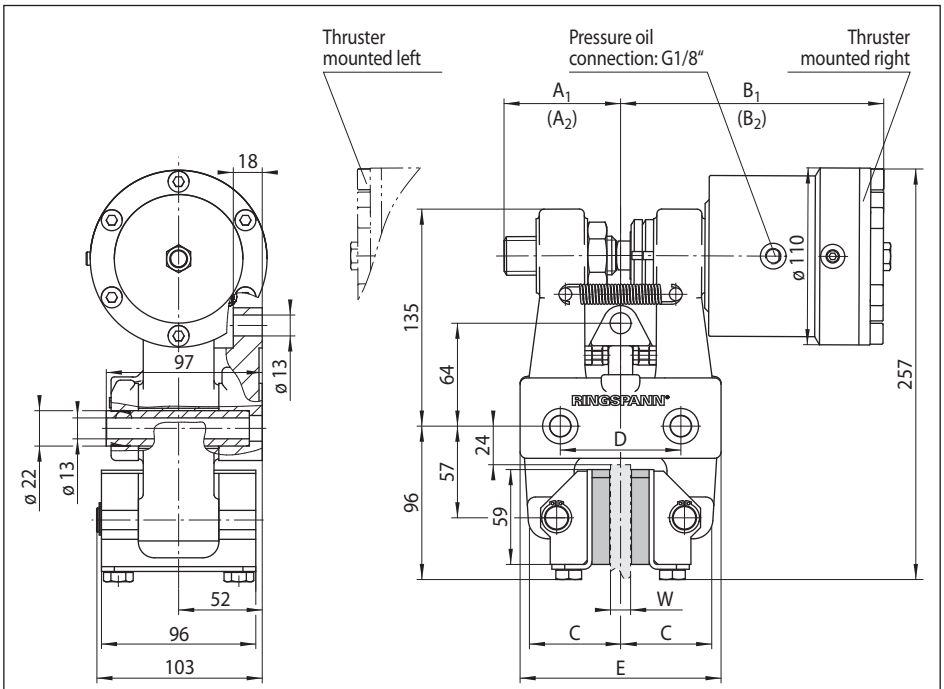


Features	Code
Brake Caliper	D
Mounting to the machine at right angles to the brake disc	H
Frame size 035	035
Spring activated	F
Hydraulically released	H
Manual adjustment to accommodate friction block wear	M
Thruster 270	270
Thruster mounted right or left available	R L
Thickness of brake disc 12,5 mm or 25 mm	12 25

Example for ordering

Brake Caliper DH 035 FHM, thruster 270, thruster mounted right, thickness of brake disc 12,5 mm:

DH 035 FHM - 270 R - 12



Thickness of brake disc W mm	A_1 mm	(A_2) mm	B_1 mm	(B_2) mm	C mm	D mm	E mm
12,5	74	(63)	164	(174)	57	75	125
25	72	(61)	171	(181)	63	84	131

Values in brackets resulting with maximum friction block wear.

41-2

Technical Data

Brake Caliper DH 035 FHM with thruster 270	
Brake disc diameter mm	Braking torque Nm
300	1500
355	1850
430	2350
520	3000
630	3600
710	4100
800	4700
Clamping force	16000 N
Oil pressure	min. 55 bar max. 120 bar
Oil volume	max. 6 cm^3
Weight	13,9 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

Brake Caliper DV 035 FHA

spring activated – hydraulically released

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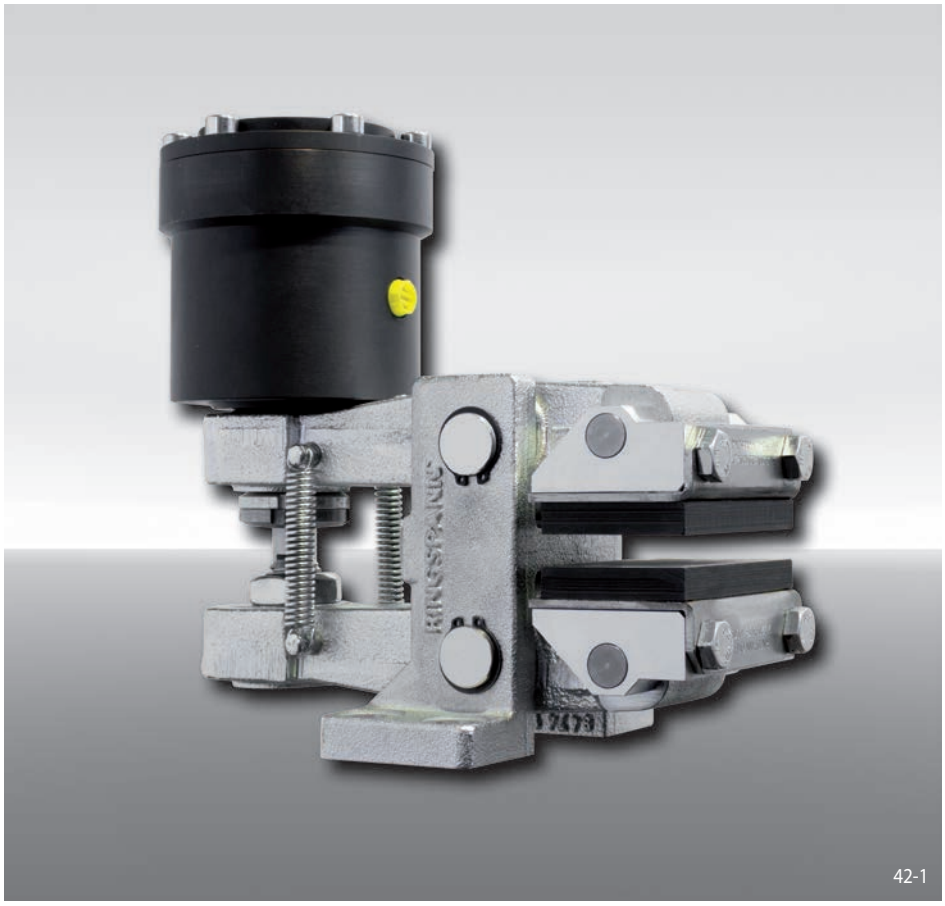
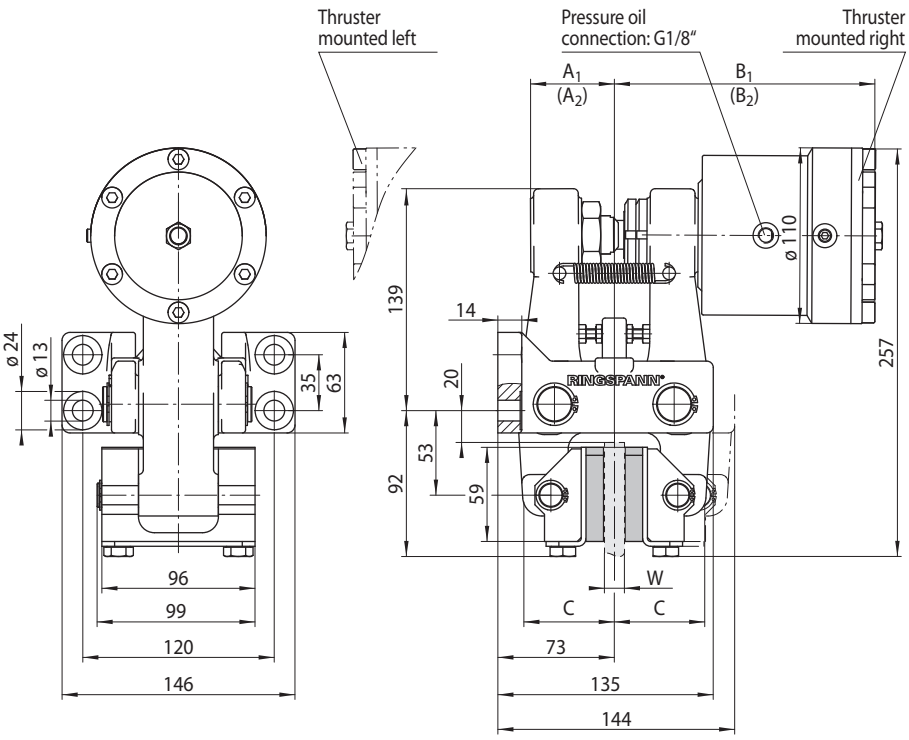


Features	Code
Brake Caliper	D
Mounting to the machine parallel to the brake disc	V
Frame size 035	035
Spring activated	F
Hydraulically released	H
Automatic adjustment to accommodate friction block wear	A
Thruster 260	260
Thruster mounted right or left available	R L
Thickness of brake disc 12,5 mm or 25 mm	12 25

Example for ordering

Brake Caliper DV 035 FHA, thruster 260, thruster mounted right, thickness of brake disc 12,5 mm:

DV 035 FHA - 260 R - 12



Thickness of brake disc W mm	A_1 mm	(A_2) mm	B_1 mm	(B_2) mm	C mm
12,5	54	(68)	164	(174)	57
25	59	(73)	171	(181)	63

Values in brackets resulting with maximum friction block wear.

42-2

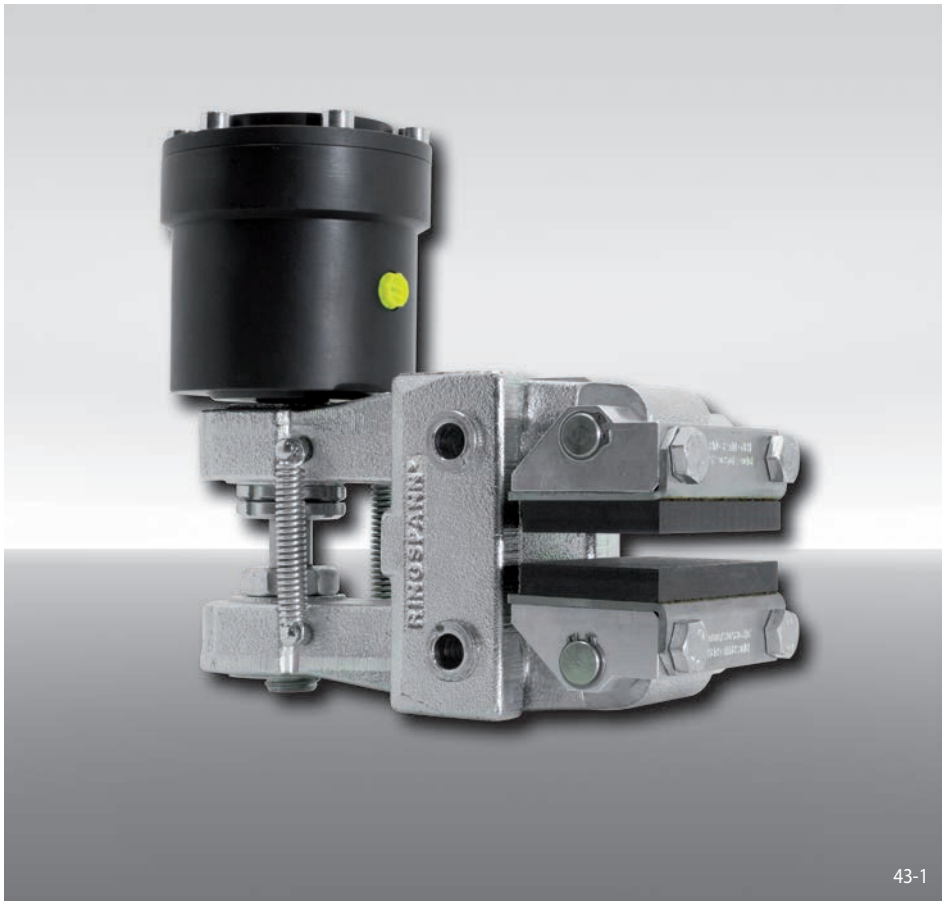
Technical Data

	Brake Caliper DV 035 FHA with thruster 260
Brake disc diameter mm	Braking torque Nm
300	1 500
355	1 850
430	2 350
520	3 000
630	3 600
710	4 100
800	4 700
Clamping force	16 000 N
Oil pressure	min. 55 bar max. 120 bar
Oil volume	max. 6 cm^3
Weight	13,9 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

Brake Caliper DH 035 FHA

spring activated – hydraulically released

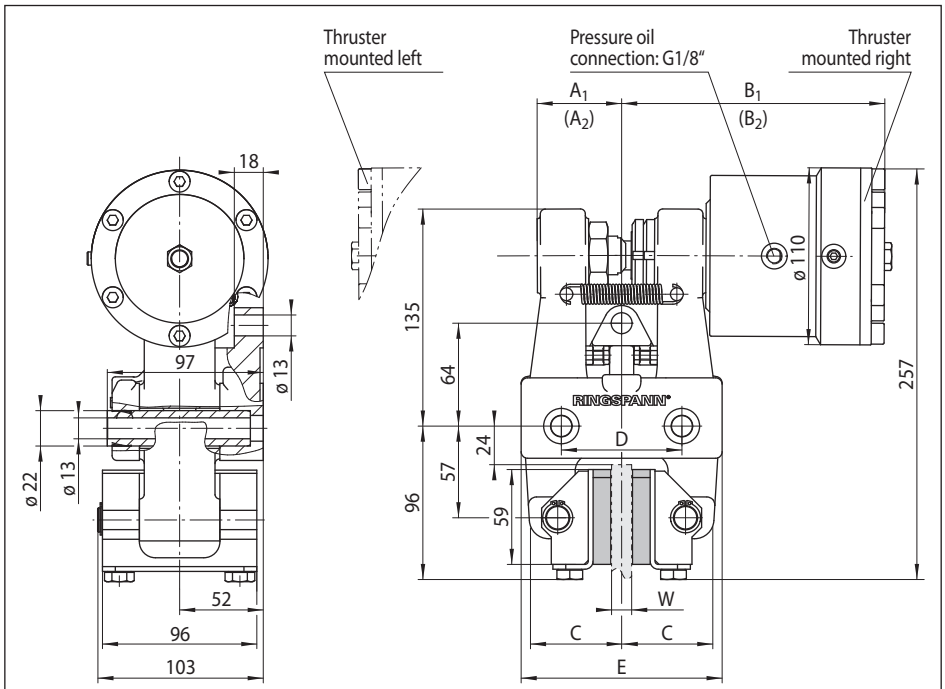


Features	Code
Brake Caliper	D
Mounting to the machine at right angles to the brake disc	H
Frame size 035	035
Spring activated	F
Hydraulically released	H
Automatic adjustment to accommodate friction block wear	A
Thruster 260	260
Thruster mounted right or left available	R L
Thickness of brake disc 12,5 mm or 25 mm	12 25

Example for ordering

Brake Caliper DH 035 FHA, thruster 260, thruster mounted right, thickness of brake disc 12,5 mm:

DH 035 FHA - 260 R - 12



Thickness of brake disc W mm	A_1 mm	(A_2) mm	B_1 mm	(B_2) mm	C mm	D mm	E mm
12,5	54	(68)	164	(174)	57	75	125
25	59	(73)	171	(181)	63	84	131

Values in brackets resulting with maximum friction block wear.

43-2

Technical Data

	Brake Caliper DH 035 FHA with thruster 260
Brake disc diameter mm	Braking torque Nm
300	1500
355	1850
430	2350
520	3000
630	3600
710	4100
800	4700
Clamping force	16000 N
Oil pressure	min. 55 bar max. 120 bar
Oil volume	max. 6 cm^3
Weight	14,1 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

Brake Caliper DU 060 FHM

spring activated – hydraulically released

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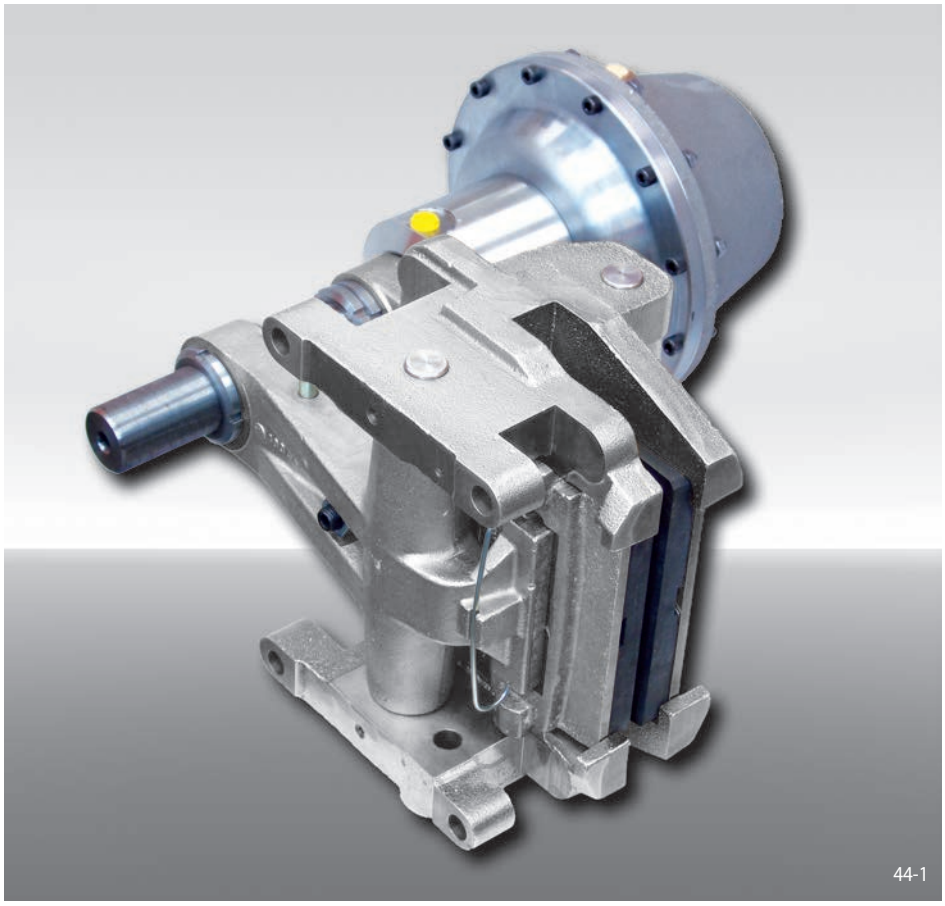


Features	Code
Brake Caliper	D
Mounting to the machine, can be made either parallel or at the right angles to the brake disc	U
Frame size 060	060
Spring activated	F
Hydraulically released	H
Manual adjustment to accommodate friction block wear	M
Thrusters 340, 350, 360 or 370 are available	340 to 370
Thruster mounted right or left available	R L
Thickness of brake disc 25 mm or 40 mm	25 40

Example for ordering

Brake Caliper DU 060 FHM, thruster 340, thruster mounted right, thickness of brake disc 25 mm:

DU 060 FHM - 340 R - 25

Technical Data

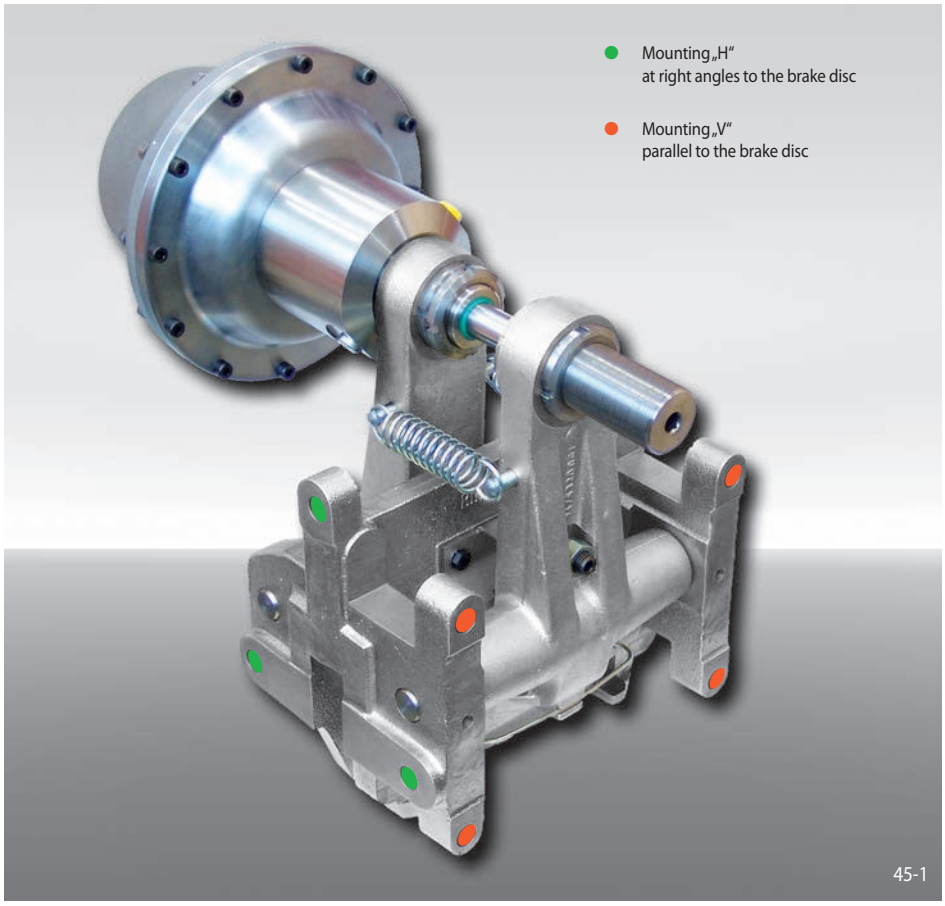
	Brake Caliper DU 060 FHM			
	with thruster 340	with thruster 350	with thruster 360	with thruster 370
Brake disc diameter mm	Braking torque Nm	Braking torque Nm	Braking torque Nm	Braking torque Nm
630	2700	5400	7800	13500
710	3100	6200	9000	15500
800	3600	7200	10300	17500
900	4100	8300	11900	20500
1000	4700	9300	13400	23000
1250	6000	12000	17000	29500
1600	7800	15500	22500	38500
Clamping force	13200 N	26500 N	38000 N	65000 N
Oil pressure	min. 20 bar max. 125 bar	min. 30 bar max. 125 bar	min. 50 bar max. 125 bar	min. 80 bar max. 125 bar
Oil volume	max. 158 cm^3	max. 158 cm^3	max. 158 cm^3	max. 158 cm^3
Weight	71 kg	71 kg	71 kg	71 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

Brake Caliper DU 060 FHM

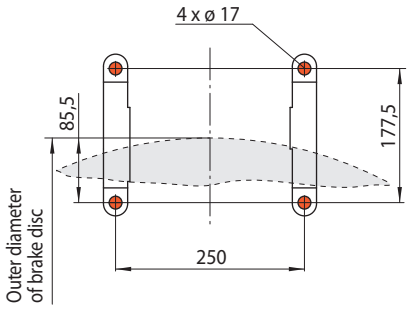
spring activated – hydraulically released

RINGSPANN®



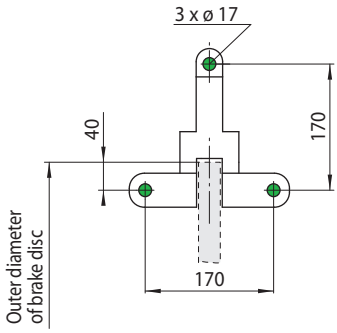
Frame Design

Mounting „V“ parallel to the brake disc

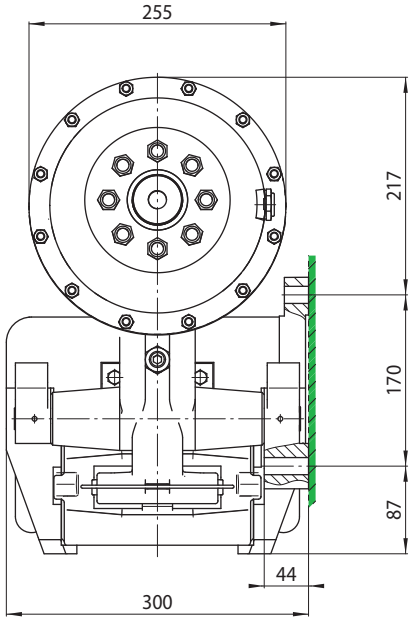


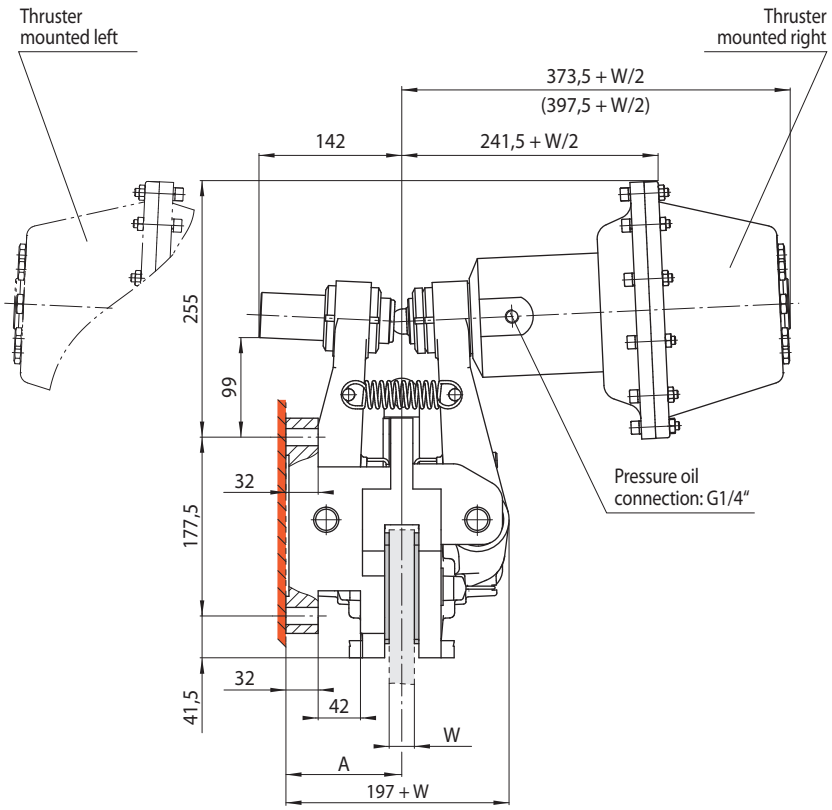
45-2

Mounting „H“ at right angles to the brake disc



45-3





W mm	A mm
25	115
40	122

W = Thickness of brake disc

Values in brackets resulting with maximum friction block wear.

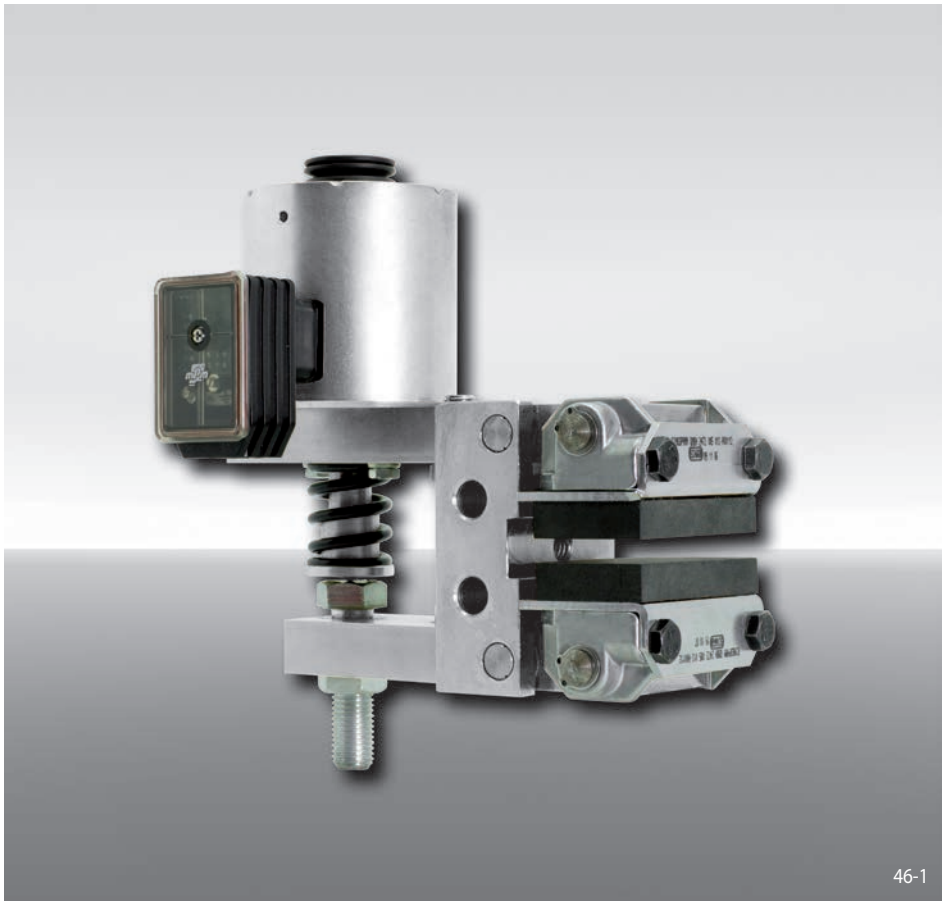
- Mounting „H“ at right angles to the brake disc
- Mounting „V“ parallel to the brake disc

45-4

Brake Caliper DH 012 FEM

spring activated – electromagnetically released

RINGSPANN®

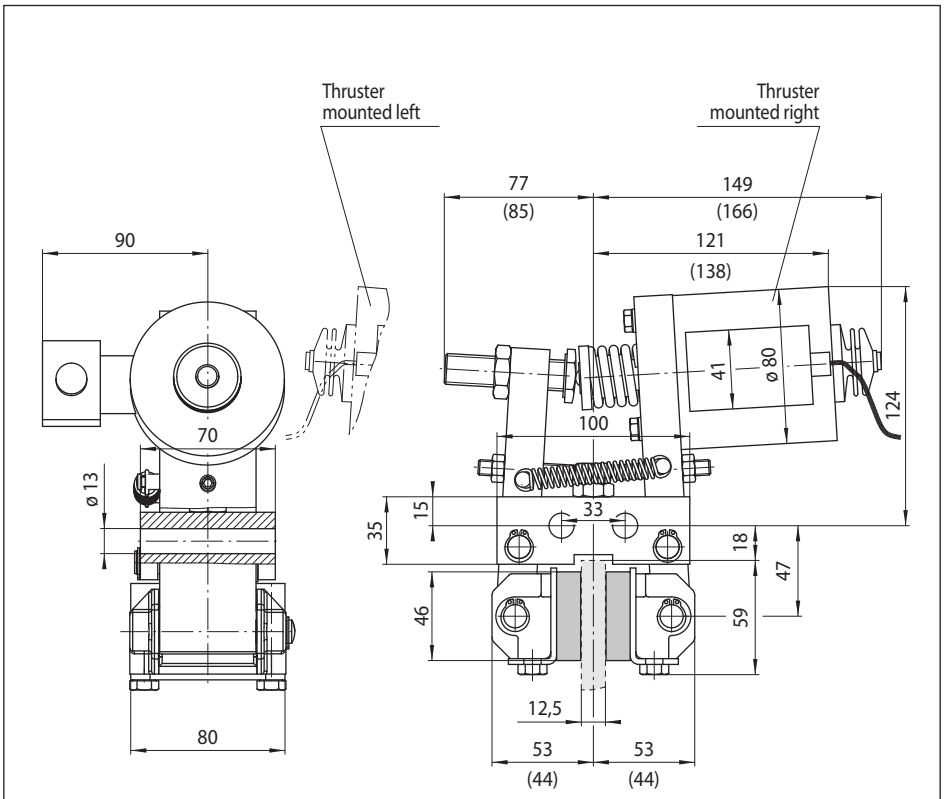


Features	Code
Brake Caliper	D
Mounting to the machine at right angles to the brake disc	H
Frame size 012	012
Spring activated	F
Electromagnetically released	E
Manual adjustment to accommodate friction block wear	M
Electromagnet for 110 V Electromagnet for 230 V	410 420
Thruster mounted right or left available	R L
Thickness of brake disc 12,5 mm	12

Example for ordering

Brake Caliper DH 012 FEM, electromagnet for 110 V, thruster mounted right, thickness of brake disc 12,5 mm:

DH 012 FEM - 410 R - 12



Values in brackets resulting with maximum friction block wear.

46-2

Technical Data

	Brake Caliper DH 012 FEM	
	with electro-magnet 410 for 110 V	with electro-magnet 420 for 230 V
Brake disc diameter mm	Braking torque Nm	
200	94	
250	130	
300	160	
355	200	
430	250	
520	310	
Clamping force	1 650 N	
Power consumption in open position	12 W (100% duty factor)	
Fuse rating	6A	
Max. number of actuation	600/h permanent activations at 20° C ambient temperature	
Weight	7 kg	

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

Accessories

Universal Transformer see page 166.

Brake Caliper DV 020 FEM

spring activated – electromagnetically released

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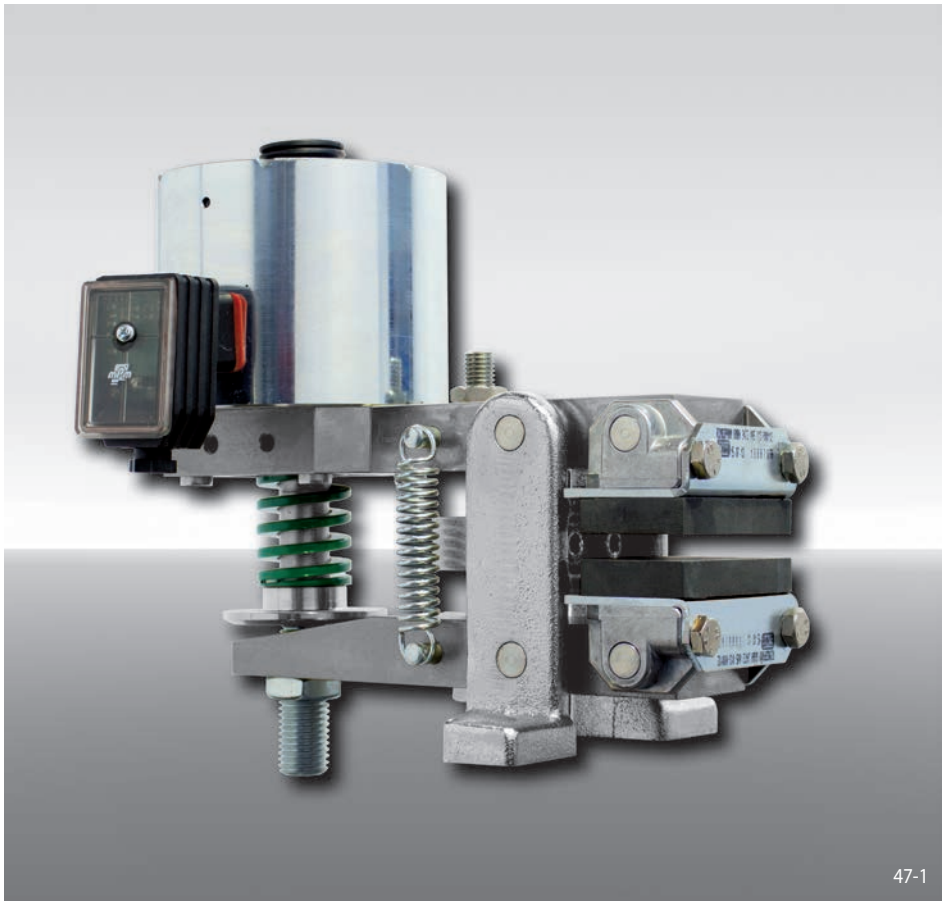
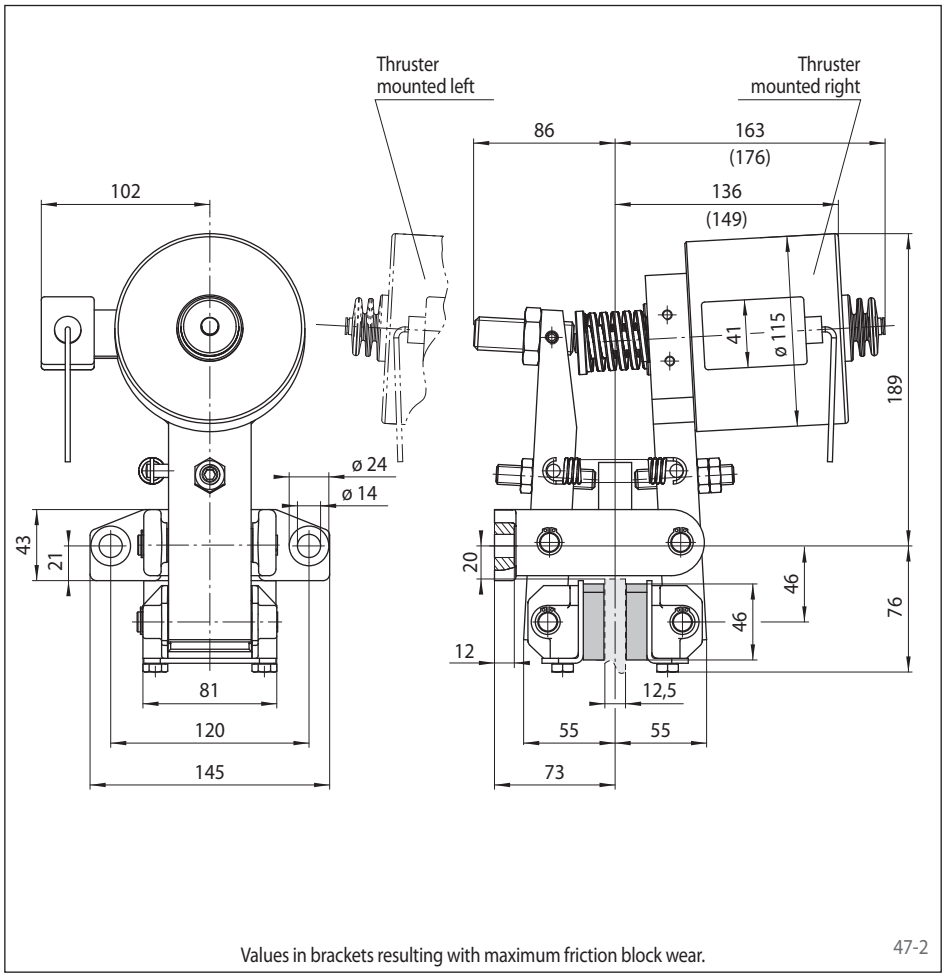




Values in brackets resulting with maximum friction block wear.

Features	Code
Brake Caliper	D
Mounting to the machine parallel to the brake disc	V
Frame size 020	020
Spring activated	F
Electromagnetically released	E
Manual adjustment to accommodate friction block wear	M
Electromagnet for 230 V	430
Thruster mounted right or left available	R L
Thickness of brake disc 12,5 mm	12

Example for ordering

Brake Caliper DV 020 FEM, electromagnet for 230 V, thruster mounted right, thickness of brake disc 12,5 mm:

DV 020 FEM - 430 R - 12

Technical Data

	Brake Caliper DV 020 FEM with electromagnet 430 for 230 V
Brake disc diameter mm	Braking torque Nm
200	180
250	240
300	300
355	370
430	460
520	570
Clamping force	3 100 N
Power consumption in open position	12 W (100% duty factor)
Fuse rating	6A
Max. number of actuation	800/h permanent activations at 20° C ambient temperature
Weight	15 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

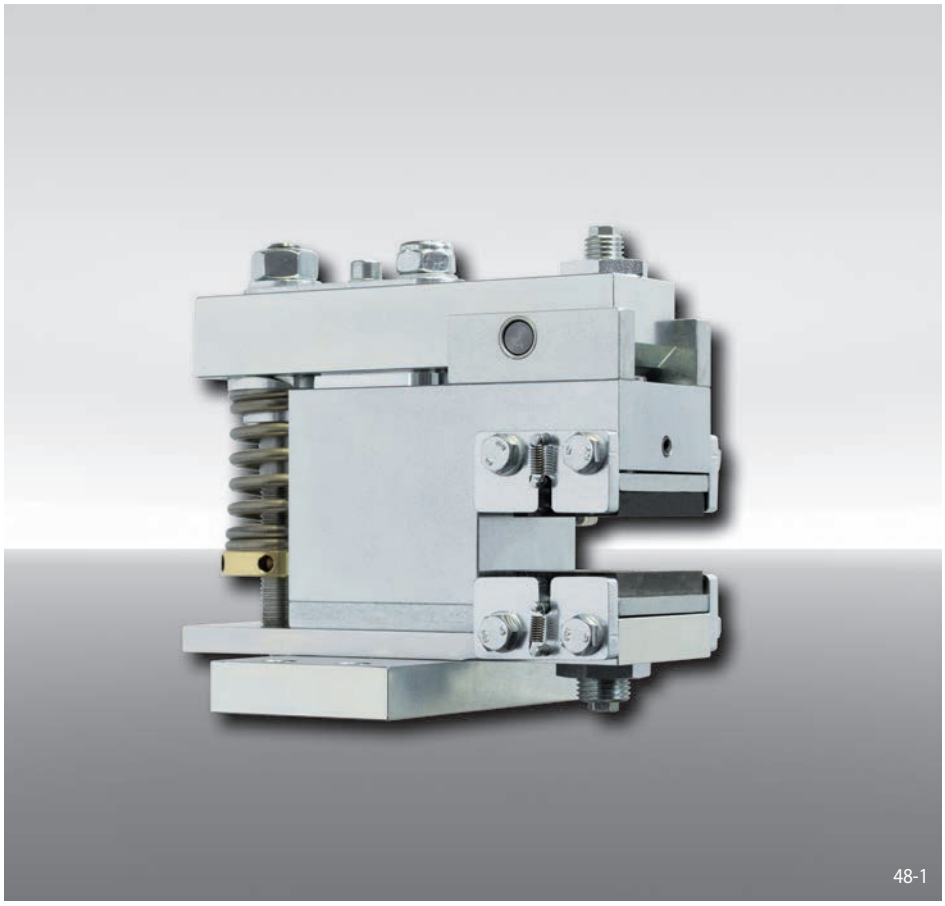
Accessories

Universal Transformer see page 166.

Brake Calipers EV 018 FEM and EH 018 FEM

spring activated – electromagnetically released

RINGSPANN®



Features

Features	Code
Brake Caliper with electromagnet	E
Mounting to the machine parallel or at right angles to the brake disc	V H
Frame size 018	018
Spring activated	F
Electromagnetically released	E
Manual adjustment to accommodate friction block wear	M
Supply voltage 230 to 415 VAC, supply frequency 50 Hz or 60 Hz adjustable	400
Electromagnet mounted in central position	M
Thickness of brake disc 8 … 15 mm or 16 … 20 mm	12 20

Example for ordering

Brake Caliper EV 018 FEM, supply voltage 400 VAC, electromagnet mounted in central position, thickness of brake disc 15 mm:

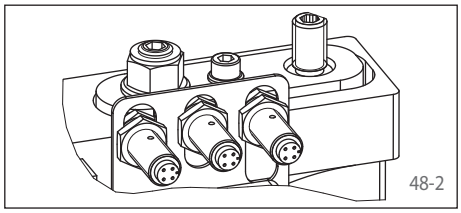
EV 018 FEM - 400 M - 12

Advantages

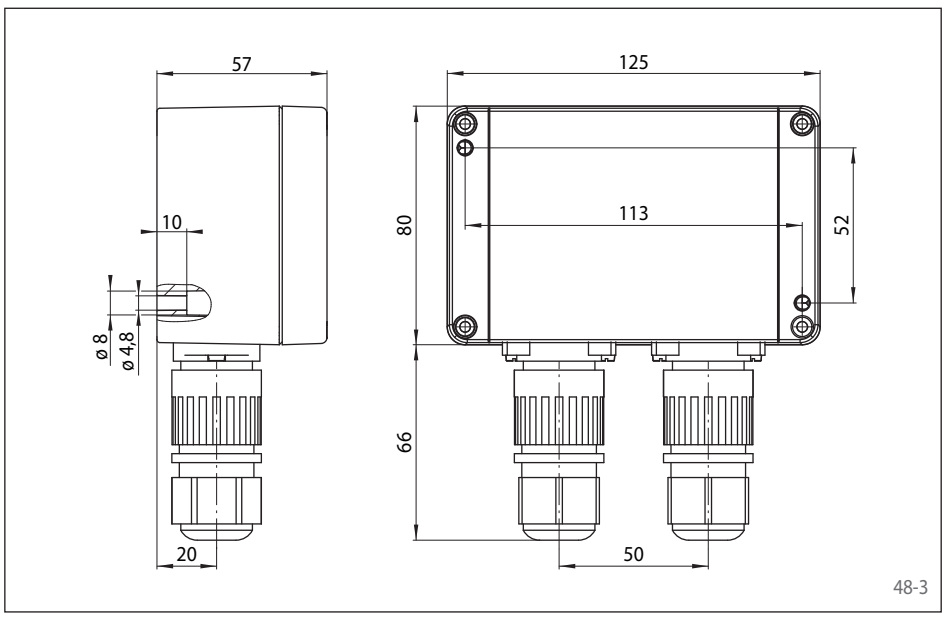
The brake caliper EV 018 FEM or EH 018 FEM is a very compact and high efficient disc brake with very low power consumption. Its floating bearing compensates small misallignments of the brake disc. The separate electronic module (included) reduces the power consumption in open position to 10 W automatically.

Options

- Inductive proximity switch: "Brake released"-, "Brake closed"-status and/or "Friction block wear adjustment necessary"



Electronic module



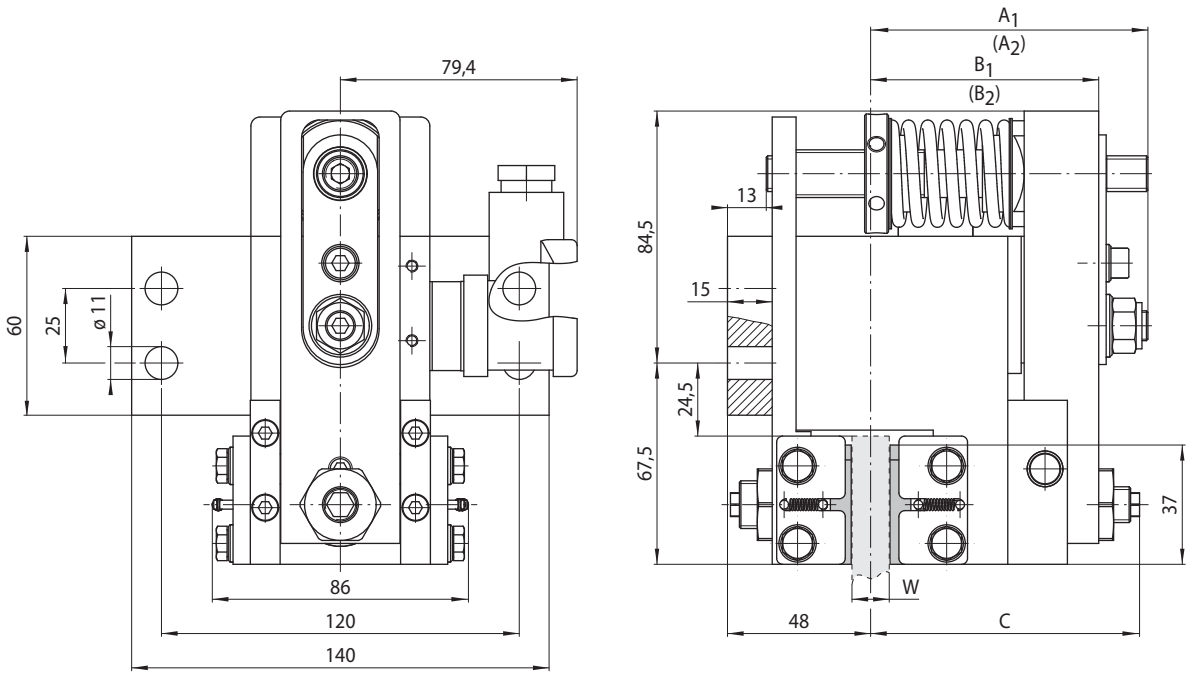
Technical Data

	Brake Calipers EV 018 FEM and EH 018 FEM with supply voltage	
	230/240 VAC	380/400/415 VAC
Brake disc diameter mm	Braking torque Nm	Braking torque Nm
125	65	90
150	90	120
200	130	180
250	170	240
300	215	295
355	260	360
Clamping force	2100 N	2900 N
Clamping force or braking torque adjustable	60 - 100%	50 - 100%
Power consumption in open position	10 W (100% duty factor)	
Fuse rating	10 A, Type "B"	
Max. number of actuation	240/h permanent activations at 20° C ambient temperature	
Actuation frequency*	at least 8 seconds between 2 activations	
Weight	6,5 kg	

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

* Shorter actuation frequency on request

Brake Caliper EV 018 FEM

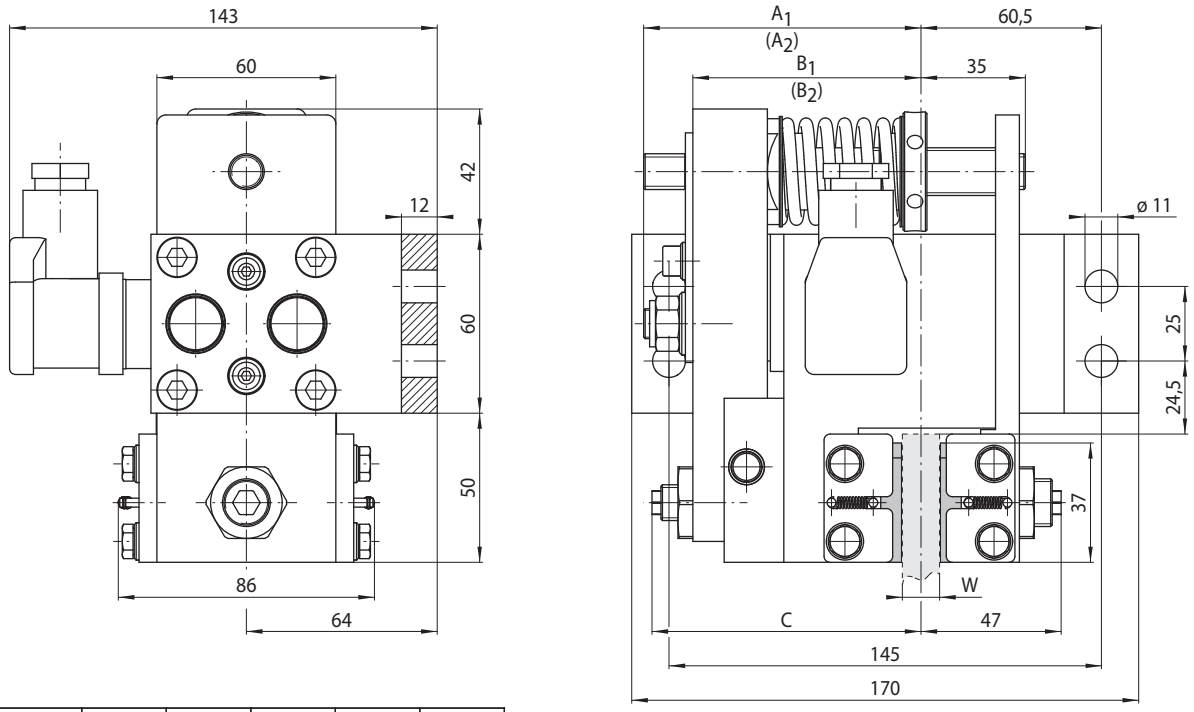


Thickness of brake disc W mm	A_1 mm	(A_2) mm	B_1 mm	(B_2) mm	C mm
8 … 15	97	(108)	76,5	(95)	90
16 … 20	99	(110)	78,5	(97)	94

Values in brackets resulting with friction block wear.

49-1

Brake Caliper EH 018 FEM



Thickness of brake disc W mm	A_1 mm	(A_2) mm	B_1 mm	(B_2) mm	C mm
8 … 15	97	(108)	76,5	(95)	90
16 … 20	99	(110)	78,5	(97)	94

Values in brackets resulting with friction block wear.

49-2

Brake Calipers EV 024 FEM and EH 024 FEM

spring activated – electromagnetically released

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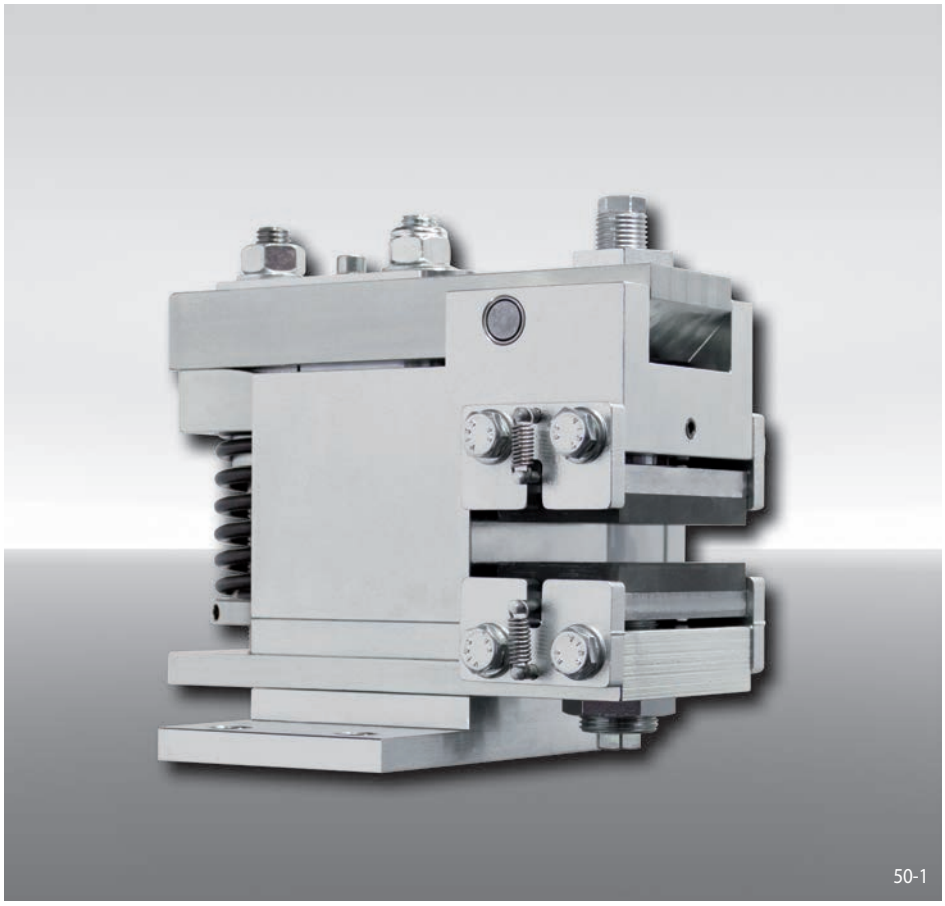


Features

Features	Code
Brake Caliper with electromagnet	E
Mounting to the machine parallel or at right angles to the brake disc	V H
Frame size 024	024
Spring activated	F
Electromagnetically released	E
Manual adjustment to accommodate friction block wear	M
Supply voltage 230 to 415 VAC, supply frequency 50 Hz or 60 Hz adjustable	400
Electromagnet mounted in central position	M
Thickness of brake disc 10 … 16 mm or 18 … 26 mm	12 25

Example for ordering

Brake Caliper EV 024 FEM, supply voltage 400 VAC, electromagnet mounted in central position, thickness of brake disc 15 mm:

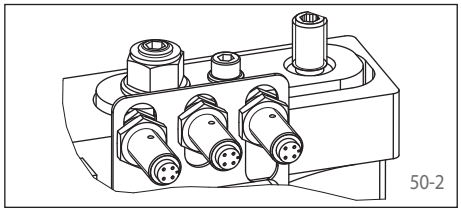
EV 024 FEM - 400 M - 12

Advantages

The brake caliper EV 024 FEM or EH 024 FEM is a very compact and high efficient disc brake with very low power consumption. Its floating bearing compensates small misallignments of the brake disc. The attached electronic reduces the power consumption in open position to 15 W automatically.

Options

- Inductive proximity switch: "Brake released"-, "Brake closed"-status and/or "Friction block wear adjustment necessary"



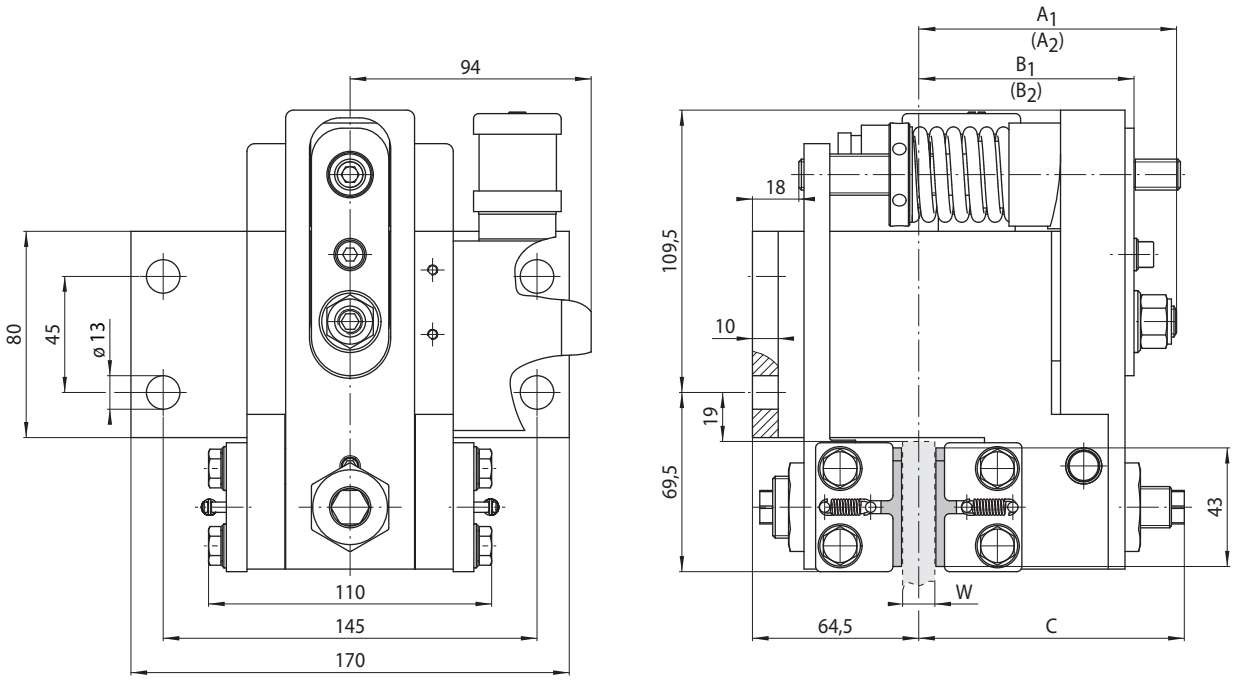
Technical Data

	Brake Calipers EV 024 FEM and EH 024 FEM with supply voltage	
	230/240 VAC	380/400/415 VAC
Brake disc diameter mm	Braking torque Nm	Braking torque Nm
250	320	400
300	400	500
355	490	610
430	610	760
520	750	940
630	930	1 160
Clamping force	4 000 N	5 000 N
Clamping force or braking torque adjustable	60 - 100%	50 - 100%
Power consumption in open position	15 W (100% duty factor)	
Fuse rating	10 A, Type "B"	
Max. number of actuation	240/h permanent activations at 20° C ambient temperature	
Actuation frequency*	at least 8 seconds between 2 activations	
Weight	13 kg	

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

* Shorter actuation frequency on request

Brake Caliper EV 024 FEM

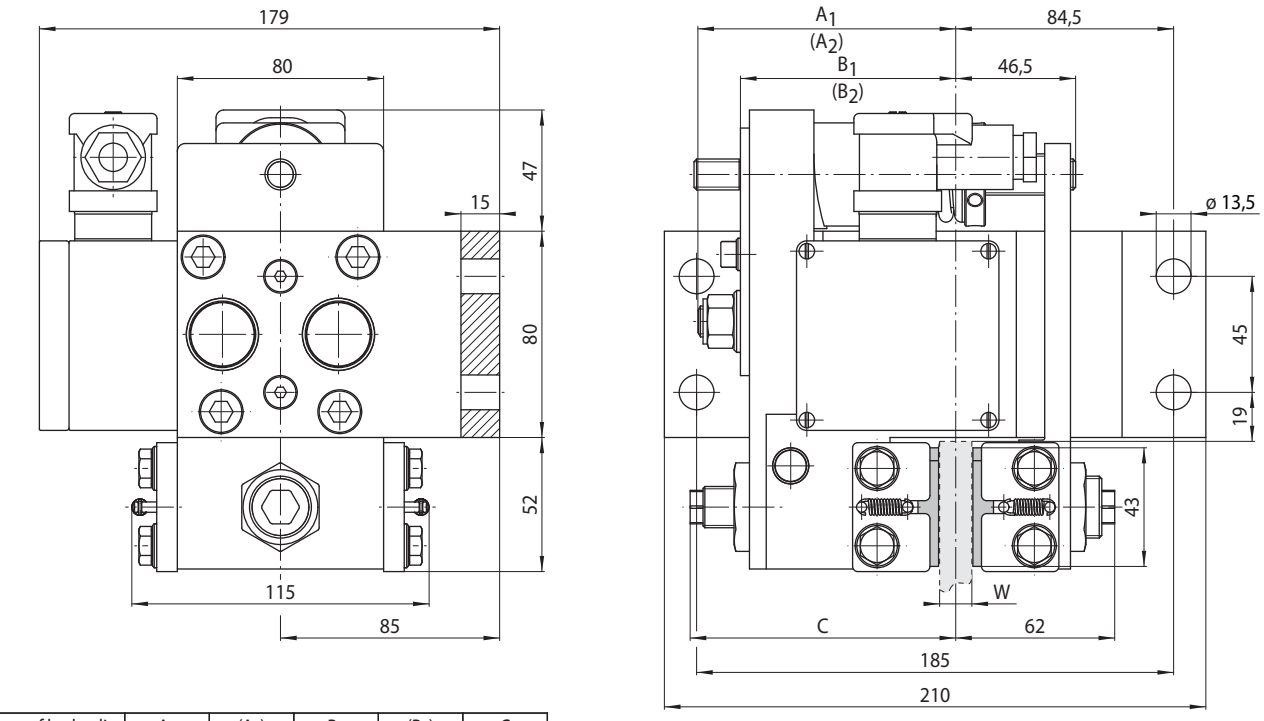


Thickness of brake disc W mm	A_1 mm	(A_2) mm	B_1 mm	(B_2) mm	C mm
10 … 16	104	(115)	83,5	(98,5)	103
18 … 26	109	(120)	88,5	(103,5)	110

Values in brackets resulting with friction block wear.

51-1

Brake Caliper EH 024 FEM



Thickness of brake disc W mm	A_1 mm	(A_2) mm	B_1 mm	(B_2) mm	C mm
10 … 16	104	(115)	83,5	(98,5)	103
18 … 26	109	(120)	88,5	(103,5)	110

Values in brackets resulting with friction block wear.

51-2

Brake Calipers EV 028 FEM and EH 028 FEM

spring activated – electromagnetically released

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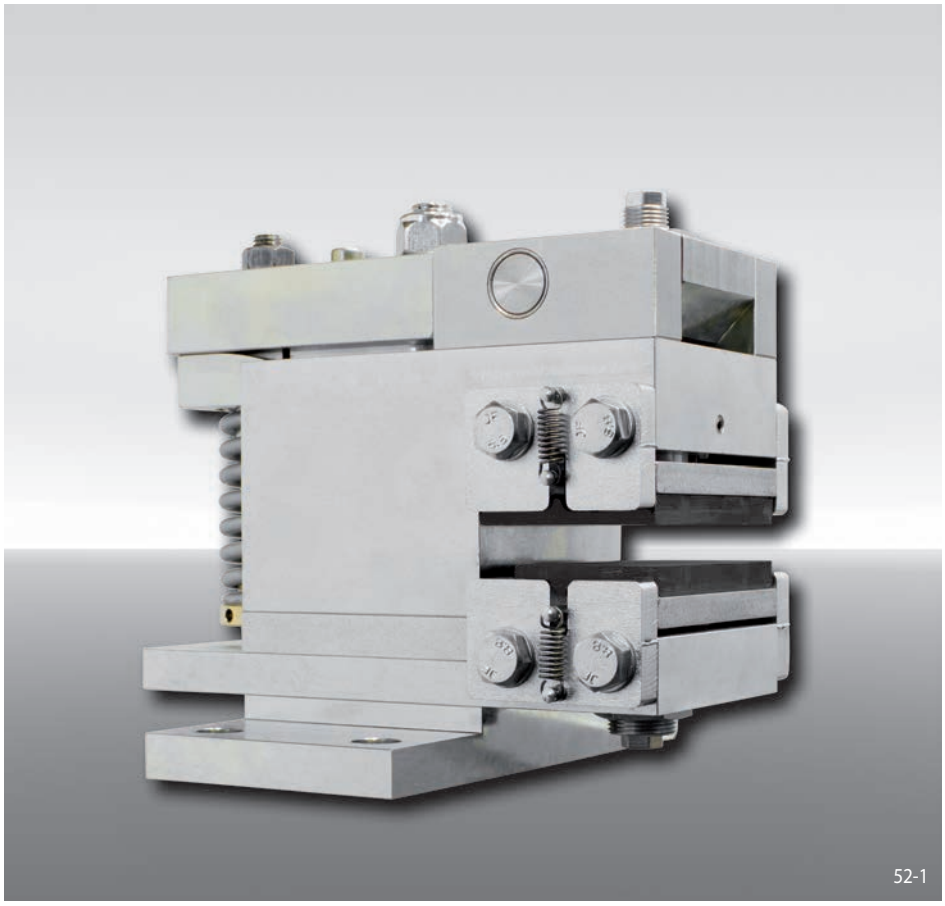


Features

Features	Code
Brake Caliper with electromagnet	E
Mounting to the machine parallel or at right angles to the brake disc	V H
Frame size 028	028
Spring activated	F
Electromagnetically released	E
Manual adjustment to accommodate friction block wear	M
Supply voltage 230 to 415 VAC, supply frequency 50 Hz or 60 Hz adjustable	400
Electromagnet mounted in central position	M
Thickness of brake disc 10 … 16 mm or 18 … 26 mm	12 25

Example for ordering

Brake Caliper EV 028 FEM, supply voltage 400 VAC, electromagnet mounted in central position, thickness of brake disc 15 mm:

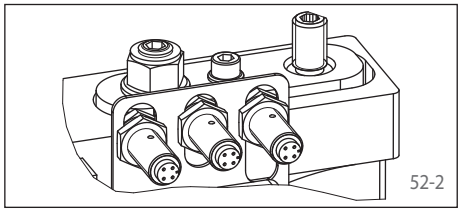
EV 028 FEM - 400 M - 12

Advantages

The brake caliper EV 028 FEM or EH 028 FEM is a very compact and high efficient disc brake with very low power consumption. Its floating bearing compensates small misallignments of the brake disc. The attached electronic reduces the power consumption in open position to 20 W automatically.

Options

- Inductive proximity switch: "Brake released"-, "Brake closed"-status and/or "Friction block wear adjustment necessary"



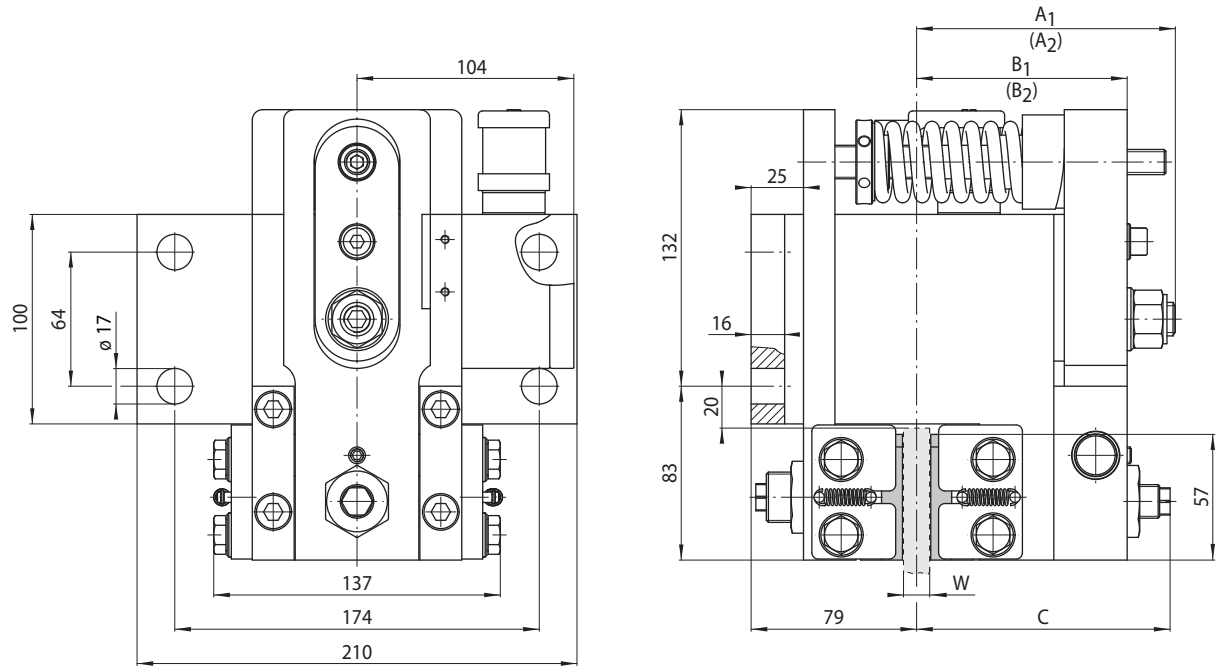
Technical Data

	Brake Calipers EV 028 FEM and EH 028 FEM with supply voltage	
	230/240 VAC	380/400/415 VAC
Brake disc diameter mm	Braking torque Nm	Braking torque Nm
300	660	940
355	810	1 160
430	1 020	1 460
520	1 270	1 820
630	1 580	2 260
710	1 800	2 580
Clamping force	7 000 N	10 000 N
Clamping force or braking torque adjustable	80 - 100%	60 - 100%
Power consumption in open position	20 W (100% duty factor)	
Fuse rating	10 A, Type "B"	
Max. number of actuation	240/h permanent activations at 20° C ambient temperature	
Actuation frequency*	at least 8 seconds between 2 activations	
Weight	24 kg	

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

* Shorter actuation frequency on request

Brake Caliper EV 028 FEM

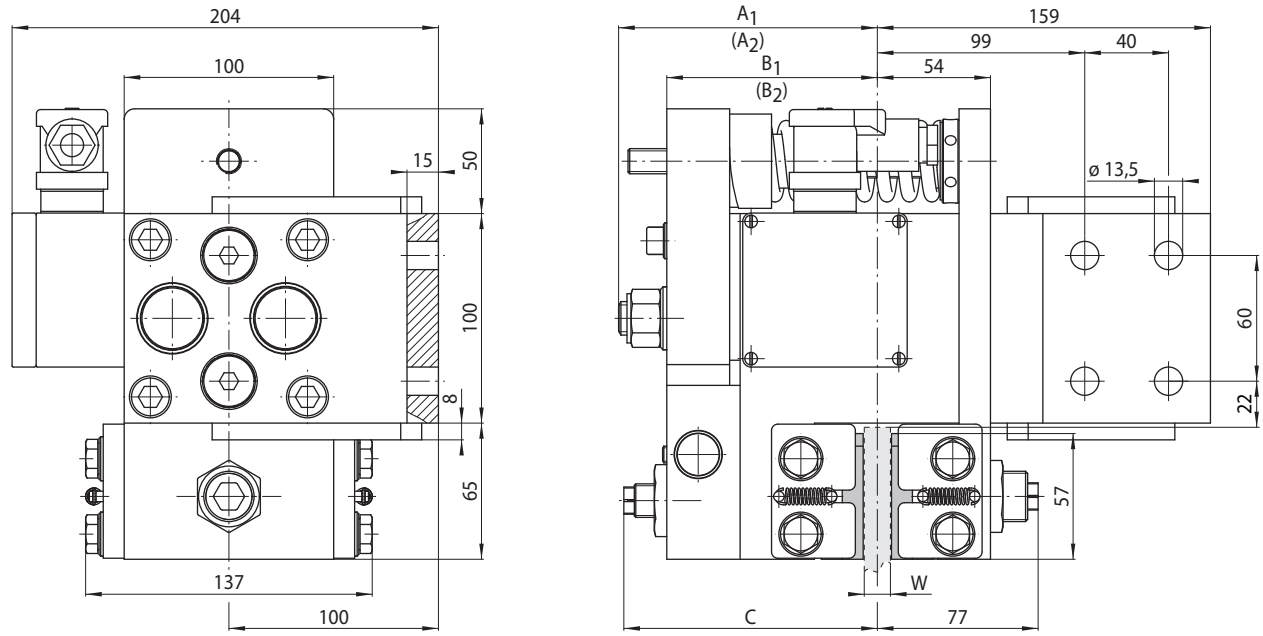


Thickness of brake disc W mm	A_1 mm	(A_2) mm	B_1 mm	(B_2) mm	C mm
10 … 16	124	(139)	101	(118)	121
18 … 26	129	(144)	106	(123)	127

Values in brackets resulting with friction block wear.

53-1

Brake Caliper EH 028 FEM



Thickness of brake disc W mm	A_1 mm	(A_2) mm	B_1 mm	(B_2) mm	C mm
10 … 16	124	(139)	101	(118)	121
18 … 26	129	(144)	106	(123)	127

Values in brackets resulting with friction block wear.

53-2

Brake Calipers EV 038 FEM and EH 038 FEM

spring activated – electromagnetically released

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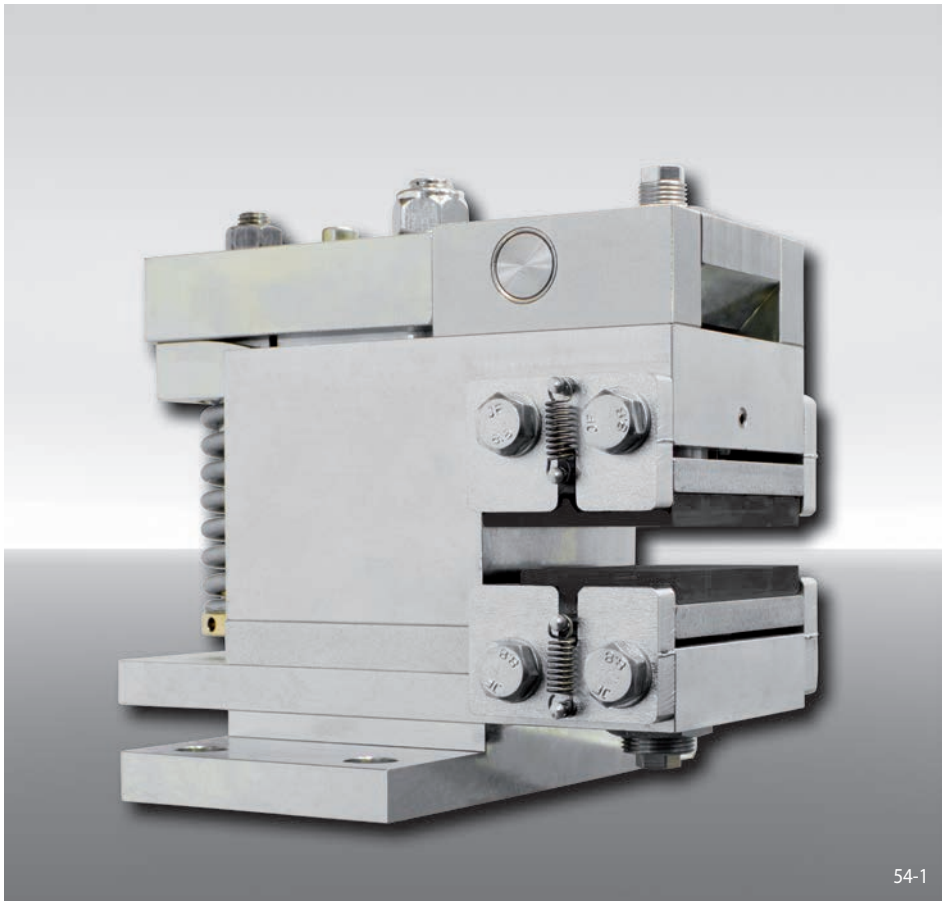


Features

Features	Code
Brake Caliper with electromagnet	E
Mounting to the machine parallel or at right angles to the brake disc	V H
Frame size 038	038
Spring activated	F
Electromagnetically released	E
Manual adjustment to accommodate friction block wear	M
Supply voltage 380/400/415 VAC, supply frequency 50 Hz or 60 Hz adjustable	400
Electromagnet mounted in central position	M
Thickness of brake disc 12,5 … 20 mm or 22 … 30 mm	12 25

Example for ordering

Brake Caliper EV 038 FEM, supply voltage 400 VAC, electromagnet mounted in central position, thickness of brake disc 25 mm:

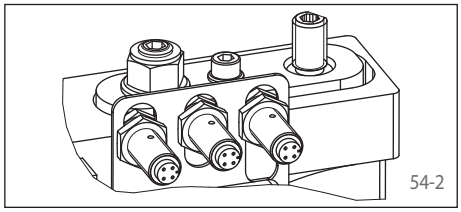
EV 038 FEM - 400 M - 25

Advantages

The brake caliper EV 038 FEM or EH 038 FEM is a very compact and high efficient disc brake with very low power consumption. Its floating bearing compensates small misallignments of the brake disc. The attached electronic reduces the power consumption in open position to 30 W automatically.

