ZUCCHINI

High Power

SCP - HR - EdM

CATALOGUE 10/11

ZHP10C/GB

HIGH POWER
General contents

Integrated solutions for global projects

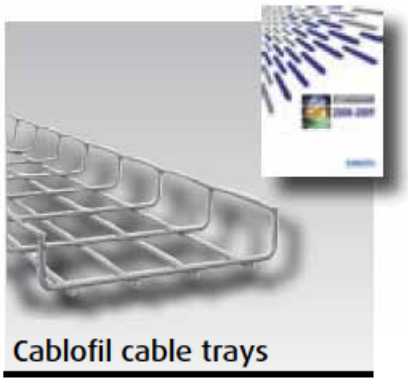
Legrand is the world specialist in products and systems for electrical installations and information networks:

- Distribution, automation panels and protection equipment
- Cable management (trunking, cable trays and wire mesh)
- Cast resin transformers
- Busbars and lighting busbars

Every product and system needed for distributing energy and protecting people and property.

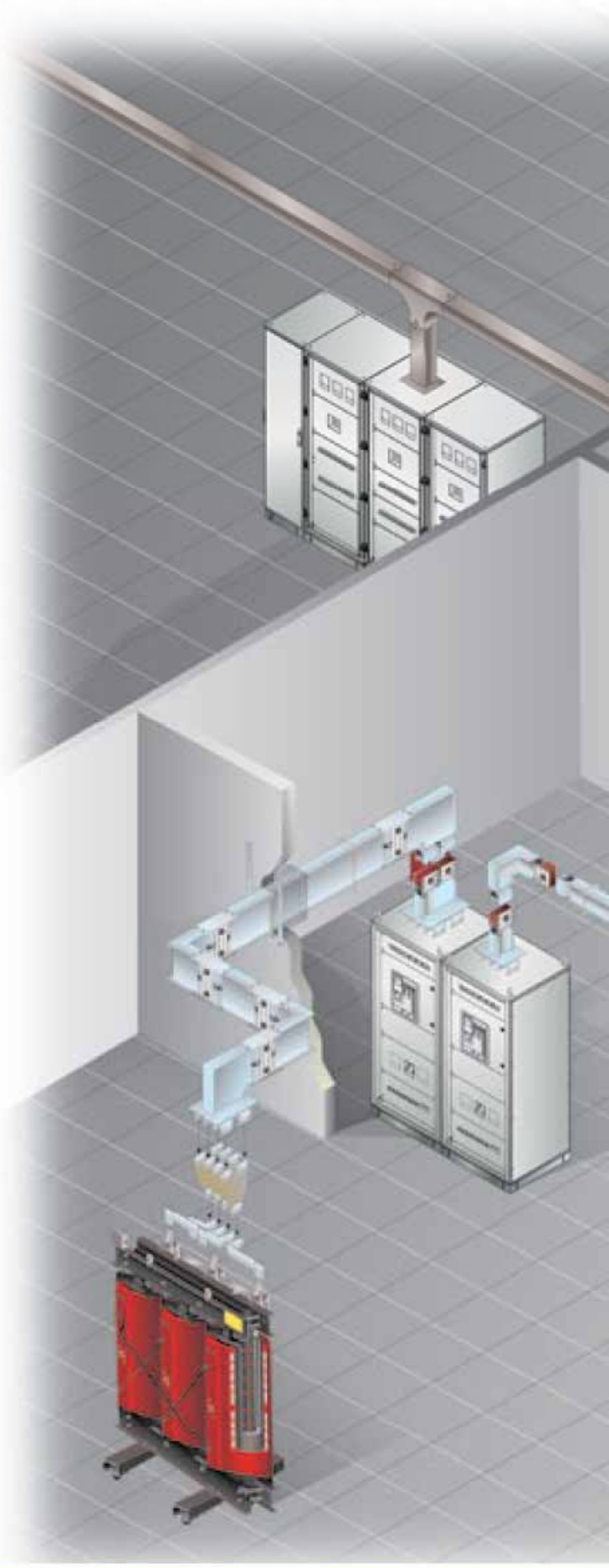
Altis™ industrial cabinets
Atlantic and Marina boxes

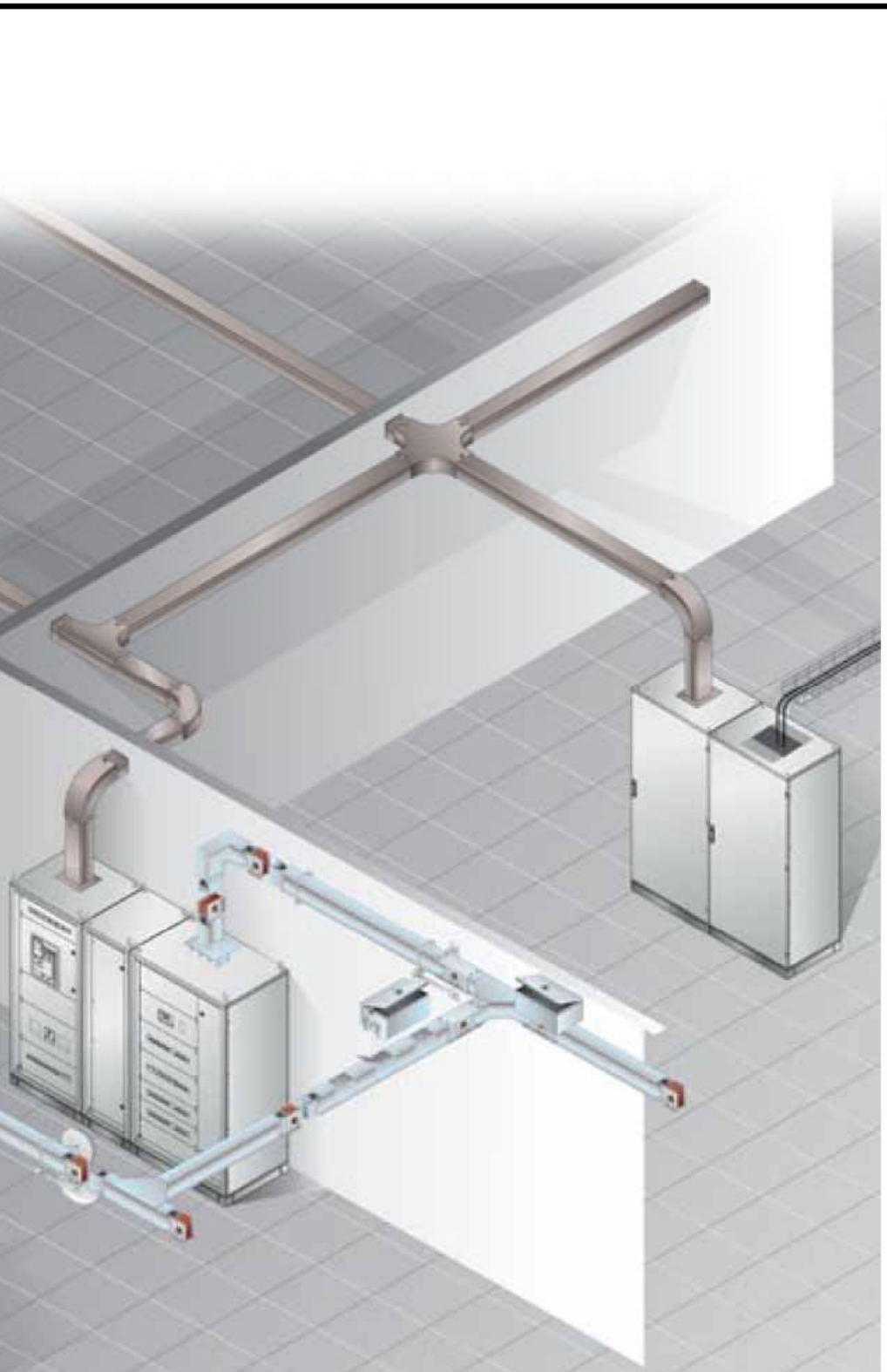
legrand®



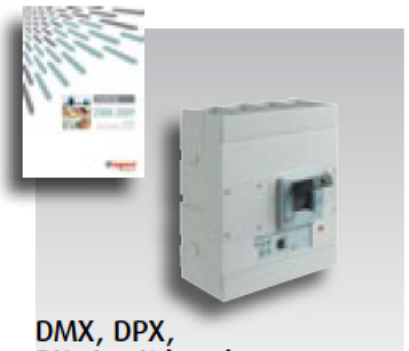
Cablofil cable trays

CABLOFIL®





In a context of accelerated globalization and increasingly complex projects, the support of a reliable and competent partner is absolutely essential, a real key to the success of your company.
Choosing the Legrand Group means the assurance of benefiting from global expertise throughout the world thanks to its strong local presence.
A vast choice of carefully styled products compose solutions which in turn form coherent systems incorporating the latest technological innovations.
Choosing Legrand also means you are sure to be assisted by professionals at your service any time, from your project's design through to its completion.



DMX, DPX,
DX circuit breakers

legrand

XL³ distribution cabinets

legrand

Zucchini busbars

ZUCCHINI

EdM
cast resin transformers

HIGH POWER
A simple and innovative choice

A busbar is the ideal solution for every type of connection and gives you different advantages compared to a traditional cable installation.

A cast resin transformer is the winning choice: easy installation, functionality, safety and cost-effective.

APPLICATIONS
The High Power Zucchini busbar range, used for transport and distribution of energy, in combination with the Legrand power offer, provides a complete solution:
for power suppy stations, transformer to main panelboard connections, main panelboard to secondary boards.
The Legrand system is synonymous with the best choice for the distribution of electricity in industrial, commercial and service sector installations (hospitals, banks, buildings, offices, etc.)

SAFETY

In the event of fire
The absence of fuel masses in cast resin transformers is combined with a very low fire load, typical of busbars, and thus increases the intrinsic safety of a building against the propagation of a possible fire.
All the products of the range are "fire retardant" (IEC 60332-3) and are tested for fire resistance according to the DIN 4102-09 and EN 1366-3 standards

Short circuit withstand
All busbars undergo rigorous short circuit tests and are certified according to Standard IEC EN 60439-2. Zucchini has always selected and guaranteed particularly high values, so as to provide a safe system regerdless of the different conditions of use.

Mechanical interlocks
The connections of the HP line elements have foolproof mechanical interlocks which make the installation easier. Thus errors and potentional dangers are avoided when starting up the system, which may occur with traditional solutions.

Electromagnetic emissions
The Zucchini HP solution can be suitably applied to installations situated in environments with equipment sensitive to electromagnetic interferences or in the presence of a large number of people: Moreover, EdM provides an innovative range of cast resin transformers known as CLE (Certified Low Emission) which, when combined with the busbars, are able to minimize electromagnetic emissions, thus making it possible to design installations in layouts that would be much harder to achieve with other solutions.



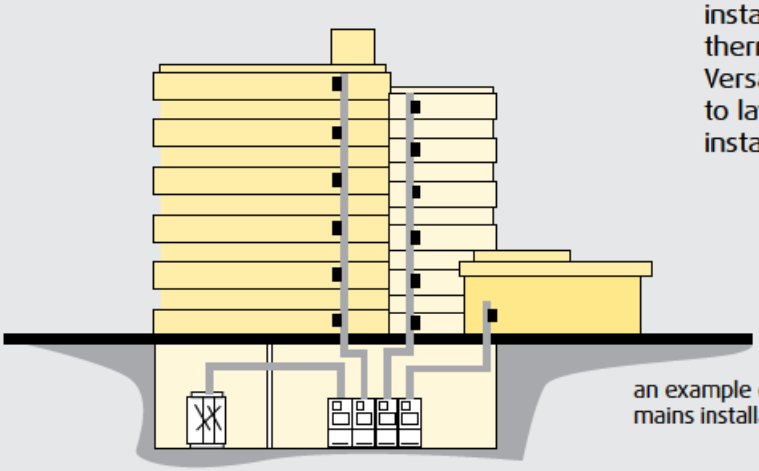
SIMPLICITY

Easy and fast to install

The HP range has been designed to simplify the installation, making it safe and quick.
In order to determine the installation time properly, it is necessary to consider all the required operations which, when comparing a busbar solution and a cable solution, are sometimes neglected.

Planning simplicity

The intrinsic characteristic of the busbars simplifies planning activities, which are not possible when using cables.
The design of a cable installation requires special attention, unlike a busbar system, because it is characterized a wiring installation in series, and thus not easily adjustable to design and installation variables.



an example of a rising mains installation.

FLEXIBILITY

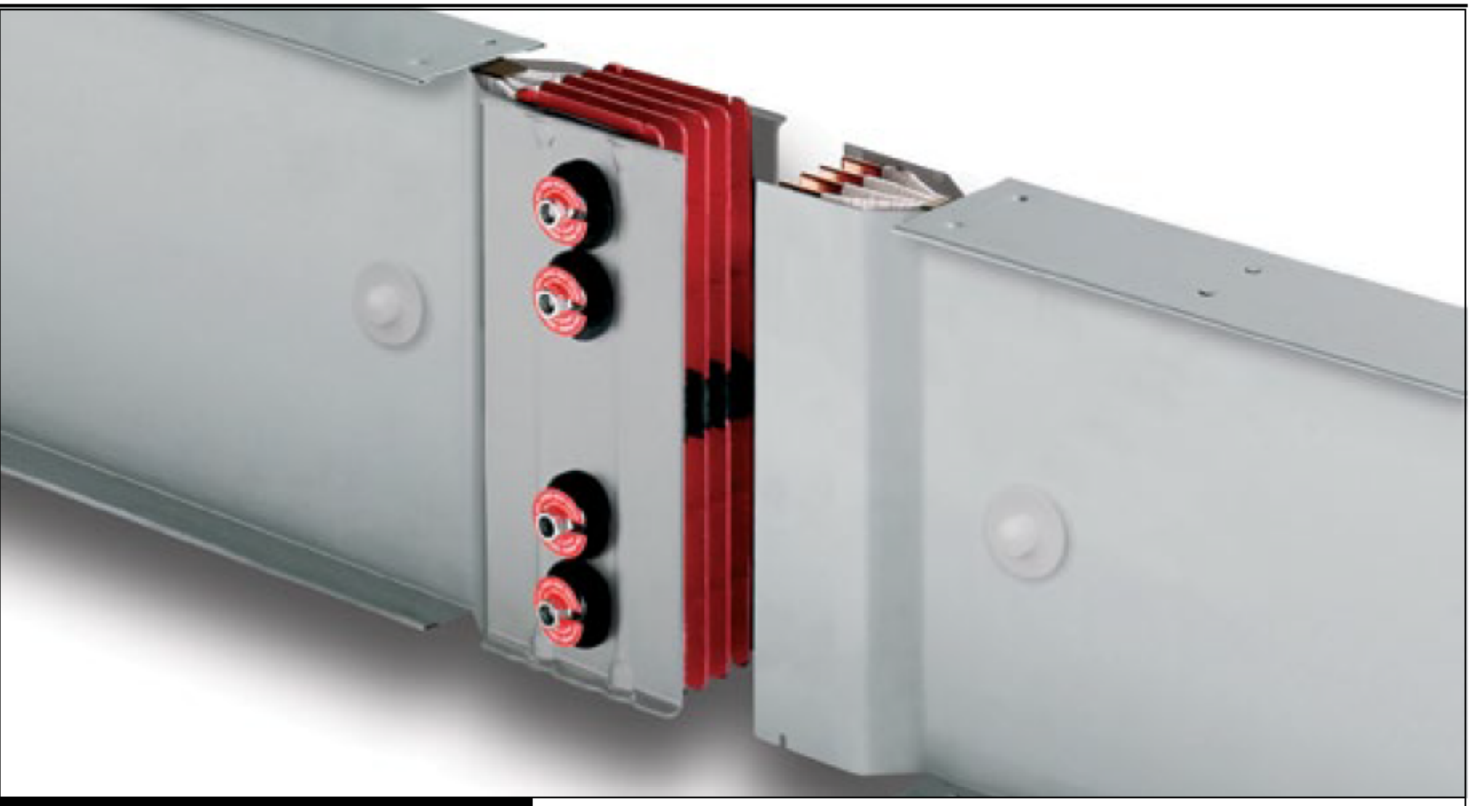
High performance in small spaces

High power with minimum overall dimensions is the strong point of the Zucchini High Power range.
Even in small spaces, busbar trunking systems allow for any type of installation solution; also cast resin transformers do not require additional masonry structures.
The HP range gives you all the necessary elements for a quick, efficient and safe installation.

Versatility

The HP range is the ideal solution for all needs; it gives you the maximum versatility for any type of power application and in any environment. Busbar trunking systems and cast resin transformers are equipped with all the accessories necessary for creating installations in riser mains, even in seismic areas.
The high quality standard of all Zucchini insulating components are suitable for being installed in environments subject to high thermal stress.
Versatility also means immediately adapting to layout modifications or expansions of the installation environment.

SUPER COMPACT - SCP



SECTION CONTENTS

SCP Features

SCP is the Zucchini line used for transport and distribution of High Power, and is also highly valued in rising mains.
The applications include all industrial, commercial and service sector buildings (factories, banks, trade and business centres, hospitals, etc.)

The Super Compact SCP line is available in the standard range: **from 630A to 4000A** with **aluminum alloy conductors and from 800A to 5000A** with **copper** conductors.
The super-compact dimensions of the SCP enhance **its resistance to short circuit stresses**; in addition, they can reduce the impedance of the circuit by controlling the voltage drops and allow for the installation of high power electrical systems, even in extremely confined spaces.
SCP is available with **a wide selection of tap-off boxes that range from 63A up to 1250A**, thus allowing you to locally protect and feed different types of loads by housing protective devices such as fuses, MCCBs and motorised switches.
SCP, as all Zucchini products, is not only **in compliance with** the harmonised **Standards CEI EN 60439-1 / 2** but also answers specifically to many clients needs for more severe conditions of use. Thus the **rated current** of Zucchini's busbar trunking systems is always **referred to the average ambient temperature of 40 °C** against the 35 °C required by the Standard, thus providing the markets with suitably **upgraded** products.
The nominal range of all SCP Super-Compact busbars is guaranteed both for horizontal installations (flat and edgewise) and for vertical installations without downgrading.
SCP busbar trunking systems are designed so that they can be **maintenance-free**, except for the periodic and compulsory inspections required by the Standard IEC 60364.
The tightening torque inspection of the junction can be carried out by qualified personnel, even when the busbar is energized.

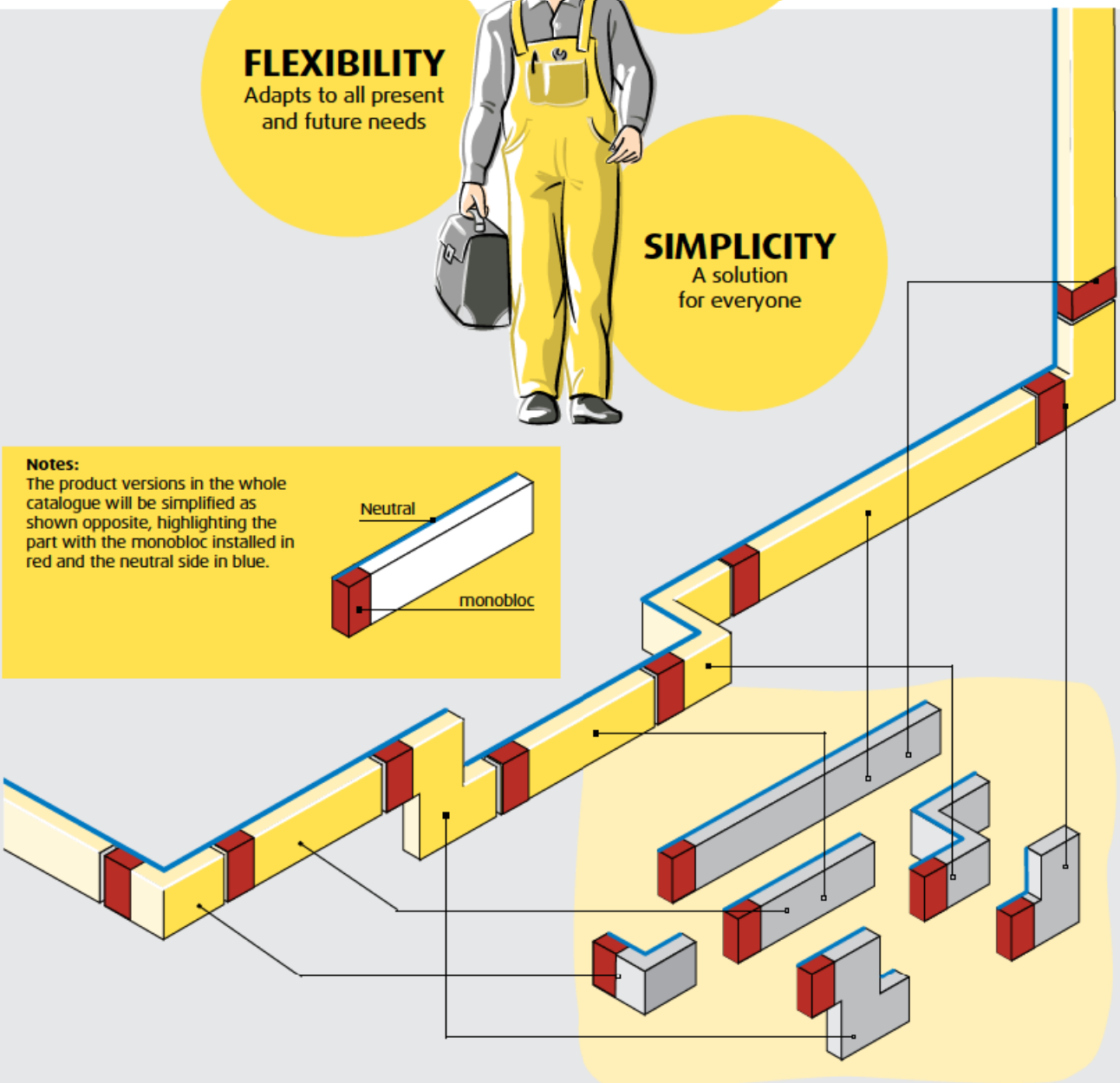
SCP Features

SAFETY
The best protection
for your system

FLEXIBILITY
Adapts to all present
and future needs

SIMPLICITY
A solution
for everyone

Notes:
The product versions in the whole catalogue will be simplified as shown opposite, highlighting the part with the monobloc installed in red and the neutral side in blue.



General structural features

The outer casing of the SCP line consists of four C-ribbed section bars, bordered and riveted (thickness 1.5mm), with **excellent mechanical, electric** and heat loss efficiency.
The sheetmetal is made of hot galvanized steel, treated according to UNI EN10327 and **painted with RAL7035 resins** with a **high resistance to chemical agents.**
The standard degree of protection is IP55; also, with certain accessories (see pag. 45), it can also be installed outdoors.
The busbar conductors have a rectangular cross-section with rounded corners; there are two versions:
- **Electrolytic copper ETP 99.9 UNI EN13601**
- **Aluminum alloy** treated over the entire surface with **5 galvanic processes**
(copper plating + tin plating)

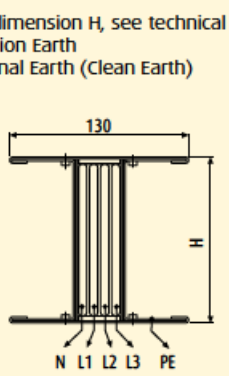
The insulation between bars is ensured by a **double sheath made with polyester film** (total thickness 0.4 mm) class B, class **F (155°C)** thermal resistance available on request.
All plastic components have a **V1 self-extinguishing** degree (as per UL94); they are **fire retardant** and **comply with the glow-wire test** according to standards. The SCP line is **Halogen Free**.

In order to facilitate storage operations especially to reduce the installation time, the straight elements, trunking **components** as well as all the components of the SCP Super Compact line are **supplied with a monobloc pre-installed at the factory**.
The junction contact is ensured by **two silver-plated copper plates** for each **phase**, insulated with red **class F thermosetting** plastic **material**.
The **monobloc** has **shearhead bolts**: after tightening the nuts with a standard wrench, the outer head will break at the correct torque value, hence giving you the certainty that the connection has been made properly so as to guarantee safety and maximum performance over time.
Finally, in order to completely verify the insulation level, every element with a monobloc undergoes an **insulation test** (phase-phase, phase-PE) at the factory with a test voltage of **5000V**.

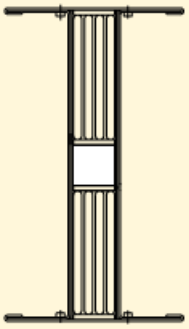
Standard versions:

SCP line with 4 conductors
3L+N+PE, 3L+PEN, 3L+FE+PE

Note: For dimension H, see technical data section
PE: Protection Earth
FE: Functional Earth (Clean Earth)

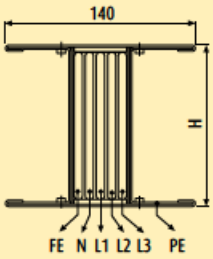


single bar

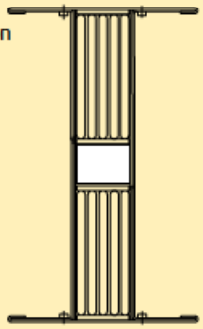

double bar

SCP5 line with 5 conductors
3L+N+FE+PE

Note: For dimension H, see technical data section
PE: Protection Earth
FE: Functional Earth (Clean Earth)

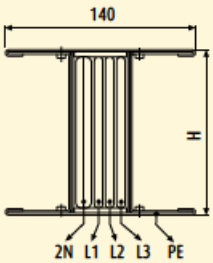


single bar

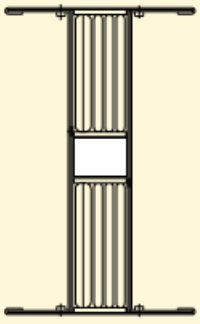

double bar

SCP2N 200% neutral line
3L+2N+PE

Note: For dimension H, see technical data section
PE: Protection Earth
FE: Functional Earth (Clean Earth)



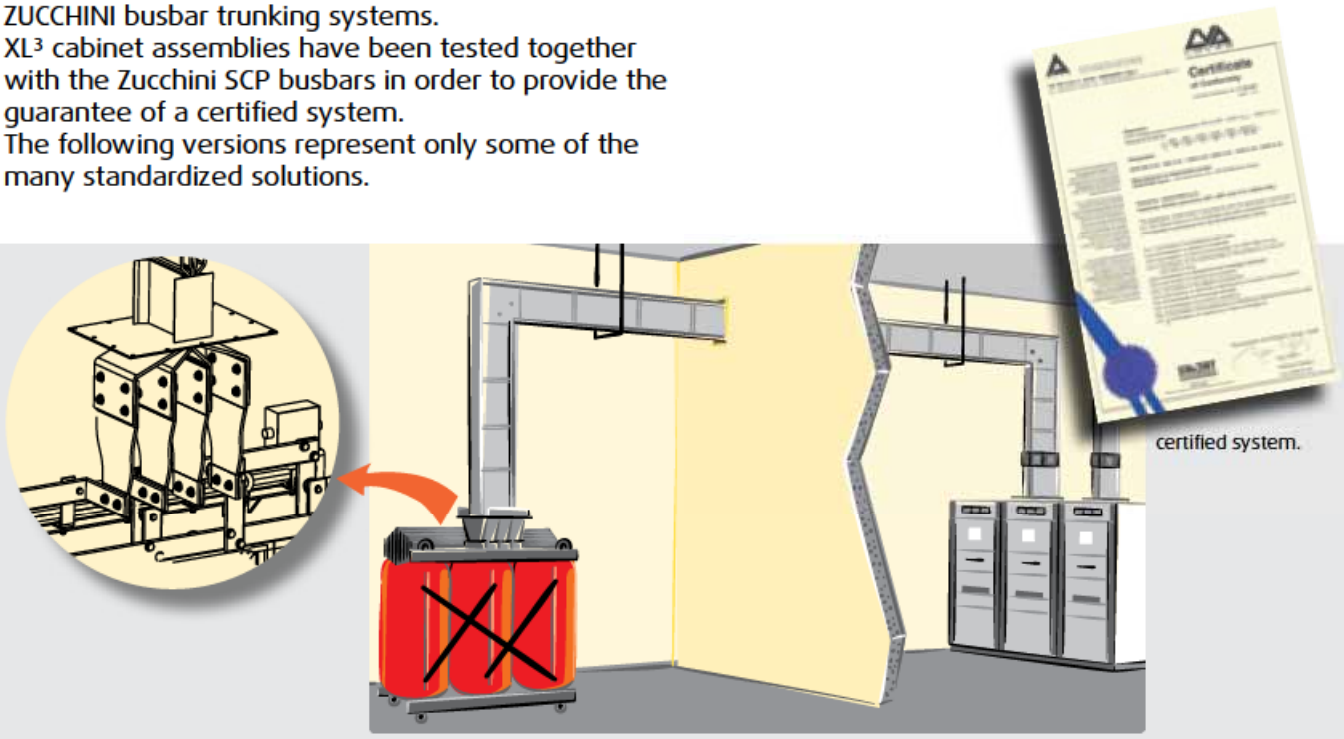
single bar


double bar

Special versions on request

Zucchini - Legrand – EdM system concept

Group synergy allows for immediate integration between **ZUCCHINI busbar trunking systems**, **EdM** cast **resin transformers and Legrand XL³ cabinets**.
EdM cast resin transformers can be made to order with a pre-installed interface connection for the ZUCCHINI busbar trunking systems.
XL³ cabinet assemblies have been tested together with the Zucchini SCP busbars in order to provide the guarantee of a certified system.
The following versions represent only some of the many standardized solutions.