Options

- Inductive proximity switch: "Brake released"-, "Brake closed"-status and/or "Friction block wear adjustment necessary"



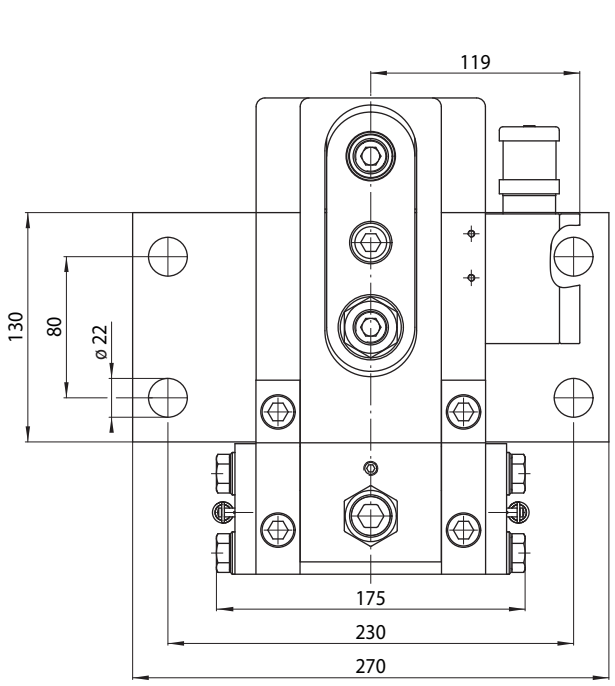
Technical Data

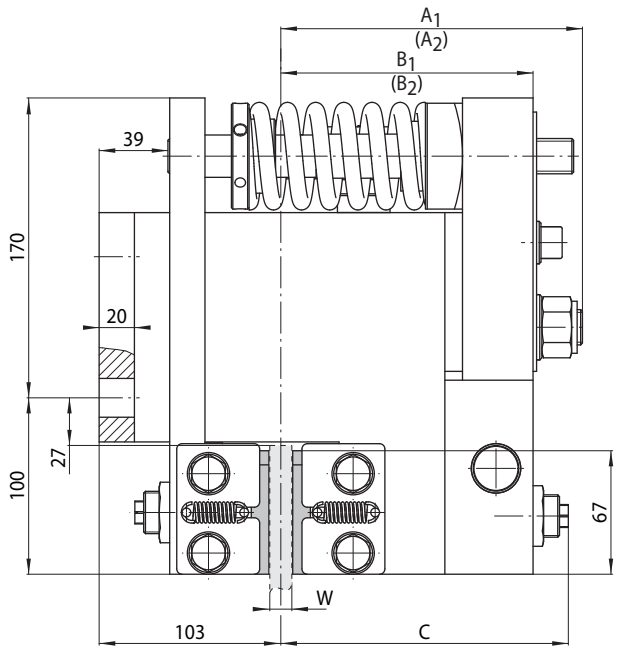
	Brake Calipers EV 038 FEM and EH 038 FEM with supply voltage 380/400/415 VAC
Brake disc diameter mm	Braking torque Nm
430	2830
520	3550
630	4430
710	5070
800	5790
900	6590
Clamping force	20000 N
Clamping force or braking torque adjustable	60 - 100%
Power consumption in open position	30 W (100% duty factor)
Fuse rating	10 A, Type "B"
Max. number of actuation	240/h permanent activations at 20° C ambient temperature
Actuation frequency*	at least 8 seconds between 2 activations
Weight	50 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

* Shorter actuation frequency on request

Brake Caliper EV 038 FEM



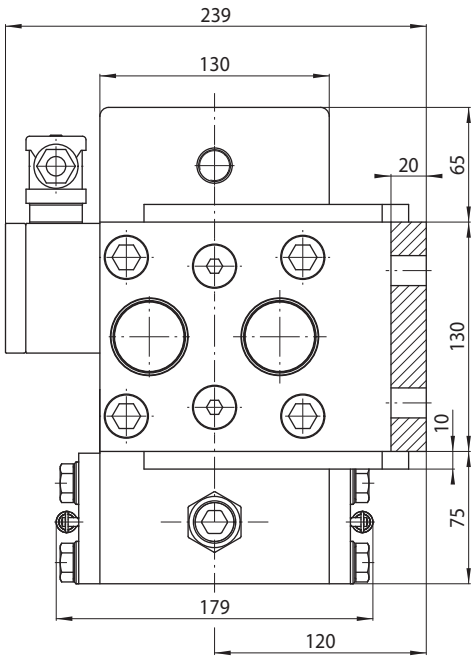


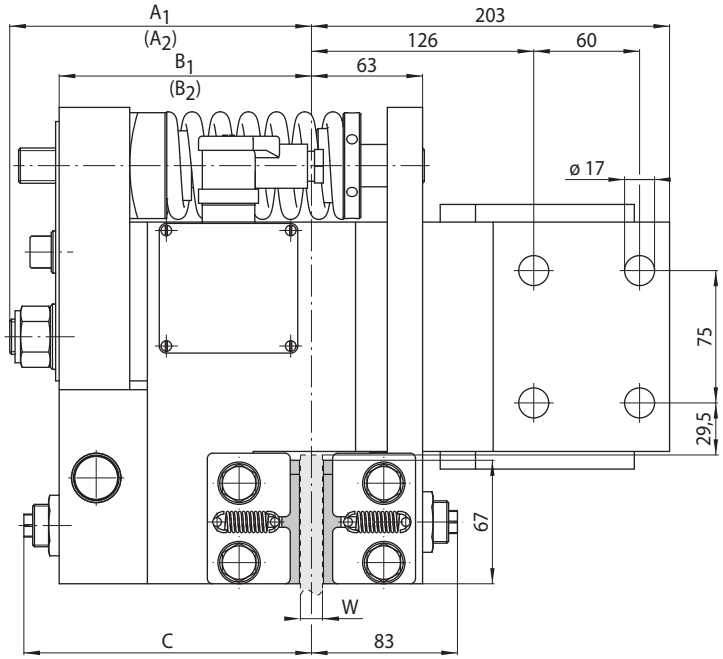
Thickness of brake disc W mm	A_1 mm	(A_2) mm	B_1 mm	(B_2) mm	C mm
12,5 … 20	171	(186)	143	(161)	163
22 … 30	176	(191)	148	(166)	169

Values in brackets resulting with friction block wear.

55-1

Brake Caliper EH 038 FEM





Thickness of brake disc W mm	A_1 mm	(A_2) mm	B_1 mm	(B_2) mm	C mm
12,5 … 20	171	(186)	143	(161)	163
22 … 30	176	(191)	148	(166)	169

Values in brackets resulting with friction block wear.

55-2

Brake Caliper DS 160 FEA

spring activated – electrohydraulically released

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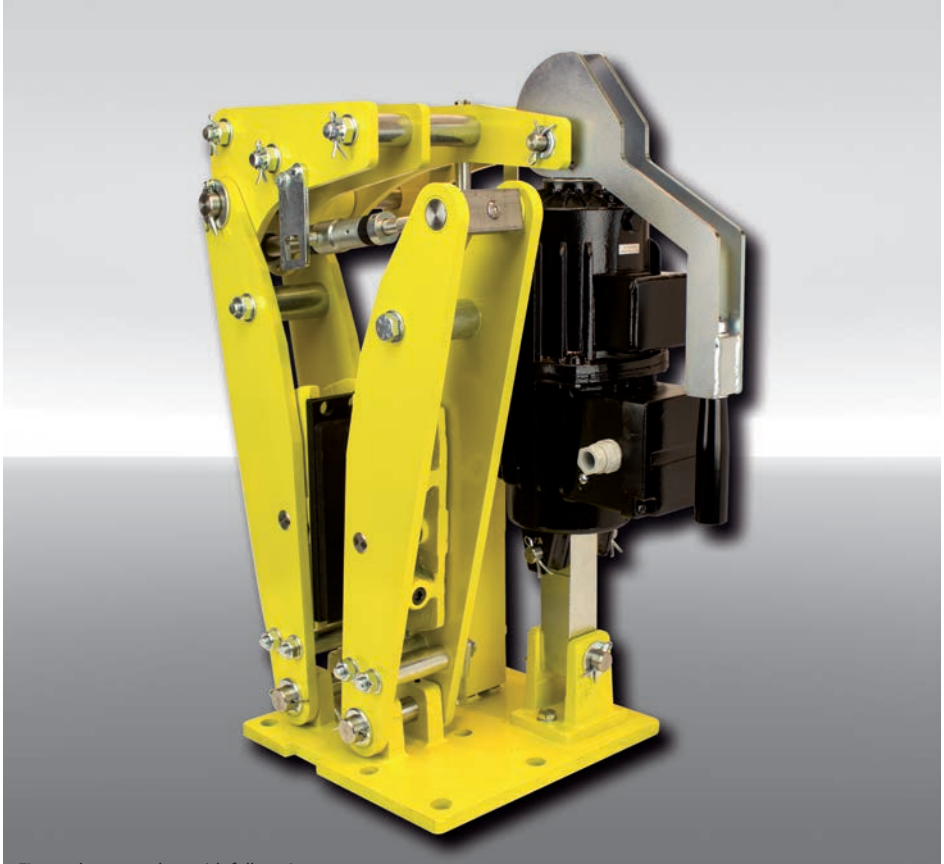


Figure shows product with full equipment 56-1

Features

Features	Code
Brake Caliper	D
Disc Brake	S
Frame size 160	160
Spring activated	F
Electrohydraulically released	E
Automatic adjustment to accommodate friction block wear	A
Thrustors 451 or 452 are available	451 452
Thrustors mounted right or left available	R L
Thickness of brake disc 30 mm	30

Example for ordering

Brake Caliper DS 160 FEA, thrustor 452, thrustor mounted right, thickness of brake disc 30 mm:

DS 160 FEA - 452 R - 30

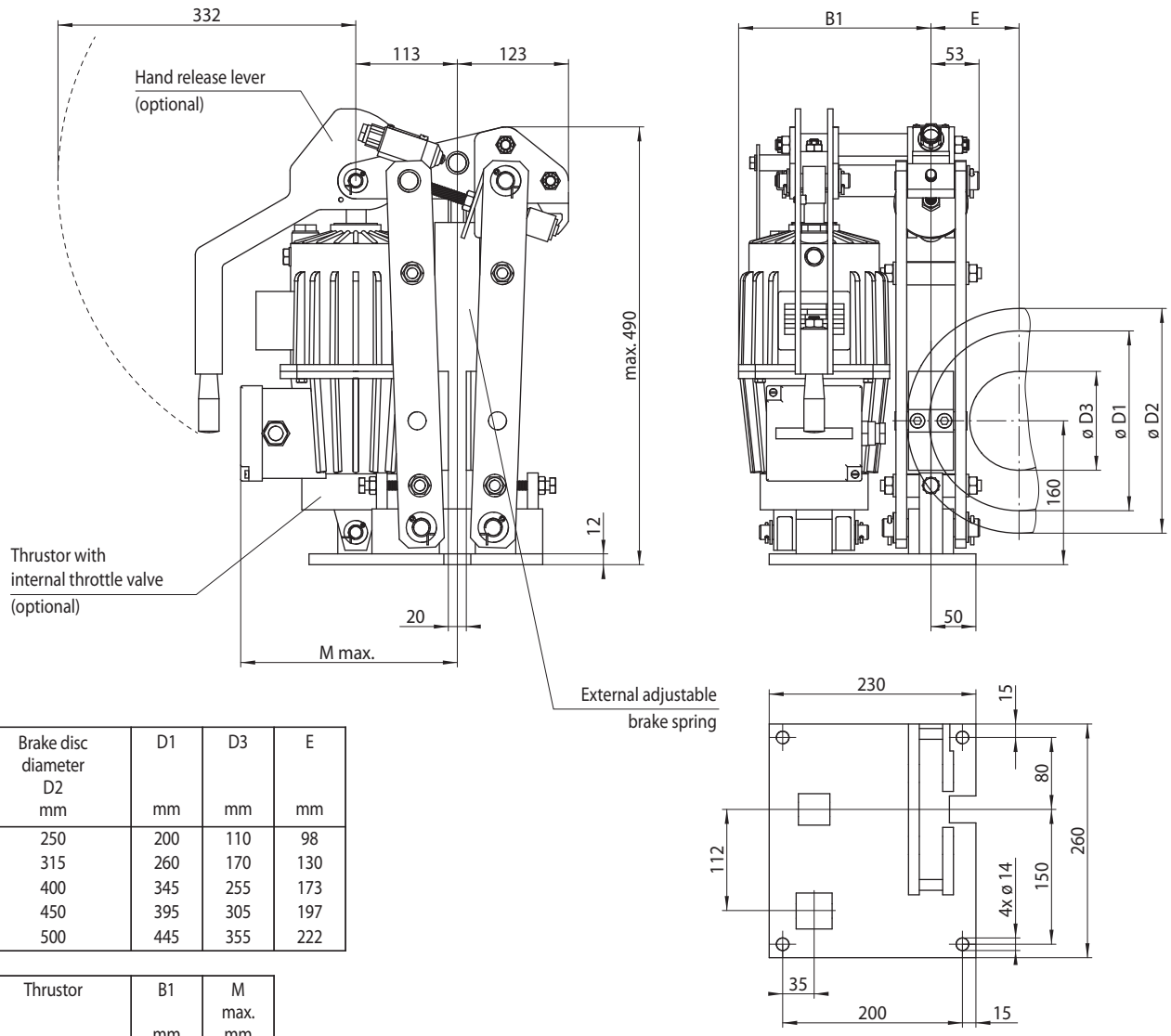
Technical Data

	Brake Caliper DS 160 FEA	
	with thrustor 451	with thrustor 452
Brake disc diameter mm	Braking torque Nm	Braking torque Nm
250	200	265
315	255	343
400	334	451
450	383	520
500	432	590
Clamping force	2 500 N	3 400 N
Braking torque adjustable	20 - 100%	20 - 100%
Power input	130 W	180 W
Oil volume	1,3 L	2,5 L
Voltage	230/400 V	230/400 V
Weight	39 kg	44 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

Brake Caliper DS 160 FEA

spring activated – electrohydraulically released



Brake disc diameter D2 mm	D1 mm	D3 mm	E mm
250	200	110	98
315	260	170	130
400	345	255	173
450	395	305	197
500	445	355	222

Thrustor	B1 mm	M max. mm
451	201	216
452	214	241

Drawing shows the thrustor mounted on the right hand side of the brake

57-1

Options

- Micro-switch wear control
- Micro-switch status control
- Hand release lever
- Thrustor with internal throttle valve
- Thrustor in heat resistant design
- Corrosion protected design
- Friction lining of sintered metall

Brake Caliper DS 230 FEM

spring activated – electrohydraulically released

RINGSPANN®

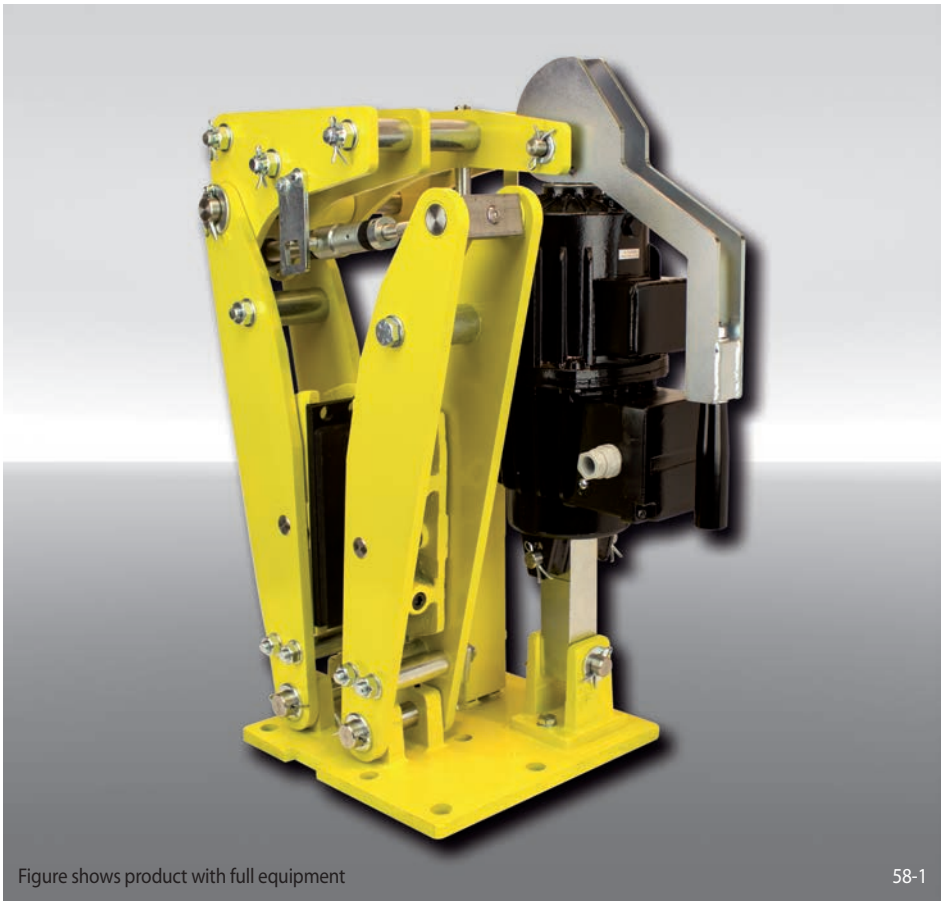


Figure shows product with full equipment 58-1

Features

Features	Code
Brake Caliper	D
Disc Brake	S
Frame size 230	230
Spring activated	F
Electrohydraulically released	E
Manual adjustment to accommodate friction block wear	M
Thrustors 451, 452 or 457 are available	451 452 453
Thrustors mounted right or left available	R L
Thickness of brake disc 30 mm	30

Example for ordering

Brake Caliper DS 230 FEM, thrustor 453, thrustor mounted right, thickness of brake disc 30 mm:

DS 230 FEM - 453 R - 30

Technical Data

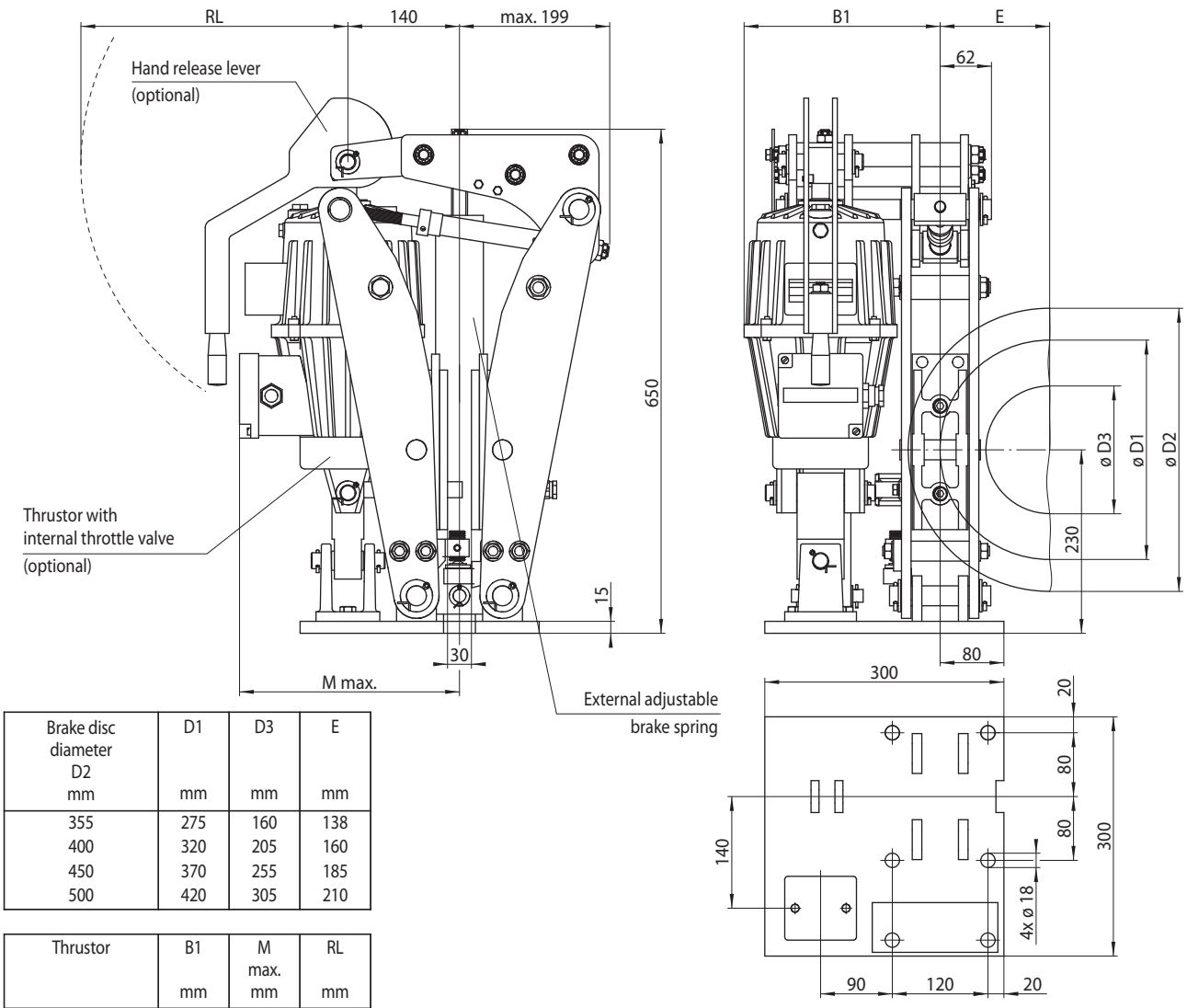
	Brake Caliper DS 230 FEM		
	with thrustor 451	with thrustor 452	with thrustor 453
Brake disc diameter mm	Braking torque Nm	Braking torque Nm	Braking torque Nm
355 400 450 500	300 350 400 450	450 500 550 600	900 1 000 1 100 1 250
Clamping force	2 700 N	3 600 N	7 400 N
Braking torque adjustable	20 - 100%	20 - 100%	20 - 100%
Power input	130 W	180 W	250 W
Oil volume	1,3 L	2,5 L	3,5 L
Voltage	230/400 V	230/400 V	230/400 V
Weight	69 kg	74 kg	76 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

Brake Caliper DS 230 FEM

spring activated – electrohydraulically released

RINGSPANN®



Brake disc diameter D2 mm	D1 mm	D3 mm	E mm
355	275	160	138
400	320	205	160
450	370	255	185
500	420	305	210

Thrustor	B1 mm	M max. mm	RL mm
451	221	253	274
452	234	274	366
453	251	286	366

Drawing shows the thrustor mounted on the right hand side of the brake

59-1

Options

- Micro-switch wear control
- Micro-switch status control
- Hand release lever
- Thrustor with internal throttle valve
- Thrustor in heat resistant design
- Corrosion protected design
- Friction lining of sintered metall

Brake Caliper DS 230 FEA

spring activated – electrohydraulically released

RINGSPANN®

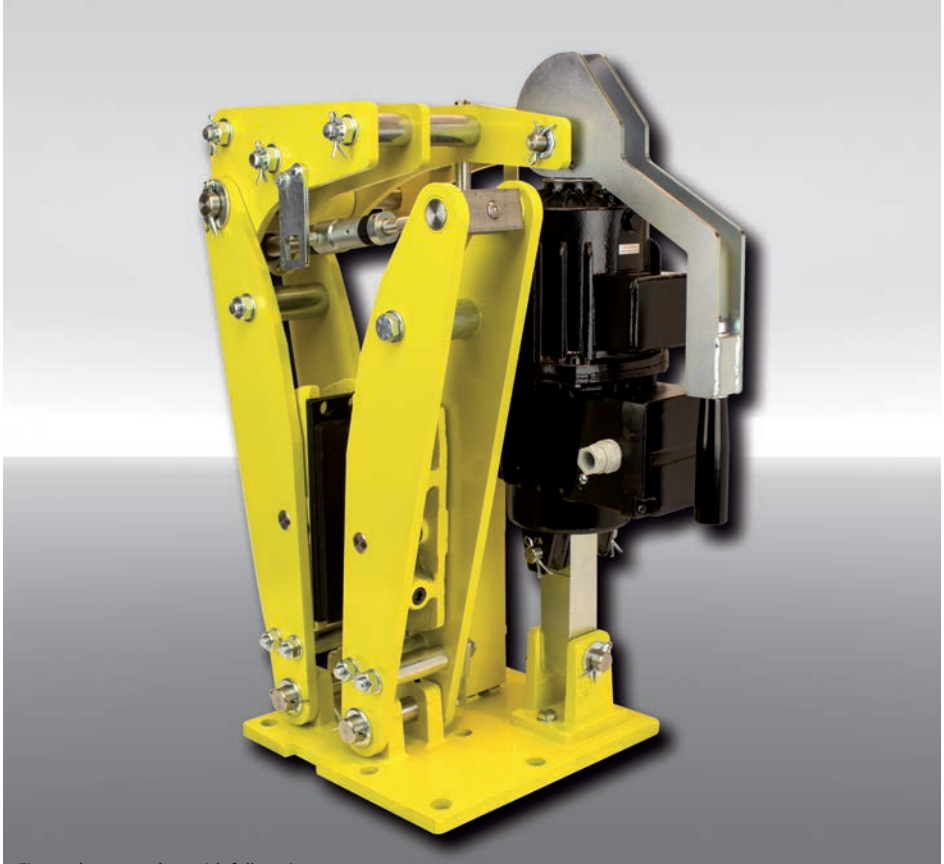


Figure shows product with full equipment 60-1

Features

Features	Code
Brake Caliper	D
Disc Brake	S
Frame size 230	230
Spring activated	F
Electrohydraulically released	E
Automatic adjustment to accommodate friction block wear	A
Thrustors 451, 452 or 457 are available	451 452 453
Thrustors mounted right or left available	R L
Thickness of brake disc 30 mm	30

Example for ordering

Brake Caliper DS 230 FEA, thrustor 453, thrustor mounted right, thickness of brake disc 30 mm:

DS 230 FEA - 453 R - 30

Technical Data

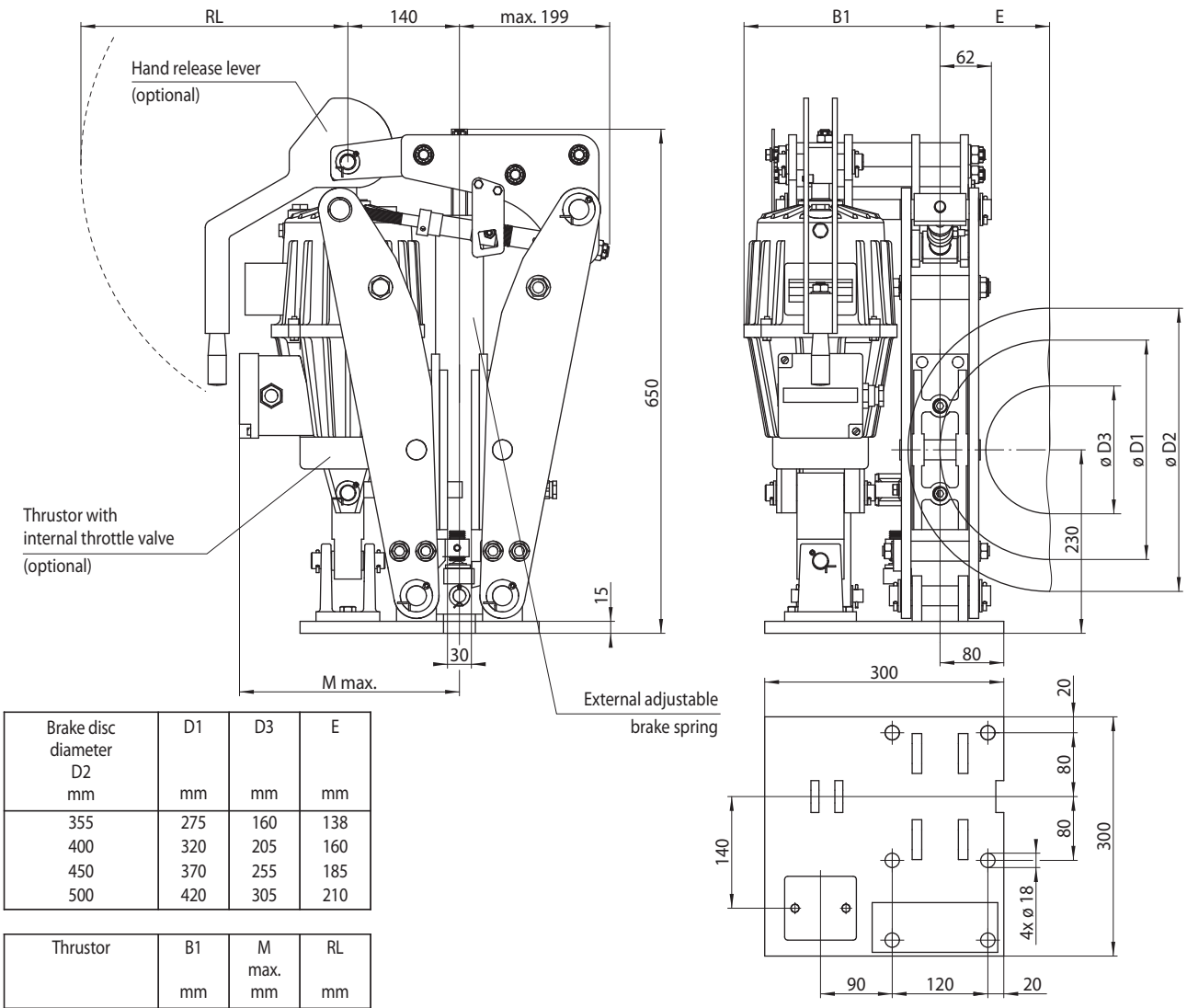
	Brake Caliper DS 230 FEA		
	with thrustor 451	with thrustor 452	with thrustor 453
Brake disc diameter mm	Braking torque Nm	Braking torque Nm	Braking torque Nm
355 400 450 500	300 350 400 450	450 500 550 600	900 1 000 1 100 1 250
Clamping force	2 700 N	3 600 N	7 400 N
Braking torque adjustable	20 - 100%	20 - 100%	20 - 100%
Power input	130 W	180 W	250 W
Oil volume	1,3 L	2,5 L	3,5 L
Voltage	230/400 V	230/400 V	230/400 V
Weight	69 kg	74 kg	76 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

Brake Caliper DS 230 FEA

spring activated – electrohydraulically released

RINGSPANN®



Brake disc diameter D2 mm	D1 mm	D3 mm	E mm
355	275	160	138
400	320	205	160
450	370	255	185
500	420	305	210

Thrustor	B1 mm	M max. mm	RL mm
451	221	253	274
452	234	274	366
453	251	286	366

Drawing shows the thrustor mounted on the right hand side of the brake

61-1

Options

- Micro-switch wear control
- Micro-switch status control
- Hand release lever
- Thrustor with internal throttle valve
- Thrustor in heat resistant design
- Corrosion protected design
- Friction lining of sintered metall

Brake Caliper DS 280 FEM

spring activated – electrohydraulically released

RINGSPANN®

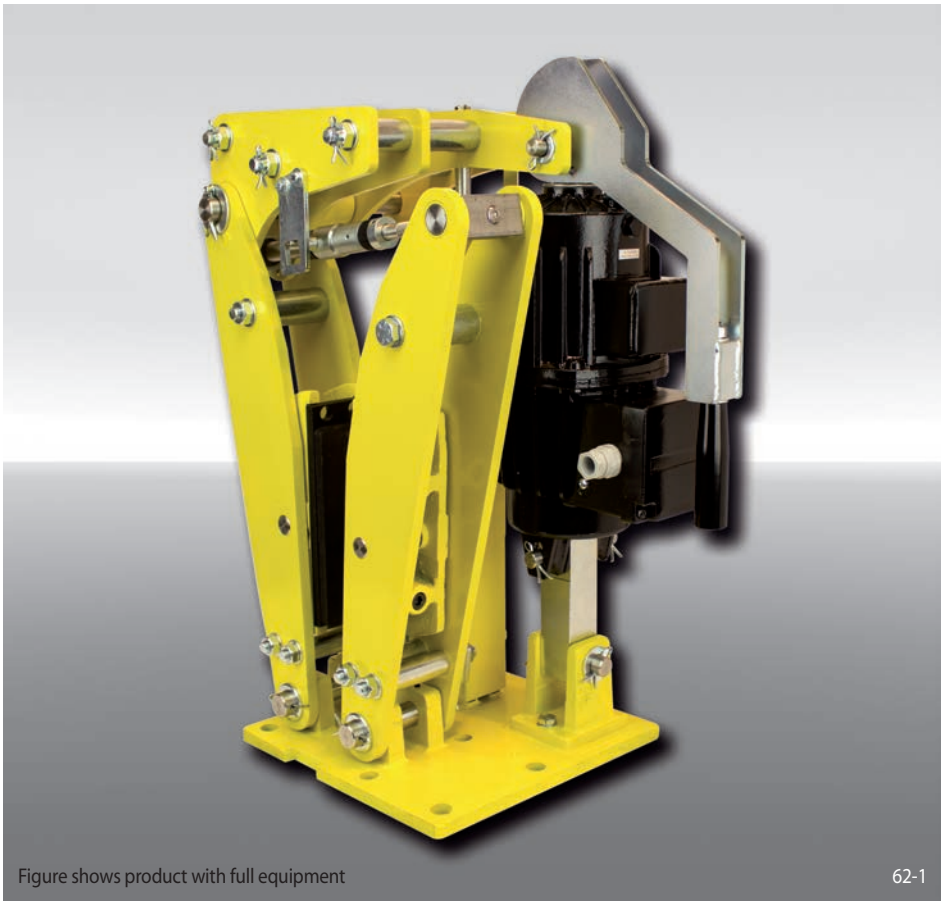


Figure shows product with full equipment 62-1

Features

Features	Code
Brake Caliper	D
Disc Brake	S
Frame size 280	280
Spring activated	F
Electrohydraulically released	E
Manual adjustment to accommodate friction block wear	M
Thrustors 453, 455 or 456 are available	453 455 456
Thrustors mounted right or left available	R L
Thickness of brake disc 30 mm	30

Example for ordering

Brake Caliper DS 280 FEM, thrustor 456, thrustor mounted right, thickness of brake disc 30 mm:

DS 280 FEM - 456 R - 30

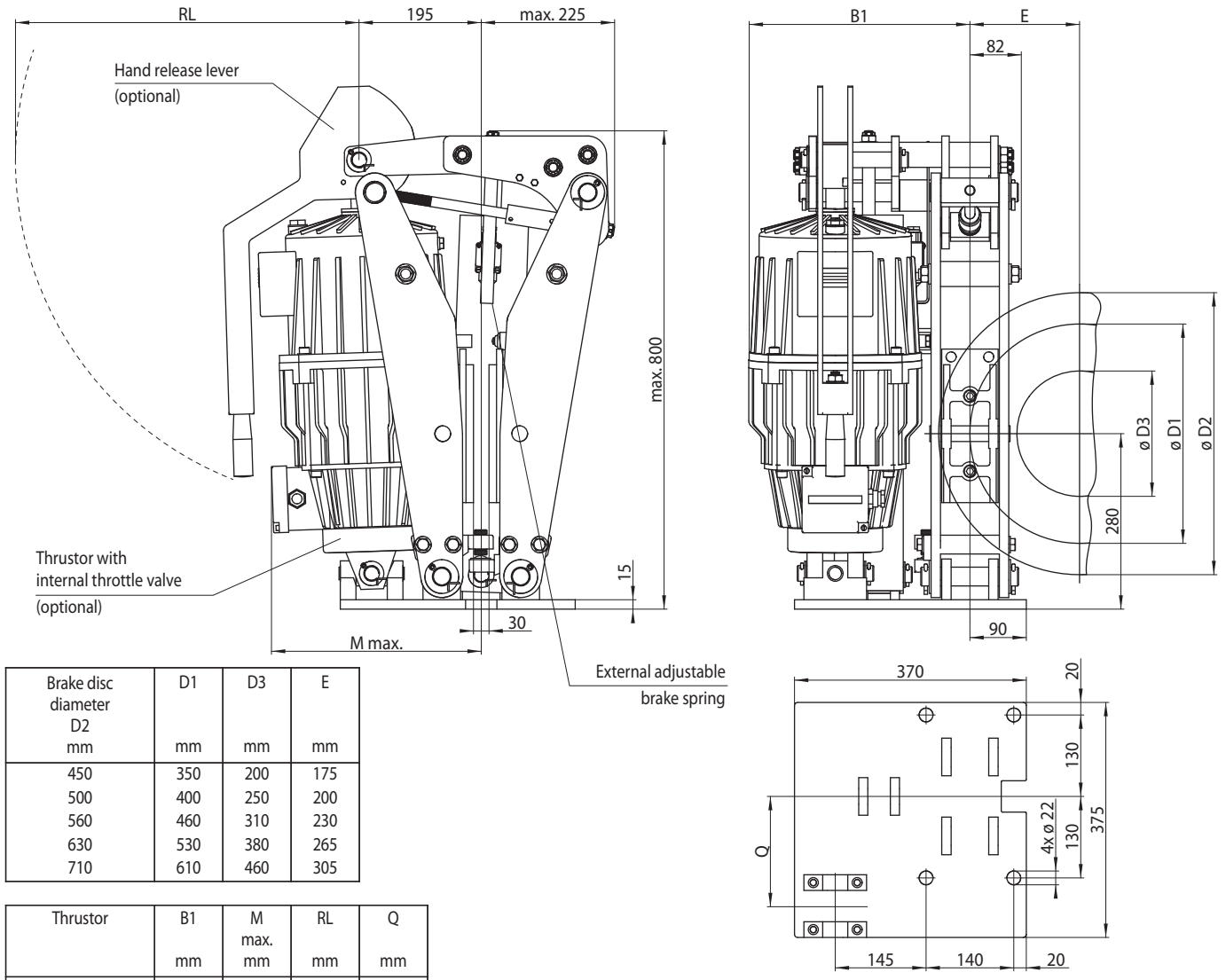
Technical Data

	Brake Caliper DS 280 FEM		
	with thrustor 453	with thrustor 455	with thrustor 456
Brake disc diameter mm	Braking torque Nm	Braking torque Nm	Braking torque Nm
450	1400	2800	4650
500	1550	3100	5150
560	1750	3450	5800
630	1950	3900	6500
710	2200	4400	7350
Clamping force	9700 N	19400 N	32200 N
Braking torque adjustable	20 - 100%	20 - 100%	20 - 100%
Power input	250 W	350 W	750 W
Oil volume	3,5 L	4,5 L	11 L
Voltage	230/400 V	230/400 V	230/400 V
Weight	125 kg	132 kg	155 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

Brake Caliper DS 280 FEM

spring activated – electrohydraulically released



Brake disc diameter D2 mm	D1 mm	D3 mm	E mm
450	350	200	175
500	400	250	200
560	460	310	230
630	530	380	265
710	610	460	305

Thrustor	B1 mm	M max. mm	RL mm	Q mm
453	311	327	345	175
455	332	348	347	175
456	354	377	551	195

Drawing shows the thrustor mounted on the right hand side of the brake

63-1

Options

- Micro-switch wear control
- Micro-switch status control
- Hand release lever
- Thrustor with internal throttle valve
- Thrustor in heat resistant design
- Corrosion protected design
- Friction lining of sintered metall

Brake Caliper DS 280 FEA

spring activated – electrohydraulically released

RINGSPANN®

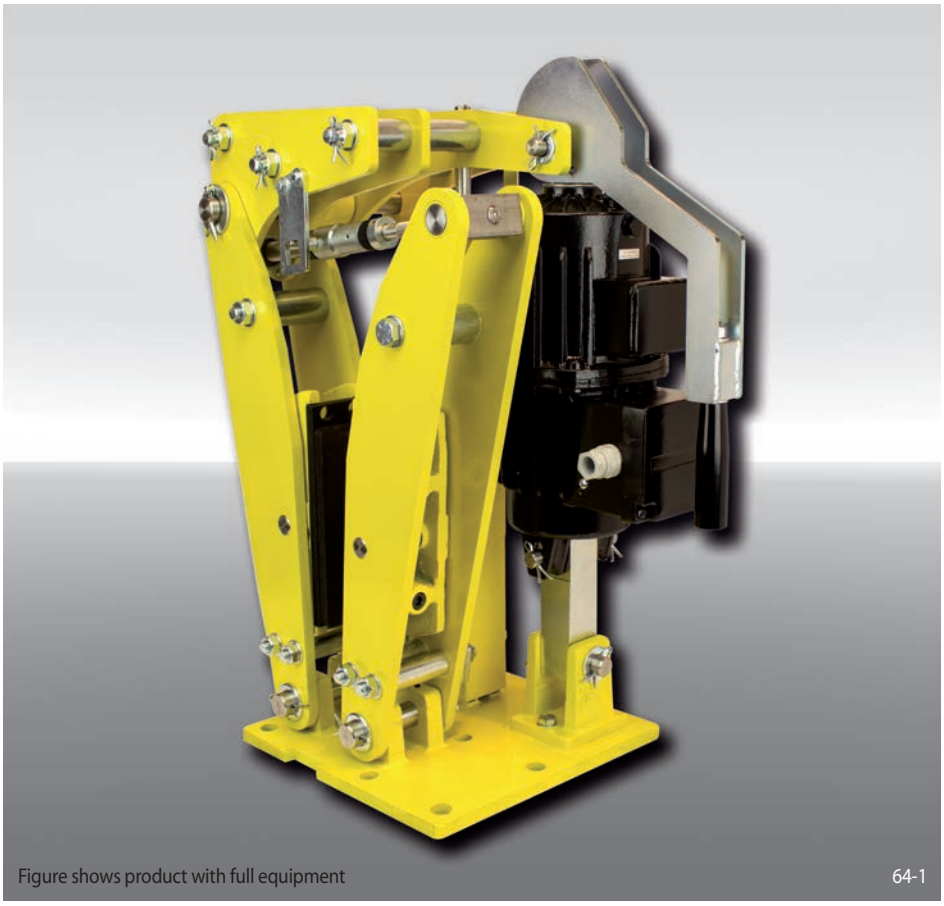


Figure shows product with full equipment 64-1

Features

Features	Code
Brake Caliper	D
Disc Brake	S
Frame size 280	280
Spring activated	F
Electrohydraulically released	E
Automatic adjustment to accommodate friction block wear	A
Thrustors 453, 455 or 456 are available	453 455 456
Thrustors mounted right or left available	R L
Thickness of brake disc 30 mm	30

Example for ordering

Brake Caliper DS 280 FEA, thrustor 456, thrustor mounted right, thickness of brake disc 30 mm:

DS 280 FEA - 456 R - 30

Technical Data

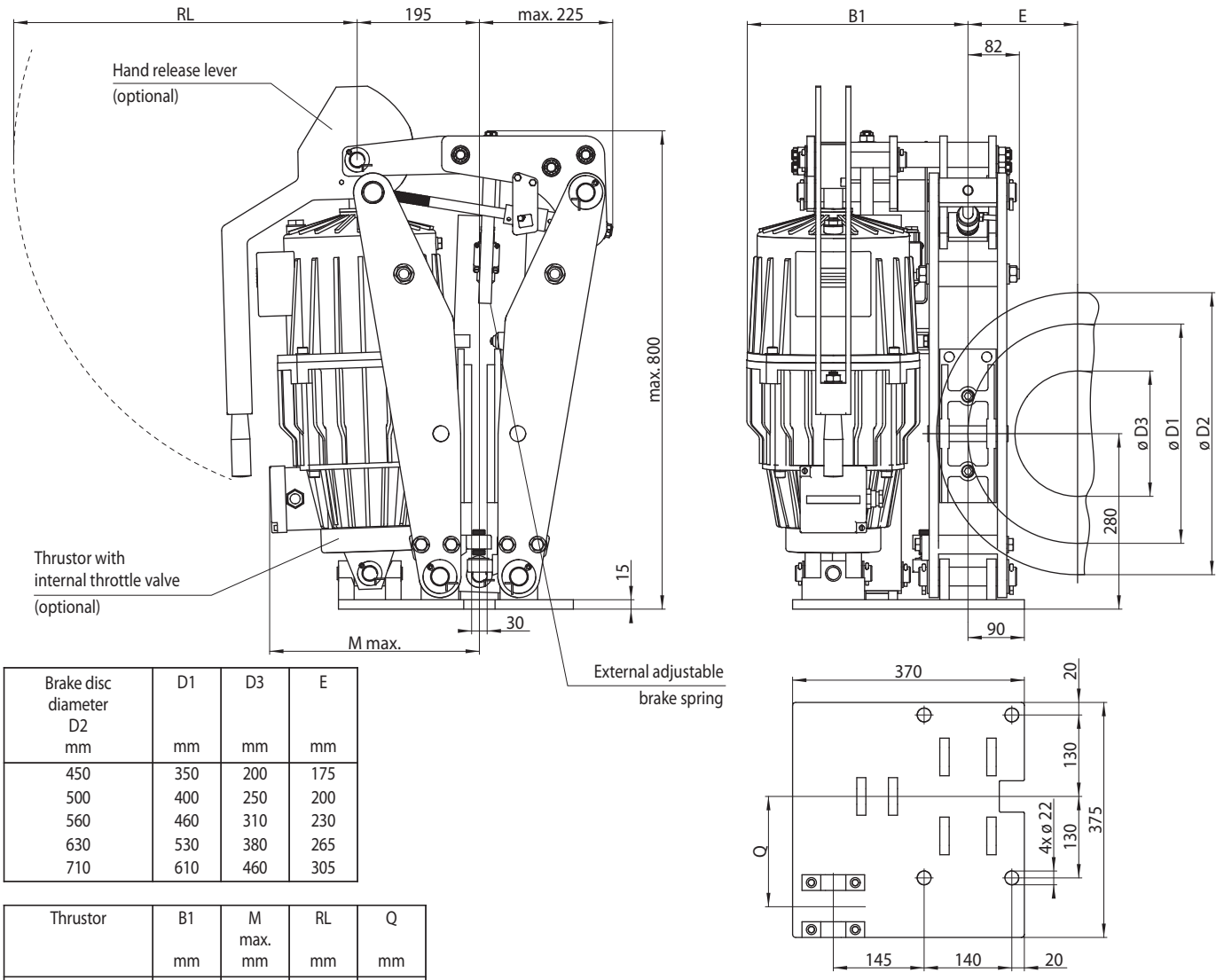
	Brake Caliper DS 280 FEA		
	with thrustor 453	with thrustor 455	with thrustor 456
Brake disc diameter mm	Braking torque Nm	Braking torque Nm	Braking torque Nm
450	1400	2800	4650
500	1550	3100	5150
560	1750	3450	5800
630	1950	3900	6500
710	2200	4400	7350
Clamping force	9700 N	19400 N	32200 N
Braking torque adjustable	20 - 100%	20 - 100%	20 - 100%
Power input	250 W	350 W	750 W
Oil volume	3,5 L	4,5 L	11 L
Voltage	230/400 V	230/400 V	230/400 V
Weight	125 kg	132 kg	155 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

Brake Caliper DS 280 FEA

spring activated – electrohydraulically released

RINGSPANN®



Brake disc diameter D2 mm	D1 mm	D3 mm	E mm
450	350	200	175
500	400	250	200
560	460	310	230
630	530	380	265
710	610	460	305

Thrustor	B1 mm	M max. mm	RL mm	Q mm
453	311	327	345	175
455	332	348	347	175
456	354	377	551	195

Drawing shows the thrustor mounted on the right hand side of the brake

65-1

Options

- Micro-switch wear control
- Micro-switch status control
- Hand release lever
- Thrustor with internal throttle valve
- Thrustor in heat resistant design
- Corrosion protected design
- Friction lining of sintered metall

Brake Caliper DS 370 FEM

spring activated – electrohydraulically released

RINGSPANN®

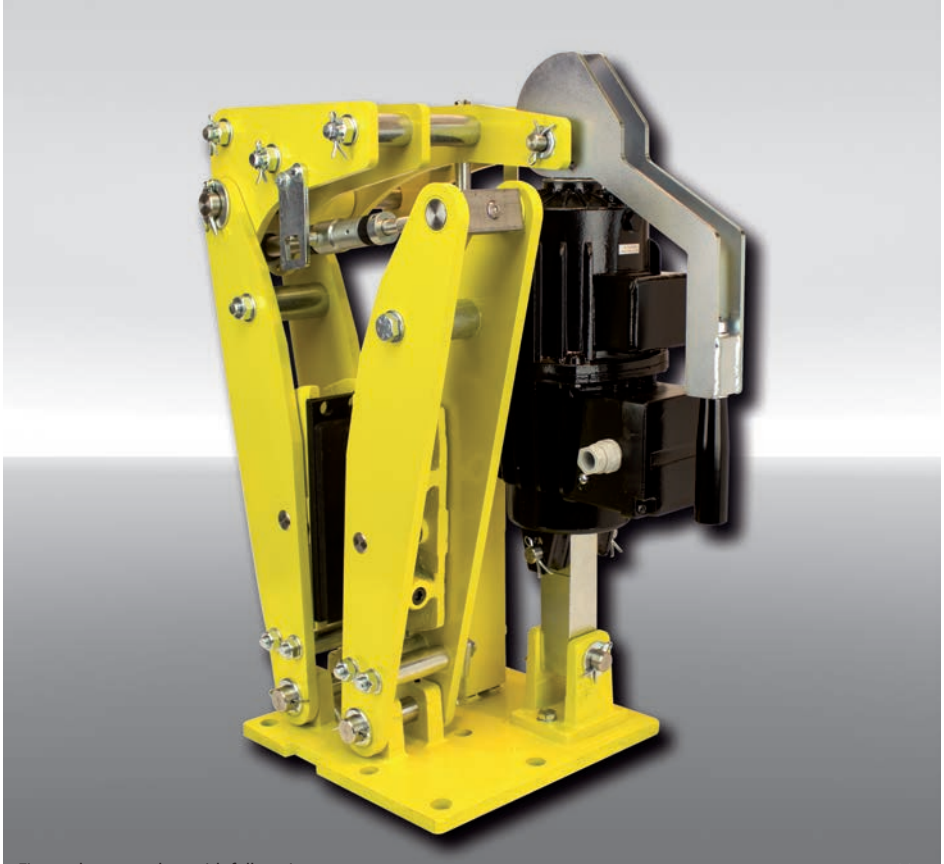


Figure shows product with full equipment 66-1

Features

Features	Code
Brake Caliper	D
Disc Brake	S
Frame size 370	370
Spring activated	F
Electrohydraulically released	E
Manual adjustment to accommodate friction block wear	M
Thrustors 456 or 457 are available	456 457
Thrustors mounted right or left available	R L
Thickness of brake disc 30 mm	30

Example for ordering

Brake Caliper DS 370 FEM, thrustor 456, thrustor mounted right, thickness of brake disc 30 mm:

DS 370 FEM - 456 R - 30

Technical Data

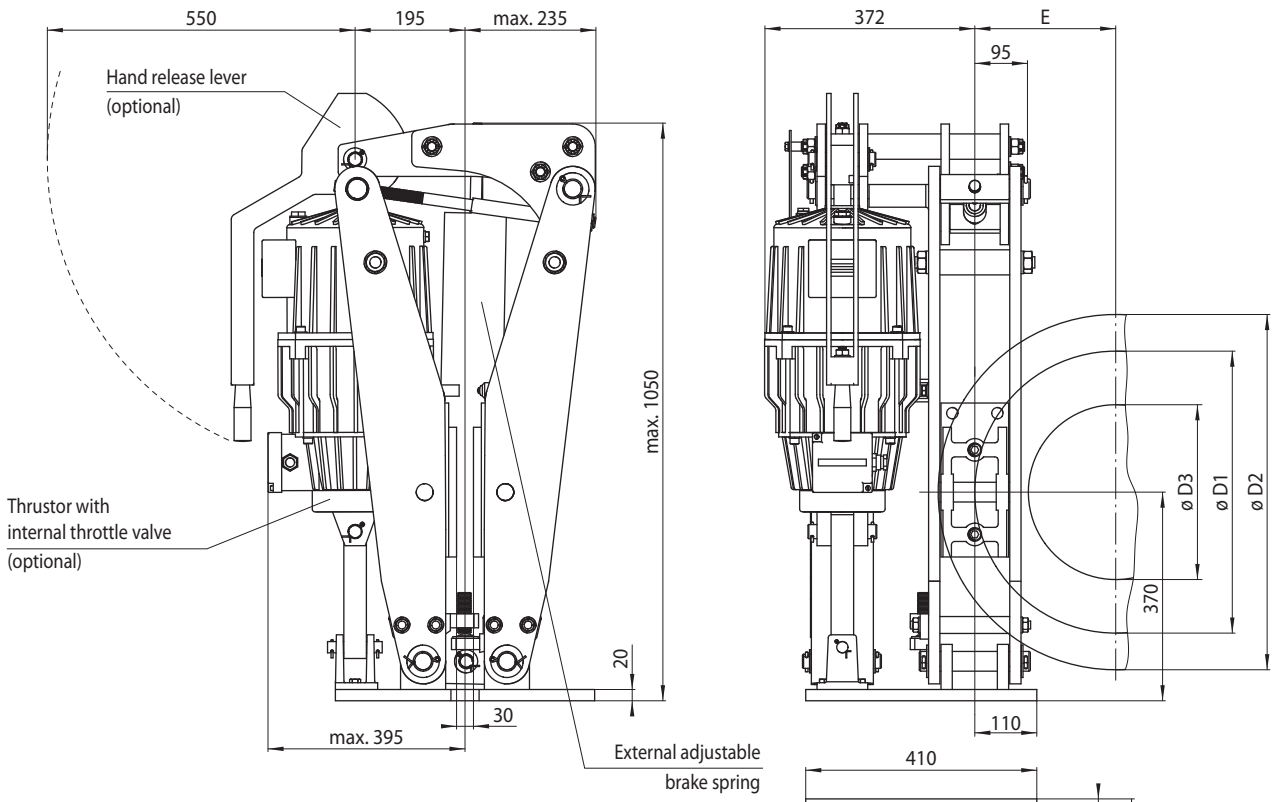
	Brake Caliper DS 370 FEM	
	with thrustor 456	with thrustor 457
Brake disc diameter mm	Braking torque Nm	Braking torque Nm
630 710 800 1000 1250	6700 7550 8500 10600 13300	10000 11300 12750 15900 19900
Clamping force	31700 N	47600 N
Braking torque adjustable	20 - 100%	20 - 100%
Power input	750 W	850 W
Oil volume	11 L	11 L
Voltage	230/400 V	230/400 V
Weight	264 kg	264 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

Brake Caliper DS 370 FEM

spring activated – electrohydraulically released

RINGSPANN®



Brake disc diameter D2 mm	D1 mm	D3 mm	E mm
630	500	310	250
710	580	390	290
800	670	480	335
1000	870	680	435
1250	1120	930	560

Drawing shows the thrustor mounted on the right hand side of the brake

67-1

Options

- Micro-switch wear control
- Micro-switch status control
- Hand release lever
- Thrustor with internal throttle valve
- Thrustor in heat resistant design
- Corrosion protected design
- Friction lining of sintered metall

Brake Caliper DS 370 FEA

spring activated – electrohydraulically released

RINGSPANN®

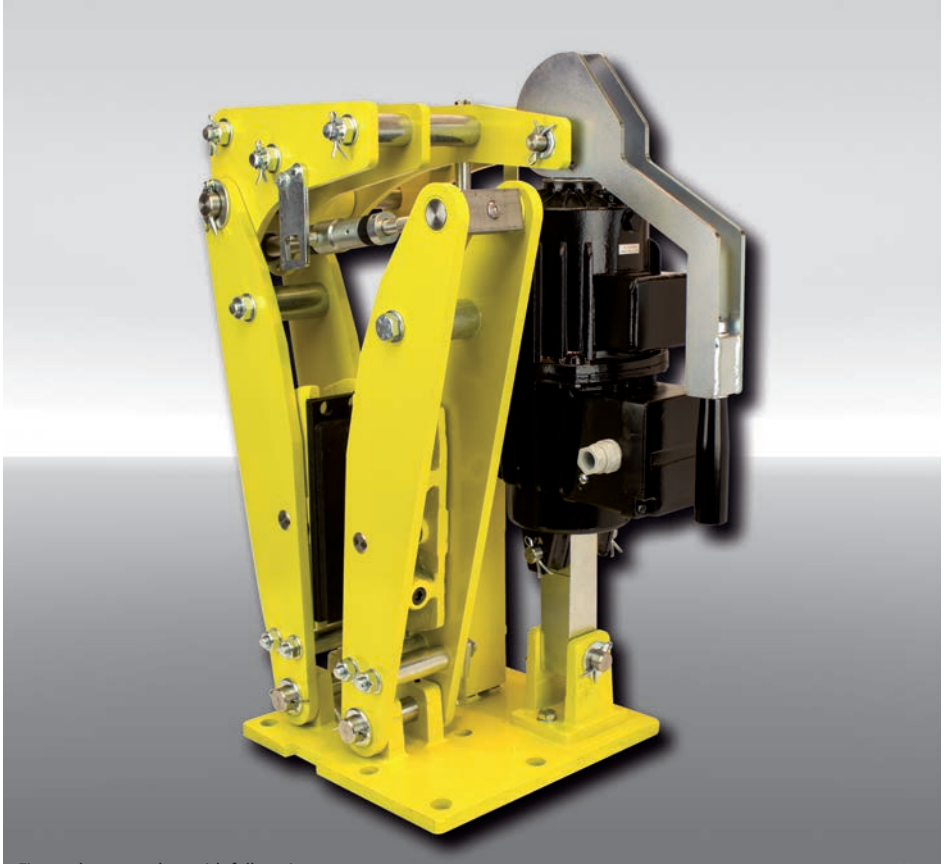


Figure shows product with full equipment 68-1

Features

Features	Code
Brake Caliper	D
Disc Brake	S
Frame size 370	370
Spring activated	F
Electrohydraulically released	E
Automatic adjustment to accommodate friction block wear	A
Thrustors 456 or 457 are available	456 457
Thrustors mounted right or left available	R L
Thickness of brake disc 30 mm	30

Example for ordering

Brake Caliper DS 370 FEA, thrustor 456, thrustor mounted right, thickness of brake disc 30 mm:

DS 370 FEA - 456 R - 30

Technical Data

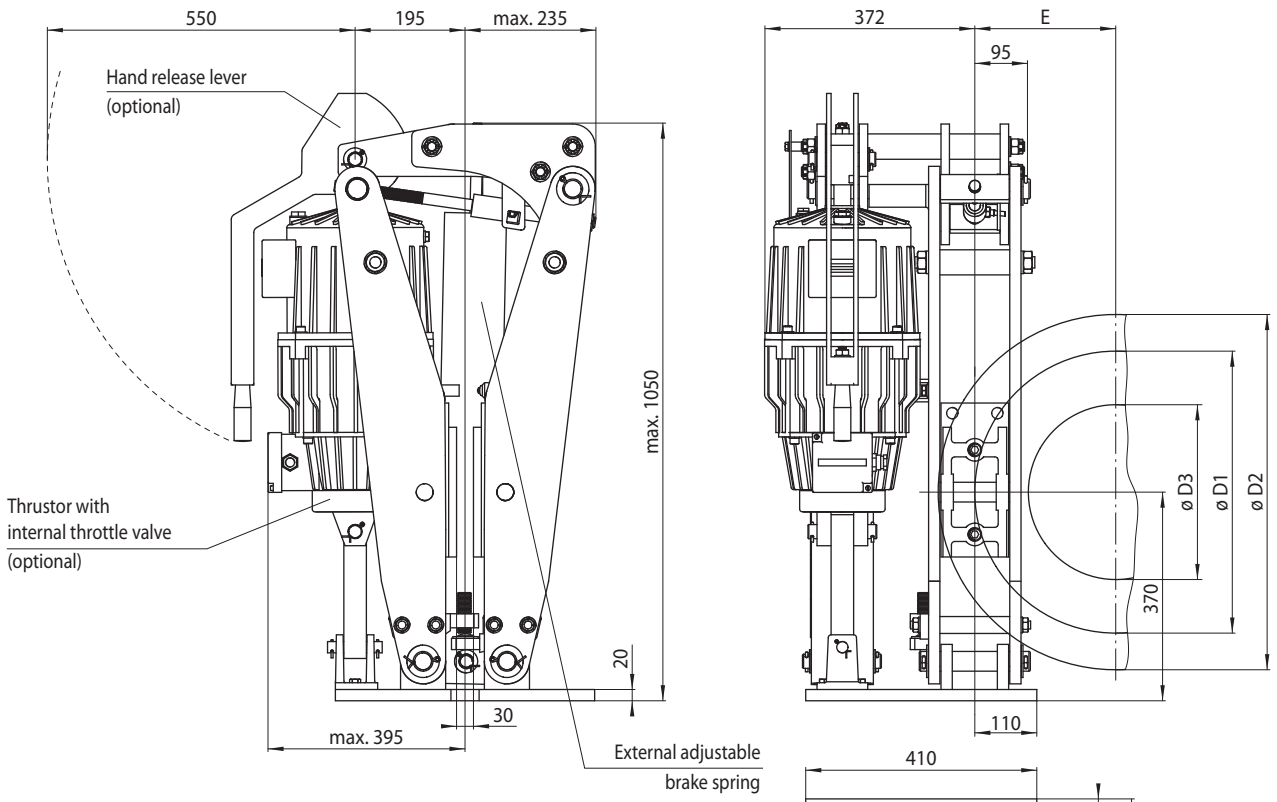
	Brake Caliper DS 370 FEA	
	with thrustor 456	with thrustor 457
Brake disc diameter mm	Braking torque Nm	Braking torque Nm
630 710 800 1000 1250	6700 7550 8500 10600 13300	10000 11300 12750 15900 19900
Clamping force	31700 N	47600 N
Braking torque adjustable	20 - 100%	20 - 100%
Power input	750 W	850 W
Oil volume	11 L	11 L
Voltage	230/400 V	230/400 V
Weight	264 kg	264 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

Brake Caliper DS 370 FEA

spring activated – electrohydraulically released

RINGSPANN®



Brake disc diameter D2 mm	D1 mm	D3 mm	E mm
630	500	310	250
710	580	390	290
800	670	480	335
1000	870	680	435
1250	1120	930	560

Drawing shows the thrustor mounted on the right hand side of the brake

69-1

Options

- Micro-switch wear control
- Micro-switch status control
- Hand release lever
- Thrustor with internal throttle valve
- Thrustor in heat resistant design
- Corrosion protected design
- Friction lining of sintered metall

Brake Caliper DT 200 FEM … NC

spring activated – electrohydraulically released
Drum Brake according to DIN 15 435

RINGSPANN®

Figure shows product with full equipment 70-1

Features	Code
Brake Caliper	D
Drum Brake	T
Frame size 200	200
Spring activated	F
Electrohydraulically released	E
Manual adjustment to accommodate friction block wear	M
Thrustors 451 or 452 are available	451 452
Material: cast	NC

Example for ordering

Brake Caliper DT 200 FEM, thrustor 452, material: cast

DT 200 FEM - 452 - NC

Technical Data

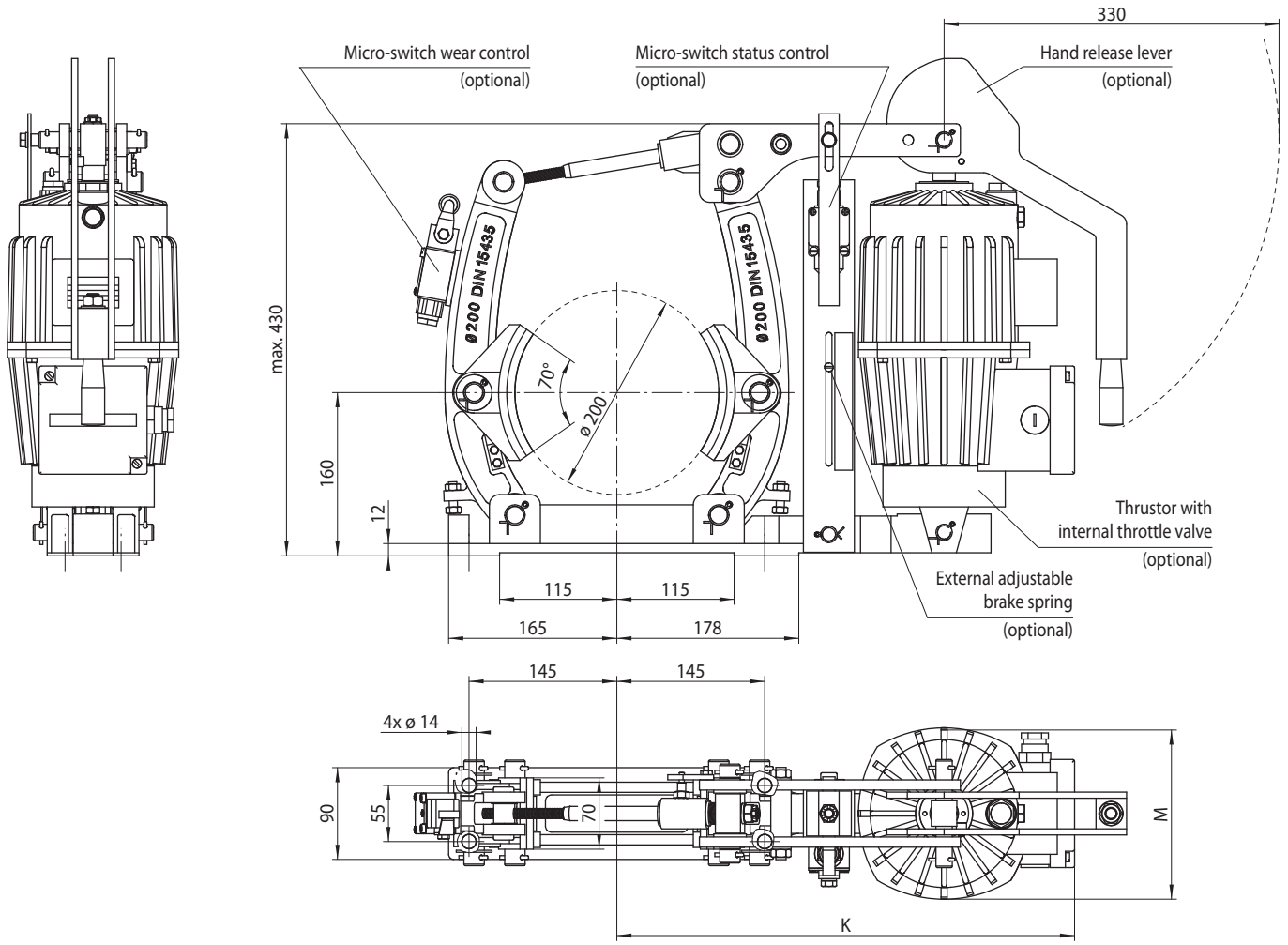
	Brake Caliper DT 200 FEM … NC	
	with thrustor 451	with thrustor 452
Brake drum diameter mm	Braking torque Nm	Braking torque Nm
200	230	310
Clamping force	2875 N	3875 N
Braking torque adjustable (optional)	20 - 100%	20 - 100%
Power input	130 W	180 W
Oil volume	1,3 L	2,5 L
Voltage	230/400 V	230/400 V
Weight	25 kg	30 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

Brake Caliper DT 200 FEM … NC

RINGSPANN®

spring activated – electrohydraulically released
Drum Brake according to DIN 15 435



Thrustor	K mm	M mm
451	422	142
452	450	168

71-1

Options

- External adjustable brake spring
- Micro-switch wear control
- Micro-switch status control
- Hand release lever
- Thrustor with internal throttle valve
- Thrustor in heat resistant design
- Corrosion protected design
- Wider brake shoes and brake drums

Brake Caliper DT 200 FEA … NC

spring activated – electrohydraulically released
Drum Brake according to DIN 15 435

RINGSPANN®

Figure shows product with full equipment 72-1

Features	Code
Brake Caliper	D
Drum Brake	T
Frame size 200	200
Spring activated	F
Electrohydraulically released	E
Automatic adjustment to accommodate friction block wear	A
Thrustors 451 or 452 are available	451 452
Material: cast	NC

Example for ordering

Brake Caliper DT 200 FEA, thrustor 452, material: cast

DT 200 FEA - 452 - NC

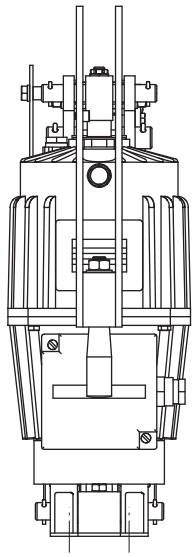
Technical Data

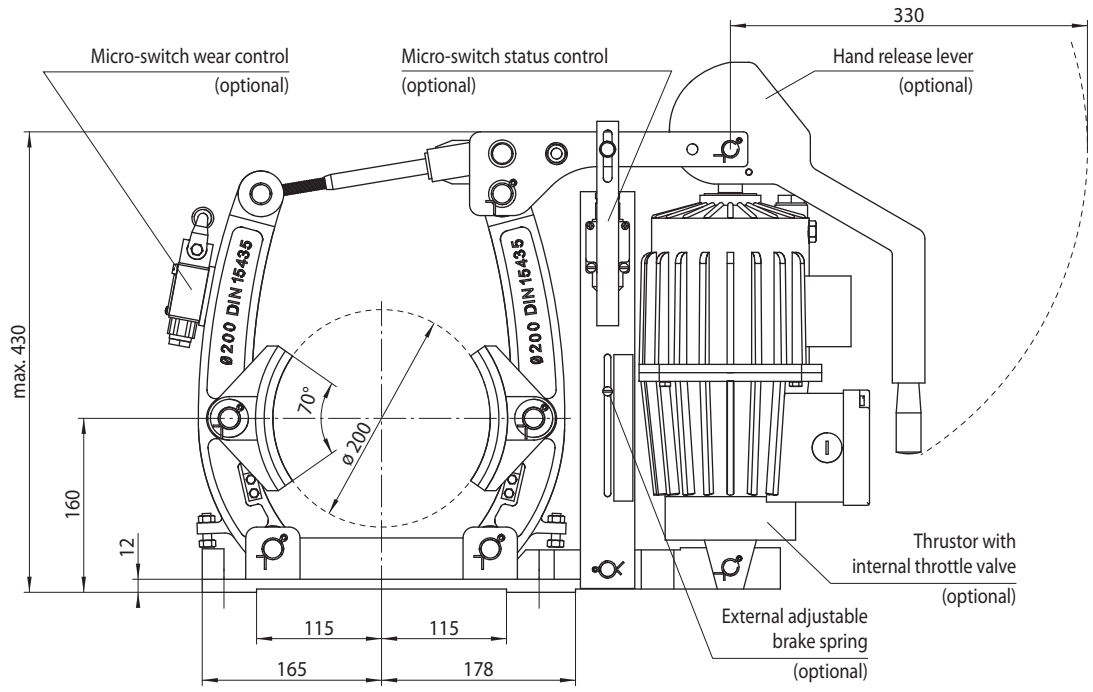
	Brake Caliper DT 200 FEA … NC	
	with thrustor 451	with thrustor 452
Brake drum diameter mm	Braking torque Nm	Braking torque Nm
200	230	310
Clamping force	2875 N	3875 N
Braking torque adjustable (optional)	20 - 100%	20 - 100%
Power input	130 W	180 W
Oil volume	1,3 L	2,5 L
Voltage	230/400 V	230/400 V
Weight	25 kg	30 kg

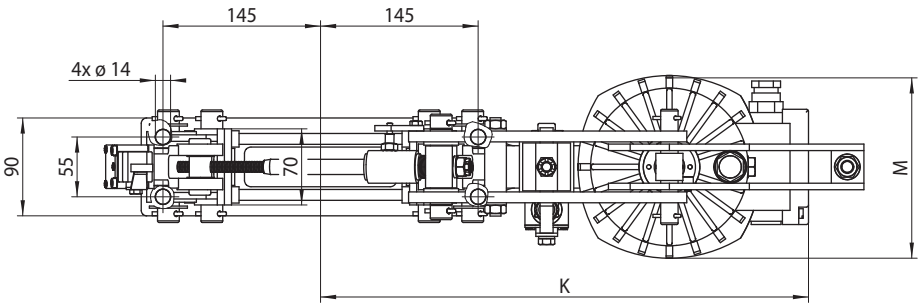
The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

Brake Caliper DT 200 FEA … NC

spring activated – electrohydraulically released
Drum Brake according to DIN 15 435







Thrustor	K mm	M mm
451	422	142
452	450	168

73-1

Options

- External adjustable brake spring
- Micro-switch wear control
- Micro-switch status control
- Hand release lever
- Thrustor with internal throttle valve
- Thrustor in heat resistant design
- Corrosion protected design
- Wider brake shoes and brake drums

Brake Caliper DT 200 FEA … ST

spring activated – electrohydraulically released
Drum Brake according to DIN 15 435

RINGSPANN®

Figure shows product with full equipment 74-1

Features	Code
Brake Caliper	D
Drum Brake	T
Frame size 200	200
Spring activated	F
Electrohydraulically released	E
Automatic adjustment to accommodate friction block wear	A
Thrustors 451 or 452 are available	451 452
Material: steel	ST

Example for ordering

Brake Caliper DT 200 FEA, thrustor 452, material: steel

DT 200 FEA - 452 - ST

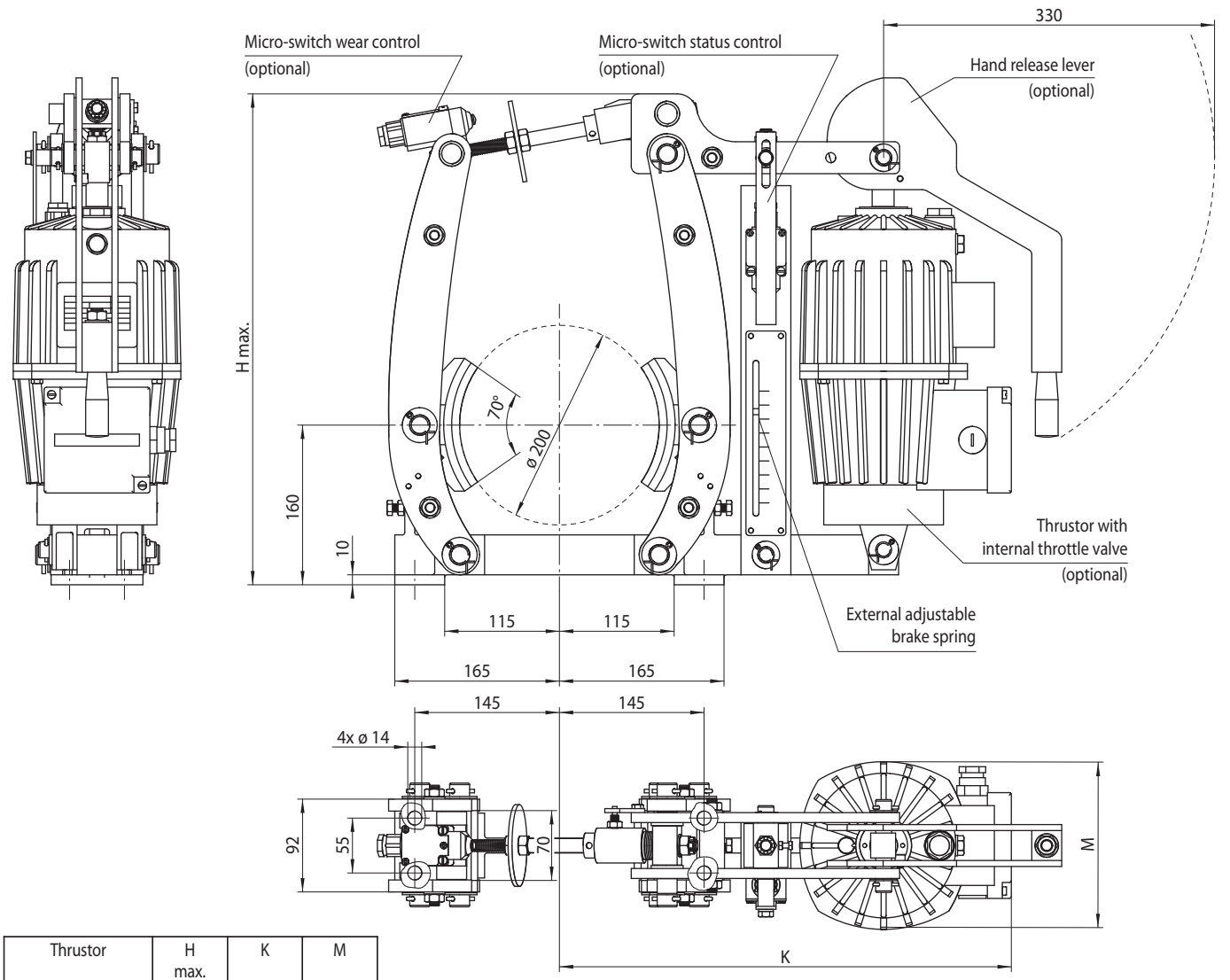
Technical Data

	Brake Caliper DT 200 FEA … ST	
	with thrustor 451	with thrustor 452
Brake drum diameter mm	Braking torque Nm	Braking torque Nm
200	250	330
Clamping force	3 125 N	4 125 N
Braking torque adjustable	20 - 100%	20 - 100%
Power input	130 W	180 W
Oil volume	1,3 L	2,5 L
Voltage	230/400 V	230/400 V
Weight	31 kg	36 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

Brake Caliper DT 200 FEA … ST

spring activated – electrohydraulically released
Drum Brake according to DIN 15 435



Thrustor	H max. mm	K mm	M mm
451	405	417	142
452	492	453	168

Options

- Micro-switch wear control
- Micro-switch status control
- Hand release lever
- Thrustor with internal throttle valve
- Thrustor in heat resistant design
- Corrosion protected design
- Wider brake shoes and brake drums

Brake Caliper DT 250 FEM … NC

spring activated – electrohydraulically released
Drum Brake according to DIN 15 435

RINGSPANN®

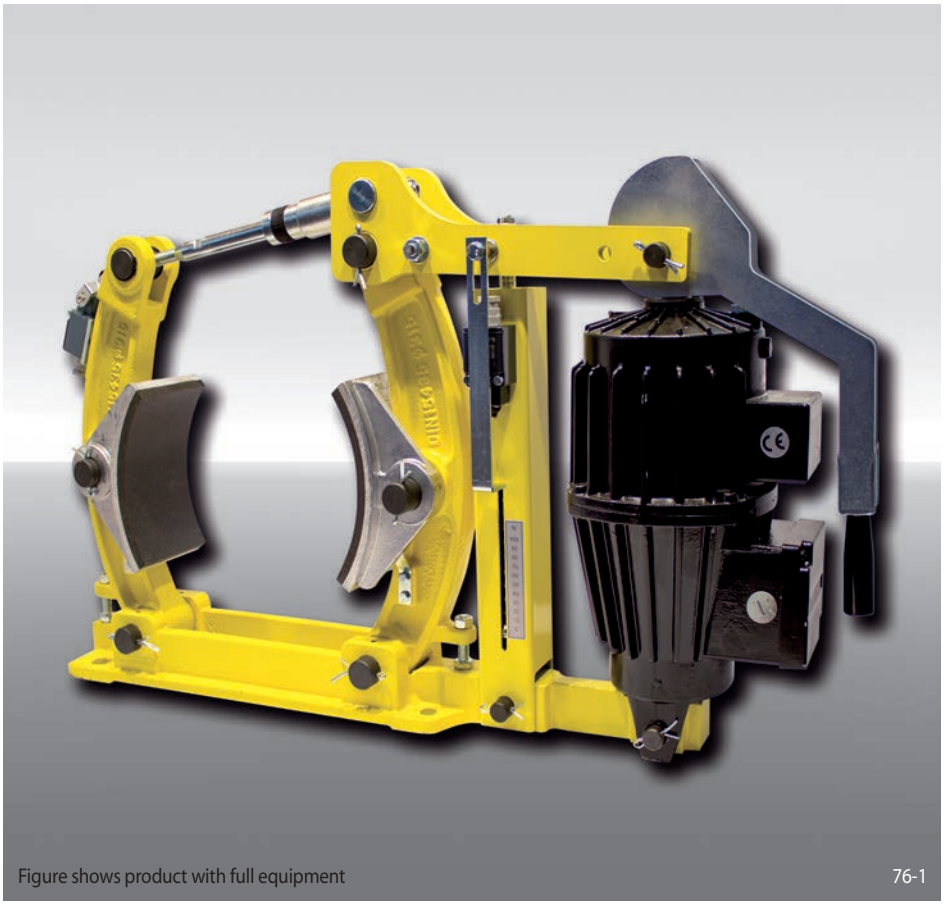


Figure shows product with full equipment 76-1

Features	Code
Brake Caliper	D
Drum Brake	T
Frame size 250	250
Spring activated	F
Electrohydraulically released	E
Manual adjustment to accommodate friction block wear	M
Thrustors 451, 452 or 453 are available	451 452 453
Material: cast	NC

Example for ordering

Brake Caliper DT 250 FEM, thrustor 452, material: cast

DT 250 FEM - 452 - NC

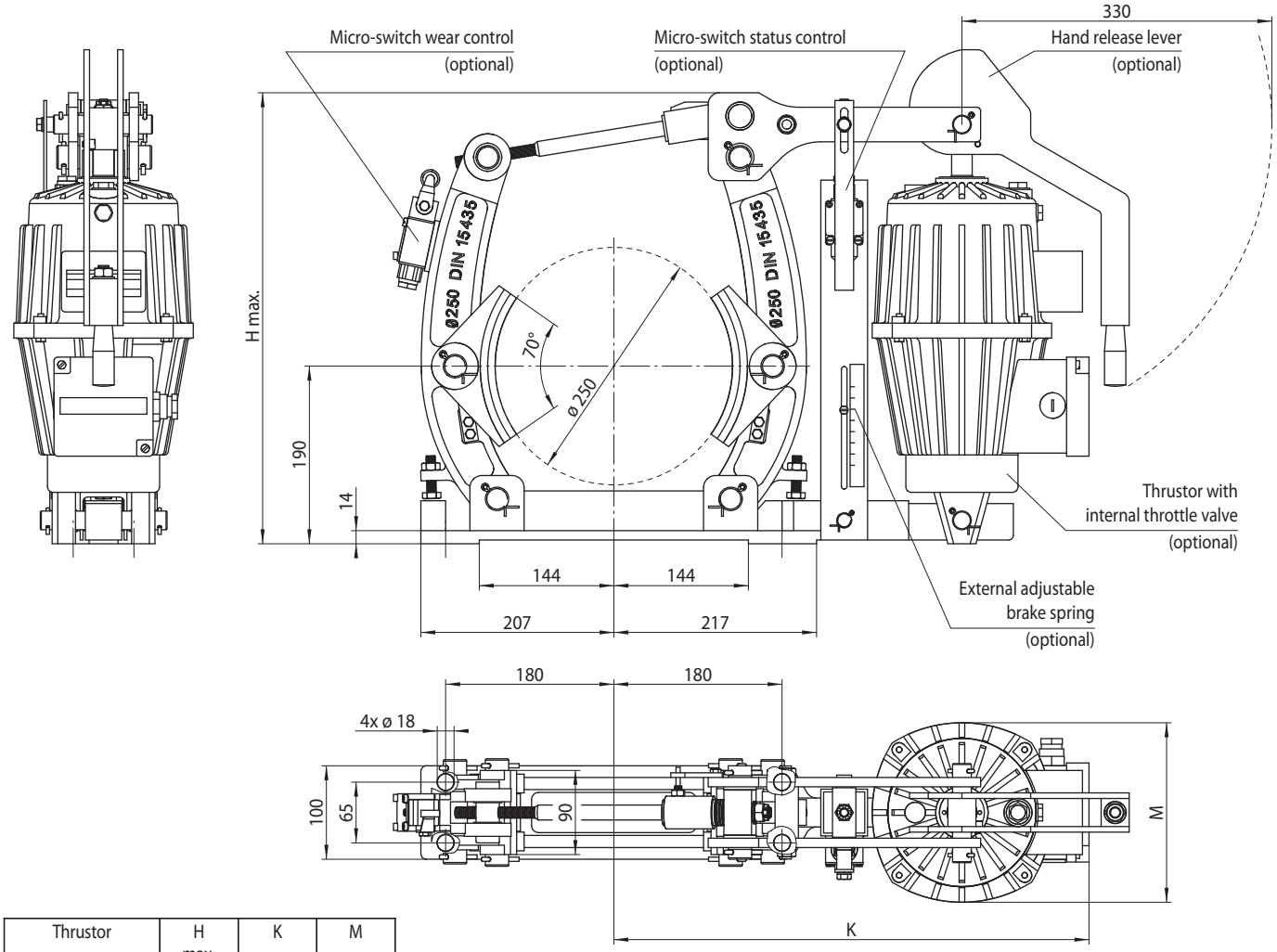
Technical Data

	Brake Caliper DT 250 FEM … NC		
	with thrustor 451	with thrustor 452	with thrustor 453
Brake drum diameter mm	Braking torque Nm	Braking torque Nm	Braking torque Nm
250	230	310	700
Clamping force	2600 N	3500 N	7000 N
Braking torque adjustable (optional)	20 - 100%	20 - 100%	20 - 100%
Power input	130 W	180 W	250 W
Oil volume	1,3 L	2,5 L	3,5 L
Voltage	230/400 V	230/400 V	230/400 V
Weight	38 kg	43 kg	45 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

Brake Caliper DT 250 FEM … NC

spring activated – electrohydraulically released
Drum Brake according to DIN 15 435



Thrustor	H max. mm	K mm	M mm
451	485	476	142
452	485	501	168
453	500	510	192

77-1

Options

- External adjustable brake spring
- Micro-switch wear control
- Micro-switch status control
- Hand release lever
- Thrustor with internal throttle valve
- Thrustor in heat resistant design
- Corrosion protected design
- Wider brake shoes and brake drums

Brake Caliper DT 250 FEA … NC

spring activated – electrohydraulically released
Drum Brake according to DIN 15 435

RINGSPANN®

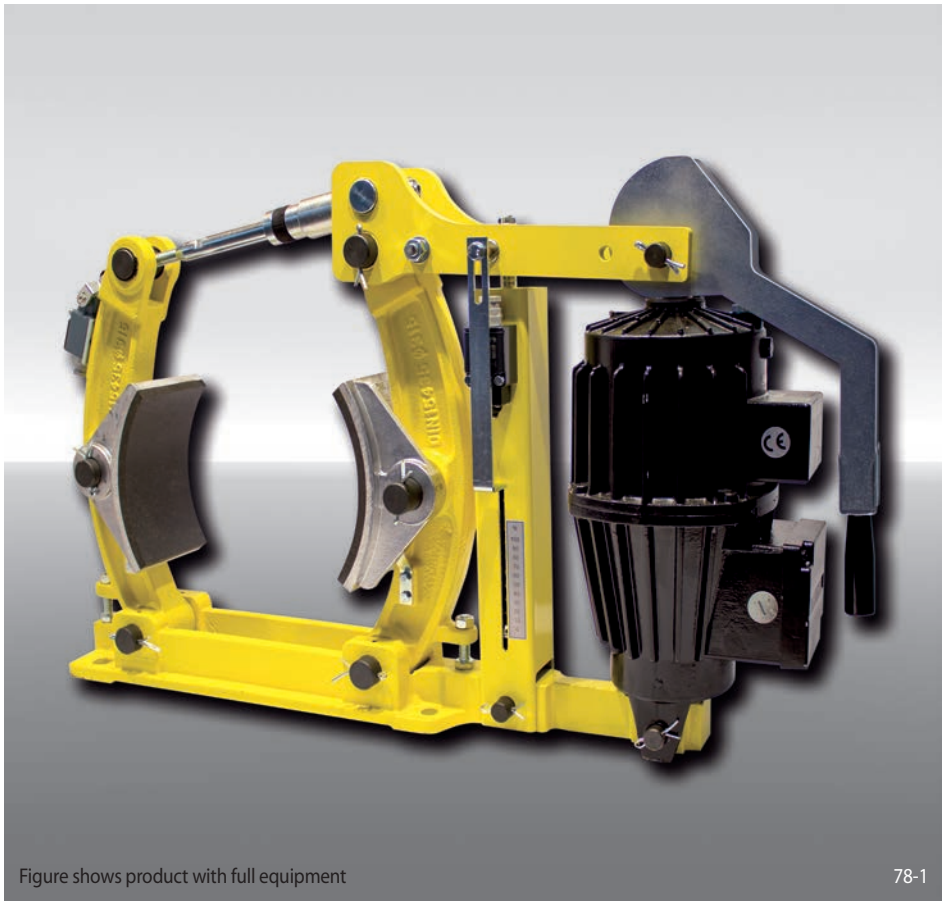


Figure shows product with full equipment 78-1

Features	Code
Brake Caliper	D
Drum Brake	T
Frame size 250	250
Spring activated	F
Electrohydraulically released	E
Automatic adjustment to accommodate friction block wear	A
Thrustors 451, 452 or 453 are available	451 452 453
Material: cast	NC

Example for ordering

Brake Caliper DT 250 FEA, thrustor 452, material: cast

DT 250 FEA - 452 - NC

Technical Data

	Brake Caliper DT 250 FEA … NC		
	with thrustor 451	with thrustor 452	with thrustor 453
Brake drum diameter mm	Braking torque Nm	Braking torque Nm	Braking torque Nm
250	230	310	700
Clamping force	2600 N	3500 N	7000 N
Braking torque adjustable (optional)	20 - 100%	20 - 100%	20 - 100%
Power input	130 W	180 W	250 W
Oil volume	1,3 L	2,5 L	3,5 L
Voltage	230/400 V	230/400 V	230/400 V
Weight	38 kg	43 kg	45 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

Brake Caliper DT 250 FEA … NC

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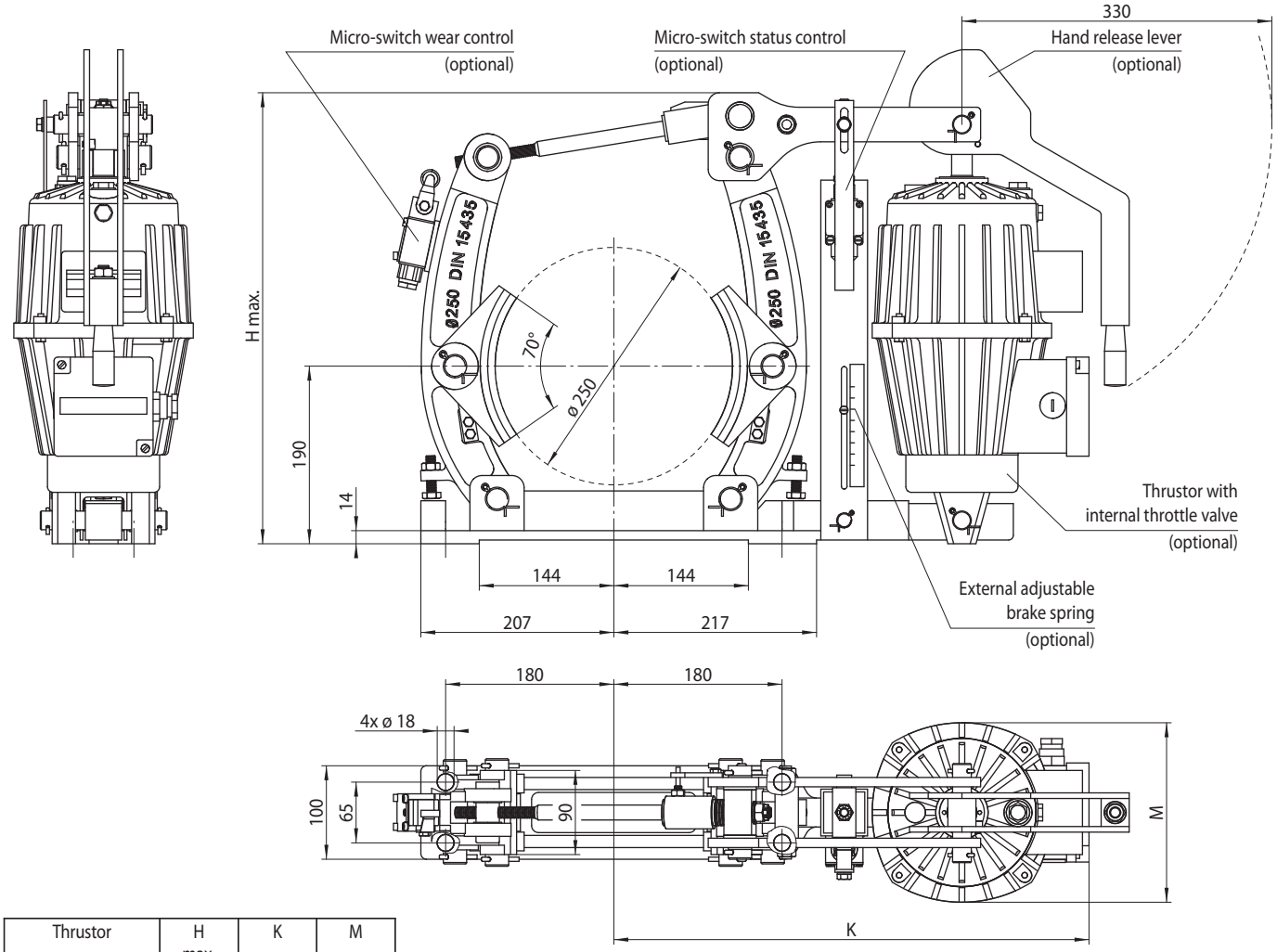
spring activated – electrohydraulically released
Drum Brake according to DIN 15 435



Thrustor	H max. mm	K mm	M mm
451	485	476	142
452	485	501	168
453	500	510	192

79-1

Options

- External adjustable brake spring
- Micro-switch wear control
- Micro-switch status control
- Hand release lever
- Thrustor with internal throttle valve
- Thrustor in heat resistant design
- Corrosion protected design
- Wider brake shoes and brake drums

Brake Caliper DT 250 FEA … ST

spring activated – electrohydraulically released
Drum Brake according to DIN 15 435

RINGSPANN®

Figure shows product with full equipment 80-1

Features

Features	Code
Brake Caliper	D
Drum Brake	T
Frame size 250	250
Spring activated	F
Electrohydraulically released	E
Automatic adjustment to accommodate friction block wear	A
Thrustors 451, 452 or 453 are available	451 452 453
Material: steel	ST

Example for ordering

Brake Caliper DT 250 FEA, thrustor 452, material: steel

DT 250 FEA - 452 - ST

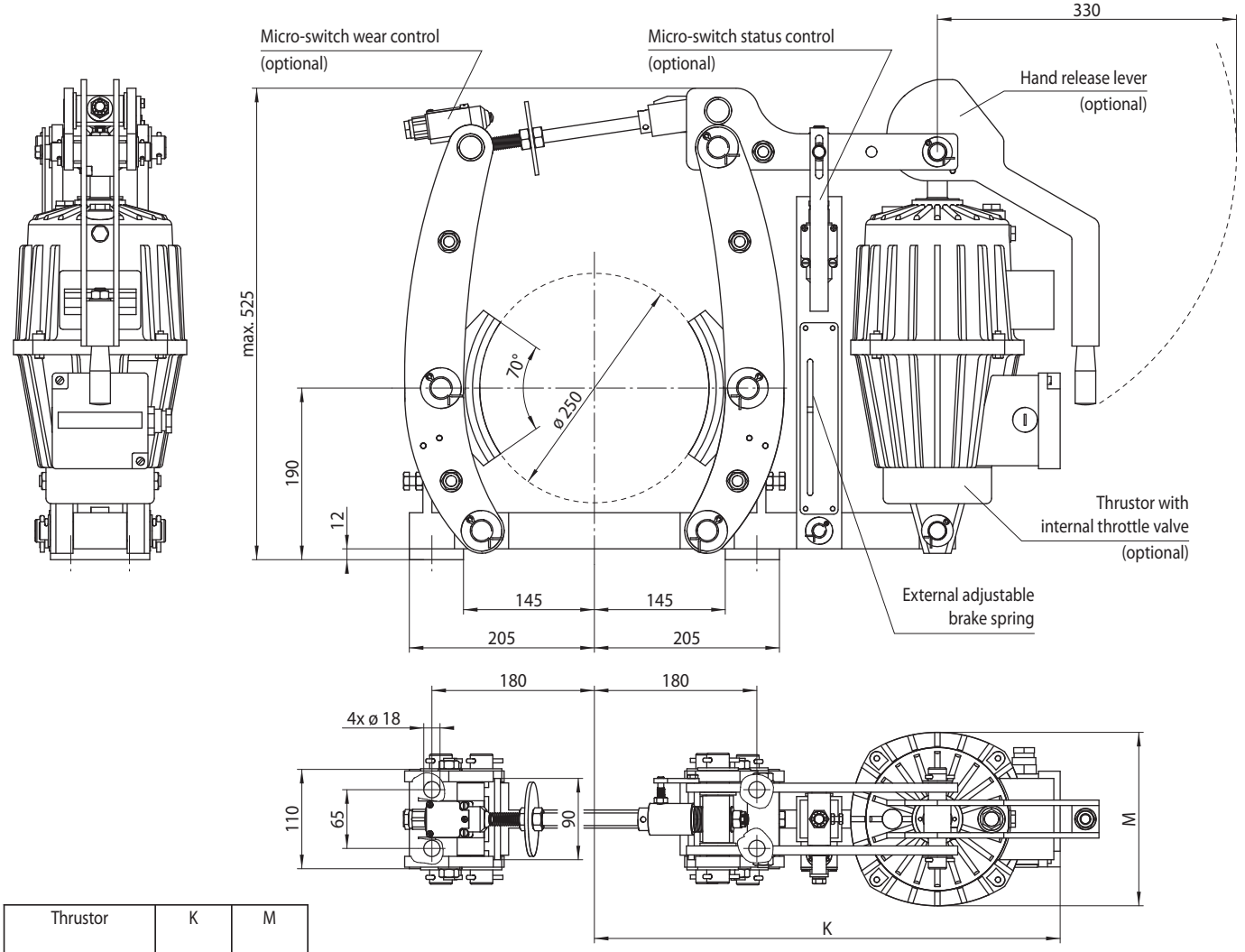
Technical Data

	Brake Caliper DT 250 FEA … ST		
	with thrustor 451	with thrustor 452	with thrustor 453
Brake drum diameter mm	Braking torque Nm	Braking torque Nm	Braking torque Nm
250	300	400	750
Clamping force	3 000 N	4 000 N	7 500 N
Braking torque adjustable	20 - 100%	20 - 100%	20 - 100%
Power input	130 W	180 W	250 W
Oil volume	1,3 L	2,5 L	3,5 L
Voltage	230/400 V	230/400 V	230/400 V
Weight	39 kg	44 kg	46 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

Brake Caliper DT 250 FEA … ST

spring activated – electrohydraulically released
Drum Brake according to DIN 15 435



Thrustor	K mm	M mm
451	483	142
452	508	168
453	516	192

Options

- Micro-switch wear control
- Micro-switch status control
- Hand release lever
- Thrustor with internal throttle valve
- Thrustor in heat resistant design
- Corrosion protected design
- Wider brake shoes and brake drums

Brake Caliper DT 315 FEM … NC

spring activated – electrohydraulically released
Drum Brake according to DIN 15 435

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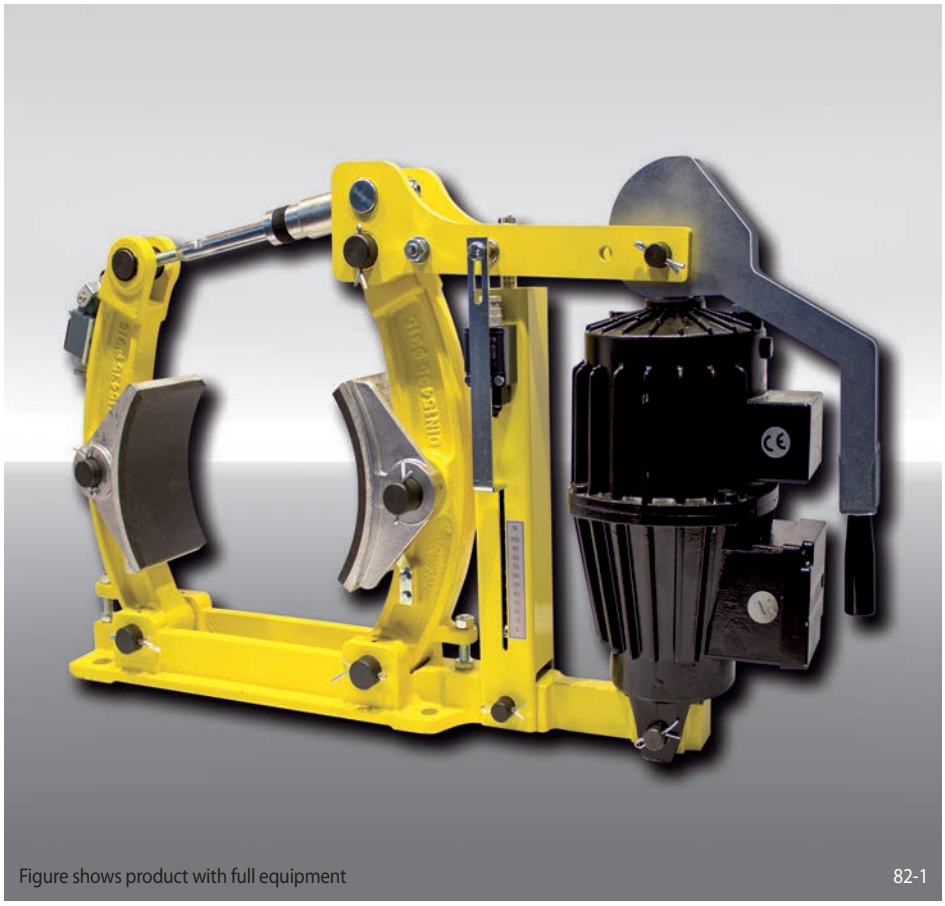


Figure shows product with full equipment 82-1

Features	Code
Brake Caliper	D
Drum Brake	T
Frame size 315	315
Spring activated	F
Electrohydraulically released	E
Manual adjustment to accommodate friction block wear	M
Thrustors 451, 452, 453, 454 or 455 are available	451 to 455
Material: cast	NC

Example for ordering

Brake Caliper DT 315 FEM, thrustor 453, material: cast

DT 315 FEM - 453 - NC

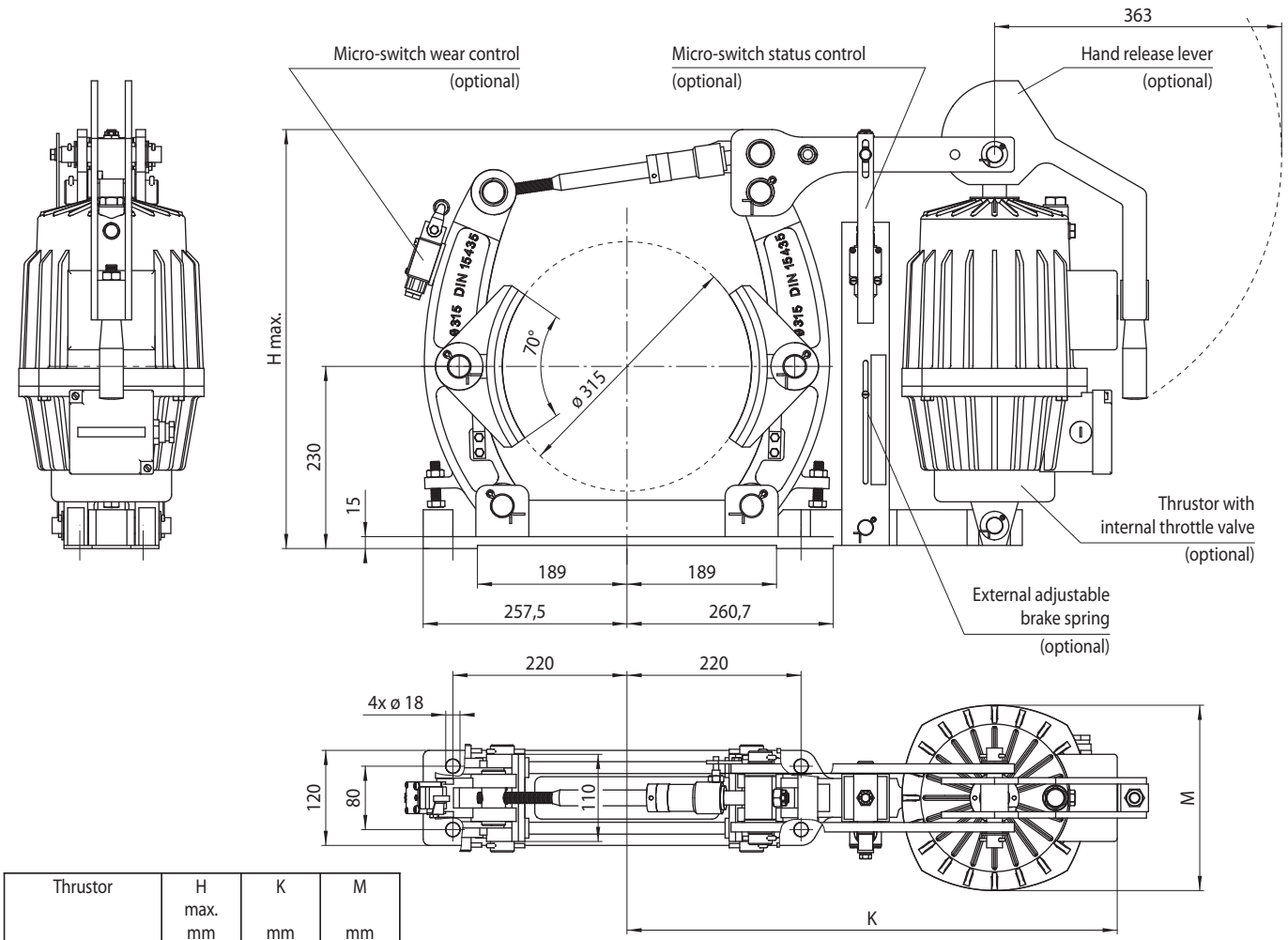
Technical Data

	Brake Caliper DT 315 FEM … NC				
	with thrustor 451	with thrustor 452	with thrustor 453	with thrustor 454	with thrustor 455
Brake drum diameter mm	Braking torque Nm	Braking torque Nm	Braking torque Nm	Braking torque Nm	Braking torque Nm
315	285	425	850	1 070	1 700
Clamping force	2 300 N	3 400 N	6 700 N	8 500 N	10 600 N
Braking torque adjustable (optional)	20 - 100%	20 - 100%	20 - 100%	20 - 100%	20 - 100%
Power input	130 W	180 W	250 W	280 W	350 W
Oil volume	1,3 L	2,5 L	3,5 L	3,5 L	4,5 L
Voltage	230/400 V	230/400 V	230/400 V	230/400 V	230/400 V
Weight	48 kg	53 kg	55 kg	55 kg	62 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

Brake Caliper DT 315 FEM … NC

spring activated – electrohydraulically released
Drum Brake according to DIN 15 435



Thrustor	H max. mm	K mm	M mm
451	532	536	174
452	532	593	168
453	532	601	192
454	532	601	192
455	565	618	234

83-1

Options

- External adjustable brake spring
- Micro-switch wear control
- Micro-switch status control
- Hand release lever
- Thrustor with internal throttle valve
- Thrustor in heat resistant design
- Corrosion protected design
- Wider brake shoes and brake drums

Brake Caliper DT 315 FEA … NC

spring activated – electrohydraulically released
Drum Brake according to DIN 15 435

RINGSPANN®

Figure shows product with full equipment 84-1

Features	Code
Brake Caliper	D
Drum Brake	T
Frame size 315	315
Spring activated	F
Electrohydraulically released	E
Automatic adjustment to accommodate friction block wear	A
Thrustors 451, 452, 453, 454 or 455 are available	451 to 455
Material: cast	NC

Example for ordering

Brake Caliper DT 315 FEA, thrustor 453, material: cast

DT 315 FEA - 453 - NC

Technical Data

	Brake Caliper DT 315 FEA … NC				
	with thrustor 451	with thrustor 452	with thrustor 453	with thrustor 454	with thrustor 455
Brake drum diameter mm	Braking torque Nm	Braking torque Nm	Braking torque Nm	Braking torque Nm	Braking torque Nm
315	285	425	850	1 070	1 700
Clamping force	2 300 N	3 400 N	6 700 N	8 500 N	10 600 N
Braking torque adjustable (optional)	20 - 100%	20 - 100%	20 - 100%	20 - 100%	20 - 100%
Power input	130 W	180 W	250 W	280 W	350 W
Oil volume	1,3 L	2,5 L	3,5 L	3,5 L	4,5 L
Voltage	230/400 V	230/400 V	230/400 V	230/400 V	230/400 V
Weight	48 kg	53 kg	55 kg	55 kg	62 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

Brake Caliper DT 315 FEA … NC

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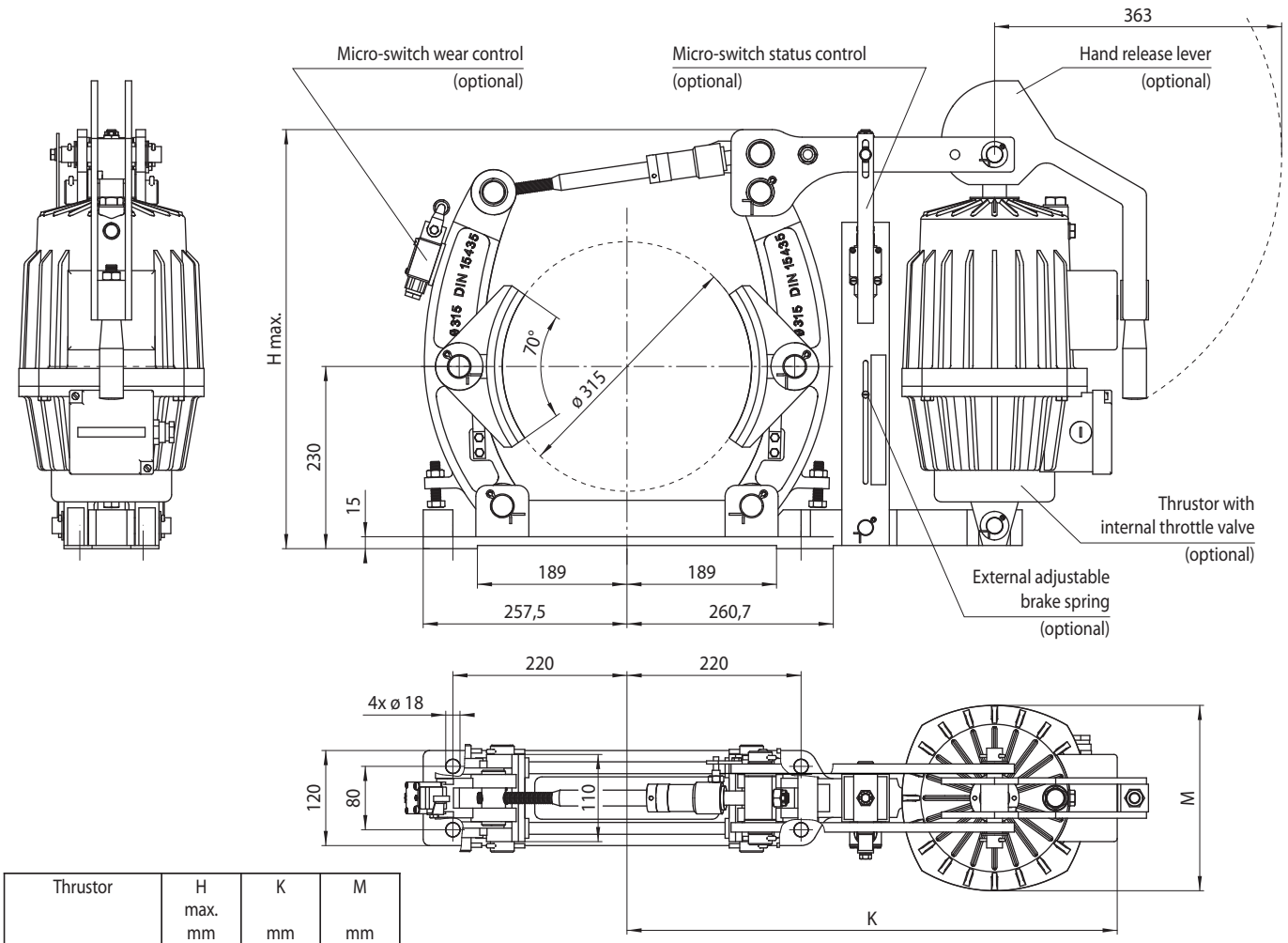
spring activated – electrohydraulically released
Drum Brake according to DIN 15 435



Thrustor	H max. mm	K mm	M mm
451	532	536	174
452	532	593	168
453	532	601	192
454	532	601	192
455	565	618	234

Options

- External adjustable brake spring
- Micro-switch wear control
- Micro-switch status control
- Hand release lever
- Thrustor with internal throttle valve
- Thrustor in heat resistant design
- Corrosion protected design
- Wider brake shoes and brake drums

Brake Caliper DT 315 FEA … ST

spring activated – electrohydraulically released
Drum Brake according to DIN 15 435

RINGSPANN®

Figure shows product with full equipment 86-1

Features	Code
Brake Caliper	D
Drum Brake	T
Frame size 315	315
Spring activated	F
Electrohydraulically released	E
Automatic adjustment to accommodate friction block wear	A
Thrustors 451, 452, 453, 454 or 455 are available	451 to 455
Material: steel	ST

Example for ordering

Brake Caliper DT 315 FEA, thrustor 453, material: steel

DT 315 FEA - 453 - ST

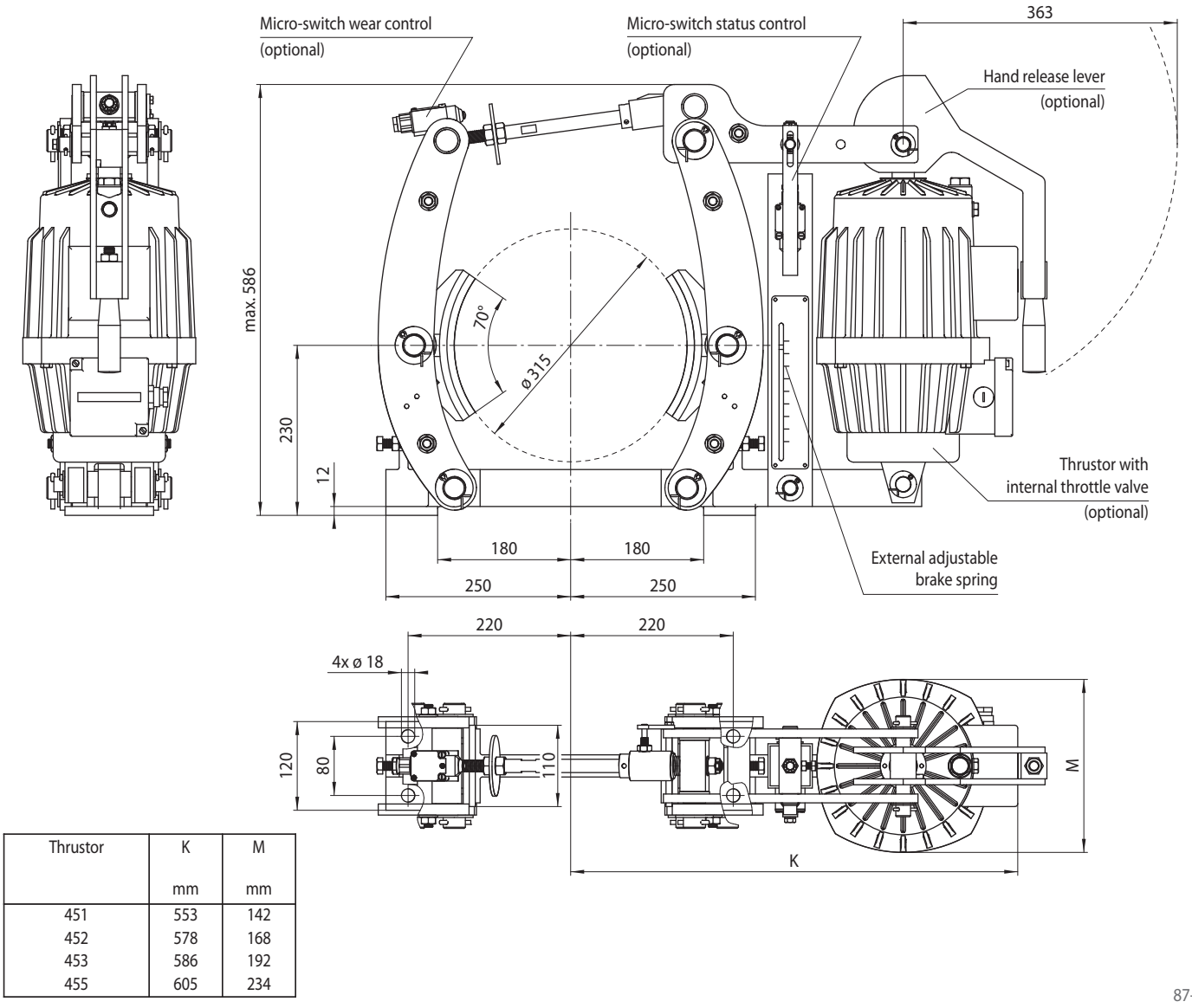
Technical Data

	Brake Caliper DT 315 FEA … ST			
	with thrustor 451	with thrustor 452	with thrustor 453	with thrustor 455
Brake drum diameter mm	Braking torque Nm	Braking torque Nm	Braking torque Nm	Braking torque Nm
315	350	480	950	1800
Clamping force	2800 N	3800 N	7500 N	14300 N
Braking torque adjustable	20 - 100%	20 - 100%	20 - 100%	20 - 100%
Power input	130 W	180 W	250 W	350 W
Oil volume	1,3 L	2,5 L	3,5 L	4,5 L
Voltage	230/400 V	230/400 V	230/400 V	230/400 V
Weight	55 kg	60 kg	62 kg	69 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

Brake Caliper DT 315 FEA … ST

spring activated – electrohydraulically released
Drum Brake according to DIN 15 435



Thrustor	K mm	M mm
451	553	142
452	578	168
453	586	192
455	605	234

87-1

Options

- Micro-switch wear control
- Micro-switch status control
- Hand release lever
- Thrustor with internal throttle valve
- Thrustor in heat resistant design
- Corrosion protected design
- Wider brake shoes and brake drums

Brake Caliper DT 400 FEM … NC

spring activated – electrohydraulically released
Drum Brake according to DIN 15 435

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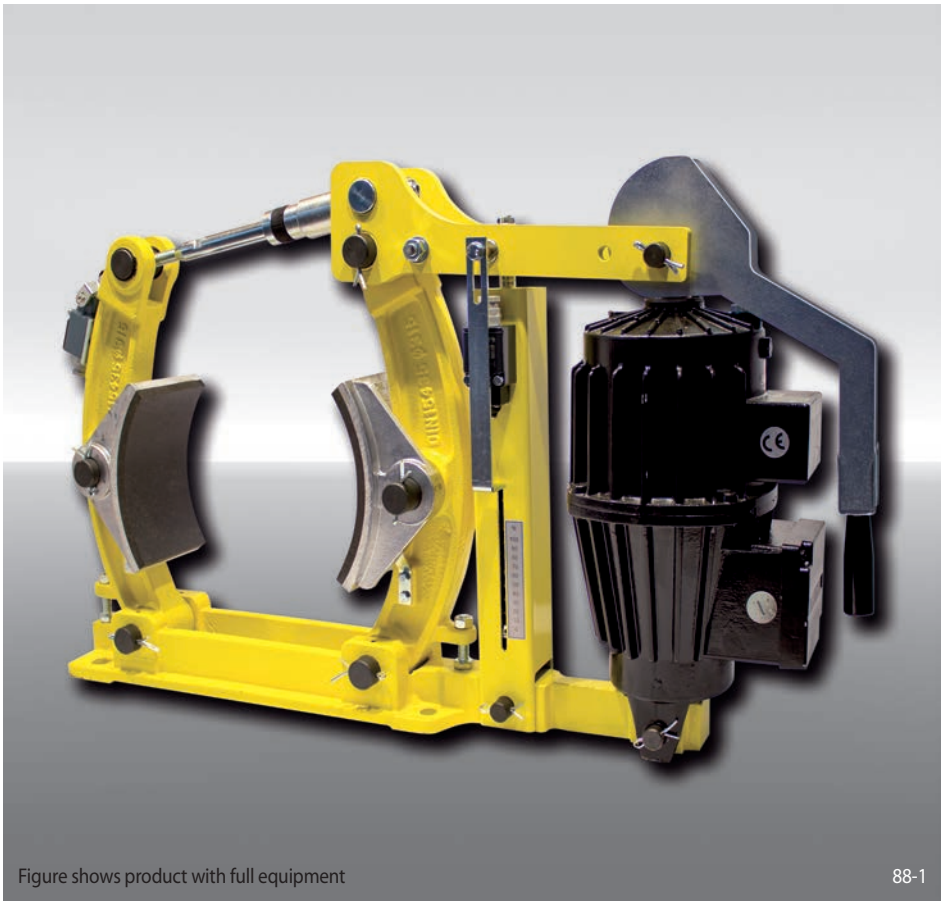

Figure shows product with full equipment 88-1

Features	Code
Brake Caliper	D
Drum Brake	T
Frame size 400	400
Spring activated	F
Electrohydraulically released	E
Manual adjustment to accommodate friction block wear	M
Thrustors 452, 453, 454 or 455 are available	452 to 455
Material: cast	NC

Example for ordering

Brake Caliper DT 400 FEM, thrustor 453, material: cast

DT 400 FEM - 453 - NC

Technical Data

	Brake Caliper DT 400 FEM … NC			
	with thrustor 452	with thrustor 453	with thrustor 454	with thrustor 455
Brake drum diameter mm	Braking torque Nm	Braking torque Nm	Braking torque Nm	Braking torque Nm
400	525	1040	1300	2075
Clamping force	3300 N	6500 N	8100 N	13000 N
Braking torque adjustable (optional)	20 - 100%	20 - 100%	20 - 100%	20 - 100%
Power input	180 W	250 W	280 W	350 W
Oil volume	2,5 L	3,5 L	3,5 L	4,5 L
Voltage	230/400 V	230/400 V	230/400 V	230/400 V
Weight	79 kg	81 kg	81 kg	88 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

Brake Caliper DT 400 FEM … NC

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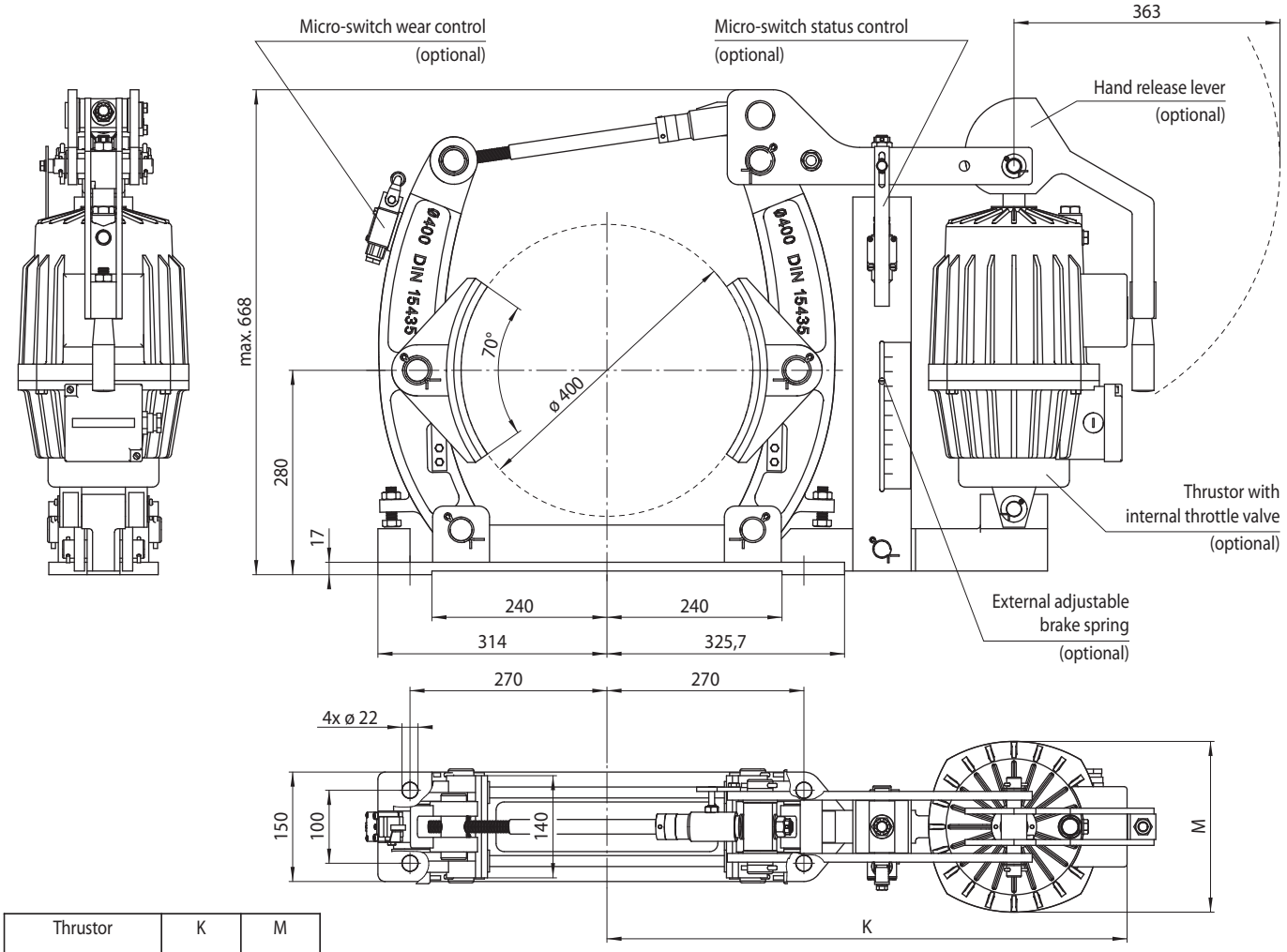
spring activated – electrohydraulically released
Drum Brake according to DIN 15 435



Thrustor	K mm	M mm
452	687	168
453	695	192
454	695	192
455	715	234

89-1

Options

- External adjustable brake spring
- Micro-switch wear control
- Micro-switch status control
- Hand release lever
- Thrustor with internal throttle valve
- Thrustor in heat resistant design
- Corrosion protected design
- Wider brake shoes and brake drums

Brake Caliper DT 400 FEA … NC

spring activated – electrohydraulically released
Drum Brake according to DIN 15 435

RINGSPANN®

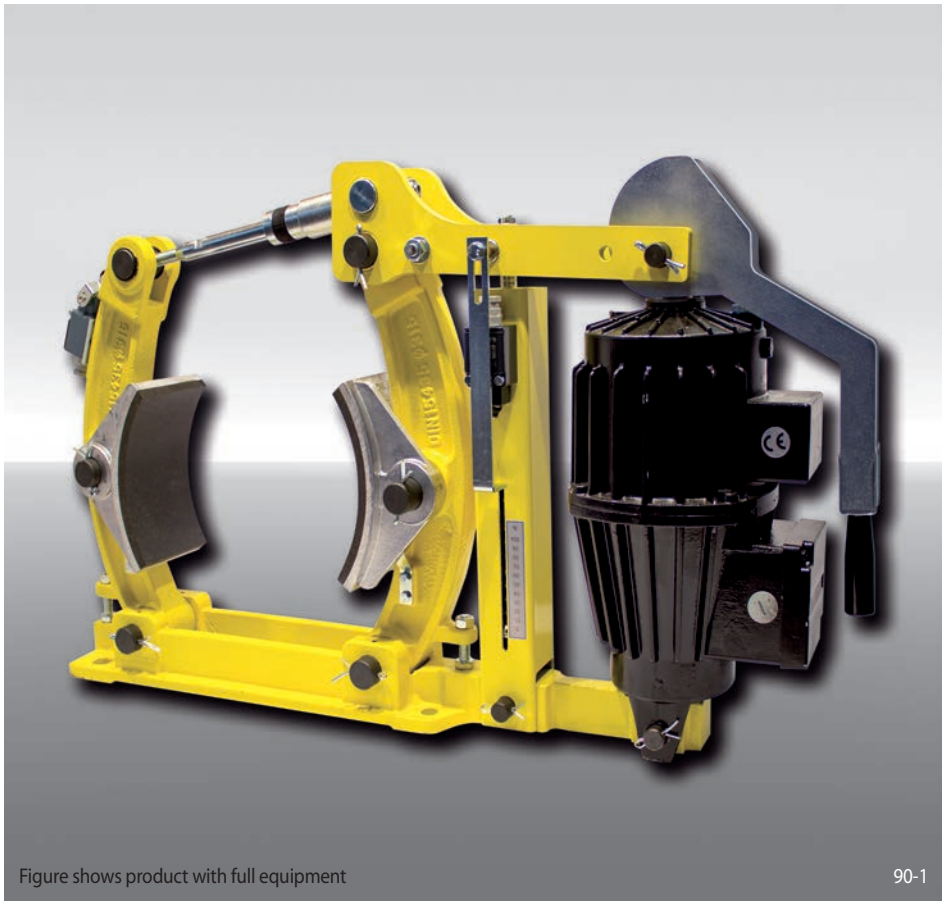


Figure shows product with full equipment 90-1

Features

Features	Code
Brake Caliper	D
Drum Brake	T
Frame size 400	400
Spring activated	F
Electrohydraulically released	E
Automatic adjustment to accommodate friction block wear	A
Thrustors 452, 453, 454 or 455 are available	452 to 455
Material: cast	NC

Example for ordering

Brake Caliper DT 400 FEA, thrustor 453, material: cast

DT 400 FEA - 453 - NC

Technical Data

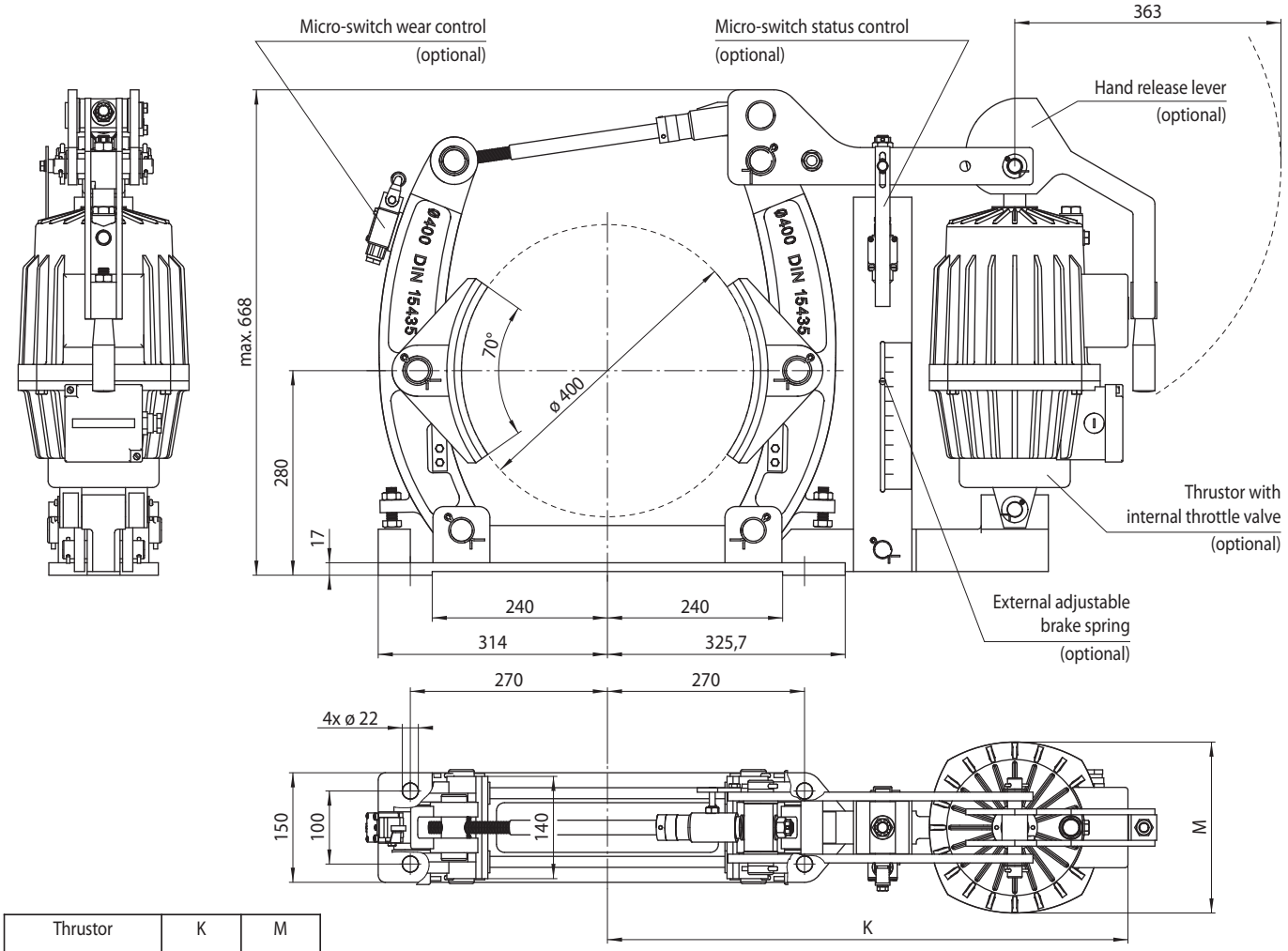
	Brake Caliper DT 400 FEA … NC			
	with thrustor 452	with thrustor 453	with thrustor 454	with thrustor 455
Brake drum diameter mm	Braking torque Nm	Braking torque Nm	Braking torque Nm	Braking torque Nm
400	525	1040	1300	2075
Clamping force	3300 N	6500 N	8100 N	13000 N
Braking torque adjustable (optional)	20 - 100%	20 - 100%	20 - 100%	20 - 100%
Power input	180 W	250 W	280 W	350 W
Oil volume	2,5 L	3,5 L	3,5 L	4,5 L
Voltage	230/400 V	230/400 V	230/400 V	230/400 V
Weight	79 kg	81 kg	81 kg	88 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

Brake Caliper DT 400 FEA … NC

RINGSPANN®

spring activated – electrohydraulically released
Drum Brake according to DIN 15 435



Thrustor	K mm	M mm
452	687	168
453	695	192
454	695	192
455	715	234

91-1

Options

- External adjustable brake spring
- Micro-switch wear control
- Micro-switch status control
- Hand release lever
- Thrustor with internal throttle valve
- Thrustor in heat resistant design
- Corrosion protected design
- Wider brake shoes and brake drums

Brake Caliper DT 400 FEA … ST

spring activated – electrohydraulically released
Drum Brake according to DIN 15 435

RINGSPANN®

Figure shows product with full equipment 92-1

Features	Code
Brake Caliper	D
Drum Brake	T
Frame size 400	400
Spring activated	F
Electrohydraulically released	E
Automatic adjustment to accommodate friction block wear	A
Thrustors 452, 453 or 455 are available	452 453 455
Material: steel	ST

Example for ordering

Brake Caliper DT 400 FEA, thrustor 453, material: steel

DT 400 FEA - 453 - ST

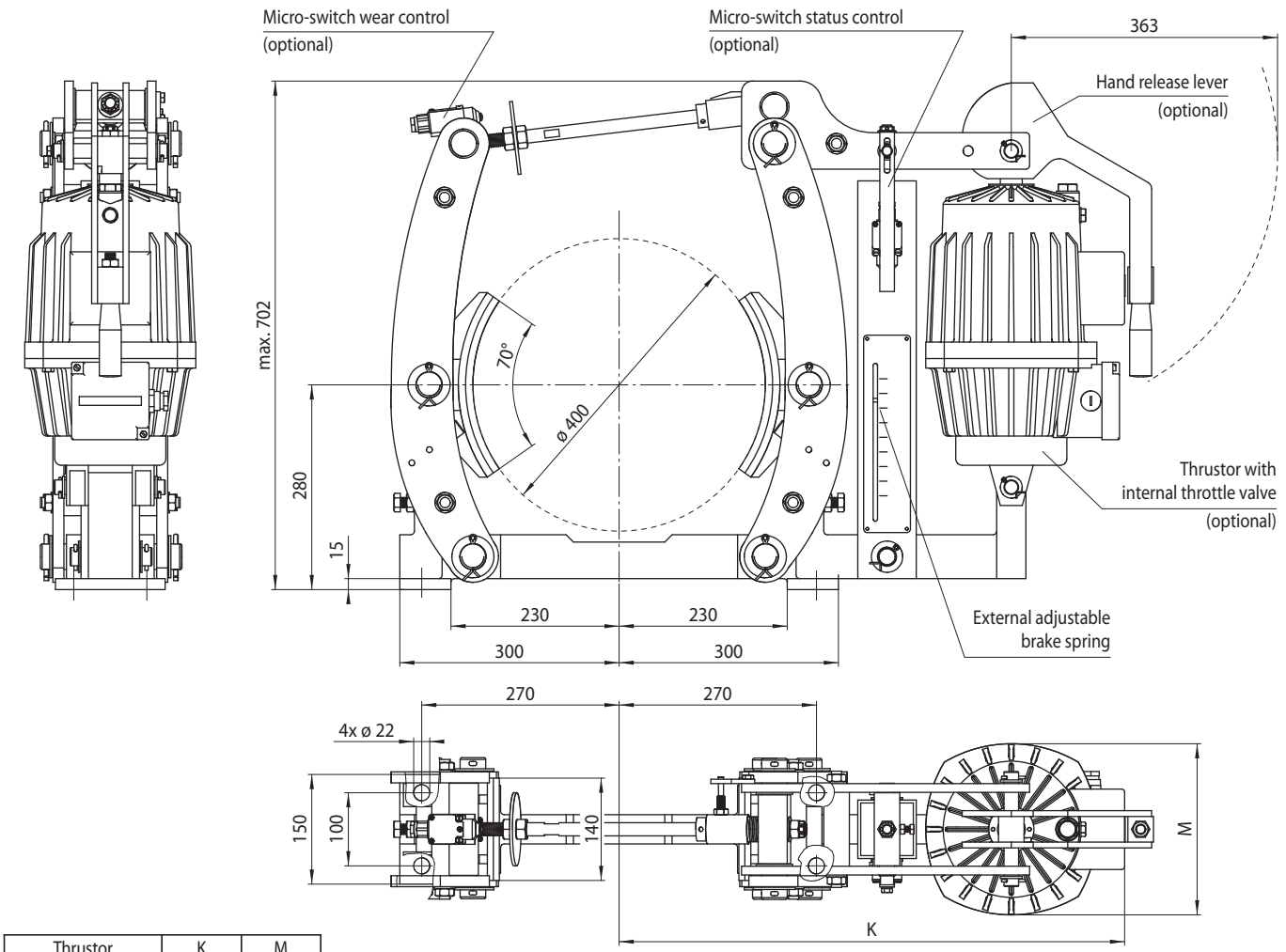
Technical Data

	Brake Caliper DT 400 FEA … ST		
	with thrustor 452	with thrustor 453	with thrustor 455
Brake drum diameter mm	Braking torque Nm	Braking torque Nm	Braking torque Nm
400	680	1 300	2 500
Clamping force	4 200 N	8 100 N	15 600 N
Braking torque adjustable	20 - 100%	20 - 100%	20 - 100%
Power input	180 W	250 W	350 W
Oil volume	2,5 L	3,5 L	4,5 L
Voltage	230/400 V	230/400 V	230/400 V
Weight	97 kg	99 kg	106 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

Brake Caliper DT 400 FEA … ST

spring activated – electrohydraulically released
Drum Brake according to DIN 15 435



Thrustor	K mm	M mm
452	665	168
453	673	192
455	692	234

93-1

Options

- Micro-switch wear control
- Micro-switch status control
- Hand release lever
- Thrustor with internal throttle valve
- Thrustor in heat resistant design
- Corrosion protected design
- Wider brake shoes and brake drums

Brake Caliper DT 500 FEM … NC

spring activated – electrohydraulically released
Drum Brake according to DIN 15 435

RINGSPANN®

Figure shows product with full equipment 94-1

Features	Code
Brake Caliper	D
Drum Brake	T
Frame size 500	500
Spring activated	F
Electrohydraulically released	E
Manual adjustment to accommodate friction block wear	M
Thrustors 455 or 456 are available	455 456
Material: cast	NC

Example for ordering

Brake Caliper DT 500 FEM, thrustor 456, material: cast

DT 500 FEM - 456 - NC

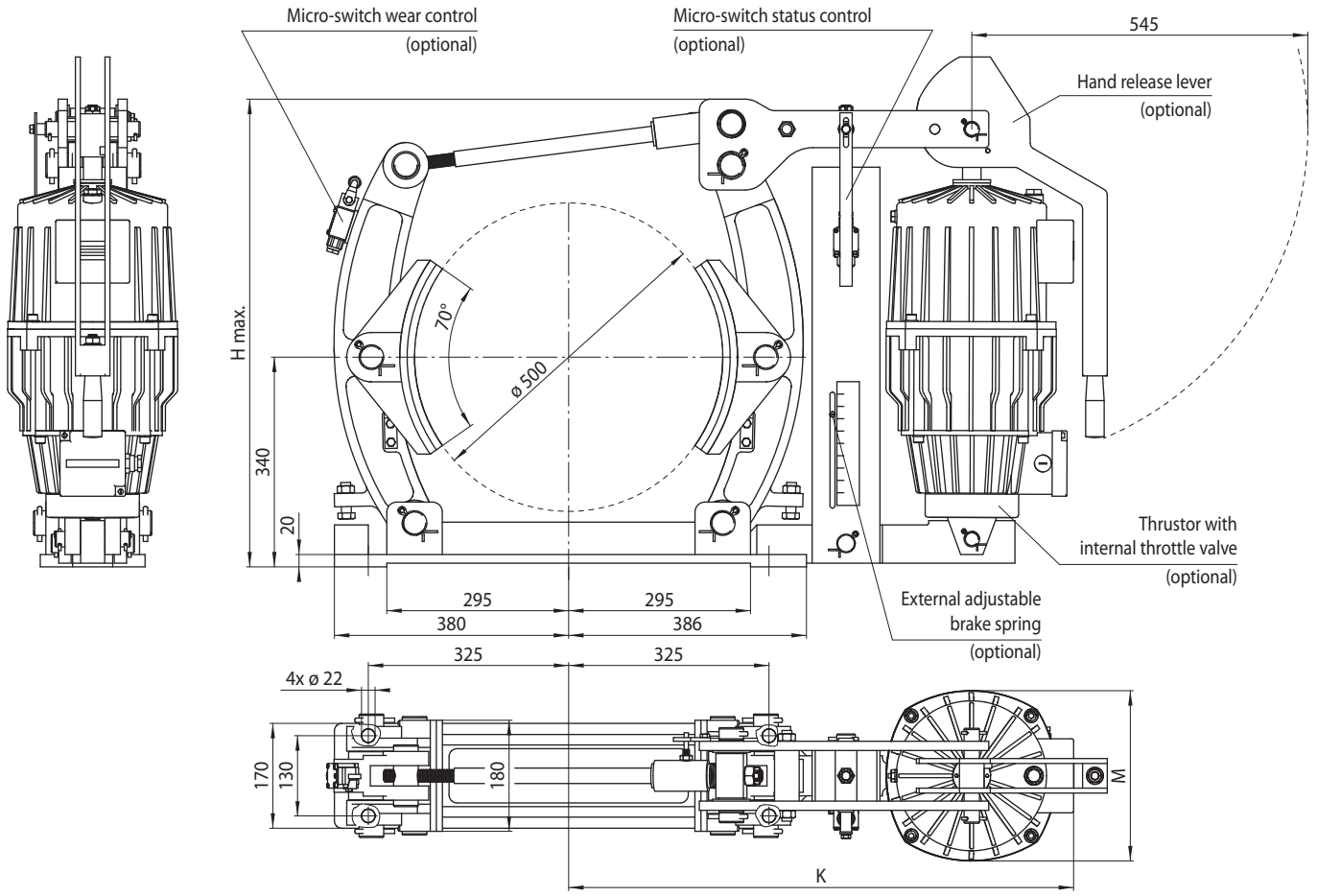
Technical Data

	Brake Caliper DT 500 FEM … NC	
	with thrustor 455	with thrustor 456
Brake drum diameter mm	Braking torque Nm	Braking torque Nm
500	2500	4170
Clamping force	12500 N	20800 N
Braking torque adjustable (optional)	20 - 100%	20 - 100%
Power input	350 W	750 W
Oil volume	4,5 L	11 L
Voltage	230/400 V	230/400 V
Weight	130 kg	153 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

Brake Caliper DT 500 FEM … NC

spring activated – electrohydraulically released
Drum Brake according to DIN 15 435



Thrustor	H max. mm	K mm	M mm
455	760	812	234
456	785	823	274

95-1

Options

- External adjustable brake spring
- Micro-switch wear control
- Micro-switch status control
- Hand release lever
- Thrustor with internal throttle valve
- Thrustor in heat resistant design
- Corrosion protected design
- Wider brake shoes and brake drums

Brake Caliper DT 500 FEA … NC

spring activated – electrohydraulically released
Drum Brake according to DIN 15 435

RINGSPANN®

Figure shows product with full equipment 96-1

Features	Code
Brake Caliper	D
Drum Brake	T
Frame size 500	500
Spring activated	F
Electrohydraulically released	E
Automatic adjustment to accommodate friction block wear	A
Thrustors 455 or 456 are available	455 456
Material: cast	NC

Example for ordering

Brake Caliper DT 500 FEA, thrustor 456, material: cast

DT 500 FEA - 456 - NC

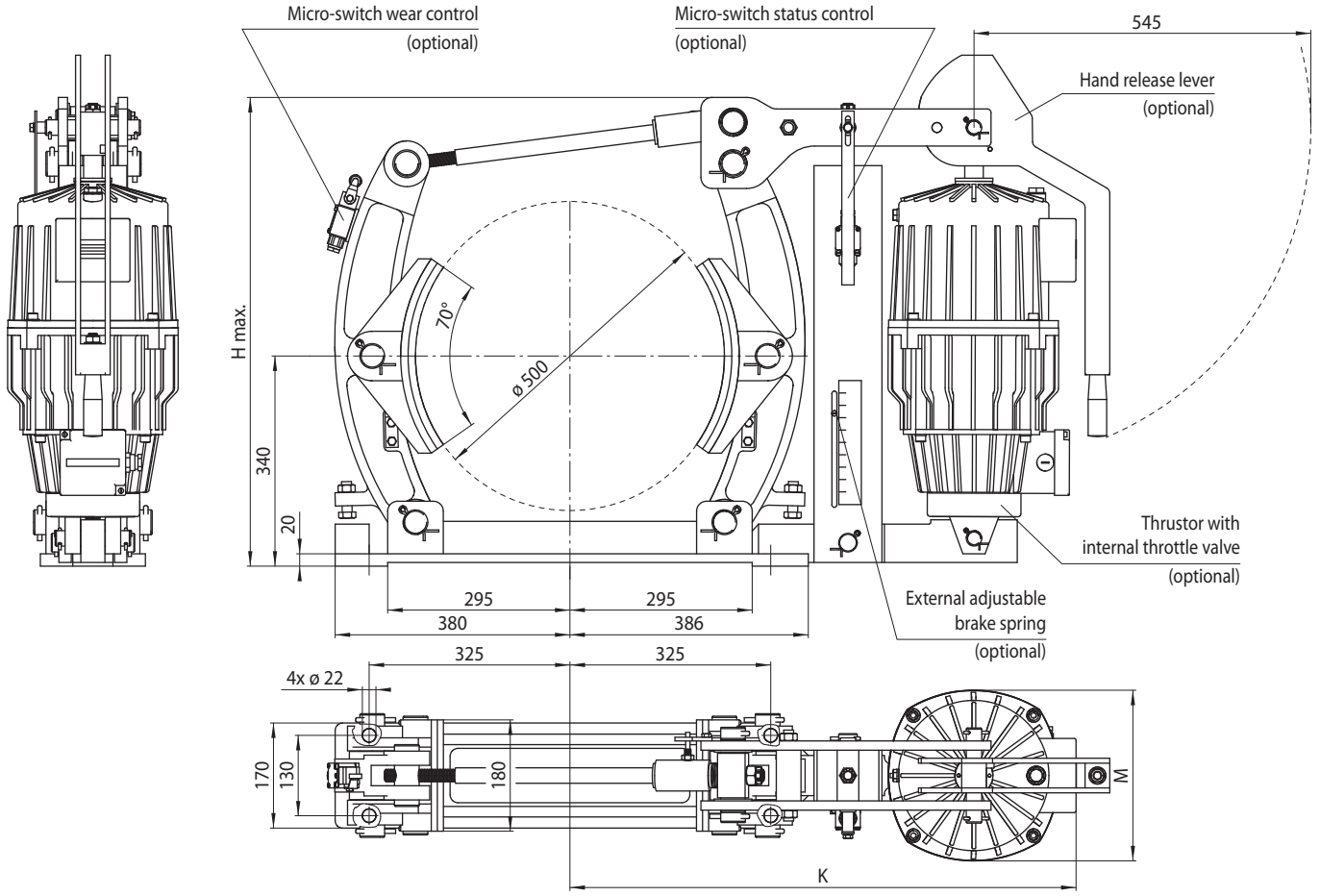
Technical Data

	Brake Caliper DT 500 FEA … NC	
	with thrustor 455	with thrustor 456
Brake drum diameter mm	Braking torque Nm	Braking torque Nm
500	2500	4170
Clamping force	12500 N	20800 N
Braking torque adjustable (optional)	20 - 100%	20 - 100%
Power input	350 W	750 W
Oil volume	4,5 L	11 L
Voltage	230/400 V	230/400 V
Weight	130 kg	153 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

Brake Caliper DT 500 FEA … NC

spring activated – electrohydraulically released
Drum Brake according to DIN 15 435



Thrustor	H max. mm	K mm	M mm
455	760	812	234
456	785	823	274

97-1

Options

- External adjustable brake spring
- Micro-switch wear control
- Micro-switch status control
- Hand release lever
- Thrustor with internal throttle valve
- Thrustor in heat resistant design
- Corrosion protected design
- Wider brake shoes and brake drums

Brake Caliper DT 500 FEA … ST

spring activated – electrohydraulically released
Drum Brake according to DIN 15 435

RINGSPANN®

Figure shows product with full equipment 98-1

Features	Code
Brake Caliper	D
Drum Brake	T
Frame size 500	500
Spring activated	F
Electrohydraulically released	E
Automatic adjustment to accommodate friction block wear	A
Thrustors 453, 455 or 456 are available	453 455 456
Material: steel	ST

Example for ordering

Brake Caliper DT 500 FEA, thrustor 456, material: steel

DT 500 FEA - 456 - ST

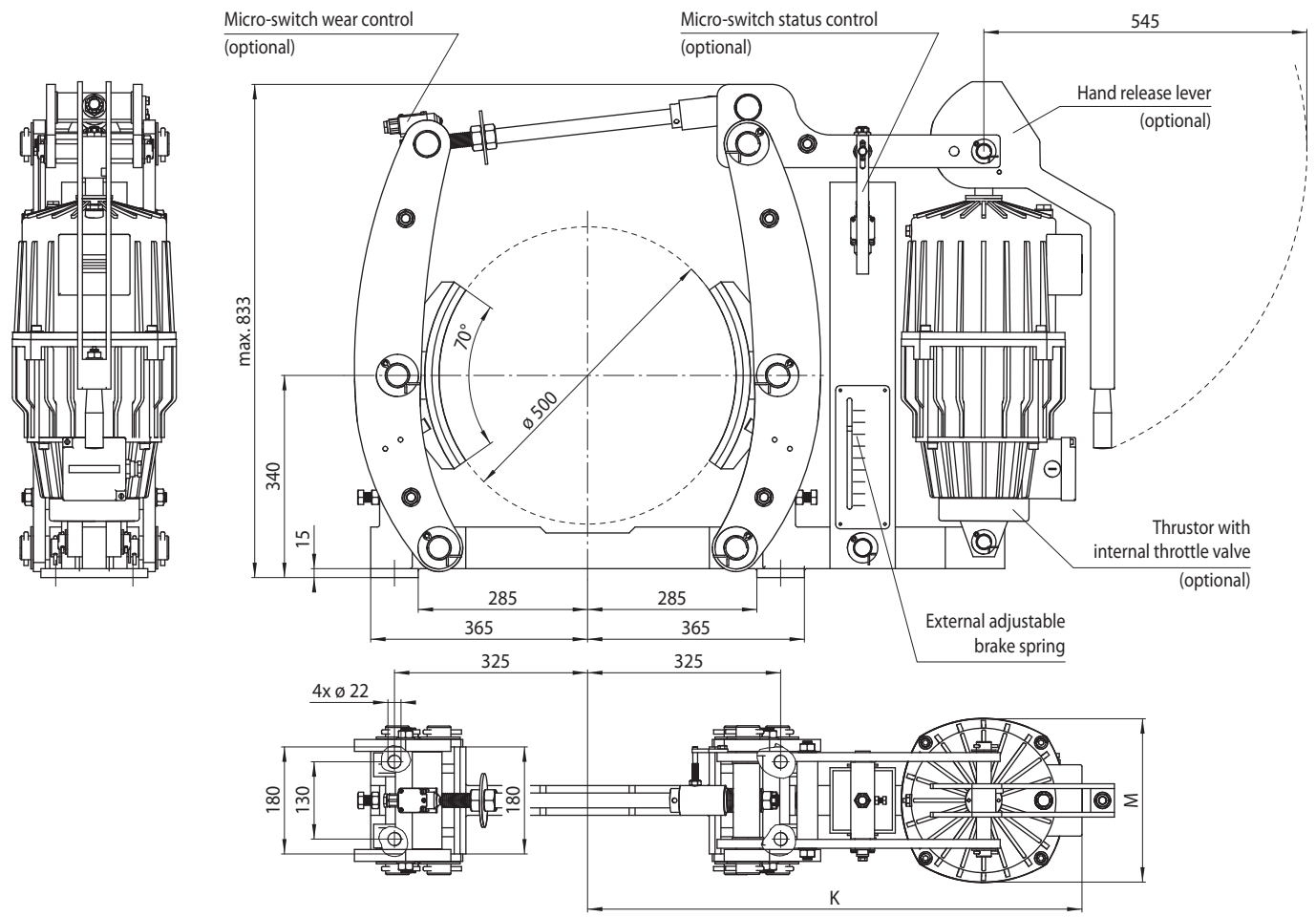
Technical Data

	Brake Caliper DT 500 FEA … ST		
	with thrustor 453	with thrustor 455	with thrustor 456
Brake drum diameter mm	Braking torque Nm	Braking torque Nm	Braking torque Nm
500	1 600	3 100	5 120
Clamping force	8 000 N	15 500 N	25 600 N
Braking torque adjustable	20 - 100%	20 - 100%	20 - 100%
Power input	250 W	350 W	750 W
Oil volume	3,5 L	4,5 L	11 L
Voltage	230/400 V	230/400 V	230/400 V
Weight	164 kg	171 kg	194 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

Brake Caliper DT 500 FEA … ST

spring activated – electrohydraulically released
Drum Brake according to DIN 15 435



Thrustor	K mm	M mm
453	803	192
455	822	234
456	833	274

99-1

Options

- Micro-switch wear control
- Micro-switch status control
- Hand release lever
- Thrustor with internal throttle valve
- Thrustor in heat resistant design
- Corrosion protected design
- Wider brake shoes and brake drums

Brake Caliper DT 630 FEA … ST

spring activated – electrohydraulically released
Drum Brake according to DIN 15 435

RINGSPANN®

Figure shows product with full equipment 100-1

Features	Code
Brake Caliper	D
Drum Brake	T
Frame size 630	630
Spring activated	F
Electrohydraulically released	E
Automatic adjustment to accommodate friction block wear	A
Thrustors 455, 456 or 457 are available	455 456 457
Material: steel	ST

Example for ordering

Brake Caliper DT 630 FEA, thrustor 457, material: steel

DT 630 FEA - 457 - ST

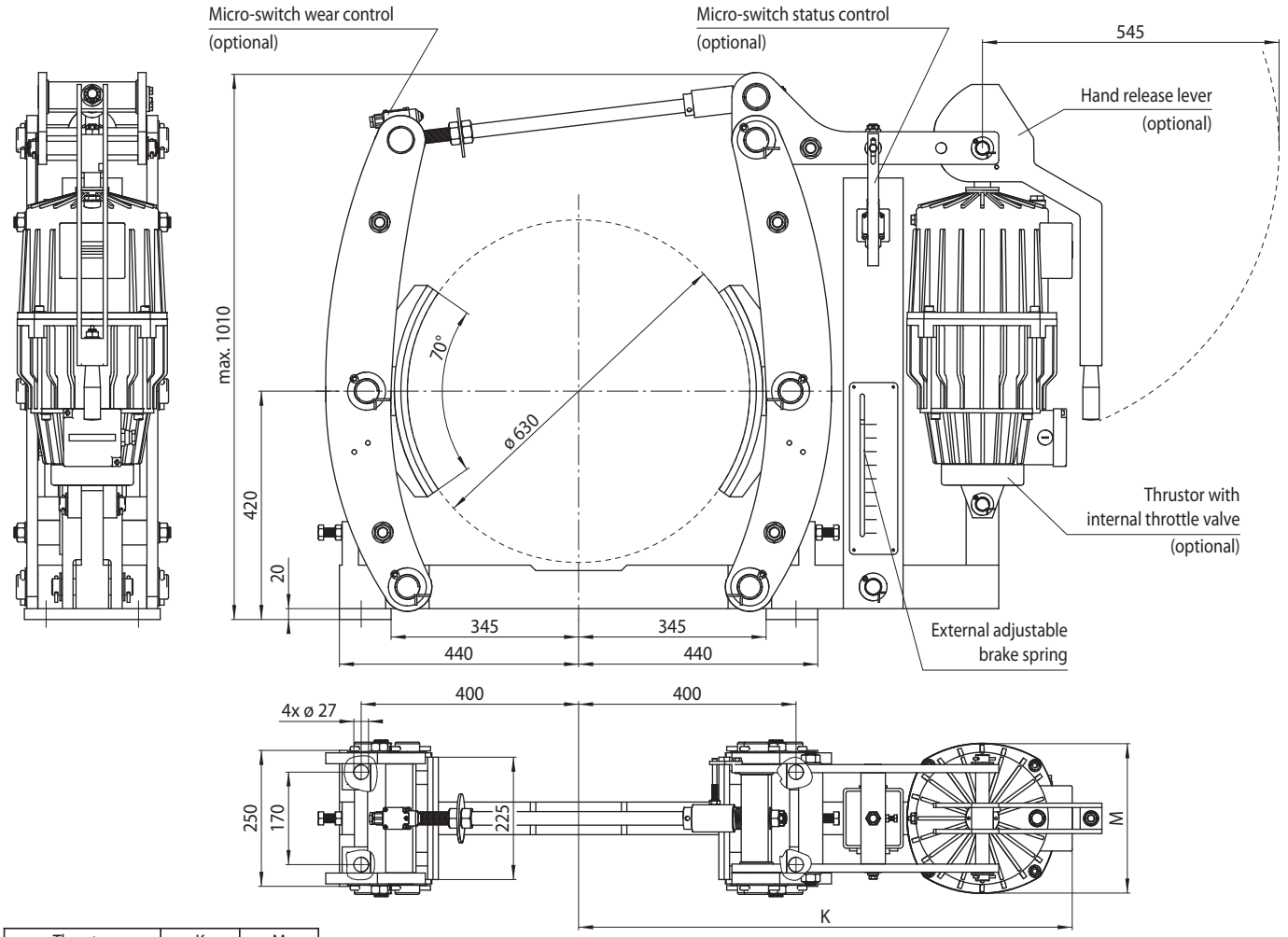
Technical Data

	Brake Caliper DT 630 FEA … ST		
	with thrustor 455	with thrustor 456	with thrustor 457
Brake drum diameter mm	Braking torque Nm	Braking torque Nm	Braking torque Nm
630	3100	5000	7200
Clamping force	12300 N	19800 N	28600 N
Braking torque adjustable	20 - 100%	20 - 100%	20 - 100%
Power input	350 W	750 W	850 W
Oil volume	4,5 L	11 L	11 L
Voltage	230/400 V	230/400 V	230/400 V
Weight	231 kg	254 kg	254 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

Brake Caliper DT 630 FEA … ST

spring activated – electrohydraulically released
Drum Brake according to DIN 15 435



Thrustor	K mm	M mm
455	898	234
456	909	274
457	909	274

101-1

Options

- Micro-switch wear control
- Micro-switch status control
- Hand release lever
- Thrustor with internal throttle valve
- Thrustor in heat resistant design
- Corrosion protected design
- Wider brake shoes and brake drums

Brake Caliper DV 020 FKM

spring activated – manually released by Pull Cable

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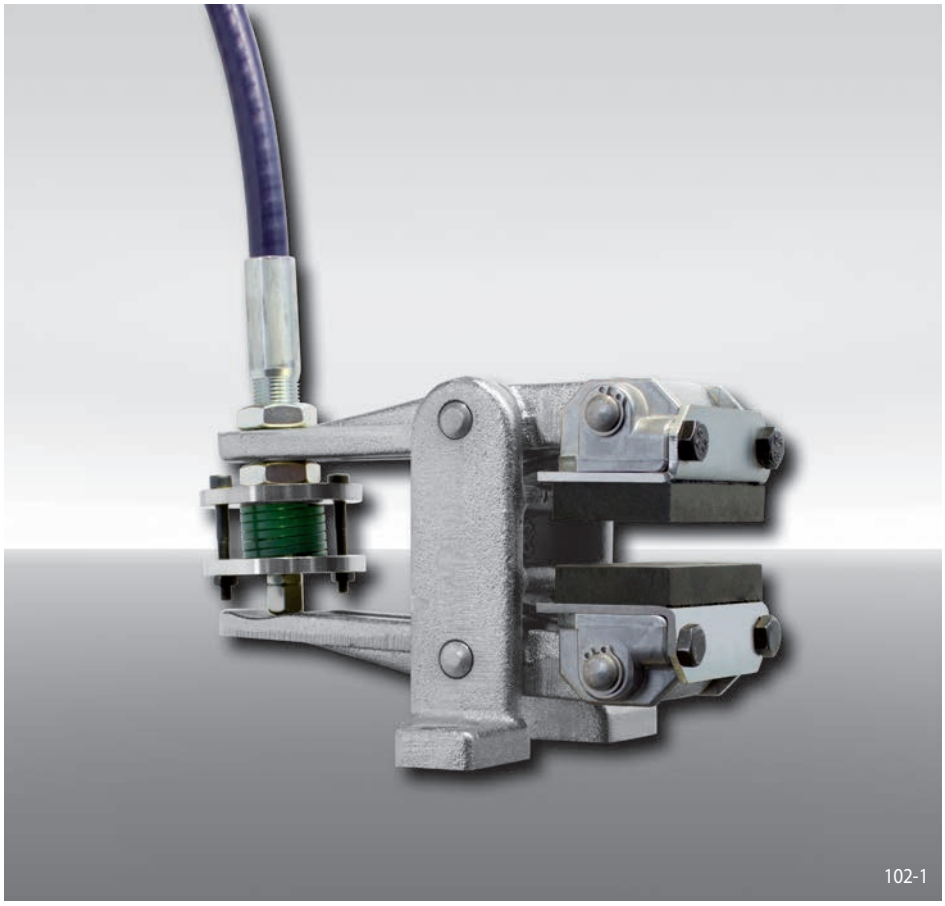
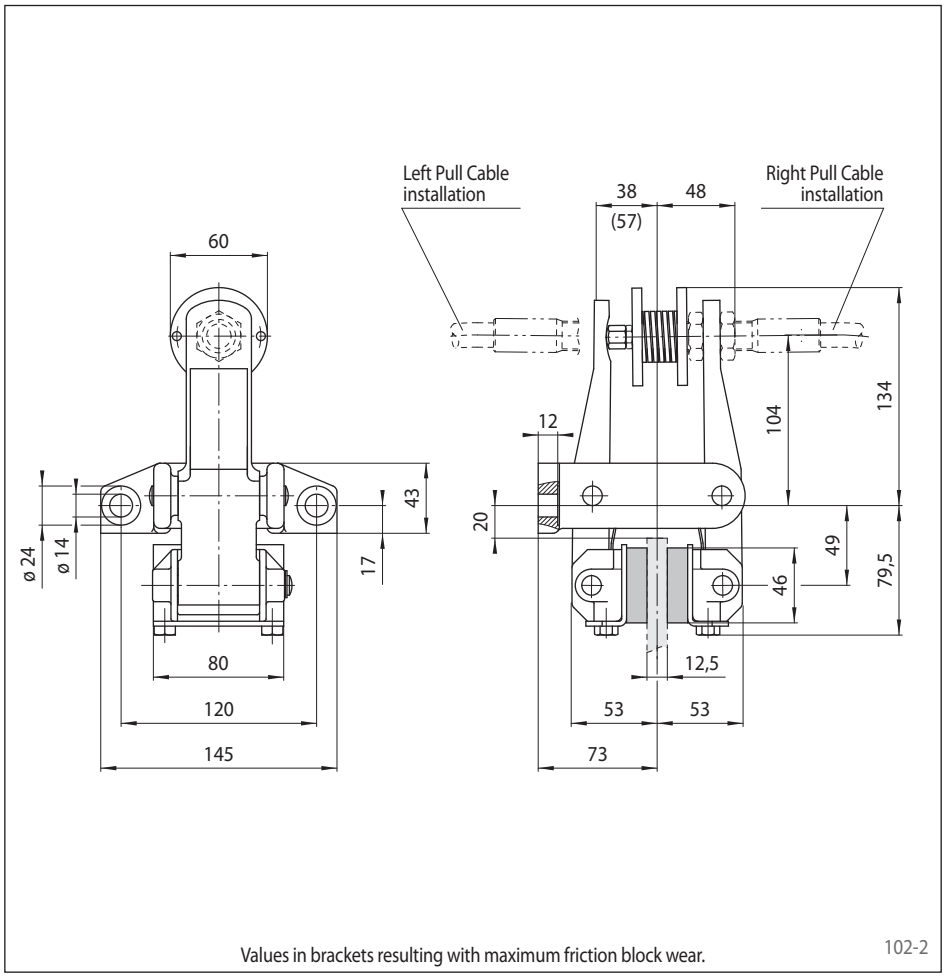




Values in brackets resulting with maximum friction block wear.