Transformer				Aluminium busbar	
kVA (kVA)	Insulation class (kV)	400 V current (A)	I_k 6% (kA)	Family	Connection component
630	12 - 17.5 - 24 - 36	910	15.2	SCP 1000 A Al	**60281012P**
800		1155	19.5	SCP 1250 A Al	**60281014P**
1000		1443	24.1	SCP 1600 A Al	**60281016P**
1250		1804	30.1	SCP 2000 A Al	**60281017P**
1600		2310	38.5	SCP 2500 A Al	**60391014P**
2000		2887	48.2	SCP 3200 A Al	**60391016P**
2500		3608	60.2	SCP 4000 A Al	**60391017P**

Transformer				Copper busbar	
kVA (kVA)	Insulation class (kV)	400 V current (A)	I_k 6% (kA)	Family	Connection component
630	12 - 17.5 - 24 - 36	910	15.2	SCP 1000 A Cu	**65281011P**
800		1155	19.5	SCP 1250 A Cu	**65281013P**
1000		1443	24.1	SCP 1600 A Cu	**65281015P**
1250		1804	30.1	SCP 2000 A Cu	**65281016P**
1600		2310	38.5	SCP 2500 A Cu	**65281018P**
2000		2887	48.2	SCP 3200 A Cu	**65391015P**
2500		3608	60.2	SCP 4000 A Cu	**65391016P**
3150		4552	65.0 (I_k 7%)	SCP 5000 A Cu	**65391018P**

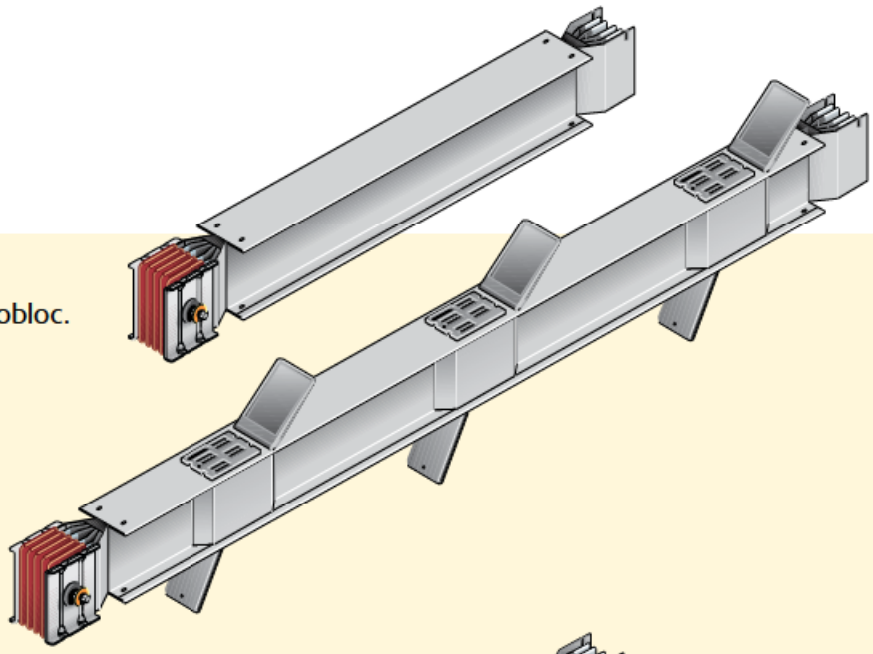
Main features of the SCP line

Straight elements:

Supplied with its pre-installed monobloc.

Feeder elements:
- standard length: 3m
- special length: from 1m to 3m

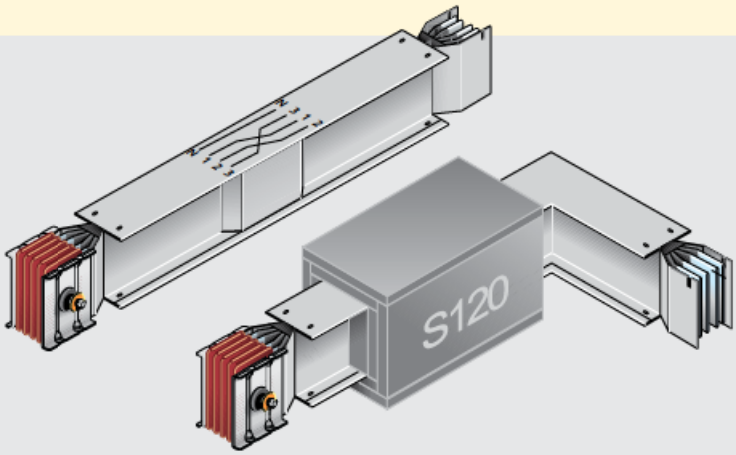
Distribution elements with tap-off outlets:
- standard length: 3m, 2m, 1m
- standard tap-off sockets: spaced at 850mm intervals on both sides



Additional elements:

Supplied with its pre-installed monobloc.
Elements able to meet any installation requirement.

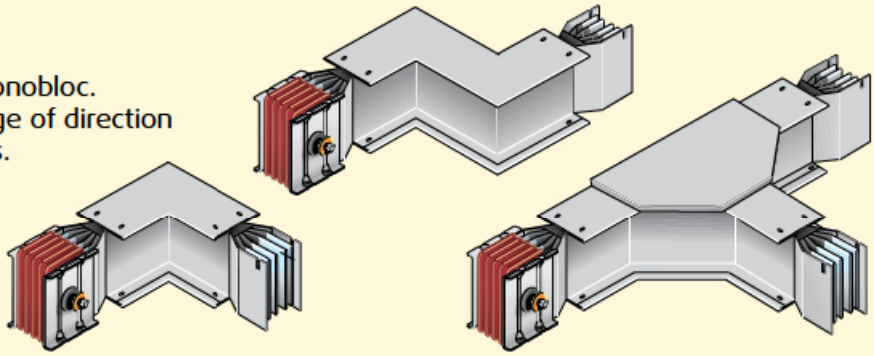
Elements with S120 fire barrier
Elements with phase transposition
Elements with thermal expansion device

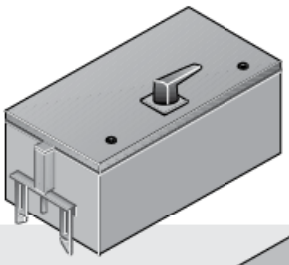


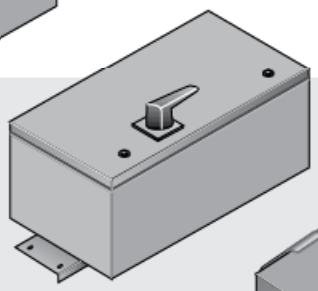
Angle components:

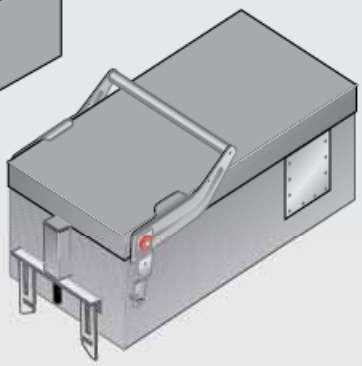
Supplied with its pre-installed monobloc.
Elements able to meet any change of direction with standard or special solutions.

Elbows
Double elbows
Special T, X elements









Tap-off boxes:

Elements used for connecting and energizing electric loads.

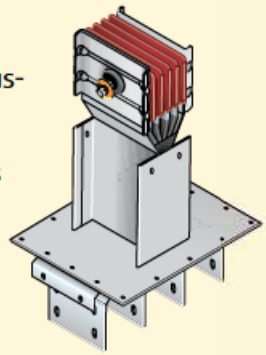
Plug-in tap-off boxes from 63A up to 630A: (can be installed with busbar energized)
- with 3P fuse holders
- with switch disconnector and fuse holder
- for DPX circuit breakers

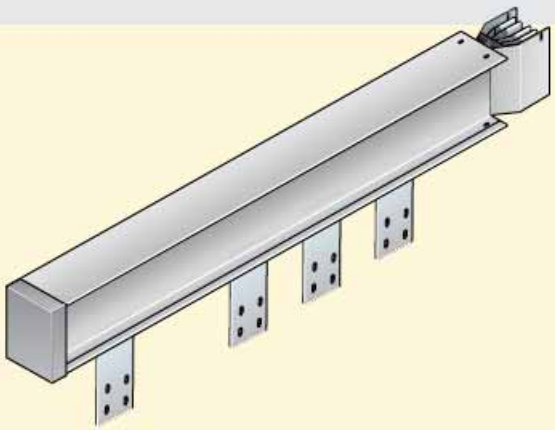
Bolted tap-off boxes from 125A to 1250A:
- with switch disconnector and fuse holder
- for DPX circuit breakers

Connection interfaces:

Elements used for connecting the bus-bar to the cabinet or transformer.

Solutions for Legrand XL³ cabinets and EdM cast resin transformers
Universal solutions

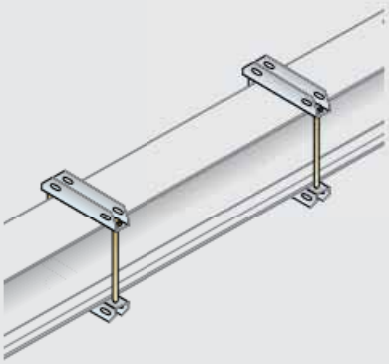


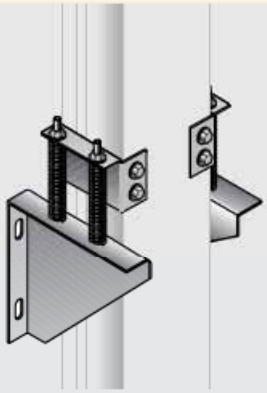


Fixing supports:

Elements used for fixing the busbar to the structure of the building.

Options for horizontal installations
Options for vertical installations
Options for special applications (seismic areas, naval environment)



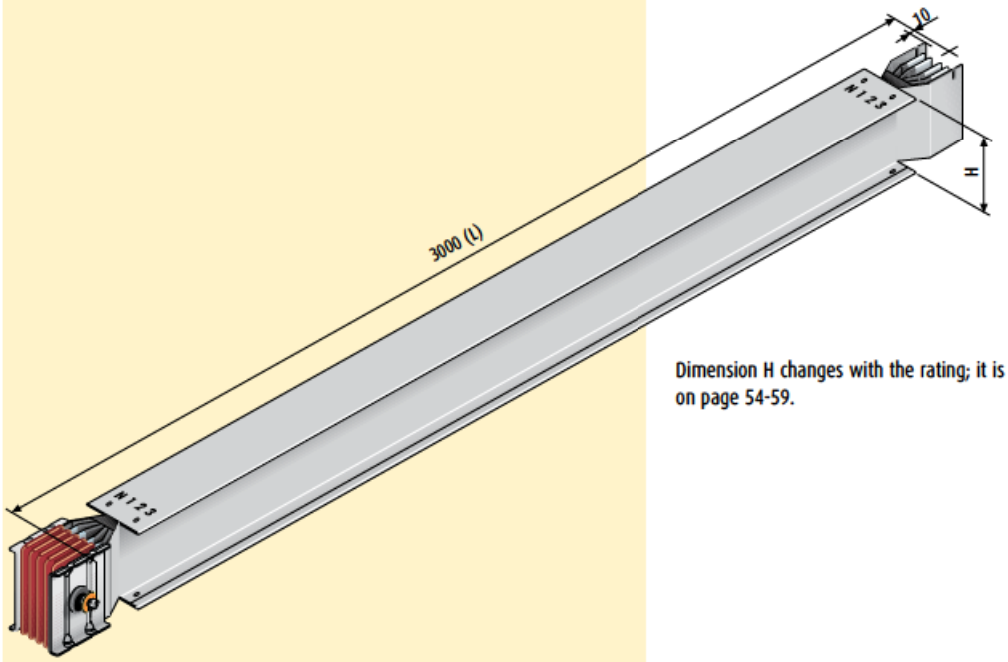


Feeder elements

FEEDER ELEMENT - STANDARD 3000 mm

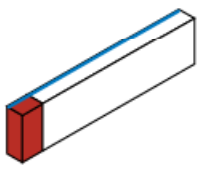
Aluminium	630A	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A
L = 3000 mm	**60280100P**	**60280101P**	**60280102P**	**60280104P**	**60280106P**	**60280107P**	**60390104P**	**60390106P**	**60390107P**
L = 1000-1500 mm	**60280170P**	**60280171P**	**60280172P**	**60280174P**	**60280176P**	**60280177P**	**60390174P**	**60390176P**	**60390177P**
L = 1501-2000 mm	**60280120P**	**60280121P**	**60280122P**	**60280124P**	**60280126P**	**60280127P**	**60390124P**	**60390126P**	**60390127P**
L = 2001-2500 mm	**60280180P**	**60280181P**	**60280182P**	**60280184P**	**60280186P**	**60280187P**	**60390184P**	**60390186P**	**60390187P**
L = 2501-2999 mm	**60280150P**	**60280151P**	**60280152P**	**60280154P**	**60280156P**	**60280157P**	**60390154P**	**60390156P**	**60390157P**
						single bar	double bar		

Copper	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A	5000A
L = 3000 mm	**65280100P**	**65280101P**	**65280103P**	**65280105P**	**65280106P**	**65280108P**	**65390105P**	**65390106P**	**65390108P**
L = 1000-1500 mm	**65280170P**	**65280171P**	**65280173P**	**65280175P**	**65280176P**	**65280178P**	**65390175P**	**65390176P**	**65390178P**
L = 1501-2000 mm	**65280120P**	**65280121P**	**65280123P**	**65280125P**	**65280126P**	**65280128P**	**65390125P**	**65390126P**	**65390128P**
L = 2001-2500 mm	**65280180P**	**65280181P**	**65280183P**	**65280185P**	**65280186P**	**65280188P**	**65390185P**	**65390186P**	**65390188P**
L = 2501-2999 mm	**65280150P**	**65280151P**	**65280153P**	**65280155P**	**65280156P**	**65280158P**	**65390155P**	**65390156P**	**65390158P**
						single bar	double bar		



Dimension H changes with the rating; it is specified in the specifications on page 54-59.

MINIMUM AND MAXIMUM DIMENSIONS OF SINGLE AND DOUBLE BAR	
Aluminium	630A to 4000A
Copper	800A to 5000A
(L) min/MAX [mm]	**1000/3000**



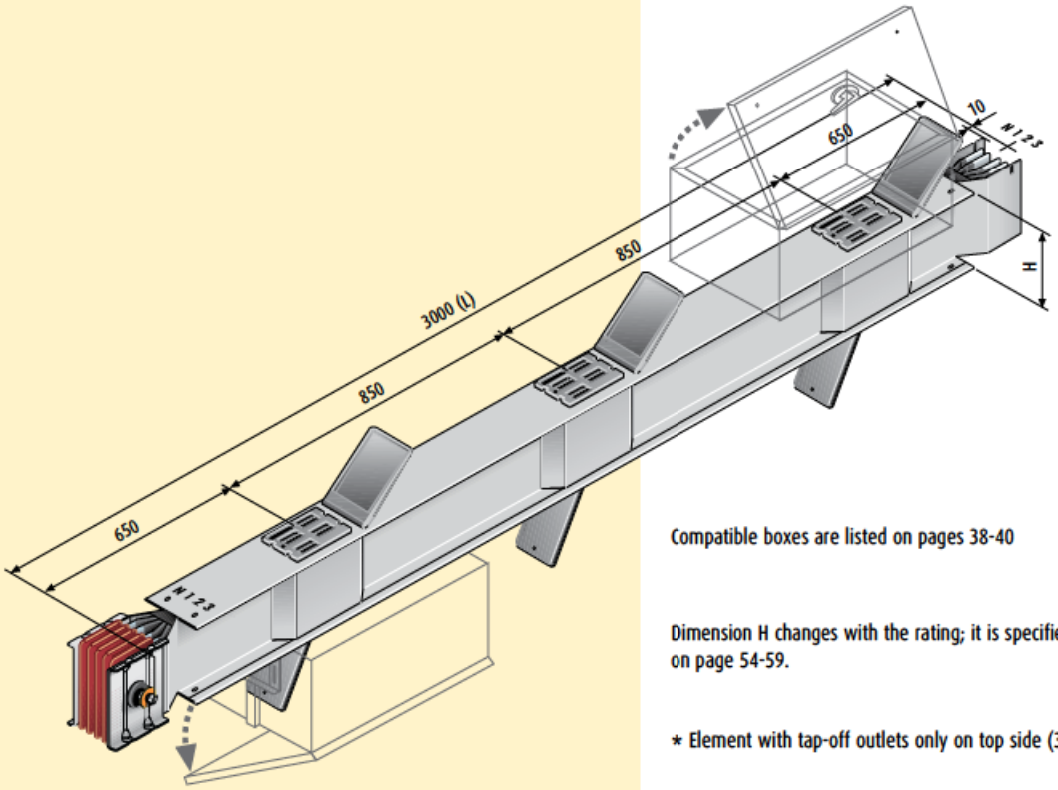
Distribution elements

ELEMENTS FOR PLUG-IN TYPE TAP-OFF BOXES - STANDARD 3000 mm

Tap-off outlets on both sides

Aluminium	of outlets	630A*	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A
L = 3000 mm	3+3	**60280130P**	**60280131P**	**60280132P**	**60280134P**	**60280136P**	**60280137P**	**60390134P**	**60390136P**	**60390137P**
L = 1000-1500 mm	1+1	**60280970P**	**60280971P**	**60280972P**	**60280974P**	**60280976P**	**60280977P**	**60390974P**	**60390976P**	**60390977P**
L = 1501-2000 mm	2+2	**60280920P**	**60280921P**	**60280922P**	**60280924P**	**60280926P**	**60280927P**	**60390924P**	**60390926P**	**60390927P**
L = 2001-2501 mm	2+2	**60280980P**	**60280981P**	**60280982P**	**60280984P**	**60280986P**	**60280987P**	**60390984P**	**60390986P**	**60390987P**
L = 2501-2999 mm	2+2	**60280950P**	**60280951P**	**60280952P**	**60280954P**	**60280956P**	**60280957P**	**60390954P**	**60390956P**	**60390957P**
							single bar	double bar		

Copper	of outlets	800*	1000	1250	1600	2000	2500	3200	4000	5000
L = 3000 mm	3+3	**65280130P**	**65280131P**	**65280133P**	**65280135P**	**65280136P**	**65280138P**	**65390135P**	**65390136P**	**65390138P**
L = 1000-1500 mm	1+1	**65280970P**	**65280971P**	**65280973P**	**65280975P**	**65280976P**	**65280978P**	**65390975P**	**65390976P**	**65390978P**
L = 1501-2000 mm	2+2	**65280920P**	**65280921P**	**65280923P**	**65280925P**	**65280926P**	**65280928P**	**65390925P**	**65390926P**	**65390928P**
L = 2001-2501 mm	2+2	**65280980P**	**65280981P**	**65280983P**	**65280985P**	**65280986P**	**65280988P**	**65390985P**	**65390986P**	**65390988P**
L = 2501-2999 mm	2+2	**65280950P**	**65280951P**	**65280953P**	**65280955P**	**65280956P**	**65280958P**	**65390955P**	**65390956P**	**65390958P**
							single bar	double bar		

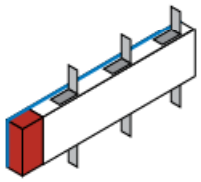


Compatible boxes are listed on pages 38-40

Dimension H changes with the rating; it is specified in the specifications on page 54-59.

* Element with tap-off outlets only on top side (3+0)

MINIMUM AND MAXIMUM DIMENSIONS OF SINGLE AND DOUBLE BAR	
Aluminium	630A to 4000A
Copper	800A to 5000A
(L) min/MAX [mm]	**1000/3000**

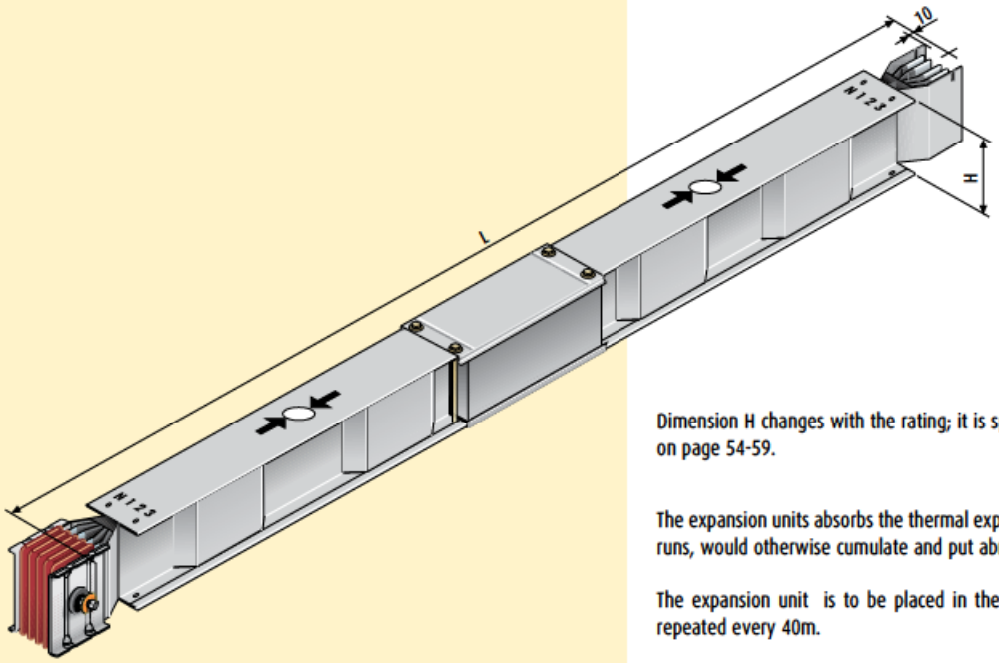


Trunking components

EXPANSION ELEMENT

Aluminium	630A	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A
Horizontal install. L = 3 m	**60280290P**	**60280291P**	**60280292P**	**60280294P**	**60280296P**	**60280297P**	**60390294P**	**60390296P**	**60390297P**
Riser install. L = 1,5 m	**60280200P**	**60280201P**	**60280202P**	**60280204P**	**60280206P**	**60280207P**	**60390204P**	**60390206P**	**60390207P**
						single bar	double bar		

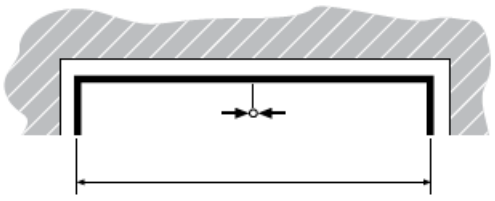
Copper	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A	5000A
Horizontal install. L = 3 m	**65280290P**	**65280291P**	**65280293P**	**65280295P**	**65280296P**	**65280298P**	**65390295P**	**65390296P**	**65390298P**
Riser install. L = 1,5 m	**65280200P**	**65280201P**	**65280203P**	**65280205P**	**65280206P**	**65280208P**	**65390205P**	**65390206P**	**65390208P**
						single bar	double bar		



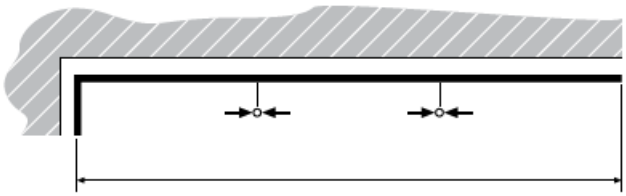
Dimension H changes with the rating; it is specified in the specifications on page 54-59.

The expansion units absorbs the thermal expansion during normal use that, on long runs, would otherwise cumulate and put abnormal force on the connection points

The expansion unit is to be placed in the straight runs of more than 40m and repeated every 40m.



e.g. straight section length m 70 = 1 element with expansion in the middle of the line



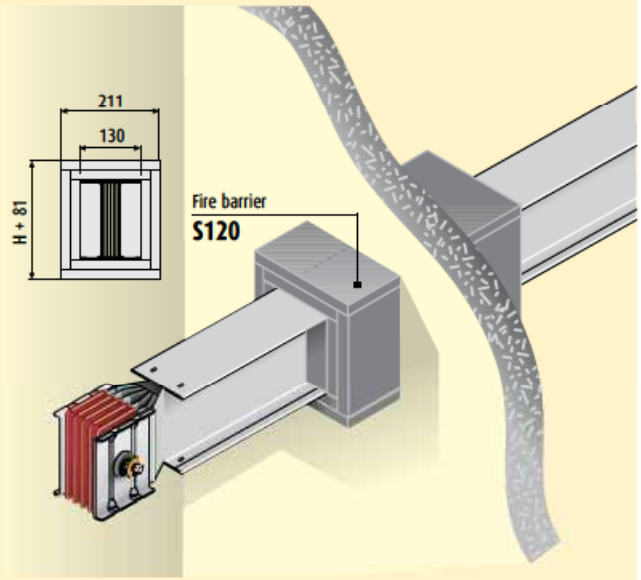
e.g. straight section length m 120 = 2 elements with expansion every ~40 m

Fire barriers

FIRE BARRIER S120 (EN 1366-3, DIN 4102-09)

Aluminium	630A	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A
internal	653IFB01	-	-	-	-	-	653IFB01	653IFB01	653IFB01
external	652EFB01	652EFB01	652EFB01	652EFB01	652EFB02	652EFB04	653EFB02	653EFB03	653EFB04
						single bar	double bar		

Copper	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A	5000A
internal	653IFB01	-	-	-	-	-	653IFB01	653IFB01	653IFB01
external	652EFB01	652EFB01	652EFB01	652EFB02	652EFB02	652EFB04	653EFB02	653EFB03	653EFB04
						single bar	double bar		



Dimension H changes with the rating; it is specified in the specifications on page 54-59.

When ordering, specify the element that will be equipped with an internal fire barrier.
Due to the geometry of the models 800A to 2000A in aluminium and 1000A to 2500A in copper, the internal fire barrier is not needed. The external fire barrier can be used on any trunking component in compliance with the operating instructions specified in figures 1 and 2.

Figure 1

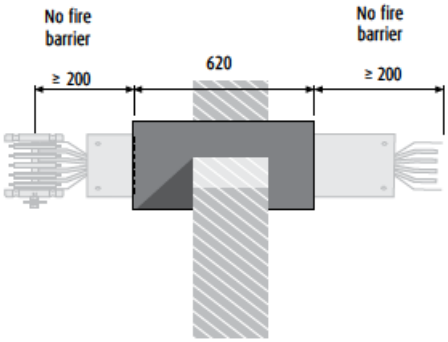
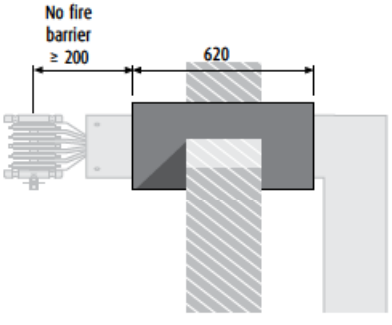


Figure 2

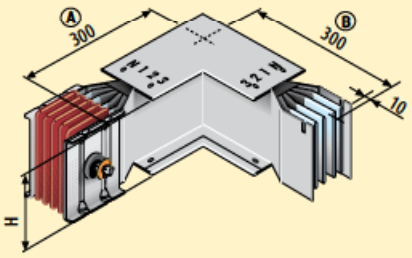


Direction changes

HORIZONTAL ELBOW

Aluminium		630A	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A
Type 1	Standard RH	**60280300P**	**60280301P**	**60280302P**	**60280304P**	**60280306P**	**60280307P**	**60390304P**	**60390306P**	**60390307P**
Type 2	Standard LH	**60280310P**	**60280311P**	**60280312P**	**60280314P**	**60280316P**	**60280317P**	**60390314P**	**60390316P**	**60390317P**
Type 1	Special RH	**60280320P**	**60280321P**	**60280322P**	**60280324P**	**60280326P**	**60280327P**	**60390324P**	**60390326P**	**60390327P**
Type 2	Special LH	**60280330P**	**60280331P**	**60280332P**	**60280334P**	**60280336P**	**60280337P**	**60390334P**	**60390336P**	**60390337P**
							single bar	double bar		

Copper		800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A	5000A
Type 1	Standard RH	**65280300P**	**65280301P**	**65280303P**	**65280305P**	**65280306P**	**65280308P**	**65390305P**	**65390306P**	**65390308P**
Type 2	Standard LH	**65280310P**	**65280311P**	**65280313P**	**65280315P**	**65280316P**	**65280318P**	**65390315P**	**65390316P**	**65390318P**
Type 1	Special RH	**65280320P**	**65280321P**	**65280323P**	**65280325P**	**65280326P**	**65280328P**	**65390325P**	**65390326P**	**65390328P**
Type 2	Special LH	**65280330P**	**65280331P**	**65280333P**	**65280335P**	**65280336P**	**65280338P**	**65390335P**	**65390336P**	**65390338P**
							single bar	double bar		

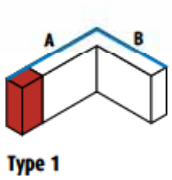


Dimension H changes with the rating; it is specified in the specifications on page 54-59.