Features	Code
Brake Caliper	D
Mounting to the machine parallel to the brake disc	V
Frame size 020	020
Spring activated	F
Manually released	K
Manual adjustment to accommodate friction block wear	M
Pressure spring 510	510
Pull Cable installation mounted right or left available	R L
Thickness of brake disc 12,5 mm	12

Example for ordering

Brake Caliper DV 020 FKM, pressure spring 510, Pull Cable installation mounted right, thickness of brake disc 12,5 mm:

DV 020 FKM - 510 R - 12

Technical Data

	Brake Caliper DV 020 FKM with pressure spring 510
Brake disc diameter mm	Braking torque Nm
200	160
250	210
300	270
355	330
430	410
520	510
Clamping force	2750 N
Weight	4,4 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

Accessories

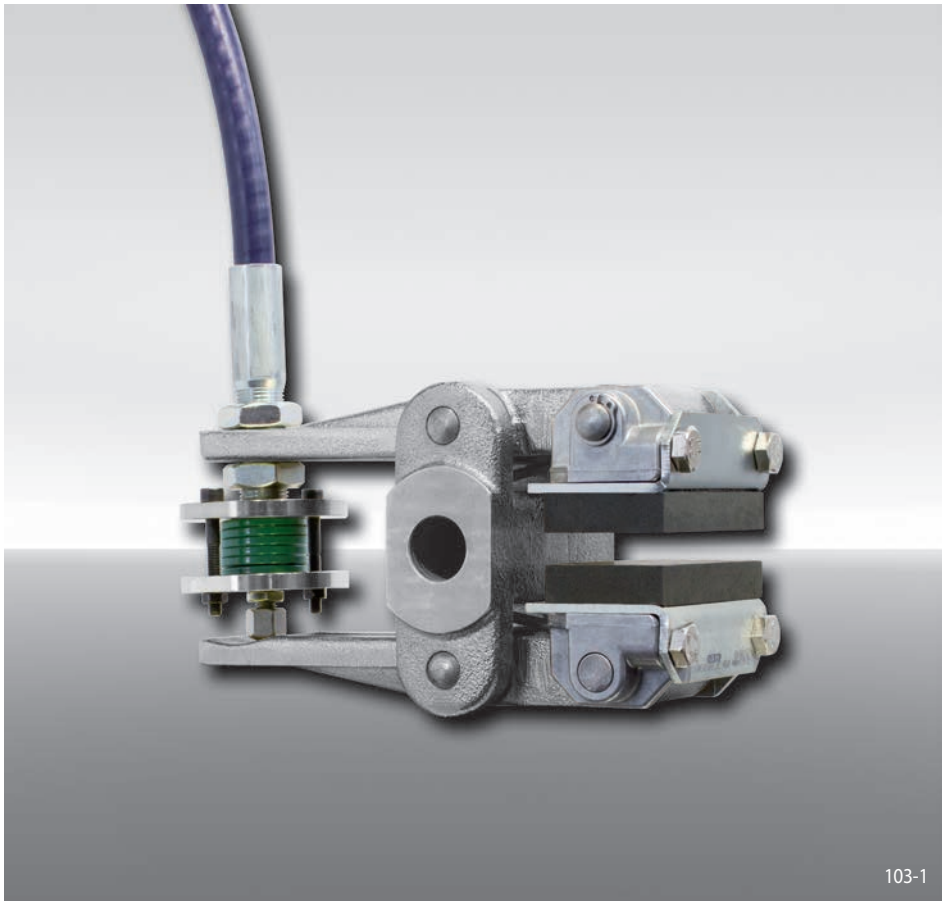
The Brake Caliper can be delivered fully assembled with RCS® Pull Cable and Hand Brake Lever. Please indicate the required cable length.

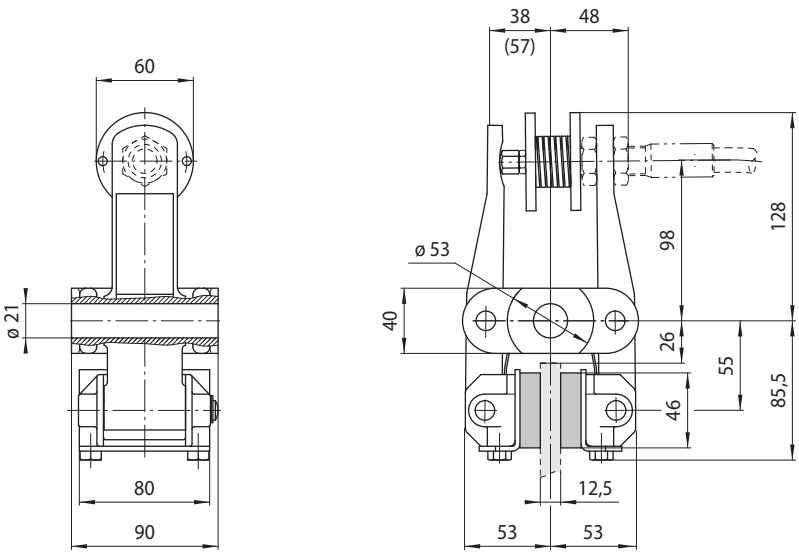
For further information regarding RCS® Pull Cable and Hand Brake Lever see page 167.

Brake Caliper DH 020 FKM

spring activated – manually released by Pull Cable

RINGSPANN®





Values in brackets resulting with maximum friction block wear.

103-2

Features	Code
Brake Caliper	D
Mounting to the machine at right angles to the brake disc	H
Frame size 020	020
Spring activated	F
Manually released	K
Manual adjustment to accommodate friction block wear	M
Pressure spring 510	510
Position of the Pull Cable installation to the right or left can be defined by turning the brake during installation	U
Thickness of brake disc 12,5 mm	12

Example for ordering

Brake Caliper DH 020 FKM, pressure spring 510, position of the Pull Cable installation can be to the right or left, thickness of brake disc 12,5 mm:

DH 020 FKM - 510 U - 12

Technical Data

	Brake Caliper DH 020 FKM with pressure spring 510
Brake disc diameter mm	Braking torque Nm
200	160
250	210
300	270
355	330
430	410
520	510
Clamping force	2750 N
Weight	4,4 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

Accessories

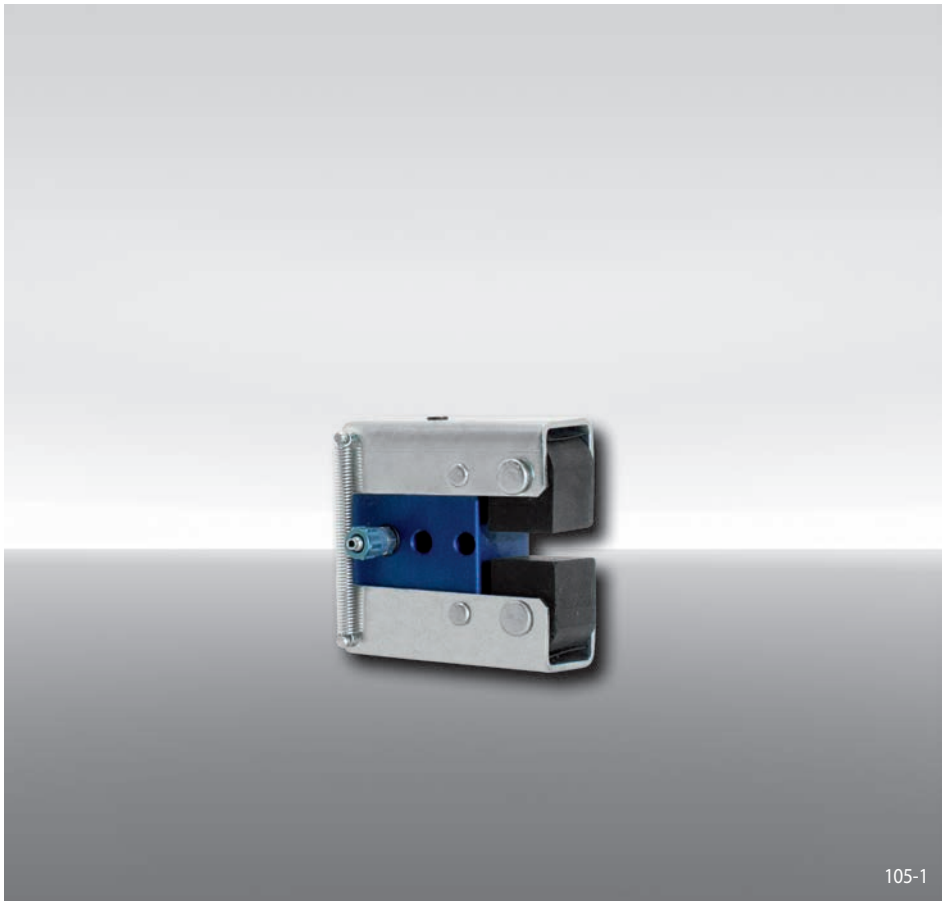
The Brake Caliper can be delivered fully assembled with RCS® Pull Cable and Hand Brake Lever. Please indicate the required cable length.

For further information regarding RCS® Pull Cable and Hand Brake Lever see page 167.

Brake Caliper DH 005 PFK

pneumatically activated – spring released

RINGSPANN®

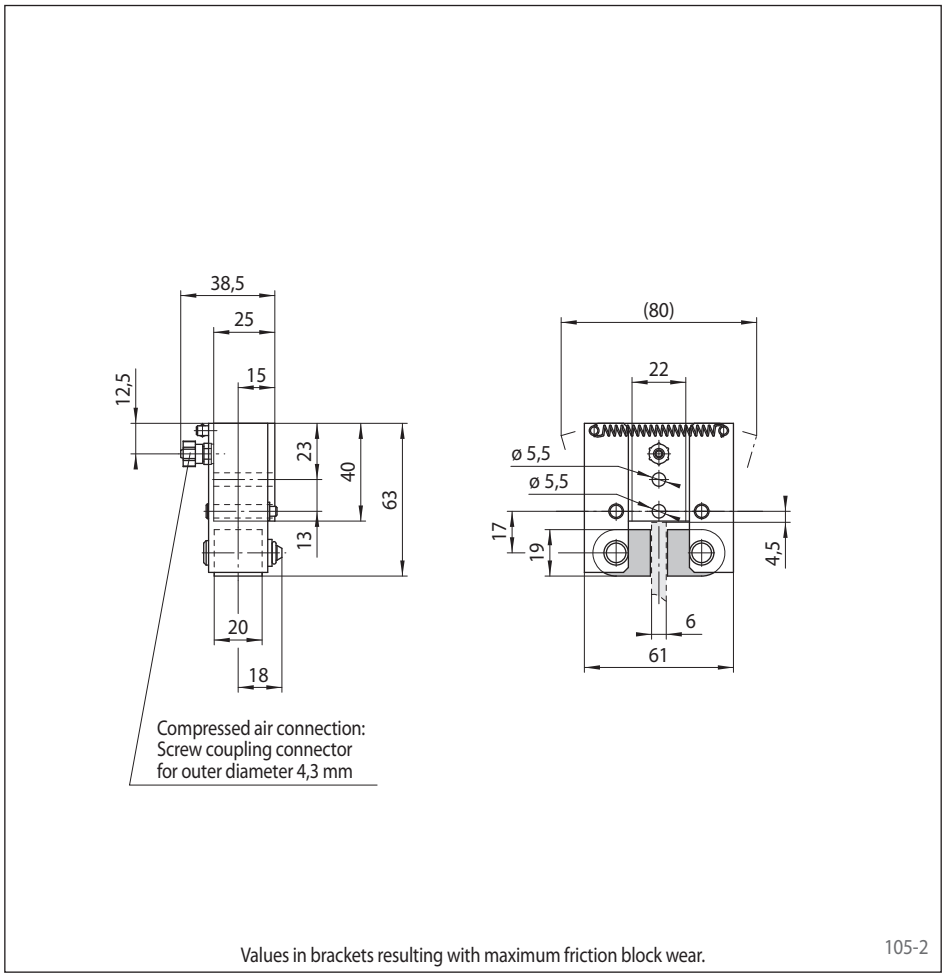


Features	Code
Brake Caliper	D
Mounting to the machine at right angles to the brake disc	H
Frame size 005	005
Pneumatically activated	P
Spring released	F
No adjustment to accommodate friction block wear	K
Pressure piston 605	605
Pressure piston mounted in central position	M
Thickness of brake disc 6 mm	06

Example for ordering

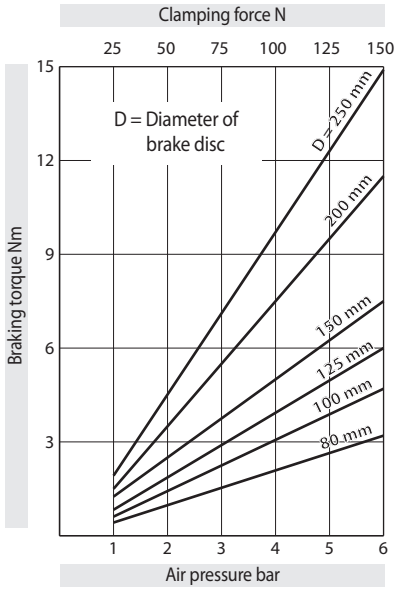
Brake Caliper DH 005 PFK, pressure piston 605, pressure piston mounted in central position, thickness of brake disc 6 mm:

DH 005 PFK - 605 M - 06



Values in brackets resulting with maximum friction block wear.

Technical Data



The braking torques shown in the diagram are based on a theoretical friction coefficient of 0,4.

Air pressure:	max. 6 bar
Air volume:	max. 3 cm^3 per activation
Weight:	0,4 kg

Brake Caliper DH 010 PFK

pneumatically activated – spring released

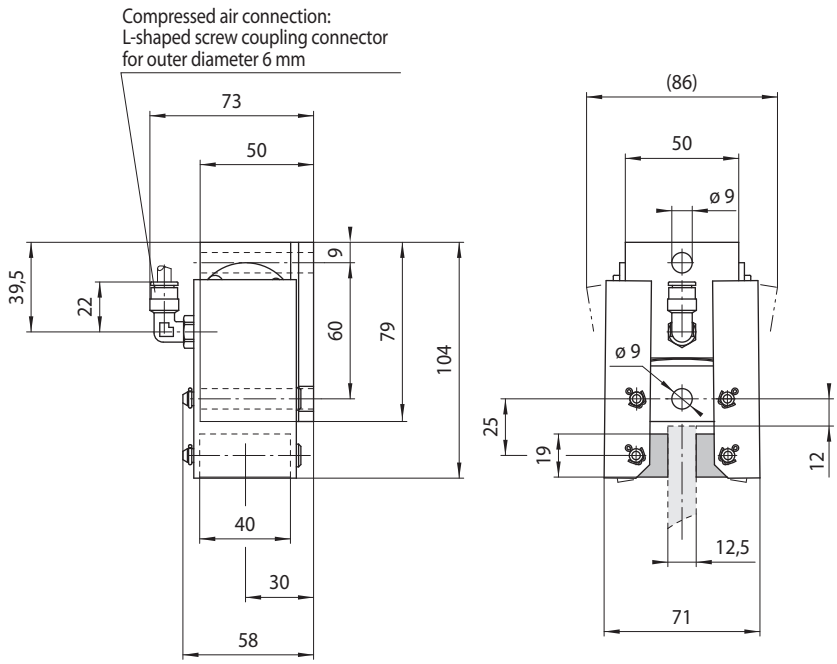
RINGSPANN®

Features	Code
Brake Caliper	D
Mounting to the machine at right angles to the brake disc	H
Frame size 010	010
Pneumatically activated	P
Spring released	F
No adjustment to accommodate friction block wear	K
Pressure piston 610	610
Pressure piston mounted in central position	M
Thickness of brake disc 12,5 mm	12

Example for ordering

Brake Caliper DH 010 PFK, pressure piston 610, pressure piston mounted in central position, thickness of brake disc 12,5 mm:

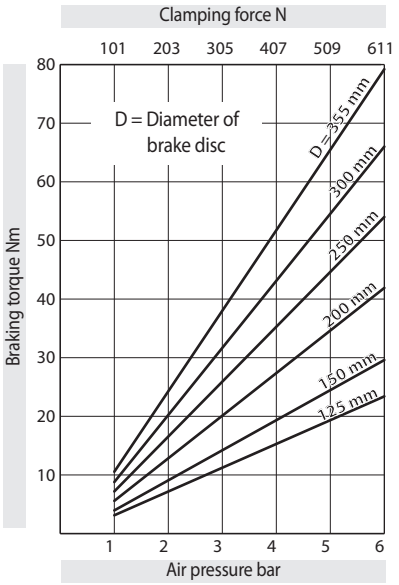
DH 010 PFK - 610 M - 12



Values in brackets resulting with maximum friction block wear.

106-2

Technical Data



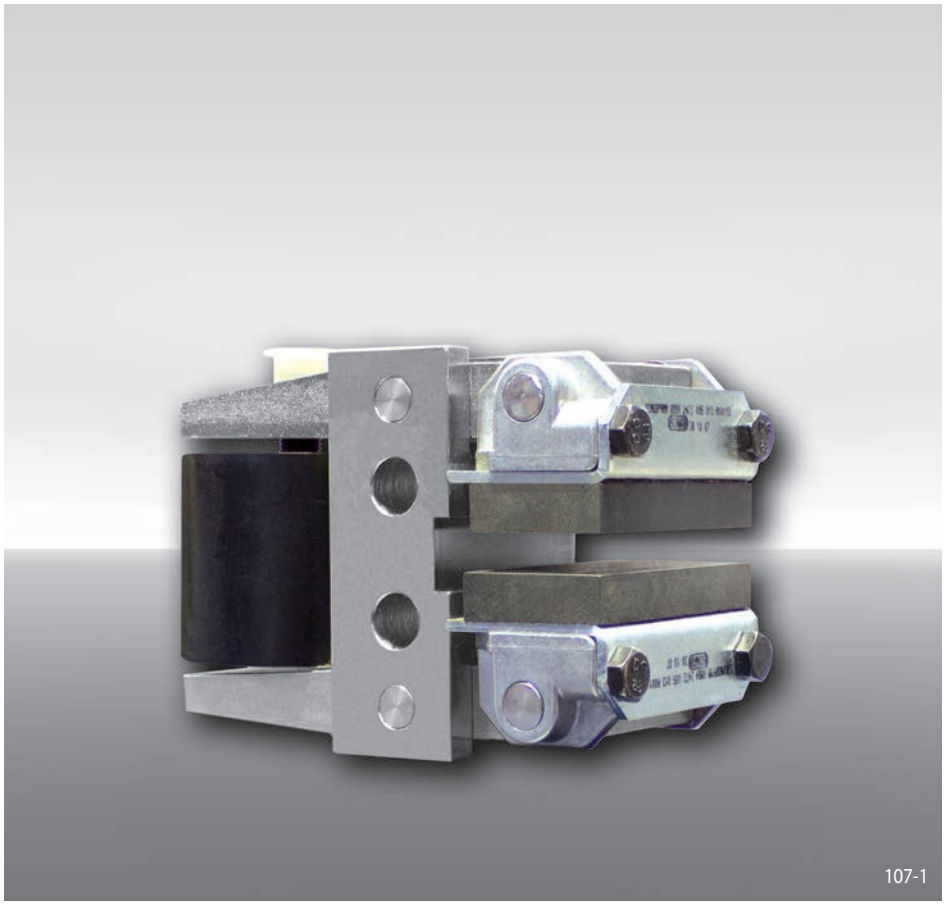
The braking torques shown in the diagram are based on a theoretical friction coefficient of 0,4.

Air pressure:	max. 6 bar
Air volume:	max. 10 cm^3 per activation
Weight:	1,1 kg

Brake Caliper DH 015 PFK

pneumatically activated – spring released

RINGSPANN®

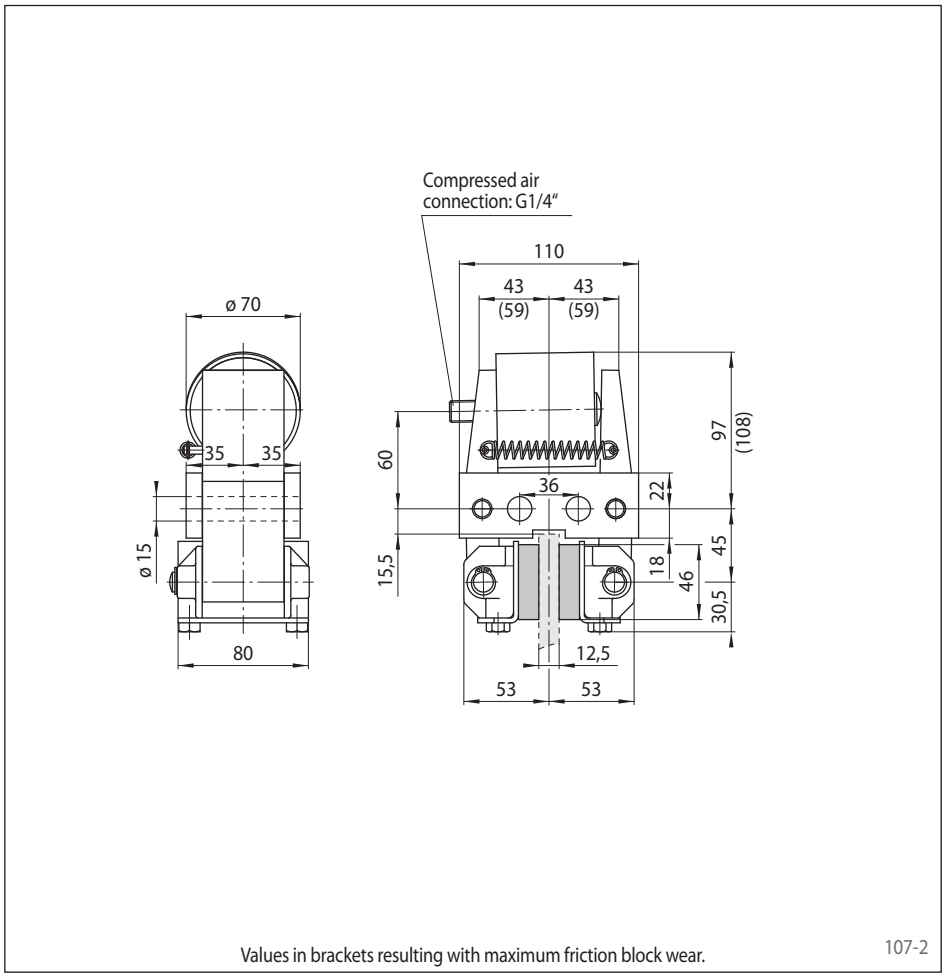


Features	Code
Brake Caliper	D
Mounting to the machine at right angles to the brake disc	H
Frame size 015	015
Pneumatically activated	P
Spring released	F
No adjustment to accommodate friction block wear	K
Thruster 620	620
Thruster mounted in central position	M
Thickness of brake disc 12,5 mm	12

Example for ordering

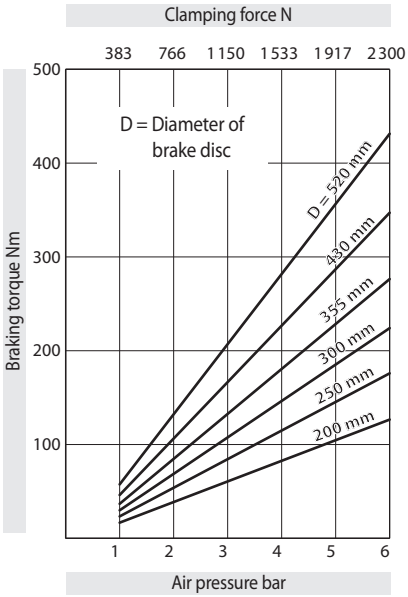
Brake Caliper DH 015 PFK, thruster 620, thruster mounted in central position, thickness of brake disc 12,5 mm:

DH 015 PFK - 620 M - 12



Values in brackets resulting with maximum friction block wear.

Technical Data



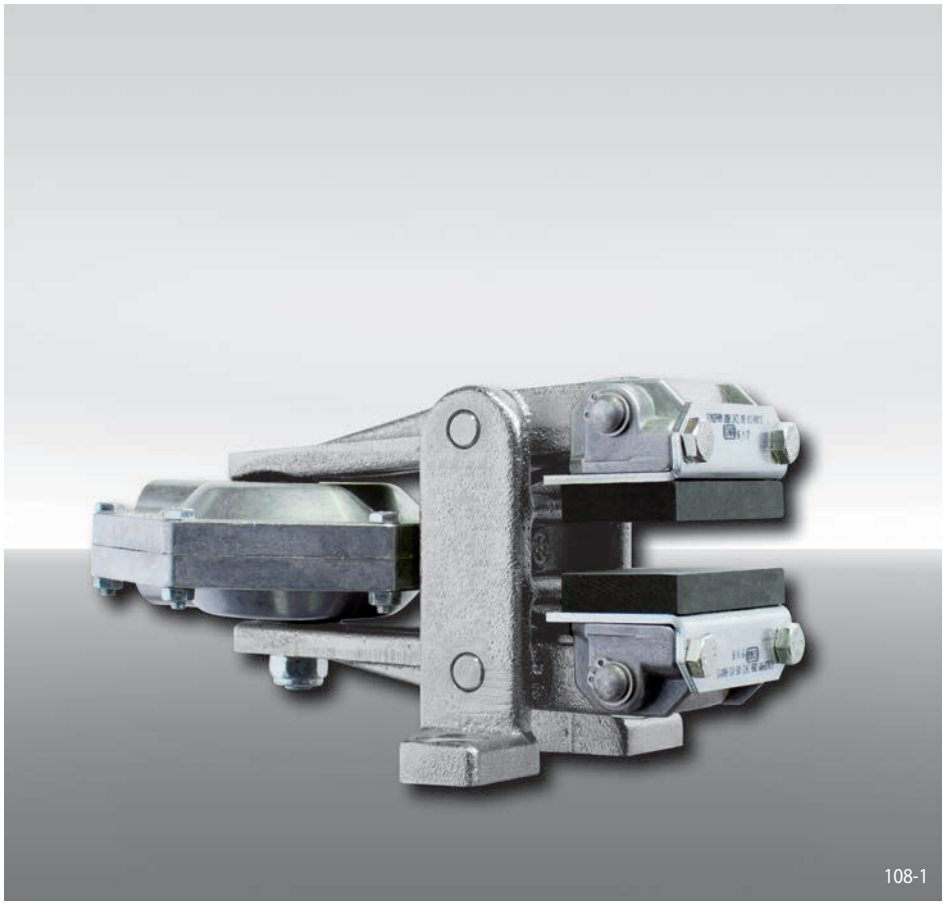
The braking torques shown in the diagram are based on a theoretical friction coefficient of 0,4.

Air pressure:	max. 6 bar
Air volume:	max. 124 cm^3 per activation
Weight:	4,6 kg

Brake Caliper DV 020 PFK

pneumatically activated – spring released

RINGSPANN®

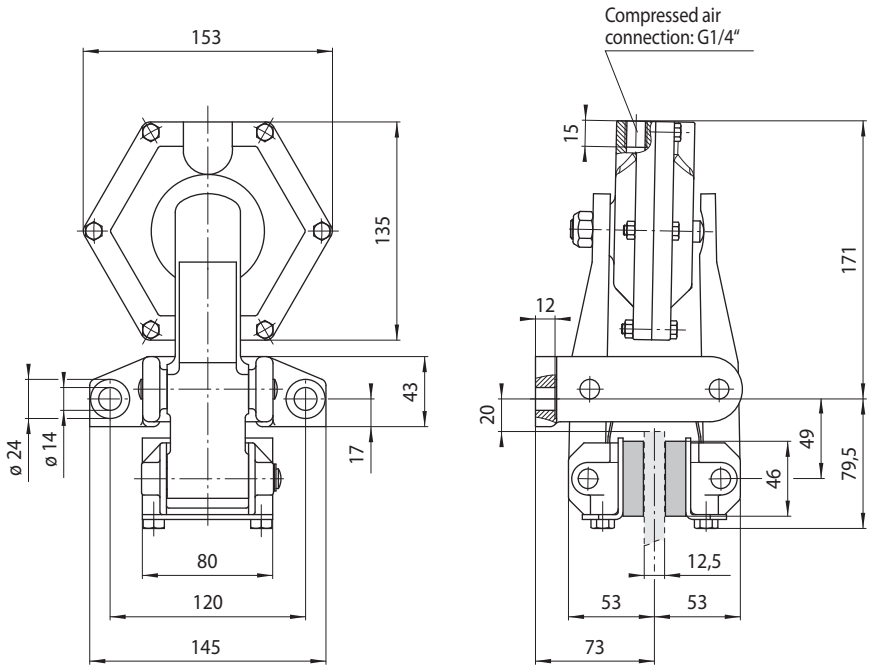


Features	Code
Brake Caliper	D
Mounting to the machine parallel to the brake disc	V
Frame size 020	020
Pneumatically activated	P
Spring released	F
No adjustment to accommodate friction block wear	K
Thruster 630	630
Thruster mounted in central position	M
Thickness of brake disc 12,5 mm	12

Example for ordering

Brake Caliper DV 020 PFK, thruster 630, thruster mounted in central position, thickness of brake disc 12,5 mm:

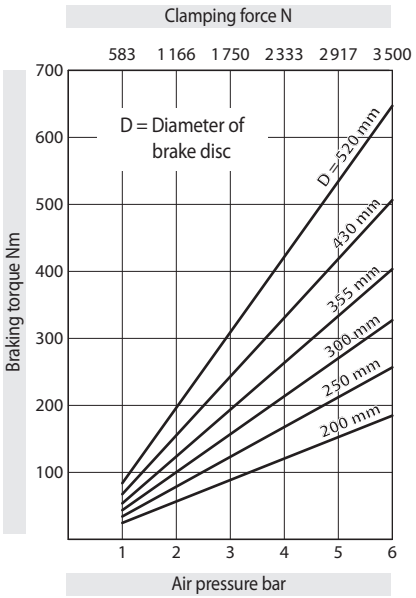
DV 020 PFK - 630 M - 12



Values in brackets resulting with maximum friction block wear.

108-2

Technical Data



The braking torques shown in the diagram are based on a theoretical friction coefficient of 0,4.

Air pressure: max. 6 bar

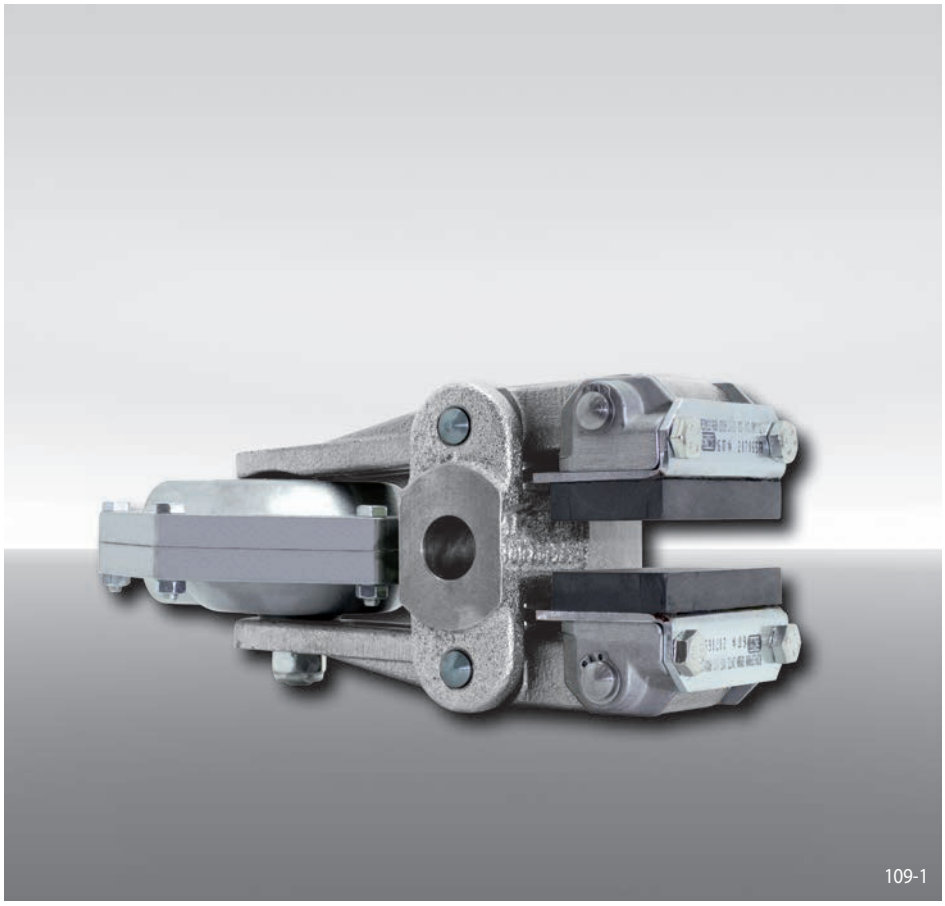
Air volume: max. 120 cm^3 per activation

Weight: 4,8 kg

Brake Caliper DH 020 PFK

pneumatically activated – spring released

RINGSPANN®

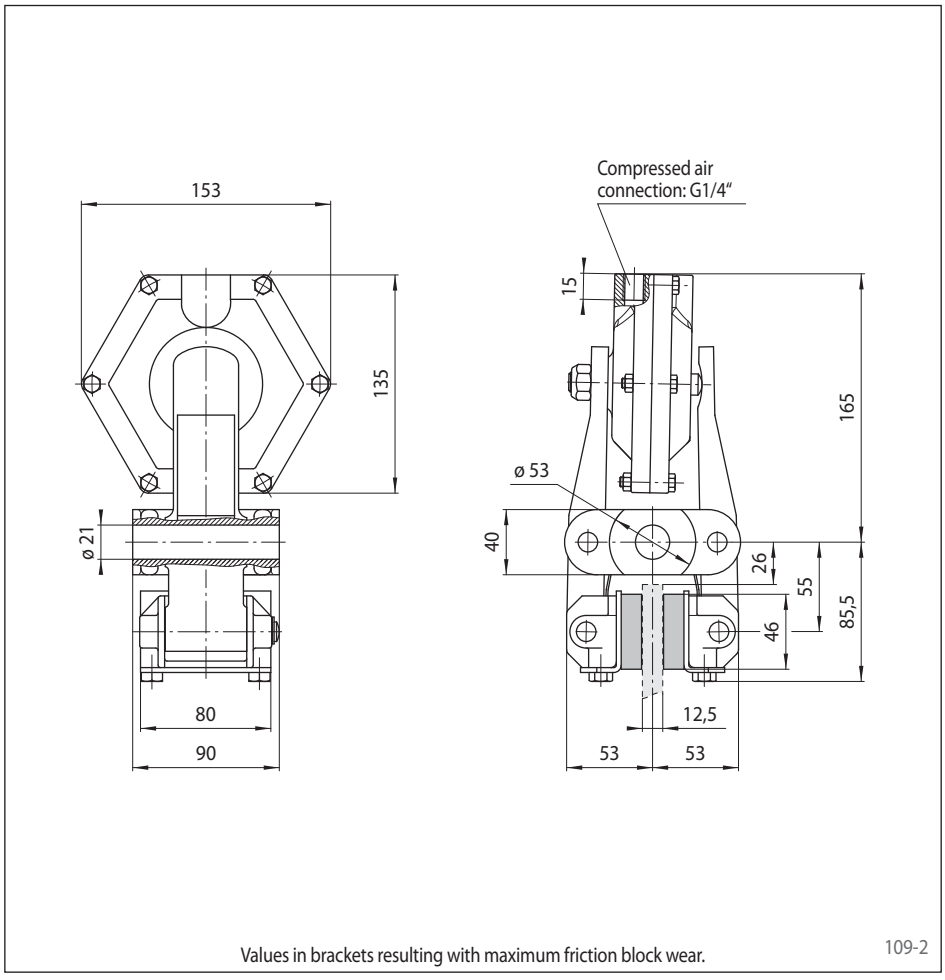


Features	Code
Brake Caliper	D
Mounting to the machine at right angles to the brake disc	H
Frame size 020	020
Pneumatically activated	P
Spring released	F
No adjustment to accommodate friction block wear	K
Thruster 630	630
Thruster mounted in central position	M
Thickness of brake disc 12,5 mm	12

Example for ordering

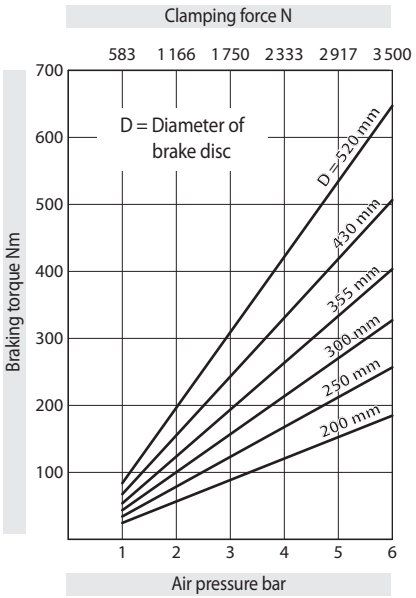
Brake Caliper DH 020 PFK, thruster 630, thruster mounted in central position, thickness of brake disc 12,5 mm:

DH 020 PFK - 630 M - 12



Values in brackets resulting with maximum friction block wear.

Technical Data



The braking torques shown in the diagram are based on a theoretical friction coefficient of 0,4.

Air pressure: max. 6 bar

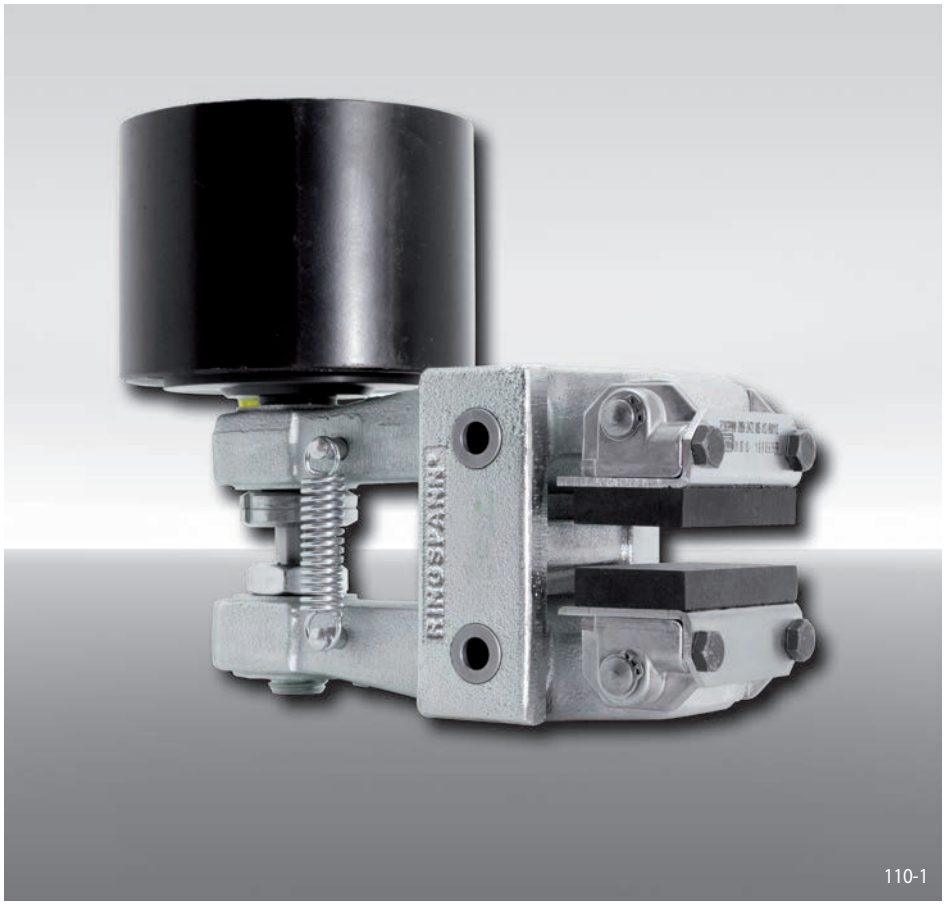
Air volume: max. 120 cm^3 per activation

Weight: 4,8 kg

Brake Caliper DH 025 PFM

pneumatically activated – spring released

RINGSPANN®



Features	Code
Brake Caliper	D
Mounting to the machine at right angles to the brake disc	H
Frame size 025	025
Pneumatically activated	P
Spring released	F
Manual adjustment to accommodate friction block wear	M
Thrusters 635 or 655 are available	635 655
Thruster mounted right or left available	R L
Thickness of brake disc 12,5 mm or 25 mm	12 25

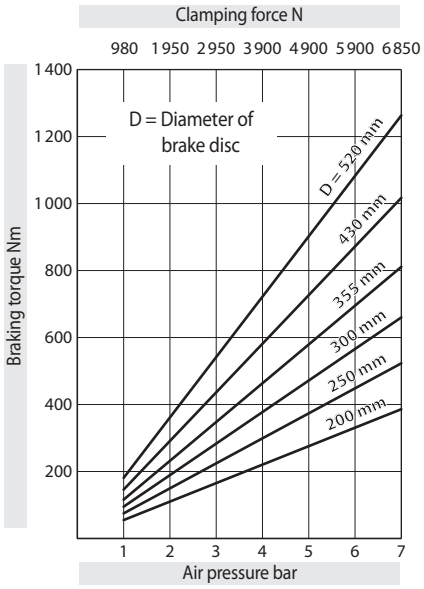
Example for ordering

Brake Caliper DH 025 PFM, thruster 635, thruster mounted right, thickness of brake disc 12,5 mm:

DH 025 PFM - 635 R - 12

Technical Data

Brake Caliper DH 025 PFM - 635



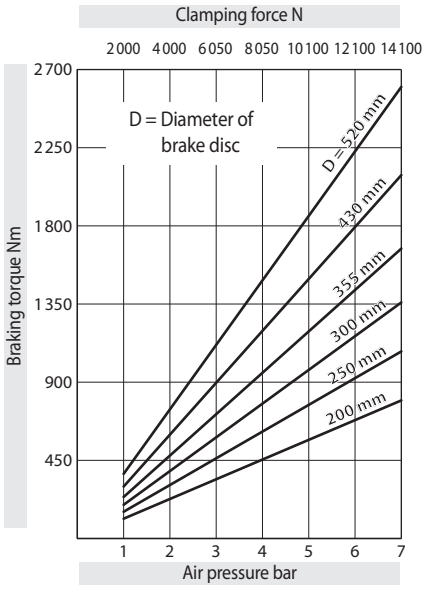
The braking torques shown in the diagram are based on a theoretical friction coefficient of 0,4.

Air pressure: max. 7 bar

Air volume: max. 175 cm^3 per activation

Weight: 7,1 kg

Brake Caliper DH 025 PFM - 655



The braking torques shown in the diagram are based on a theoretical friction coefficient of 0,4.

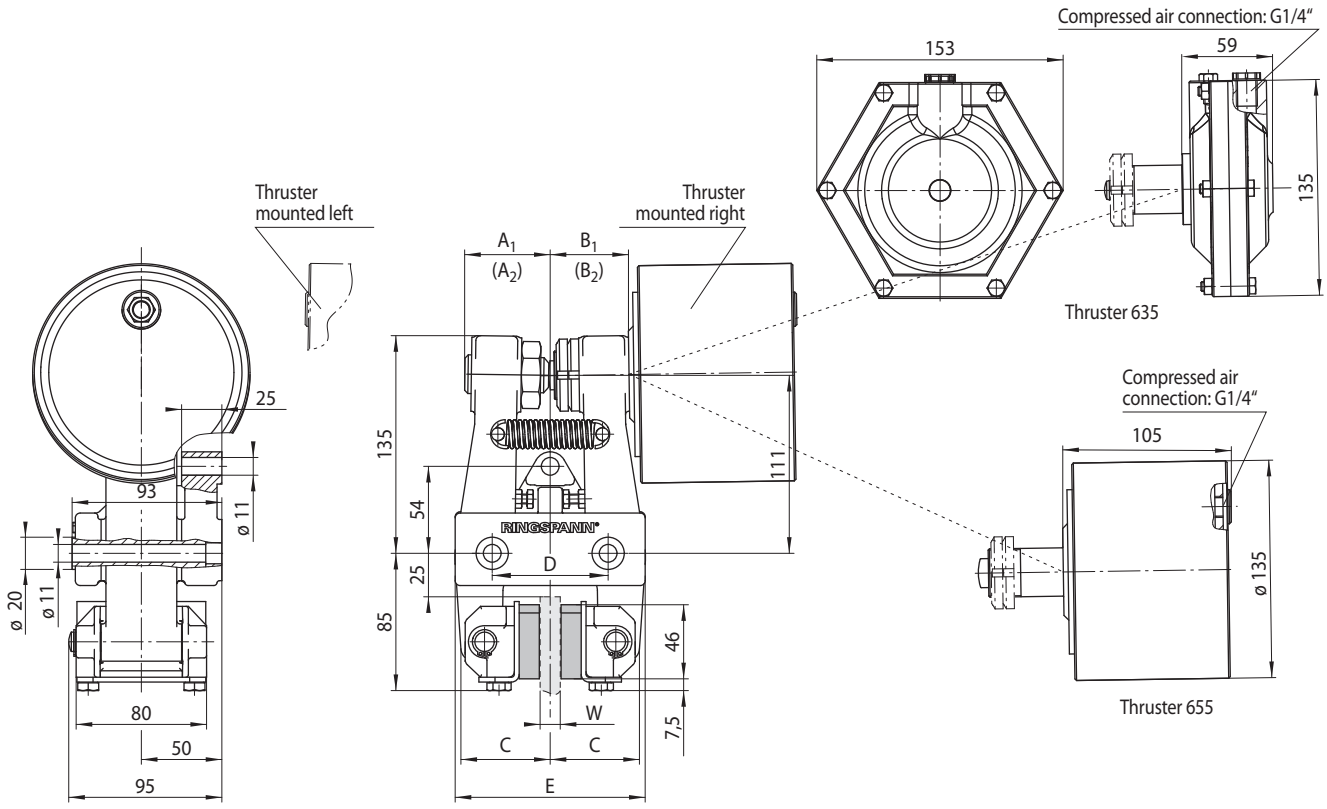
Air pressure: max. 7 bar

Air volume: max. 740 cm^3 per activation

Weight: 10,3 kg

Brake Caliper DH 025 PFM

pneumatically activated – spring released



Thickness of brake disc W	A_1	(A_2)	B_1	(B_2)	C	D	E
mm	mm	mm	mm	mm	mm	mm	mm
12,5	54	(69)	49	(66)	55	72	118
25	60	(76)	56	(73)	62	84	130

Values in brackets resulting with maximum friction block wear.

111-1

Brake Caliper DV 030 PFM

pneumatically activated – spring released

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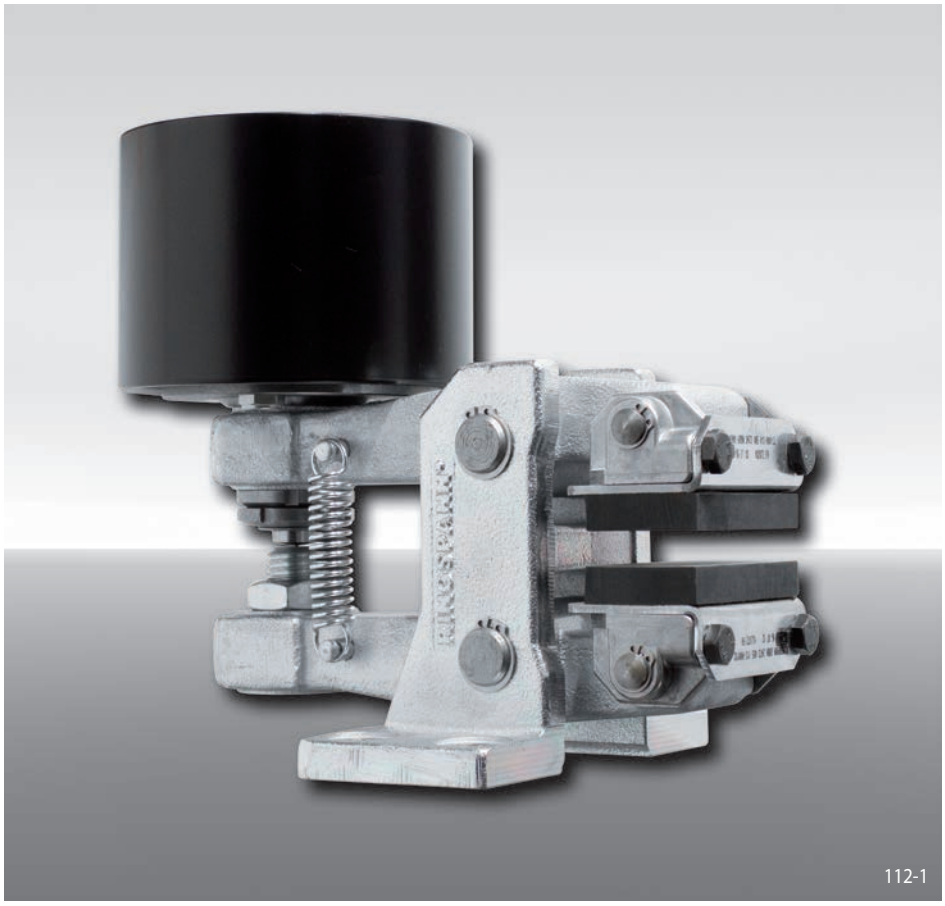


Features	Code
Brake Caliper	D
Mounting to the machine parallel to the brake disc	V
Frame size 030	030
Pneumatically activated	P
Spring released	F
Manual adjustment to accommodate friction block wear	M
Thrusters 635 or 655 are available	635 655
Thruster mounted right or left available	R L
Thickness of brake disc 12,5 mm or 25 mm	12 25

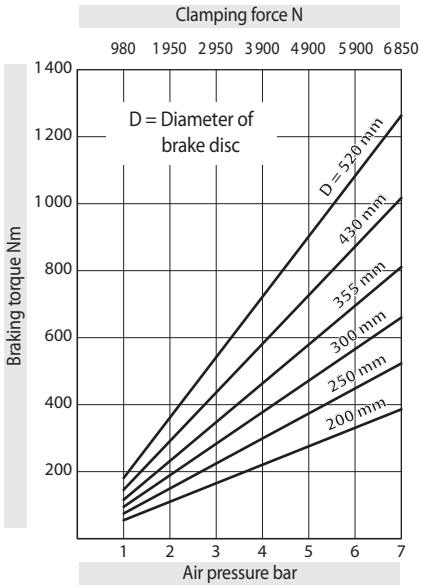
Example for ordering

Brake Caliper DV 030 PFM, thruster 635, thruster mounted right, thickness of brake disc 12,5 mm:

DV 030 PFM - 635 R - 12

Technical Data

Brake Caliper DV 030 PFM - 635



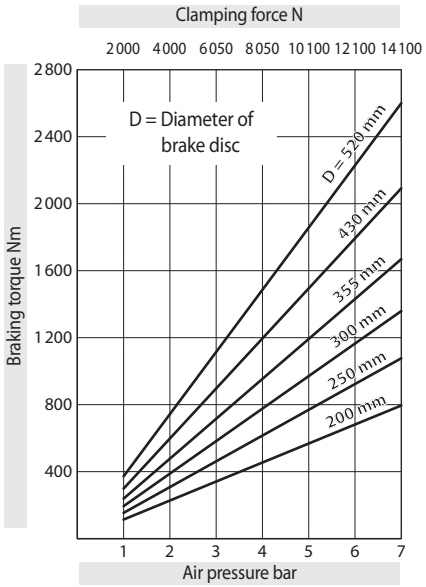
The braking torques shown in the diagram are based on a theoretical friction coefficient of 0,4.

Air pressure: max. 7 bar

Air volume: max. 175 cm^3 per activation

Weight: 7,3 kg

Brake Caliper DV 030 PFM - 655

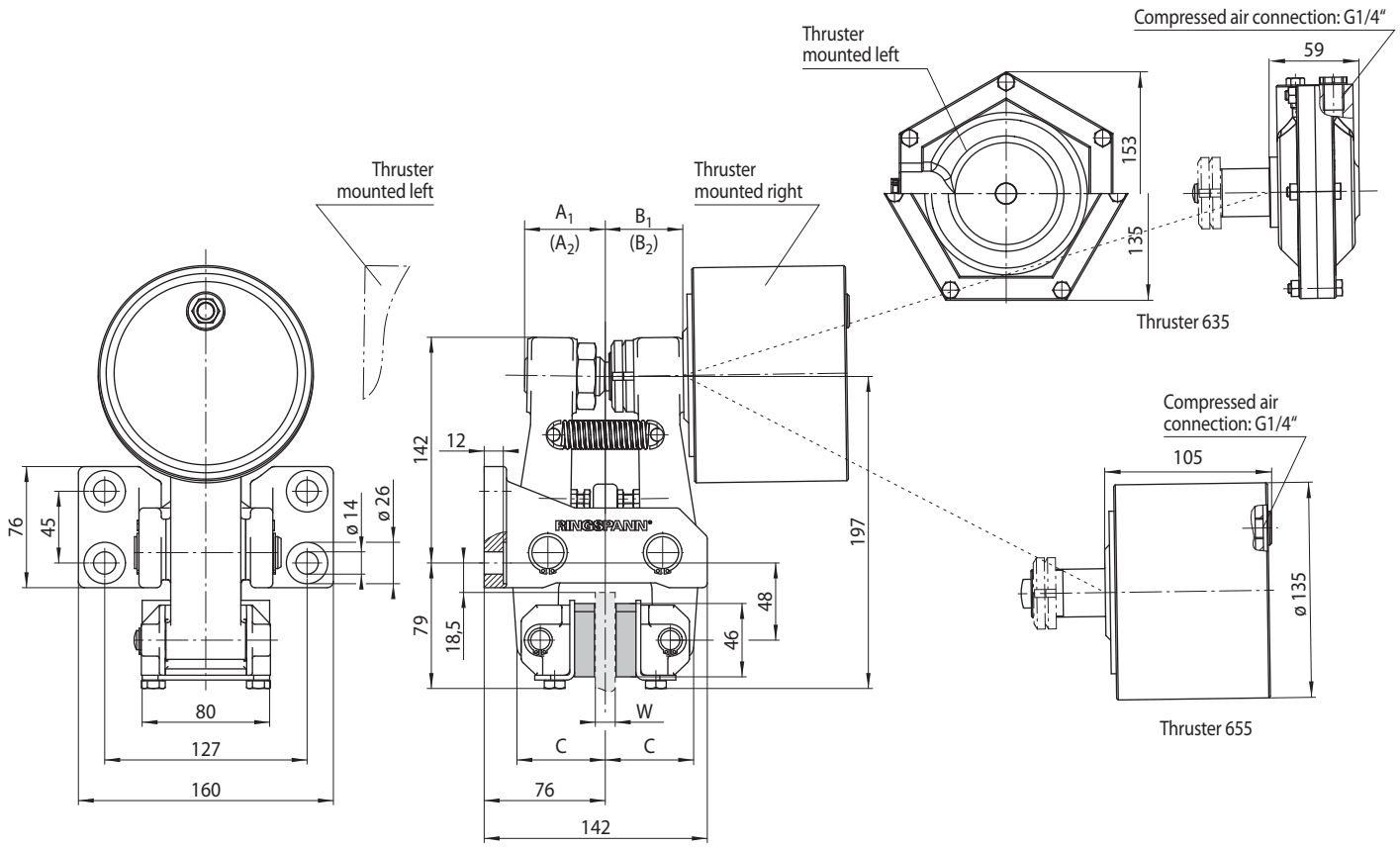


The braking torques shown in the diagram are based on a theoretical friction coefficient of 0,4.

Air pressure: max. 7 bar

Air volume: max. 740 cm^3 per activation

Weight: 10,5 kg



Thickness of brake disc W mm	A_1 mm	(A_2) mm	B_1 mm	(B_2) mm	C mm
12,5	54	(69)	49	(66)	55
25	60	(76)	56	(73)	62

Values in brackets resulting with maximum friction block wear.

113-1

Brake Caliper DH 030 PFM

pneumatically activated – spring released

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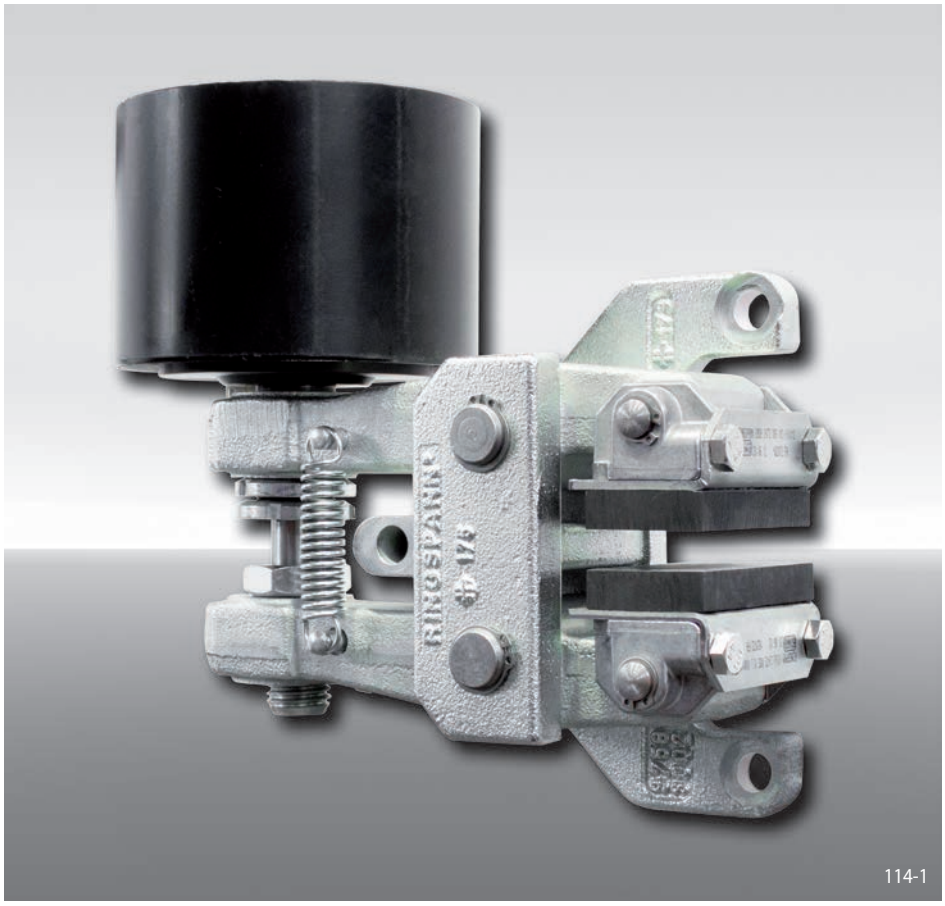


Features	Code
Brake Caliper	D
Mounting to the machine at right angles to the brake disc	H
Frame size 030	030
Pneumatically activated	P
Spring released	F
Manual adjustment to accommodate friction block wear	M
Thrusters 635 or 655 are available	635 655
Thruster mounted right or left available	R L
Thickness of brake disc 12,5 mm or 25 mm	12 25

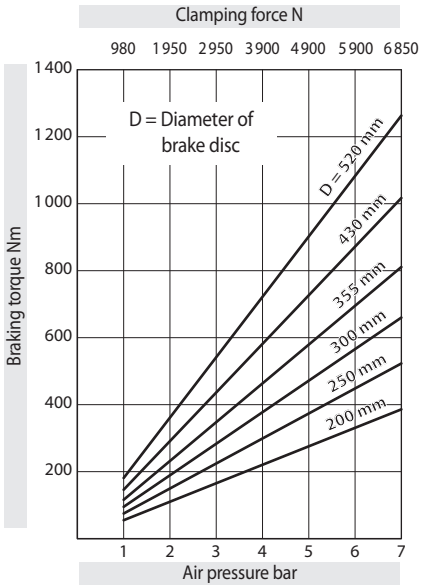
Example for ordering

Brake Caliper DH 030 PFM, thruster 635, thruster mounted right, thickness of brake disc 12,5 mm:

DH 030 PFM - 635 R - 12

Technical Data

Brake Caliper DH 030 PFM - 635



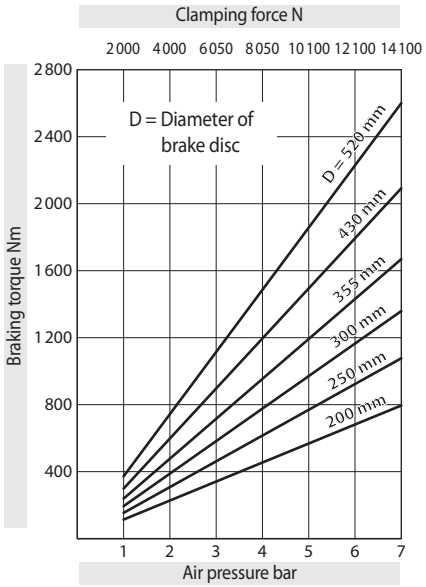
The braking torques shown in the diagram are based on a theoretical friction coefficient of 0,4.

Air pressure: max. 7 bar

Air volume: max. 175 cm^3 per activation

Weight: 7,7 kg

Brake Caliper DH 030 PFM - 655

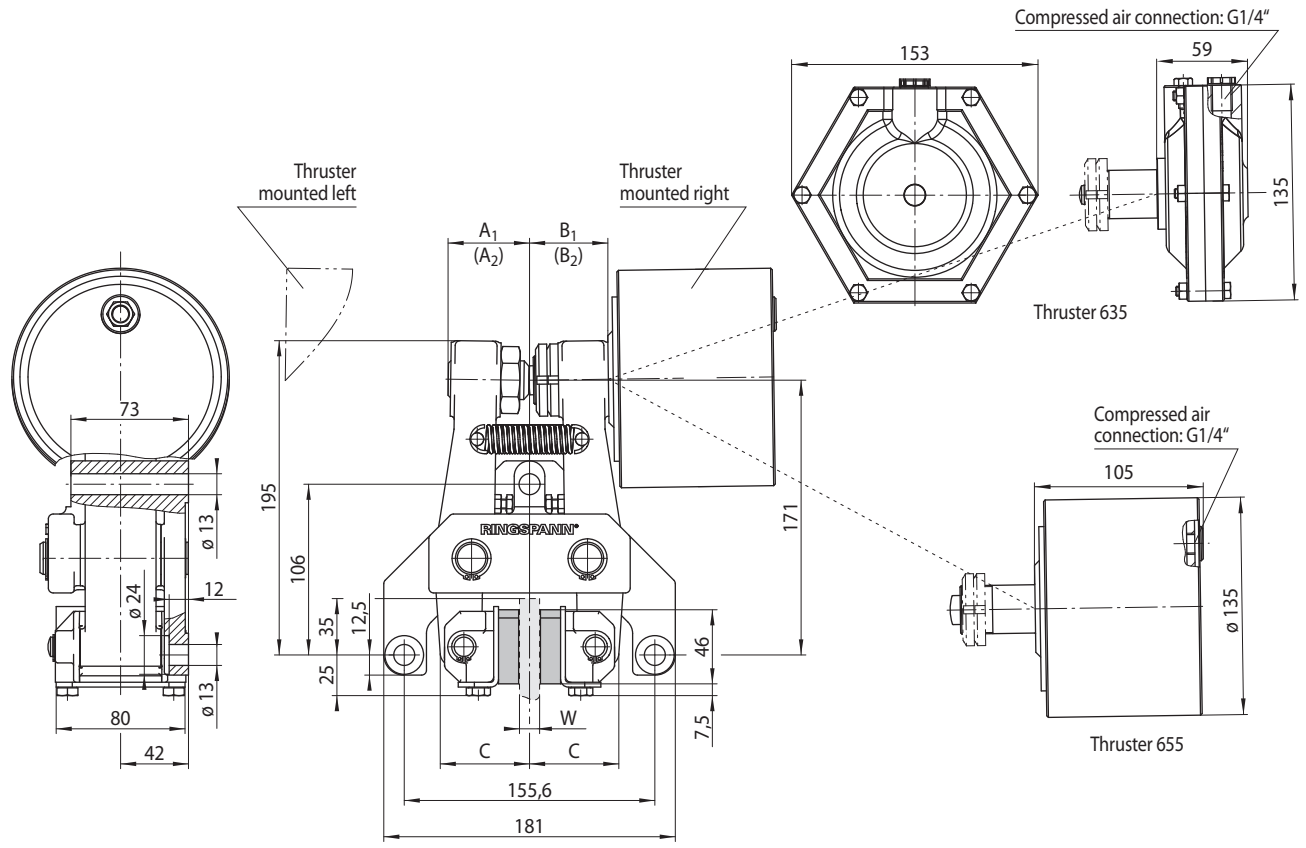


The braking torques shown in the diagram are based on a theoretical friction coefficient of 0,4.

Air pressure: max. 7 bar

Air volume: max. 740 cm^3 per activation

Weight: 10,9 kg



Thickness of brake disc W mm	A_1 mm	(A_2) mm	B_1 mm	(B_2) mm	C mm
12,5	54	(69)	49	(66)	55
25	60	(76)	56	(73)	62

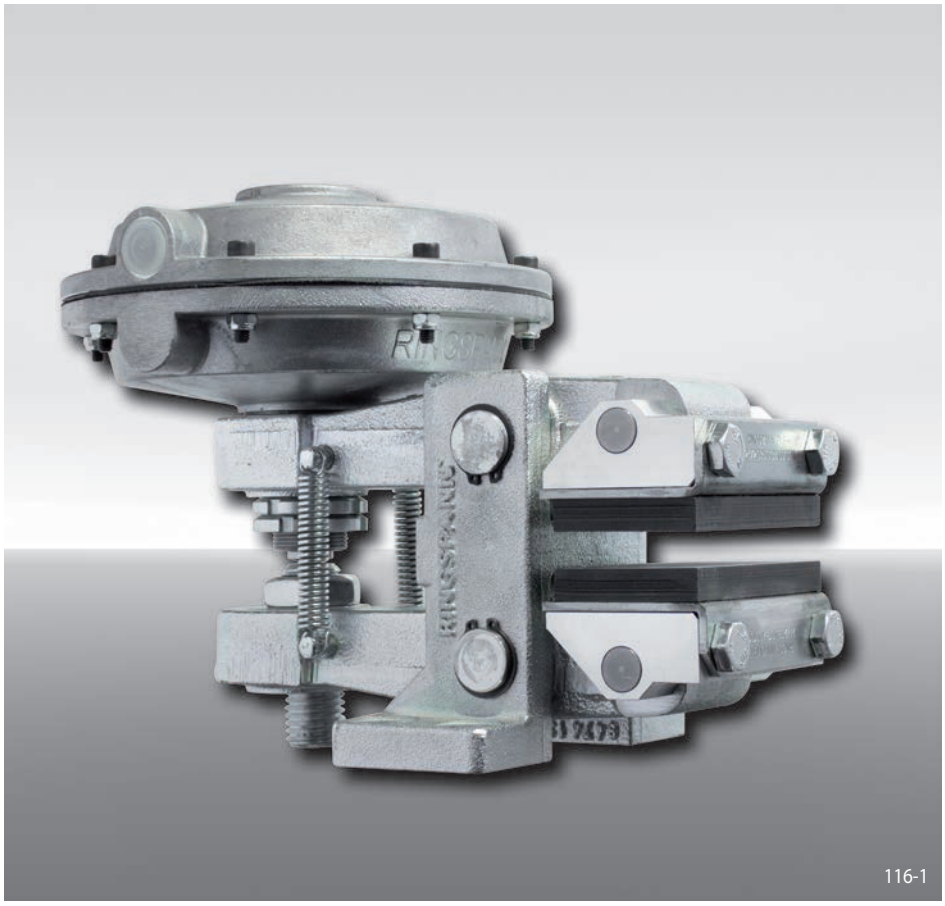
Values in brackets resulting with maximum friction block wear.

115-1

Brake Caliper DV 035 PFM

pneumatically activated – spring released

RINGSPANN®



Features	Code
Brake Caliper	D
Mounting to the machine parallel to the brake disc	V
Frame size 035	035
Pneumatically activated	P
Spring released	F
Manual adjustment to accommodate friction block wear	M
Thrusters 635, 655 or 660 are available	635 655 660
Thruster mounted right available	R
Thickness of brake disc 12,5 mm, 25 mm, 30 mm or 40 mm	12 to 40

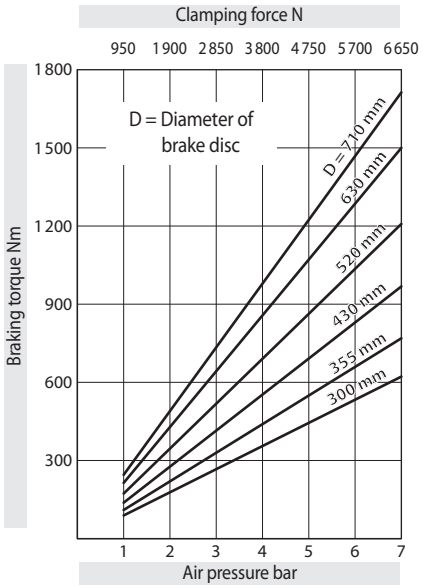
Example for ordering

Brake Caliper DV 035 PFM, thruster 660, thruster mounted right, thickness of brake disc 12,5 mm:

DV 035 PFM - 660 R - 12

Technical Data

Brake Caliper DV 035 PFM - 635



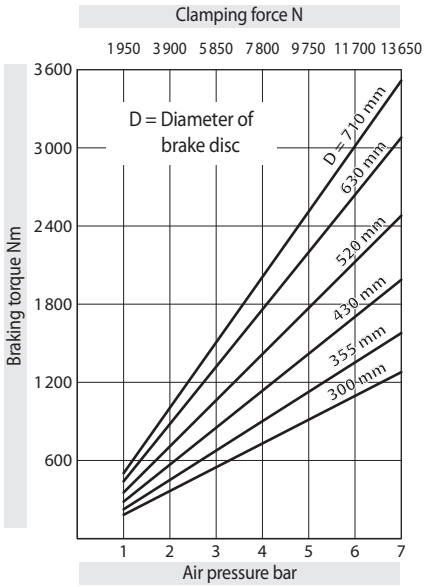
The braking torques shown in the diagram are based on a theoretical friction coefficient of 0,4.

Air pressure: max. 7 bar

Air volume: max. 175 cm^3 per activation

Weight: 9,1 kg

Brake Caliper DV 035 PFM - 655



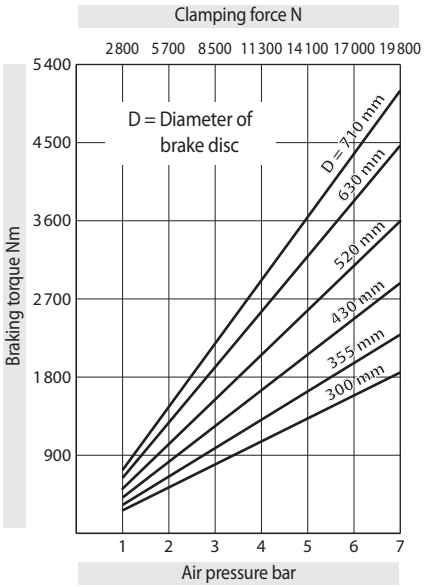
The braking torques shown in the diagram are based on a theoretical friction coefficient of 0,4.

Air pressure: max. 7 bar

Air volume: max. 740 cm^3 per activation

Weight: 12,3 kg

Brake Caliper DV 035 PFM - 660



The braking torques shown in the diagram are based on a theoretical friction coefficient of 0,4.

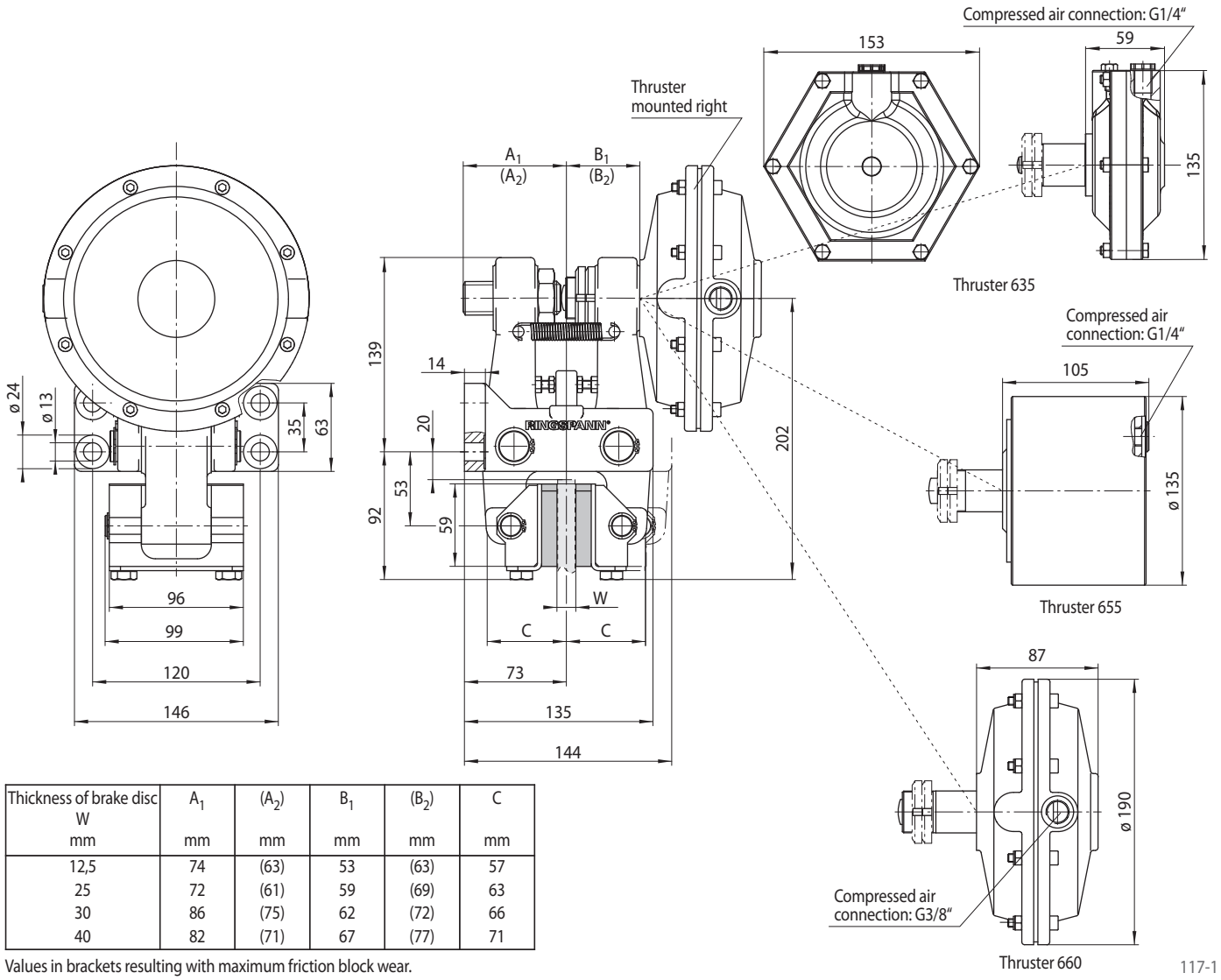
Air pressure: max. 7 bar

Air volume: max. 450 cm^3 per activation

Weight: 11,4 kg

Brake Caliper DV 035 PFM

pneumatically activated – spring released



Thickness of brake disc W mm	A_1 mm	(A_2) mm	B_1 mm	(B_2) mm	C mm
12,5	74	(63)	53	(63)	57
25	72	(61)	59	(69)	63
30	86	(75)	62	(72)	66
40	82	(71)	67	(77)	71

Values in brackets resulting with maximum friction block wear.

117-1

Brake Caliper DH 035 PFM

pneumatically activated – spring released

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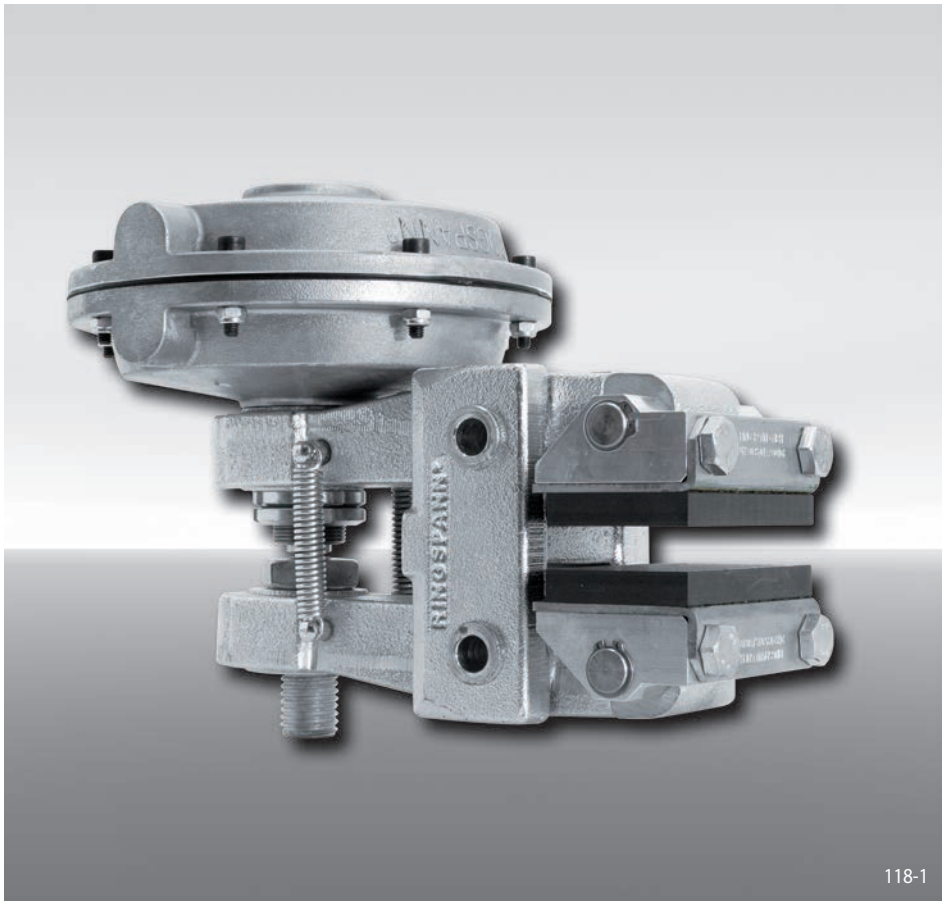


Features	Code
Brake Caliper	D
Mounting to the machine at right angles to the brake disc	H
Frame size 035	035
Pneumatically activated	P
Spring released	F
Manual adjustment to accommodate friction block wear	M
Thrusters 635, 655 or 660 are available	635 655 660
Thruster mounted right or left available	R L
Thickness of brake disc 12,5 mm, 25 mm or 40 mm	12 to 40

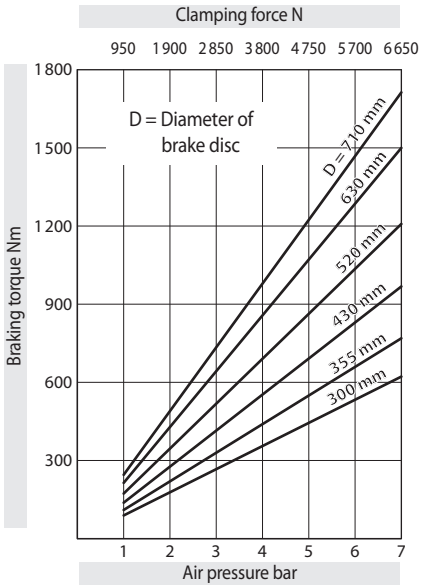
Example for ordering

Brake Caliper DH 035 PFM, thruster 660, thruster mounted right, thickness of brake disc 12,5 mm:

DH 035 PFM - 660 R - 12

Technical Data

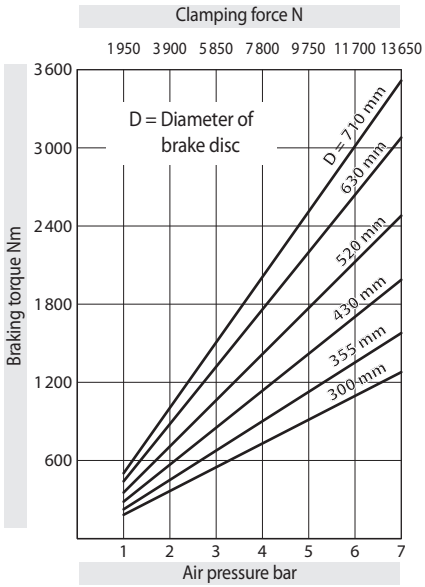
Brake Caliper DH 035 PFM - 635



The braking torques shown in the diagram are based on a theoretical friction coefficient of 0,4.

Air pressure:	max. 7 bar
Air volume:	max. 175 cm^3 per activation
Weight:	9,1 kg

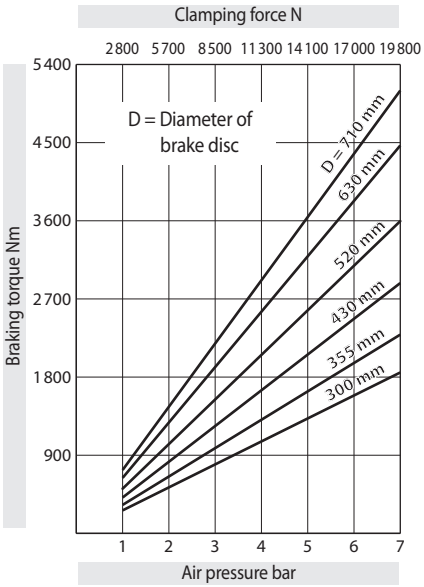
Brake Caliper DH 035 PFM - 655



The braking torques shown in the diagram are based on a theoretical friction coefficient of 0,4.

Air pressure:	max. 7 bar
Air volume:	max. 740 cm^3 per activation
Weight:	12,3 kg

Brake Caliper DH 035 PFM - 660

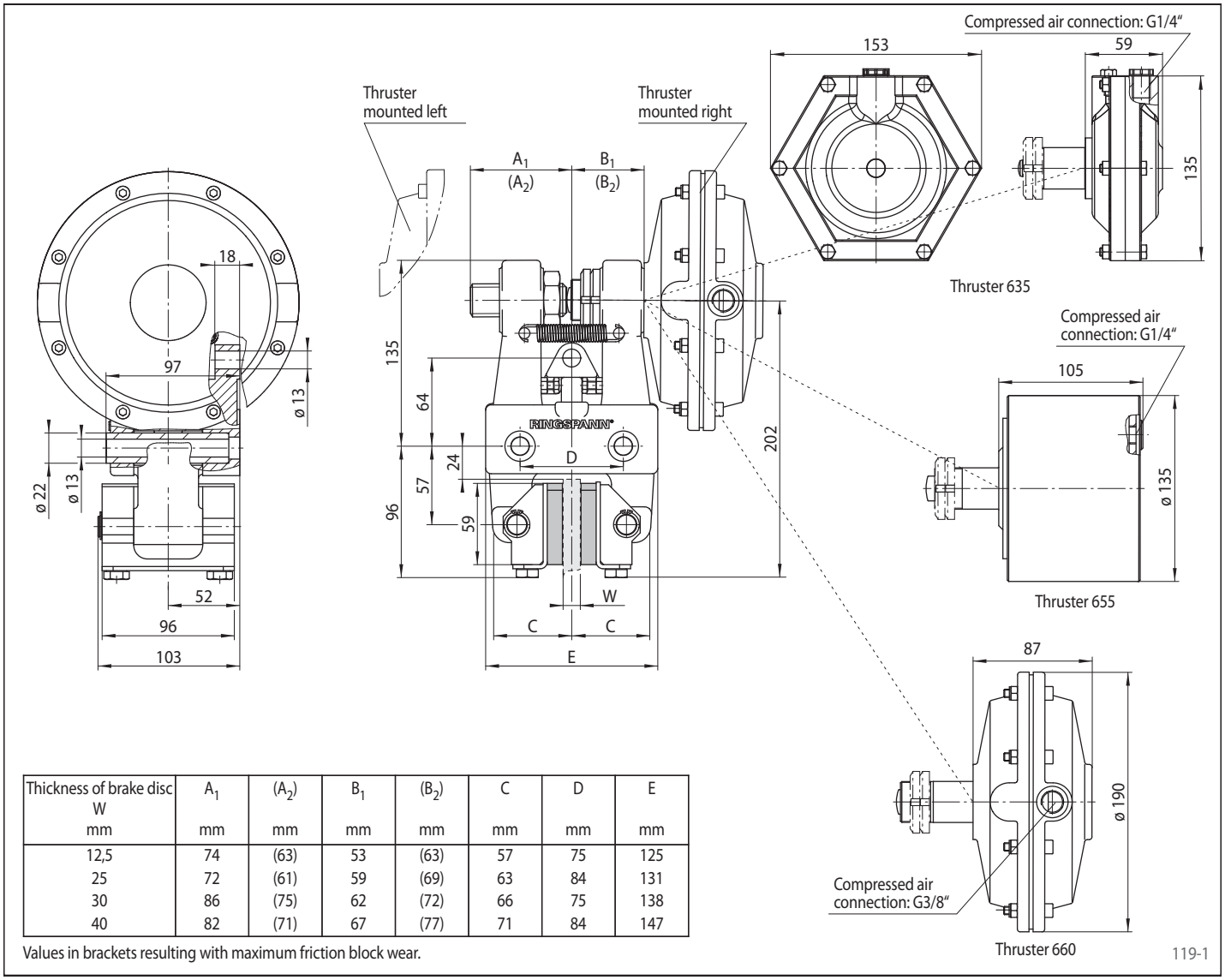


The braking torques shown in the diagram are based on a theoretical friction coefficient of 0,4.

Air pressure:	max. 7 bar
Air volume:	max. 450 cm^3 per activation
Weight:	11,4 kg

Brake Caliper DH 035 PFM

pneumatically activated – spring released



Thickness of brake disc W mm	A_1 mm	(A_2) mm	B_1 mm	(B_2) mm	C mm	D mm	E mm
12,5	74	(63)	53	(63)	57	75	125
25	72	(61)	59	(69)	63	84	131
30	86	(75)	62	(72)	66	75	138
40	82	(71)	67	(77)	71	84	147

Values in brackets resulting with maximum friction block wear.

Brake Caliper DU 060 PFM

pneumatically activated – spring released

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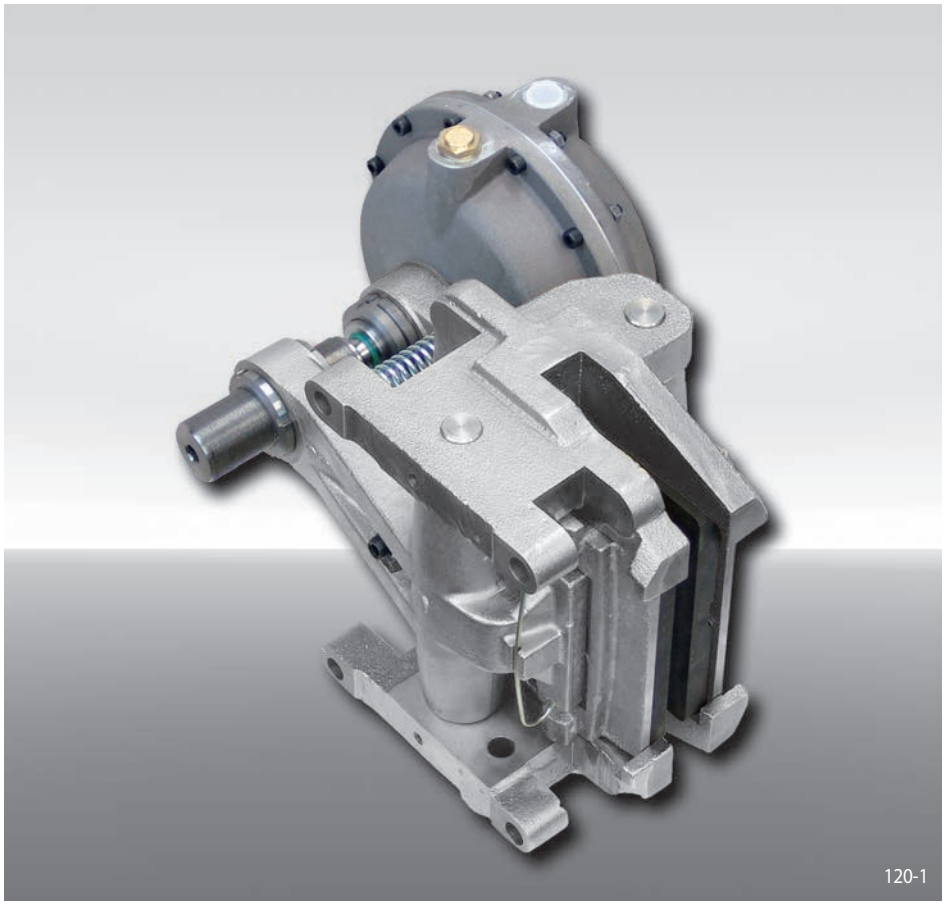


Features	Code
Brake Caliper	D
Mounting to the machine, can be made either parallel or at the right angles to the brake disc	U
Frame size 060	060
Pneumatically activated	P
Spring released	F
Manual adjustment to accommodate friction block wear	M
Thrusters 660 or 680 are available	660 680
Thruster mounted right or left available	R L
Thickness of brake disc 25 mm or 40 mm	25 40

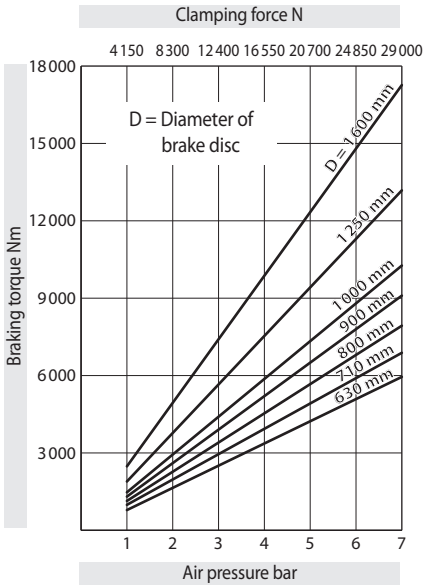
Example for ordering

Brake Caliper DU 060 PFM, thruster 680, thruster mounted right, thickness of brake disc 25 mm:

DU 060 PFM - 680 R - 25

Technical Data

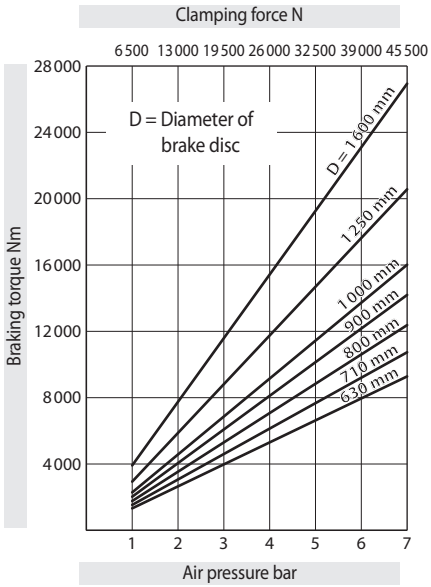
Brake Caliper DU 060 PFM - 660



The braking torques shown in the diagram are based on a theoretical friction coefficient of 0,4.

Air pressure:	max. 7 bar
Air volume:	max. 450 cm^3 per activation
Weight:	54 kg

Brake Caliper DU 060 PFM - 680



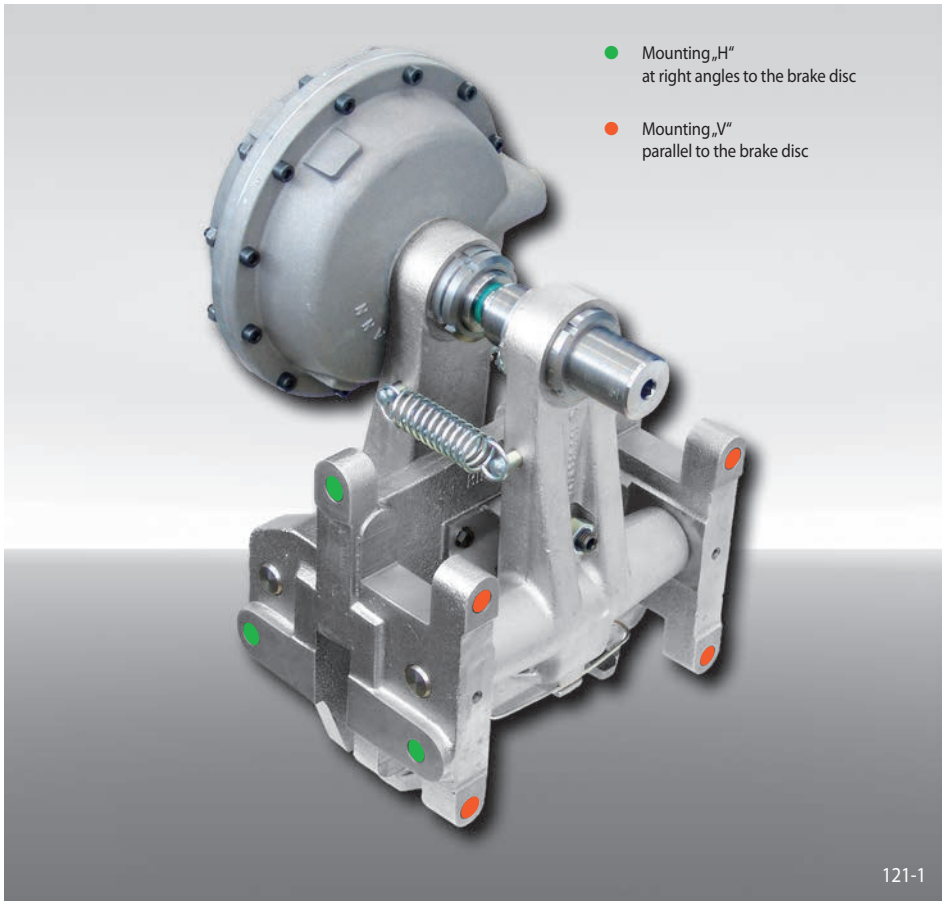
The braking torques shown in the diagram are based on a theoretical friction coefficient of 0,4.

Air pressure:	max. 7 bar
Air volume:	max. 2 000 cm^3 per activation
Weight:	56 kg

Brake Caliper DU 060 PFM

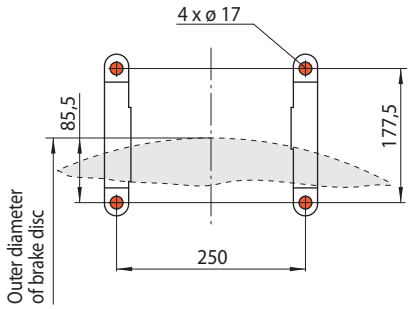
pneumatically activated – spring released

RINGSPANN®

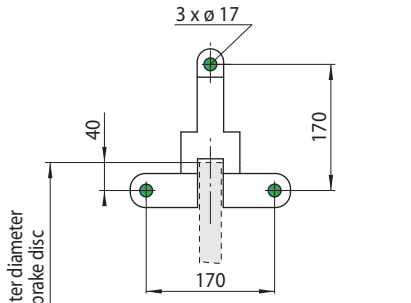


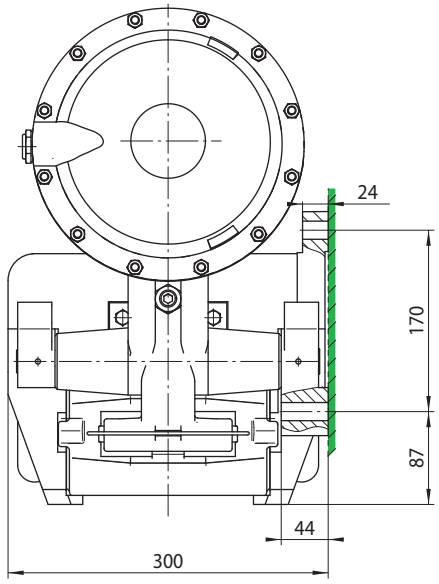
Frame Design

Mounting „V“ parallel to the brake disc

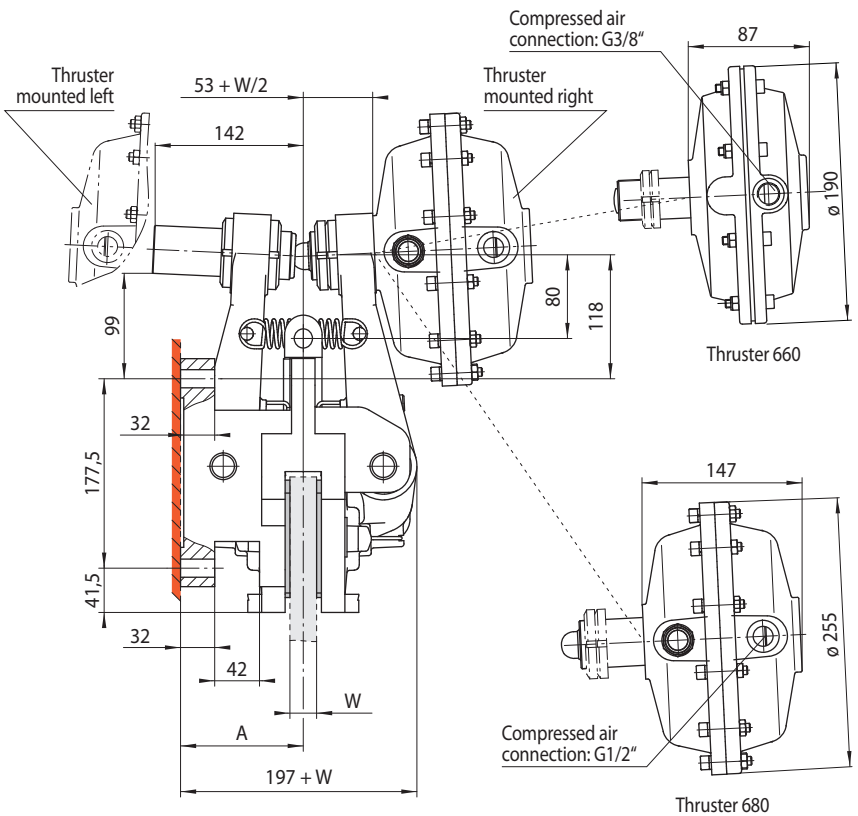


Mounting „H“ at right angles to the brake disc





W mm	A mm
25	115
40	122



W = Thickness of brake disc

- Mounting face „H“ at right angles to the brake disc
- Mounting face „V“ parallel to the brake disc

121-4

Brake Calipers EV 018 EFM and EH 018 EFM

electromagnetically activated – spring released

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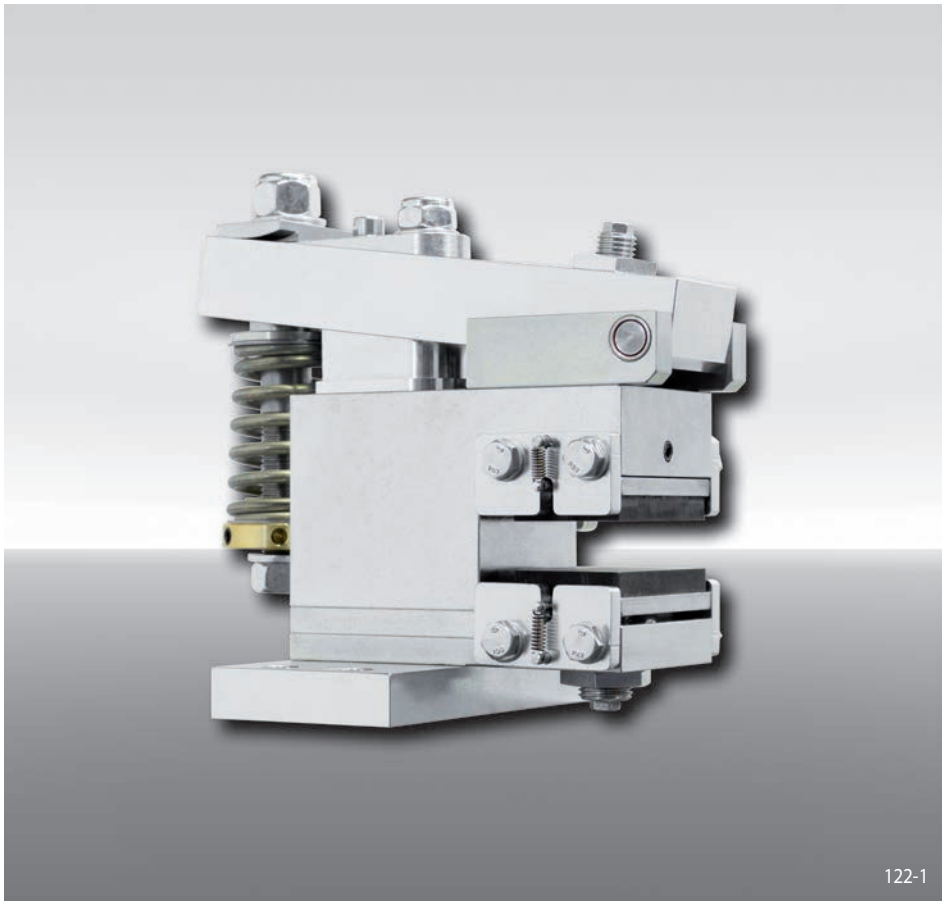


Features

Features	Code
Brake Caliper with electromagnet	E
Mounting to the machine parallel or at right angles to the brake disc	V H
Frame size 018	018
Electromagnetically activated	E
Spring released	F
Manual adjustment to accommodate friction block wear	M
Supply voltage 230 to 415 VAC, supply frequency 50 Hz or 60 Hz adjustable	400
Electromagnet mounted in central position	M
Thickness of brake disc 8 … 15 mm or 16 … 20 mm	12 20

Example for ordering

Brake Caliper EV 018 EFM, supply voltage 400 VAC, electromagnet mounted in central position, thickness of brake disc 15 mm:

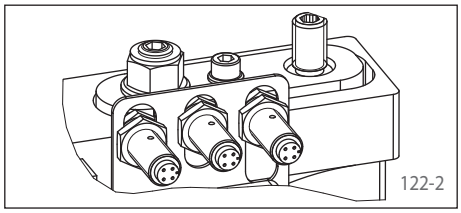
EV 018 EFM - 400 M - 12

Advantages

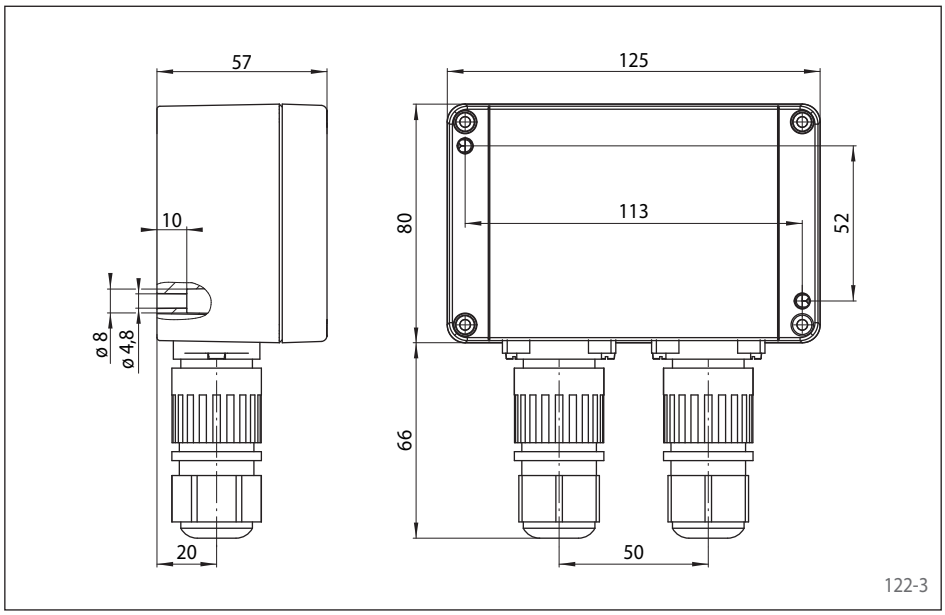
The brake caliper EV 018 EFM or EH 018 EFM is a very compact and high efficient disc brake with very low power consumption. Its floating bearing compensates small misallignments of the brake disc. The separate electronic module (included) reduces the power consumption in closed position to 10 W automatically.

Options

- Inductive proximity switch: "Brake released"-, "Brake closed"-status and/or "Friction block wear adjustment necessary"



Electronic module



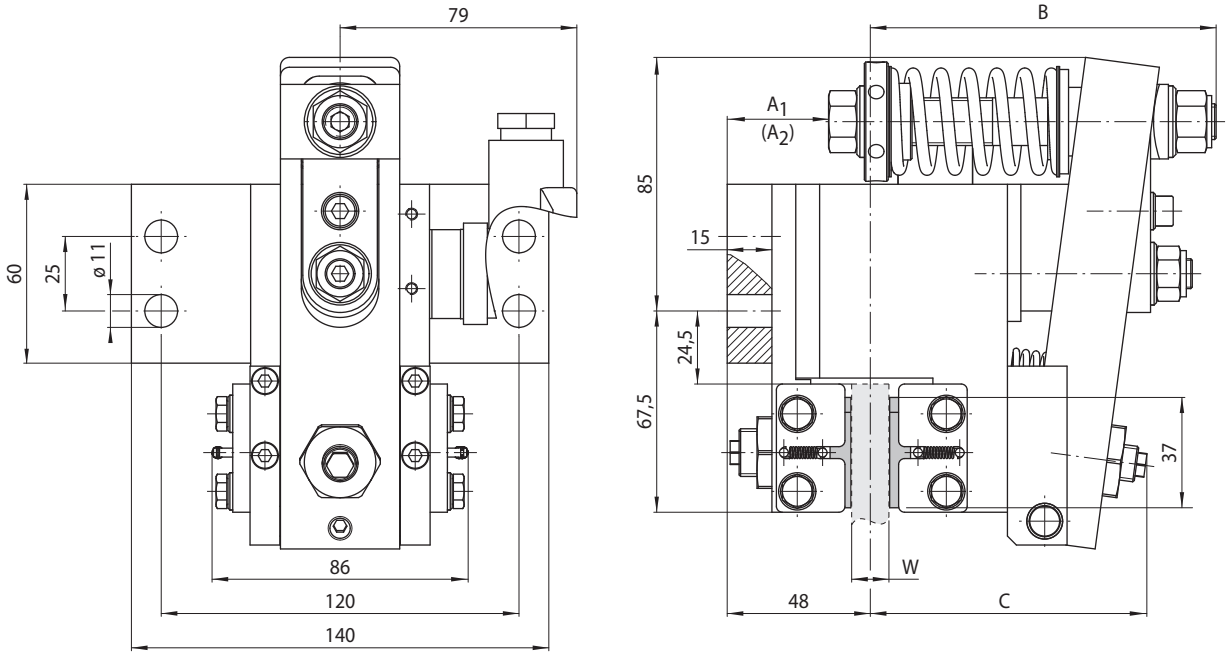
Technical Data

	Brake Calipers EV 018 EFM and EH 018 EFM with supply voltage	
	230/240 VAC	380/400/415 VAC
Brake disc diameter mm	Braking torque Nm	Braking torque Nm
125	60	95
150	75	125
200	110	185
250	150	245
300	180	305
355	220	370
Clamping force	1800 N	3000 N
Clamping force or braking torque adjustable	70 - 100%	50 - 100%
Power consumption in closed position	10 W (100% duty factor)	
Fuse rating	10 A, Type "B"	
Max. number of actuation	240/h permanent activations at 20° C ambient temperature	
Actuation frequency*	at least 8 seconds between 2 activations	
Weight	6,5 kg	

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

* Shorter actuation frequency on request

Brake Caliper EV 018 EFM

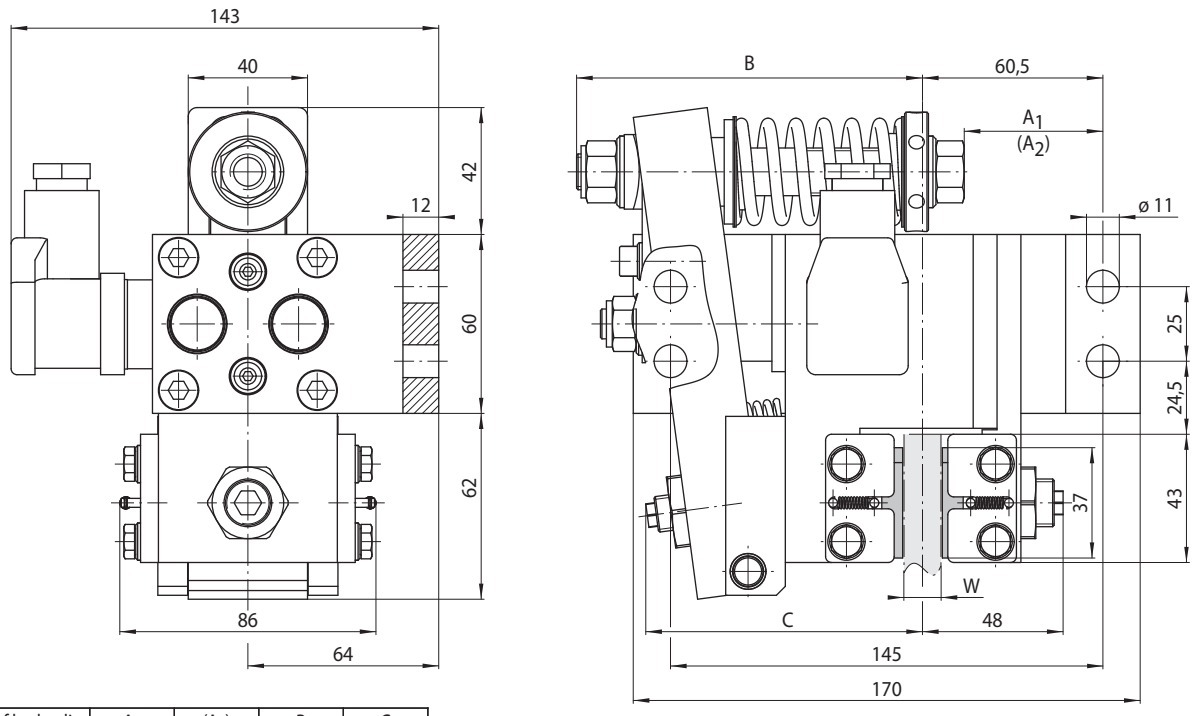


Thickness of brake disc W mm	A_1 mm	(A_2) mm	B mm	C mm
8 … 15	34	(19)	116	93
16 … 20	36	(21)	118	97

Values in brackets resulting with friction block wear.

123-1

Brake Caliper EH 018 EFM



Thickness of brake disc W mm	A_1 mm	(A_2) mm	B mm	C mm
8 … 15	46	(31)	116	93
16 … 20	48	(33)	118	97

Values in brackets resulting with friction block wear.

123-2

Brake Calipers EV 024 EFM and EH 024 EFM

electromagnetically activated – spring released

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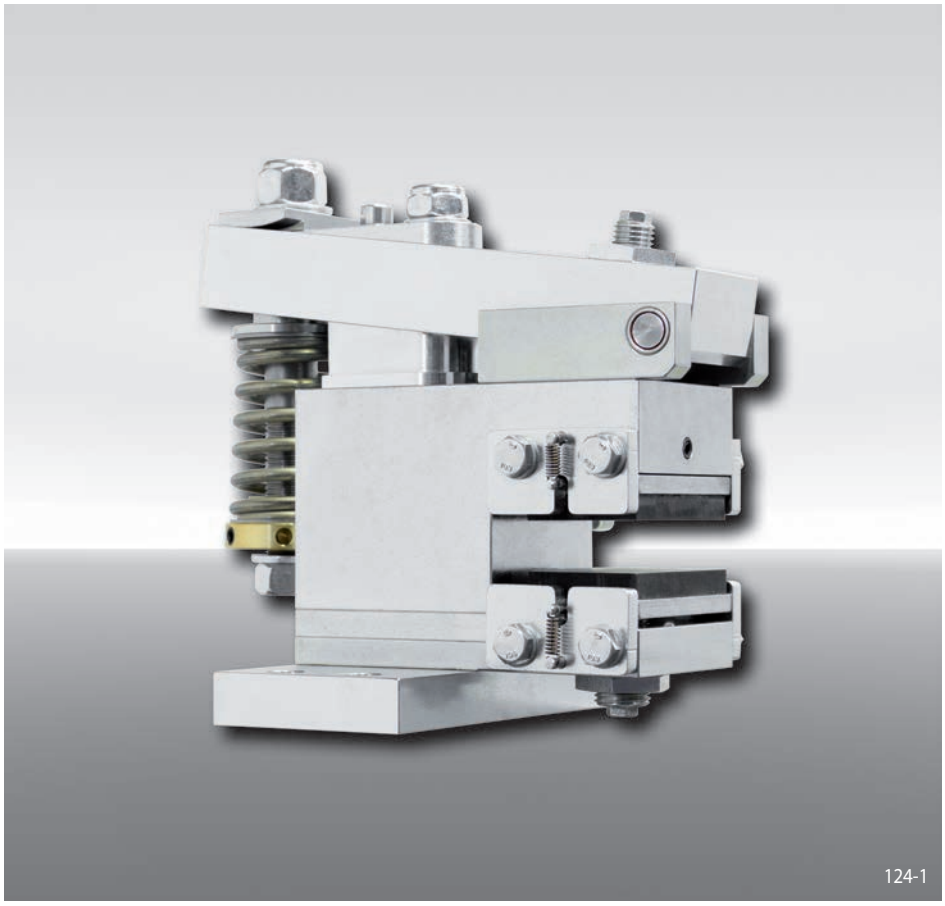


Features

Features	Code
Brake Caliper with electromagnet	E
Mounting to the machine parallel or at right angles to the brake disc	V H
Frame size 024	024
Electromagnetically activated	E
Spring released	F
Manual adjustment to accommodate friction block wear	M
Supply voltage 230 to 415 VAC, supply frequency 50 Hz or 60 Hz adjustable	400
Electromagnet mounted in central position	M
Thickness of brake disc 10 … 16 mm or 18 … 26 mm	12 25

Example for ordering

Brake Caliper EV 024 EFM, supply voltage 400 VAC, electromagnet mounted in central position, thickness of brake disc 15 mm:

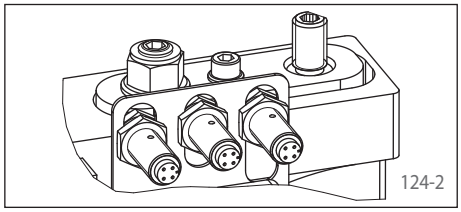
EV 024 EFM - 400 M - 12

Advantages

The brake caliper EV 024 EFM or EH 024 EFM is a very compact and high efficient disc brake with very low power consumption. Its floating bearing compensates small misallignments of the brake disc. The attached electronic reduces the power consumption in closed position to 15 W automatically.

Options

- Inductive proximity switch: "Brake released"-, "Brake closed"-status and/or "Friction block wear adjustment necessary"



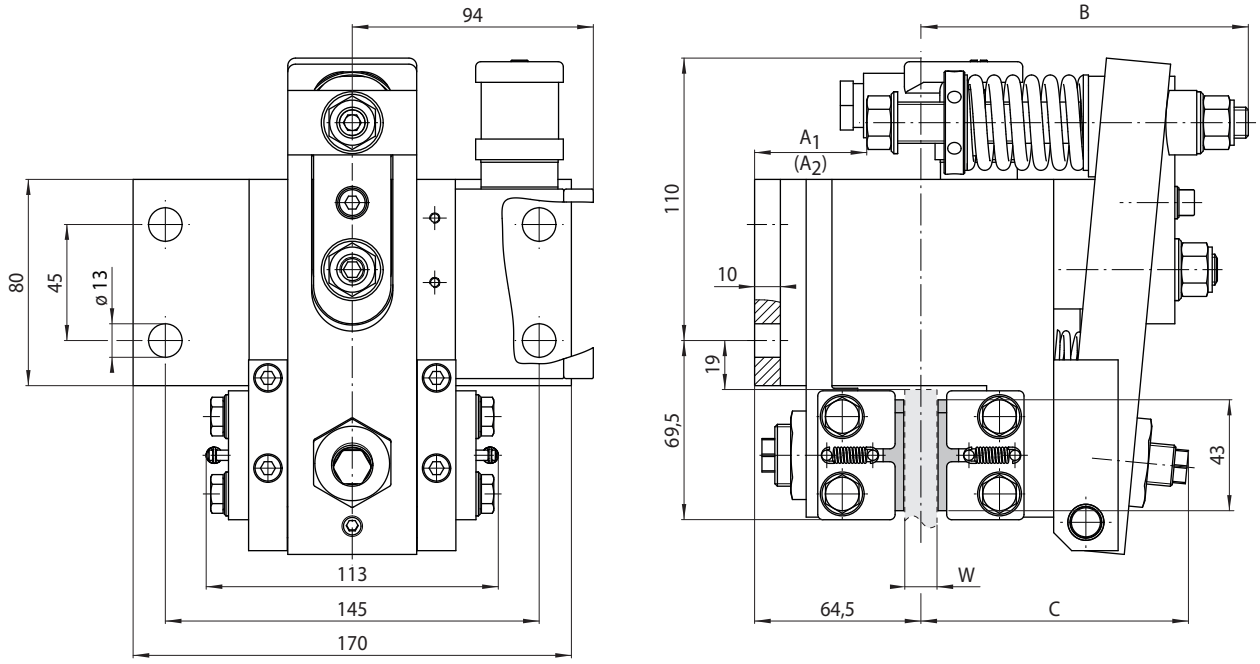
Technical Data

	Brake Calipers EV 024 EFM and EH 024 EFM with supply voltage	
	230/240 VAC	380/400/415 VAC
Brake disc diameter mm	Braking torque Nm	Braking torque Nm
250	320	440
300	400	550
355	490	670
430	610	830
520	750	1 030
630	930	1 270
Clamping force	4 000 N	5 500 N
Clamping force or braking torque adjustable	70 - 100%	60 - 100%
Power consumption in closed position	15 W (100% duty factor)	
Fuse rating	10 A, Type "B"	
Max. number of actuation	240/h permanent activations at 20° C ambient temperature	
Actuation frequency*	at least 8 seconds between 2 activations	
Weight	13 kg	

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

* Shorter actuation frequency on request

Brake Caliper EV 024 EFM

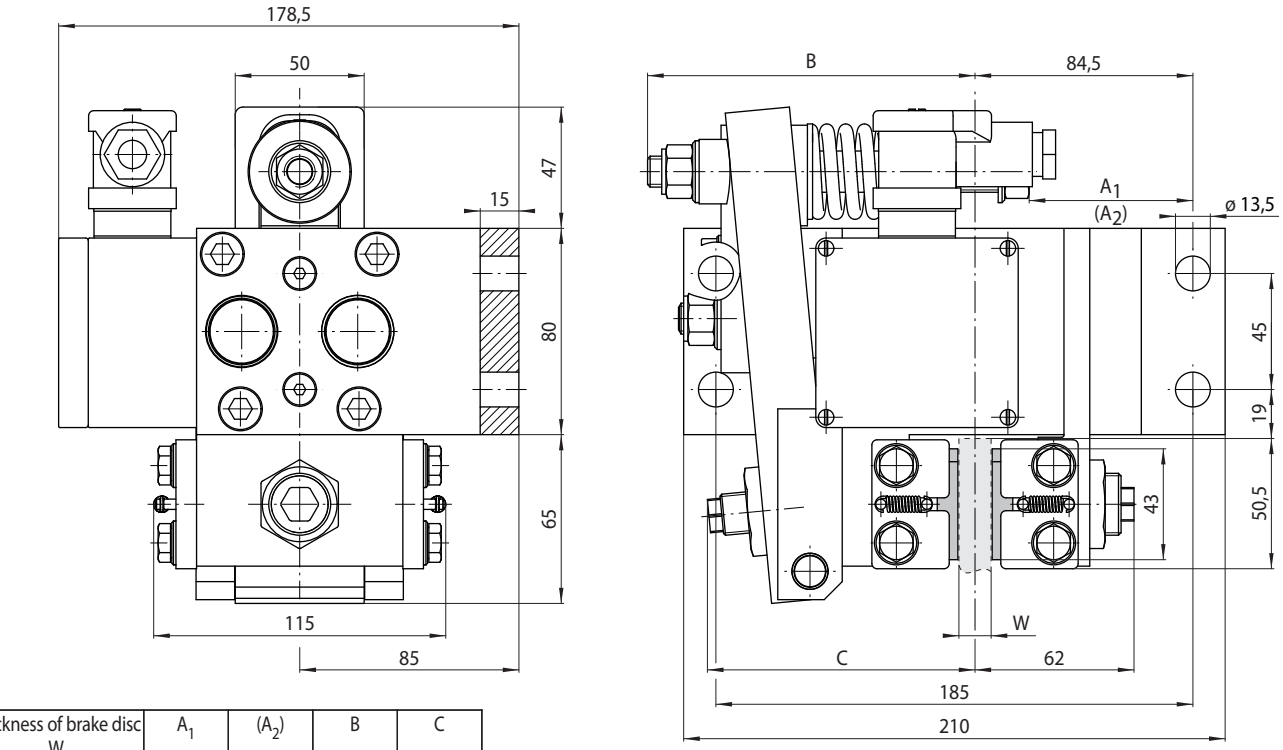


Thickness of brake disc W mm	A_1 mm	(A_2) mm	B mm	C mm
10 … 16	43,5	(28,5)	127	104
18 … 26	48,5	(33,5)	132	110

Values in brackets resulting with friction block wear.

125-1

Brake Caliper EH 024 EFM



Thickness of brake disc W mm	A_1 mm	(A_2) mm	B mm	C mm
10 … 16	63,5	(48,5)	127	104
18 … 26	68,5	(53,5)	132	110

Values in brackets resulting with friction block wear.

125-2

Brake Calipers EV 028 EFM and EH 028 EFM

electromagnetically activated – spring released

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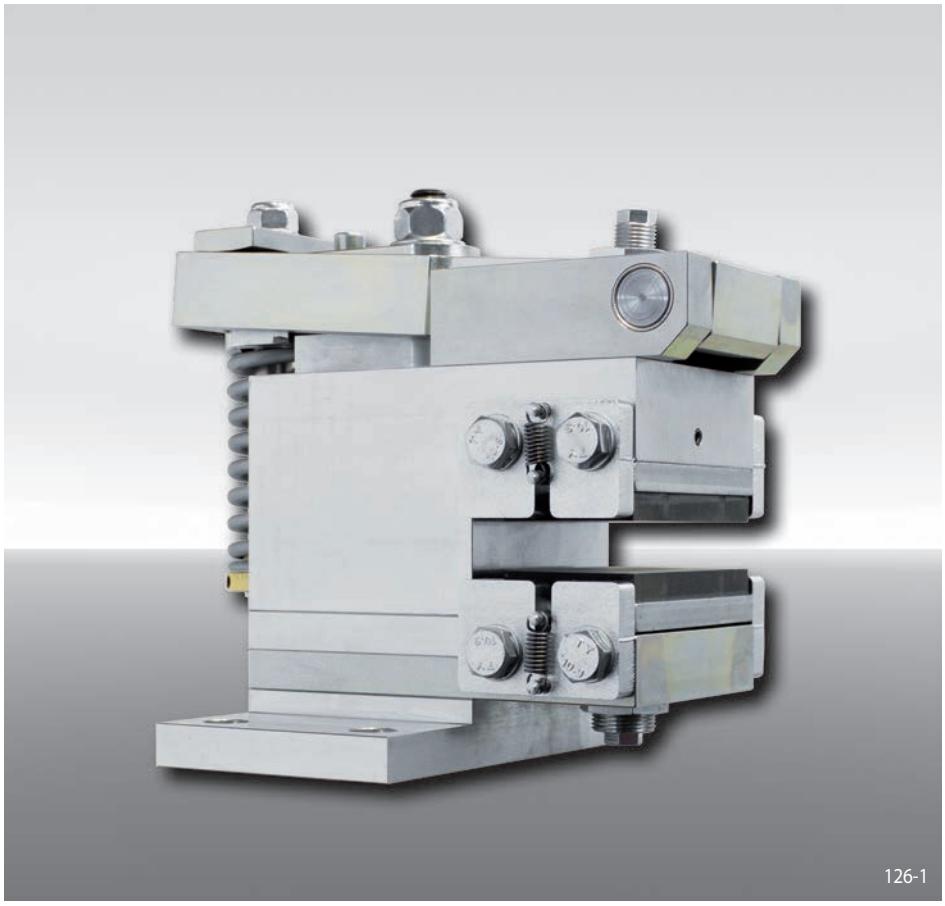


Features

Features	Code
Brake Caliper with electromagnet	E
Mounting to the machine parallel or at right angles to the brake disc	V H
Frame size 028	028
Electromagnetically activated	E
Spring released	F
Manual adjustment to accommodate friction block wear	M
Supply voltage 230 to 415 VAC, supply frequency 50 Hz or 60 Hz adjustable	400
Electromagnet mounted in central position	M
Thickness of brake disc 10 … 16 mm or 18 … 26 mm	12 25

Example for ordering

Brake Caliper EV 028 EFM, supply voltage 400 VAC, electromagnet mounted in central position, thickness of brake disc 15 mm:

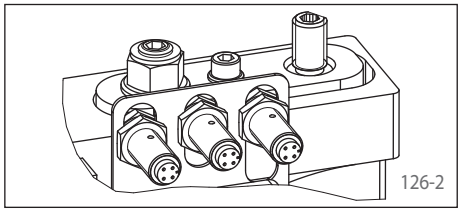
EV 028 EFM - 400 M - 12

Advantages

The brake caliper EV 028 EFM or EH 028 EFM is a very compact and high efficient disc brake with very low power consumption. Its floating bearing compensates small misallignments of the brake disc. The attached electronic reduces the power consumption in closed position to 20 W automatically.

Options

- Inductive proximity switch: "Brake released"-, "Brake closed"-status and/or "Friction block wear adjustment necessary"



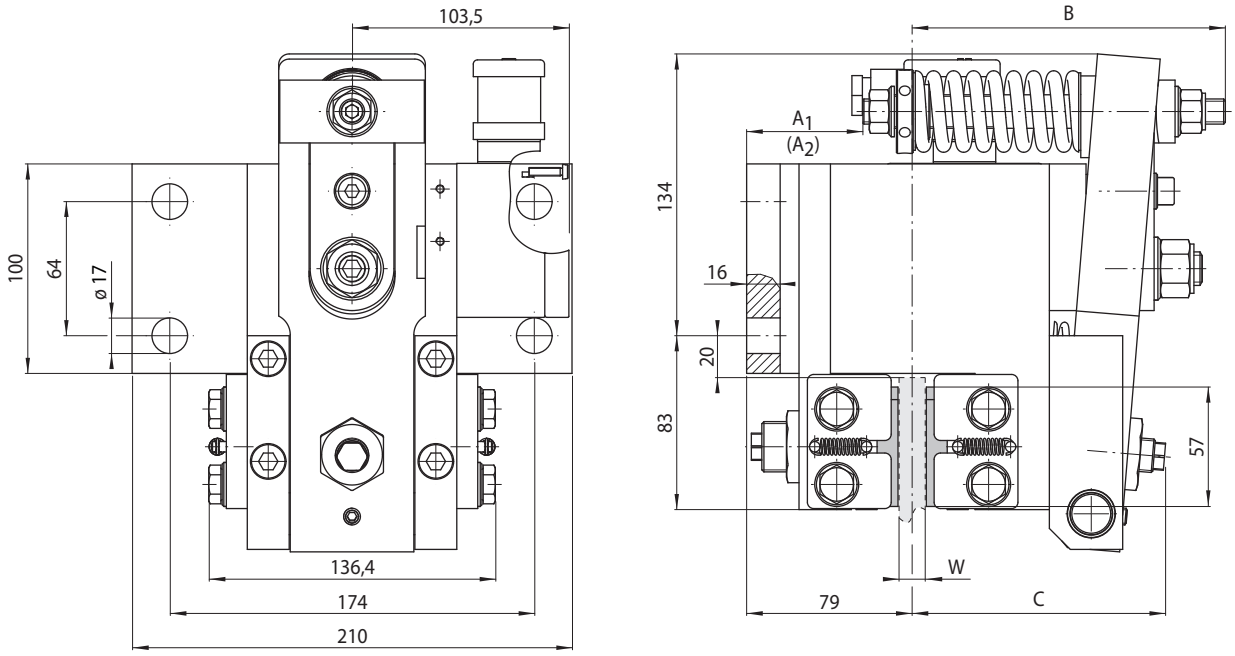
Technical Data

	Brake Calipers EV 028 EFM and EH 028 EFM with supply voltage	
	230/240 VAC	380/400/415 VAC
Brake disc diameter mm	Braking torque Nm	Braking torque Nm
300	700	1 170
355	870	1 450
430	1 090	1 820
520	1 360	2 270
630	1 690	2 820
710	1 930	3 220
Clamping force	7 500 N	12 500 N
Clamping force or braking torque adjustable	70 - 100%	70 - 100%
Power consumption in closed position	20 W (100% duty factor)	
Fuse rating	10 A, Type "B"	
Max. number of actuation	240/h permanent activations at 20° C ambient temperature	
Actuation frequency*	at least 8 seconds between 2 activations	
Weight	24 kg	

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

* Shorter actuation frequency on request

Brake Caliper EV 028 EFM

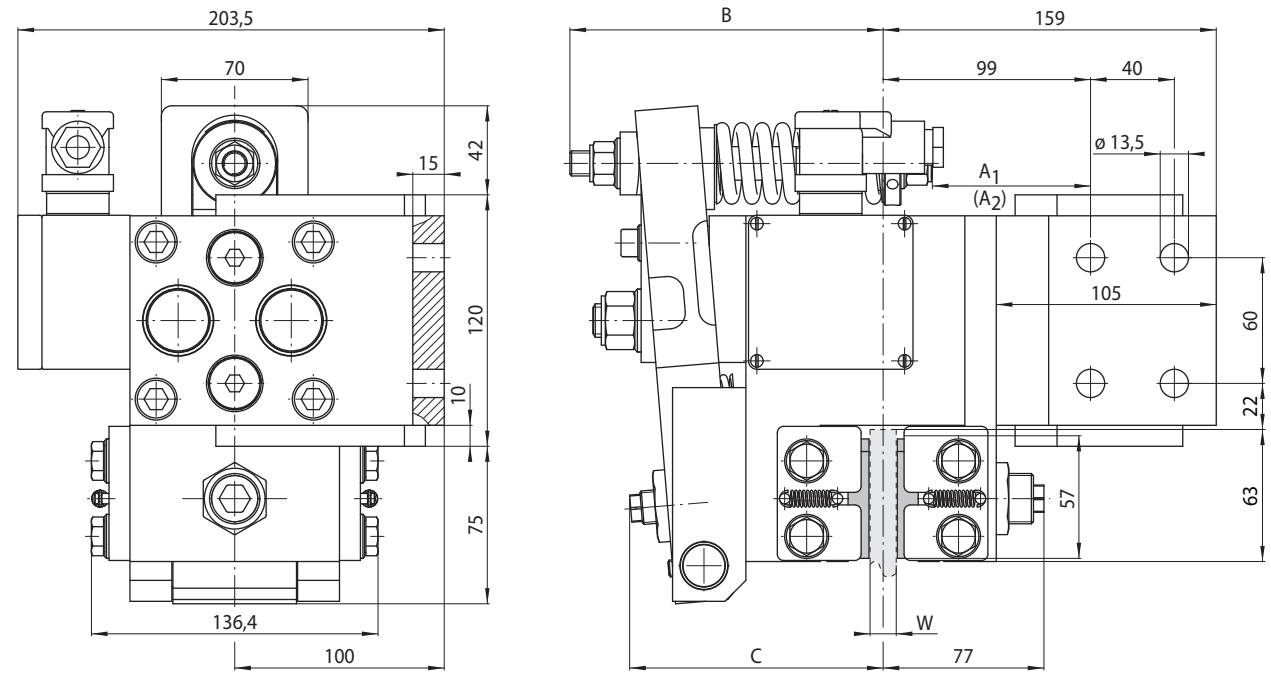


Thickness of brake disc W mm	A_1 mm	(A_2) mm	B mm	C mm
10 … 16	55,5	(40,5)	149,5	121
18 … 26	60,5	(45,5)	154,5	127

Values in brackets resulting with friction block wear.

127-1

Brake Caliper EH 028 EFM



Thickness of brake disc W mm	A_1 mm	(A_2) mm	B mm	C mm
10 … 16	75,5	(60,5)	149,5	121
18 … 26	80,5	(65,5)	154,5	127

Values in brackets resulting with friction block wear.

127-2

Brake Calipers EV 038 EFM and EH 038 EFM

electromagnetically activated – spring released

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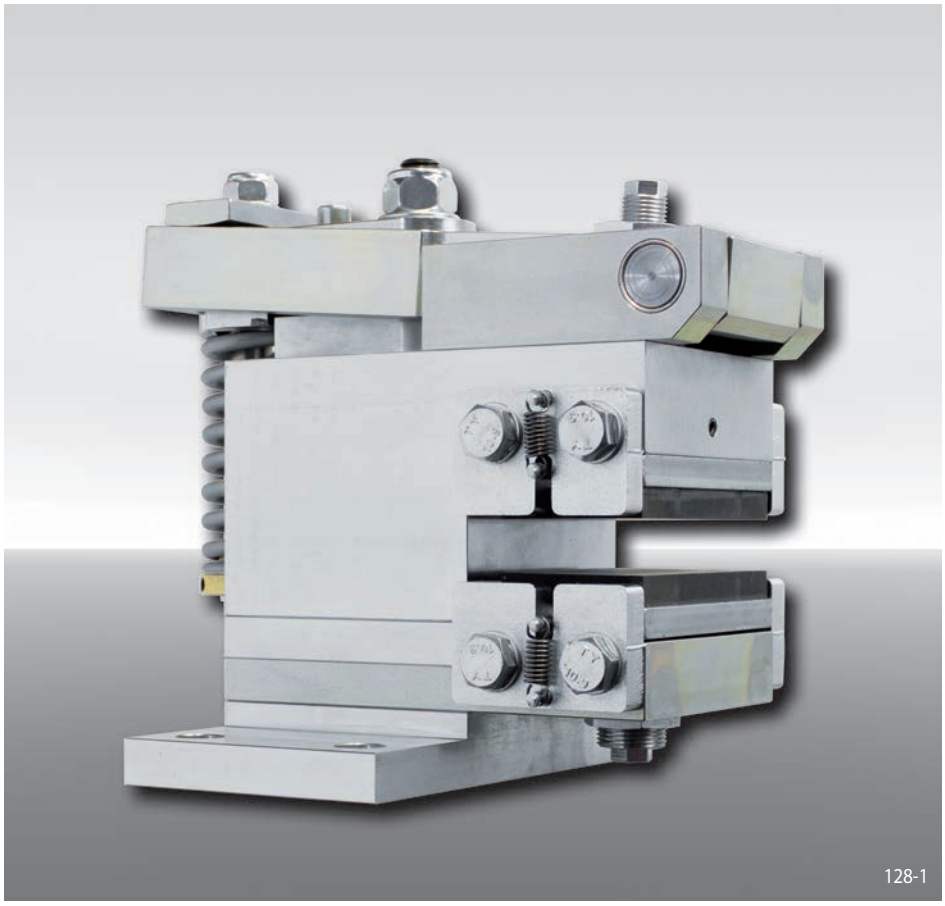


Features

Features	Code
Brake Caliper with electromagnet	E
Mounting to the machine parallel or at right angles to the brake disc	V H
Frame size 038	038
Electromagnetically activated	E
Spring released	F
Manual adjustment to accommodate friction block wear	M
Supply voltage 380/400/415 VAC, supply frequency 50 Hz or 60 Hz adjustable	400
Electromagnet mounted in central position	M
Thickness of brake disc 12,5 … 20 mm or 22 … 30 mm	12 25

Example for ordering

Brake Caliper EV 038 EFM, supply voltage 400 VAC, electromagnet mounted in central position, thickness of brake disc 25 mm:

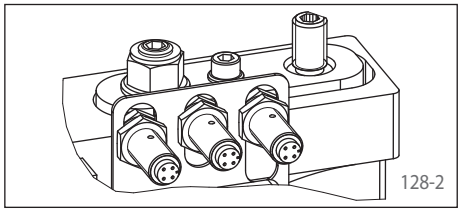
EV 038 EFM - 400 M - 25

Advantages

The brake caliper EV 038 EFM or EH 038 EFM is a very compact and high efficient disc brake with very low power consumption. Its floating bearing compensates small misallignments of the brake disc. The attached electronic reduces the power consumption in closed position to 30 W automatically.

Options

- Inductive proximity switch: "Brake released"-, "Brake closed"-status and/or "Friction block wear adjustment necessary"



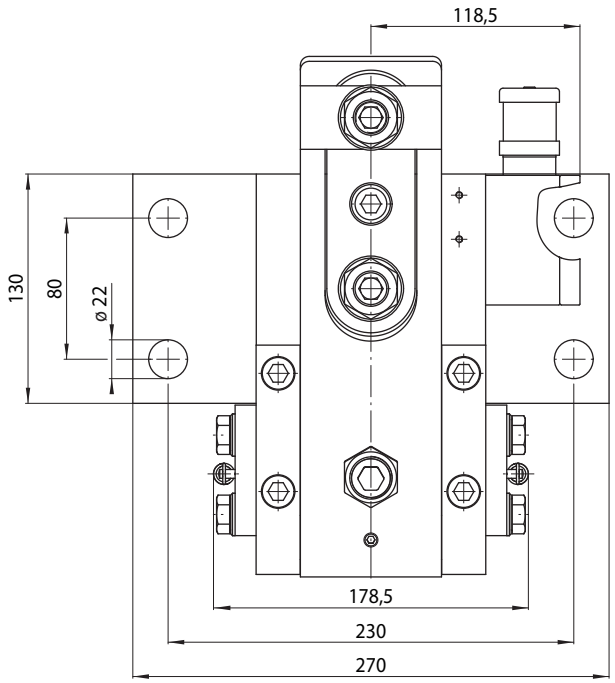
Technical Data

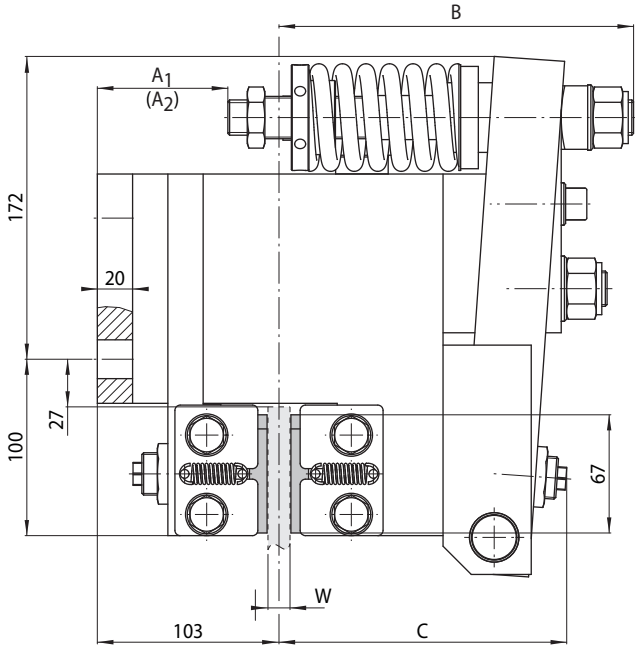
	Brake Calipers EV 038 EFM and EH 038 EFM with supply voltage 380/400/415 VAC
Brake disc diameter mm	Braking torque Nm
430	3400
520	4250
630	5320
710	6090
800	6950
900	7910
Clamping force	24000 N
Clamping force or braking torque adjustable	70 - 100%
Power consumption in closed position	30 W (100% duty factor)
Fuse rating	10 A, Type "B"
Max. number of actuation	240/h permanent activations at 20° C ambient temperature
Actuation frequency*	at least 8 seconds between 2 activations
Weight	50 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

* Shorter actuation frequency on request

Brake Caliper EV 038 EFM



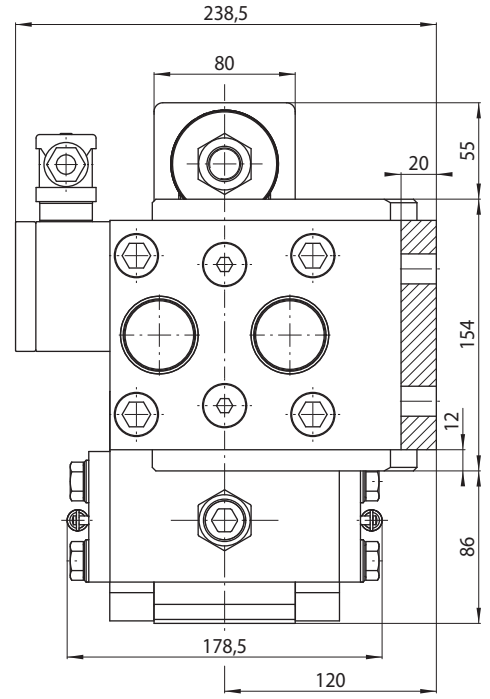


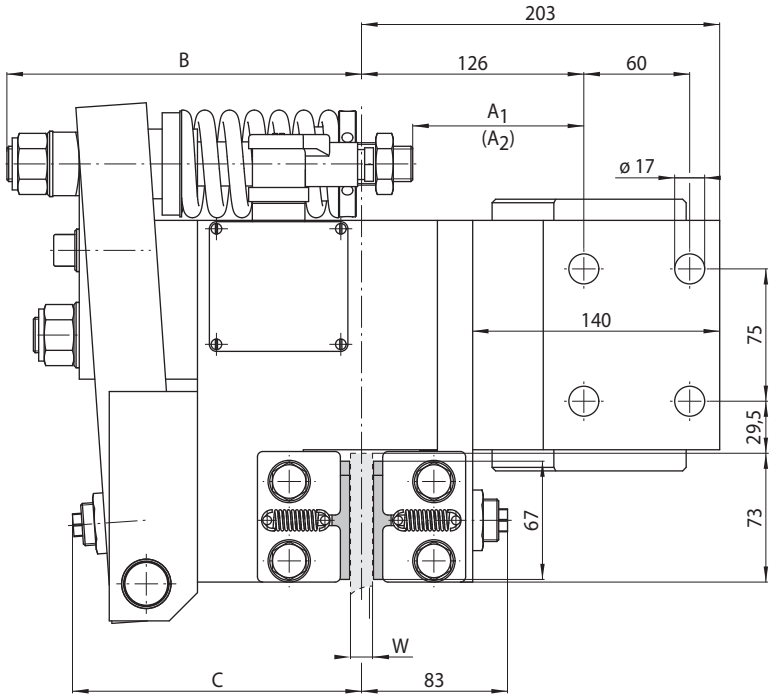
Thickness of brake disc W mm	A_1 mm	(A_2) mm	B_1 mm	C mm
12,5 … 20	74	(59)	201	163
22 … 30	79	(64)	206	169

Values in brackets resulting with friction block wear.

129-1

Brake Caliper EH 038 EFM





Thickness of brake disc W mm	A_1 mm	(A_2) mm	B_1 mm	C mm
12,5 … 20	97	(82)	201	163
22 … 30	102	(87)	206	169

Values in brackets resulting with friction block wear.

129-2

Brake Caliper DH 010 MSM

manually activated – manually released with hand wheel

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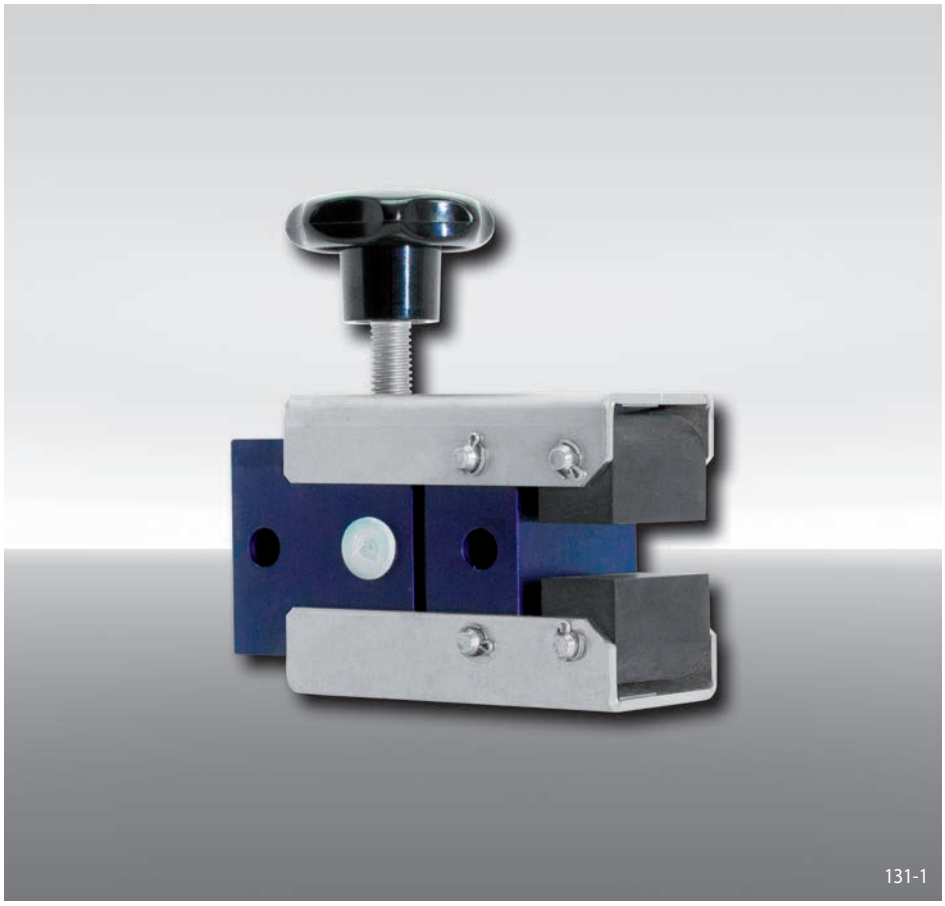
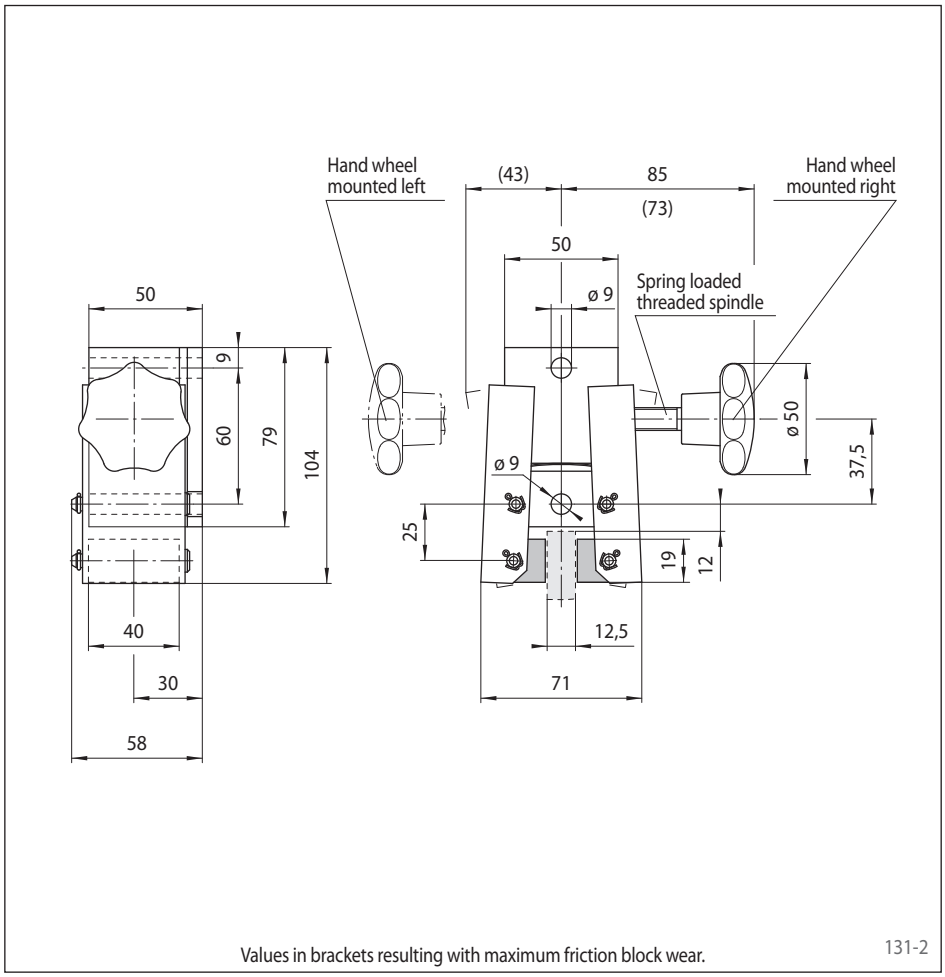


Features	Code
Brake Caliper	D
Mounting to the machine at right angles to the brake disc	H
Frame size 010	010
Manually activated	M
Manually released	S
Manual adjustment to accommodate friction block wear	M
Hand wheel 710	710
Hand wheel mounted right or left available	R L
Thickness of brake disc 12,5 mm	12

Example for ordering

Brake Caliper DH 010 MSM, hand wheel 710, hand wheel mounted right, thickness of brake disc 12,5 mm:

DH 010 MSM - 710 R - 12



Values in brackets resulting with maximum friction block wear.