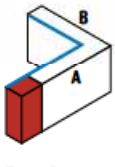
The dimensions are referred to standard elements.

The word "special" is referred to an element with measurements that are different from those shown in the figure, yet included between the MIN/MAX values specified in the table.

MINIMUM AND MAXIMUM DIMENSIONS	
Aluminium	630A to 4000A
Copper	800A to 5000A
(A) min/MAX [mm]	**250/1299**
(B) min/MAX [mm]	**250/1299**



Type 1



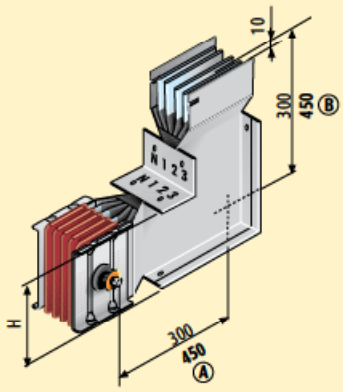
Type 2

Direction changes

VERTICAL ELBOW

Aluminium		630A	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A
Type 2	Standard RH	**60280400P**	**60280401P**	**60280402P**	**60280404P**	**60280406P**	**60280407P**	**60390404P**	**60390406P**	**60390407P**
Type 1	Standard LH	**60280410P**	**60280411P**	**60280412P**	**60280414P**	**60280416P**	**60280417P**	**60390414P**	**60390416P**	**60390417P**
Type 2	Special RH	**60280420P**	**60280421P**	**60280422P**	**60280424P**	**60280426P**	**60280427P**	**60390424P**	**60390426P**	**60390427P**
Type 1	Special LH	**60280430P**	**60280431P**	**60280432P**	**60280434P**	**60280436P**	**60280437P**	**60390434P**	**60390436P**	**60390437P**
							single bar	double bar		

Copper		800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A	5000A
Type 2	Standard RH	**65280400P**	**65280401P**	**65280403P**	**65280405P**	**65280406P**	**65280408P**	**65390405P**	**65390406P**	**65390408P**
Type 1	Standard LH	**65280410P**	**65280411P**	**65280413P**	**65280415P**	**65280416P**	**65280418P**	**65390415P**	**65390416P**	**65390418P**
Type 2	Special RH	**65280420P**	**65280421P**	**65280423P**	**65280425P**	**65280426P**	**65280428P**	**65390425P**	**65390426P**	**65390428P**
Type 1	Special LH	**65280430P**	**65280431P**	**65280433P**	**65280435P**	**65280436P**	**65280438P**	**65390435P**	**65390436P**	**65390438P**
							single bar	double bar		



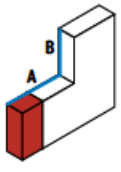
Dimension H changes with the rating; it is specified in the specifications on page 54-59.

The dimensions are referred to standard elements.
The ones used for double bar elements are in bold type.

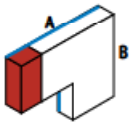
The word "special" is referred to an element with measurements that are different from those shown in the figure, yet included between the MIN/MAX values specified in the table.

MINIMUM AND MAXIMUM DIMENSIONS OF SINGLE BAR	
Aluminium	630A to 2000A
Copper	800A to 2500A
(A) min/MAX [mm]	**300/1299**
(B) min/MAX [mm]	**300/1299**

MINIMUM AND MAXIMUM DIMENSIONS OF DOUBLE BAR	
Aluminium	2500A to 4000A
Copper	3200A to 5000A
(A) min/MAX [mm]	**450/1449**
(B) min/MAX [mm]	**450/1449**



Type 1



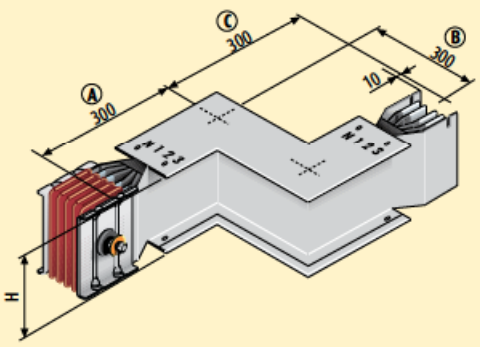
Type 2

Direction changes

DOUBLE HORIZONTAL ELBOW

Aluminium		630A	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A
Type 1	Right	**60280340P**	**60280341P**	**60280342P**	**60280344P**	**60280346P**	**60280347P**	**60390344P**	**60390346P**	**60390347P**
Type 2	Left	**60280350P**	**60280351P**	**60280352P**	**60280354P**	**60280356P**	**60280357P**	**60390354P**	**60390356P**	**60390357P**
							single bar	double bar		

Copper		800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A	5000A
Type 1	Right	**65280340P**	**65280341P**	**65280343P**	**65280345P**	**65280346P**	**65280348P**	**65390345P**	**65390346P**	**65390348P**
Type 2	Left	**65280350P**	**65280351P**	**65280353P**	**65280355P**	**65280356P**	**65280358P**	**65390355P**	**65390356P**	**65390358P**
							single bar	double bar		



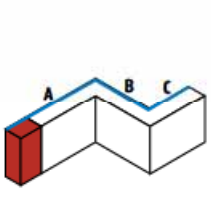
Dimension H changes with the rating; it is specified in the specifications on page 54-59.

The dimensions are referred to standard elements.

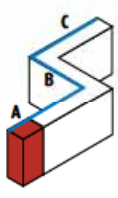
Non Standard elements (with measurements that are different from those shown in the figure) are referred to the MIN/MAX values specified in the table.

MINIMUM AND MAXIMUM DIMENSIONS

Aluminium	630A to 4000A
Copper	800A to 5000A
(A) min/MAX [mm]	**250/1299**
(B) min/MAX [mm]	**50/599**
(C) min/MAX [mm]	**250/1299**



Type 1



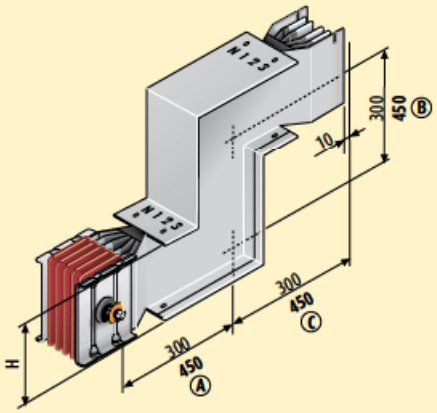
Type 2

Direction changes

DOUBLE VERTICAL ELBOW

Aluminium		630A	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A
Type 2	Right	**60280440P**	**60280441P**	**60280442P**	**60280444P**	**60280446P**	**60280447P**	**60390444P**	**60390446P**	**60390447P**
Type 1	Left	**60280450P**	**60280451P**	**60280452P**	**60280454P**	**60280456P**	**60280457P**	**60390454P**	**60390456P**	**60390457P**
							single bar	double bar		

Copper		800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A	5000A
Type 2	Right	**65280440P**	**65280441P**	**65280443P**	**65280445P**	**65280446P**	**65280448P**	**65390445P**	**65390446P**	**65390448P**
Type 1	Left	**65280450P**	**65280451P**	**65280453P**	**65280455P**	**65280456P**	**65280458P**	**65390455P**	**65390456P**	**65390458P**
							single bar	double bar		



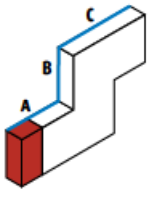
Dimension H changes with the rating; it is specified in the specifications on page 54-59.

The dimensions are referred to standard elements.
The ones used for double bar elements are in bold type.

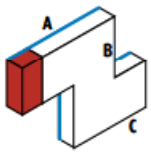
Non Standard elements (with measurements that are different from those shown in the figure) are referred to the MIN/MAX values specified in the table.

MINIMUM AND MAXIMUM DIMENSIONS OF SINGLE BAR	
Aluminium	630A to 2000A
Copper	800A to 2500A
(A) min/MAX [mm]	**300/1299**
(B) min/MAX [mm]	**50/599**
(C) min/MAX [mm]	**300/1299**

MINIMUM AND MAXIMUM DIMENSIONS OF DOUBLE BAR	
Aluminium	2500A to 4000A
Copper	3200A to 5000A
(A) min/MAX [mm]	**450/1449**
(B) min/MAX [mm]	**50/899**
(C) min/MAX [mm]	**450/1449**



Type 1



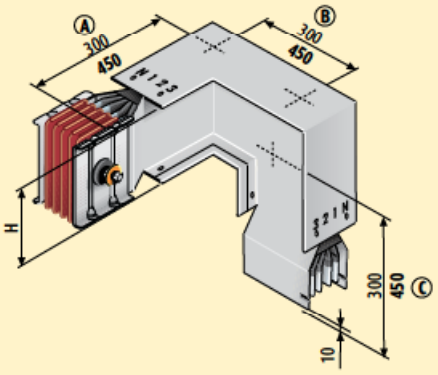
Type 2

Direction changes

DOUBLE ELBOW HORIZONTAL+VERTICAL

Aluminium	630A	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A
Type 1	**60280600P**	**60280601P**	**60280602P**	**60280604P**	**60280606P**	**60280607P**	**60390604P**	**60390606P**	**60390607P**
Type 2	**60280610P**	**60280611P**	**60280612P**	**60280614P**	**60280616P**	**60280617P**	**60390614P**	**60390616P**	**60390617P**
Type 3	**60280620P**	**60280621P**	**60280622P**	**60280624P**	**60280626P**	**60280627P**	**60390624P**	**60390626P**	**60390627P**
Type 4	**60280630P**	**60280631P**	**60280632P**	**60280634P**	**60280636P**	**60280637P**	**60390634P**	**60390636P**	**60390637P**
						single bar	double bar		

Copper	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A	5000A
Type 1	**65280600P**	**65280601P**	**65280603P**	**65280605P**	**65280606P**	**65280608P**	**65390605P**	**65390606P**	**65390608P**
Type 2	**65280610P**	**65280611P**	**65280613P**	**65280615P**	**65280616P**	**65280618P**	**65390615P**	**65390616P**	**65390618P**
Type 3	**65280620P**	**65280621P**	**65280623P**	**65280625P**	**65280626P**	**65280628P**	**65390625P**	**65390626P**	**65390628P**
Type 4	**65280630P**	**65280631P**	**65280633P**	**65280635P**	**65280636P**	**65280638P**	**65390635P**	**65390636P**	**65390638P**
						single bar	double bar		



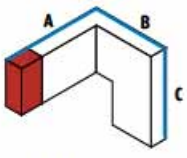
Dimension H changes with the rating; it is specified in the specifications on page 54-59.

The dimensions are referred to standard elements.
The ones used for double bar elements are in bold type.

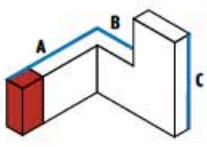
Non Standard elements (with measurements that are different from those shown in the figure) are referred to the MIN/MAX values specified in the table.

MINIMUM AND MAXIMUM DIMENSIONS OF SINGLE BAR	
Aluminium	630A to 2000A
Copper	800A to 2500A
(A) min/MAX [mm]	**250/1299**
(B) min/MAX [mm]	**200/ 599**
(C) min/MAX [mm]	**300/1299**

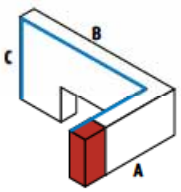
MINIMUM AND MAXIMUM DIMENSIONS OF DOUBLE BAR	
Aluminium	2500A to 4000A
Copper	3200A to 5000A
(A) min/MAX [mm]	**250/1299**
(B) min/MAX [mm]	**330/749**
(C) min/MAX [mm]	**450/1449**



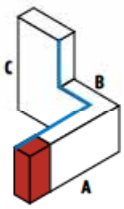
Type 1



Type 2



Type 3



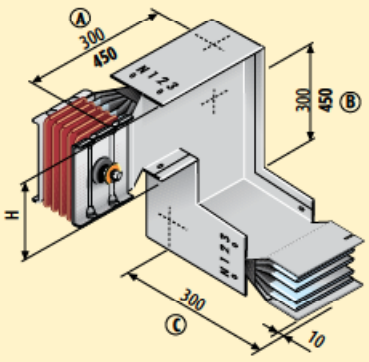
Type 4

Direction changes

DOUBLE ELBOW VERTICAL+HORIZONTAL

Aluminium	630A	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A
Type 1	**60280500P**	**60280501P**	**60280502P**	**60280504P**	**60280506P**	**60280507P**	**60390504P**	**60390506P**	**60390507P**
Type 2	**60280510P**	**60280511P**	**60280512P**	**60280514P**	**60280516P**	**60280517P**	**60390514P**	**60390516P**	**60390517P**
Type 3	**60280520P**	**60280521P**	**60280522P**	**60280524P**	**60280526P**	**60280527P**	**60390524P**	**60390526P**	**60390527P**
Type 4	**60280530P**	**60280531P**	**60280532P**	**60280534P**	**60280536P**	**60280537P**	**60390534P**	**60390536P**	**60390537P**
						single bar	double bar		

Copper	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A	5000A
Type 1	**65280500P**	**65280501P**	**65280503P**	**65280505P**	**65280506P**	**65280508P**	**65390505P**	**65390506P**	**65390508P**
Type 2	**65280510P**	**65280511P**	**65280513P**	**65280515P**	**65280516P**	**65280518P**	**65390515P**	**65390516P**	**65390518P**
Type 3	**65280520P**	**65280521P**	**65280523P**	**65280525P**	**65280526P**	**65280528P**	**65390525P**	**65390526P**	**65390528P**
Type 4	**65280530P**	**65280531P**	**65280533P**	**65280535P**	**65280536P**	**65280538P**	**65390535P**	**65390536P**	**65390538P**
						single bar	double bar		



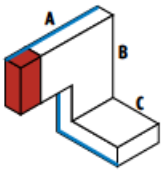
Dimension H changes with the rating; it is specified in the specifications on page 54-59.

The dimensions are referred to standard elements.
The ones used for double bar elements are in bold type.

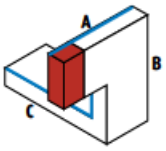
Non Standard elements (with measurements that are different from those shown in the figure) are referred to the MIN/MAX values specified in the table.

MINIMUM AND MAXIMUM DIMENSIONS OF SINGLE BAR	
Aluminium	630A to 2000A
Copper	800A to 2500A
(A) min/MAX [mm]	**300/1299**
(B) min/MAX [mm]	**200/599**
(C) min/MAX [mm]	**250/1299**

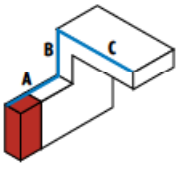
MINIMUM AND MAXIMUM DIMENSIONS OF DOUBLE BAR	
Aluminium	2500A to 4000A
Copper	3200A to 5000A
(A) min/MAX [mm]	**450/1449**
(B) min/MAX [mm]	**330/749**
(C) min/MAX [mm]	**250/1299**



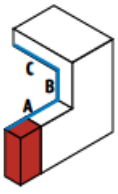
Type 1



Type 2



Type 3



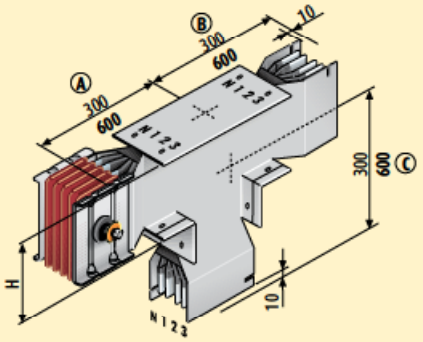
Type 4

Direction changes

VERTICAL "T"

Aluminium	630A	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A
Type 1	**60280800P**	**60280801P**	**60280802P**	**60280804P**	**60280806P**	**60280807P**	**60390804P**	**60390806P**	**60390807P**
Type 2	**60280810P**	**60280811P**	**60280812P**	**60280814P**	**60280816P**	**60280817P**	**60390814P**	**60390816P**	**60390817P**
Type 3	**60280820P**	**60280821P**	**60280822P**	**60280824P**	**60280826P**	**60280827P**	**60390824P**	**60390826P**	**60390827P**
Type 4	**60280830P**	**60280831P**	**60280832P**	**60280834P**	**60280836P**	**60280837P**	**60390834P**	**60390836P**	**60390837P**
						single bar	double bar		

Copper	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A	5000A
Type 1	**65280800P**	**65280801P**	**65280803P**	**65280805P**	**65280806P**	**65280808P**	**65390805P**	**65390806P**	**65390808P**
Type 2	**65280810P**	**65280811P**	**65280813P**	**65280815P**	**65280816P**	**65280818P**	**65390815P**	**65390816P**	**65390818P**
Type 3	**65280820P**	**65280821P**	**65280823P**	**65280825P**	**65280826P**	**65280828P**	**65390825P**	**65390826P**	**65390828P**
Type 4	**65280830P**	**65280831P**	**65280833P**	**65280835P**	**65280836P**	**65280838P**	**65390835P**	**65390836P**	**65390838P**
						single bar	double bar		



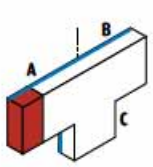
Dimension H changes with the rating; it is specified in the specifications on page 54-59.

The dimensions are referred to standard elements.
The ones used for double bar elements are in bold type.

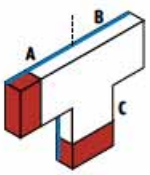
Non Standard elements (with measurements that are different from those shown in the figure) are referred to the MIN/MAX values specified in the table.

MINIMUM AND MAXIMUM DIMENSIONS OF SINGLE BAR	
Aluminium	630A to 2000A
Copper	800A to 2500A
(A) min/MAX [mm]	**300/1299**
(B) min/MAX [mm]	**300/1299**
(C) min/MAX [mm]	**300/1299**

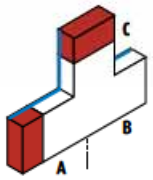
MINIMUM AND MAXIMUM DIMENSIONS OF DOUBLE BAR	
Aluminium	2500A to 4000A
Copper	3200A to 5000A
(A) min/MAX [mm]	**450/1449**
(B) min/MAX [mm]	**450/1449**
(C) min/MAX [mm]	**450/1449**



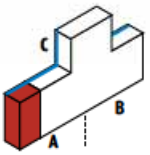
Type 1



Type 2



Type 3



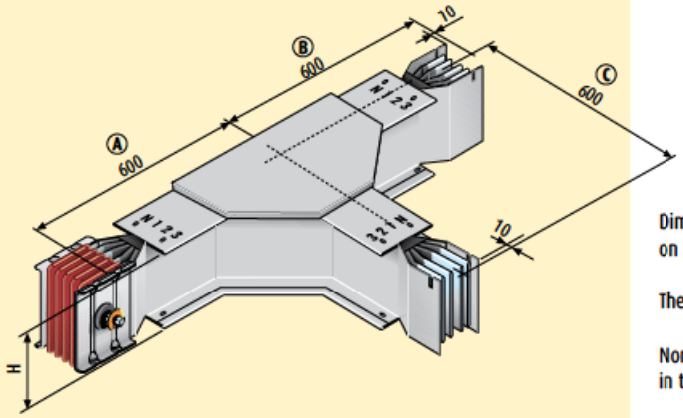
Type 4

Direction changes

HORIZONTAL "T"

Aluminium	630A	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A
Type 1	**60280700P**	**60280701P**	**60280702P**	**60280704P**	**60280706P**	**60280707P**	**60390704P**	**60390706P**	**60390707P**
Type 2	**60280710P**	**60280711P**	**60280712P**	**60280714P**	**60280716P**	**60280717P**	**60390714P**	**60390716P**	**60390717P**
Type 3	**60280720P**	**60280721P**	**60280722P**	**60280724P**	**60280726P**	**60280727P**	**60390724P**	**60390726P**	**60390727P**
Type 4	**60280730P**	**60280731P**	**60280732P**	**60280734P**	**60280736P**	**60280737P**	**60390734P**	**60390736P**	**60390737P**
						single bar	double bar		

Copper	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A	5000A
Type 1	**65280700P**	**65280701P**	**65280703P**	**65280705P**	**65280706P**	**65280708P**	**65390705P**	**65390706P**	**65390708P**
Type 2	**65280710P**	**65280711P**	**65280713P**	**65280715P**	**65280716P**	**65280718P**	**65390715P**	**65390716P**	**65390718P**
Type 3	**65280720P**	**65280721P**	**65280723P**	**65280725P**	**65280726P**	**65280728P**	**65390725P**	**65390726P**	**65390728P**
Type 4	**65280730P**	**65280731P**	**65280733P**	**65280735P**	**65280736P**	**65280738P**	**65390735P**	**65390736P**	**65390738P**
						single bar	double bar		

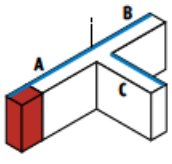


Dimension H changes with the rating; it is specified in the specifications on page 54-59.

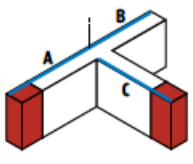
The dimensions are referred to standard elements.

Non Standard elements (with measurements that are different from those shown in the figure) are referred to the MIN/MAX values specified in the table.

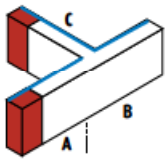
MINIMUM AND MAXIMUM DIMENSIONS OF SINGLE AND DOUBLE BAR	
Aluminium	630A to 4000A
Copper	800A to 5000A
(A) min/MAX [mm]	**550/1049**
(B) min/MAX [mm]	**550/1049**
(C) min/MAX [mm]	**550/1049**



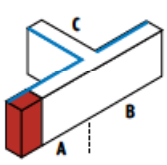
Type 1



Type 2



Type 3



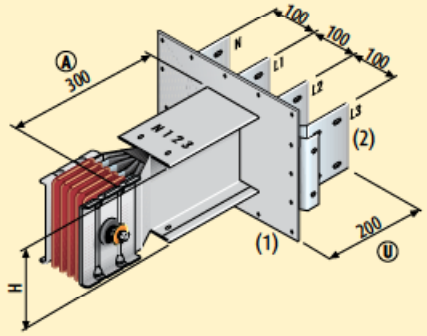
Type 4

Connection interfaces

STANDARD CONNECTION INTERFACE

Aluminium		630A	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A
Type 2	RH	**60281000P**	**60281001P**	**60281002P**	**60281004P**	**60281006P**	**60281007P**	**60391004P**	**60391006P**	**60391007P**
Type 1	LH	**60281010P**	**60281011P**	**60281012P**	**60281014P**	**60281016P**	**60281017P**	**60391014P**	**60391016P**	**60391017P**
Type 2	Special RH	**60281020P**	**60281021P**	**60281022P**	**60281024P**	**60281026P**	**60281027P**	**60391024P**	**60391026P**	**60391027P**
Type 1	Special LH	**60281030P**	**60281031P**	**60281032P**	**60281034P**	**60281036P**	**60281037P**	**60391034P**	**60391036P**	**60391037P**
							single bar	double bar		

Copper		800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A	5000A
Type 2	RH	**65281000P**	**65281001P**	**65281003P**	**65281005P**	**65281006P**	**65281008P**	**65391005P**	**65391006P**	**65391008P**
Type 1	LH	**65281010P**	**65281011P**	**65281013P**	**65281015P**	**65281016P**	**65281018P**	**65391015P**	**65391016P**	**65391018P**
Type 2	Special RH	**65281020P**	**65281021P**	**65281023P**	**65281025P**	**65281026P**	**65281028P**	**65391025P**	**65391026P**	**65391028P**
Type 1	Special LH	**65281030P**	**65281031P**	**65281033P**	**65281035P**	**65281036P**	**65281038P**	**65391035P**	**65391036P**	**65391038P**
							single bar	double bar		



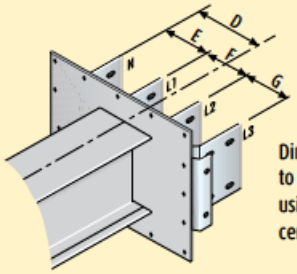
Dimension H changes with the rating; it is specified in the specifications on page 54-59.

The dimensions are referred to standard elements.
The ones used for double bar elements are in bold type.

The word "special" is referred to an element with measurements that are different from those shown in the figure, yet included between the MIN/MAX values specified in the table.

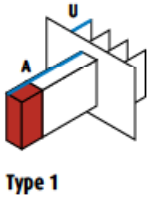
See page 27 for dimensions of coverplate (1) and bars (2).

Special element with non-standard centre distance

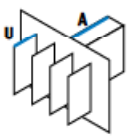


Dimensioning indications to be provided when using a non-standard centre distance

MINIMUM AND MAXIMUM DIMENSIONS OF SINGLE AND DOUBLE BAR	
Aluminium	630A to 4000A
Copper	800A to 5000A
(A) min/MAX [mm]	**200/1299**
(U) min/MAX [mm]	**150/400**



Type 1

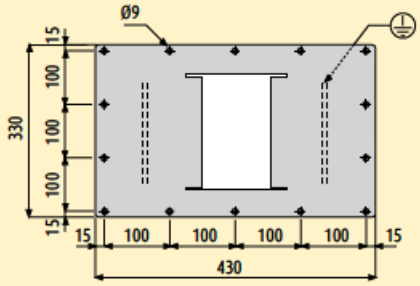


Type 2

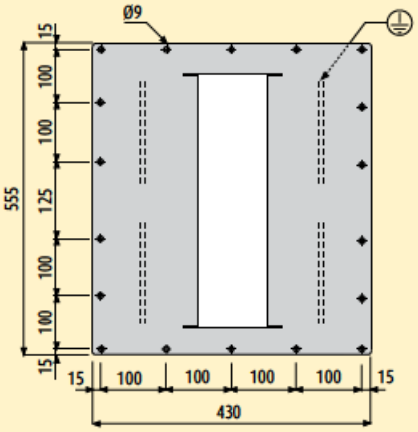
Connection interfaces

COVERPLATE DRILLING DETAILS (1)

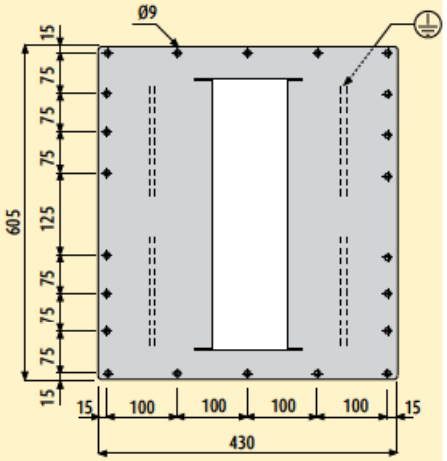
Aluminium 630A to 2000A
Copper 800A to 2500A



Aluminium 2500A to 3200A
Copper 3200A to 4000A

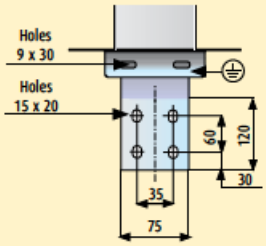


Aluminium 4000A
Copper 5000A

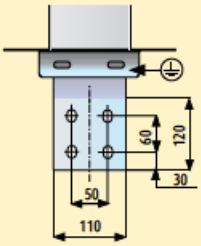


BAR DRILLING DETAILS (2)

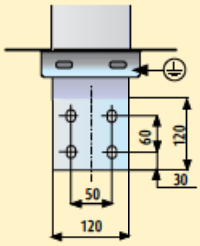
Al 630A
Cu 800A



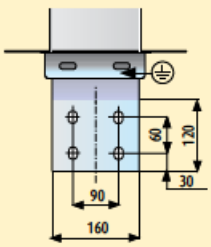
Al 800A-1000A
Cu 1000A-1250A



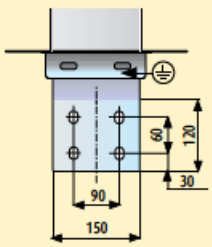
Al 1250A



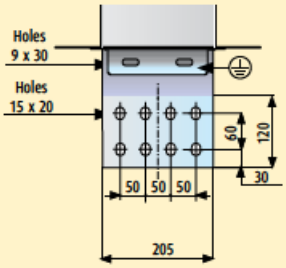
Al 1600A



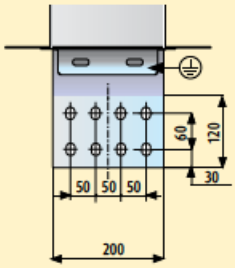
Cu 1600A



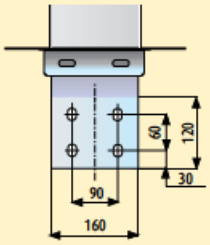
Al 2000A



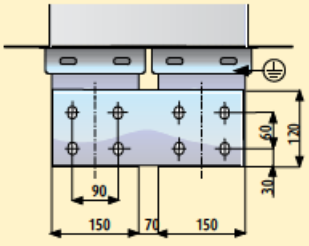
Cu 2500A



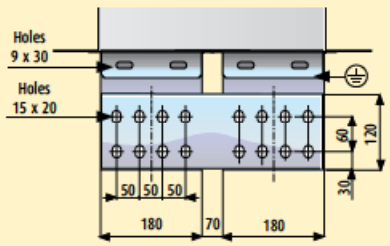
Cu 2000A



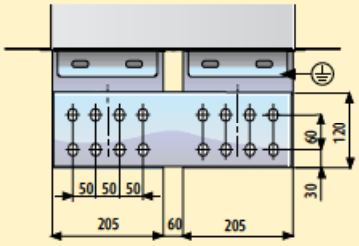
Al 2500A
Cu 3200A



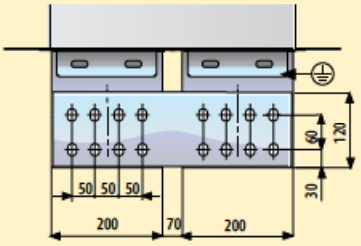
Al 3200A
Cu 4000A



Al 4000A



Cu 5000A

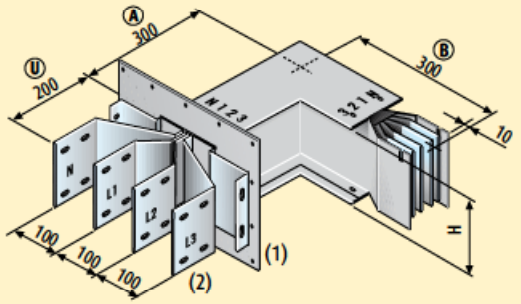


Connection interfaces

CONNECTION INTERFACE + HORIZONTAL ELBOW

Aluminium	630A	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A
Type 1	**60281300P**	**60281301P**	**60281302P**	**60281304P**	**60281306P**	**60281307P**	**60391304P**	**60391306P**	**60391307P**
Type 2	**60281310P**	**60281311P**	**60281312P**	**60281314P**	**60281316P**	**60281317P**	**60391314P**	**60391316P**	**60391317P**
Type 3	**60281320P**	**60281321P**	**60281322P**	**60281324P**	**60281326P**	**60281327P**	**60391324P**	**60391326P**	**60391327P**
Type 4	**60281330P**	**60281331P**	**60281332P**	**60281334P**	**60281336P**	**60281337P**	**60391334P**	**60391336P**	**60391337P**
						single bar	double bar		

Copper	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A	5000A
Type 1	**65281300P**	**65281301P**	**65281303P**	**65281305P**	**65281306P**	**65281308P**	**65391305P**	**65391306P**	**65391308P**
Type 2	**65281310P**	**65281311P**	**65281313P**	**65281315P**	**65281316P**	**65281318P**	**65391315P**	**65391316P**	**65391318P**
Type 3	**65281320P**	**65281321P**	**65281323P**	**65281325P**	**65281326P**	**65281328P**	**65391325P**	**65391326P**	**65391328P**
Type 4	**65281330P**	**65281331P**	**65281333P**	**65281335P**	**65281336P**	**65281338P**	**65391335P**	**65391336P**	**65391338P**
						single bar	double bar		



Dimension H changes with the rating; it is specified in the specifications on page 54-59.

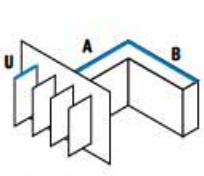
The dimensions are referred to standard elements.

Non Standard elements (with measurements that are different from those shown in the figure) are referred to the MIN/MAX values specified in the table.

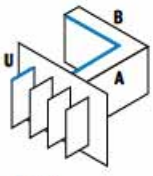
See page 27 for dimensions of coverplate (1) and bars (2).

MINIMUM AND MAXIMUM DIMENSIONS

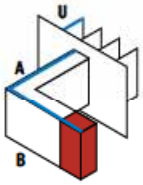
Aluminium	630A to 4000A
Copper	800A to 5000A
(U) min/MAX [mm]	**150/400**
(A) min/MAX [mm]	**150/1299**
(B) min/MAX [mm]	**250/1299**



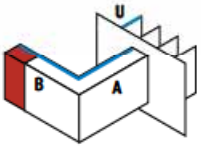
Type 1



Type 2



Type 3



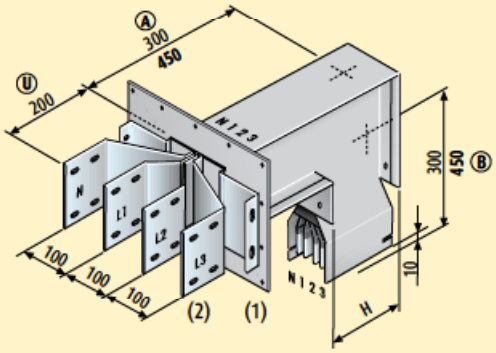
Type 4

Connection interfaces

CONNECTION INTERFACE + VERTICAL ELBOW

Aluminium	630A	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A
Type 1	**60281400P**	**60281401P**	**60281402P**	**60281404P**	**60281406P**	**60281407P**	**60391404P**	**60391406P**	**60391407P**
Type 2	**60281410P**	**60281411P**	**60281412P**	**60281414P**	**60281416P**	**60281417P**	**60391414P**	**60391416P**	**60391417P**
Type 3	**60281420P**	**60281421P**	**60281422P**	**60281424P**	**60281426P**	**60281427P**	**60391424P**	**60391426P**	**60391427P**
Type 4	**60281430P**	**60281431P**	**60281432P**	**60281434P**	**60281436P**	**60281437P**	**60391434P**	**60391436P**	**60391437P**
						single bar	double bar		

Copper	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A	5000A
Type 1	**65281400P**	**65281401P**	**65281403P**	**65281405P**	**65281406P**	**65281408P**	**65391405P**	**65391406P**	**65391408P**
Type 2	**65281410P**	**65281411P**	**65281413P**	**65281415P**	**65281416P**	**65281418P**	**65391415P**	**65391416P**	**65391418P**
Type 3	**65281420P**	**65281421P**	**65281423P**	**65281425P**	**65281426P**	**65281428P**	**65391425P**	**65391426P**	**65391428P**
Type 4	**65281430P**	**65281431P**	**65281433P**	**65281435P**	**65281436P**	**65281438P**	**65391435P**	**65391436P**	**65391438P**
						single bar	double bar		



Dimension H changes with the rating; it is specified in the specifications on page 54-59.

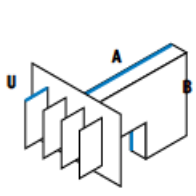
The dimensions are referred to standard elements.
The ones used for double bar elements are in bold type.

Non Standard elements (with measurements that are different from those shown in the figure) are referred to the MIN/MAX values specified in the table.

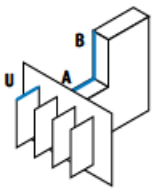
See page 27 for dimensions of coverplate (1) and bars (2).

MINIMUM AND MAXIMUM DIMENSIONS OF SINGLE BAR	
Aluminium	630A to 2000A
Copper	800A to 2500A
(U) min/MAX [mm]	**150/400**
(A) min/MAX [mm]	**150/1299**
(B) min/MAX [mm]	**300/1299**

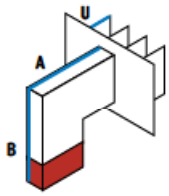
MINIMUM AND MAXIMUM DIMENSIONS OF DOUBLE BAR	
Aluminium	2500A to 4000A
Copper	3200A to 5000A
(U) min/MAX [mm]	**150/400**
(A) min/MAX [mm]	**300/1449**
(B) min/MAX [mm]	**450/1449**



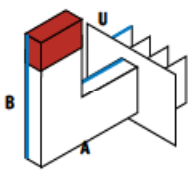
Type 1



Type 2



Type 3



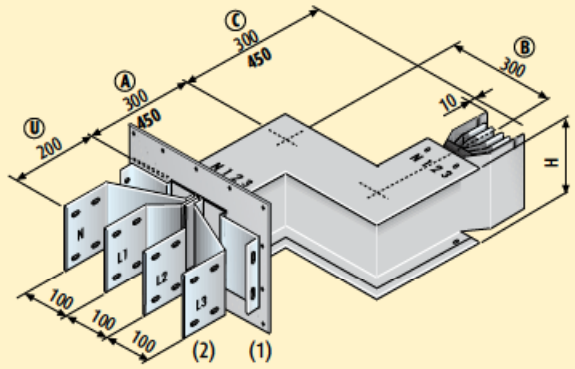
Type 4

Connection interfaces

CONNECTION INTERFACE + DOUBLE HORIZONTAL ELBOW

Aluminium	630A	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A
Type 1	**60281340P**	**60281341P**	**60281342P**	**60281344P**	**60281346P**	**60281347P**	**60391344P**	**60391346P**	**60391347P**
Type 2	**60281350P**	**60281351P**	**60281352P**	**60281354P**	**60281356P**	**60281357P**	**60391354P**	**60391356P**	**60391357P**
Type 3	**60281360P**	**60281361P**	**60281362P**	**60281364P**	**60281366P**	**60281367P**	**60391364P**	**60391366P**	**60391367P**
Type 4	**60281370P**	**60281371P**	**60281372P**	**60281374P**	**60281376P**	**60281377P**	**60391374P**	**60391376P**	**60391377P**
						single bar	double bar		

Copper	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A	5000A
Type 1	**65281340P**	**65281341P**	**65281343P**	**65281345P**	**65281346P**	**65281348P**	**65391345P**	**65391346P**	**65391348P**
Type 2	**65281350P**	**65281351P**	**65281353P**	**65281355P**	**65281356P**	**65281358P**	**65391355P**	**65391356P**	**65391358P**
Type 3	**65281360P**	**65281361P**	**65281363P**	**65281365P**	**65281366P**	**65281368P**	**65391365P**	**65391366P**	**65391368P**
Type 4	**65281370P**	**65281371P**	**65281373P**	**65281375P**	**65281376P**	**65281378P**	**65391375P**	**65391376P**	**65391378P**
						single bar	double bar		



Dimension H changes with the rating; it is specified in the specifications on page 54-59.

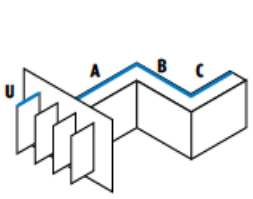
The dimensions are referred to standard elements.
The ones used for double bar elements are in bold type.

Non Standard elements (with measurements that are different from those shown in the figure) are referred to the MIN/MAX values specified in the table.

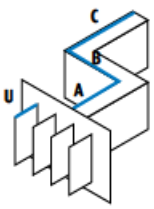
See page 27 for dimensions of coverplate (1) and bars (2).

MINIMUM AND MAXIMUM DIMENSIONS OF DOUBLE BAR

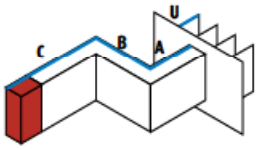
Aluminium	630A to 4000A
Copper	800A to 5000A
(U) min/MAX [mm]	**150/400**
(A) min/MAX [mm]	**150/1299**
(B) min/MAX [mm]	**50/599**
(C) min/MAX [mm]	**250/1299**



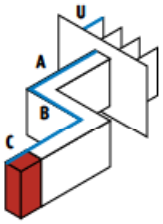
Type 1



Type 2



Type 3



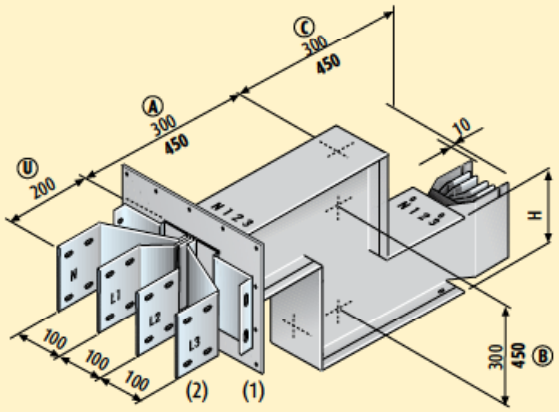
Type 4

Connection interfaces

CONNECTION INTERFACE + DOUBLE VERTICAL ELBOW

Aluminium	630A	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A
Type 1	**60281440P**	**60281441P**	**60281442P**	**60281444P**	**60281446P**	**60281447P**	**60391444P**	**60391446P**	**60391447P**
Type 2	**60281450P**	**60281451P**	**60281452P**	**60281454P**	**60281456P**	**60281457P**	**60391454P**	**60391456P**	**60391457P**
Type 3	**60281460P**	**60281461P**	**60281462P**	**60281464P**	**60281466P**	**60281467P**	**60391464P**	**60391466P**	**60391467P**
Type 4	**60281470P**	**60281471P**	**60281472P**	**60281474P**	**60281476P**	**60281477P**	**60391474P**	**60391476P**	**60391477P**
						single bar	double bar		

Copper	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A	5000A
Type 1	**65281440P**	**65281441P**	**65281443P**	**65281445P**	**65281446P**	**65281448P**	**65391445P**	**65391446P**	**65391448P**
Type 2	**65281450P**	**65281451P**	**65281453P**	**65281455P**	**65281456P**	**65281458P**	**65391455P**	**65391456P**	**65391458P**
Type 3	**65281460P**	**65281461P**	**65281463P**	**65281465P**	**65281466P**	**65281468P**	**65391465P**	**65391466P**	**65391468P**
Type 4	**65281470P**	**65281471P**	**65281473P**	**65281475P**	**65281476P**	**65281478P**	**65391475P**	**65391476P**	**65391478P**
						single bar	double bar		



Dimension H changes with the rating; it is specified in the specifications on page 54-59.

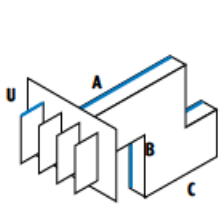
The dimensions are referred to standard elements.
The ones used for double bar elements are in bold type.

Non Standard elements (with measurements that are different from those shown in the figure) are referred to the MIN/MAX values specified in the table.

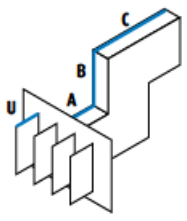
See page 27 for dimensions of coverplate (1) and bars (2).

MINIMUM AND MAXIMUM DIMENSIONS OF SINGLE BAR	
Aluminium	630A to 2000A
Copper	800A to 2500A
(U) min/MAX [mm]	**150/400**
(A) min/MAX [mm]	**150/1299**
(B) min/MAX [mm]	**50/599**
(C) min/MAX [mm]	**300/1299**

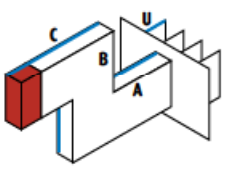
MINIMUM AND MAXIMUM DIMENSIONS OF DOUBLE BAR	
Aluminium	2500A to 4000A
Copper	3200A to 5000A
(U) min/MAX [mm]	**150/400**
(A) min/MAX [mm]	**300/1449**
(B) min/MAX [mm]	**50/899**
(C) min/MAX [mm]	**450/1449**



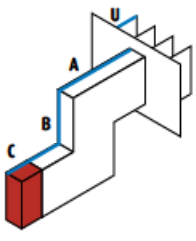
Type 1



Type 2



Type 3



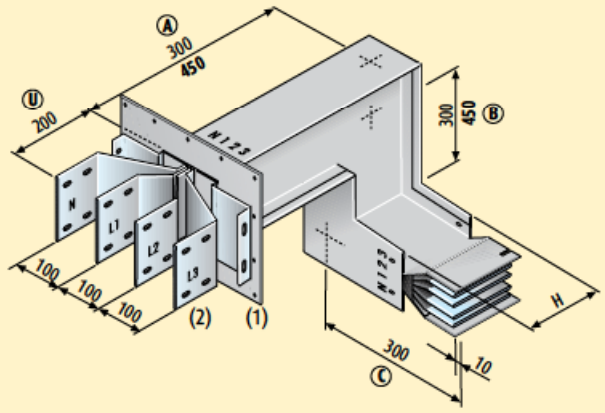
Type 4

Connections interfaces

CONNECTION INTERFACE + VERTICAL ELBOW + HORIZONTAL ELBOW

Aluminium	630A	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A
Type 1	**60281500P**	**60281501P**	**60281502P**	**60281504P**	**60281506P**	**60281507P**	**60391504P**	**60391506P**	**60391507P**
Type 2	**60281510P**	**60281511P**	**60281512P**	**60281514P**	**60281516P**	**60281517P**	**60391514P**	**60391516P**	**60391517P**
Type 3	**60281520P**	**60281521P**	**60281522P**	**60281524P**	**60281526P**	**60281527P**	**60391524P**	**60391526P**	**60391527P**
Type 4	**60281530P**	**60281531P**	**60281532P**	**60281534P**	**60281536P**	**60281537P**	**60391534P**	**60391536P**	**60391537P**
Type 5	**60281540P**	**60281541P**	**60281542P**	**60281544P**	**60281546P**	**60281547P**	**60391544P**	**60391546P**	**60391547P**
Type 6	**60281550P**	**60281551P**	**60281552P**	**60281554P**	**60281556P**	**60281557P**	**60391554P**	**60391556P**	**60391557P**
Type 7	**60281560P**	**60281561P**	**60281562P**	**60281564P**	**60281566P**	**60281567P**	**60391564P**	**60391566P**	**60391567P**
Type 8	**60281570P**	**60281571P**	**60281572P**	**60281574P**	**60281576P**	**60281577P**	**60391574P**	**60391576P**	**60391577P**
						single bar	double bar		

Copper	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A	5000A
Type 1	**65281500P**	**65281501P**	**65281503P**	**65281505P**	**65281506P**	**65281508P**	**65391505P**	**65391506P**	**65391508P**
Type 2	**65281510P**	**65281511P**	**65281513P**	**65281515P**	**65281516P**	**65281518P**	**65391515P**	**65391516P**	**65391518P**
Type 3	**65281520P**	**65281521P**	**65281523P**	**65281525P**	**65281526P**	**65281528P**	**65391525P**	**65391526P**	**65391528P**
Type 4	**65281530P**	**65281531P**	**65281533P**	**65281535P**	**65281536P**	**65281538P**	**65391535P**	**65391536P**	**65391538P**
Type 5	**65281540P**	**65281541P**	**65281543P**	**65281545P**	**65281546P**	**65281548P**	**65391545P**	**65391546P**	**65391548P**
Type 6	**65281550P**	**65281551P**	**65281553P**	**65281555P**	**65281556P**	**65281558P**	**65391555P**	**65391556P**	**65391558P**
Type 7	**65281560P**	**65281561P**	**65281563P**	**65281565P**	**65281566P**	**65281568P**	**65391565P**	**65391566P**	**65391568P**
Type 8	**65281570P**	**65281571P**	**65281573P**	**65281575P**	**65281576P**	**65281578P**	**65391575P**	**65391576P**	**65391578P**
						single bar	double bar		



Dimension H changes with the rating; it is specified in the specifications on page 54-59.

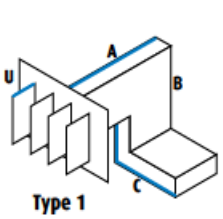
The dimensions are referred to standard elements.
The ones used for double bar elements are in bold type.

Non Standard elements (with measurements that are different from those shown in the figure) are referred to the MIN/MAX values specified in the table.

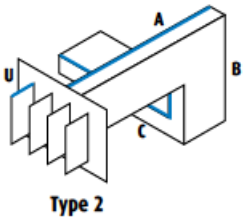
See page 27 for dimensions of coverplate (1) and bars (2).

MINIMUM AND MAXIMUM DIMENSIONS OF SINGLE BAR	
Aluminium	630A to 2000A
Copper	800A to 2500A
(U) min/MAX [mm]	**150/400**
(A) min/MAX [mm]	**150/1299**
(B) min/MAX [mm]	**200/ 599**
(C) min/MAX [mm]	**250/1299**

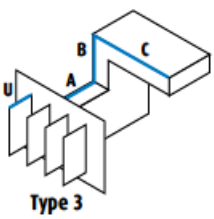
MINIMUM AND MAXIMUM DIMENSIONS OF DOUBLE BAR	
Aluminium	2500A to 4000A
Copper	3200A to 5000A
(U) min/MAX [mm]	**150/400**
(A) min/MAX [mm]	**300/1449**
(B) min/MAX [mm]	**330/ 749**
(C) min/MAX [mm]	**250/1299**



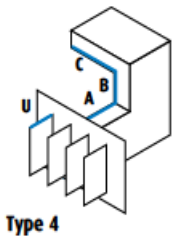
Type 1



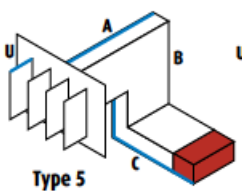
Type 2



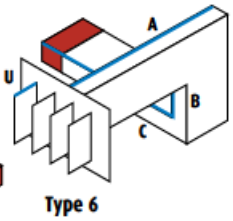
Type 3



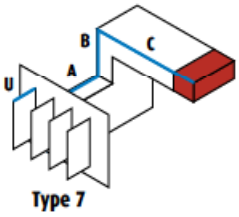
Type 4



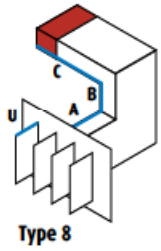
Type 5



Type 6



Type 7



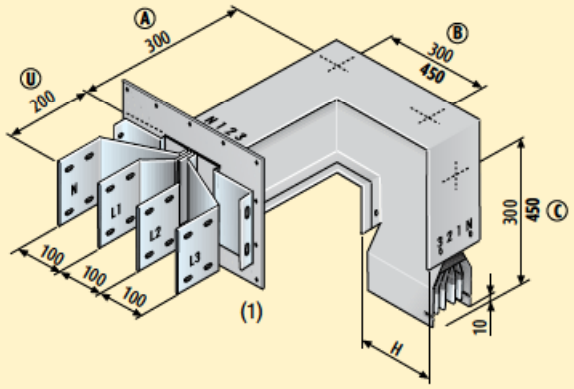
Type 8

Connection interfaces

CONNECTION INTERFACE + HORIZONTAL ELBOW + VERTICAL ELBOW

Aluminium	630A	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A
Type 1	**60281600P**	**60281601P**	**60281602P**	**60281604P**	**60281606P**	**60281607P**	**60391604P**	**60391606P**	**60391607P**
Type 2	**60281610P**	**60281611P**	**60281612P**	**60281614P**	**60281616P**	**60281617P**	**60391614P**	**60391616P**	**60391617P**
Type 3	**60281620P**	**60281621P**	**60281622P**	**60281624P**	**60281626P**	**60281627P**	**60391624P**	**60391626P**	**60391627P**
Type 4	**60281630P**	**60281631P**	**60281632P**	**60281634P**	**60281636P**	**60281637P**	**60391634P**	**60391636P**	**60391637P**
Type 5	**60281640P**	**60281641P**	**60281642P**	**60281644P**	**60281646P**	**60281647P**	**60391644P**	**60391646P**	**60391647P**
Type 6	**60281650P**	**60281651P**	**60281652P**	**60281654P**	**60281656P**	**60281657P**	**60391654P**	**60391656P**	**60391657P**
Type 7	**60281660P**	**60281661P**	**60281662P**	**60281664P**	**60281666P**	**60281667P**	**60391664P**	**60391666P**	**60391667P**
Type 8	**60281670P**	**60281671P**	**60281672P**	**60281674P**	**60281676P**	**60281677P**	**60391674P**	**60391676P**	**60391677P**
						single bar	double bar		

Copper	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A	5000A
Type 1	**65281600P**	**65281601P**	**65281603P**	**65281605P**	**65281606P**	**65281608P**	**65391605P**	**65391606P**	**65391608P**
Type 2	**65281610P**	**65281611P**	**65281613P**	**65281615P**	**65281616P**	**65281618P**	**65391615P**	**65391616P**	**65391618P**
Type 3	**65281620P**	**65281621P**	**65281623P**	**65281625P**	**65281626P**	**65281628P**	**65391625P**	**65391626P**	**65391628P**
Type 4	**65281630P**	**65281631P**	**65281633P**	**65281635P**	**65281636P**	**65281638P**	**65391635P**	**65391636P**	**65391638P**
Type 5	**65281640P**	**65281641P**	**65281643P**	**65281645P**	**65281646P**	**65281648P**	**65391645P**	**65391646P**	**65391648P**
Type 6	**65281650P**	**65281651P**	**65281653P**	**65281655P**	**65281656P**	**65281658P**	**65391655P**	**65391656P**	**65391658P**
Type 7	**65281660P**	**65281661P**	**65281663P**	**65281665P**	**65281666P**	**65281668P**	**65391665P**	**65391666P**	**65391668P**
Type 8	**65281670P**	**65281671P**	**65281673P**	**65281675P**	**65281676P**	**65281678P**	**65391675P**	**65391676P**	**65391678P**
						single bar	double bar		

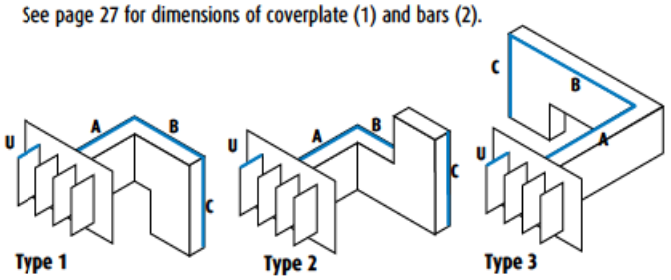


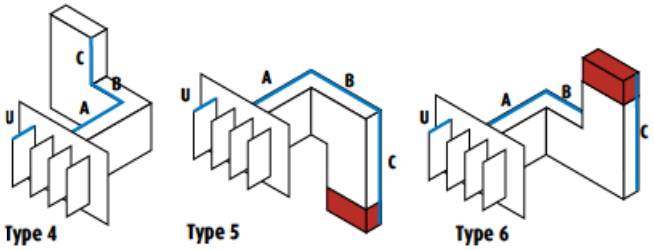
Dimension H changes with the rating; it is specified in the specifications on page 54-59.

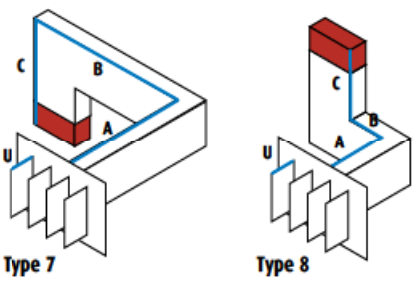
The dimensions are referred to standard elements.
The ones used for double bar elements are in bold type.

Non Standard elements (with measurements that are different from those shown in the figure) are referred to the MIN/MAX values specified in the table.

See page 27 for dimensions of coverplate (1) and bars (2).