Technical Data

	Brake Caliper DH 010 MSM with hand wheel 710
Brake disc diameter mm	Braking torque Nm
125	20
150	30
200	40
250	50
300	60
355	75
Clamping force	576 N
Weight	1,1 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4. The maximum braking torques are based on an operating torque of 0,8 Nm at the hand wheel.

A spring loaded threaded spindle compensates for wear of the friction block during the braking action.

Brake Caliper DV 020 MSM

manually activated – manually released with hand wheel

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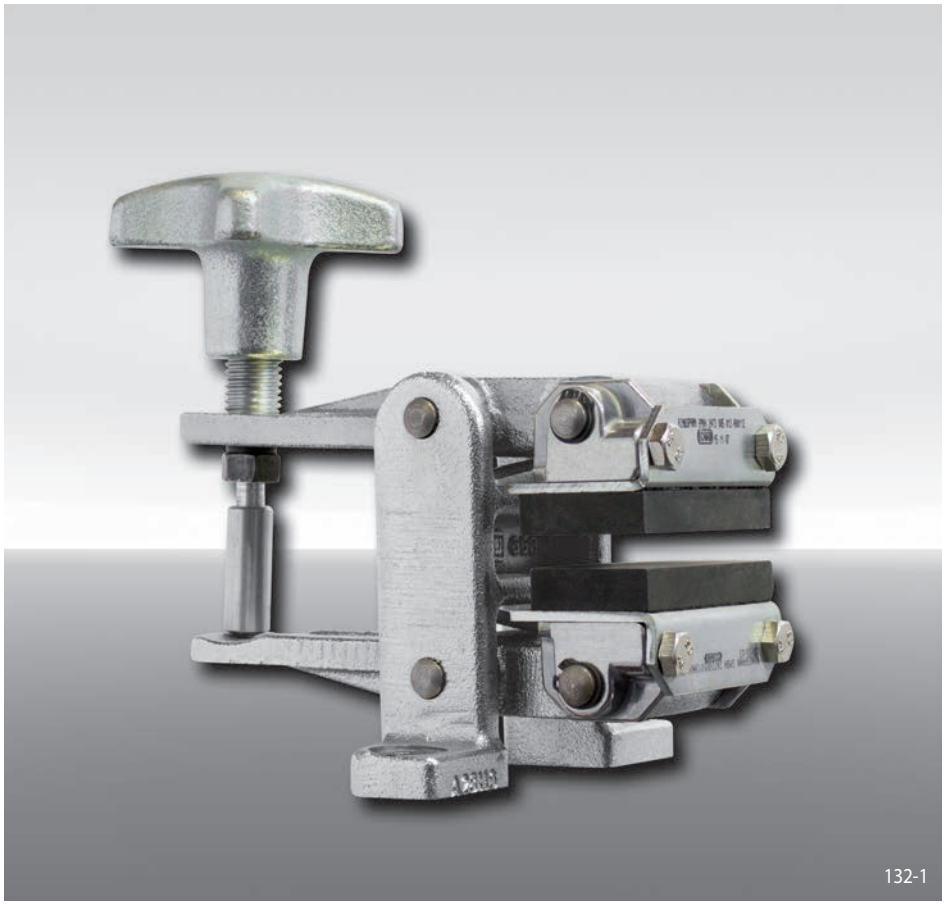
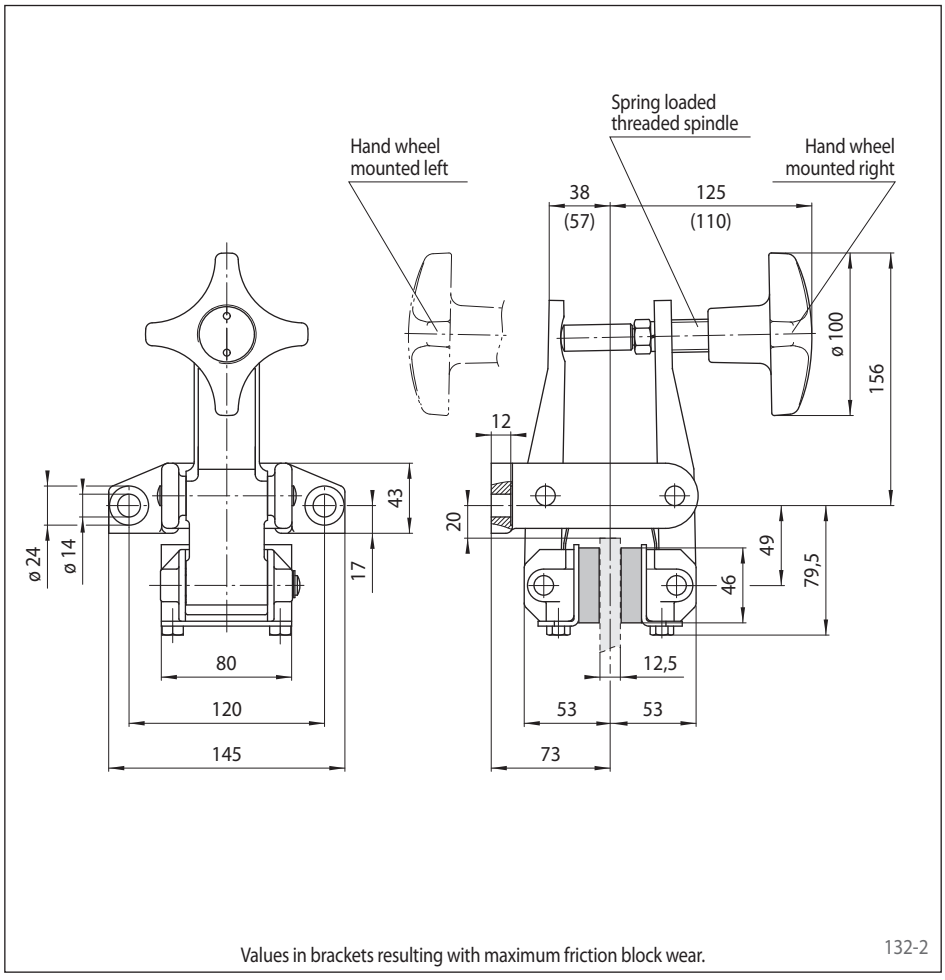




Values in brackets resulting with maximum friction block wear.

Features	Code
Brake Caliper	D
Mounting to the machine parallel to the brake disc	V
Frame size 020	020
Manually activated	M
Manually released	S
Manual adjustment to accommodate friction block wear	M
Hand wheel 720	720
Hand wheel mounted right or left available	R L
Thickness of brake disc 12,5 mm	12

Example for ordering

Brake Caliper DV 020 MSM, hand wheel 720, hand wheel mounted right, thickness of brake disc 12,5 mm:

DV 020 MSM - 720 R - 12

Technical Data

	Brake Caliper DV 020 MSM with hand wheel 720
Brake disc diameter mm	Braking torque Nm
200	160
250	215
300	270
355	335
430	420
520	520
Clamping force	2800 N
Weight	4,8 kg

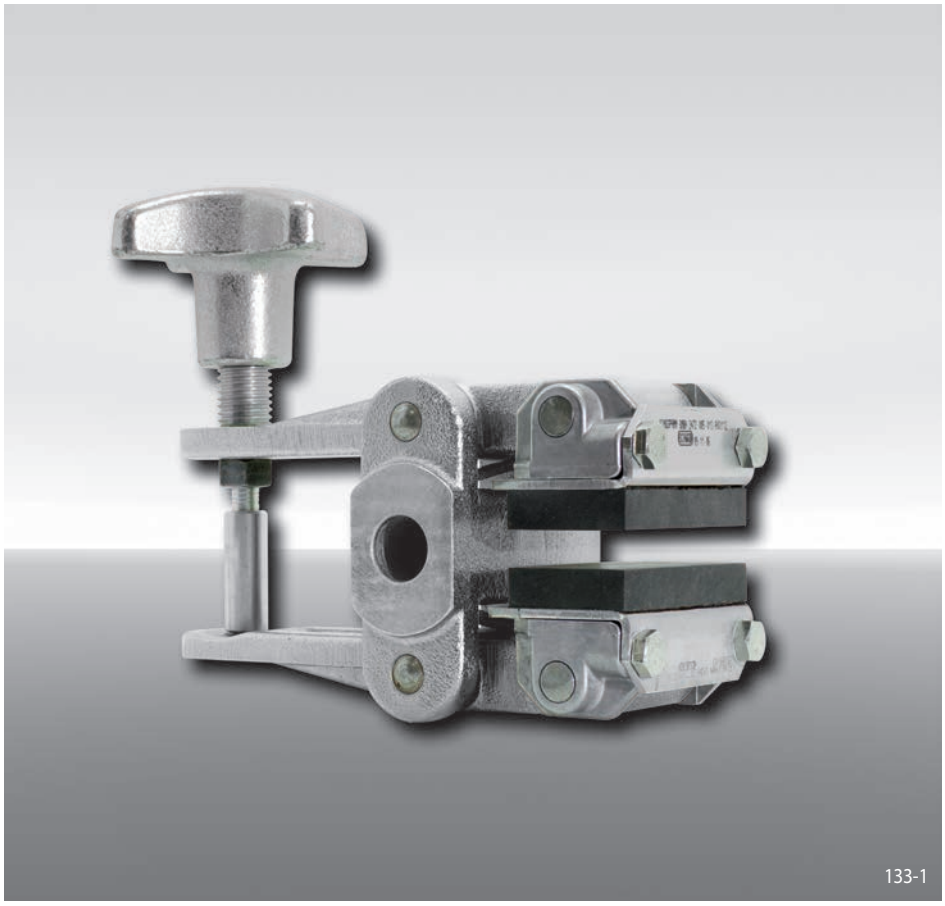
The braking torques shown in the table are based on a theoretical friction coefficient of 0,4. The maximum braking torques are based on an operating torque of 7,7 Nm at the hand wheel.

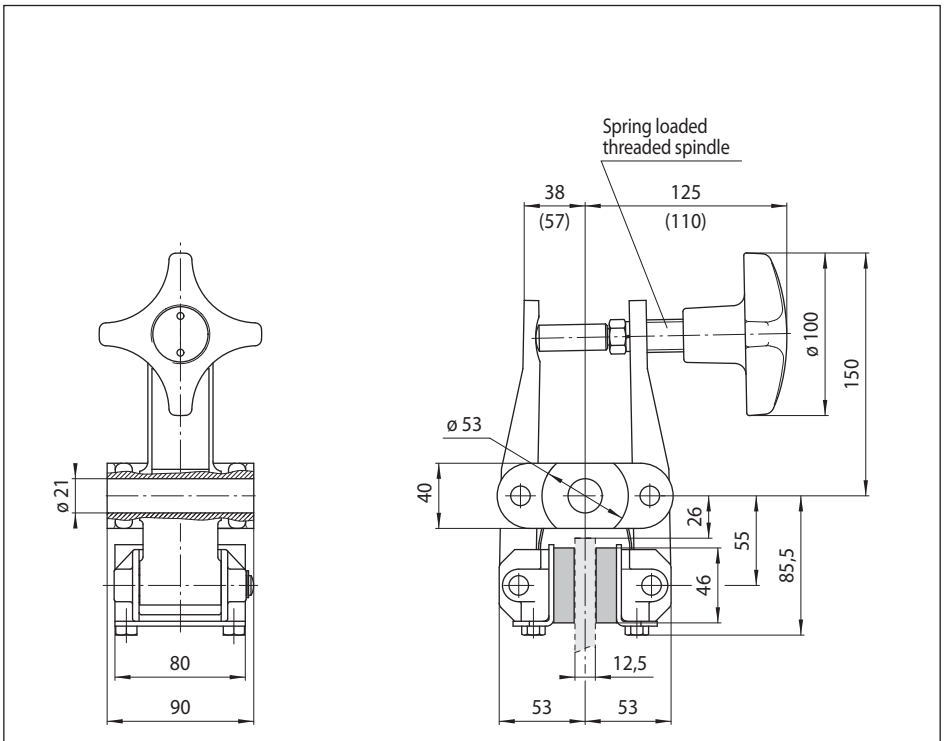
A spring loaded threaded spindle compensates for wear of the friction block during the braking action.

Brake Caliper DH 020 MSM

manually activated – manually released with hand wheel

RINGSPANN®





Values in brackets resulting with maximum friction block wear.

Features	Code
Brake Caliper	D
Mounting to the machine at right angles to the brake disc	H
Frame size 020	020
Manually activated	M
Manually released	S
Manual adjustment to accommodate friction block wear	M
Hand wheel 720	720
Position of the hand wheel to the right or left can be defined by turning the brake during installation	U
Thickness of brake disc 12,5 mm	12

Example for ordering

Brake Caliper DH 020 MSM, hand wheel 720, position of the hand wheel can be to the right or left, thickness of brake disc 12,5 mm:

DH 020 MSM - 720 U - 12

Technical Data

	Brake Caliper DH 020 MSM with hand wheel 720
Brake disc diameter mm	Braking torque Nm
200	160
250	215
300	270
355	335
430	420
520	520
Clamping force	2800 N
Weight	4,8 kg

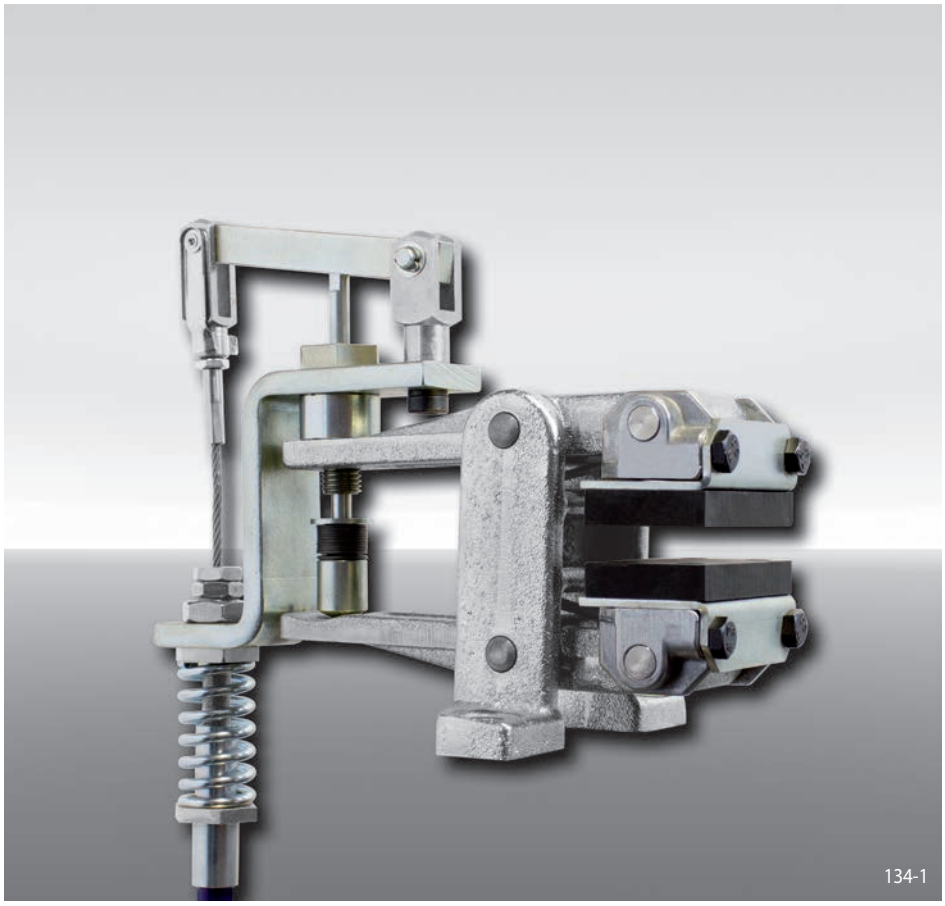
The braking torques shown in the table are based on a theoretical friction coefficient of 0,4. The maximum braking torques are based on an operating torque of 7,7 Nm at the hand wheel.

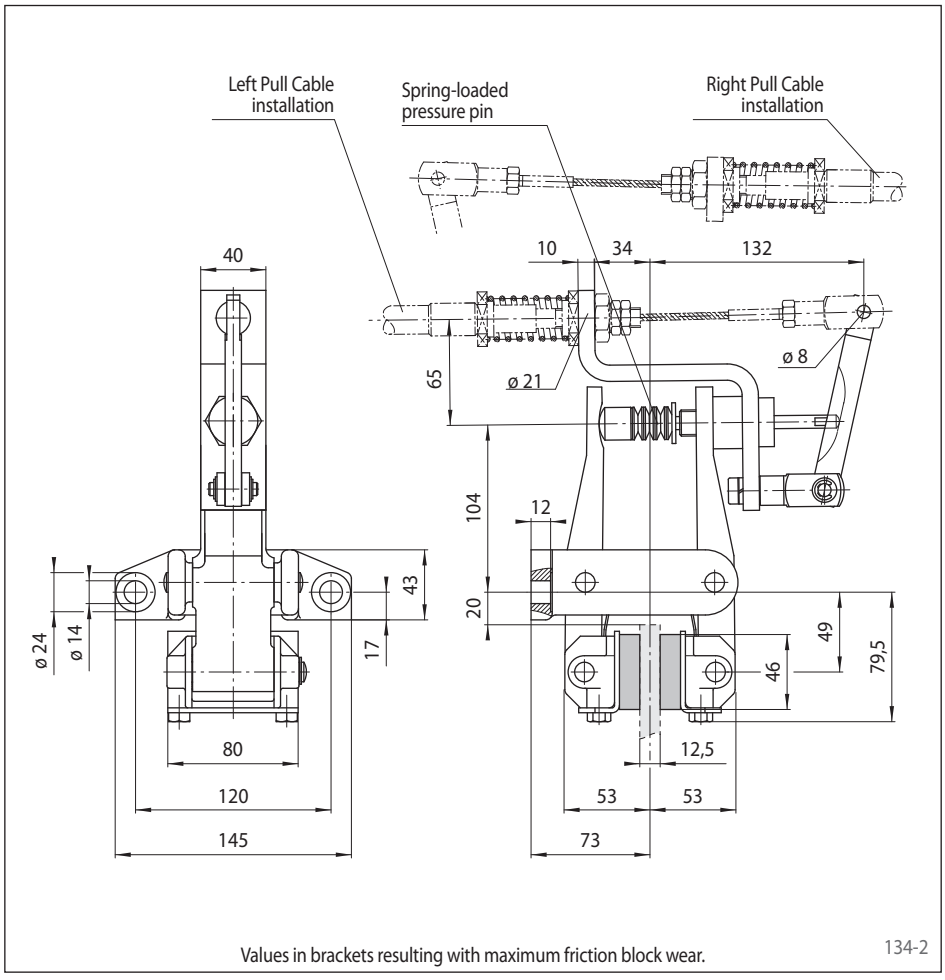
A spring loaded threaded spindle compensates for wear of the friction block during the braking action.

Brake Caliper DV 020 MKM

manually activated – manually released by Pull Cable

RINGSPANN®





Values in brackets resulting with maximum friction block wear.

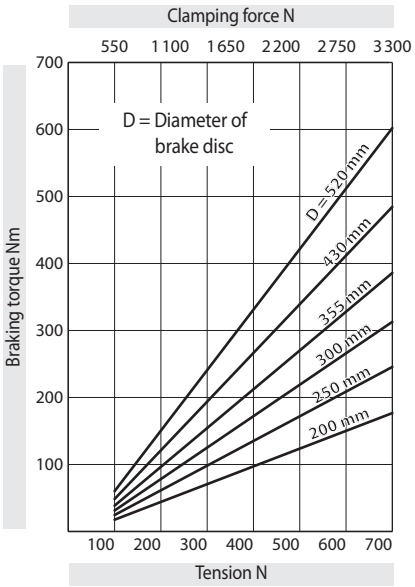
Features	Code
Brake Caliper	D
Mounting to the machine parallel to the brake disc	V
Frame size 020	020
Manually activated	M
Manually released	K
Manual adjustment to accommodate friction block wear	M
Spring-loaded pressure pin 730	730
Pull Cable installation mounted right or left available	R L
Thickness of brake disc 12,5 mm	12

Example for ordering

Brake Caliper DV 020 MKM, pressure pin 730, Pull Cable installation mounted right, thickness of brake disc 12,5 mm:

DV 020 MKM - 730 R - 12

Technical Data



The braking torques shown in the diagram are based on a theoretical friction coefficient of 0,4.

Weight: 5,1 kg

Accessories

The Brake Caliper can be delivered fully assembled with RCS® Pull Cable and Hand Brake Lever. Please indicate the required cable length.

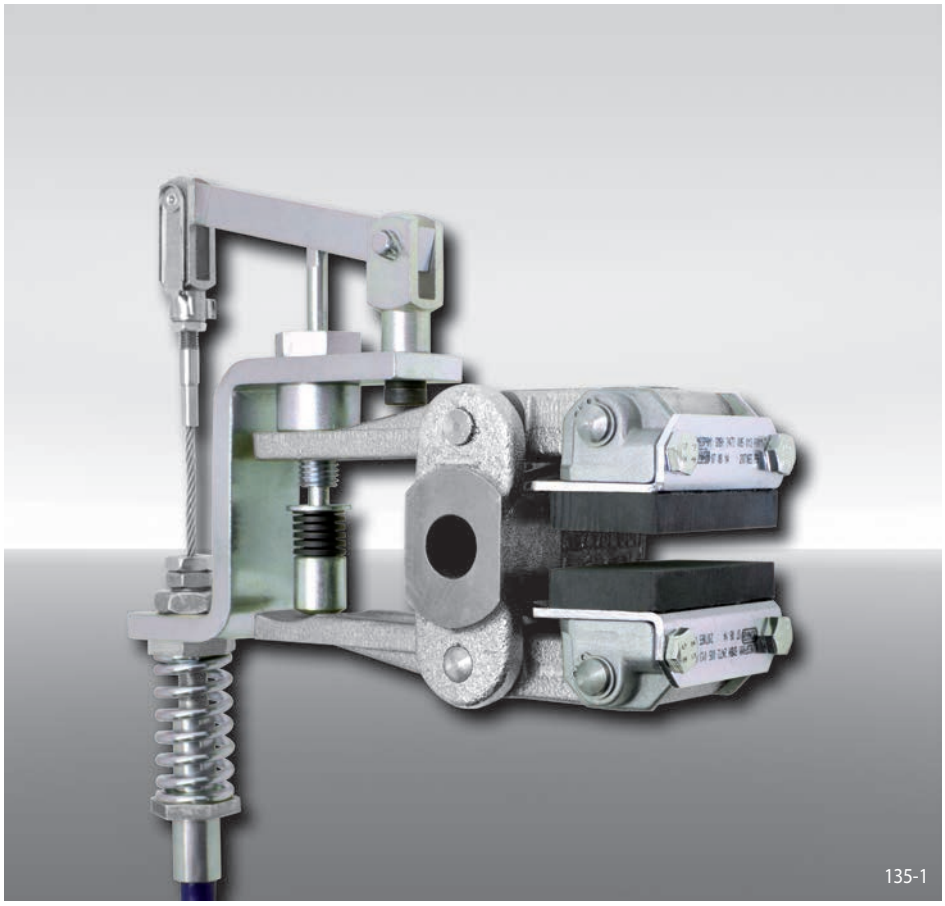
For further information regarding RCS® Pull Cable and Hand Brake Lever see page 167.

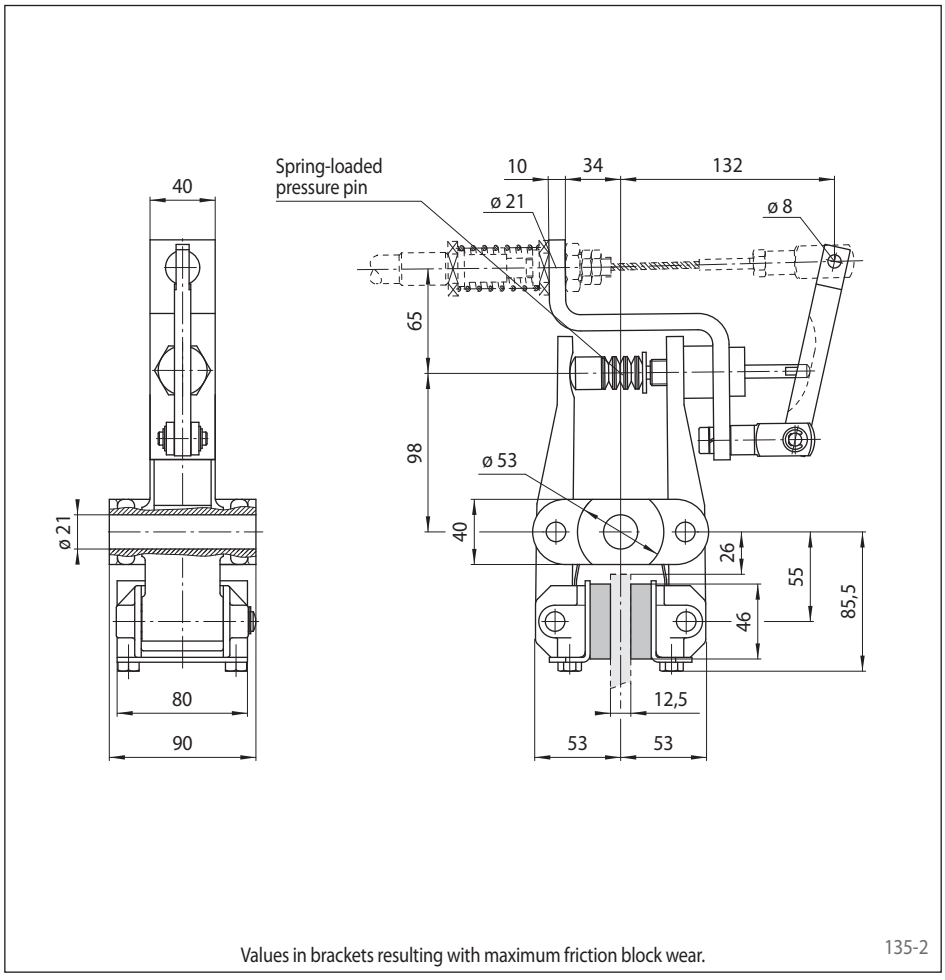
A spring loaded pressure pin compensates for wear of the friction block during the braking action.

Brake Caliper DH 020 MKM

manually activated – manually released by Pull Cable

RINGSPANN®





Values in brackets resulting with maximum friction block wear.

Features

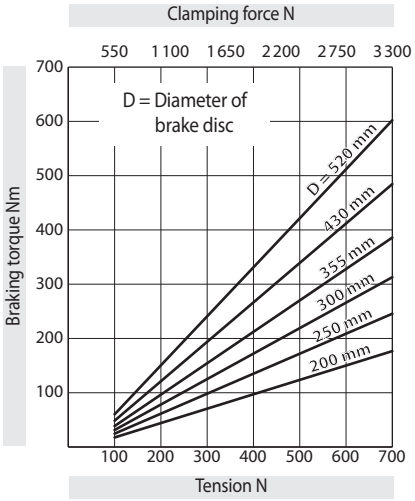
Features	Code
Brake Caliper	D
Mounting to the machine at right angles to the brake disc	H
Frame size 020	020
Manually activated	M
Manually released	K
Manual adjustment to accommodate friction block wear	M
Spring-loaded pressure pin 730	730
Position of the Pull Cable installation to the right or left can be defined by turning the brake during installation	U
Thickness of brake disc 12,5 mm	12

Example for ordering

Brake Caliper DH 020 MKM, pressure pin 730, position of the Pull Cable installation can be to the right or left, thickness of brake disc 12,5 mm:

DH 020 MKM - 730 U - 12

Technical Data



The braking torques shown in the diagram are based on a theoretical friction coefficient of 0,4.

Weight: 5,1 kg

Accessories

The Brake Caliper can be delivered fully assembled with RCS® Pull Cable and Hand Brake Lever. Please indicate the required cable length.

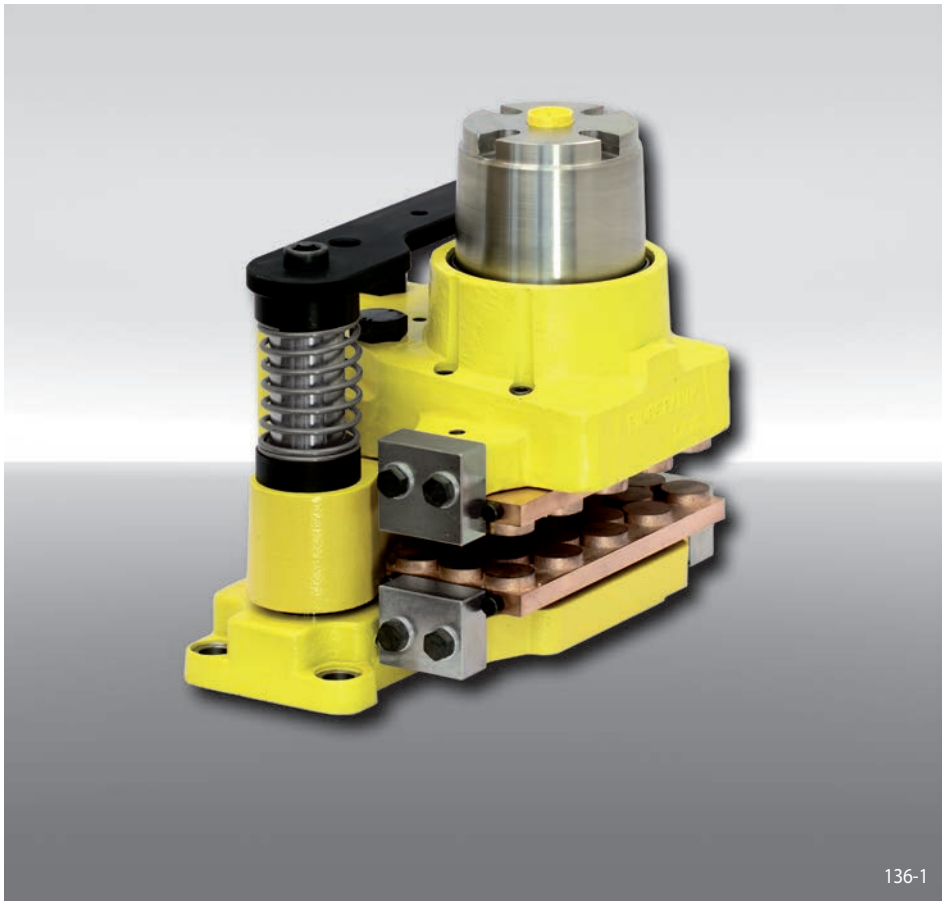
For further information regarding RCS® Pull Cable and Hand Brake Lever see page 167.

A spring loaded pressure pin compensates for wear of the friction block during the braking action.

Brake Caliper HS 075 FHM

spring activated – hydraulically released for wind turbines or conveyor systems

RINGSPANN®



Features	Code
Brake Caliper	H
Floating caliper	S
With piston diameter 75 mm	075
Spring activated	F
Hydraulically released	H
Manual adjustment to accommodate friction block wear	M
Spring packages available for clamping forces of 10 kN, 20 kN, 30 kN, 40 kN or 55 kN	010 to 055

Example for ordering

Brake Caliper HS 075 FHM, spring package for clamping force 10 kN:

HS 075 FHM - 010

Technical Data

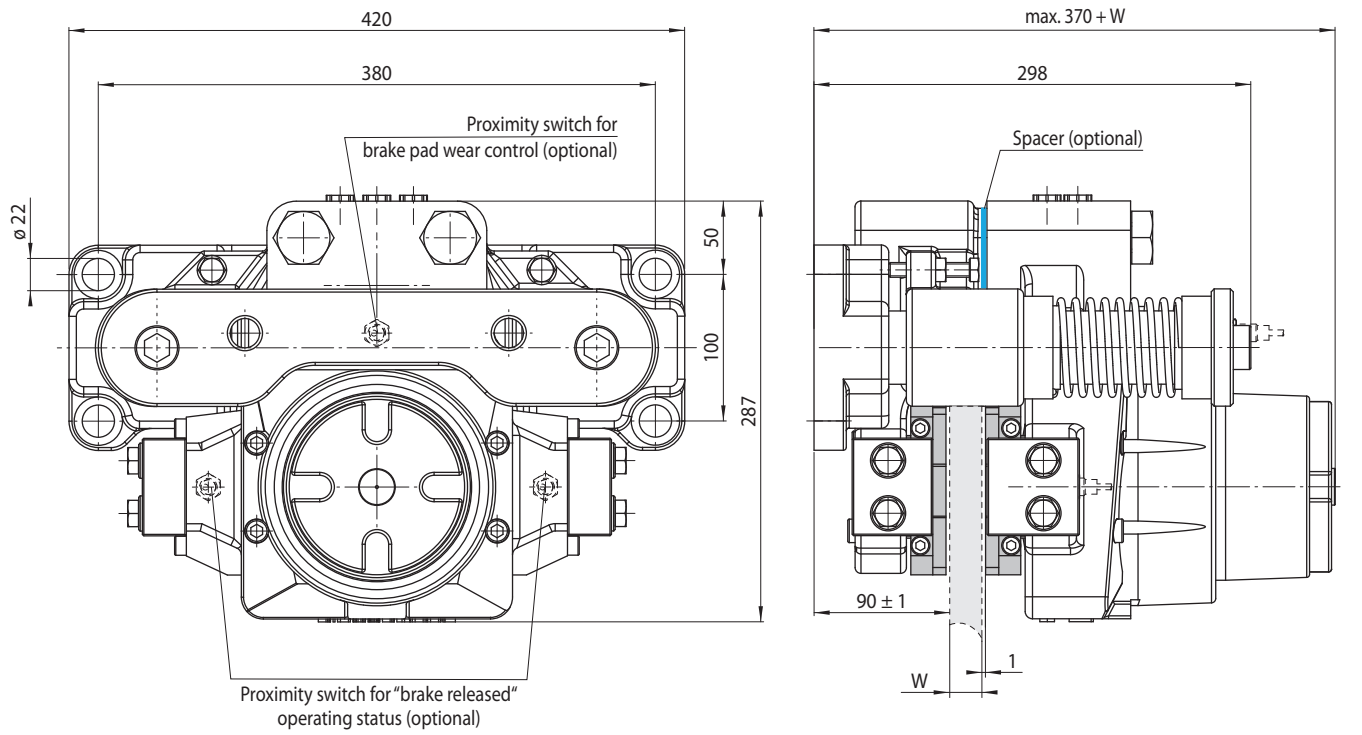
	Brake Caliper HS 075 FHM				
	with spring package 010	with spring package 020	with spring package 030	with spring package 040	with spring package 055
Brake disc diameter mm	Braking torque Nm	Braking torque Nm	Braking torque Nm	Braking torque Nm	Braking torque Nm
520	1500	3000	4400	5900	8100
630	1900	3800	5700	7600	10400
710	2200	4400	6600	8800	12100
900	3000	5900	8900	11900	16300
1250	4400	8700	13100	17500	24000
1600	5800	11500	17300	23100	31800
2000	7400	14700	22100	29500	40500
Clamping force	10 kN	20 kN	30 kN	40 kN	55 kN
Oil pressure	min. 25 bar max. 140 bar	min. 50 bar max. 140 bar	min. 70 bar max. 140 bar	min. 95 bar max. 140 bar	min. 125 bar max. 140 bar
Oil volume	max. 82 cm^3	max. 82 cm^3	max. 82 cm^3	max. 82 cm^3	max. 82 cm^3
Weight	95 kg	95 kg	95 kg	95 kg	95 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

Brake Caliper HS 075 FHM

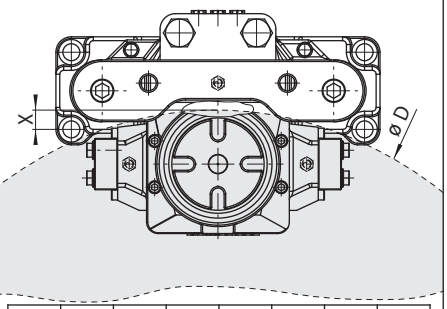
spring activated – hydraulically released
for wind turbines or conveyor systems

RINGSPANN®



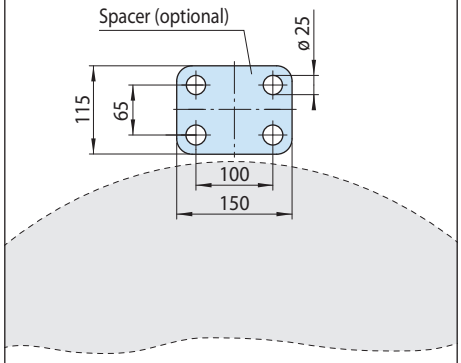
137-1

Mounting

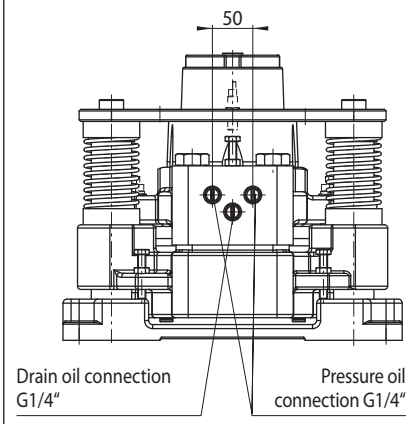


D mm	520	630	710	900	1 250	1 600	2000
X mm	34	34	25	25	20	15	15

Mounting of the brake disc 137-2



Dimensions of spacer 137-3



Supply connections 137-4

Other features

- High safety against leakage
- Easy change of friction blocks
- Painted with surface coating class C4-L according to ISO 12944
- For brake disc thickness W = 20 mm; brake disc thicknesses of up to 40 mm can be achieved with the use of a spacer installed by the customer

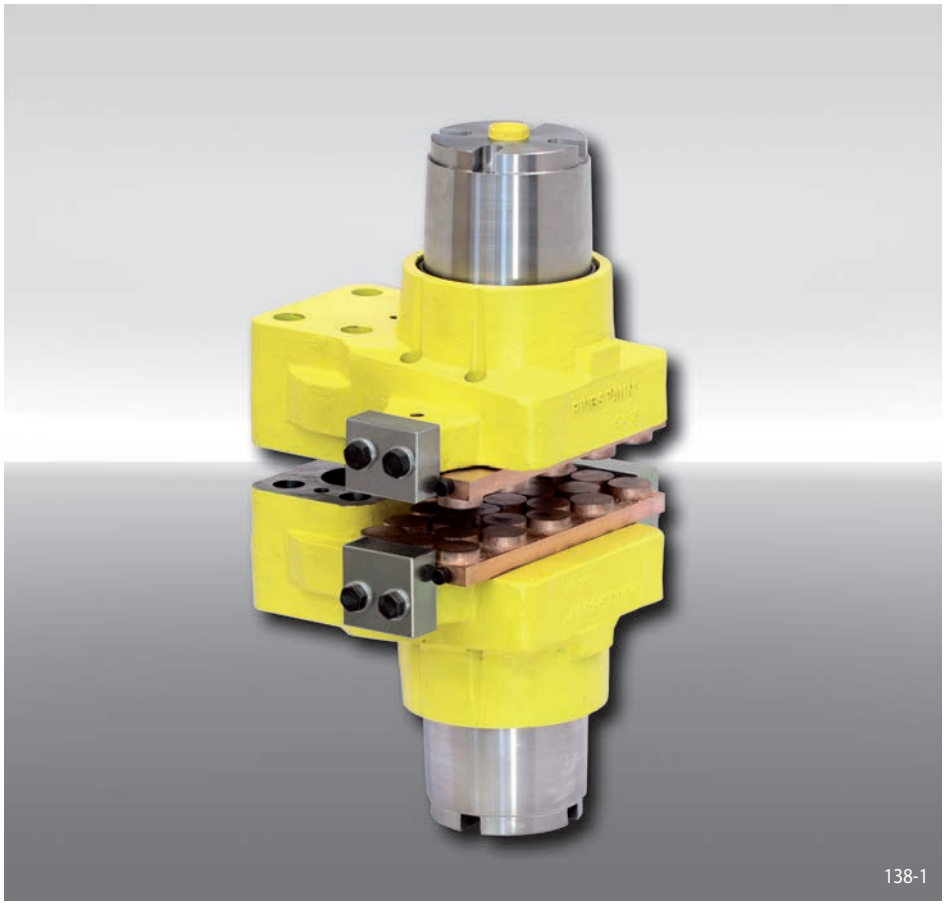
Accessories

- Inductive proximity switch for "brake released" operating status
- Inductive proximity switch for brake pad wear control
- Optional painting with surface coating class C4-H or C5M-H (offshore) according to ISO 12944

Brake Caliper HW 075 FHM

spring activated – hydraulically released

RINGSPANN®



Features	Code
Brake Caliper	H
Standard	W
With piston diameter 75 mm	075
Spring activated	F
Hydraulically released	H
Manual adjustment to accommodate friction block wear	M
Spring packages available for clamping forces of 10 kN, 20 kN, 30 kN, 40 kN or 55 kN	010 to 055

Example for ordering

Brake Caliper HW 075 FHM, spring package for clamping force 10 kN:

HW 075 FHM - 010

Technical Data

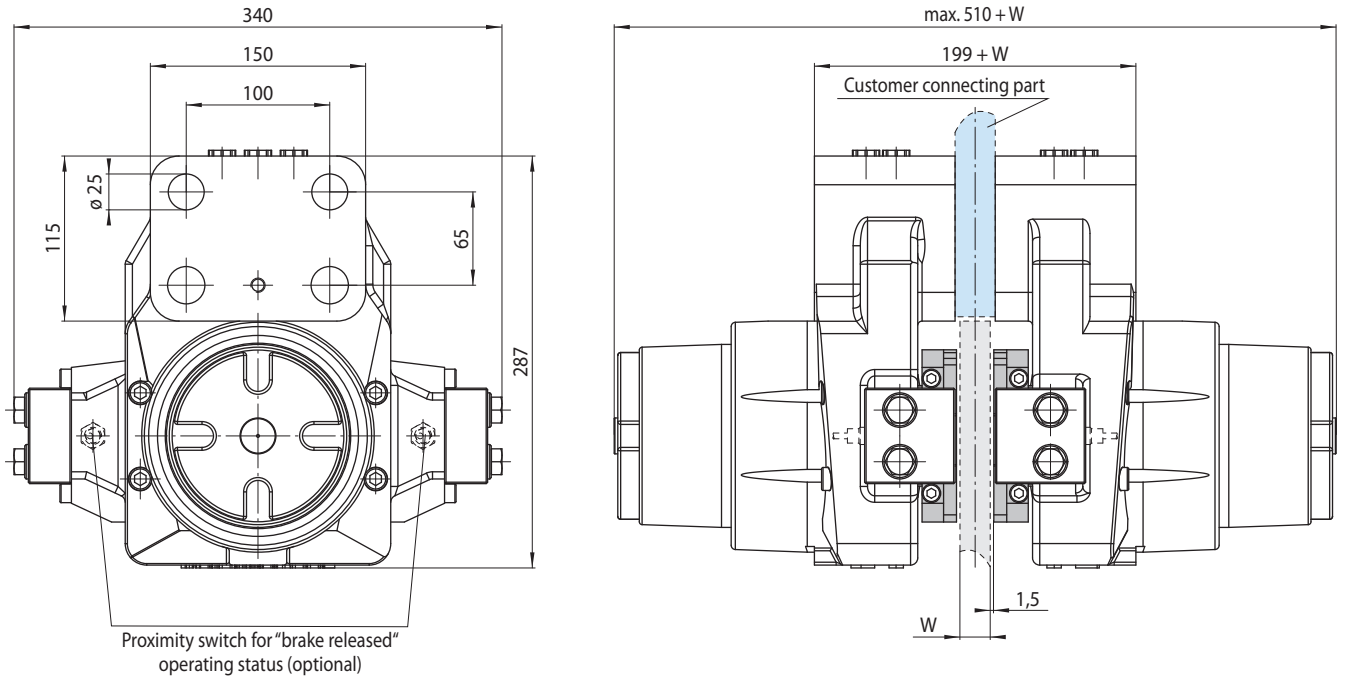
	Brake Caliper HW 075 FHM				
	with spring package 010	with spring package 020	with spring package 030	with spring package 040	with spring package 055
Brake disc diameter mm	Braking torque Nm	Braking torque Nm	Braking torque Nm	Braking torque Nm	Braking torque Nm
520	1500	3000	4400	5900	8100
630	1900	3800	5700	7600	10400
710	2200	4400	6600	8800	12100
900	3000	5900	8900	11900	16300
1250	4400	8700	13100	17500	24000
1600	5800	11500	17300	23100	31800
2000	7400	14700	22100	29500	40500
Clamping force	10 kN	20 kN	30 kN	40 kN	55 kN
Oil pressure	min. 25 bar max. 140 bar	min. 50 bar max. 140 bar	min. 70 bar max. 140 bar	min. 95 bar max. 140 bar	min. 125 bar max. 140 bar
Oil volume	max. 89 cm^3	max. 89 cm^3	max. 89 cm^3	max. 89 cm^3	max. 89 cm^3
Weight	90 kg	90 kg	90 kg	90 kg	90 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

Brake Caliper HW 075 FHM

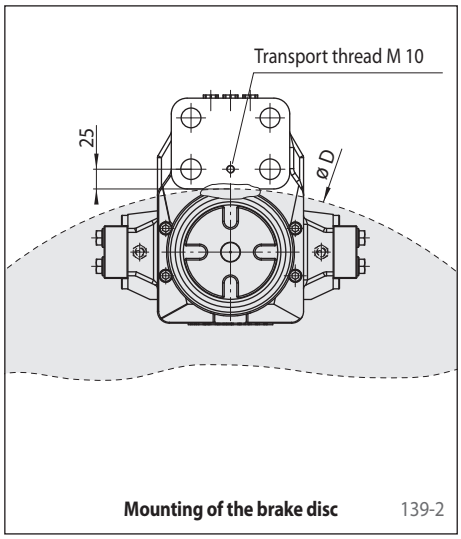
spring activated – hydraulically released

RINGSPANN®

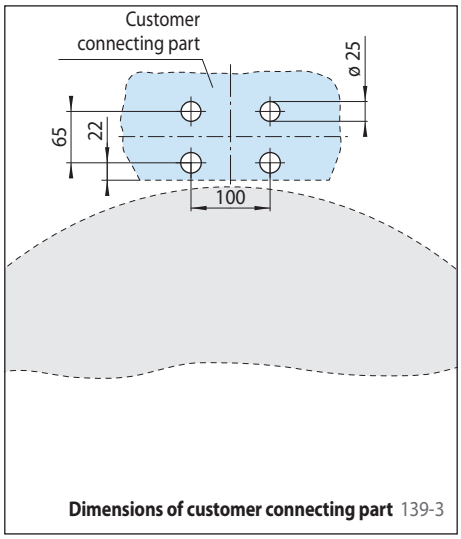


139-1

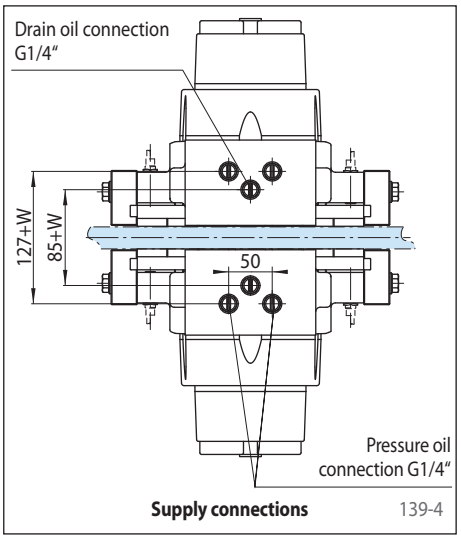
Mounting



Mounting of the brake disc 139-2



Dimensions of customer connecting part 139-3



Supply connections 139-4

Other features

- High safety against leakage
- Easy change of friction blocks
- Painted with surface coating class C4-L according to ISO 12944
- The thickness of the customer connecting part results from the thickness of the brake disc W plus 3 mm

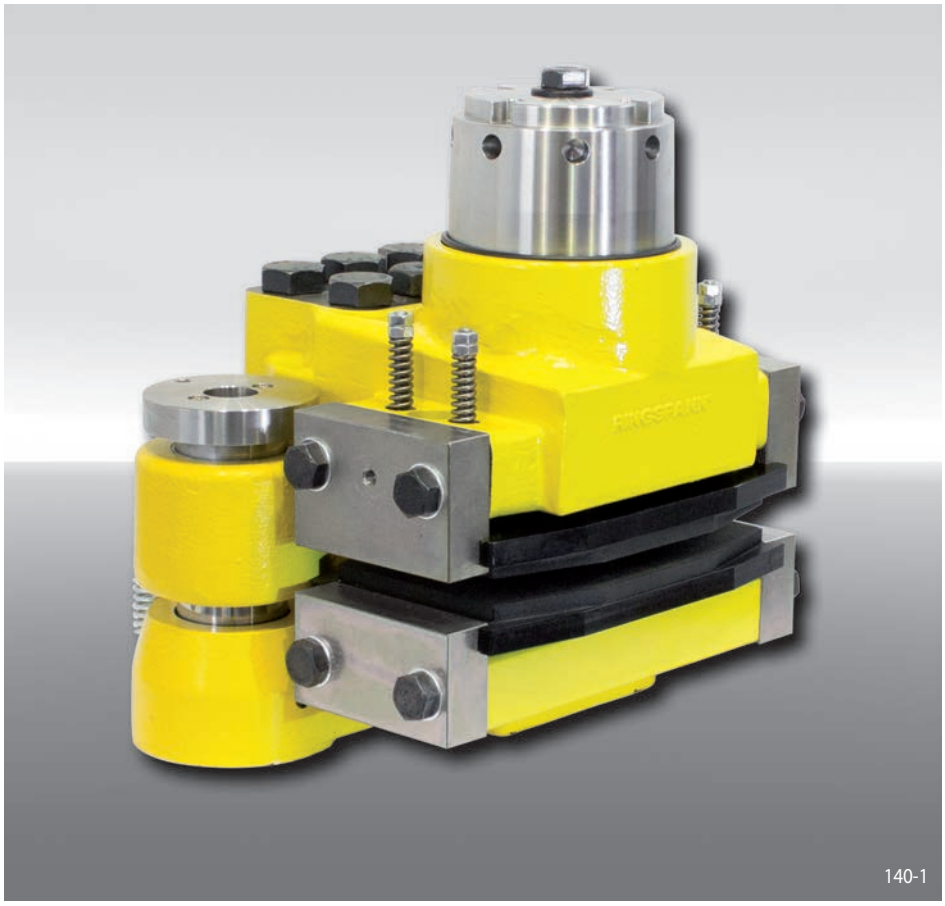
Accessories

- Inductive proximity switch for "brake released" operating status
- Optional painting with surface coating class C4-H or C5M-H (offshore) according to ISO 12944

Brake Caliper HS 120 FHM

spring activated – hydraulically released
for wind turbines or conveyor systems

RINGSPANN®



Features	Code
Brake Caliper	H
Floating caliper	S
With piston diameter 120 mm	120
Spring activated	F
Hydraulically released	H
Manual adjustment to accommodate friction block wear	M
Spring packages available for clamping forces of 30 kN, 50 kN, 70 kN, 100 kN or 120 kN	030 to 120

Example for ordering

Brake Caliper HS 120 FHM, spring package for clamping force 30 kN:

HS 120 FHM - 030

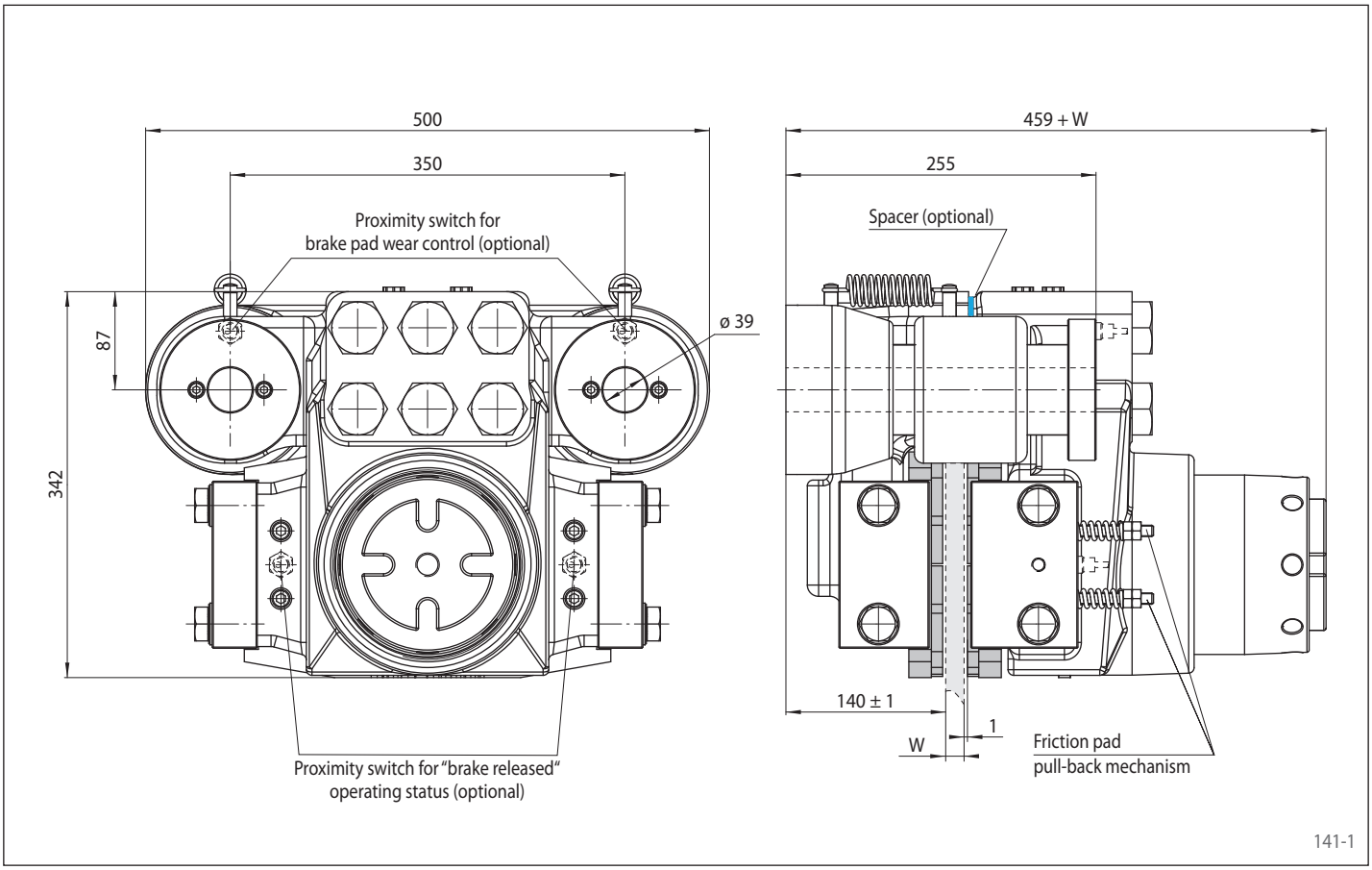
Technical Data

	Brake Caliper HS 120 FHM				
	with spring package 030	with spring package 050	with spring package 070	with spring package 100	with spring package 120
Brake disc diameter mm	Braking torque Nm	Braking torque Nm	Braking torque Nm	Braking torque Nm	Braking torque Nm
900	8400	14000	19600	28000	33600
1250	12600	21000	29400	42000	50400
1600	16800	28000	39200	56000	67200
2000	21600	36000	50400	72000	86400
3000	33600	56000	91800	112000	134400
3500	39600	66000	108200	132000	158400
4000	45600	76000	124600	152000	182400
Clamping force	30 kN	50 kN	70 kN	100 kN	120 kN
Oil pressure	min. 50 bar max. 200 bar	min. 80 bar max. 200 bar	min. 110 bar max. 200 bar	min. 140 bar max. 200 bar	min. 180 bar max. 200 bar
Oil volume	max. 160 cm^3	max. 160 cm^3	max. 160 cm^3	max. 160 cm^3	max. 160 cm^3
Weight	ca. 200 kg	ca. 200 kg	ca. 200 kg	ca. 200 kg	ca. 200 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

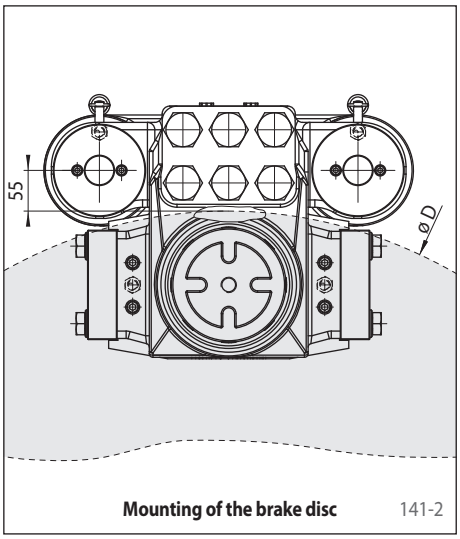
Brake Caliper HS 120 FHM

spring activated – hydraulically released
for wind turbines or conveyor systems

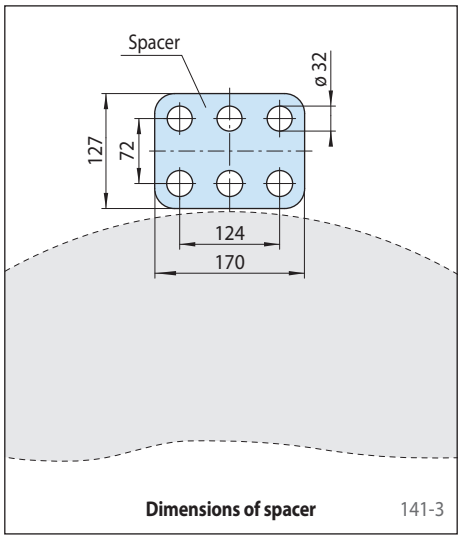


141-1

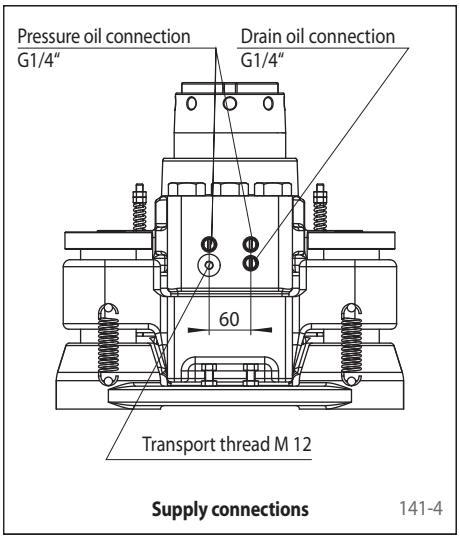
Mounting



Mounting of the brake disc 141-2



Dimensions of spacer 141-3



Supply connections 141-4

Other features

- High safety against leakage
- Easy change of friction blocks
- Painted with surface coating class C4-L according to ISO 12944
- For brake disc thickness W = 20 mm; brake disc thicknesses of up to 40 mm can be achieved with the use of a spacer installed by the customer

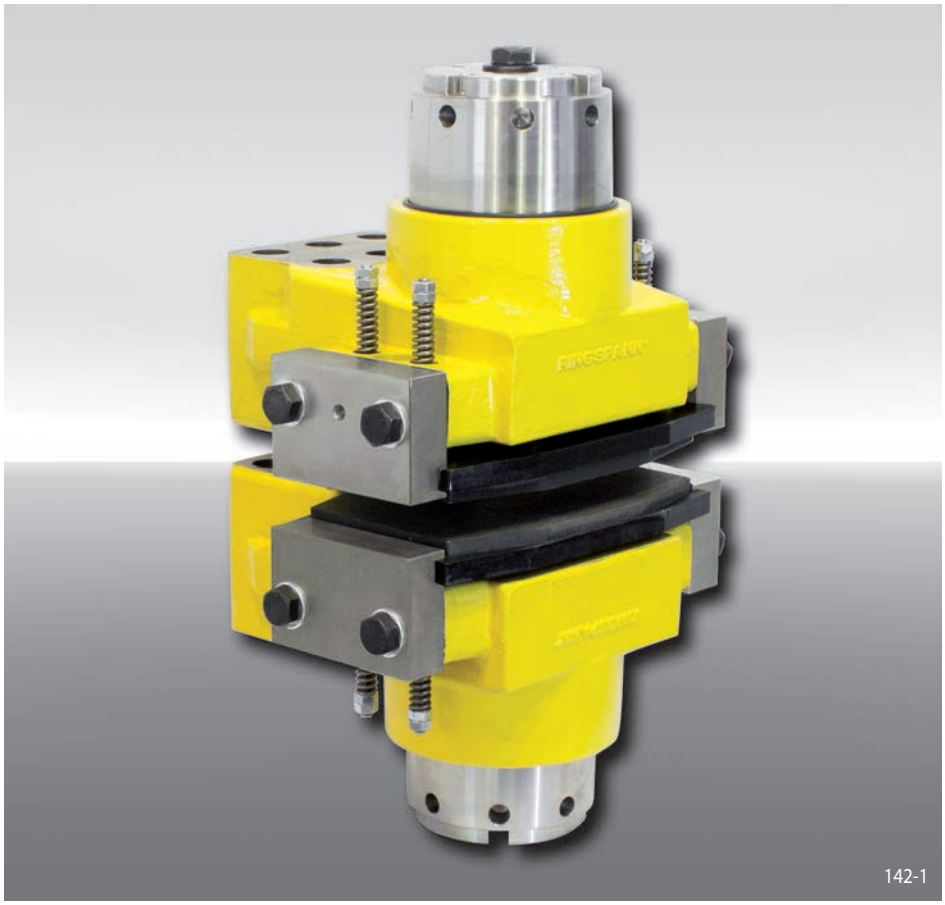
Accessories

- Inductive proximity switch for "brake released" operating status
- Inductive proximity switch for brake pad wear control
- Optional painting with surface coating class C4-H or C5M-H (offshore) according to ISO 12944

Brake Caliper HW 120 FHM

spring activated – hydraulically released

RINGSPANN®



Features	Code
Brake Caliper	H
Standard	W
With piston diameter 120 mm	120
Spring activated	F
Hydraulically released	H
Manual adjustment to accommodate friction block wear	M
Spring packages available for clamping forces of 30 kN, 50 kN, 70 kN, 100 kN or 120 kN	030 to 120

Example for ordering

Brake Caliper HW 120 FHM, spring package for clamping force 30 kN:

HW 120 FHM - 030

Technical Data

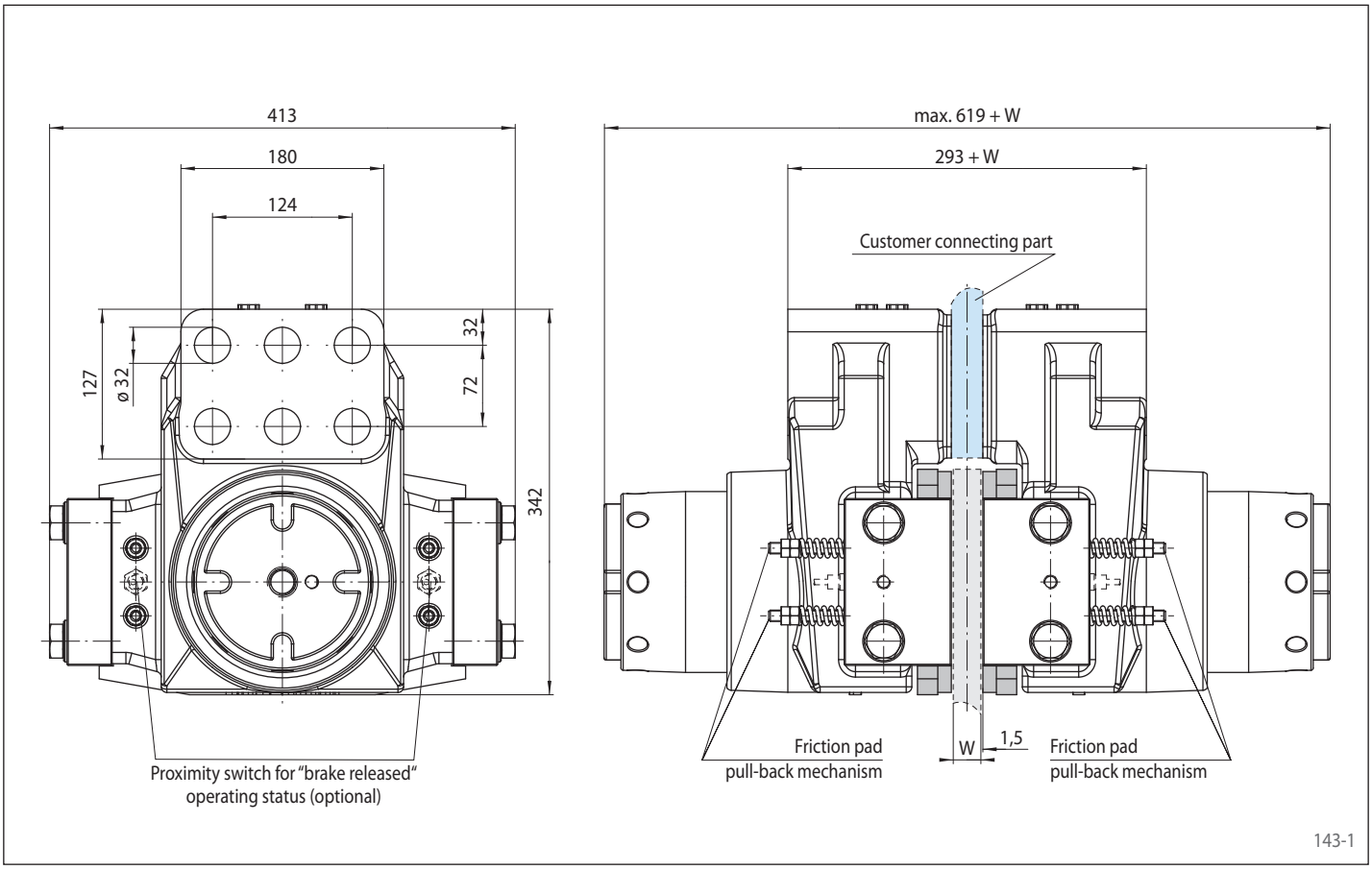
	Brake Caliper HW 120 FHM				
	with spring package 030	with spring package 050	with spring package 070	with spring package 100	with spring package 120
Brake disc diameter mm	Braking torque Nm	Braking torque Nm	Braking torque Nm	Braking torque Nm	Braking torque Nm
900	8400	14000	19600	28000	33600
1250	12600	21000	29400	42000	50400
1600	16800	28000	39200	56000	67200
2000	21600	36000	50400	72000	86400
3000	33600	56000	91800	112000	134400
3500	39600	66000	108200	132000	158400
4000	45600	76000	124600	152000	182400
Clamping force	30 kN	50 kN	70 kN	100 kN	120 kN
Oil pressure	min. 50 bar max. 200 bar	min. 80 bar max. 200 bar	min. 110 bar max. 200 bar	min. 140 bar max. 200 bar	min. 180 bar max. 200 bar
Oil volume	max. 170 cm^3	max. 170 cm^3	max. 170 cm^3	max. 170 cm^3	max. 170 cm^3
Weight	ca. 185 kg	ca. 185 kg	ca. 185 kg	ca. 185 kg	ca. 185 kg

The braking torques shown in the table are based on a theoretical friction coefficient of 0,4.

Brake Caliper HW 120 FHM

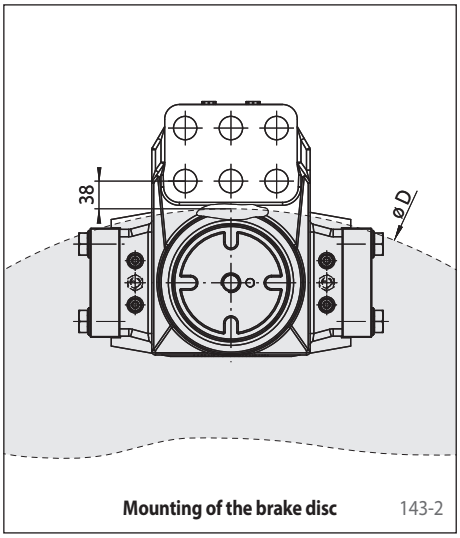
spring activated – hydraulically released

RINGSPANN®

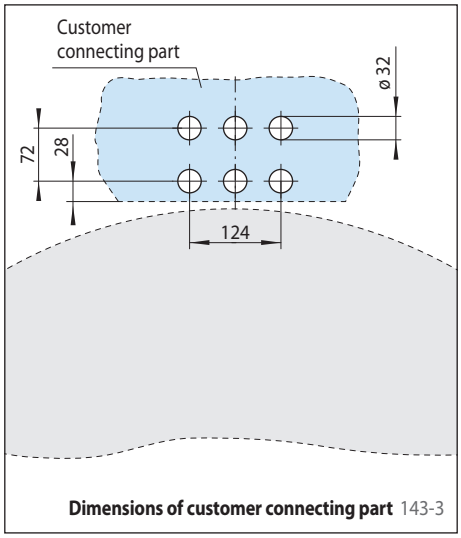


143-1

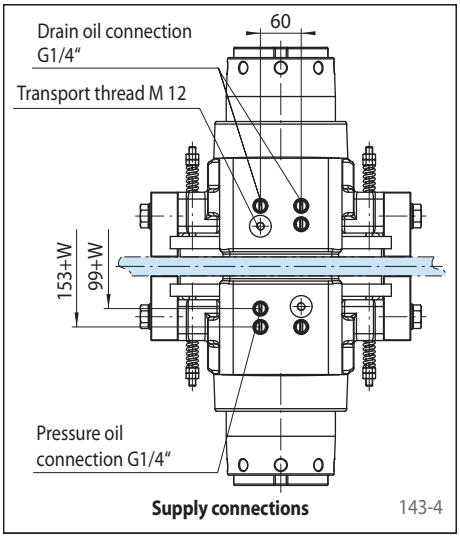
Mounting



Mounting of the brake disc 143-2



Dimensions of customer connecting part 143-3



Supply connections 143-4

Other features

- High safety against leakage
- Easy change of friction blocks
- Painted with surface coating class C4-L according to ISO 12944
- The thickness of the customer connecting part results from the thickness of the brake disc W plus 3 mm

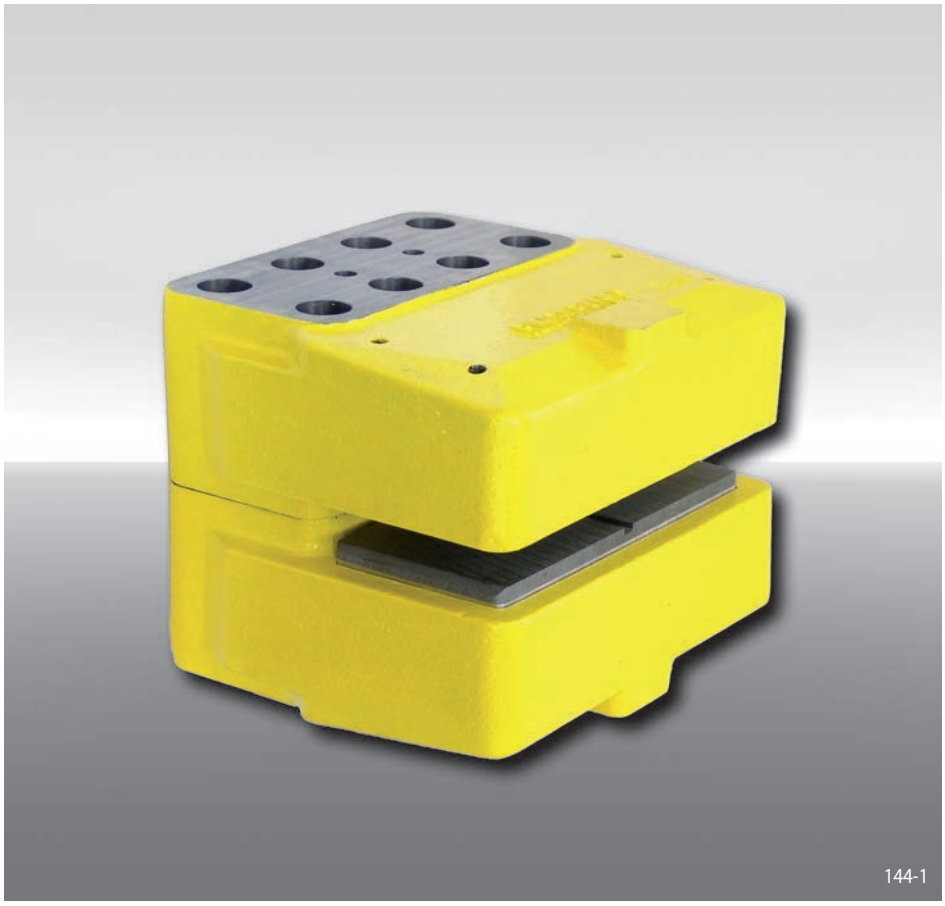
Accessories

- Inductive proximity switch for "brake released" operating status
- Optional painting with surface coating class C4-H or C5M-H (offshore) according to ISO 12944

Brake Calipers HI 180 HUK

hydraulically activated – non-releasing as yaw brake in wind turbines

RINGSPANN®



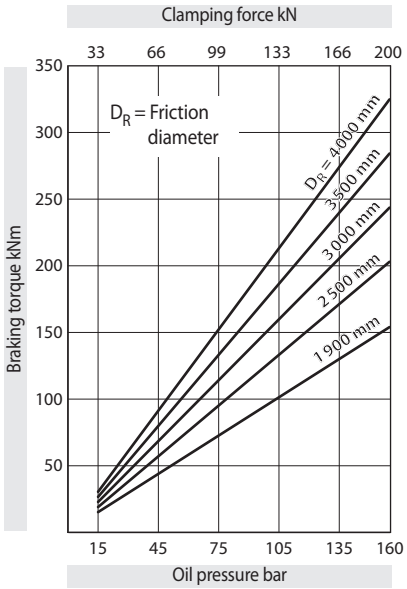
Features	Code
Brake Caliper	H
With inside-mounted brake pads	I
With piston diameter 2 x 90 mm	180
Hydraulically activated	H
Non-releasing	U
No adjustment to accommodate friction block wear	K
Max. clamping force 200 kN	200

Example for ordering

Brake Caliper HI 180 HUK,
max. clamping force 200 kN:

HI 180 HUK - 200

Technical Data



The braking torques shown in the diagram are based on a theoretical friction coefficient of 0,4.