MINIMUM AND MAXIMUM DIMENSIONS OF SINGLE BAR

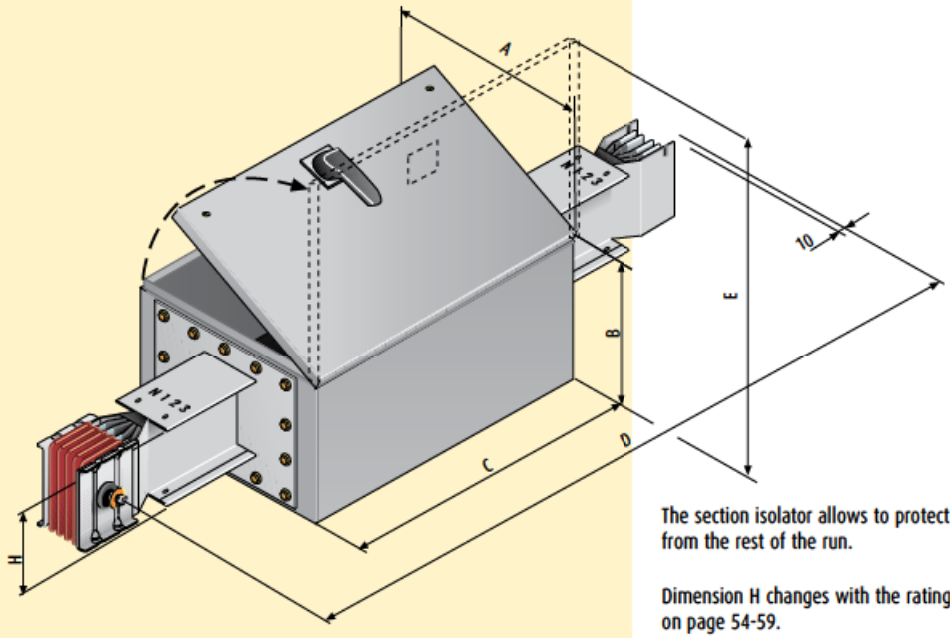
Aluminium	630A to 2000A
Copper	800A to 2500A
(U) min/MAX [mm]	**150/400**
(A) min/MAX [mm]	**150/1299**
(B) min/MAX [mm]	**200/599**
(C) min/MAX [mm]	**300/1299**

MINIMUM AND MAXIMUM DIMENSIONS OF DOUBLE BAR

Aluminium	2500A to 4000A
Copper	3200A to 5000A
(U) min/MAX [mm]	**150/400**
(A) min/MAX [mm]	**150/1299**
(B) min/MAX [mm]	**330/749**
(C) min/MAX [mm]	**450/1449**

Complementary run components

SECTION ISOLATOR



The section isolator allows to protect and disconnect one part of the installation from the rest of the run.

Dimension H changes with the rating; it is specified in the specifications on page 54-59.

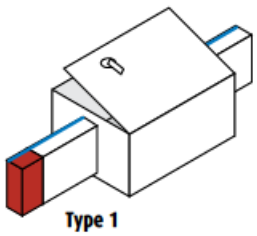
It is possible to have the opening of the box with a position different from that shown in the picture (different types indicated below).

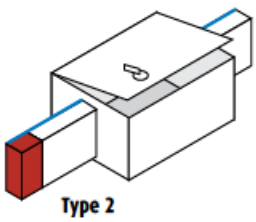
The direction of the disconnector (fuses) must be specified when ordering.

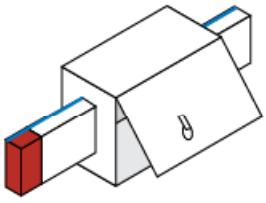
The bolted boxes are to be installed when the busbar is disconnected and not energized.
For operating voltages (Ue) different from 400V, please contact Zucchini.

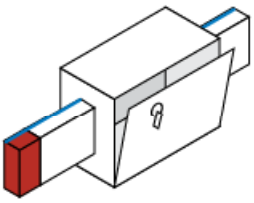
GENERAL DIMENSIONS OF THE DISCONNECTOR WITH REFERENCE TO THE RATING

Dimensions according to type 1	A	B	C	D	E
From 630A to 1250A (in mm)	450	300	1050	1500	750
From 1600A to 2500A (in mm)	700	400	1300	2000	1100


Type 1

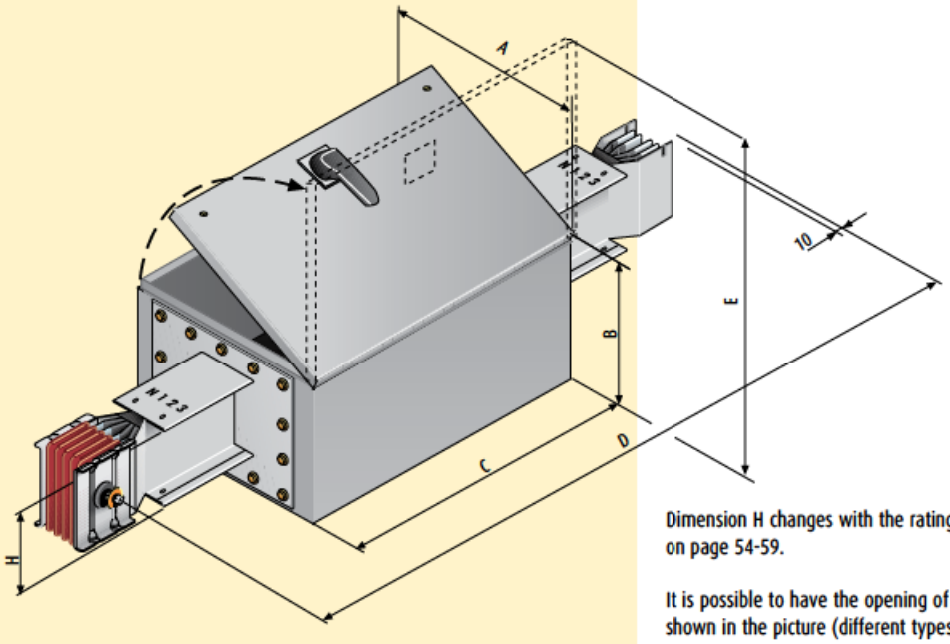

Type 2


Type 3


Type 4

Complementary run components

RATE REDUCER WITH ISOLATOR SWITCH



Dimension H changes with the rating; it is specified in the specifications on page 54-59.

It is possible to have the opening of the box with a position different from that shown in the picture (different types indicated below).

The direction of the reducer must be specified when ordering.

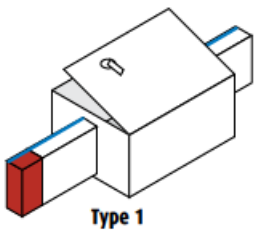
Please contact Zucchini for more details on the dimensions of the reducer.

Fuses not included. See Legrand catalogue.

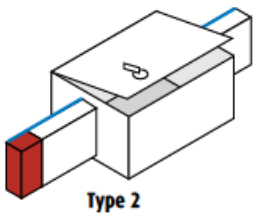
The bolted boxes are to be installed when the busbar is disconnected and not energized.
For operating voltages (Ue) different from 400V, please contact Zucchini.

GENERAL DIMENSIONS OF THE DISCONNECTOR WITH REFERENCE TO THE RATING

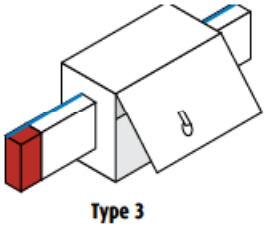
Dimensions according to type 1	A	B	C	D	E
From 630A to 1250A (in mm)	**450**	**300**	**1050**	**1500**	**750**
From 1600A to 2500A (in mm)	**700**	**400**	**1300**	**2000**	**1100**



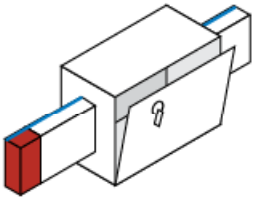
Type 1



Type 2



Type 3



Type 4

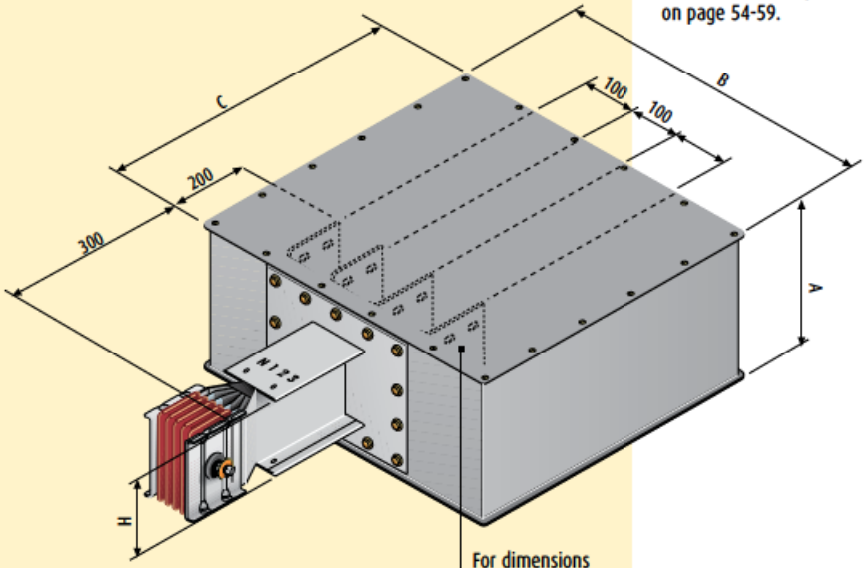
Feed units

END FEED UNIT

Aluminium		630A	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A
Type 2	RH	**60281100P**	**60281101P**	**60281102P**	**60281104P**	**60281106P**	**60281107P**	**60391104P**	**60391106P**	**60391107P**
Type 1	LH	**60281110P**	**60281111P**	**60281112P**	**60281114P**	**60281116P**	**60281117P**	**60391114P**	**60391116P**	**60391117P**
							single bar	double bar		

Copper		800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A	5000A
Type 2	RH	**65281100P**	**65281101P**	**65281103P**	**65281105P**	**65281106P**	**65281108P**	**65391105P**	**65391106P**	**65391108P**
Type 1	LH	**65281110P**	**65281111P**	**65281113P**	**65281115P**	**65281116P**	**65281118P**	**65391115P**	**65391116P**	**65391118P**
							single bar	double bar		

Dimension H changes with the rating; it is specified in the specifications on page 54-59.



For dimensions of holes for connections, see page 27

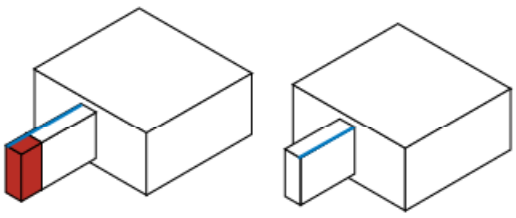
REAR CABLE INPUT

Aluminium gland plate(s) for cable entry
170mm x 410mm

Single bar : 1 plate
Double bar : 2 plates

DIMENSIONS OF THE BOX

Aluminium	630A to 1250A	1600 to 2000A	2500A to 4000A
Copper	800A to 1250A	1600A to 2500A	3200 to 5000A
(A) [mm]	**320**	**320**	**600**
(B) [mm]	**600**	**600**	**600**
(C) [mm]	**610**	**810**	**810**



Type 1 **Type 2**

Bolt-on tap-off boxes

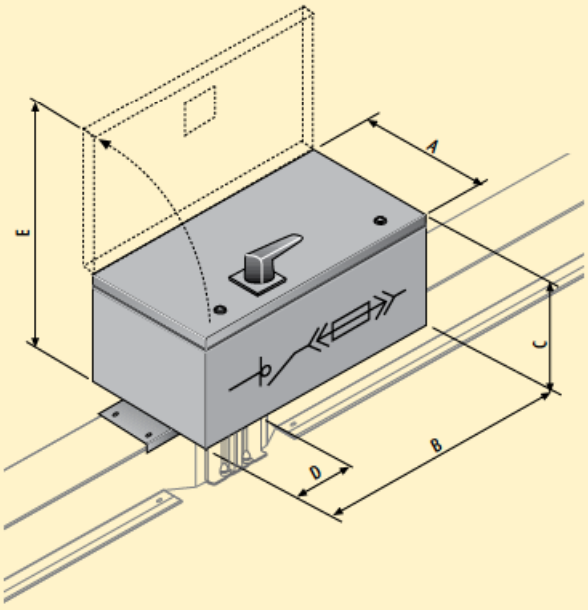
WITH AC23 SWITCH DISCONNECTOR AND FUSE CARRIER : 125A TO 1250A

Aluminium

	NH	630A	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A
125A	00	**65281811P**	**65281811P**	**65281811P**	**65281811P**	**65281812P**	**65281814P**	**65391812P**	**65391813P**	**65391814P**
250A	1	**65281821P**	**65281821P**	**65281821P**	**65281821P**	**65281822P**	**65281824P**	**65391822P**	**65391823P**	**65391824P**
400A	2	**65281831P**	**65281831P**	**65281831P**	**65281831P**	**65281832P**	**65281834P**	**65391832P**	**65391833P**	**65391834P**
630A	3	**65286041P**	**65286041P**	**65286041P**	**65286041P**	**65286042P**	**65286044P**	**65396042P**	**65396043P**	**65396044P**
800A	4	**65281851P**	**65281851P**	**65281851P**	**65281851P**	**65281852P**	**65281854P**	**65391852P**	**65391853P**	**65391854P**
1000A	4	**65281861P**	**65281861P**	**65281861P**	**65281861P**	**65281862P**	**65281864P**	**65391862P**	**65391863P**	**65391864P**
1250A	4	**65281871P**	**65281871P**	**65281871P**	**65281871P**	**65281872P**	**65281874P**	**65391872P**	**65391873P**	**65391874P**
							single bar	double bar		

Copper

	NH	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A	5000A
125A	00	**65281811P**	**65281811P**	**65281811P**	**65281812P**	**65281812P**	**65281814P**	**65391812P**	**65391813P**	**65391814P**
250A	1	**65281821P**	**65281821P**	**65281821P**	**65281822P**	**65281822P**	**65281824P**	**65391822P**	**65391823P**	**65391824P**
400A	2	**65281831P**	**65281831P**	**65281831P**	**65281832P**	**65281832P**	**65281834P**	**65391832P**	**65391833P**	**65391834P**
630A	3	**65286041P**	**65286041P**	**65286041P**	**65286042P**	**65286042P**	**65286044P**	**65396042P**	**65396043P**	**65396044P**
800A	4	**65281851P**	**65281851P**	**65281851P**	**65281852P**	**65281852P**	**65281854P**	**65391852P**	**65391853P**	**65391854P**
1000A	4	**65281861P**	**65281861P**	**65281861P**	**65281862P**	**65281862P**	**65281864P**	**65391862P**	**65391863P**	**65391864P**
1250A	4	**65281871P**	**65281871P**	**65281871P**	**65281872P**	**65281872P**	**65281874P**	**65391872P**	**65391873P**	**65391874P**
							single bar	double bar		



In order to finalize the order, it is necessary to specify the type of Super Compact the box will be installed on.

The boxes cannot be installed simultaneously on both sides of the same junction.

WARNING

The bolted boxes are to be installed directly on the junction when the busbar is disconnected and not energized.
For operating voltages (Ue) different from 400V please contact Zucchini.

Fuses not included. See Legrand catalogue.

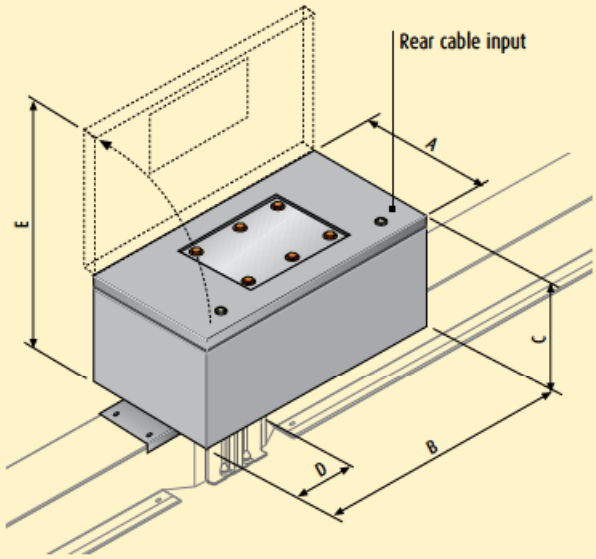
Rated insulating AC voltage	Ui [V]	**1000**
Rated impulse withstand voltage	Uimp [kV]	**12**
Type of rated duty		**AC23A**
Rated conditional short circuit current	[kA]	**100**
		CEI EN 60947-3

DIMENSIONS OF THE BOX

Box rating	125A to 400A	630A	800A to 1250A
(A) [mm]	**365**	**400**	**450**
(B) [mm]	**630**	**750**	**1050**
(C) [mm]	**270**	**280**	**300**
(D) [mm]	**95**	**115**	**115**
(E) [mm]	**635**	**680**	**750**

Tap-off boxes

EMPTY TAP-OFF BOX 125A TO 1250A : BOLT-ON TYPE



DIMENSIONS OF THE BOX

Box rating	125A to 400A	630A	800A to 1250A
(A) [mm]	**365**	**400**	**450**
(B) [mm]	**630**	**750**	**1050**
(C) [mm]	**270**	**280**	**300**
(D) [mm]	**95**	**115**	**115**
(E) [mm]	**635**	**680**	**750**

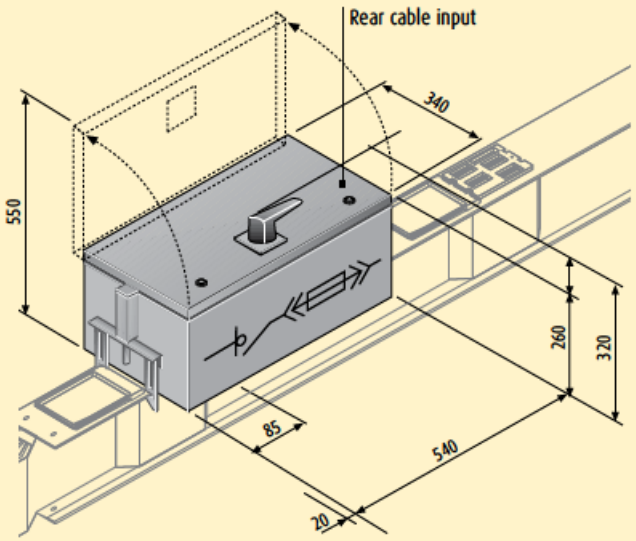
WARNING

The bolted boxes are to be installed when the busbar is disconnected and not energized.

In order to finalize the order, it is necessary to specify the type of Super Compact the box will be installed on.

Tap-off boxes can be pre-equipped with DPX moulded case circuit breakers (MCCB) upon request.

TAP-OFF BOX WITH AC23A SWITCH DISCONNECTOR AND FUSE CARRIER, 125A TO 400A : PLUG-IN TYPE



Box rating	Fuse	Items
125A	NH00	**65282001P**
250A	NH1	**65282002P**
400A	NH2	**65282003P**

Rated insulating AC voltage	Ui [V]	**1000**
Rated impulse withstand voltage	Uimp [kV]	**12**
Type of rated duty		**AC23A**
Rated conditional short circuit current	[kA]	**100**
		CEI EN 60947-3

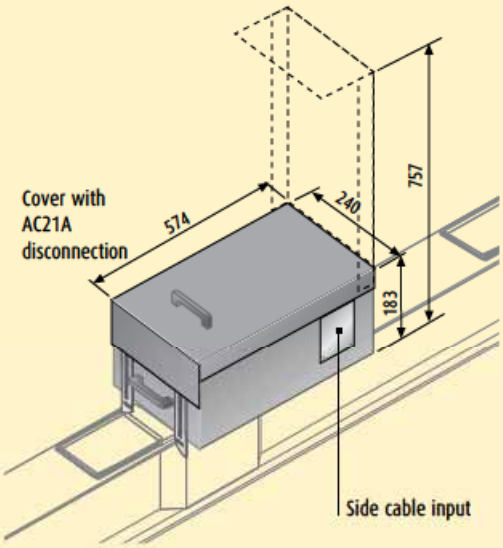
Can be installed and removed when the busbar is energized.
To be applied on elements with any rating, with tap-off outlets.

For operating voltages (Ue) different from 400V, please contact Zucchini.

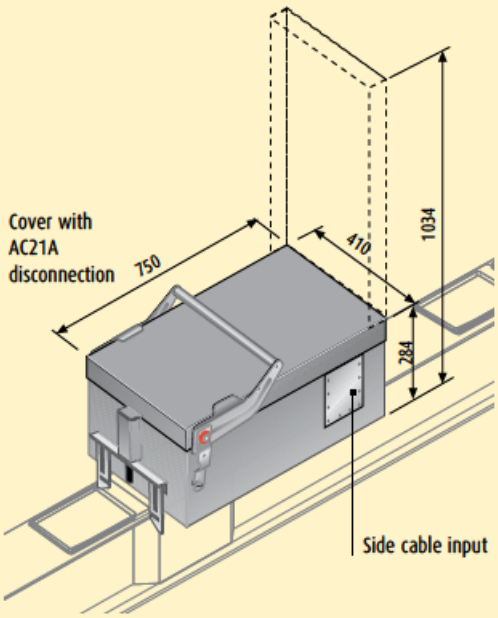
Fuses not included. See Legrand catalogue.

Tap-off boxes

TAP-OFF BOX 63A TO 630A : PLUG-IN TYPE



from 63A to 160A



from 250A to 630A

WITH FUSE CARRIER

Rating A	Fuse	Items
63	CH22	**65285031P**
125	NH00	**65285032P**
160	NH00	**65285033P**
250	NH2	**65285034P**
630	NH3	**65285036P**

Polyester coated, galvanized steel structure. Metal boxes are suitable for heavy loads and are used to shield electromagnetic fields caused by flows of current.
Fuses not included.

WITH SWITCH DISCONNECTOR (AC23)

Rating A	Items
63	**65285051P**
125	**65285052P**
160	**65285053P**
250	**65285054P**
400	**65285055P**
630	**65285076P**

Polyester coated, galvanized steel structure. Metal boxes are suitable for heavy loads and are used to shield electromagnetic fields caused by flows of current.

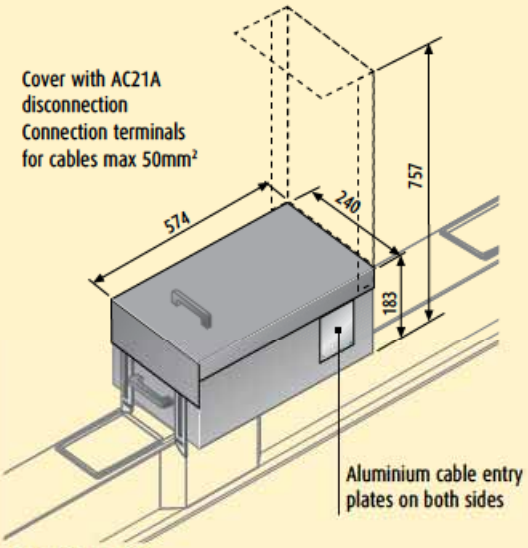
These tap-off boxes are equipped with a switch disconnector (AC23) and a fuse carrier. The disconnector switch is operated through a rotary handle on the cover (not shown in the picture).
N.B. Cover with AC21A disconnection: it is not possible to open, close, install or pull out the tap-off box if the switch is in "ON" position.

Fuses not included. See Legrand catalogue.

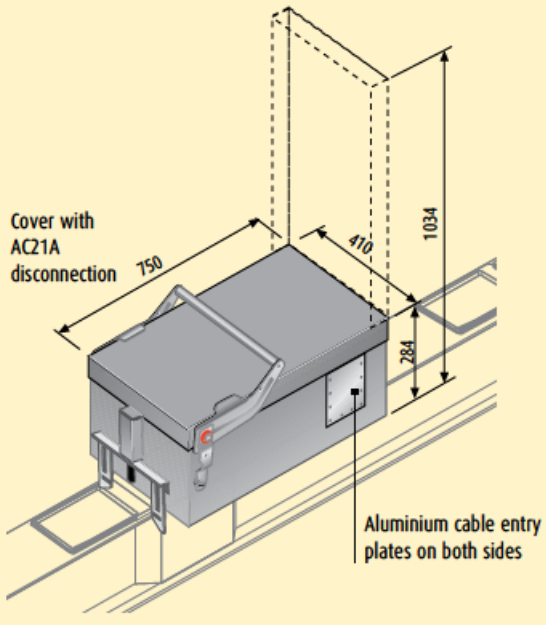
Can be installed and removed when the busbar is energized.
To be applied on elements with any rating, with tap-off outlets.

Tap-off boxes

EMPTY TAP-OFF BOX 63A TO 630A



from 63A to 160A



from 250A to 630A

EMPTY VERSION

Rating A	Items
63	**65285011P**
125	**65285012P**
160	**65285013P**
250	**65285014P**
630	**65285016P**

Tap-off boxes can be pre-equipped with DPX moulded case circuit breakers (MCCB) upon request.

Can be installed and removed when the busbar is energized.
To be applied on elements with any rating, with tap-off outlets.

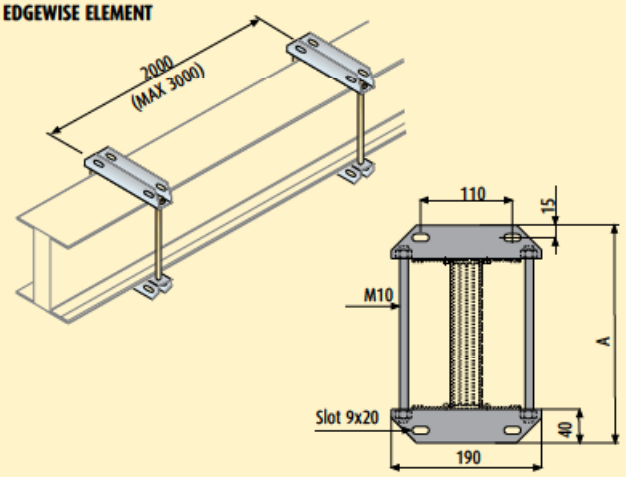
Fixing supports

SUSPENSION BRACKET FOR EDGEWISE INSTALLATION

	630A	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A
AL busbars	**65202001**	**65202001**	**65202001**	**65202001**	**65202002**	**65202004**	**65222002**	**65222003**	**65222004**
Dimension A	210	210	210	210	250	300	460	520	560
						single bar	double bar		

	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A	5000A
Cu busbars	**65202001**	**65202001**	**65202001**	**65202002**	**65202002**	**65202004**	**65222002**	**65222003**	**65222004**
Dimension A	210	210	210	250	250	300	460	520	560
						single bar	double bar		

EDGEWISE ELEMENT

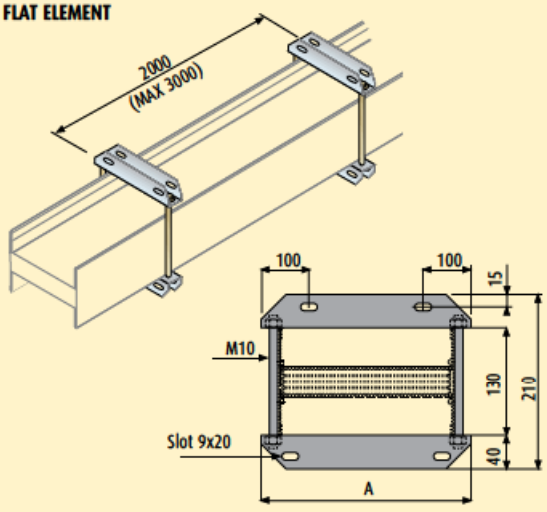


SUSPENSION BRACKET FOR FLAT INSTALLATION

	630A	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A
Al busbars	**65202001**	**65202001**	**65202001**	**65202001**	**65202013**	**65202013**	**65202112**	**65202113**	**65202114**
Dimension A	190	190	190	190	315	315	430	490	530
						single bar	double bar		

	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A	5000A
Cu busbars	**65202001**	**65202001**	**65202001**	**65202013**	**65202013**	**65202013**	**65202112**	**65202113**	**65202114**
Dimension A	190	190	190	315	315	315	430	490	530
						single bar	double bar		

FLAT ELEMENT

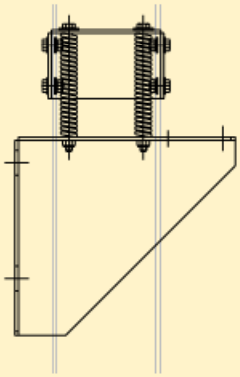


Fixing supports

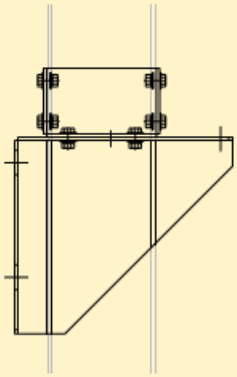
BRACKETS FOR VERTICAL ELEMENTS

Aluminium	630A	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A
	Type 1	Type 1	Type 1	Type 1	Type 1	Type 2	Type 3	Type 4	Type 4
A - with bracket and springs	**65213711**	**65213711**	**65213711**	**65213711**	**65213712**	**65213714**	**65213742**	**65213743**	**65213744**
B - with bracket	**65213721**	**65213721**	**65213721**	**65213721**	**65213722**	**65213724**	**65213752**	**65213753**	**65213754**
C - with springs	**65213701**	**65213701**	**65213701**	**65213701**	**65213702**	**65213704**	**65213732**	**65213733**	**65213734**
D - bracket only	**65213761**	**65213761**	**65213761**	**65213761**	**65213762**	**65213764**	**65213772**	**65213773**	**65213774**
E - naval applications	-	-	-	-	-	-	**65213782**	**65213783**	**65213784**
B - anti-seismic	-	-	-	-	-	-	**65213792**	**65213793**	**65213794**
						single bar	double bar		

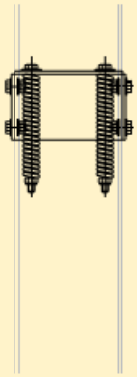
Copper	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A	5000A
	Type 1	Type 1	Type 1	Type 1	Type 1	Type 2	Type 3	Type 4	Type 4
A - with bracket and springs	**65213711**	**65213711**	**65213711**	**65213712**	**65213712**	**65213714**	**65213742**	**65213743**	**65213744**
B - with bracket	**65213721**	**65213721**	**65213721**	**65213722**	**65213722**	**65213724**	**65213752**	**65213753**	**65213754**
C - with springs	**65213701**	**65213701**	**65213701**	**65213702**	**65213702**	**65213704**	**65213732**	**65213733**	**65213734**
D - bracket only	**65213761**	**65213761**	**65213761**	**65213762**	**65213762**	**65213764**	**65213772**	**65213773**	**65213774**
E - naval applications	-	-	-	-	-	-	**65213782**	**65213783**	**65213784**
B - anti-seismic	-	-	-	-	-	-	**65213792**	**65213793**	**65213794**
						single bar	double bar		



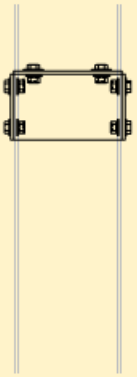
A
WITH BRACKET AND SPRINGS



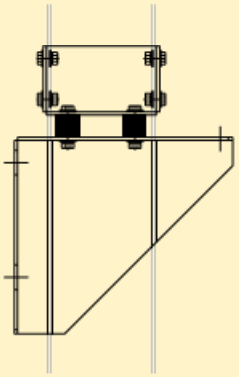
B
WITH ANTI-SEISMIC BRACKET*



C
WITH SPRINGS



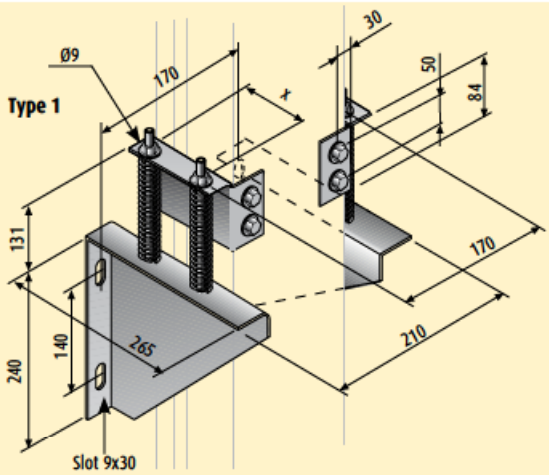
D
BRACKET ONLY

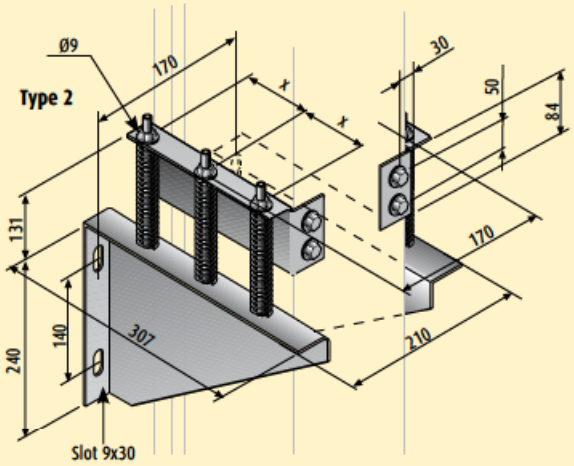


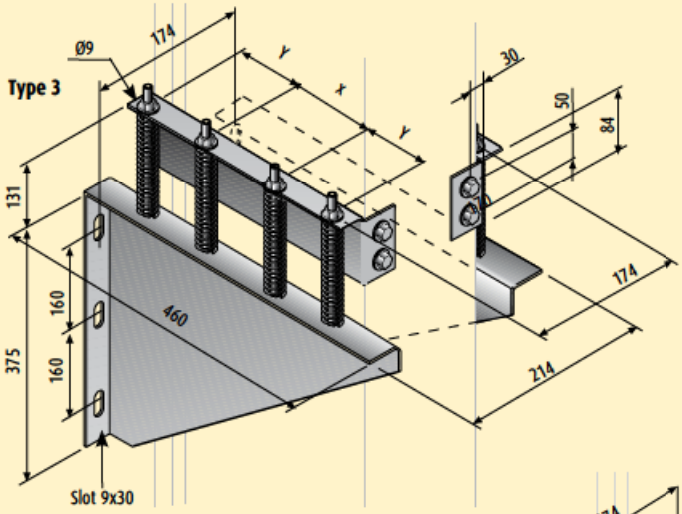
E
NAVAL APPLICATIONS

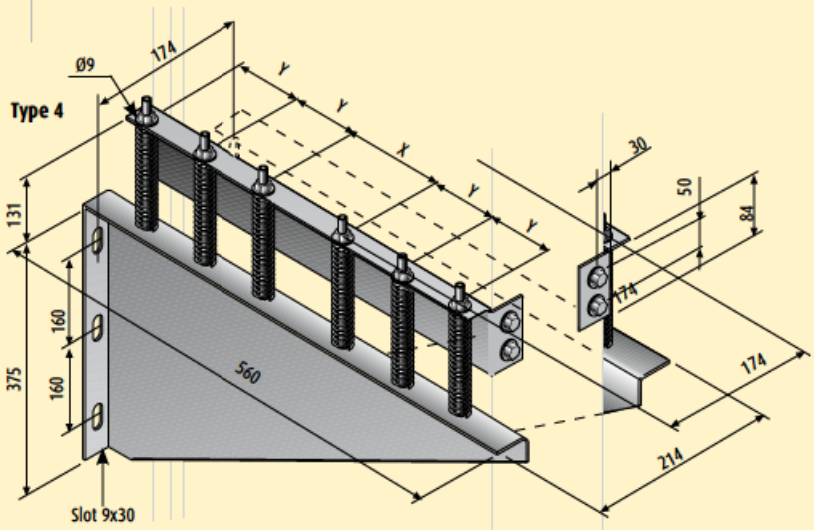
*B: For single bar elements, the standard bracket is also anti-seismic rated.
For double bar elements, there is a specific anti-seismic bracket part number.

Fixing supports
Dimensions









X AND Y DIMENSIONS OF THE BRACKETS

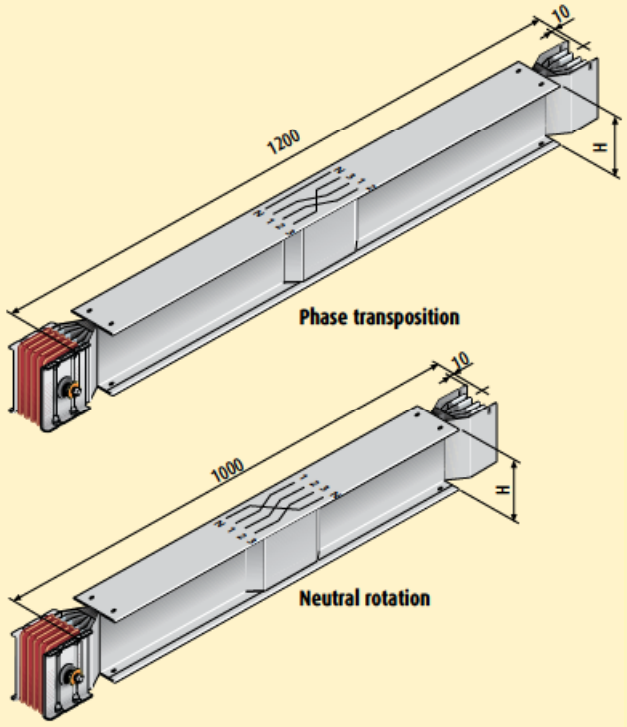
	Type 1	Type 1	Type 2	Type 2	Type 3	Type 4	Type 4
Aluminium	630A to 1000A	1250A	1600A	2000A	2500A	3200A	4000A
Copper	800A to 1250A	1600A	2000A	2500A	3200A	4000A	5000A
x [mm]	**90**	**120**	**80**	**90**	**80**	**80**	**80**
y [mm]	-	-	-	-	**110**	**80**	**90**

Transposition element
End cover

TRANSPOSITION ELEMENTS

Aluminium	630A	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A
Phase transposition	**60287100P**	**60287101P**	**60287102P**	**60287104P**	**60287106P**	**60287107P**	**60397104P**	**60397106P**	**60397107P**
Neutral rotation	**60287140P**	**60287141P**	**60287142P**	**60287144P**	**60287146P**	**60287147P**	**60397144P**	**60397146P**	**60397147P**
						single bar	double bar		

Copper	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A	5000A
Phase transposition	**65287100P**	**65287101P**	**65287103P**	**65287105P**	**65287106P**	**65287108P**	**65397105P**	**65397106P**	**65397108P**
Neutral rotation	**65287140P**	**65287141P**	**65287143P**	**65287145P**	**65287146P**	**65287148P**	**65397145P**	**65397146P**	**65397148P**
						single bar	double bar		



In particularly long carrying sections (>100 metres) it is recommended to insert two transposition elements always by two: (one placed at 1/3 and one placed at 2/3 of the trunking path) to balance the electric impedance of the system.

e.g.: in a 300m line one phase transposition at 100m and one at 200m.

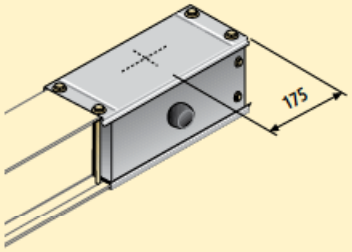
Dimension H changes with the rating; it is specified in the specifications on page 54-59.

When the sequence of the distribution board phases is different from that of the transformer, it is possible to use an element that allows a neutral rotation. Please refer to Zucchini for more information.

END COVER IP55

Aluminium	630A	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A
	65283101P	**65283101P**	**65283101P**	**65283101P**	**65283102P**	**65283104P**	**65393102P**	**65393103P**	**65393104P**
						single bar	double bar		

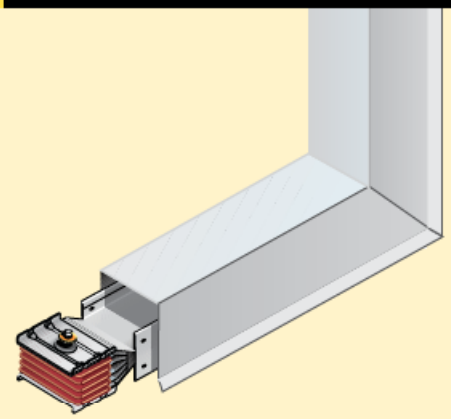
Copper	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A	5000A
	65283101P	**65283101P**	**65283101P**	**65283102P**	**65283102P**	**65283104P**	**65393102P**	**65393103P**	**65393104P**
						single bar	double bar		

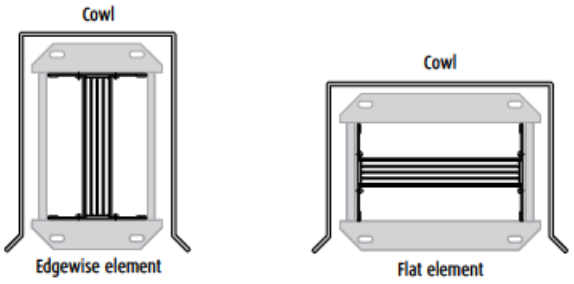


Completes the IP55 Degree of protection of the line

Protection accessories

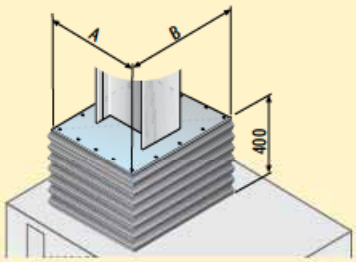
PROTECTIVE COVER FOR OUTDOOR APPLICATIONS





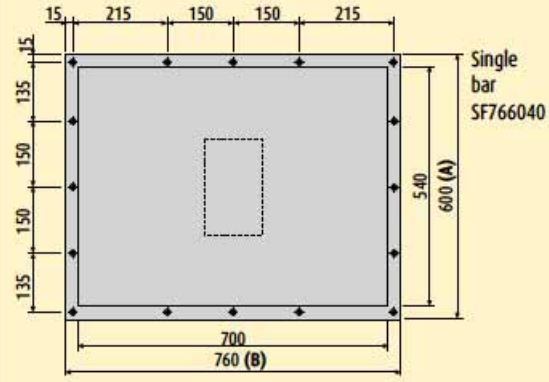
Covering accessory to be used for outdoor installations and wherever the standard IP55 Degree of protection is not adequate.

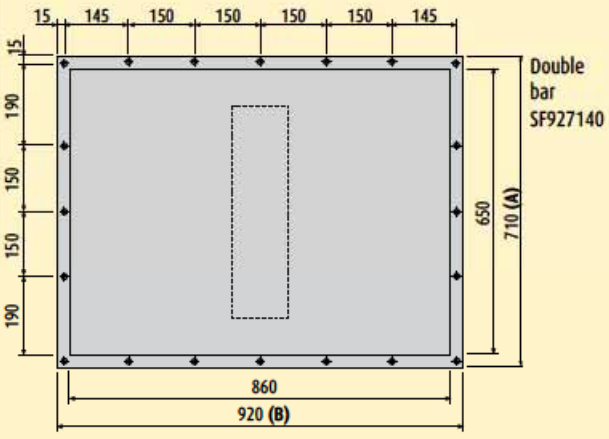
PROTECTIVE BELLOWS



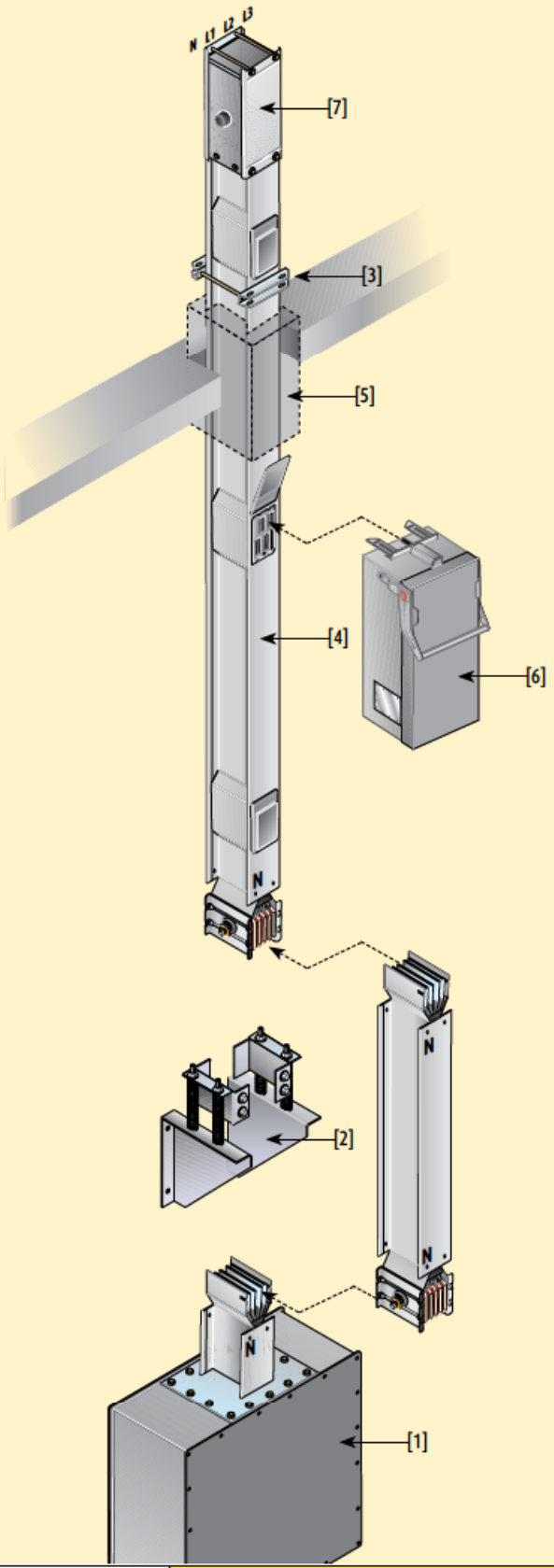
Aluminium	630A to 2000A	2500A to 4000A
	SF766040	**SF927140**
	single bar	double bar
Copper	800A to 2500A	3200A to 5000A
	SF766040	**SF927140**
	single bar	double bar

Recommended for protection of the interface connection on panelboards, dry-type transformer with enclosure and oil-type transformers.
For EdM cast resin transformers, custom-made connections are available upon request (see p.48)





Operating instructions on how to design riser mains



[1] Use an RH end feed unit (without monobloc).
In order to position the tap-off boxes correctly, the neutral conductor of the riser main must be on the left side of the element.

[2] Use one or more suspension brackets for the vertical elements, according to the weight of the whole riser mains.
For risers that are shorter than 4 metres, fix to the base with type B brackets (see p.42)
when longer, use a type A suspension bracket (see p. 42) every 300 kg of risers (including the boxes).

[3] Use a standard suspension bracket to hang the busbar every 2 metres of riser mains.

[4] Use elements with tap-off outlets (see page 15).

[5] Use S120 fire barrier kit for each compartment floor (see page 17).

[6] The tap-off boxes can be installed in the tap-off outlets and near the connection between the elements.
In both cases, the boxes extend downward.

[7] At the end of the riser mains, position the IP55 end cover.

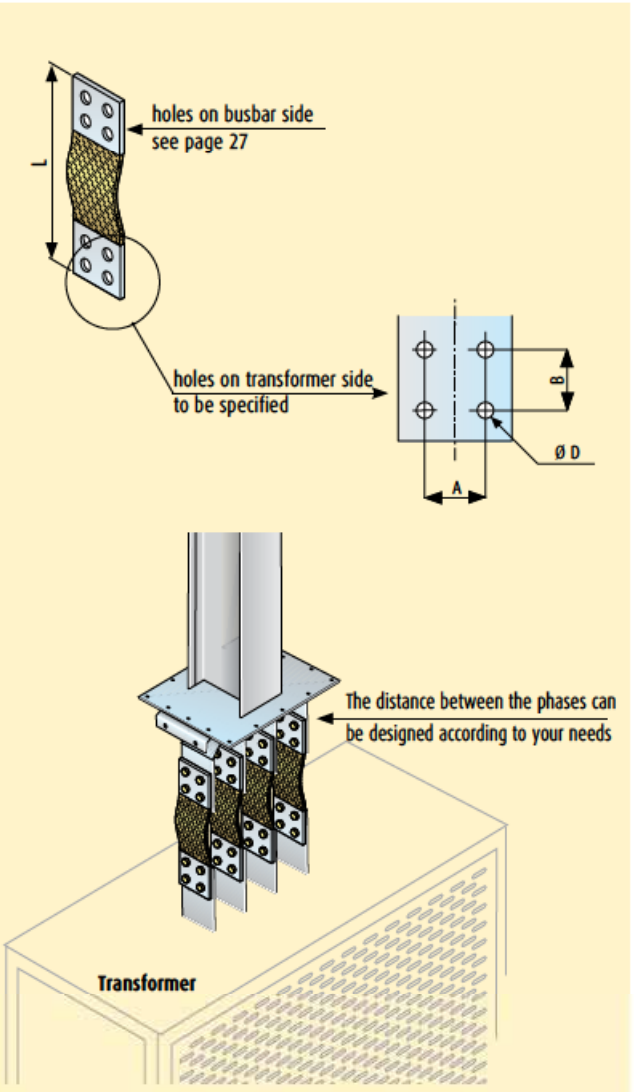
(For further information, please refer to the technical guide)

Zucchini transformer connections

FLEXIBLE BRAID CONNECTIONS

Aluminium	630A	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A
No. of braids per phase	**1**	**1**	**1**	**1**	**1**	**1**	**2**	**2**	**2**
Length [mm]									
300-450	**FC100010**	**FC100010**	**FC200010**	**FC300010**	**FC500010**	**FC600010**	**FC400010**	**FC500010**	**FC600010**
451-600	**FC100020**	**FC100020**	**FC200020**	**FC300020**	**FC500020**	**FC600020**	**FC400020**	**FC500020**	**FC600020**
601-750	**FC100030**	**FC100030**	**FC200030**	**FC300030**	**FC500030**	**FC600030**	**FC400030**	**FC500030**	**FC600030**
More than 750	**FC100099**	**FC100099**	**FC200099**	**FC300099**	**FC500099**	**FC600099**	**FC400099**	**FC500099**	**FC600099**

Copper	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A	5000A
No. of braids per phase	**1**	**1**	**1**	**1**	**1**	**2**	**2**	**2**	**2**
Length [mm]									
300-450	**FC100010**	**FC200010**	**FC300010**	**FC500010**	**FC600010**	**FC400010**	**FC500010**	**FC600010**	**FC700010**
451-600	**FC100020**	**FC200020**	**FC300020**	**FC500020**	**FC600020**	**FC400020**	**FC500020**	**FC600020**	**FC700020**
601-750	**FC100030**	**FC200030**	**FC300030**	**FC500030**	**FC600030**	**FC400030**	**FC500030**	**FC600030**	**FC700030**
More than 750	**FC100099**	**FC200099**	**FC300099**	**FC500099**	**FC600099**	**FC400099**	**FC500099**	**FC600099**	**FC700099**

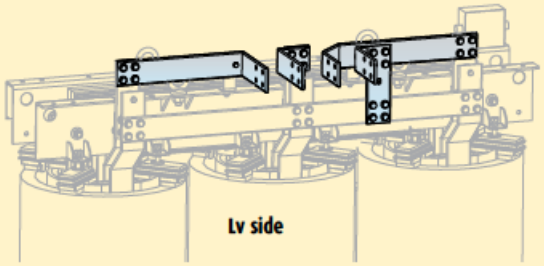


Example of a vertical connection

When ordering, specify:
holes on transformer side (dimensions A, B, Ø D) and length L.

The system:
The EdM transformer advantage

TYPE A SETUP

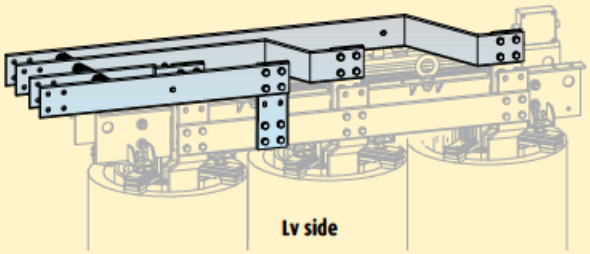


The Legrand group product synergy answers to the global installation need. The EdM cast resin transformers have specifically designed connections for the Zucchini busbars.

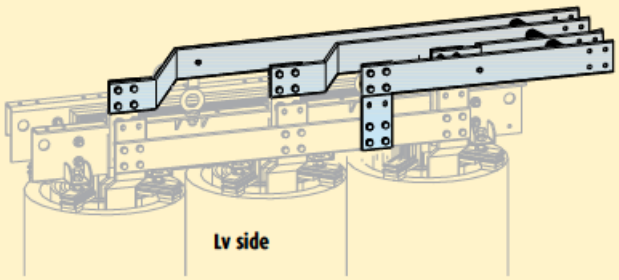
The versions shown represent some of the standardized solutions.

For the outgoing busbar run from the transformer, see pages 26-33.

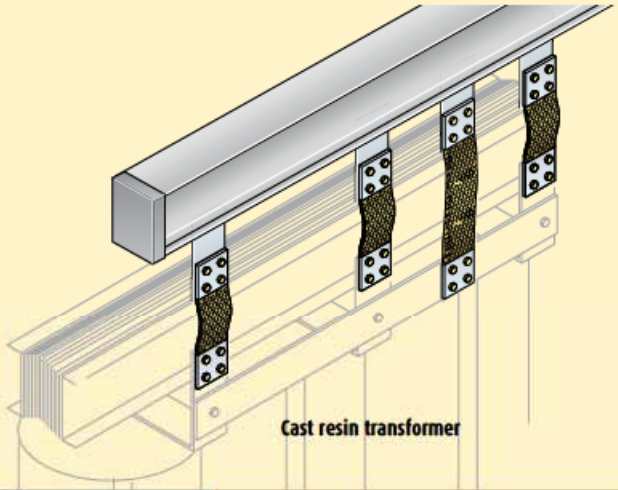
TYPE B SETUP



TYPE C SETUP



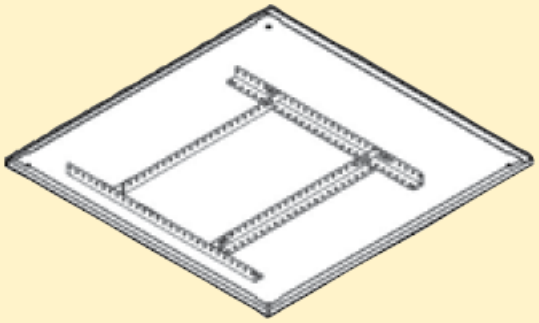
ATR CONNECTION INTERFACE



In order to achieve an ATR element, it is necessary to have the technical drawing of the transformer.

The system:
The Legrand XL³ advantage

INSTALLATION KIT FOR MAS 400 CABINET



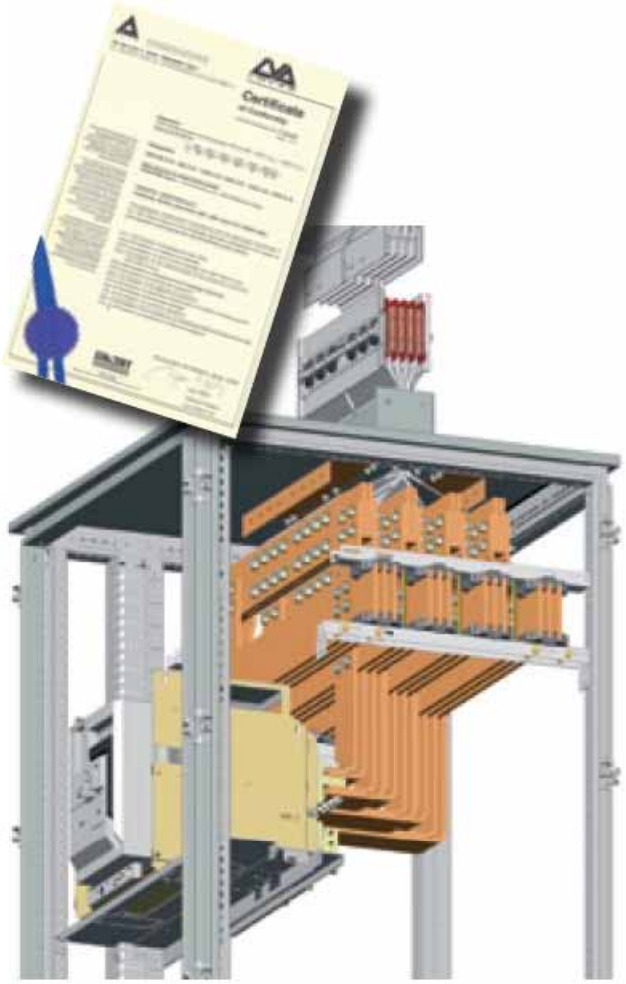
Item	
205 29	kit for reinforcing the roof of the XL³ cabinets for the installation of the Zucchini interface to connect the busbar systems

The Super Compact – SCP range can be easily and immediately combined with the Legrand XL³ 4000 cabinets.
The reinforcement kit enables you to install any type of unit to the board (see page 26-33) onto the roof of the XL³ structure in a quick and easy way.

Upon request, and with the specific measurements, custom made connections between the SCP interface and the DMX air-circuit breaker can be supplied for installation in the XL³ cabinets

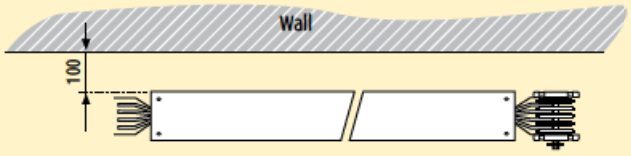
The safety and the operational efficiency of the Zucchini - Legrand system are guaranteed by the **system certification**, achieved after rigorous tests carried out in the most important international laboratories.

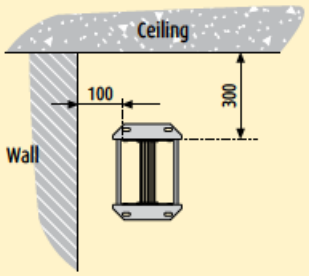
For more details about the XL³, please refer to the Legrand Catalogue.