Oil pressure: min. 15 bar
max. 160 bar

Oil volume: max. 190 cm^3

Weight: ca. 65 kg

Other features

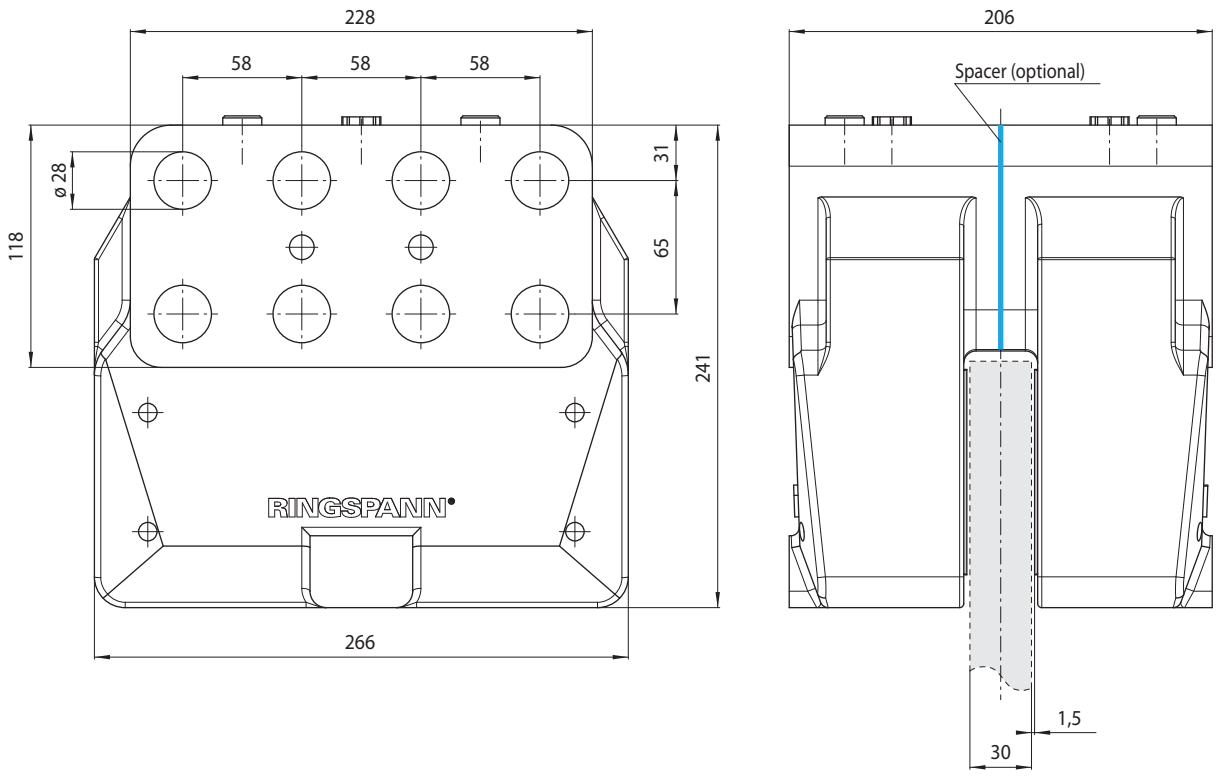
- High safety against leakage
- Painted with surface coating class C4-L according to ISO 12944
- For brake disc thickness W = 30 mm; larger brake disc thicknesses can be achieved with the use of a spacer installed by the customer

Accessories

- Optional painting with surface coating class C4-H or C5M-H (offshore) according to ISO 12944

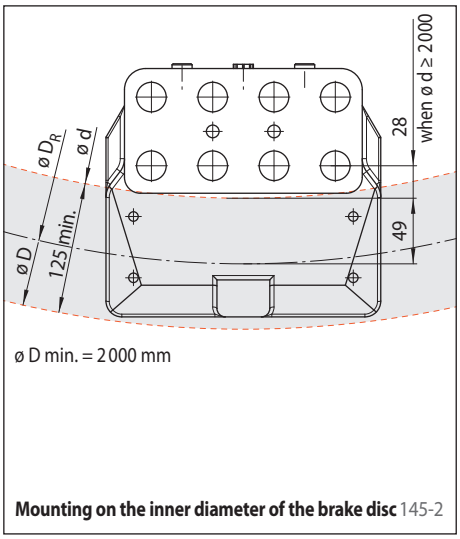
Brake Calipers HI 180 HUK

hydraulically activated – non-releasing as yaw brake in wind turbines

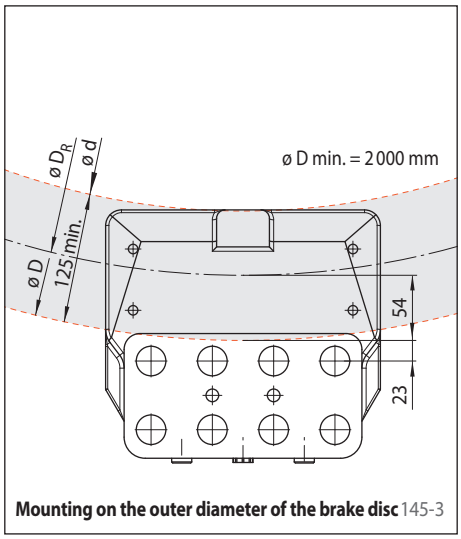


145-1

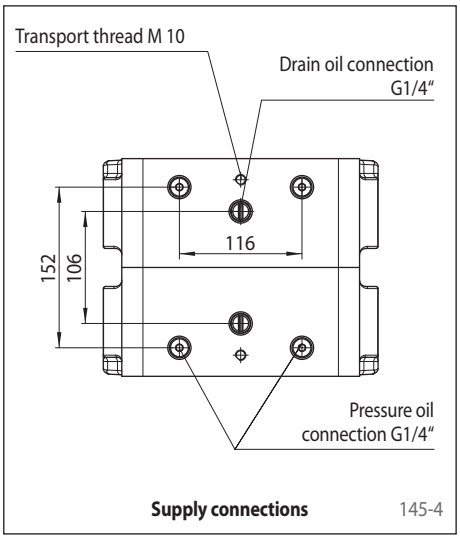
Mounting



Mounting on the inner diameter of the brake disc 145-2



Mounting on the outer diameter of the brake disc 145-3



Supply connections 145-4

Calculation of the friction diameter

Mounting on the inner diameter of the brake disc:

$D_R = d + (2 \cdot 49\ mm)$

(when d ≥ 2000 mm)

Mounting on the outer diameter of the brake disc:

$D_R = D - (2 \cdot 54\ mm)$

Calculation of the braking torque

$$M_B = \frac{D_R}{0{,}786} \cdot p \cdot \mu$$

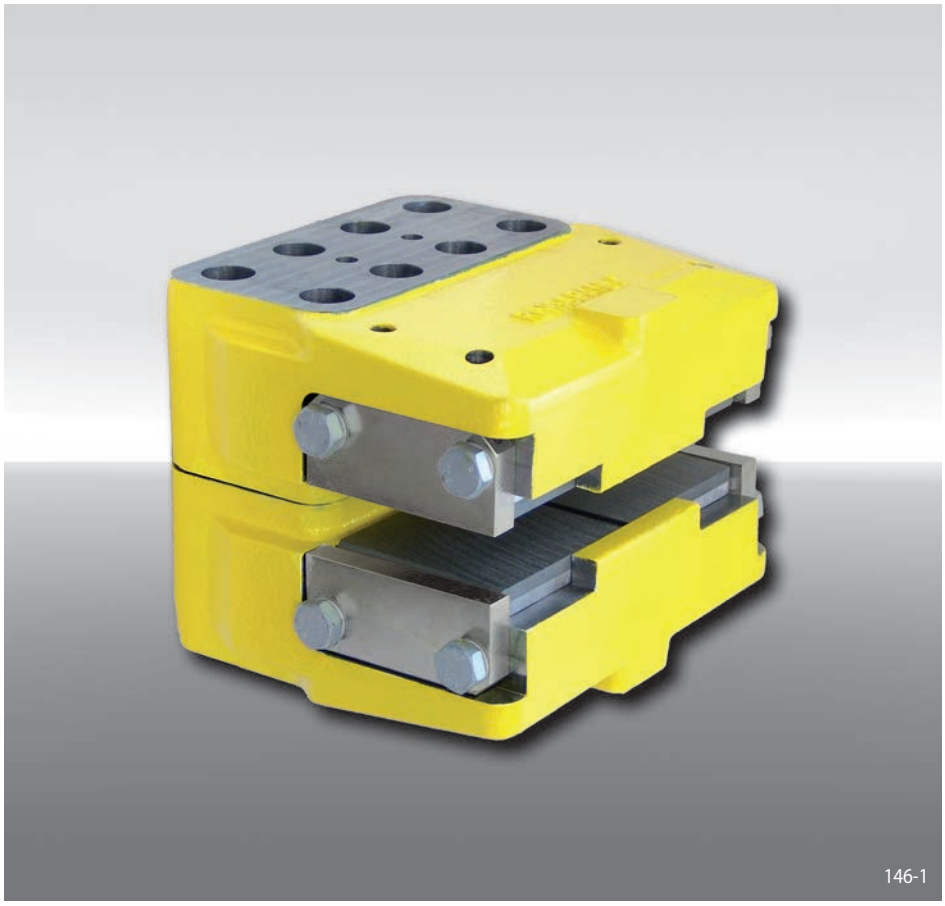
Formula symbols

M_B = Braking torque [Nm]
D = Outer diameter brake disc [mm]
d = Inner diameter brake disc [mm]
D_R = Friction diameter [mm]
p = Oil pressure [bar]
μ = Friction coefficient

Brake Calipers HW 180 HUK

hydraulically activated – non-releasing as yaw brake in wind turbines

RINGSPANN®



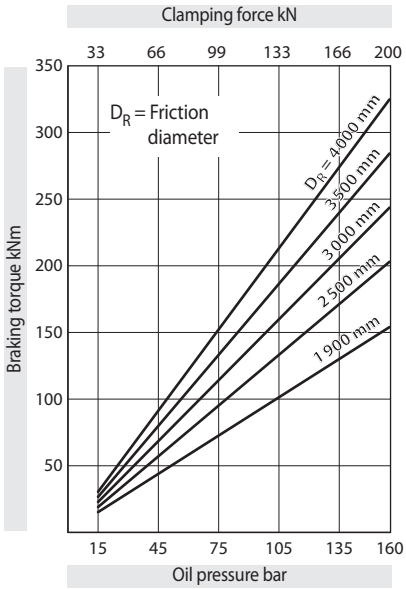
Features	Code
Brake Caliper	H
Standard	W
With piston diameter 2 x 90 mm	180
Hydraulically activated	H
Non-releasing	U
No adjustment to accommodate friction block wear	K
Max. clamping force 200 kN	200

Example for ordering

Brake Caliper HW 180 HUK,
max. clamping force 200 kN:

HW 180 HUK - 200

Technical Data



The braking torques shown in the diagram are based on a theoretical friction coefficient of 0,4.

Oil pressure:	min. 15 bar max. 160 bar
Oil volume:	max. 190 cm^3
Weight:	ca. 65 kg

Other features

- High safety against leakage
- Easy change of friction blocks
- Painted with surface coating class C4-L according to ISO 12944
- For brake disc thickness W = 30 mm; larger brake disc thicknesses can be achieved with the use of a spacer installed by the customer

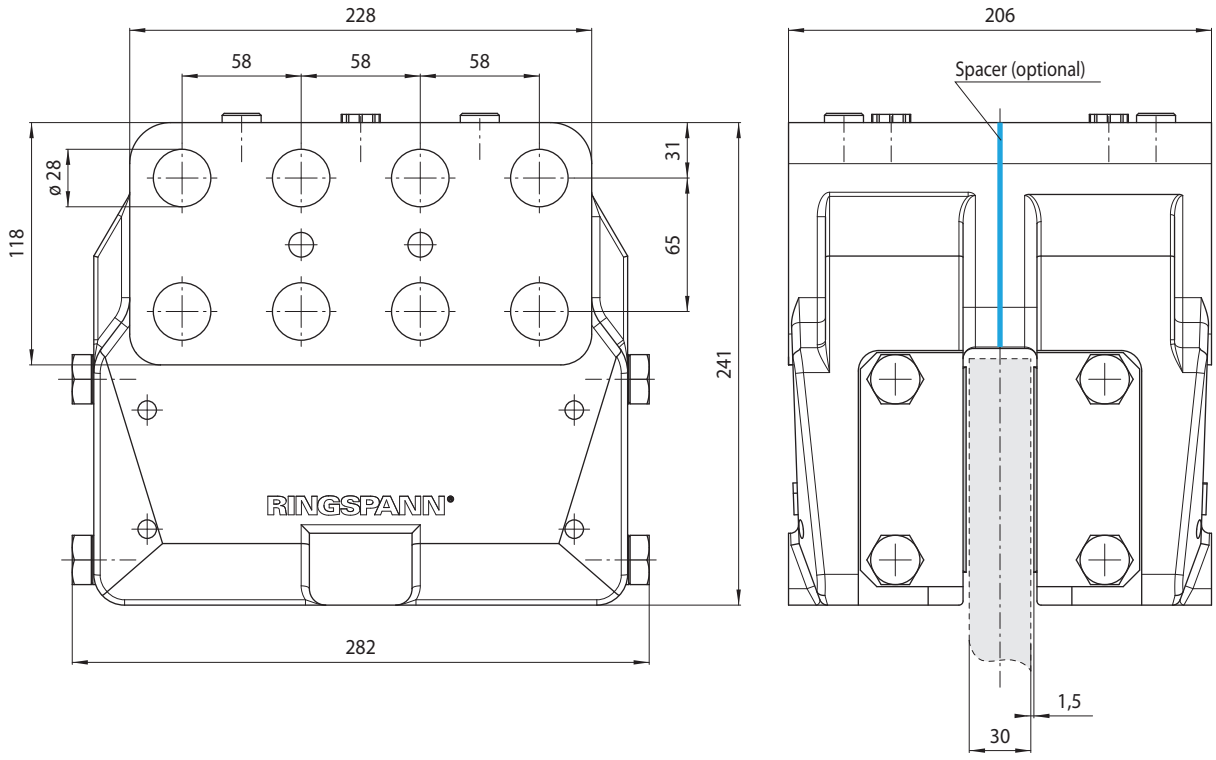
Accessories

- Optional painting with surface coating class C4-H or C5M-H (offshore) according to ISO 12944

Brake Calipers HW 180 HUK

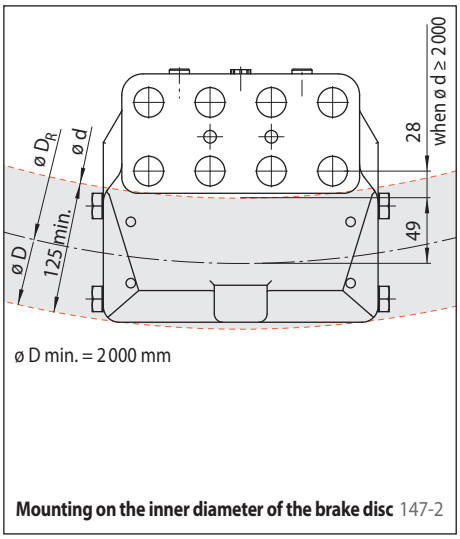
hydraulically activated – non-releasing as yaw brake in wind turbines

RINGSPANN®

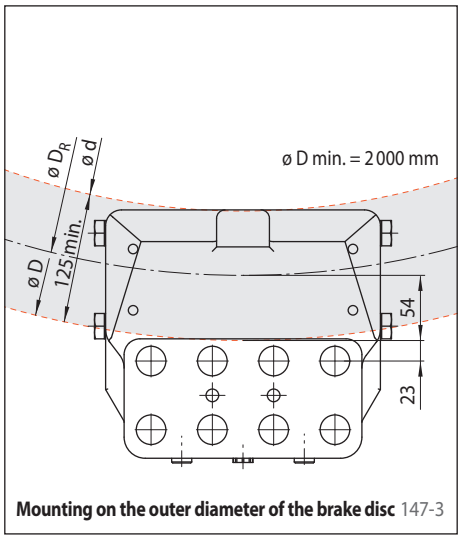


147-1

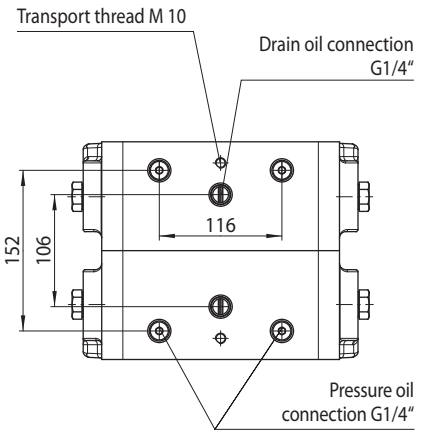
Mounting



Mounting on the inner diameter of the brake disc 147-2



Mounting on the outer diameter of the brake disc 147-3



Supply connections 147-4

Calculation of the friction diameter

Mounting on the inner diameter of the brake disc:

$D_R = d + (2 \cdot 49\ mm)$

(when d ≥ 2000 mm)

Mounting on the outer diameter of the brake disc:

$D_R = D - (2 \cdot 54\ mm)$

Calculation of the braking torque

$$M_B = \frac{D_R}{0{,}786} \cdot p \cdot \mu$$

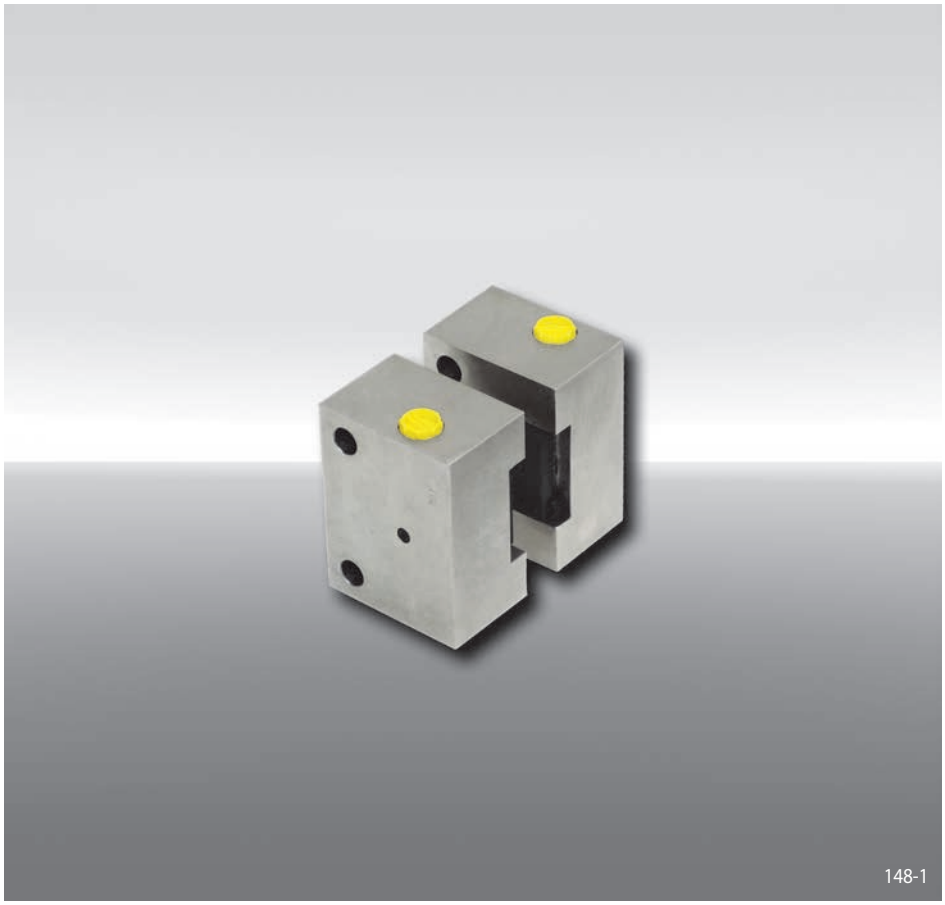
Formula symbols

M_B	=	Braking torque [Nm]
D	=	Outer diameter brake disc [mm]
d	=	Inner diameter brake disc [mm]
D_R	=	Friction diameter [mm]
p	=	Oil pressure [bar]
μ	=	Friction coefficient

Brake Caliper HW 040 HFA

hydraulically activated – spring released

RINGSPANN®

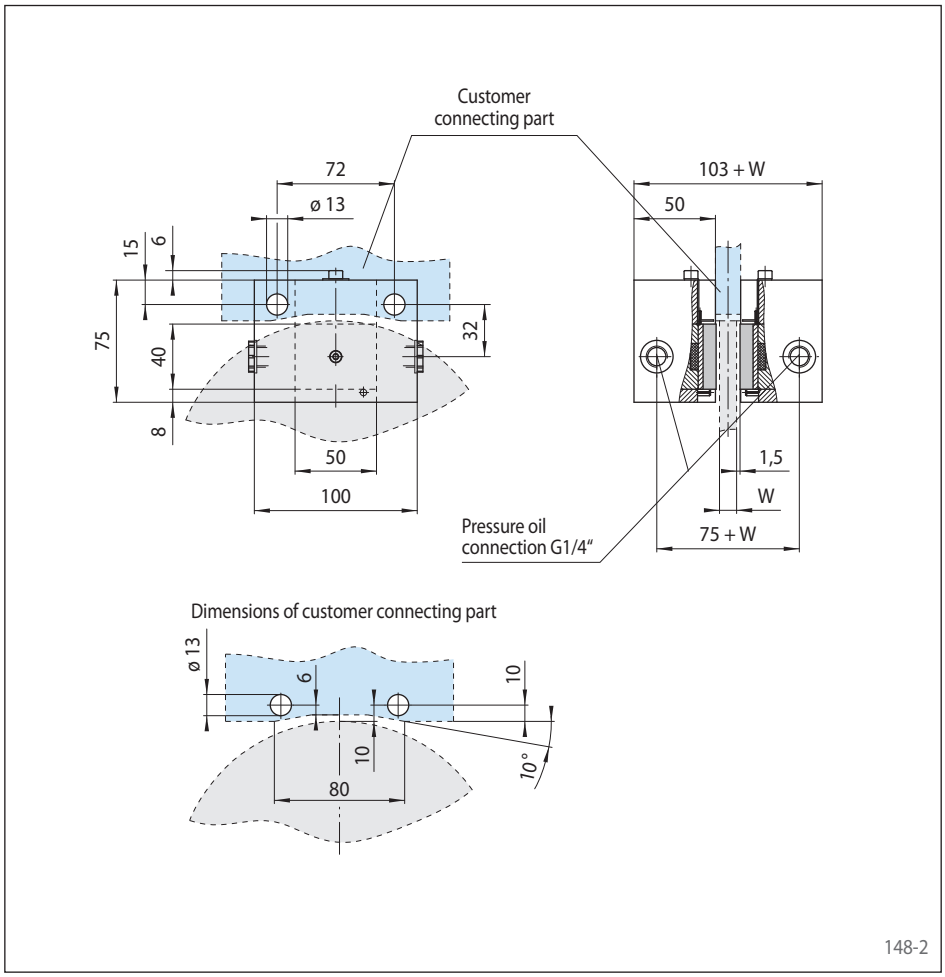


Features	Code
Brake Caliper	H
Standard	W
With piston diameter 40 mm	040
Hydraulically activated	H
Spring released	F
Automatic adjustment to accommodate friction block wear	A
Max. clamping force 11 kN	011

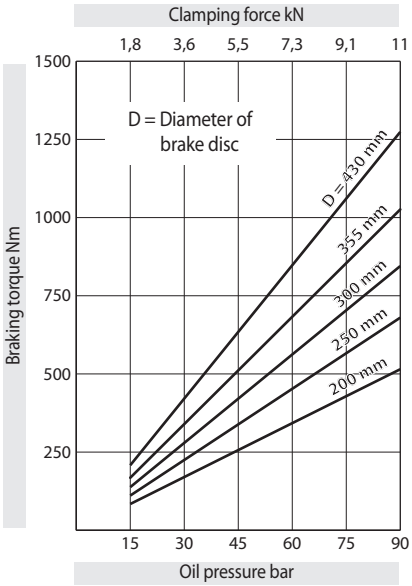
Example for ordering

Brake Caliper HW 040 HFA,
max. clamping force 11 kN:

HW 040 HFA - 011



Technical Data



The braking torques shown in the diagram are based on a theoretical friction coefficient of 0,3.

Oil pressure:	min. 5 bar max. 90 bar
Oil volume:	max. 20 cm^3
Weight:	5,5 kg

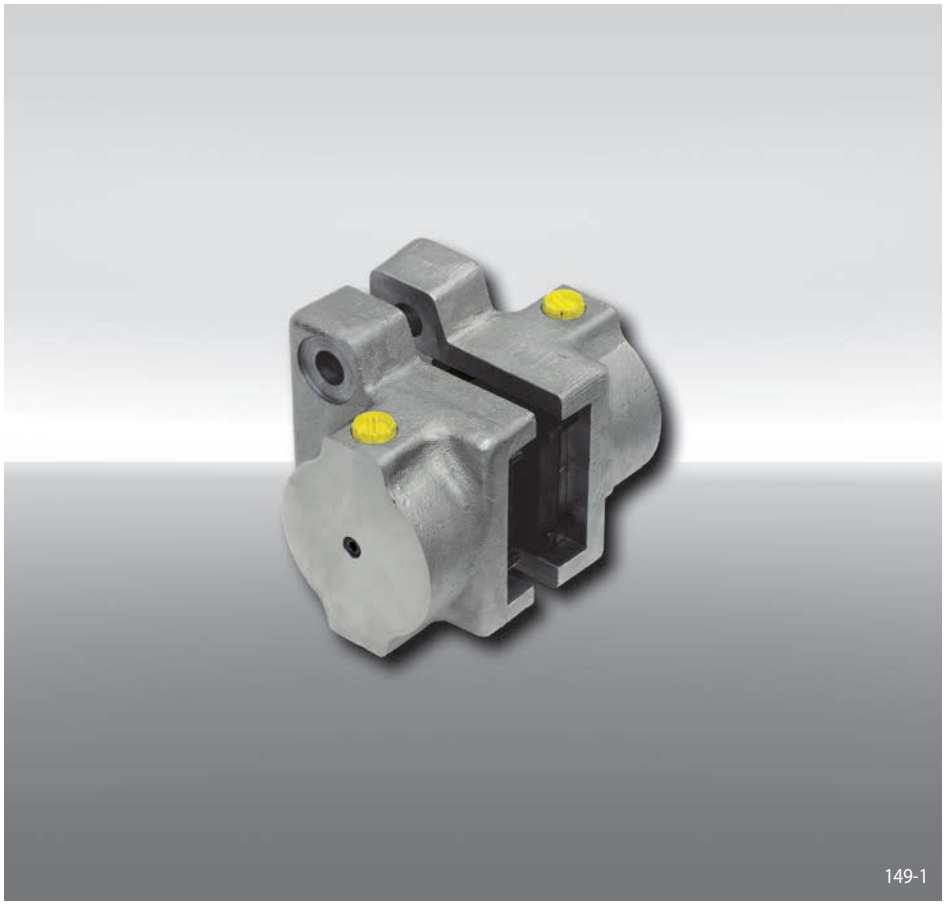
Other features

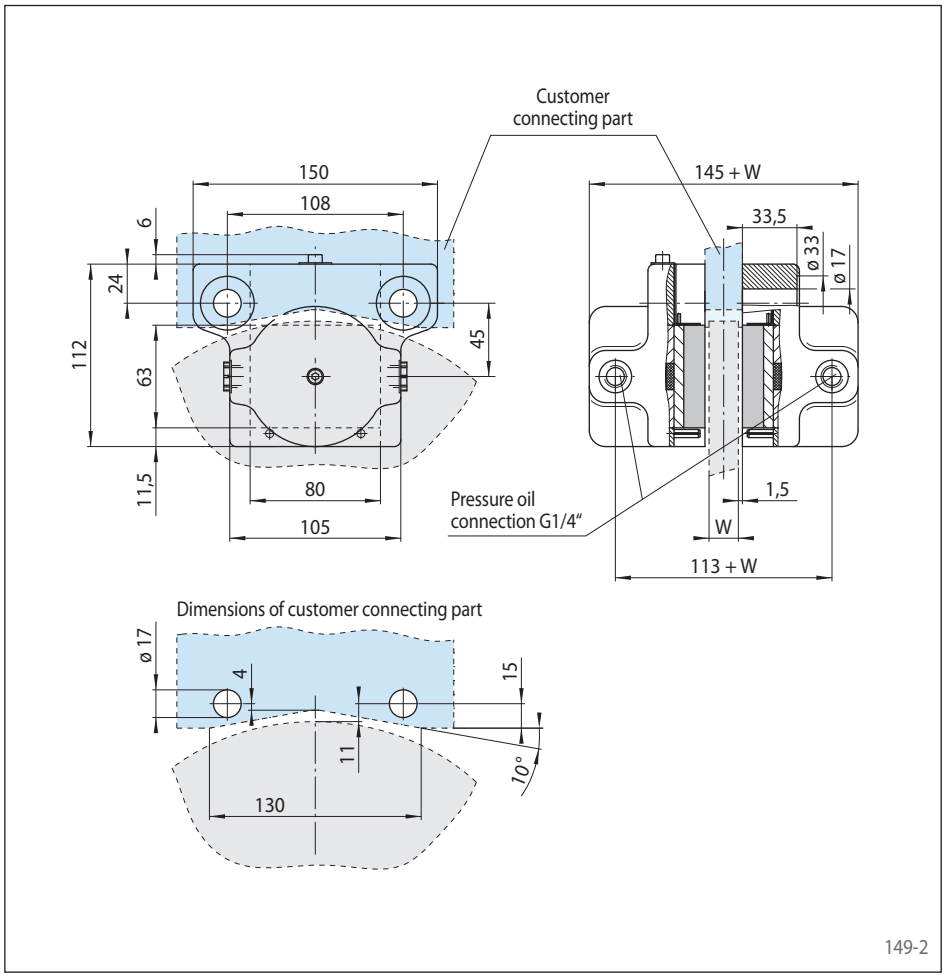
- The thickness of the customer connecting part results from the thickness of the brake disc W plus 3 mm

Brake Caliper HW 063 HFA

hydraulically activated – spring released

RINGSPANN®





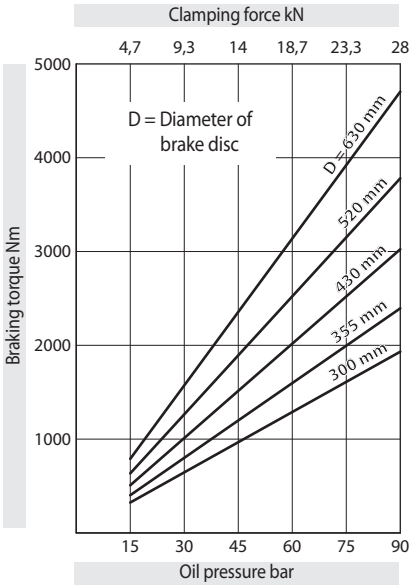
Features	Code
Brake Caliper	H
Standard	W
With piston diameter 63 mm	063
Hydraulically activated	H
Spring released	F
Automatic adjustment to accommodate friction block wear	A
Max. clamping force 28 kN	028

Example for ordering

Brake Caliper HW 063 HFA,
max. clamping force 28 kN:

HW 063 HFA - 028

Technical Data



The braking torques shown in the diagram are based on a theoretical friction coefficient of 0,3.

Oil pressure:	min. 5 bar max. 90 bar
Oil volume:	max. 78 cm^3
Weight:	8 kg

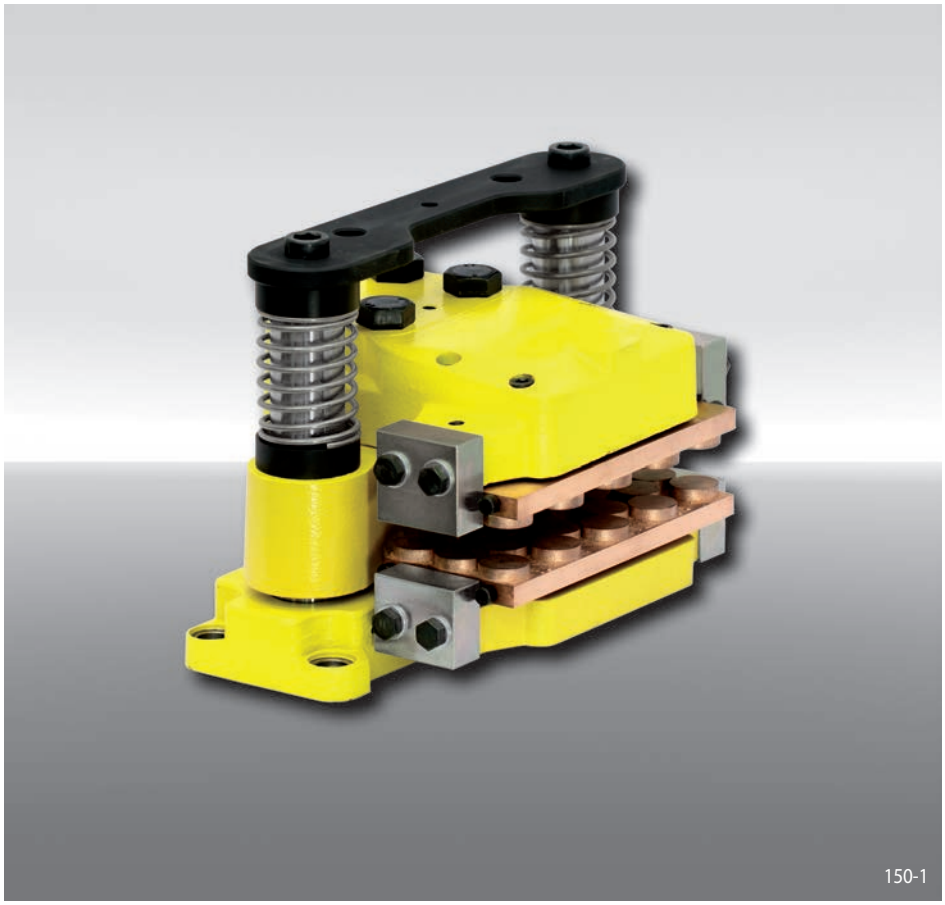
Other features

- The thickness of the customer connecting part results from the thickness of the brake disc W plus 3 mm

Brake Caliper HS 075 HFK

hydraulically activated – spring released

RINGSPANN®



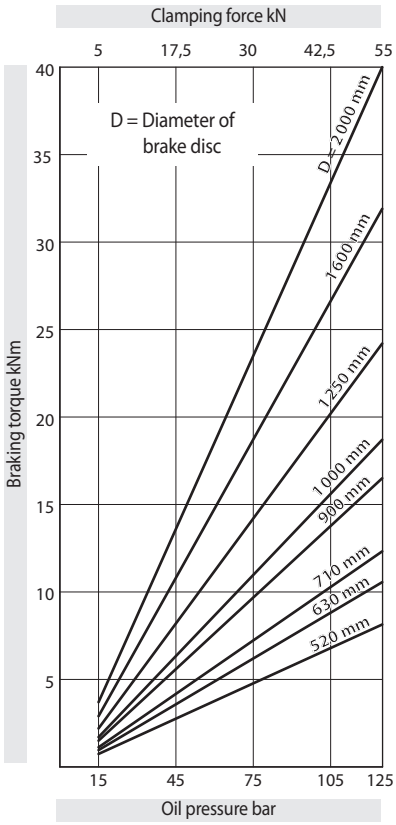
Features	Code
Brake Caliper	H
Floating caliper	S
With piston diameter 75 mm	075
Hydraulically activated	H
Spring released	F
No adjustment to accommodate friction block wear	K
Max. clamping force 55 kN	055

Example for ordering

Brake Caliper HS 075 HFK,
max. clamping force 55 kN:

HS 075 HFK - 055

Technical Data



The braking torques shown in the diagram are based on a theoretical friction coefficient of 0,4.

Oil pressure:	min. 15 bar max. 125 bar
Oil volume:	max. 70 cm^3
Weight:	ca. 80 kg

Other features

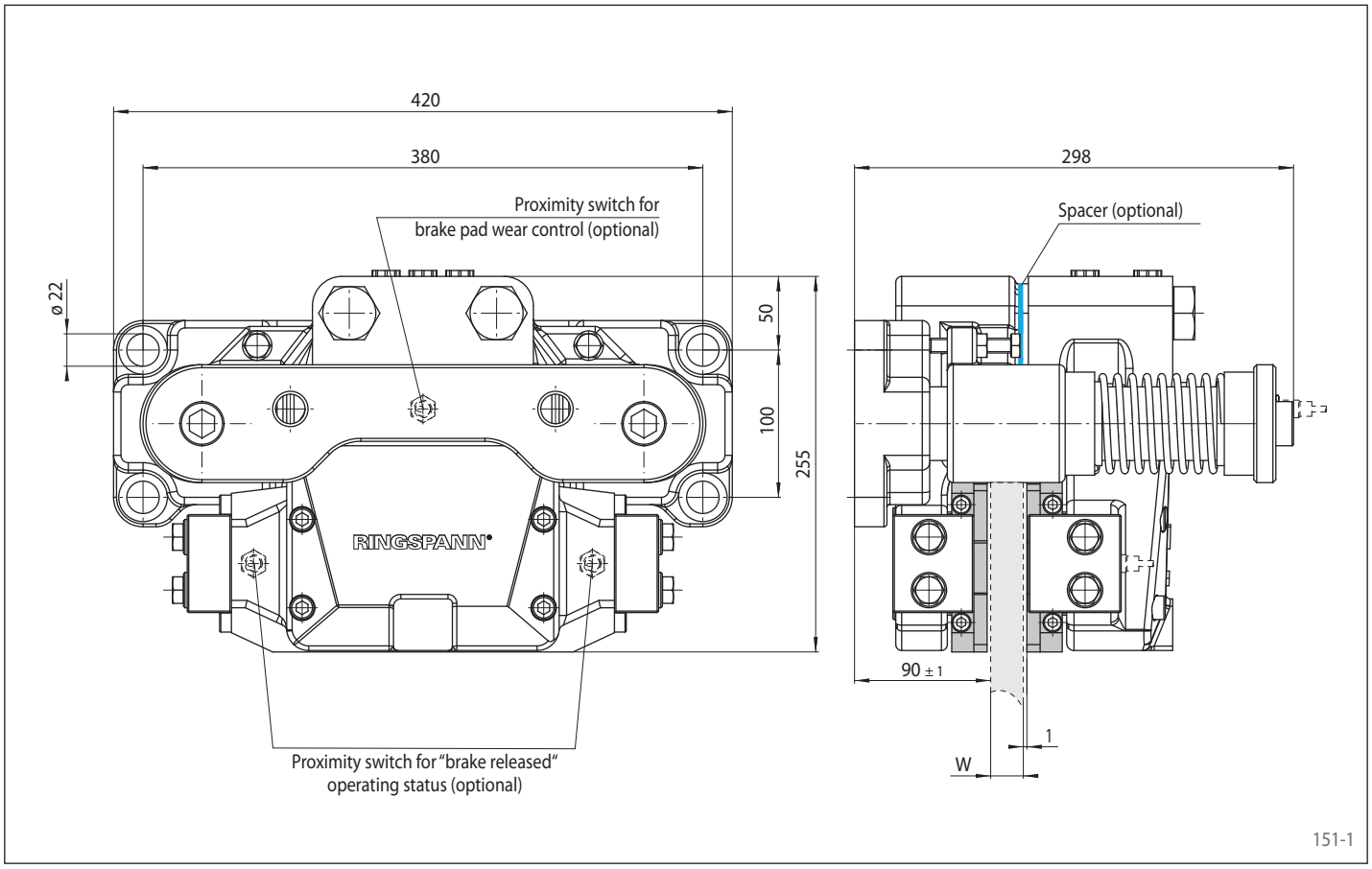
- High safety against leakage
- Easy change of friction blocks
- Painted with surface coating class C4-L according to ISO 12944
- For brake disc thickness W = 20 mm; brake disc thicknesses of up to 40 mm can be achieved with the use of a spacer installed by the customer

Accessories

- Inductive proximity switch for "brake released" operating status
- Inductive proximity switch for brake pad wear control
- Optional painting with surface coating class C4-H or C5M-H (offshore) according to ISO 12944

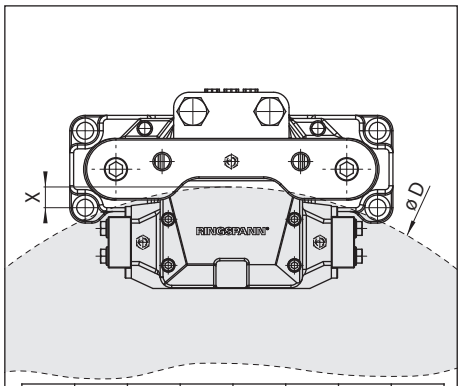
Brake Caliper HS 075 HFK

hydraulically activated – spring released



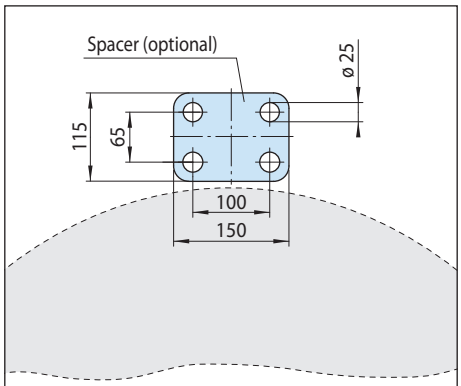
151-1

Mounting

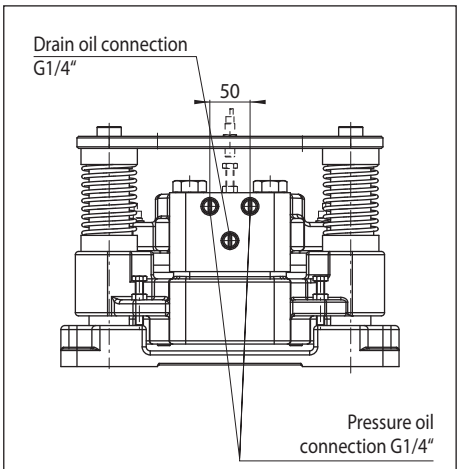


D mm	min. 520	630	710	900	1 250	1 600	2000
X mm	34	34	25	25	20	15	15

Mounting of the brake disc 151-2



Dimensions of spacer 151-3

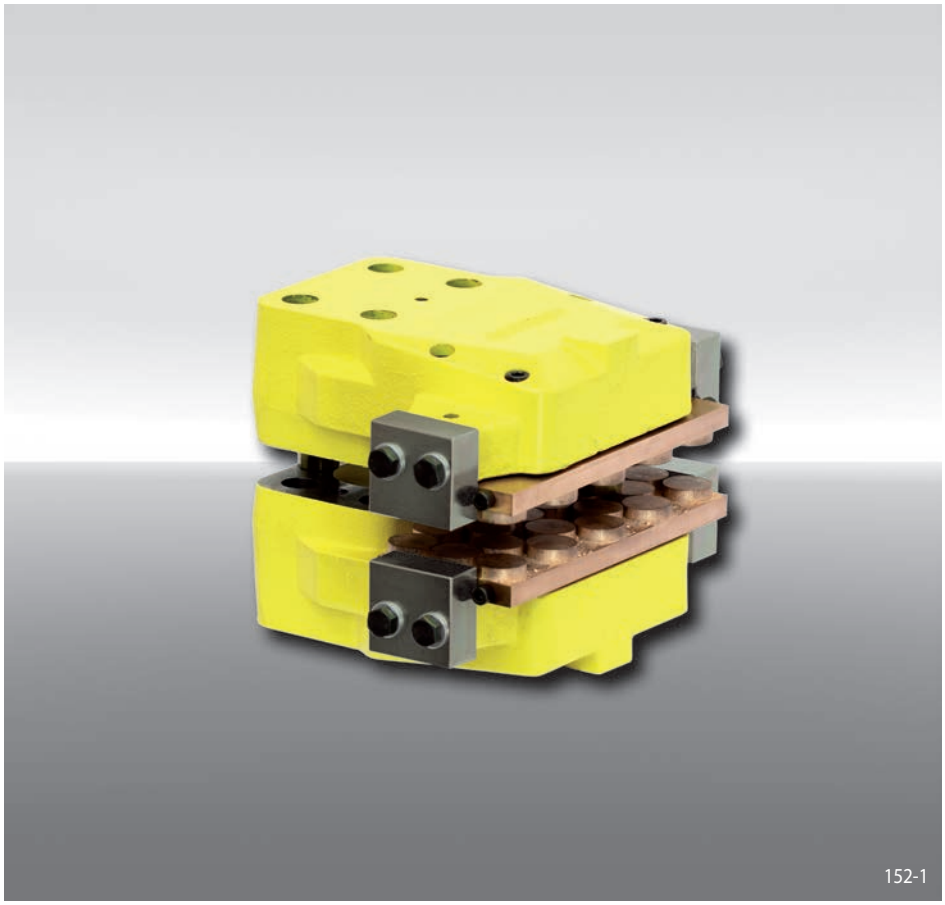


Supply connections 151-4

Brake Caliper HW 075 HFK

hydraulically activated – spring released

RINGSPANN®



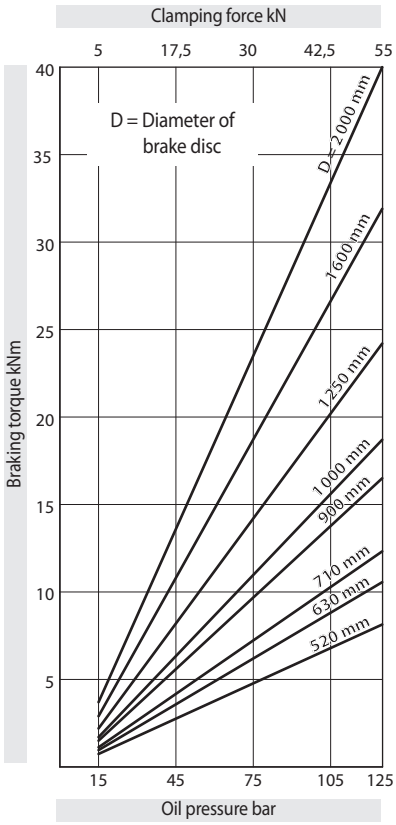
Features	Code
Brake Caliper	H
Standard	W
With piston diameter 75 mm	075
Hydraulically activated	H
Spring released	F
No adjustment to accommodate friction block wear	K
Max. clamping force 55 kN	055

Example for ordering

Brake Caliper HW 075 HFK,
max. clamping force 55 kN:

HW 075 HFK - 055

Technical Data



The braking torques shown in the diagram are based on a theoretical friction coefficient of 0,4.

Oil pressure:	min. 15 bar max. 125 bar
Oil volume:	max. 75 cm^3
Weight:	ca. 60 kg

Other features

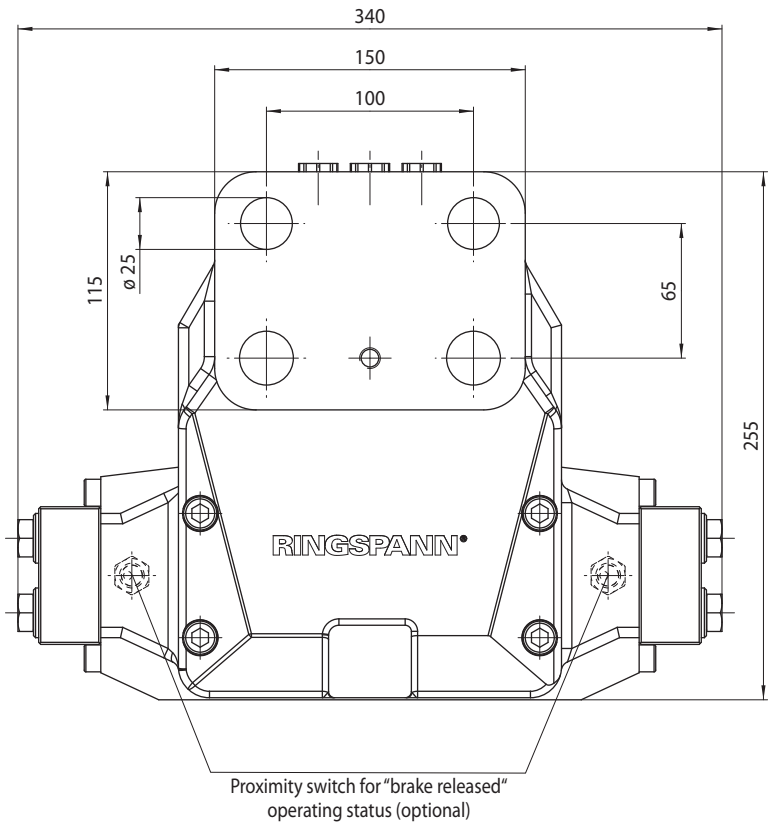
- High safety against leakage
- Easy change of friction blocks
- Painted with surface coating class C4-L according to ISO 12944
- The thickness of the customer connecting part results from the thickness of the brake disc W plus 3 mm

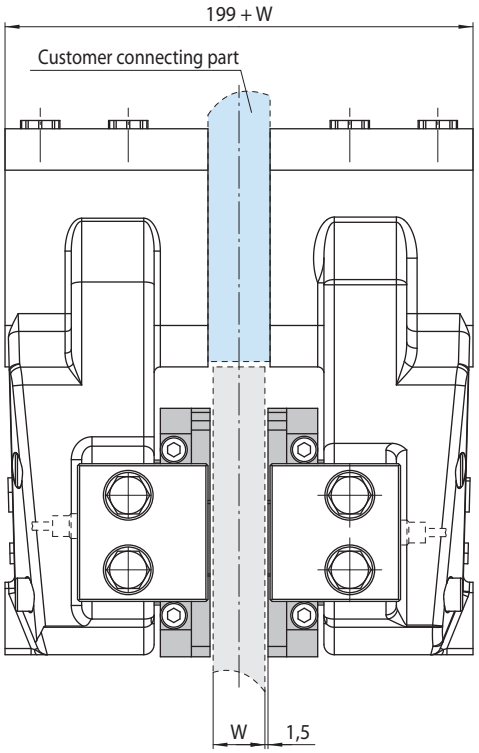
Accessories

- Inductive proximity switch for "brake released" operating status
- Optional painting with surface coating class C4-H or C5M-H (offshore) according to ISO 12944

Brake Caliper HW 075 HFK

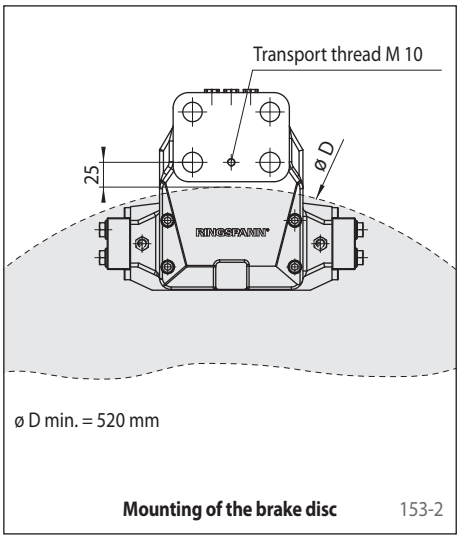
hydraulically activated – spring released



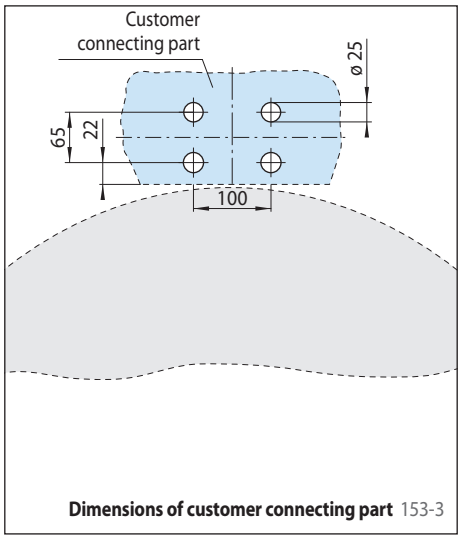


153-1

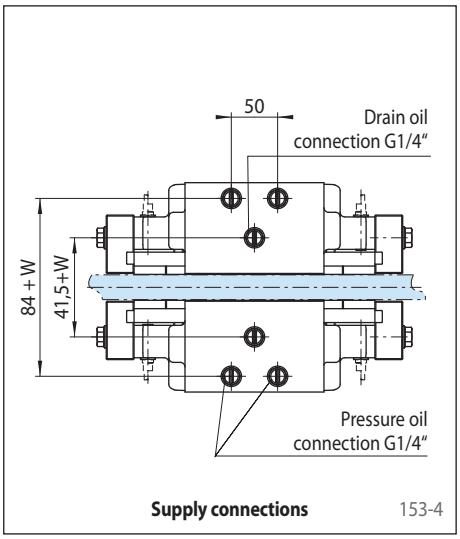
Mounting



Mounting of the brake disc 153-2



Dimensions of customer connecting part 153-3

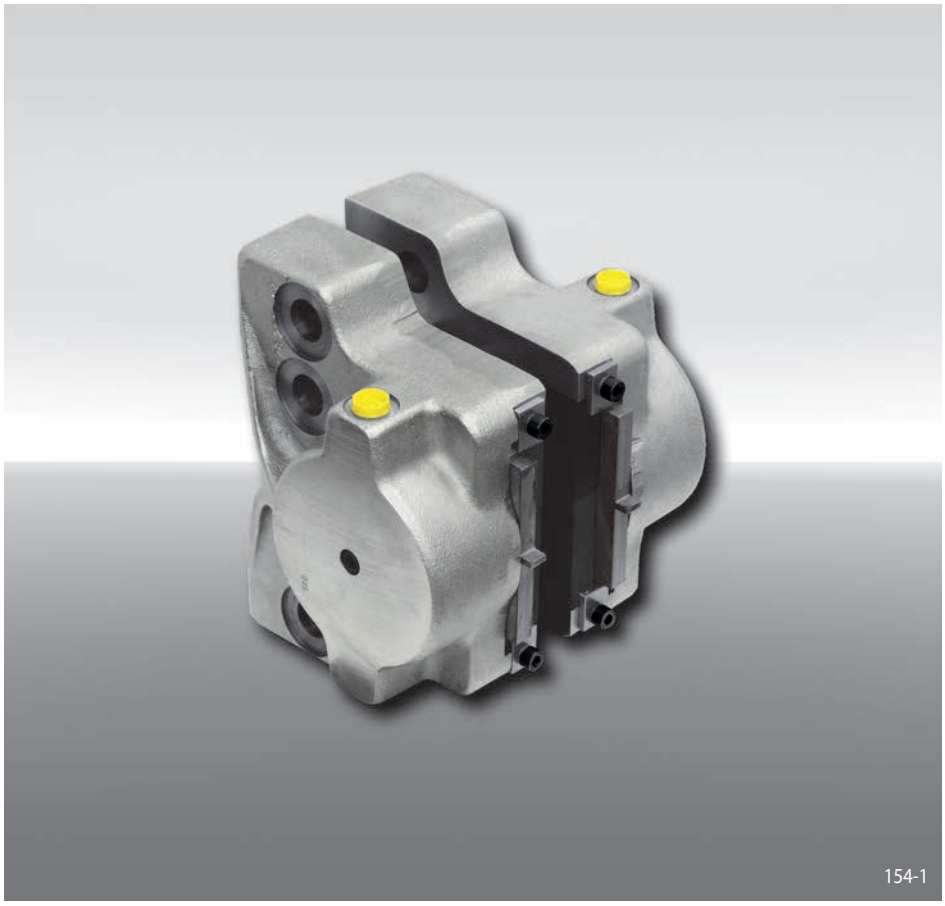


Supply connections 153-4

Brake Caliper HW 100 HFA

hydraulically activated – spring released

RINGSPANN®



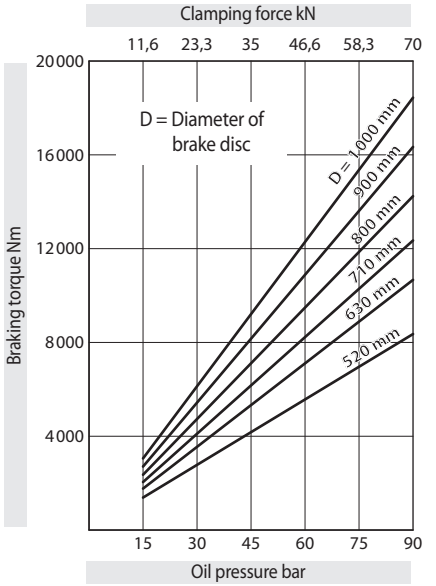
Features	Code
Brake Caliper	H
Standard	W
With piston diameter 100 mm	100
Hydraulically activated	H
Spring released	F
Automatic adjustment to accommodate friction block wear	A
Max. clamping force 70 kN	070

Example for ordering

Brake Caliper HW 100 HFA,
max. clamping force 70 kN:

HW 100 HFA - 070

Technical Data



The braking torques shown in the diagram are based on a theoretical friction coefficient of 0,3.

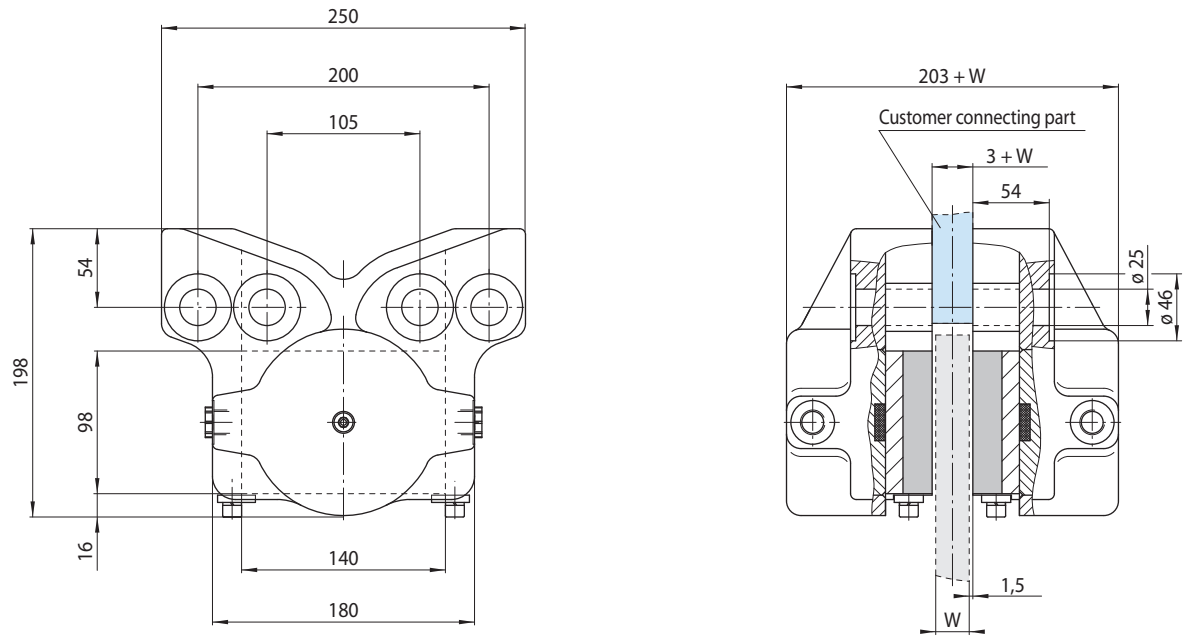
Oil pressure:	min. 5 bar max. 90 bar
Oil volume:	max. 298 cm^3
Weight:	30 kg

Other features

- The thickness of the customer connecting part results from the thickness of the brake disc W plus 3 mm

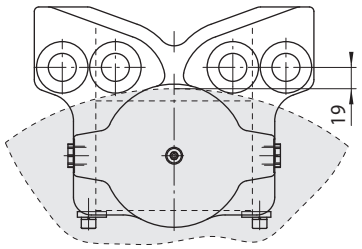
Brake Caliper HW 100 HFA

hydraulically activated – spring released

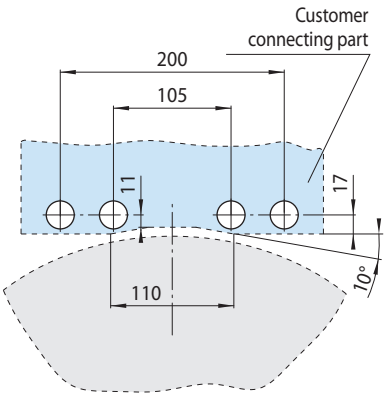


155-1

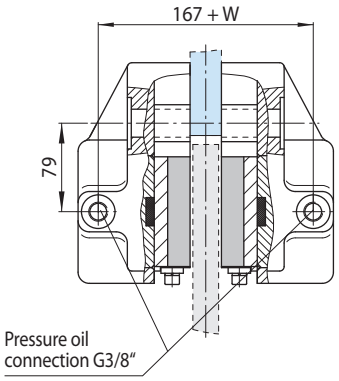
Mounting



Mounting of the brake disc 155-2



Dimensions of customer connecting part 155-3



Supply connections 155-4

Brake Caliper HS 120 HFK

hydraulically activated – spring released for wind turbines or conveyor systems

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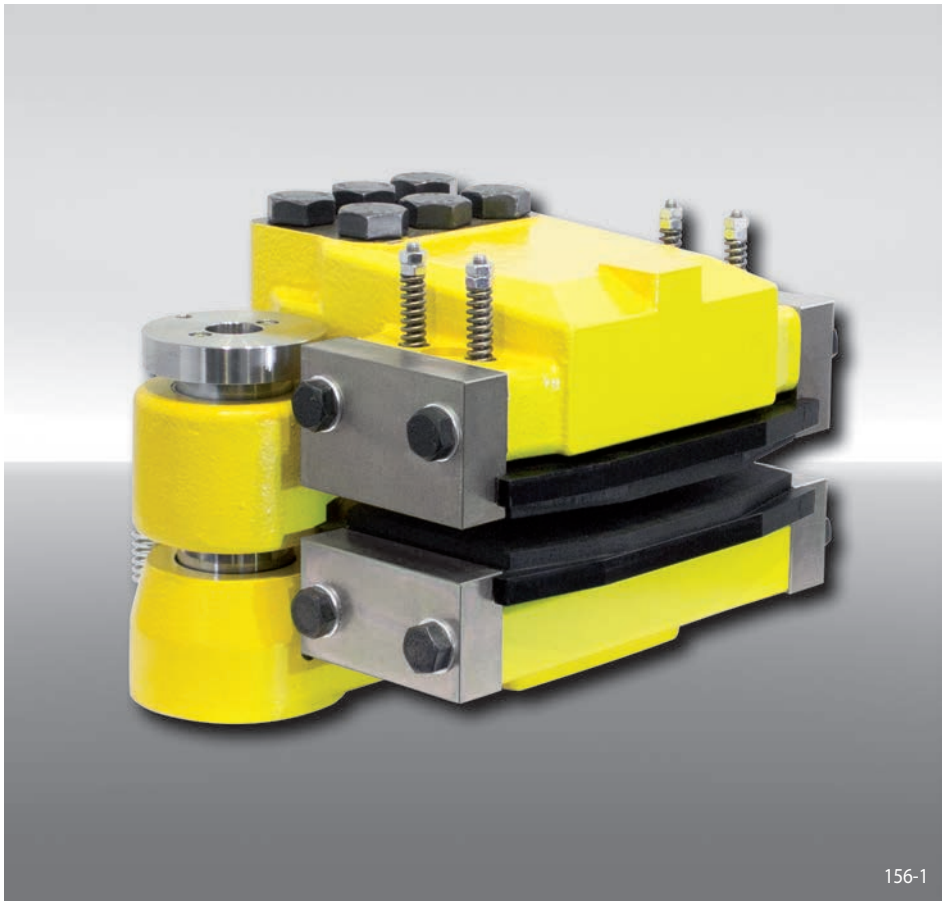


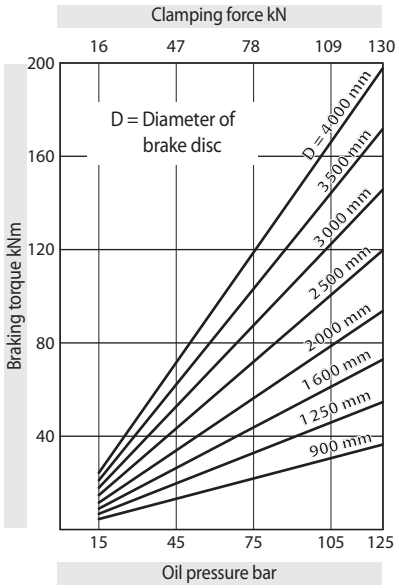
Features	Code
Brake Caliper	H
Floating caliper	S
With piston diameter 120 mm	120
Hydraulically activated	H
Spring released	F
No adjustment to accommodate friction block wear	K
Max. clamping force 130 kN	130

Example for ordering

Brake Caliper HS 120 HFK,
max. clamping force 130 kN:

HS 120 HFK - 130

Technical Data



The braking torques shown in the diagram are based on a theoretical friction coefficient of 0,4.

Oil pressure:	min. 15 bar max. 125 bar
Oil volume:	max. 203 cm^3
Weight:	ca. 195 kg

Other features

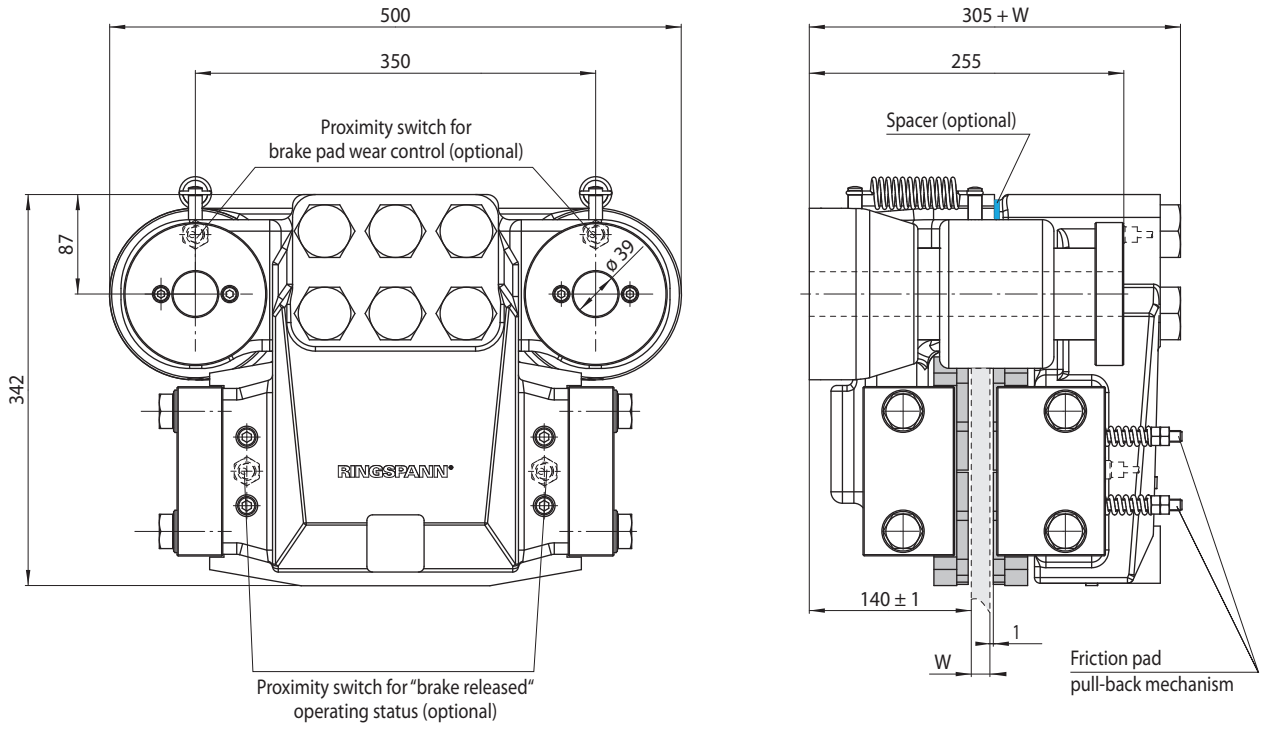
- High safety against leakage
- Easy change of friction blocks
- Painted with surface coating class C4-L according to ISO 12944
- For brake disc thickness W = 20 mm; brake disc thicknesses of up to 40 mm can be achieved with the use of a spacer installed by the customer

Accessories

- Inductive proximity switch for "brake released" operating status
- Inductive proximity switch for brake pad wear control
- Optional painting with surface coating class C4-H or C5M-H (offshore) according to ISO 12944

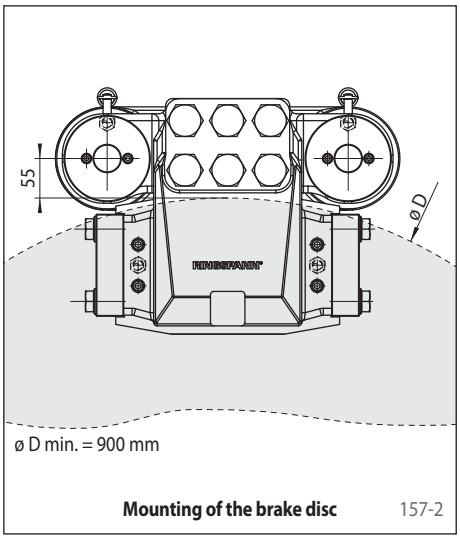
Brake Caliper HS 120 HFK

hydraulically activated – spring released
for wind turbines or conveyor systems

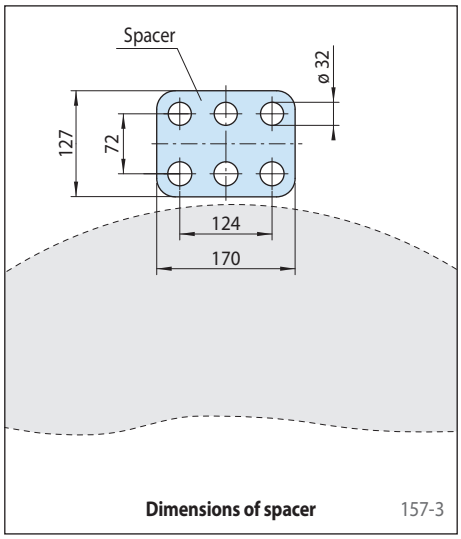


157-1

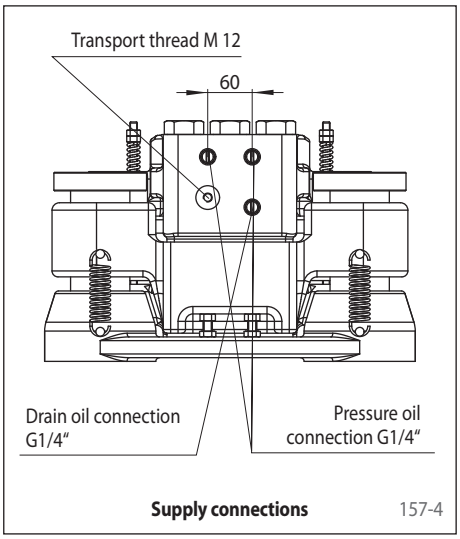
Mounting



Mounting of the brake disc 157-2



Dimensions of spacer 157-3

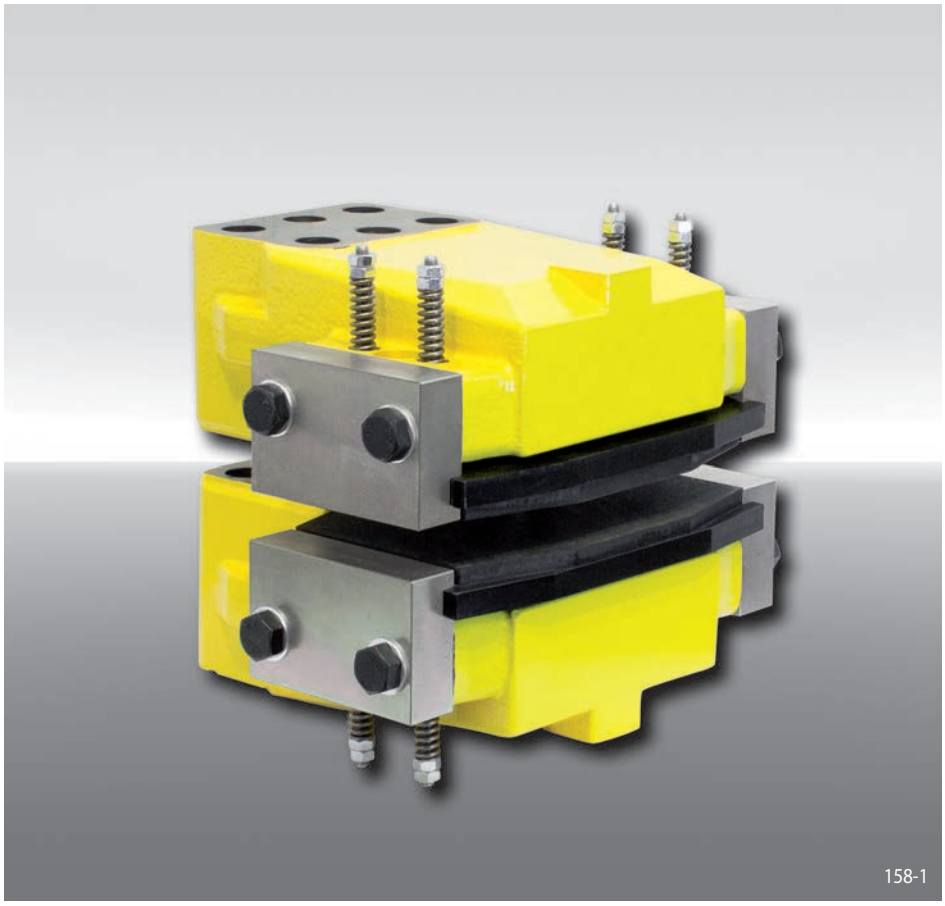


Supply connections 157-4

Brake Caliper HW 120 HFK

hydraulically activated – spring released

RINGSPANN®



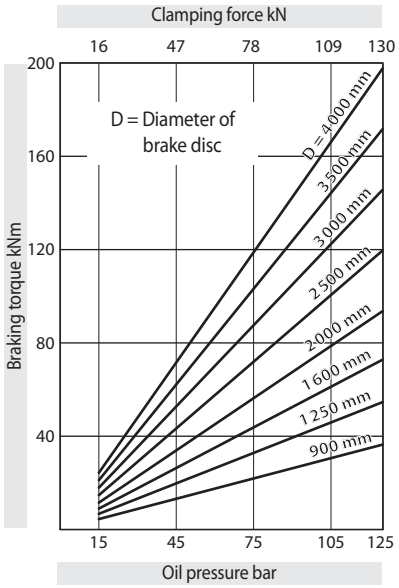
Features	Code
Brake Caliper	H
Standard	W
With piston diameter 120 mm	120
Hydraulically activated	H
Spring released	F
No adjustment to accommodate friction block wear	K
Max. clamping force 130 kN	130

Example for ordering

Brake Caliper HW 120 HFK,
max. clamping force 130 kN:

HW 120 HFK - 130

Technical Data



The braking torques shown in the diagram are based on a theoretical friction coefficient of 0,4.

Oil pressure:	min. 15 bar max. 125 bar
Oil volume:	max. 214 cm^3
Weight:	ca. 146 kg

Other features

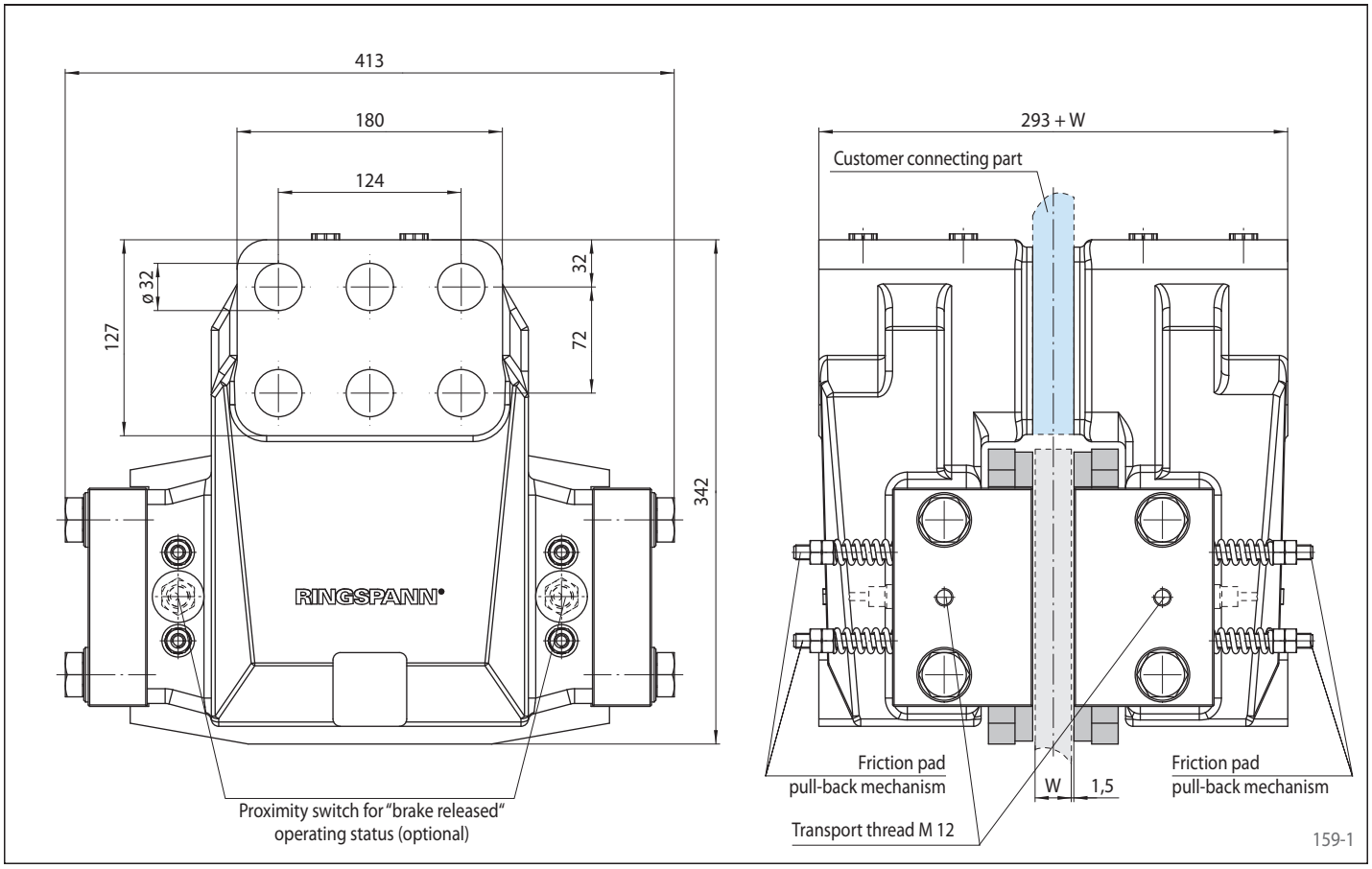
- High safety against leakage
- Easy change of friction blocks
- Painted with surface coating class C4-L according to ISO 12944
- The thickness of the customer connecting part results from the thickness of the brake disc W plus 3 mm

Accessories

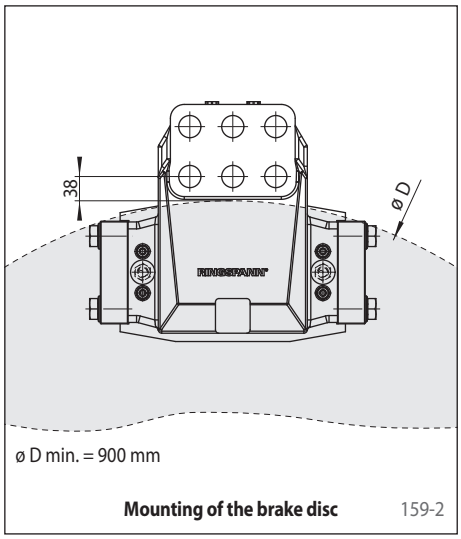
- Inductive proximity switch for "brake released" operating status
- Optional painting with surface coating class C4-H or C5M-H (offshore) according to ISO 12944

Brake Caliper HW 120 HFK

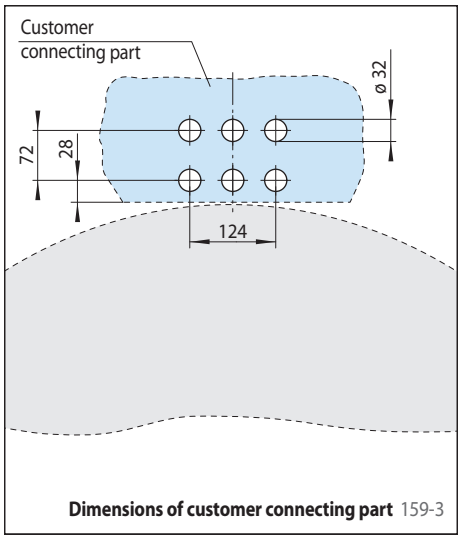
hydraulically activated – spring released



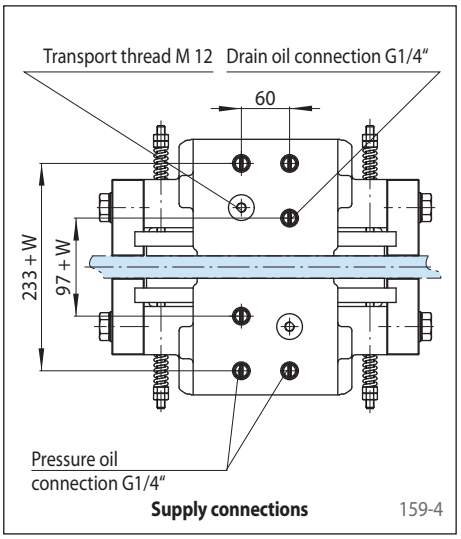
Mounting



Mounting of the brake disc 159-2



Dimensions of customer connecting part 159-3

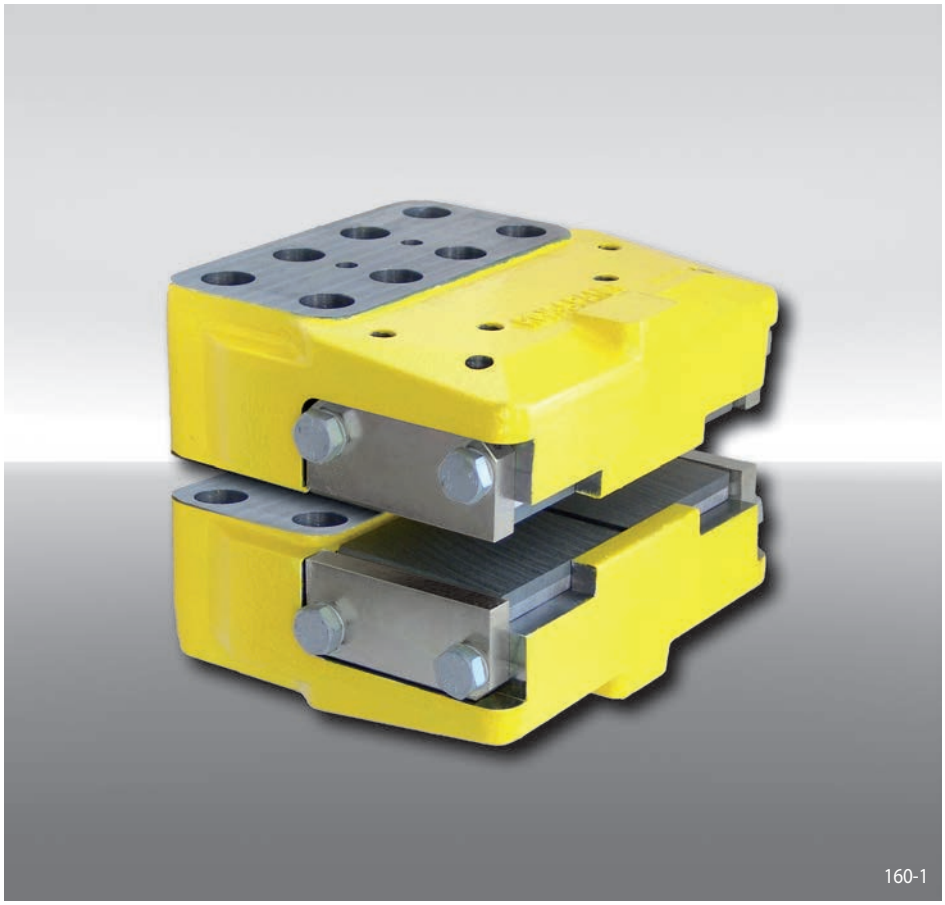


Supply connections 159-4

Brake Calipers HW 180 HFA

hydraulically activated – spring released

RINGSPANN®



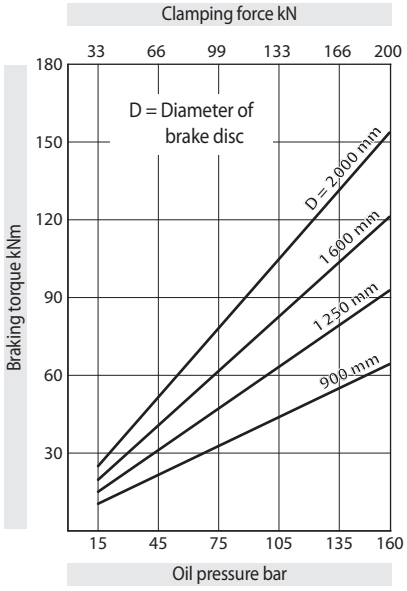
Features	Code
Brake Caliper	H
Standard	W
With piston diameter 2 x 90 mm	180
Hydraulically activated	H
Spring released	F
Automatic adjustment to accommodate friction block wear	A
Max. clamping force 200 kN	200

Example for ordering

Brake Caliper HW 180 HFA,
max. clamping force 200 kN:

HW 180 HFA - 200

Technical Data



The braking torques shown in the diagram are based on a theoretical friction coefficient of 0,4.