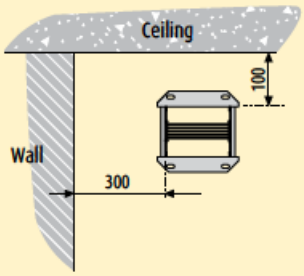


Installation guidelines

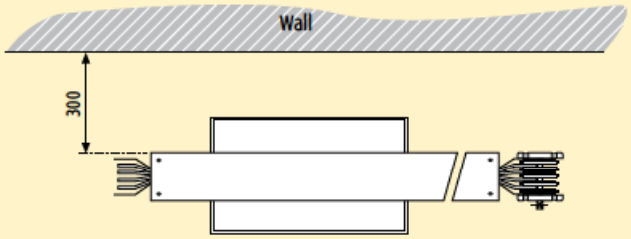
MINIMUM DISTANCE OF THE WALL / CEILING ELEMENTS

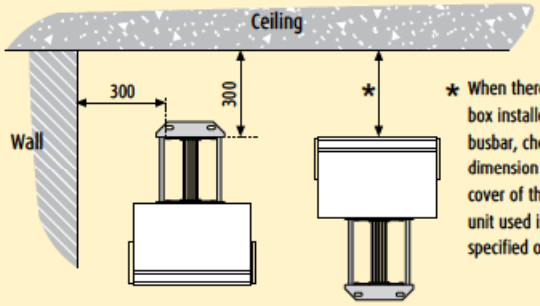




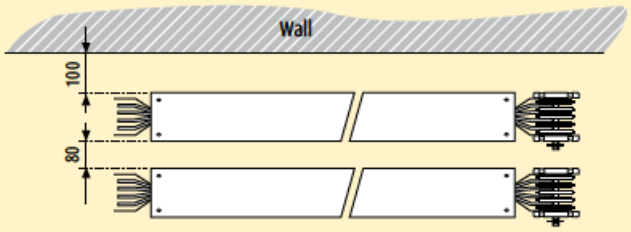


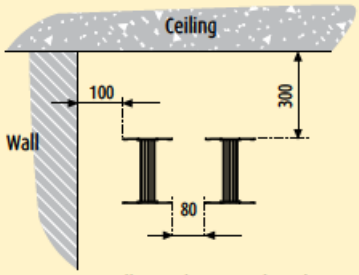
When there are tap-off units along the busbars, the minimum distances depend on the dimensions of the tap-offs selected.



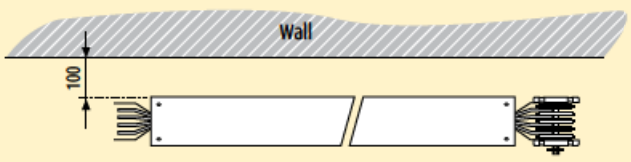


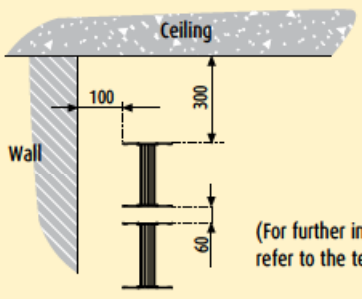
* When there is a tap-off box installed above the busbar, check the overall dimension of the open cover of the tap-off unit used in the section specified on pages 37-40





Minimum installation distance when there are several adjacent lines



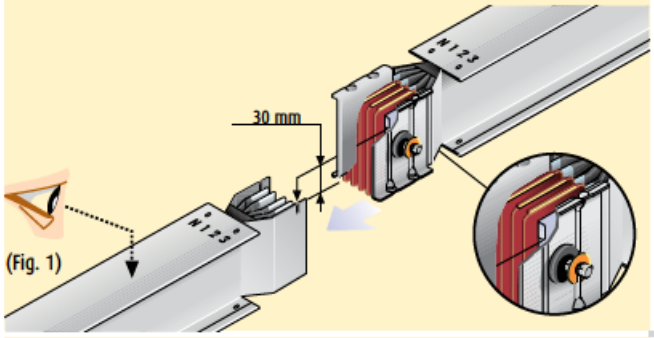


(For further information, please refer to the technical guide)

Minimum installation distance when there are several overlapped lines

Installation guidelines

INSTALLATION SEQUENCE OF THE JUNCTION

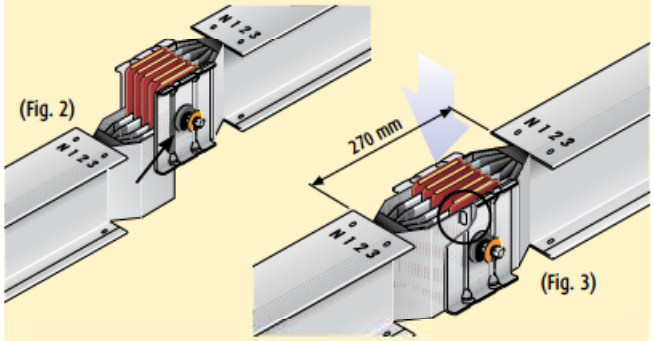


(Fig. 1)

The installation instructions are placed on every element near the junction (Fig.1)

Make sure that the contacts are clean.

Join the two elements together.

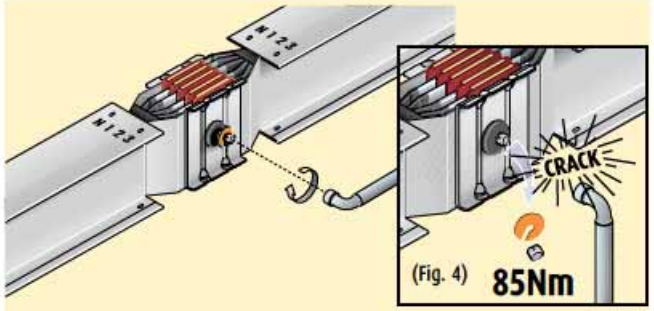


(Fig. 2)

(Fig. 3)

Make sure that the earth plate of the straight element is inserted behind the front plate of the junction monobloc (Fig.2)

The positioning pin on the monobloc should be fitted into the corresponding slot on the earth plate. Verify the distance between elements, 270mm, before tightening the monobloc completely (Fig.3).

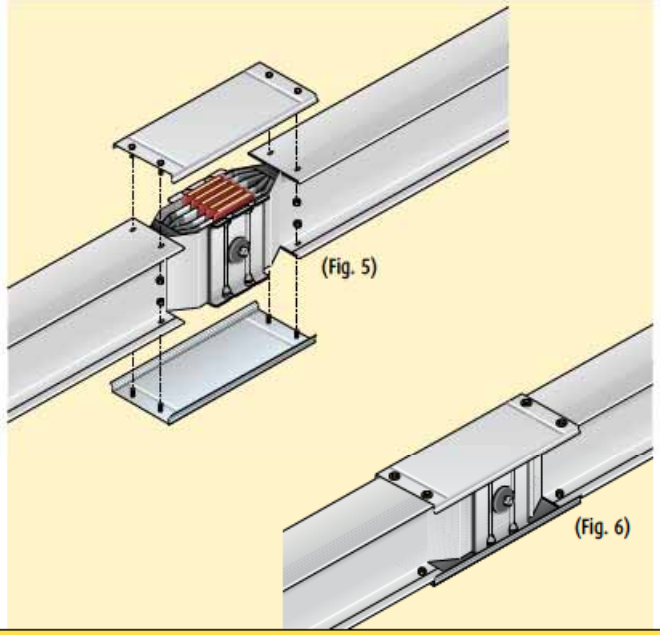


(Fig. 4)

Tighten the bolt of the monobloc until the 1st head breaks off (Fig. 4).

The bolt that tightens the monobloc has a second head which is used when carrying out operations or inspections on the line.

The nominal tightening torque is 85Nm.


(Fig. 5)

(Fig. 6)

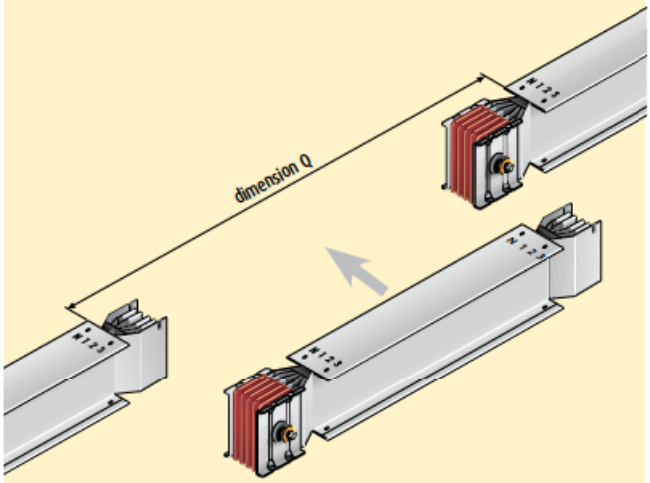
Install the covers of the junction (Fig. 5).

Connection completed correctly with degree of protection IP55 (Fig. 6).

For further information, please refer to the technical guide.

Measurement of special element lengths

MEASUREMENT OF STRAIGHT ELEMENTS

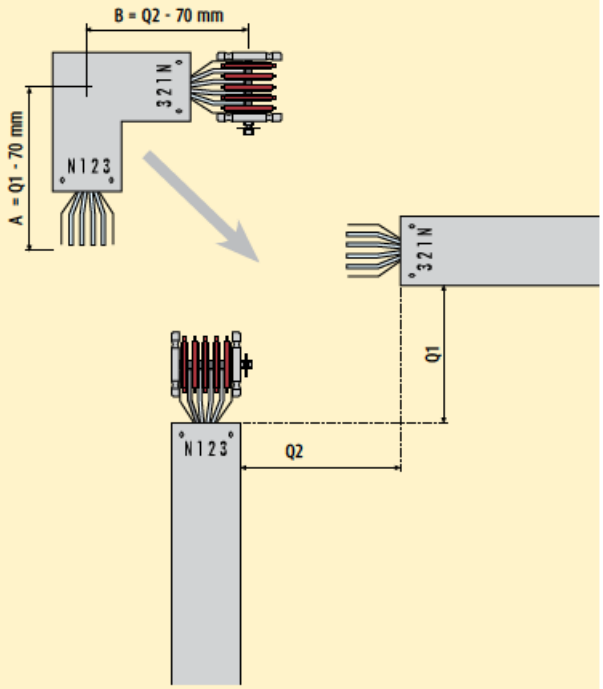


The exact length of the piece to be ordered can be determined by measuring the distance between the elements (as shown in the picture) and then subtracting 270 mm from the dimension that has been taken.

Length of element = Q - 270mm

Example: dimension measured = 2500 mm
order a 2230 mm element

MEASUREMENT OF SPECIAL TRUNKING ELEMENTS



HORIZONTAL ELBOW

The exact length of the piece to be ordered can be determined by measuring the dimensions Q1 and Q2 (as shown in the picture) and then subtracting 70 mm from each dimension that has been taken.

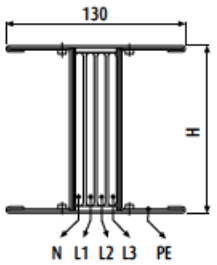
Dimension of the element to order:
A = Q1 - 70 mm
B = Q2 - 70 mm

For further information, please refer to the technical guide.

Certificates

The Super-Compact has been given Type-Approval Certifications by the most prestigious Electro-technical agencies:

- Certificate of Compliance with Standards CEI 60439-2 (ACAE - LOVAG)
- RINA Type-Approval (Italian Register of Shipping)
- ABS Type-Approval (American Bureau of Standard)
- GOST Type-Approval (Russia)
- REI120 fire resistance measurements
- Noise measurements (CESI)
- Fire resistance measurements with Fire Barrier
- Electromagnetic emissions measurements
- Mechanical vibration resistance measurements (Dynamic Test - ENEL HYDRO)



Technical data
SCP (3L+N+PE)

ALUMINIUM

					single bar				double bar	
Rated current	I_n [A]	630	800	1000	1250	1600	2000	2500	3200	4000
Casing overall dimensions	L x H [mm]	130x130	130x130	130x130	130x130	130x170	130x220	130x380	130x440	130x480
Operating voltage	[V]	1000	1000	1000	1000	1000	1000	1000	1000	1000
Insulation voltage	Ui [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000
Frequency	[Hz]	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60
Rated short-time current for three-phase fault (1 s)	I_{cw} [kA]rms	36	42	50	75	80	80	150	160	160
Allowable peak current for three-phase fault	I_{pk} [kA]	76	88	110	165	176	176	330	352	352
Rated short-time current for single-phase fault (1 s)	I_{cw} [kA]rms	22	25	30	45	48	48	90	96	96
Allowable peak current for single-phase fault	I_{pk} [kA]	48	55	66	99	106	106	198	211	211
Allowable specific energy for three-phase fault	I^2t [MA^2s]	1296	1764	2500	5625	6400	6400	22500	25600	25600
Phase resistance	R_{20} [mΩ/m]	0.077	0.058	0.058	0.047	0.035	0.027	0.022	0.017	0.014
Phase reactance (50 Hz)	X [mΩ/m]	0.023	0.017	0.017	0.015	0.014	0.011	0.006	0.006	0.006
Phase impedance	Z [mΩ/m]	0.080	0.060	0.060	0.049	0.037	0.029	0.022	0.018	0.015
Phase resistance at thermal conditions	R_t [mΩ/m]	0.084	0.064	0.069	0.056	0.041	0.032	0.025	0.020	0.017
Phase impedance at thermal conditions	Z [mΩ/m]	0.087	0.066	0.071	0.058	0.043	0.034	0.026	0.021	0.018
Neutral resistance	R_{20} [mΩ/m]	0.077	0.058	0.058	0.047	0.035	0.027	0.022	0.017	0.014
Resistance of the protective conductor (PE 1)	R_{PE} [mΩ/m]	0.125	0.125	0.125	0.125	0.113	0.101	0.075	0.069	0.065
Resistance of the protective conductor (PE 2)	R_{PE} [mΩ/m]	0.036	0.036	0.036	0.036	0.028	0.023	0.014	0.012	0.011
Resistance of the protective conductor (PE 3)	R_{PE} [mΩ/m]	0.050	0.050	0.050	0.050	0.041	0.033	0.021	0.018	0.017
Reactance of the protective conductor (50 Hz)	X_{PE} [mΩ/m]	0.080	0.078	0.078	0.048	0.039	0.028	0.020	0.015	0.016
Resistance of the fault loop (PE 1)	R_s [mΩ/m]	0.209	0.189	0.194	0.181	0.154	0.133	0.100	0.089	0.082
Resistance of the fault loop (PE 2)	R_s [mΩ/m]	0.120	0.100	0.105	0.092	0.069	0.055	0.039	0.032	0.028
Resistance of the fault loop (PE 3)	R_s [mΩ/m]	0.134	0.114	0.119	0.106	0.082	0.065	0.046	0.038	0.034
Reactance of the fault loop (50 Hz)	X_s [mΩ/m]	0.10	0.10	0.10	0.06	0.05	0.04	0.03	0.02	0.02
Impedance of the fault loop (PE 1)	Z_s [mΩ/m]	0.233	0.212	0.216	0.192	0.163	0.139	0.103	0.092	0.085
Impedance of the fault loop (PE 2)	Z_s [mΩ/m]	0.158	0.138	0.142	0.112	0.087	0.068	0.047	0.038	0.036
Impedance of the fault loop (PE 3)	Z_s [mΩ/m]	0.169	0.149	0.152	0.123	0.098	0.076	0.053	0.044	0.041
Zero-sequence resistance phase - N	R_o [mΩ/m]	0.306	0.257	0.257	0.238	0.172	0.140	0.107	0.080	0.070
Zero-sequence reactance phase - N	X_o [mΩ/m]	0.174	0.160	0.160	0.128	0.106	0.108	0.083	0.073	0.060
Zero-sequence Impedance phase - N	Z_o [mΩ/m]	0.352	0.303	0.303	0.270	0.202	0.177	0.135	0.108	0.092
Zero-sequence resistance phase- PE	R_o [mΩ/m]	0.581	0.519	0.519	0.369	0.321	0.270	0.217	0.196	0.164
Zero-sequence reactance phase - PE	X_o [mΩ/m]	0.263	0.229	0.229	0.191	0.175	0.212	0.155	0.148	0.146
Zero-sequence Impedance phase - PE	Z_o [mΩ/m]	0.638	0.567	0.567	0.416	0.366	0.343	0.267	0.246	0.22
Voltage drop factor with distributed load $\Delta V = k \cdot L \cdot I_e \cdot 10^{-6}$ [V]	k [V/m/A]10^{-6} cosφ = 0.70	65.1	49.5	52.5	43.3	33.6	26.3	18.8	15.9	14.2
	cosφ = 0.75	67.7	51.5	54.7	45.1	34.7	27.2	19.6	16.5	14.6
	cosφ = 0.80	70.1	53.3	56.8	46.7	35.7	28.0	20.4	17.1	15.1
	cosφ = 0.85	72.3	55.1	58.7	48.2	36.6	28.7	21.1	17.6	15.4
	cosφ = 0.90	74.1	56.5	60.4	49.4	37.3	29.2	21.7	18.0	15.7
	cosφ = 0.95	75.3	57.5	61.6	50.3	37.6	29.4	22.1	18.2	15.8
	cosφ = 1.00	72.7	55.6	60.0	48.6	35.6	27.8	21.6	17.4	14.9
Weight (PE 1)	p [kg/m]	17.5	18.3	18.3	19.8	24.2	29.6	40.1	48.0	54.9
Weight (PE 2)	p [kg/m]	20.7	21.5	21.5	23.0	28.4	35.0	48.3	57.6	65.6
Weight (PE 3)	p [kg/m]	18.5	19.3	19.3	20.9	25.6	31.4	42.8	51.1	58.4
Fire load	[kWh/m]	4.5	5.5	5.5	6.0	8.5	10.5	16.0	19.0	21.0
Degree of protection	IP	55	55	55	55	55	55	55	55	55
Thermal resistance class of the insulating materials		B/F*	B/F*	B/F*	B/F*	B/F*	B/F*	B/F*	B/F*	B/F*
Joule effect losses at rated current	P [W/m]	100	123	208	263	315	386	468	618	827
Min/Max Ambient Temperature	[°C]	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50

* Class F thermal resistance (155°C) available on request

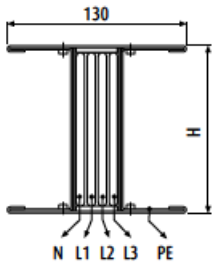
In: rated current referred to a room temperature of 40°C
ΔV : for calculations, see page 97

- **Regulations and conformity:**
  IEC/EN 60439-1 & 2; DIN VDE 0660 500 & 502
- **Product suitable for Constant/Cyclic Warm, humid climates:**
  DIN IEC 68 part 2-3; DIN IEC 68 part 2-30
- **Degree of protection:**
  IP55; IPx7 carrying lines available with accessories, on request
- **Insulation and surface treatment of the conductors:**
  Insulated conductors for the whole length, aluminum copper-plated and tin-plated
- **Busbar casing material:**
  1.5mm galvanized steel plate, pre-painted or stainless steel
  (available, if required, with special paint and/or with thickness 2mm)

(*)
PE 1
Standard version

(*)
PE 2
Extra earth - COPPER

(*)
PE 3
Extra earth - ALUMINUM



Technical data
SCP (3L+N+PE)

COPPER

		single bar						double bar		
Rated current	I_n [A]	800	1000	1250	1600	2000	2500	3200	4000	5000
Casing overall dimensions	L x H [mm]	130x130	130x130	130x130	130x170	130x170	130x220	130x380	130x440	130x480
Operating voltage	U_e [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000
Insulation voltage	U_i [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000
Frequency	f [Hz]	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60
Rated short-time current for three-phase fault (1 s)	I_{cw} [kA]rms	45	50	60	85	88	88	170	176	176
Allowable peak current for three-phase fault	I_{pk} [kA]	95	110	132	187	194	194	374	387	387
Rated short-time current for single-phase fault (1 s)	I_{cw} [kA]rms	27	30	36	51	53	53	102	106	106
Allowable peak current for single-phase fault	I_{pk} [kA]	57	66	79	112	116	116	224	232	232
Allowable specific energy for three-phase fault	I^2t [MA^2s]	2025	2500	3600	7225	7744	7744	28900	30976	30976
Phase resistance	R_{20} [mΩ/m]	0.041	0.032	0.032	0.024	0.020	0.016	0.012	0.010	0.008
Phase reactance (50 Hz)	X [mΩ/m]	0.023	0.017	0.017	0.015	0.014	0.011	0.007	0.006	0.006
Phase impedance	Z [mΩ/m]	0.047	0.037	0.037	0.028	0.024	0.019	0.014	0.012	0.010
Phase resistance at thermal conditions	R_t [mΩ/m]	0.045	0.037	0.040	0.029	0.024	0.019	0.015	0.013	0.010
Neutral resistance	R_{20} [mΩ/m]	0.041	0.032	0.032	0.024	0.020	0.016	0.012	0.010	0.008
Phase impedance at thermal conditions	Z [mΩ/m]	0.050	0.041	0.043	0.033	0.028	0.022	0.016	0.014	0.012
Resistance of the protective conductor (PE 1)	R_{PE} [mΩ/m]	0.125	0.125	0.125	0.113	0.113	0.101	0.075	0.069	0.065
Resistance of the protective conductor (PE 2)	R_{PE} [mΩ/m]	0.036	0.036	0.036	0.028	0.028	0.023	0.014	0.012	0.011
Resistance of the protective conductor (PE 3)	R_{PE} [mΩ/m]	0.050	0.050	0.050	0.041	0.041	0.033	0.021	0.018	0.017
Reactance of the protective conductor (50 Hz)	X_{PE} [mΩ/m]	0.054	0.054	0.054	0.044	0.044	0.032	0.022	0.017	0.016
Resistance of the fault loop (PE 1)	R_e [mΩ/m]	0.170	0.162	0.165	0.142	0.137	0.120	0.090	0.082	0.075
Resistance of the fault loop (PE 2)	R_e [mΩ/m]	0.081	0.073	0.076	0.057	0.052	0.042	0.029	0.025	0.021
Resistance of the fault loop (PE 3)	R_e [mΩ/m]	0.095	0.087	0.090	0.070	0.065	0.052	0.036	0.031	0.027
Reactance of the fault loop (50 Hz)	X_e [mΩ/m]	0.077	0.071	0.071	0.059	0.058	0.043	0.029	0.023	0.022
Impedance of the fault loop (PE 1)	Z_e [mΩ/m]	0.186	0.177	0.179	0.154	0.149	0.128	0.094	0.085	0.078
Impedance of the fault loop (PE 2)	Z_e [mΩ/m]	0.111	0.102	0.104	0.082	0.078	0.060	0.041	0.034	0.030
Impedance of the fault loop (PE 3)	Z_e [mΩ/m]	0.122	0.112	0.114	0.092	0.087	0.068	0.046	0.039	0.035
Zero-sequence resistance phase - N	R_e [mΩ/m]	0.170	0.155	0.155	0.115	0.120	0.098	0.083	0.071	0.062
Zero-sequence reactance phase - N	X_e [mΩ/m]	0.159	0.151	0.151	0.114	0.098	0.065	0.056	0.055	0.042
Zero-sequence Impedance phase - N	Z_e [mΩ/m]	0.233	0.216	0.216	0.162	0.155	0.118	0.100	0.090	0.075
Zero-sequence resistance phase- PE	R_e [mΩ/m]	0.507	0.429	0.429	0.331	0.283	0.221	0.177	0.178	0.144
Zero-sequence reactance phase - PE	X_e [mΩ/m]	0.201	0.177	0.177	0.143	0.150	0.124	0.111	0.094	0.086
Zero-sequence Impedance phase - PE	Z_e [mΩ/m]	0.545	0.464	0.464	0.361	0.320	0.253	0.209	0.201	0.168
Voltage drop factor with distributed load $\Delta V = k \cdot L \cdot I_e \cdot 10^{-6}$ [V]	k [V/m/A]10^{-6} cosφ = 0.70	41.3	33.0	34.6	27.1	23.5	18.5	13.2	11.5	9.8
	cosφ = 0.75	42.1	33.8	35.5	27.7	23.9	18.8	13.5	11.8	9.9
	cosφ = 0.80	42.8	34.5	36.3	28.1	24.2	19.1	13.8	12.1	10.0
	cosφ = 0.85	43.3	35.0	37.0	28.4	24.4	19.2	14.0	12.2	10.1
	cosφ = 0.90	43.4	35.3	37.3	28.5	24.4	19.2	14.1	12.3	10.1
	cosφ = 0.95	42.9	35.1	37.2	28.2	23.9	18.8	14.0	12.2	9.8
	cosφ = 1.00	38.6	32.1	34.4	25.4	21.2	16.7	12.7	11.2	8.7
Weight (PE 1)	p [kg/m]	28.9	32.6	32.6	41.8	47.9	60.6	79.0	93.4	116.7
Weight (PE 2)	p [kg/m]	38.4	42.1	42.1	54.2	60.3	76.8	103.4	122.3	148.6
Weight (PE 3)	p [kg/m]	32.0	35.7	35.7	45.8	51.9	65.9	87.0	102.8	127.1
Fire load	[kWh/m]	4.5	5.5	5.5	8	8.2	10.5	16	19	21
Degree of protection	IP	55	55	55	55	55	55	55	55	55
Thermal resistance class of the insulating materials		B/F*	B/F*	B/F*	B/F*	B/F*	B/F*	B/F*	B/F*	B/F*
Joule effect losses at rated current	P [W/m]	86	111	186	225	294	361	451	619	750
Min/Max Ambient Temperature	[°C]	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50

* Class F thermal resistance (155°C) available on request

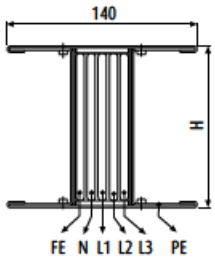
In: rated current referred to a room temperature of 40°C
ΔV : for calculations, see page 97

- **Regulations and conformity:**
  IEC/EN 60439-1 & 2; DIN VDE 0660 500 & 502
- **Product suitable for Constant/Cyclic Warm, humid climates:**
  DIN IEC 68 part 2-3; DIN IEC 68 part 2-30
- **Degree of protection:**
  IP55; IPx7 carrying lines available with accessories, on request
- **Insulation and surface treatment of the conductors:**
  Insulated conductors for the whole length, aluminum copper-plated and tin-plated
- **Busbar casing material:**
  1.5mm galvanized steel plate, pre-painted or stainless steel
  (available, if required, with special paint and/or with thickness 2mm)

(*)
PE 1
Standard version

(*)
PE 2
Extra earth - COPPER

(*)
PE 3
Extra earth - ALUMINIUM



SCP Technical Data Functional Earth ("clean earth") SCP5C (3L+N+PE+FE)