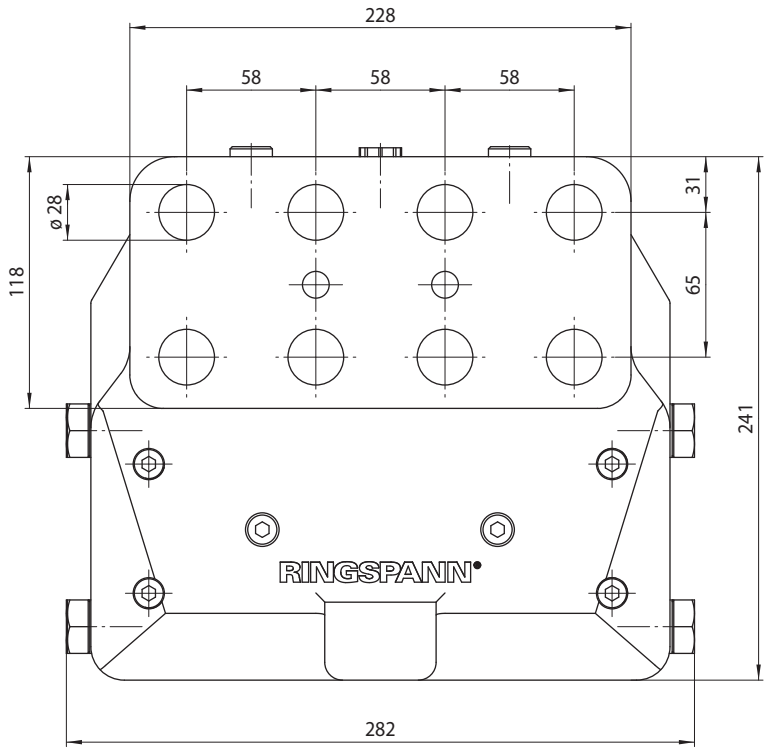
Oil pressure:	min. 15 bar max. 160 bar
Oil volume:	max. 381 cm^3
Weight:	ca. 65 kg

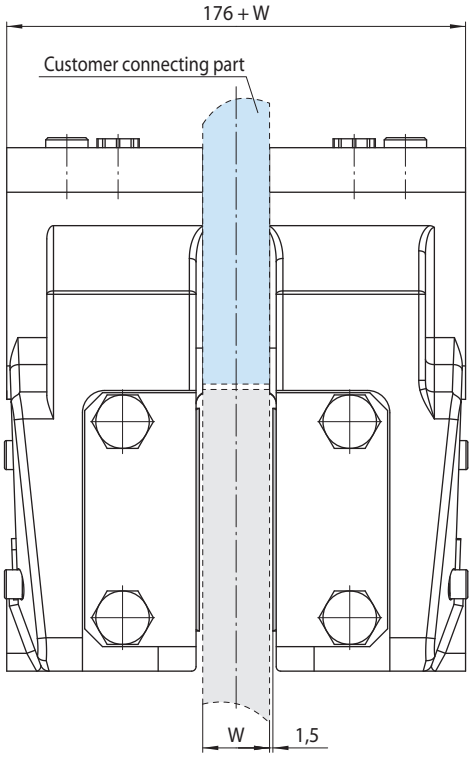
Other features

- High safety against leakage
- Painted with surface coating class C4-L according to ISO 12944
- The thickness of the customer connecting part results from the thickness of the brake disc W

Accessories

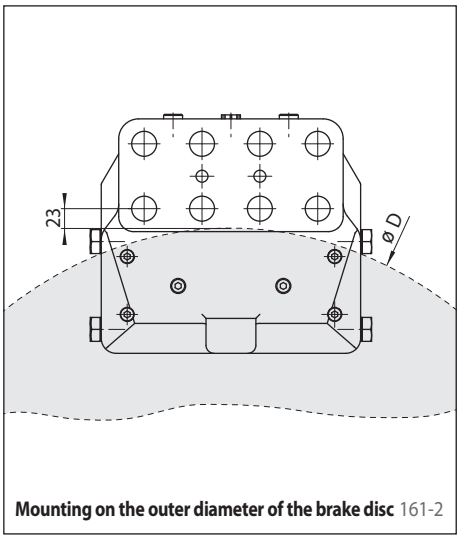
- Optional painting with surface coating class C4-H or C5M-H (offshore) according to ISO 12944



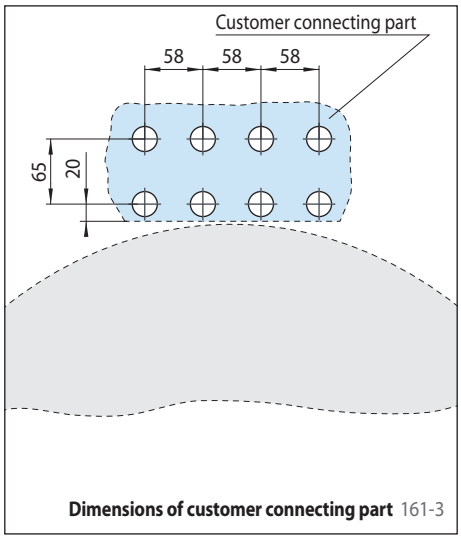


161-1

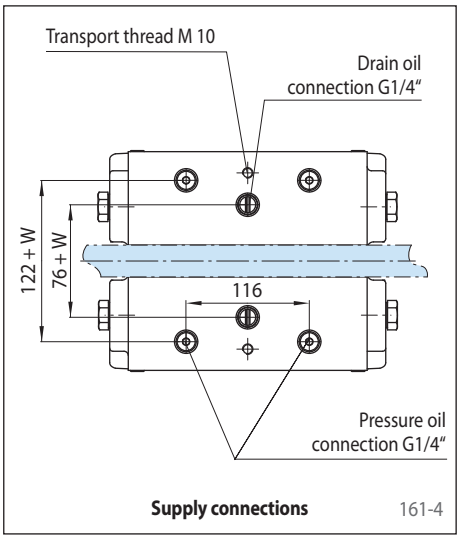
Mounting



Mounting on the outer diameter of the brake disc 161-2



Dimensions of customer connecting part 161-3



Supply connections 161-4

Features

Features	Code
Brake Disc	B
Form	F B S
Size of Brake Discs according to table	0125 to 1000
Thickness of brake disc (Standard)	12 25
Bore diameter according to table	014 to 220
Form pre drilled, finished bore without keyway, finished bore with keyway	V F B

Example for ordering

Brake Disc BF with a size of Brake Disc 200 mm, thickness of brake disc 12,5 mm and bore diamter 40 mm in Form F:

BF 0200/12 - 040 F

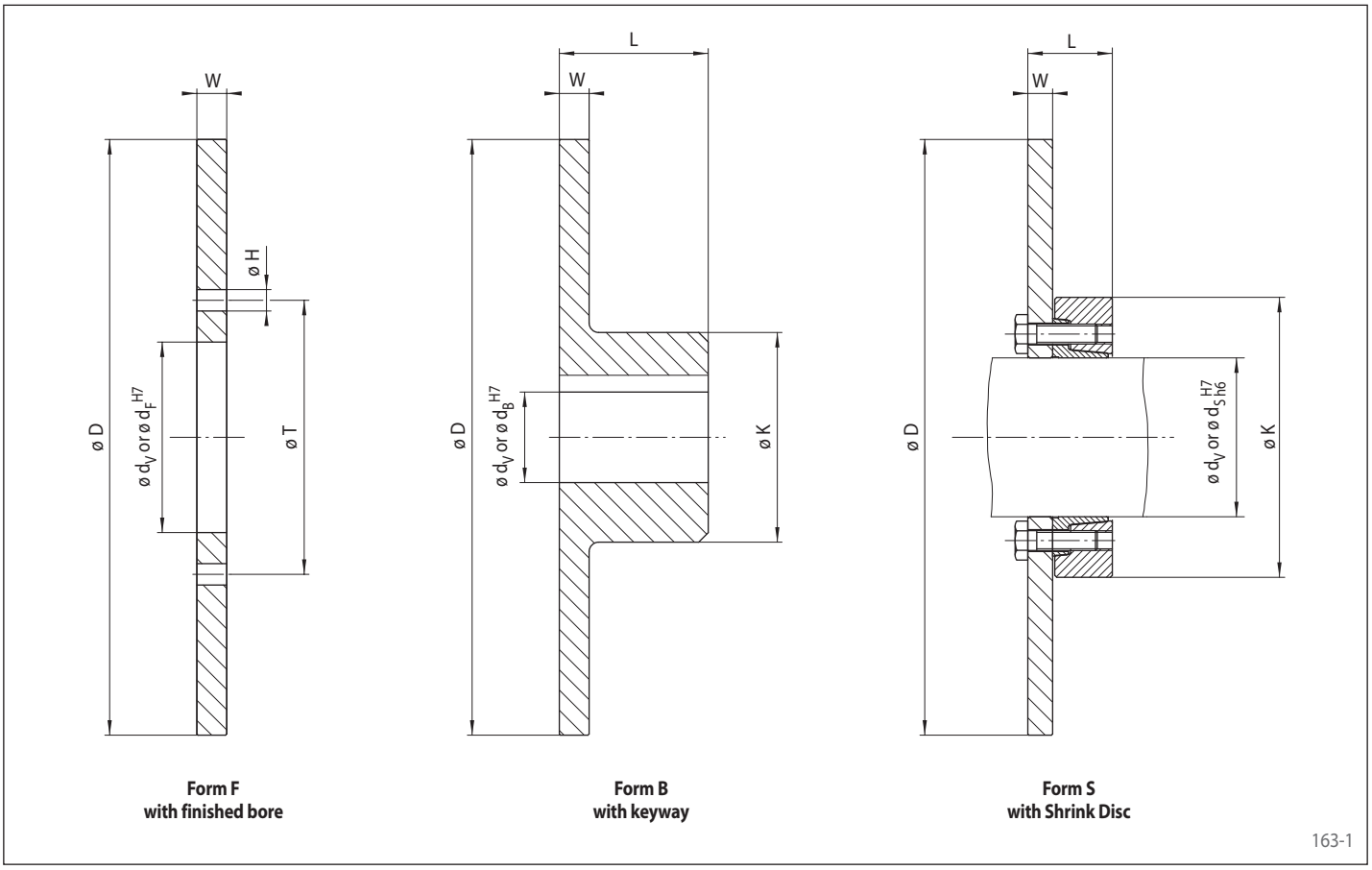
Technical Data

Size	Thickness of brake disc	Max. speed	Form F	Form B	Form S*		
D mm	W mm	$n_{max.}$ min^{-1}	Inertia moment J kgm^2	Inertia moment J kgm^2	Clamping diameter d mm	Inertia moment J kgm^2	Max. braking torque $M_{max.}$ Nm
125	12,5	14500	0,0022	0,0023	-	-	-
150	12,5	12100	0,0045	0,0047	-	-	-
200	12,5	9100	0,0141	0,0146	-	-	-
250	12,5	7300	0,0345	0,0380	-	-	-
300	12,5	6000	0,0720	0,0800	80	0,078	950
355	12,5 / 25	5100	0,140 / 0,270	0,162 / 0,243	-	-	-
430	12,5 / 25	4200	0,302 / 0,596	0,352 / 0,638	90 140 160	0,305 0,405 0,646	1500 3750 6000
520	12,5 / 25	3500	0,646 / 1,273	0,790 / 1,380	140 160 200	0,752 0,990 1,431	3750 6000 9500
630	25	2900	2,780	3,130	-	-	-
710	25	2600	4,490	5,090	-	-	-
800	25	2300	7,240	8,420	-	-	-
900	25	2000	11,59	13,70	-	-	-
1000	25	1800	17,70	21,30	-	-	-

* Only available in thickness of brake disc W = 12,5 mm

Features

- Optimized for use with RINGSPANN Brakes
- Cast material for best heat absorption
- Ready to install versions are available
- Variants with finished bore, keyway or shrink disc
- Disk diameter ranging from 125 mm to 1000 mm
- The Brake Disk are made from EN 1563 EN-GJS500-7 (GGG-50 after DIN 1693)
- Other sizes of Brake Discs are available on request



Form F with finished bore

Form B with keyway

Form S with Shrink Disc

163-1

Dimensions

Size	Thickness of brake disc	Pre drilled	Form F				Form B			Form S		
D mm	W mm	d_V mm	Finished bore d_F mm	H mm	T mm	Z*	Max. finished bore d_B** mm	L mm	K mm	Clamping diameter d_S mm	L*** mm	K mm
125	12,5	-	40	9	56	4	32	37,5	50	-	-	-
150	12,5	-	50	9	66	4	40	42,5	60	-	-	-
200	12,5	-	63	11	83	8	45	52,5	65	-	-	-
250	12,5	-	80	11	100	8	70	62,5	100	-	-	-
300	12,5	-	100	14	122	8	80	72,5	120	80	46,5	141
355	12,5 / 25	-	110	14	132	10	100	82,5	145	-	-	-
430	12,5 / 25	50	125	14	147	12	115	97,5	170	90 140 160	52,5 74,5 84,5	155 230 290
520	12,5 / 25	50	160	14	182	16	140	117,5	210	140 160 200	74,5 84,5 101,5	230 290 340
630	25	75	-	-	-	-	155	150	250	-	-	-
710	25	95	-	-	-	-	180	165	280	-	-	-
800	25	95	-	-	-	-	200	185	320	-	-	-
900	25	120	-	-	-	-	210	205	360	-	-	-
1000	25	120	-	-	-	-	220	225	400	-	-	-

* Z = Number of holes øH pitch circle øT • ** Keyway according to DIN 6885, page 1 • *** At unclamped state

Brake Discs Form S

The following apply to the shaft:

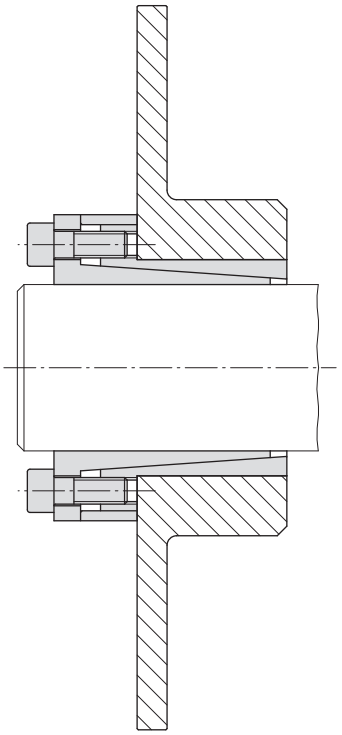
- Yield strength $R_e \geq 360$ N/mm^2
- E-module ca. 206 kN/mm^2

Surfaces

Average surface roughness at the contact surfaces of the shaft $R_a \leq 3{,}2$ µm.

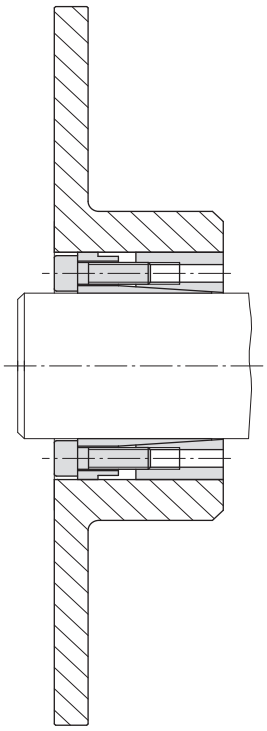
Dimensioning

Please refer to the technical points on page 165 when dimensioning the brake disc size.



Cone Clamping Element RLK 110
with Brake Disc Form B

164-1



Cone Clamping Element RLK 130
with Brake Disc Form B

164-2

Verification of Heat Absorption

Permissible Braking Action with Single Braking Operation

Extreme braking processes should be checked to ensure that the brake disc will not reach 300° C when absorbing the braking energy. The braking time in this case should not exceed 10 seconds.

As an example, you can see in the table the braking energy a brake disc can absorb together with a brake size 020/025/030 without exceeding 300° C. We recommend that this additional calculation be carried out in the case of indexing operations. The absorbed energy for the deceleration of rotating masses in this case is:

$$W_B = \frac{J_{red}\,(n_1^2 - n_2^2)}{182{,}5}$$

Ensure that:

$$W_{BSzul} \geq W_B$$

The table is valid for brake disc material GJS-500, brake sizes 020/025/030 with standard friction pads, a maximum brake disc temperature of 300° C and ambient temperature of 20° C.

D mm	W_{BSzul} W = 12,5 mm Nm	W_{BSzul} W = 25 mm Nm
125	120000	-
150	170000	-
200	260000	-
250	350000	-
300	450000	-
355	550000	1090000
430	690000	1370000
520	850000	1700000
630	-	2110000
710	-	2410000
800	-	2740000
900	-	3110000
1000	-	3480000

Verification of Heat Dissipation

The transmissible brake power of the disc according to the diagram on this page applies to the types of braking operation described below:

$$P_{BSzul} \geq P_B$$

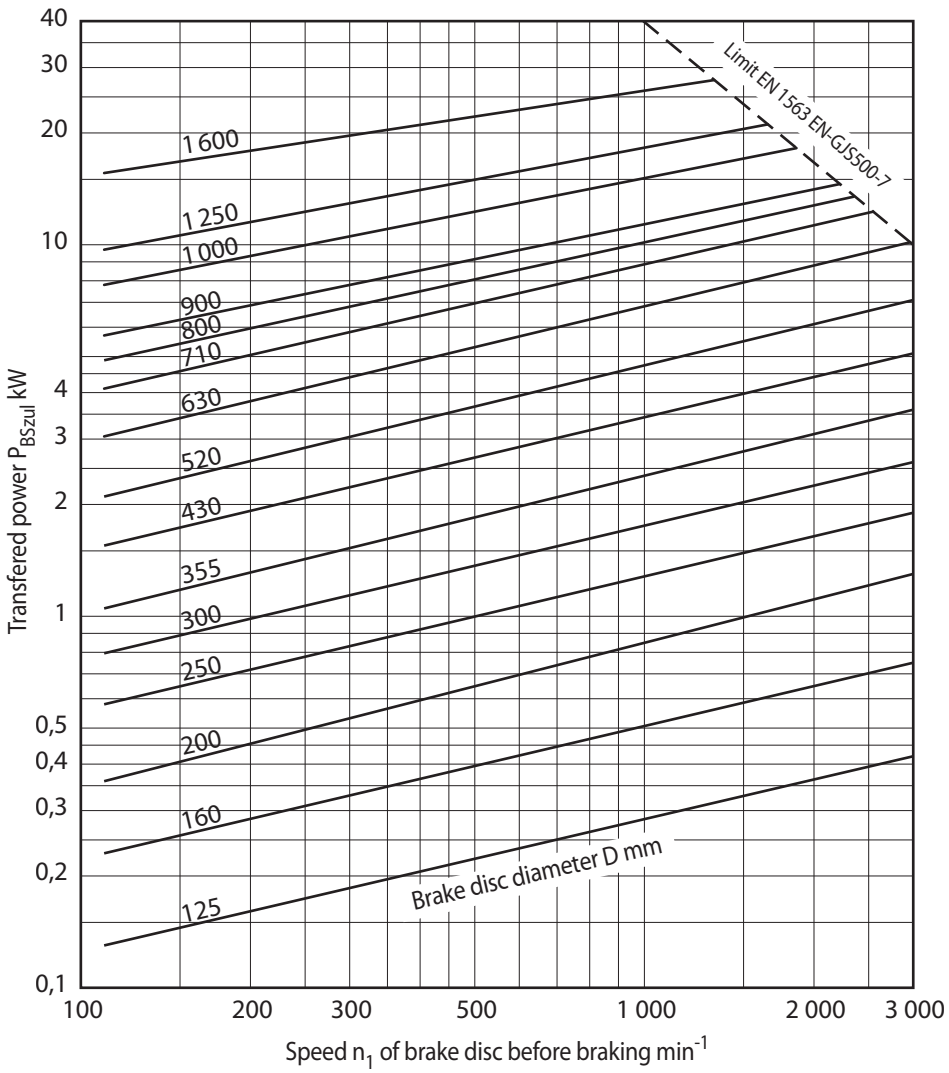
Braking with low frequency z ≤ 40 per hour

If „z" actuations occur within one hour, then the brake power capacity required is as follows:

$$P_B = \frac{M_B\,(n_1 - n_2)}{6{,}88 \cdot 10^7} \cdot z \cdot t_B$$

Braking with high frequency z > 40 per hour

For such cases we would ask you to enclose with your enquiry exact details of the time slope of speed and braking torque, as well as the completed questionnaire on page 180. We will check the design of the brake disc in respect of the heat dissipation.



Formula symbols

J_{red}	[kg m^2]	Reduced inertia moment
M_B	[Nm]	Required braking torque
n_1	[min^{-1}]	Speed before braking
n_2	[min^{-1}]	Speed after braking
P_B	[kW]	Brake power generated by application, average with one braking cycle
P_{BSzul}	[kW]	Brake power capacity of brake
t_B	[s]	Braking time
W	[mm]	Thickness of brake disc
W_B	[Nm]	Braking energy generated by application
W_{BSzul}	[Nm]	Braking energy capacity of the disc brake
z	[h^{-1}]	Number of braking cycles per hour

The transferred power is based on a maximum disc temperature of 300° C applicable to thickness of brake disc of up to 25 mm and an ambient temperature of 20° C.

Friction Block Wear Control and Universal Transformer

RINGSPANN®

Friction Block Wear Control

Function

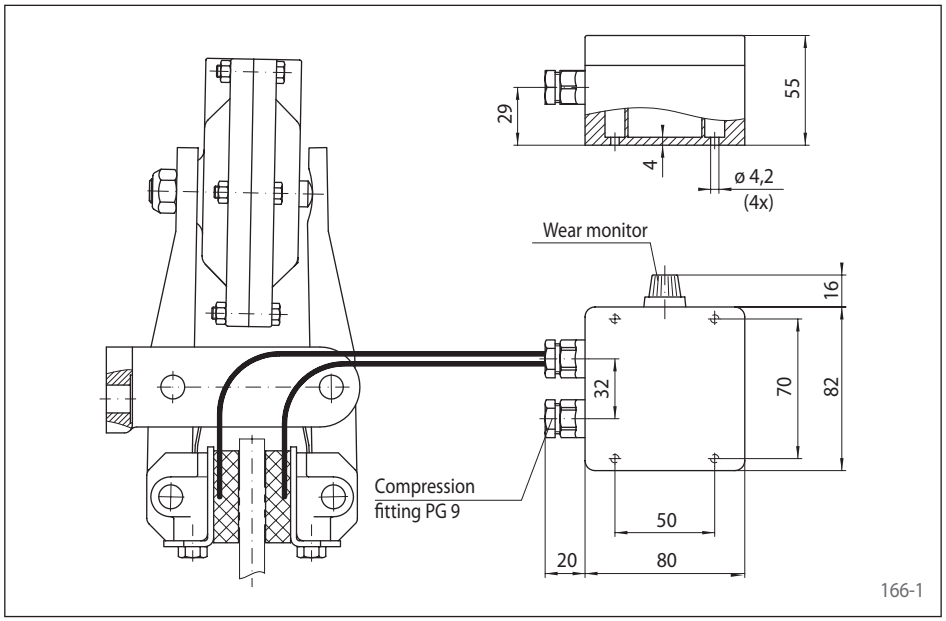
All brakes can be supplied on request with an electrical wear indicator which signals the limit of the friction block wear. The control lamp in the wear monitor indicates when the friction blocks need to be replaced. In addition, the output relay can trigger a signal in the central control station.

Friction Blocks with Signal Cable

Friction blocks with signal cable are used to monitor wear. Cable length 25 cm with plug connection.

Wear indicator

Housing:	Makrolon
Insulation:	IP 65
Colour:	Grey, RAL 7035
Temperature range:	-50° C to 60° C
Output:	Relay 6A / 230 V AC



Article Number for supply voltage	
24 V DC	230 V AC, 50 Hz
3511-000001-B024VG	3511-000001-B220VW

Universal Transformer

The Universal Transformer is used to operate a DH 012 FEM or DV 020 FEM Brake Caliper.

Output: 0,25 kVA

Primary voltages:

200 V, 220 V, 240 V, 260 V, 280 V, 300 V, 310 V, 330 V, 350 V, 360 V, 380 V, 400 V, 420 V, 440 V, 480 V, 500 V, 530 V and 550 V

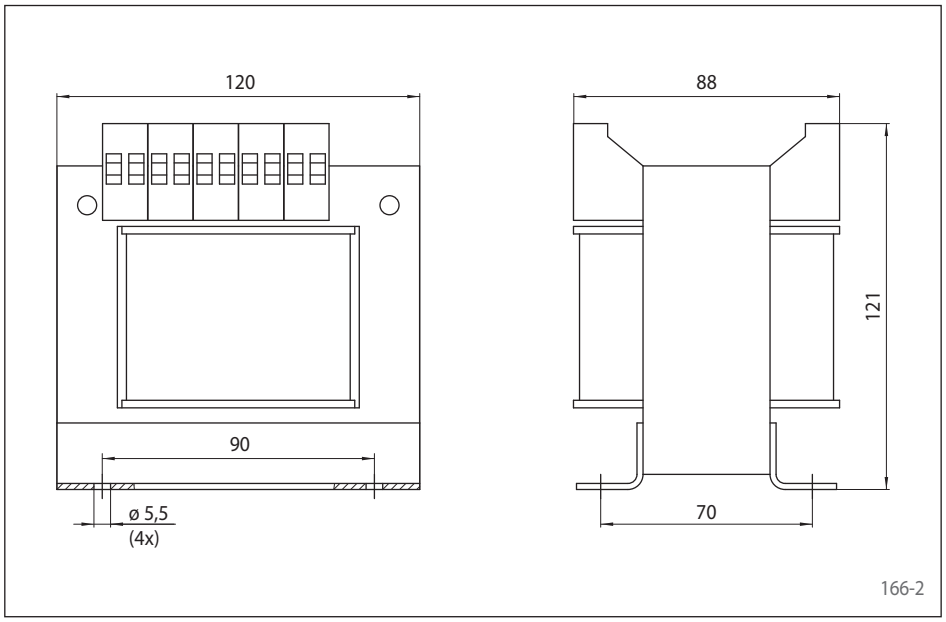
Secondary voltages:

115 V or 230 V

The Universal Transformer is manufactured in accordance with EN 61558 / VDE 0570:

- Clamps in accordance with VDGB-4
- Insulation class T40/E
- Safety class 1

Article Number: 3503-000001-000000



RCS® Pull Cable and RCS® Hand Brake Lever

RINGSPANN®

RCS® Pull Cable

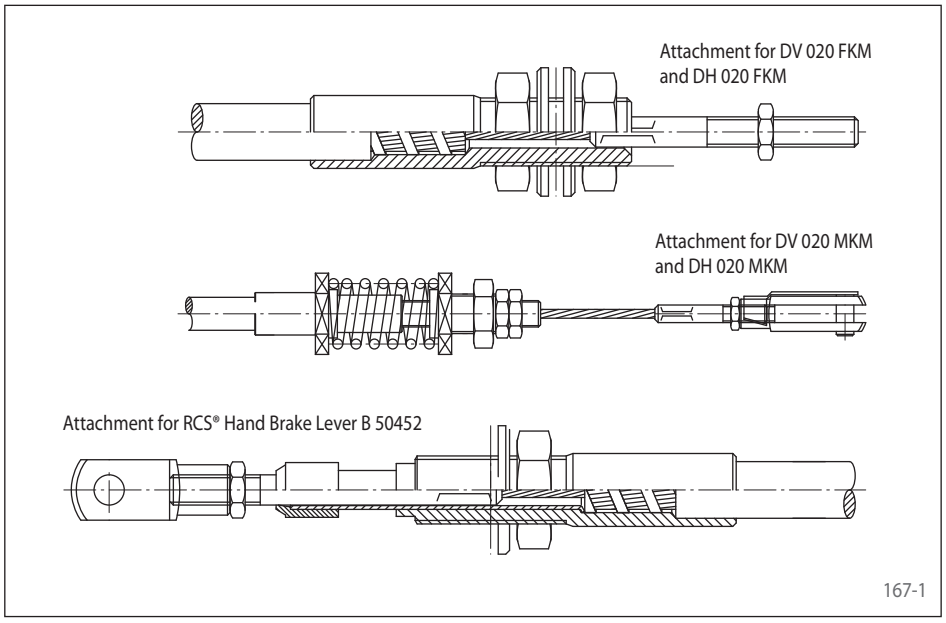
RCS® Pull Cable for Brake Calipers DV 020 FKM and DH 020 FKM as well as DV 020 MKM and DH 020 MKM are available in variable cable lengths.

Cable ends are designed for attachment to Brake Calipers or RCS® Hand Brake Lever B 50452.

Features

- Slide ease
- Stainless steel inner member wrap
- Suitable for small bending radii
- Galvanized steel elements
- Stainless steel drawbar

An extensive product range of RCS® Remote Control Systems can be found in the "RCS® Remote Control Systems" catalogue.



RCS® Hand Brake Lever B 50452

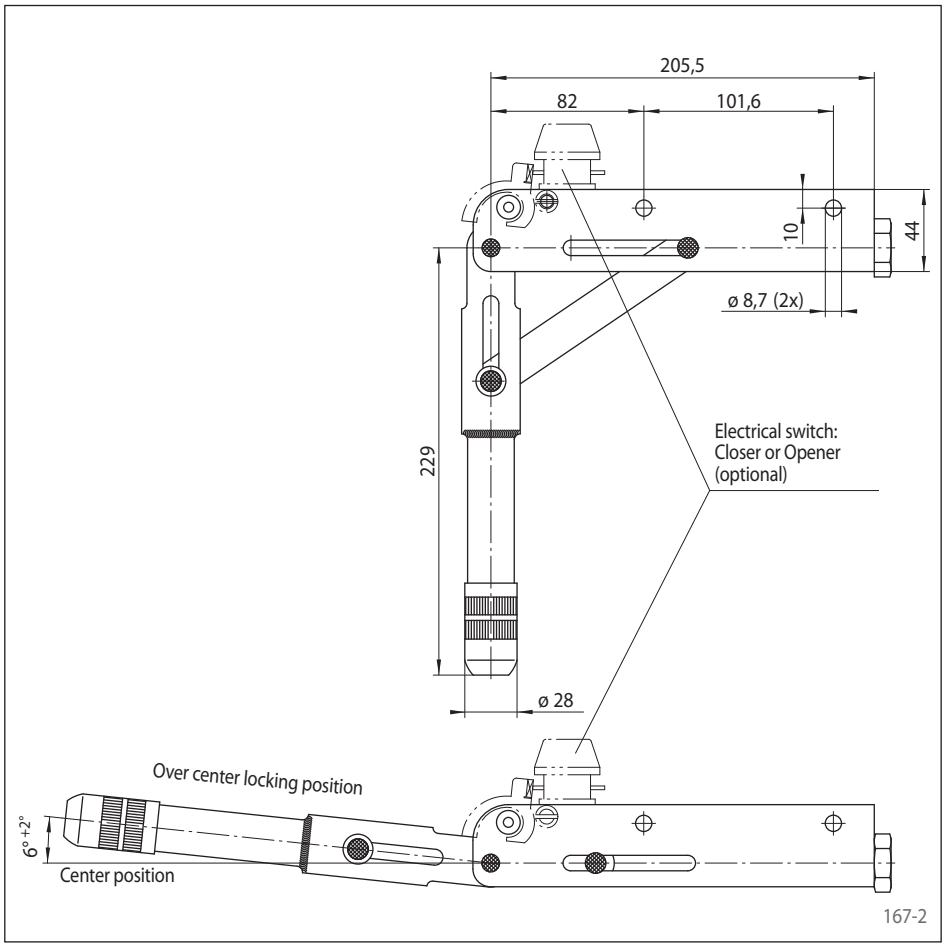
The RCS® Hand Brake Lever B 50452 is used to operate Brake Calipers DV 020 FKM and DH 020 FKM as well as DV 020 MKM and DH 020 MKM in connection with a RCS® Cable.

Article Number: 4561-000001-R50452

Features

- Two positions: "open" or "closed"
- Over center locking
- Friction Block Wear compensation
- Attachment for RCS® Pull Cables
- Optional with electric switch (Closer or Opener) available

An extensive product range of RCS® Remote Control Systems can be found in the "RCS® Remote Control Systems" catalogue.



Control System BCS 600

For controlled braking …

- with pre-set braking distance
- with pre-set deceleration
- with pre-set braking time

We command braking actions

Belt conveyors in mining industry

Industrial Application

Brakes are used to stop declining conveyor belts in the mining industry. The brakes should prevent the belt from overshooting or rotating in the reverse direction. The load is not known at the time of braking and consequently the necessary braking torque is unknown.

Brake system requirements

The required braking force transferred onto the belt depends on

- the pre-set braking distance,
- the current load condition,
- the current environmental conditions
- and fluctuations in friction coefficient between pad and disc caused by temperature variations during braking.

For controlled braking …

- with pre-set braking distance

Elevator car drive for underground mining

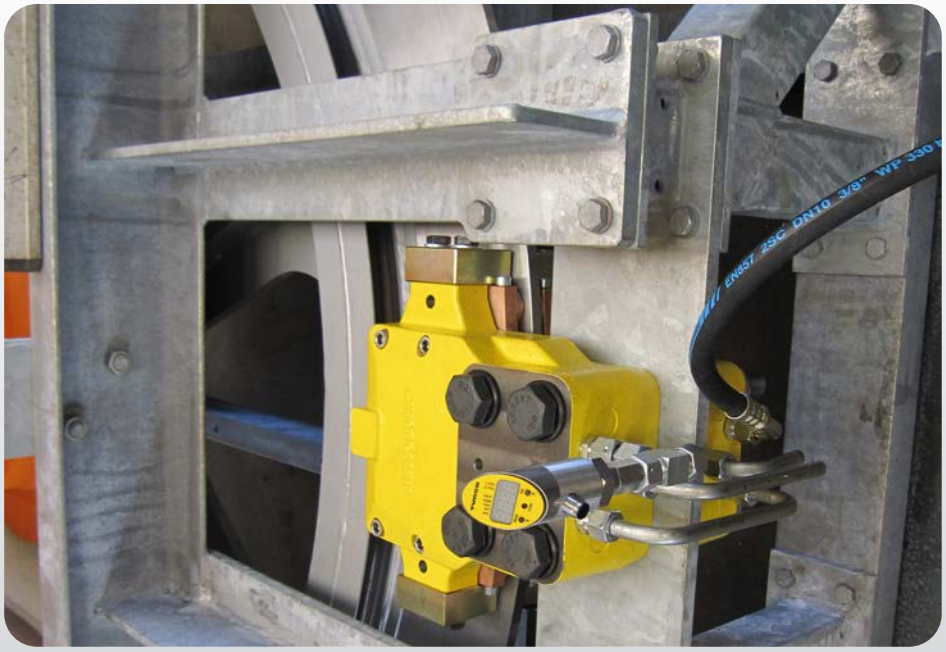
Industrial Application

The deceleration of elevator cars has to comply with certain regulations. Oscillations in longitudinal direction should be avoided. The load at the time of braking is unknown and could lead to peak loads in the ropes as well as rope slipping on the drum.

Brake system requirements

The required braking force transferred onto the ropes depends on:

- the permissible deceleration,
- load variations,
- the current environmental conditions
- and fluctuations by temperature variations during braking.



Source: Josef Wiegand GmbH & Co. KG

For controlled braking …

- with pre-set deceleration

Escalators and moving walkways

For controlled braking …

- with pre-set braking time

Industrial Application

On escalators and moving walkways injuries can occur by stopping to quickly. Regulations prescribe a braking time of 2 - 3 seconds. The number of passengers on the escalator is not known at the time of braking and consequently the necessary braking torque is unknown.

Brake system requirements

The required braking force transferred onto the escalator depends on:

- the pre-set braking time,
- the admissible deceleration for passenger transport,
- load variations,
- the current environmental conditions
- and fluctuations by temperature variations during braking.

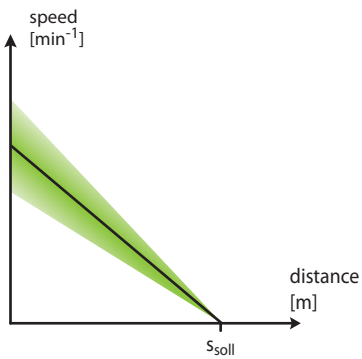
Short description

The Control System BCS 600 is a brake control system for hydraulically released or hydraulically activated brakes, based on adjustable hydraulic pressure.
Herewith, demanding braking actions (preset braking time, deceleration and braking distance) are performed reliably. At the same time the BCS 600 accomplishes important safety and monitoring functions. It consists of a control unit and a hydraulic power pack used in conjunction with brakes from the RINGSPANN product range.

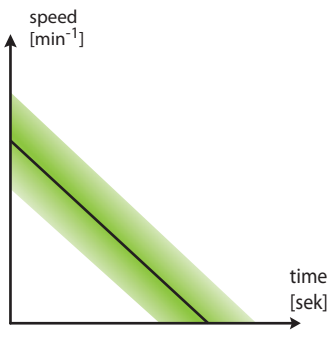
Control braking actions

The standstill of the system will be reached independent of general conditions with, consistent braking either by

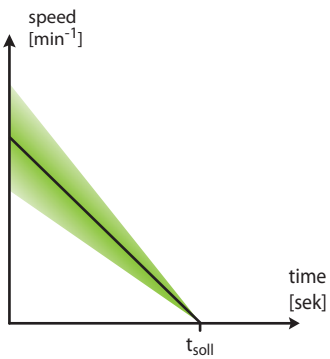
a pre-set braking distance

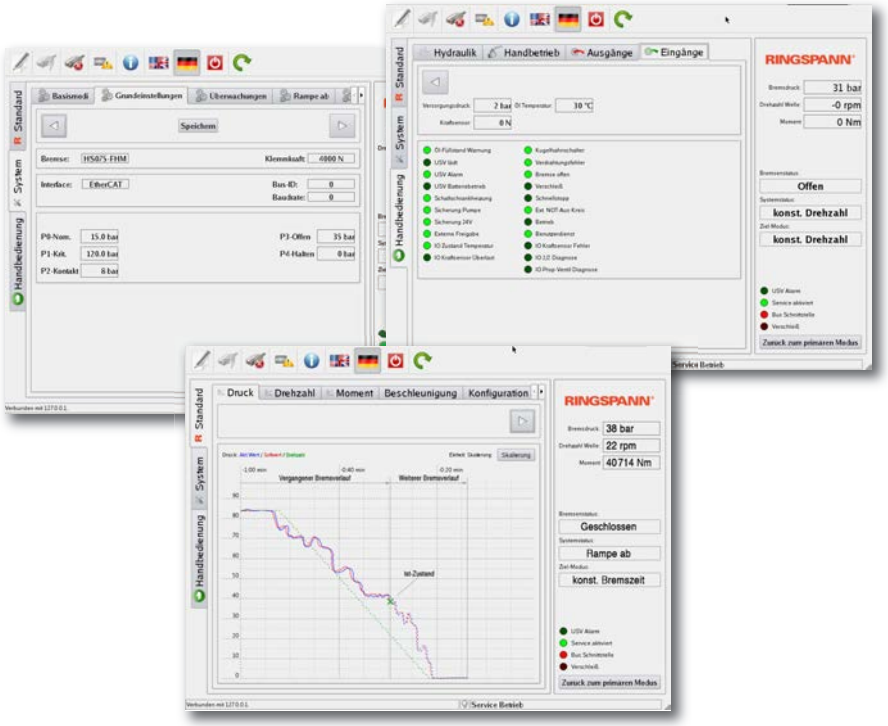


a pre-set deceleration



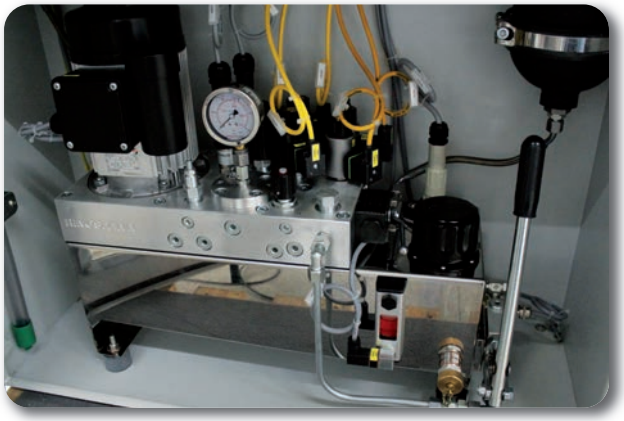
a pre-set braking time





Touchpanel as graphical user interface

Controller IPC



Hydraulic powerpack

Features

- Fast reduction of the gap between disc and brake pad
- Continuous monitoring of rotational speed, hydraulic pressure, oil temperature and rotational direction
- Operation as a stand alone braking system is possible
- Periodically light braking to clean the brake disc
- Graphical visualization of the braking process in real time
- Redundant installation of a second braking system is possible (one supports the other if necessary)
- Retrofit or upgrade of outdated braking systems is possible
- Permanent logging of operating data and system events
- Spring pressure monitoring

Technical specifications

- Large tank volume
- System pressure:
  up to 200 bar
- Supply voltage:
  110 VAC-50/60 Hz, 230 VAC-50/60 Hz,
  400 VAC-50/60 Hz
- Various sensors
- Ambient temperature (standard):
  -20° C … +40° C
- Fieldbus interface:

EtherCAT. PROFIBUS® CANopen

Options

- Hydraulic Accumulator
- Uninterruptible power supply (UPS)
- Remote maintenance via internet or UMTS
- Touch-Panel for data input and brake process visualization, directly on the Brake Control System
- "Cold Climate Version" (-40° C)
- Monitoring of brake pad wear

Hydraulic Power Unit and Pneumatic Cabinet

Hydraulic Power Unit

- Compact design because of the cylindrical dimensions of the tank
- Optimized oil-connection of pressure side provided by two connection arranged at 90°
- Easy mounting because of two mounting possibilities; therefore, no complex mounting frames are required
- Inside and outside of the tank is oil-resistant powder-coated

Hydraulic Power Units can be made according to customers demand. Please fill out the "Questionnaire for selecting Brake Calipers" on page 180.

Pneumatic cabinet

Suitable for brakes up to size 035, configuration according to customers demand.

Pneumatic components include:

- Compressor with 5 liter pressure storage for an output range of 0,5 to 6,0 bar
- Filter regulator unit, including condensate separator
- Valve
- Electric power unit 230 V AC

Cabinet size W x H x D - 400 x 500 x 210 mm

Pneumatic Cabinets can be made according to customers demand. Please fill out the "Questionnaire for selecting Brake Calipers" on page 180.

Clamping Unit KE … FHK

spring activated – hydraulically released

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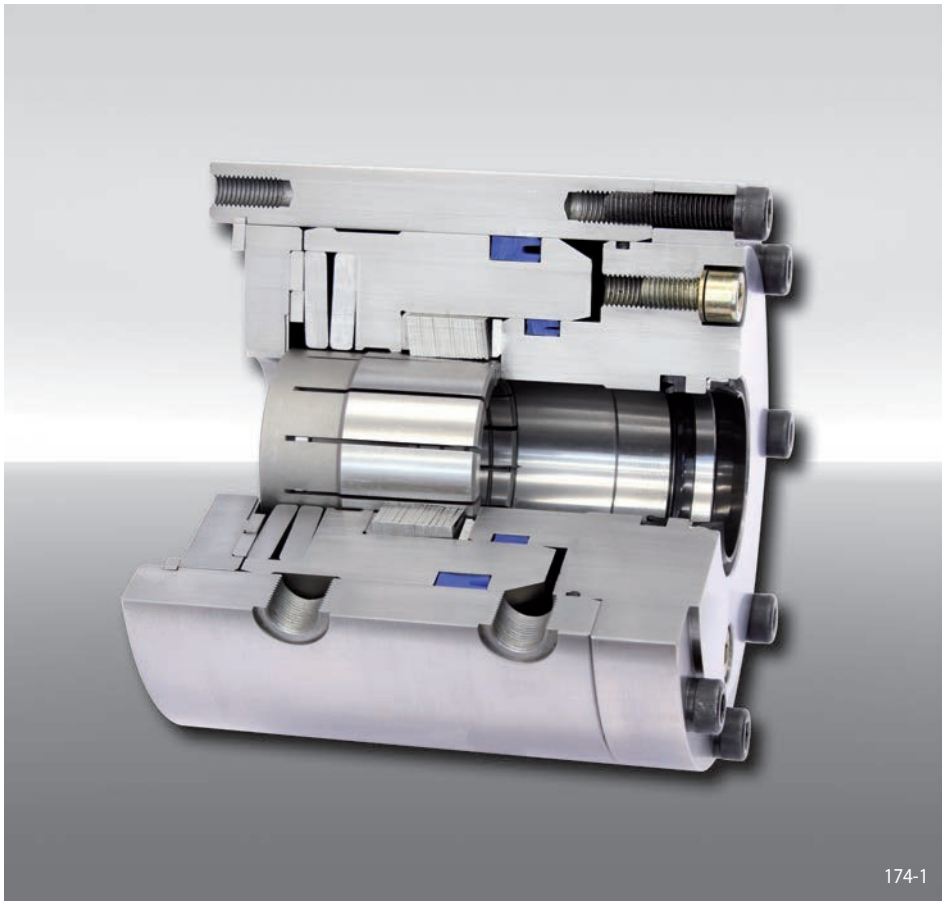

Features	Code
Clamping Unit	K
Standard	E
Sizes 32, 37, 42, 47, 57, 70, 90, 105, 140 or 160 are available	032 to 160
Spring activated	F
Hydraulically released	H
No wear adjustment	K
For piston rod diameter from 12 mm to 115 mm	012 to 115

Example for ordering

Clamping Unit KE 037 FHK with piston rod diameter 16 mm:

KE 037 FHK - 016

Description

The Clamping Unit KE … FHK clamps and holds hydraulic cylinder drawbars with a calculated clamping force in both directions of movement.

The clamping force is generated via built-in disc springs. The Clamping Unit is released by hydraulic pressure.

The units are fitted to cylinders and other machine parts with a connecting flange by the customer.

Operation

During the working stroke of the hydraulic cylinder, pressure is exerted onto the Clamping Unit. Through this pressure the disc springs are compressed via the piston. In this position, the clamping discs are free of axial tension and thus allow the piston rod to move freely.

When the pressure on the Clamping Unit is removed, the force of the springs work fully onto the piston and therefore also on to the disc pack. The clamping discs translate the axial spring pressure into a radial force applied to the slotted clamping sleeve that is equal to at least five times the axial pressure. The clamping sleeve transmits the radial clamping forces to the piston rod, thereby holding the piston rod firmly in place.

Each time the pressure falls – even when this was not planned – the Clamping Unit will respond immediately.

Application

The Clamping Unit secures the piston rod with precision against unintentional axial movements.

For example, on machines with cylinders or linear motors a certain position can be driven in one continuous movement. With the Clamping Unit this position can then be held mechanically with accuracy.

The accuracy of the safety Clamping Unit is independent of the size and the direction of the force on the piston rod up to the maximum holding force indicated. No movement of the piston rod is required for the holding force to become effective; the clamping force is effective immediately and does not depend on outside forces. If it is necessary to brake the movement of the piston rod, the Clamping Unit would, when pressure falls, produce virtually without delay a constant friction force independent of time. The slowing down of the piston rod is therefore even and protects the decelerated components of the installation.

Features

- For continuous piston rod clamping
- Spring activated, hydraulically released
- Holding forces transmissible in both directions of movement
- No application of force (lifting) to the piston rod required for release

Clamping Unit KE … FHK

spring activated – hydraulically released

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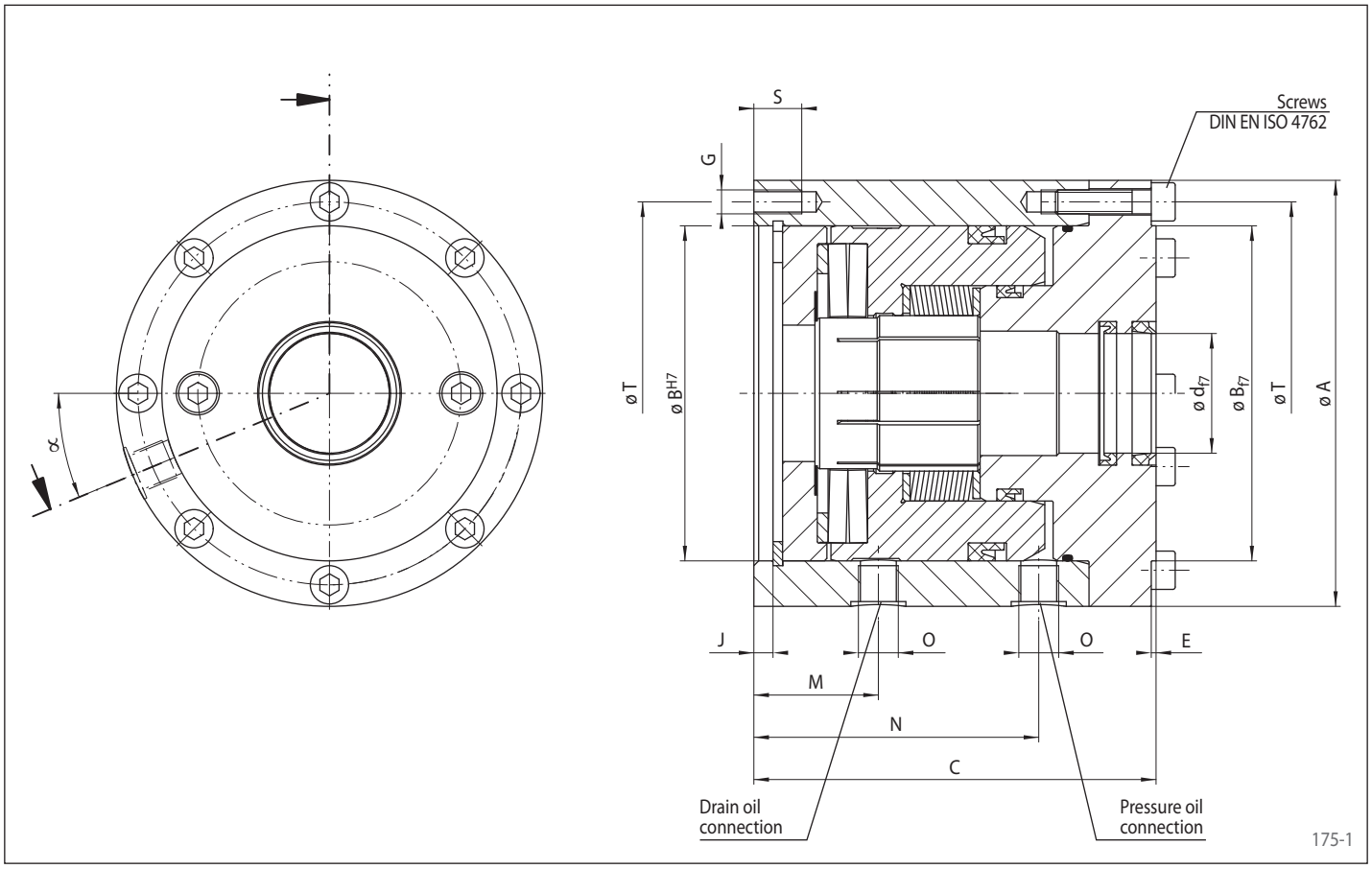

Size	Piston rod- ø d[1]	Holding force F_H[2]	A	B	C	E	G	J	M	N	O	S	T	X[3]	Necess. release press.	Max. perm. press.	Oil vol. per stroke	α	Weight
	mm	N	mm	mm	mm	mm		mm	mm	mm		mm	mm		bar	bar	cm^3	Degree	kg
32	**12**	2500	72	48	76	2	M 5	5	26	54	R1/8″	9	60	4	57	120	1	22,5	2,1
37	**14** **16** 18	5000	85	60	88	2	M 6	6	31	64	R1/8″	11	72	4	68	120	2	22,5	3,4
42	**20** 22	8000	100	68	100	2	M 6	6	34	72	R1/8″	11	85	4	82	120	2	22,5	5,3
47	**25** 28	12500	110	80	115	2	M 6	7	42	85	R1/8″	15	92	6	84	120	3	22,5	7,3
57	(30) **32** 34	19000	130	95	130	2	M 8	7	48	96	R1/4″	16	112	6	88	120	5	22,5	11,5
70	36 **40** 45	30000	150	116	148	3	M 8	4	52	108	R1/4″	16	132	8	102	120	6	22,5	17,2
90	**50** (55) 56	48000	178	140	168	3	M 10	8	52	119	R3/8″	20	160	8	108	160	13	22,5	27,2
105	60 **63** 70	68000	210	168	185	3	M 12	10	60	133	R3/8″	22	190	8	122	160	17	22,5	41,2
140	**80** (85) 90	120000	273	220	230	3	M 14	12	75	172	R3/8″	25	250	12	115	160	39	15	86,9
160	**100** 110 (115)	200000	330	270	270	5	M 18	16	90	200	R3/8″	38	300	12	110	160	64	15	148,2

[1] Diameter printed in bold to be preferred. Diameter line without ( ) corresponds to DIN 24334.
[2] Please note recommendations on page 179.
[3] Number of tapped holes G or srews DIN EN ISO 4762 on pitch øT.

Clamping Unit KE … FPK

spring activated – pneumatically released

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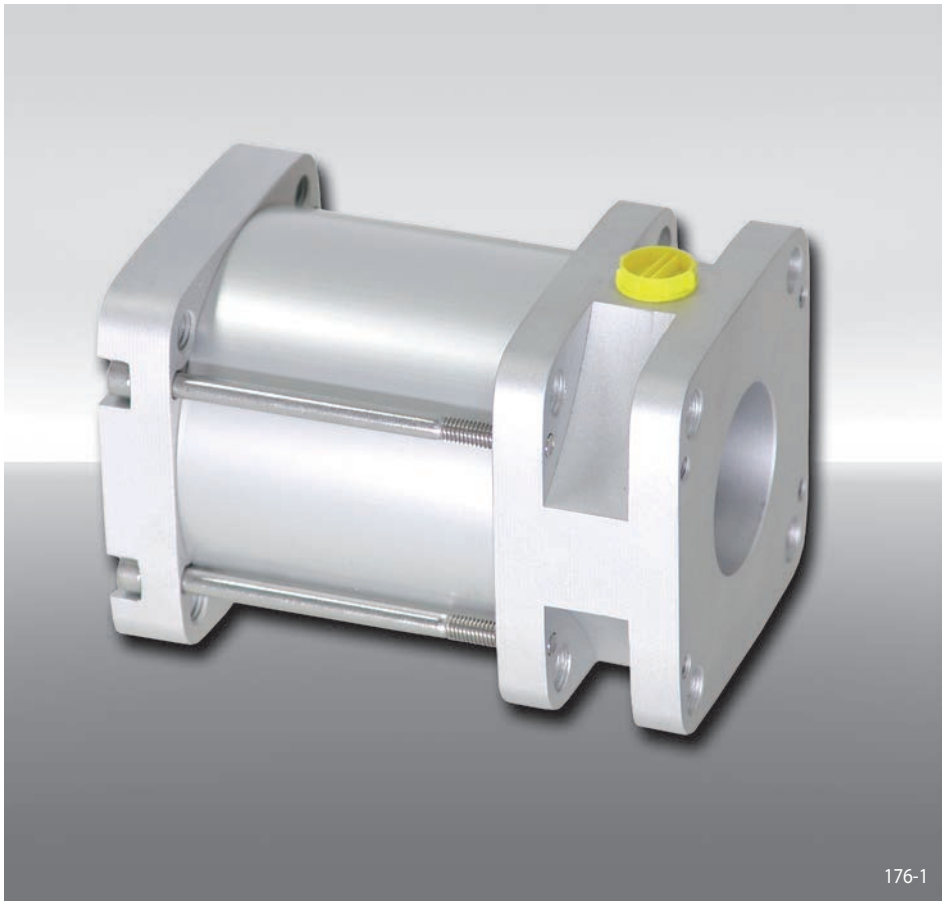


Features	Code
Clamping Unit	K
Standard	E
Sizes 40, 50, 63, 80 or 100 are available	040 to 100
Spring activated	F
Pneumatically released	P
No wear adjustment	K

Example for ordering

Clamping Unit KE 040 FPK:

KE 040 FPK

Description

The Clamping Unit KE … FPK clamps and holds pneumatic cylinder piston rods with a calculated clamping force in both directions of movement.

The clamping force is applied by disc springs. Clamping force is released by pneumatic pressure.

The Clamping Units can be bolted directly to any cylinder of the ISO series or attached to other machine components with a connection flange provided by the customer.

Operation

Pneumatic pressure is applied to the Clamping Unit during the working stroke of the pneumatic cylinder. This pressure is transmitted by the piston via the lever spring to the mount and presses the disc springs together. The lever spring translates the pressure into a clamping force. In this position, the clamping discs are free of axial tension and thus allow the piston rod to move freely.

When the pressure on the Clamping Unit is removed, the force of the springs work fully onto the piston and therefore also on to the disc pack. The clamping discs translate the axial spring pressure into a radial force applied to the slotted clamping sleeve that is equal to at least five times the axial pressure. The clamping sleeve transmits the radial clamping forces to the piston rod, thereby holding the piston rod firmly in place.

Each time the pressure falls - even when this was not planned - the Clamping Unit will respond immediately.

Application

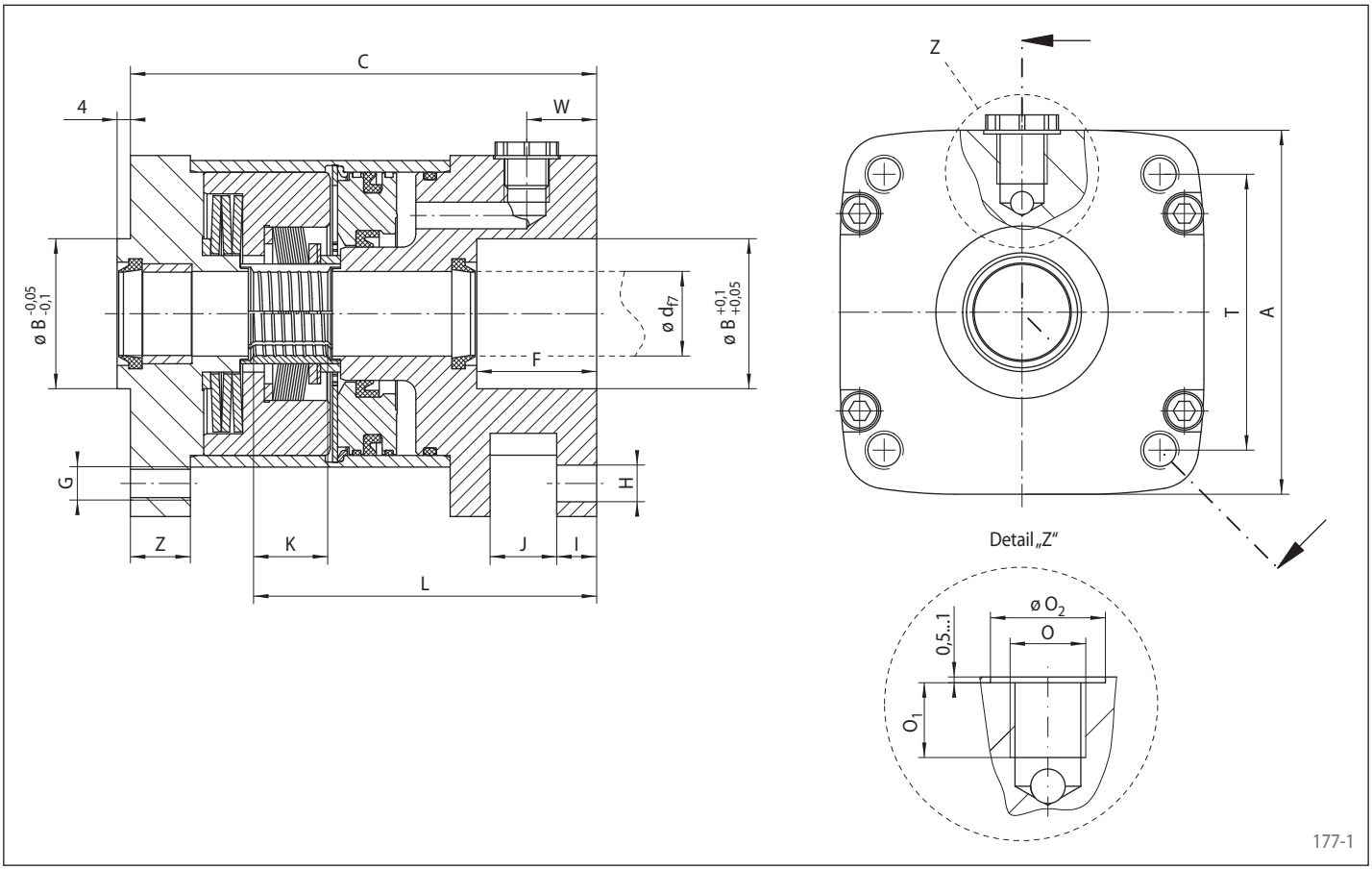
The Clamping Unit secures the piston rod with precision against unintentional axial movements.

For example, on machines with cylinders or linear motors a certain position can be driven in one continuous movement. With the Clamping Unit this position can then be held mechanically with accuracy.

The accuracy of the safety Clamping Unit is independent of the size and the direction of the force on the piston rod up to the maximum holding force indicated. No movement of the piston rod is required for the holding force to become effective; the clamping force is effective immediately and does not depend on outside forces.

Clamping Unit KE … FPK

spring activated – pneumatically released



Size	Piston rod- ø d	Holding force F_H [1]	A	B	C	F	G	H	I	J	O	O_1	O_2	T	W	Z	Air vol. per activation	Weight
	mm	N	mm	mm	mm	mm		mm	mm	mm		mm	mm	mm	mm	mm	cm^3	kg
40	16	1 000	70	35	95	24	M6	6,6	6	14	G1/8	10,5	16	38	15,5	13	5,5	1,1
50	20	1 600	75	40	112	30	M8	9	8	16	G1/4	12,5	20	46,5	22,9	13	13,5	1,5
63	20	2 500	95	45	120	30	M8	9	8	16	G1/4	14	20	56,5	15,0	12	27	3,2
80	25	4 000	95	45	140	36	M10	11	12	20	G1/4	14	20	72	21,0	18	27	3,5
100	25	6 300	120	55	150	40	M10	11	12	20	G1/4	14	20	89	21,0	19	59	5,8

[1] Please note recommendations on page 179.

Features

- For continuous piston rod clamping
- Spring activated, pneumatically released
- Connection dimensions compatible with pneumatic cylinders according to ISO
- Direct mounting on pneumatic cylinders
- Holding forces transmissible in both directions of movement
- No application of force (lifting) to the piston rod required for release

Release pressure

The release pressure of the spring activated pneumatically released Clamping Unit KE … FPK is min. 5 bar and max. 8 bar.

Selection of Brake Calipers

When selecting RINGSPANN Brakes, two criteria need to be considered:

- Is the selected combination of brake caliper/ brake disc capable of braking the torque requirement of the application?
- Can the brake disc transfer the frictional heat without damage to adjacent parts?

Calculation of the braking torque

Braking of rotating masses

The necessary braking torque results from the mass inertia moment relative to the brake shaft J_{red}. When braking to a stop n_2=0.

$$M_B = M_R = \frac{J_{red}}{t_B} \cdot \frac{n_1 - n_2}{9{,}55}$$

Braking of rotating masses with additional motor braking

If an additional braking torque M_{Bf} is available, e.g. from an electric motor with dynamic braking, then the formula for the necessary braking torque is:

$$M_B = M_R - M_{Bf} = \frac{J_{red}}{t_B} \cdot \frac{n_1 - n_2}{9{,}55} - M_{Bf}$$

Braking of chassis

The required braking torque for a deceleration is made up of the load torque M_L originating from the net weight G of the installation, the braking torque for the deceleration of the rotating masses M_R and the braking torque for decelerating the linear-moving masses M_V (referred to the braking shaft).

$$M_B = M_L + M_R + M_V$$

$$M_{Lmax} = (G \sin\gamma + F_W - F_F) \cdot \frac{D_L \cdot \eta}{2 \cdot i}$$

$$M_R = \frac{J_{red}}{t_B} \cdot \frac{n_1 - n_2}{9{,}55}$$

$$M_V = \frac{m}{t_B} \cdot \frac{n_1 - n_2}{38{,}25} \cdot \left(\frac{D_L}{i}\right)^2 \cdot \eta$$

After completing this calculation, check whether the braking torque M_B can be transmitted via the chassis wheel friction.

$$M_B < \mu_R \cdot m \cdot g \cdot \frac{D_L}{2}$$

Controlled braking for winding processes

The required braking torque varies between the value M_{Bi} with minimum winding diameter d_i and M_{Ba} with maximum winding diameter d_a.

$$M_{Bi} = \frac{F_S \cdot d_i}{2}$$

$$M_{Ba} = \frac{F_S \cdot d_a}{2}$$

Braking torques and parking torques

The braking torques given in this catalogue are dynamic braking torques. They only apply:

- When the brake linings have been run in,
- original RINGSPANN brake discs, or brake discs made from the recommended material are used and
- friction linings have been selected for the particular application.

If the disc brakes are used as holding brakes then the given brake torques are only applicable as parking torques if the above conditions are met. If running-in is not possible or if the running-in process is omitted, the braking torques given will not be achieved; torque reductions of up to 50% are possible. If static parking torques in accordance with the catalogue torques are required but without running-in, then special friction linings are needed. For such applications, please refer the matter to us for advice.

Continuous Slipping

Winding operations may require a variety of processes regarding tension of the wound material and winding speed. We therefore recommend an initial rough calculation of M_{Ba} and M_{Bi}.

Please send us the completed questionnaire on page 180 for a more accurate evaluation.

$$P_{Bi} = \frac{M_{Bi} \cdot n_i}{9550} \quad \text{or} \quad P_{Bi} = \frac{F_S \cdot d_i \cdot n_i}{19100}$$

$$P_{Ba} = \frac{M_{Ba} \cdot n_a}{9550} \quad \text{or} \quad P_{Ba} = \frac{F_S \cdot d_a \cdot n_a}{19100}$$

Formula symbols

d_i	[m]	Smallest diameter of roller
d_a	[m]	Largest diameter of roller
D	[mm]	Diameter of brake disc
D_L	[m]	Chassis wheel diameter
F	[N]	Holding force taking account of hydraulic oil and clamping duration
F_a	[N]	Maximum axial force including dynamic forces occurring during operation
F_F	[N]	Tractional resistance on the chassis wheel
F_H	[N]	Holding force
F_{Nenn}	[N]	Nominal holding force
F_S	[N]	Tension on the winding material
F_W	[N]	Wind reaction force on chassis
G	[N]	Total weight of chassis
J_{red}	[kg m²]	Reduced inertia moment
i	-	Gear ratio between chassis wheel and brake shaft
m	[kg]	Mass of complete chassis
M_B	[Nm]	Required braking torque
M_{Bf}	[Nm]	Braking torque of the motor
M_{Ba}	[Nm]	Braking torque for roller diameter d_a

Note for design and installation

Holding Force F_H

If the system is driven with hydraulic fluid, it is likely that after a certain operating time the piston rod will have a film of oil on it from the installation. Therefore the holding force is affected by the hydraulic oil being used.

The following applies to hydraulic oils H and HL, and to unalloyed oils:

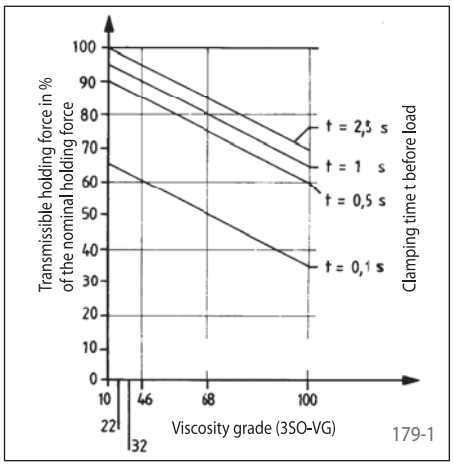
$$\text{Nominal holding force } F_{Nenn} = F_H$$

For hydraulic oils HLP and HL-XP this applies:

$$F_{Nenn} = F_H \cdot 0{,}8$$

The nominal holding force thus calculated is reached when the clamping time t between removal of the release pressure and the application of the load does not fall below a minimum value of 5 seconds. This applies to oils up to VG 100 with a minimum temperature of 20° C at the piston rod.

If the clamping time t is shorter, then the holding force F transmissible depending on viscosity should be taken from the diagram.



Holding force depending on oil viscosity and clamping period prior to load (temperature at the piston rod 20° C)

If the hydraulic oil has a large amount of EP additives (eg V 6710, DH 46) the nominal holding force can fall below 80% of the table value. In such a case it would be necessary to carry out field tests. **Solid lubricants like MoS_2, Graphite or Teflon should never be allowed near the clamping position.**

Safety factor

$$\text{Safety factor } S = \frac{F}{F_a}$$

Positioning accuracy

Clamping is effected without any axial movement between rod and clamping unit.

Under axial force F_H an axial shift of up to 0,1 mm may occur in hydraulically released Clamping Units and up to 0,05 mm in pneumatically released Clamping Units between the rod and the clamping unit. This shift is reversed when pressure is released.

The rod to be clamped

The rod to be clamped should be made of material with a tensile strength of at least 600 N/mm^2 (e. g. C 45). It must be hard chromium plated or surface hardened and ground. The diameter must be designed with fit f7 in hydraulically released Clamping Units and with fit h8 in pneumatically released Clamping Units and a peak-to-valley height of Rt = 5 µm. With normal use the maximum pressure at the point of clamping between the piston rod and the clamping unit is 150 N/mm^2.

Sealing and Centering

Hydraulically released Clamping Units

are equipped with a rod gasket and stripper on the cover side.

A seal against waste oil should be provided by the customer on the side of the machine or cylinder where the clamping connection is to be located.

Pneumatically released Clamping Units

are equipped with strippers on both sides.

In order to ensure a lasting and troublefree operation and to avoid damage to the rod to be clamped, the exact concentricity of the bar towards the machine centering must be kept. (Max. circular runout 0,04 mm.)

Release to facilitate Mounting

To insert the rod, hydraulic or pneumatic pressure is applied on the clamping unit.

Special Types

If special types with a higher positioning accuracy, higher holding forces or lower release pressures are required, please let us have your enquirys together with the completed questionnaire on the page 181.

M_{Bi}	[Nm]	Braking torque for roller diameter d_i
M_L	[Nm]	Load torque
M_{Lmax}	[Nm]	Maximum load torque
M_R	[Nm]	Deceleration torque of rotating masses
M_V	[Nm]	Deceleration torque of linear moving masses
n_1	[min^{-1}]	Speed before braking
n_2	[min^{-1}]	Speed after braking
n_i	[min^{-1}]	Speed at d_i
n_a	[min^{-1}]	Speed at d_a
P_B	[kW]	Brake power generated by application, average with one braking cycle
P_{Ba}	[kW]	Brake power with winding diameter d_a
P_{Bi}	[kW]	Brake power with winding diameter d_i
t_B	[s]	Braking time
γ	[°]	Angle of inclination
η	-	Gear efficiency – if known, calculation with $\eta = 0{,}85$ is advised
μ_R		Roller friction value on the chassis wheel

Questionnaire for selecting Brake Calipers

RINGSPANN®

Please photocopy or use the PDF-File from our website!

Company:	.....	Department:	.....
Address:	.....	Name:	.....
	.....	Enquiry Ref.:	.....
Phone:	.....	Date:	.....
Fax:	.....	E-mail:	.....

1. Application ❑ Stopping brake ❑ Control brake ❑ Holding brake

2. Function

Activation: ❑ spring	Release: ❑ pneumatically ❑ hydraulically ❑ electromagnetically ❑ manually with Pull Cable	Existing pressure: _____ bar _____ bar
❑ pneumatically	❑ spring	_____ bar
❑ hydraulically	❑ spring ❑ non-releasing	_____ bar
❑ manually with threaded spindle ❑ manually with Pull Cable	❑ manually with threaded spindle ❑ manually with Pull Cable	

3. Friction block wear

Adjustment of brake
❑ Automatic ❑ Manual

Control required?
❑ Yes ❑ No

4. The following safety rules must be observed .....

5. Type of machine .....

6. Part to be braked .....

7. Technical Data

Stopping brake:

Required braking torque		_____ Nm
Required braking time		_____ s
Reduced mass inertia moment to be braked		_____ kgm^2
Weight of linear masses to be braked		_____ kg
Transmission up to brake shaft	i	_____
Driving speed	v	_____ m/s
Chassis wheel diameter	D_R	_____ mm
Angle of inclination	γ	_____ °
Speed before braking	n_1	_____ min^{-1}
Speed after braking	n_2	_____ min^{-1}
Idling speed	n	_____ min^{-1}
Braking cycles per hour	z	_____ h^{-1}

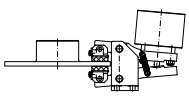
Control brake:

Tension on winding material	F_S	_____ N
Speed of material	v	_____ m/s
Max. winding diameter	d_a	_____ m
Min. winding diameter	d_i	_____ m
Length of feed reels	L	_____ m
Material to be wound		_____
		_____
		_____
Duration of operation	t	_____ s

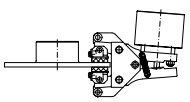
Holding brake:
Holding torque _____ Nm
Please note the information given under braking torques and parking torques on page 178.

8. Mounting of brake to the machine

❑ Parallel to brake disc



❑ Right-angled to brake disc



9. Brake disc

Required disc diameter _____ mm

Max. permissible disc diameter _____ mm

❑ Form F, without bore or roughbored

❑ Form F, with bore d_F^{H7} _____ mm

❑ Form B, without bore or roughbored

❑ Form B, with bore d_B^{H7} with keyway _____ mm

❑ Form S with Shrink Disc RLK 608 for clamping diameter d_S _____ mm

10. Installation conditions Ambient temperature from ____ ° C to ____ ° C Other information (e. g. special ambient conditions) _____

11. Estimated requirement _____ pieces (one off application) _____ pieces/month _____ pieces/year

Questionnaire for selecting Clamping Units

RINGSPANN®

Please photocopy or use the PDF-File from our website!

Company:	.....	Department:	.....
Address:	.....	Name:	.....
	.....	Enquiry Ref.:	.....
Phone:	.....	Date:	.....
Fax:	.....	E-mail:	.....

1. Load

❑ In one direction only: max. _____ N

❑ In both directions: → max. _____ N

← max. _____ N

❑ Required safety factor: The holding force of the clamping unit should be aprox. _____ % higher than the maximum load.

2. Clamping rod diameter

❑ Rod diameter d _____ mm with tolerance _____ mm

3. Arrangement

❑ Clamping rod horizontal

❑ Clamping rod vertical

❑ A sketch of the illustration is attached

❑ Seal for connecting flange and rod is/not provided.

4. Release Pressure

To release the clamping unit

❑ oil pressure of _____ to _____ bar is available

❑ air pressure of _____ to _____ bar is available

5. Particular Influences

❑ Sideload onto the rod

❑ Intensive dirt accumulation

❑ Seawater

❑ Acid vapours

The clamping unit is to be fitted

❑ to a hydraulic cylinder

❑ to a pneumatic cylinder

6. Durability

Number of expected clampings per year _____

7. Requirement

_____ units (one off application) _____ units/month _____ units/year

8. Other

(e.g. previous solution)

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