ALUMINIUM

		single bar						double bar		
Rated current	I_n [A]	630	800	1000	1250	1600	2000	2500	3200	4000
Casing overall dimensions	L x H [mm]	140x130	140x130	140x130	140x130	140x170	140x220	140x380	140x440	140x480
Operating voltage	U_e [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000
Insulation voltage	U_i [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000
Frequency	f [Hz]	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60
Rated short-time current for three-phase fault (1 s)	I_{cw} [kA]rms	36	42	50	75	80	80	150	160	160
Allowable peak current for three-phase fault	I_{pk} [kA]	76	88	110	165	176	176	330	352	352
Rated short-time current for single-phase fault (1 s)	I_{cw} [kA]rms	22	25	30	45	48	48	90	96	96
Allowable peak current for single-phase fault	I_{pk} [kA]	48	55	66	99	106	106	198	211	211
Allowable specific energy for three-phase fault	I^2t [MA^2s]	1296	1764	2500	5625	6400	6400	22500	25600	25600
Phase resistance	R_{20} [mΩ/m]	0.077	0.058	0.058	0.047	0.035	0.027	0.022	0.017	0.014
Phase reactance (50 Hz)	X [mΩ/m]	0.023	0.017	0.017	0.015	0.014	0.011	0.006	0.006	0.006
Phase impedance	Z [mΩ/m]	0.080	0.060	0.060	0.049	0.037	0.029	0.022	0.018	0.015
Phase resistance at thermal conditions	R_t [mΩ/m]	0.084	0.064	0.069	0.056	0.041	0.032	0.025	0.020	0.017
Phase impedance at thermal conditions	Z [mΩ/m]	0.087	0.066	0.071	0.058	0.043	0.034	0.026	0.021	0.018
Neutral resistance	R_{20} [mΩ/m]	0.077	0.058	0.058	0.047	0.035	0.027	0.022	0.017	0.014
Functional earthing resistance (FE)	R_{20} [mΩ/m]	0.077	0.058	0.058	0.047	0.035	0.027	0.022	0.017	0.014
Functional earthing reactance (FE)	X [mΩ/m]	0.023	0.017	0.017	0.015	0.014	0.011	0.006	0.006	0.006
Resistance of the protective conductor (PE type 1)	R_{PE} [mΩ/m]	0.121	0.121	0.121	0.121	0.110	0.098	0.074	0.068	0.064
Resistance of the protective conductor (PE type 2)	R_{PE} [mΩ/m]	0.035	0.035	0.035	0.035	0.028	0.023	0.014	0.012	0.011
Resistance of the protective conductor (PE type 3)	R_{PE} [mΩ/m]	0.050	0.050	0.050	0.050	0.040	0.033	0.020	0.018	0.017
Reactance of the protective conductor (50 Hz)	X_{PE} [mΩ/m]	0.080	0.078	0.078	0.048	0.039	0.028	0.020	0.015	0.016
Resistance of the fault loop (PE 1)	R_o [mΩ/m]	0.131	0.103	0.108	0.090	0.067	0.053	0.042	0.034	0.028
Resistance of the fault loop (PE 2)	R_o [mΩ/m]	0.108	0.086	0.091	0.076	0.057	0.044	0.033	0.027	0.023
Resistance of the fault loop (PE 3)	R_o [mΩ/m]	0.114	0.091	0.096	0.080	0.060	0.047	0.035	0.029	0.025
Reactance of the fault loop (50 Hz)	X_o [mΩ/m]	0.10	0.10	0.10	0.06	0.05	0.04	0.03	0.02	0.02
Impedance of the fault loop (PE 1)	Z_o [mΩ/m]	0.167	0.140	0.144	0.110	0.086	0.066	0.049	0.040	0.036
Impedance of the fault loop (PE 2)	Z_o [mΩ/m]	0.149	0.128	0.132	0.099	0.078	0.059	0.042	0.034	0.032
Impedance of the fault loop (PE 3)	Z_o [mΩ/m]	0.154	0.132	0.135	0.102	0.080	0.061	0.044	0.036	0.033
Zero-sequence resistance phase - N	R_o [mΩ/m]	0.306	0.257	0.257	0.238	0.172	0.140	0.107	0.080	0.070
Zero-sequence reactance phase - N	X_o [mΩ/m]	0.174	0.160	0.160	0.128	0.106	0.108	0.083	0.073	0.060
Zero-sequence Impedance phase - N	Z_o [mΩ/m]	0.352	0.303	0.303	0.270	0.202	0.177	0.135	0.108	0.092
Zero-sequence resistance phase- PE	R_o [mΩ/m]	0.468	0.387	0.387	0.246	0.213	0.173	0.113	0.107	0.070
Zero-sequence reactance phase - PE	X_o [mΩ/m]	0.263	0.229	0.229	0.191	0.175	0.212	0.155	0.148	0.146
Zero-sequence Impedance phase - PE	Z_o [mΩ/m]	0.537	0.450	0.450	0.311	0.276	0.274	0.192	0.183	0.162
Voltage drop factor with distributed load $\Delta V = k \cdot I \cdot I_e \cdot 10^{-6}$ [V]	k [V/m/A]10^{-6} cosφ = 0.70	65.1	49.5	52.5	43.3	33.6	26.3	18.8	15.9	14.2
	cosφ = 0.75	67.7	51.5	54.7	45.1	34.7	27.2	19.6	16.5	14.6
	cosφ = 0.80	70.1	53.3	56.8	46.7	35.7	28.0	20.4	17.1	15.1
	cosφ = 0.85	72.3	55.1	58.7	48.2	36.6	28.7	21.1	17.6	15.4
	cosφ = 0.90	74.1	56.5	60.4	49.4	37.3	29.2	21.7	18.0	15.7
	cosφ = 0.95	75.3	57.5	61.6	50.3	37.6	29.4	22.1	18.2	15.8
	cosφ = 1.00	72.7	55.6	60.0	48.6	35.6	27.8	21.6	17.4	14.9
Weight (PE 1)	p [kg/m]	21.0	22.0	22.0	23.8	29.1	35.6	48.2	57.6	65.9
Weight (PE 2)	p [kg/m]	24.2	25.1	25.1	27.0	33.2	41.0	56.3	67.2	76.6
Weight (PE 3)	p [kg/m]	22.0	23.0	23.0	24.8	30.4	37.3	50.8	60.7	69.4
Fire load	[kWh/m]	5.6	6.9	6.9	7.5	10.6	13.1	20.0	23.8	26.3
Degree of protection	IP	55	55	55	55	55	55	55	55	55
Thermal resistance class of the insulating materials		B/F*	B/F*	B/F*	B/F*	B/F*	B/F*	B/F*	B/F*	B/F*
Joule effect losses at rated current	P [W/m]	100	123	208	263	315	386	468	618	827
Min/Max Ambient Temperature	[°C]	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50

- **Regulations and conformity:**
  IEC/EN 60439-1 & 2; DIN VDE 0660 500 & 502
- **Product suitable for Constant/Cyclic Warm, humid climates:**
  DIN IEC 68 part 2-3; DIN IEC 68 part 2-30
- **Degree of protection:**
  IP55; IPx7 carrying lines available with accessories, on request
- **Insulation and surface treatment of the conductors:**
  Insulated conductors for the whole length, aluminum copper-plated and tin-plated
- **Busbar casing material:**
  1.5mm galvanized steel plate, pre-painted or stainless steel
  (available, if required, with special paint and/or with thickness 2mm)

* Class F thermal resistance (155°C) available on request

In: rated current referred to a room temperature of 40°C

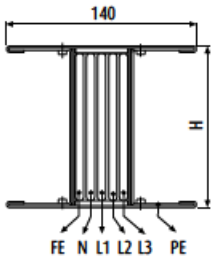
ΔV : for calculations, see page 97

(*)
PE 1
Standard version

(*)
PE 2
Extra earth - COPPER

(*)
PE 3
Extra earth - ALUMINIUM

SCP Technical Data Functional Earth ("clean earth") SCP5C (3L+N+PE+FE)



COPPER

		single bar						double bar		
Rated current	I_n [A]	800	1000	1250	1600	2000	2500	3200	4000	5000
Casing overall dimensions	L x H [mm]	140x130	140x130	140x130	140x170	140x170	140x220	140x380	140x440	140x480
Operating voltage	U_e [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000
Insulation voltage	U_i [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000
Frequency	f [Hz]	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60
Rated short-time current for three-phase fault (1 s)	I_{cw} [kA]rms	45	50	60	85	88	88	170	176	176
Allowable peak current for three-phase fault	I_{pk} [kA]	95	110	132	187	194	194	374	387	387
Rated short-time current for single-phase fault (1 s)	I_{cw} [kA]rms	27	30	36	51	53	53	102	106	106
Allowable peak current for single-phase fault	I_{pk} [kA]	57	66	79	112	116	116	224	232	232
Allowable specific energy for three-phase fault	I^2t [MA^2s]	2025	2500	3600	7225	7744	7744	28900	30976	30976
Phase resistance	R_{20} [mΩ/m]	0.041	0.032	0.032	0.024	0.020	0.016	0.012	0.010	0.008
Phase reactance (50 Hz)	X [mΩ/m]	0.023	0.017	0.017	0.015	0.014	0.011	0.007	0.006	0.006
Phase impedance	Z [mΩ/m]	0.047	0.037	0.037	0.028	0.024	0.019	0.014	0.012	0.010
Phase resistance at thermal conditions	R_t [mΩ/m]	0.045	0.037	0.040	0.029	0.024	0.019	0.015	0.013	0.010
Phase impedance at thermal conditions	Z [mΩ/m]	0.023	0.017	0.017	0.015	0.014	0.011	0.007	0.006	0.006
Neutral resistance	R_{20} [mΩ/m]	0.041	0.032	0.032	0.024	0.020	0.016	0.012	0.010	0.008
Functional earthing resistance (FE)	R_{20} [mΩ/m]	0.041	0.032	0.032	0.024	0.020	0.016	0.012	0.010	0.008
Functional earthing reactance (FE)	X [mΩ/m]	0.023	0.017	0.017	0.015	0.014	0.011	0.007	0.006	0.006
Resistance of the protective conductor (PE type 1)	R_{PE} [mΩ/m]	0.125	0.125	0.125	0.113	0.113	0.101	0.075	0.069	0.065
Resistance of the protective conductor (PE type 2)	R_{PE} [mΩ/m]	0.036	0.036	0.036	0.028	0.028	0.023	0.014	0.012	0.011
Resistance of the protective conductor (PE type 3)	R_{PE} [mΩ/m]	0.050	0.050	0.050	0.041	0.041	0.033	0.021	0.018	0.017
Reactance of the protective conductor (50 Hz)	X_{PE} [mΩ/m]	0.054	0.054	0.054	0.044	0.044	0.032	0.022	0.017	0.016
Resistance of the fault loop (PE 1)	R_o [mΩ/m]	0.076	0.063	0.065	0.049	0.042	0.033	0.025	0.022	0.017
Resistance of the fault loop (PE 2)	R_o [mΩ/m]	0.064	0.054	0.057	0.042	0.036	0.029	0.021	0.018	0.015
Resistance of the fault loop (PE 3)	R_o [mΩ/m]	0.067	0.057	0.059	0.045	0.038	0.030	0.023	0.020	0.015
Reactance of the fault loop (50 Hz)	X_o [mΩ/m]	0.077	0.071	0.071	0.059	0.058	0.043	0.029	0.023	0.022
Impedance of the fault loop (PE 1)	Z_o [mΩ/m]	0.108	0.095	0.097	0.077	0.071	0.054	0.039	0.032	0.028
Impedance of the fault loop (PE 2)	Z_o [mΩ/m]	0.100	0.089	0.091	0.073	0.068	0.052	0.036	0.030	0.026
Impedance of the fault loop (PE 3)	Z_o [mΩ/m]	0.102	0.091	0.093	0.074	0.069	0.052	0.037	0.030	0.027
Zero-sequence resistance phase - N	R_o [mΩ/m]	0.170	0.155	0.155	0.115	0.120	0.098	0.083	0.071	0.062
Zero-sequence reactance phase - N	X_o [mΩ/m]	0.159	0.151	0.151	0.114	0.098	0.065	0.056	0.055	0.042
Zero-sequence Impedance phase - N	Z_o [mΩ/m]	0.233	0.216	0.216	0.162	0.155	0.118	0.100	0.090	0.075
Zero-sequence resistance phase- PE	R_o [mΩ/m]	0.408	0.320	0.320	0.220	0.188	0.142	0.092	0.077	0.061
Zero-sequence reactance phase - PE	X_o [mΩ/m]	0.196	0.158	0.158	0.126	0.135	0.136	0.104	0.088	0.075
Zero-sequence Impedance phase - PE	Z_o [mΩ/m]	0.453	0.357	0.357	0.254	0.231	0.197	0.139	0.117	0.097
Voltage drop factor with distributed load $\Delta V = k \cdot I \cdot I_e \cdot 10^{-6}$ [V]	k [V/m/A]10^{-6} cosφ = 0.70	41.3	33.0	34.6	27.1	23.5	18.5	13.2	11.5	9.8
	cosφ = 0.75	42.1	33.8	35.5	27.7	23.9	18.8	13.5	11.8	9.9
	cosφ = 0.80	42.8	34.5	36.3	28.1	24.2	19.1	13.8	12.1	10.0
	cosφ = 0.85	43.3	35.0	37.0	28.4	24.4	19.2	14.0	12.2	10.1
	cosφ = 0.90	43.4	35.3	37.3	28.5	24.4	19.2	14.1	12.3	10.1
	cosφ = 0.95	42.9	35.1	37.2	28.2	23.9	18.8	14.0	12.2	9.8
	cosφ = 1.00	38.6	32.1	34.4	25.4	21.2	16.7	12.7	11.2	8.7
Weight (PE 1)	p [kg/m]	34.7	39.2	39.2	50.1	57.4	72.7	94.8	112.0	140.1
Weight (PE 2)	p [kg/m]	37.8	42.3	42.3	54.3	61.6	78.1	103.0	121.7	150.7
Weight (PE 3)	p [kg/m]	35.7	40.2	40.2	51.5	58.8	74.5	97.5	115.2	143.5
Fire load	[kWh/m]	5.6	6.9	6.9	10.0	10.3	13.1	20.0	23.8	26.3
Degree of protection	IP	55	55	55	55	55	55	55	55	55
Thermal resistance class of the insulating materials		B/F*	B/F*	B/F*	B/F*	B/F*	B/F*	B/F*	B/F*	B/F*
Joule effect losses at rated current	P [W/m]	86	111	186	225	294	361	451	619	750
Min/Max Ambient Temperature	[°C]	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50

- **Regulations and conformity:**
  IEC/EN 60439-1 & 2; DIN VDE 0660 500 & 502
- **Product suitable for Constant/Cyclic Warm, humid climates:**
  DIN IEC 68 part 2-3; DIN IEC 68 part 2-30
- **Degree of protection:**
  IP55; IPx7 carrying lines available with accessories, on request
- **Insulation and surface treatment of the conductors:**
  Insulated conductors for the whole length, aluminum copper-plated and tin-plated
- **Busbar casing material:**
  1.5mm galvanized steel plate, pre-painted or stainless steel
  (available, if required, with special paint and/or with thickness 2mm)

* Class F thermal resistance (155°C) available on request

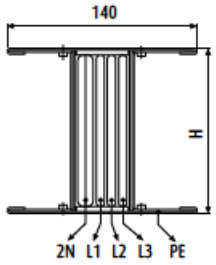
In: rated current referred to a room temperature of 40°C

ΔV : for calculations, see page 97

(*)
PE 1
Standard version

(*)
PE 2
Extra earth - COPPER

(*)
PE 3
Extra earth - ALUMINIUM



"Double neutral" technical data SCP2N (3L+2N+PE)

ALUMINIUM

		single bar						double bar		
Rated current	I_n [A]	630	800	1000	1250	1600	2000	2500	3200	4000
Casing overall dimensions	L x H [mm]	140x130	140x130	140x130	140x130	140x170	140x220	140x380	140x440	140x480
Operating voltage	U_e [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000
Insulation voltage	U_i [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000
Frequency	f [Hz]	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60
Rated short-time current for three-phase fault (1 s)	I_{cw} [kA]rms	36	42	50	75	80	80	150	160	160
Allowable peak current for three-phase fault	I_{pk} [kA]	76	88	110	165	176	176	330	352	352
Rated short-time current for single-phase fault (1 s)	I_{cw} [kA]rms	22	25	30	45	48	48	90	96	96
Allowable peak current for single-phase fault	I_{pk} [kA]	48	55	66	99	106	106	198	211	211
Rated short-time protection current (1 s)	I_{cw} [kA]rms	22	25	30	45	48	48	90	96	96
Protection circuit peak rated current	I_{pk} [kA]	48	55	66	99	106	106	198	211	211
Allowable specific energy for three-phase fault	I^2t [MA^2s]	1296	1764	2500	5625	6400	6400	22500	25600	25600
Phase resistance	R_{20} [mΩ/m]	0.077	0.058	0.058	0.047	0.035	0.027	0.022	0.017	0.014
Phase reactance (50 Hz)	X [mΩ/m]	0.023	0.017	0.017	0.015	0.014	0.011	0.006	0.006	0.006
Phase impedance	Z [mΩ/m]	0.080	0.060	0.060	0.049	0.037	0.029	0.022	0.018	0.015
Phase resistance at thermal conditions	R_t [mΩ/m]	0.084	0.064	0.069	0.056	0.041	0.032	0.025	0.020	0.017
Phase impedance at thermal conditions	Z [mΩ/m]	0.087	0.066	0.071	0.058	0.043	0.034	0.026	0.021	0.018
Neutral resistance	R_{20} [mΩ/m]	0.038	0.029	0.029	0.023	0.017	0.013	0.011	0.008	0.007
Resistance of the protective conductor (PE type 1)	R_{PE} [mΩ/m]	0.121	0.121	0.121	0.121	0.110	0.098	0.074	0.068	0.064
Resistance of the protective conductor (PE type 2)	R_{PE} [mΩ/m]	0.035	0.035	0.035	0.035	0.028	0.023	0.014	0.012	0.011
Resistance of the protective conductor (PE type 3)	R_{PE} [mΩ/m]	0.050	0.050	0.050	0.050	0.040	0.033	0.020	0.018	0.017
Reactance of the protective conductor (50 Hz)	X_{PE} [mΩ/m]	0.080	0.078	0.078	0.048	0.039	0.028	0.020	0.015	0.016
Resistance of the fault loop (PE 1)	R_o [mΩ/m]	0.205	0.185	0.190	0.177	0.151	0.130	0.099	0.088	0.081
Resistance of the fault loop (PE 2)	R_o [mΩ/m]	0.119	0.099	0.104	0.091	0.069	0.055	0.039	0.032	0.028
Resistance of the fault loop (PE 3)	R_o [mΩ/m]	0.134	0.114	0.119	0.106	0.081	0.065	0.045	0.038	0.034
Reactance of the fault loop (50 Hz)	X_o [mΩ/m]	0.10	0.10	0.10	0.06	0.05	0.04	0.03	0.02	0.02
Impedance of the fault loop (PE 1)	Z_o [mΩ/m]	0.229	0.208	0.213	0.188	0.160	0.136	0.102	0.091	0.084
Impedance of the fault loop (PE 2)	Z_o [mΩ/m]	0.157	0.137	0.141	0.111	0.087	0.068	0.047	0.038	0.036
Impedance of the fault loop (PE 3)	Z_o [mΩ/m]	0.169	0.149	0.152	0.123	0.097	0.076	0.052	0.044	0.041
Zero-sequence resistance phase - N	R_o [mΩ/m]	0.147	0.135	0.135	0.132	0.129	0.126	0.084	0.063	0.048
Zero-sequence reactance phase - N	X_o [mΩ/m]	0.198	0.180	0.180	0.166	0.160	0.190	0.135	0.165	0.103
Zero-sequence Impedance phase - N	Z_o [mΩ/m]	0.247	0.225	0.225	0.212	0.206	0.228	0.159	0.177	0.114
Zero-sequence resistance phase- PE	R_o [mΩ/m]	0.581	0.519	0.519	0.369	0.321	0.270	0.217	0.196	0.164
Zero-sequence reactance phase - PE	X_o [mΩ/m]	0.263	0.229	0.229	0.191	0.175	0.212	0.155	0.148	0.146
Zero-sequence Impedance phase - PE	Z_o [mΩ/m]	0.638	0.567	0.567	0.416	0.366	0.343	0.267	0.246	0.220
Voltage drop factor with distributed load $\Delta V = k \cdot L \cdot I_e \cdot 10^{-6}$ [V]	k [V/m/A]10^{-6} cosφ = 0.70	65.1	49.5	52.5	43.3	33.6	26.3	18.8	15.9	14.2
	cosφ = 0.75	67.7	51.5	54.7	45.1	34.7	27.2	19.6	16.5	14.6
	cosφ = 0.80	70.1	53.3	56.8	46.7	35.7	28.0	20.4	17.1	15.1
	cosφ = 0.85	72.3	55.1	58.7	48.2	36.6	28.7	21.1	17.6	15.4
	cosφ = 0.90	74.1	56.5	60.4	49.4	37.3	29.2	21.7	18.0	15.7
	cosφ = 0.95	75.3	57.5	61.6	50.3	37.6	29.4	22.1	18.2	15.8
	cosφ = 1.00	72.7	55.6	60.0	48.6	35.6	27.8	21.6	17.4	14.9
Weight (PE 1)	p [kg/m]	21.0	22.0	22.0	23.8	29.1	35.6	48.2	57.6	65.9
Weight (PE 2)	p [kg/m]	24.2	25.1	25.1	27.0	33.2	41.0	56.3	67.2	76.6
Weight (PE 3)	p [kg/m]	22.0	23.0	23.0	24.8	30.4	37.3	50.8	60.7	69.4
Fire load	[kWh/m]	5.6	6.9	6.9	7.5	10.6	13.1	20.0	23.8	26.3
Degree of protection	IP	55	55	55	55	55	55	55	55	55
Thermal resistance class of the insulating materials		B/F*	B/F*	B/F*	B/F*	B/F*	B/F*	B/F*	B/F*	B/F*
Joule effect losses at rated current	P [W/m]	100	123	208	263	315	386	468	618	827
Min/Max Ambient Temperature	[°C]	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50

- **Regulations and conformity:**
  IEC/EN 60439-1 & 2; DIN VDE 0660 500 & 502
- **Product suitable for Constant/Cyclic Warm, humid climates:**
  DIN IEC 68 part 2-3; DIN IEC 68 part 2-30
- **Degree of protection:**
  IP55; IPx7 carrying lines available with accessories, on request
- **Insulation and surface treatment of the conductors:**
  Insulated conductors for the whole length, aluminum copper-plated and tin-plated
- **Busbar casing material:**
  1.5mm galvanized steel plate, pre-painted or stainless steel
  (available, if required, with special paint and/or with thickness 2mm)

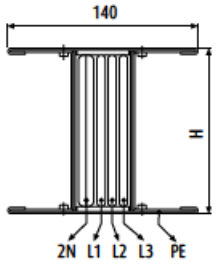
* Class F thermal resistance (155°C) available on request

In: rated current referred to a room temperature of 40°C
ΔV : for calculations, see page 97

(*) **PE 1** Standard version

(*) **PE 2** Extra earth - COPPER

(*) **PE 3** Extra earth - ALUMINIUM



"Double neutral" technical data
SCP2N (3L+2N+PE)

COPPER

		single bar						double bar		
Rated current	I_n [A]	800	1000	1250	1600	2000	2500	3200	4000	5000
Casing overall dimensions	L x H [mm]	140x130	140x130	140x130	140x170	140x170	140x220	140x380	140x440	140x480
Operating voltage	U_e [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000
Insulation voltage	U_i [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000
Frequency	f [Hz]	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60
Rated short-time current for three-phase fault (1 s)	I_{cw} [kA]rms	45	50	60	85	88	88	170	176	176
Allowable peak current for three-phase fault	I_{pk} [kA]	95	110	132	187	194	194	374	387	387
Rated short-time current for single-phase fault (1 s)	I_{cw} [kA]rms	27	30	36	51	53	53	102	106	106
Allowable peak current for single-phase fault	I_{pk} [kA]	57	66	79	112	116	116	224	232	232
Rated short-time protection current (1 s)	I_{cw} [kA]rms	27	30	36	51	53	53	102	106	106
Protection circuit peak rated current	I_{pk} [kA]	57	66	79	112	116	116	224	232	232
Allowable specific energy for three-phase fault	I^2t [MA^2s]	2025	2500	3600	7225	7744	7744	28900	30976	30976
Phase resistance	R_{20} [mΩ/m]	0.041	0.032	0.032	0.024	0.020	0.016	0.012	0.010	0.008
Phase reactance (50 Hz)	X [mΩ/m]	0.023	0.017	0.017	0.015	0.014	0.011	0.007	0.006	0.006
Phase impedance	Z [mΩ/m]	0.0471	0.0365	0.0365	0.0284	0.0244	0.019	0.0143	0.012	0.0101
Phase resistance at thermal conditions	R_t [mΩ/m]	0.0446	0.037	0.0397	0.0293	0.0245	0.0192	0.0147	0.0129	0.01
Phase impedance at thermal conditions	Z [mΩ/m]	0.023	0.017	0.017	0.015	0.014	0.011	0.007	0.006	0.006
Neutral resistance	R_{20} [mΩ/m]	0.0205	0.0162	0.0162	0.012	0.01	0.078	0.0062	0.0052	0.0041
Resistance of the protective conductor (PE type 1)	R_{PE} [mΩ/m]	0.125	0.125	0.125	0.113	0.113	0.101	0.075	0.069	0.065
Resistance of the protective conductor (PE type 2)	R_{PE} [mΩ/m]	0.036	0.036	0.036	0.028	0.028	0.023	0.014	0.012	0.011
Resistance of the protective conductor (PE type 3)	R_{PE} [mΩ/m]	0.05	0.05	0.05	0.041	0.041	0.033	0.021	0.018	0.017
Reactance of the protective conductor (50 Hz)	X_{PE} [mΩ/m]	0.054	0.054	0.054	0.044	0.044	0.032	0.022	0.017	0.016
Resistance of the fault loop (PE 1)	R_o [mΩ/m]	0.170	0.162	0.1647	0.1423	0.1375	0.1202	0.0897	0.0819	0.075
Resistance of the fault loop (PE 2)	R_o [mΩ/m]	0.081	0.073	0.0757	0.0573	0.0525	0.0422	0.0287	0.0249	0.021
Resistance of the fault loop (PE 3)	R_o [mΩ/m]	0.946	0.087	0.0897	0.0703	0.0655	0.0522	0.0357	0.0309	0.027
Reactance of the fault loop (50 Hz)	X_o [mΩ/m]	0.077	0.071	0.071	0.059	0.058	0.043	0.029	0.023	0.022
Impedance of the fault loop (PE 1)	Z_o [mΩ/m]	0.186	0.177	0.179	0.154	0.149	0.128	0.094	0.085	0.078
Impedance of the fault loop (PE 2)	Z_o [mΩ/m]	0.111	0.102	0.104	0.082	0.078	0.060	0.041	0.034	0.030
Impedance of the fault loop (PE 3)	Z_o [mΩ/m]	0.122	0.112	0.114	0.092	0.087	0.068	0.046	0.039	0.035
Zero-sequence resistance phase - N	R_o [mΩ/m]	0.128	0.125	0.125	0.121	0.117	0.094	0.088	0.065	0.046
Zero-sequence reactance phase - N	X_o [mΩ/m]	0.184	0.152	0.152	0.143	0.127	0.122	0.078	0.076	0.073
Zero-sequence Impedance phase - N	Z_o [mΩ/m]	0.2241	0.1968	0.1968	0.1873	0.1727	0.154	0.1176	0.100	0.0863
Zero-sequence resistance phase- PE	R_o [mΩ/m]	0.507	0.429	0.429	0.331	0.283	0.221	0.177	0.178	0.144
Zero-sequence reactance phase - PE	X_o [mΩ/m]	0.201	0.177	0.177	0.143	0.15	0.124	0.111	0.094	0.086
Zero-sequence Impedance phase - PE	Z_o [mΩ/m]	0.545	0.4641	0.4641	0.3606	0.3203	0.2534	0.2089	0.2013	0.1677
Voltage drop factor with distributed load $\Delta V = k \cdot L \cdot I_e \cdot 10^{-6}$ [V]	k [V/m/A]10^{-6} cosφ = 0.70	41.3	33.0	34.6	27.1	23.5	18.5	13.2	11.5	9.8
	cosφ = 0.75	42.1	33.8	35.5	27.7	23.9	18.8	13.5	11.8	9.9
	cosφ = 0.80	42.8	34.5	36.3	28.1	24.2	19.1	13.8	12.1	10.0
	cosφ = 0.85	43.3	35.0	37.0	28.4	24.4	19.2	14.0	12.2	10.1
	cosφ = 0.90	43.4	35.3	37.3	28.5	24.4	19.2	14.1	12.3	10.1
	cosφ = 0.95	42.9	35.1	37.2	28.2	23.9	18.8	14.0	12.2	9.8
	cosφ = 1.00	38.6	32.1	34.4	25.4	21.2	16.7	12.7	11.2	8.7
Weight (PE 1)	p [kg/m]	34.7	39.2	39.2	50.1	57.4	72.7	94.8	112.0	140.1
Weight (PE 2)	p [kg/m]	37.8	42.3	42.3	54.3	61.6	78.1	103.0	121.7	150.7
Weight (PE 3)	p [kg/m]	35.7	40.2	40.2	51.5	58.8	74.5	97.5	115.2	143.5
Fire load	[kWh/m]	5.6	6.9	6.9	10.0	10.3	13.1	20.0	23.8	26.3
Degree of protection	IP	55	55	55	55	55	55	55	55	55
Thermal resistance class of the insulating materials		B/F*	B/F*	B/F*	B/F*	B/F*	B/F*	B/F*	B/F*	B/F*
Joule effect losses at rated current	P [W/m]	86	111	186	225	294	361	451	619	750
Min/Max Ambient Temperature	[°C]	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50

- **Regulations and conformity:**
  IEC/EN 60439-1 & 2; DIN VDE 0660 500 & 502
- **Product suitable for Constant/Cyclic Warm, humid climates:**
  DIN IEC 68 part 2-3; DIN IEC 68 part 2-30
- **Degree of protection:**
  IP55; IPx7 carrying lines available with accessories, on request
- **Insulation and surface treatment of the conductors:**
  Insulated conductors for the whole length, aluminum copper-plated and tin-plated
- **Busbar casing material:**
  1.5mm galvanized steel plate, pre-painted or stainless steel
  (available, if required, with special paint and/or with thickness 2mm)

* Class F thermal resistance (155°C) available on request

In: rated current referred to a room temperature of 40°C

ΔV : for calculations, see page 97

(*)
PE 1
Standard version

(*)
PE 2
Extra earth - COPPER

(*)
PE 3
Extra earth - ALUMINIUM

Suggestions for the project development

EXAMPLE FOR QUOTATION CHECK LIST:

1. **Rating**
   ..2500...A

2. **Application**:
   Transport ☐
   Distribution ☐ No. of outlets .....

3. **Icc at the beginning of the line** .....
   kA

4. **Material**:
   Aluminium ☑
   Copper ☐

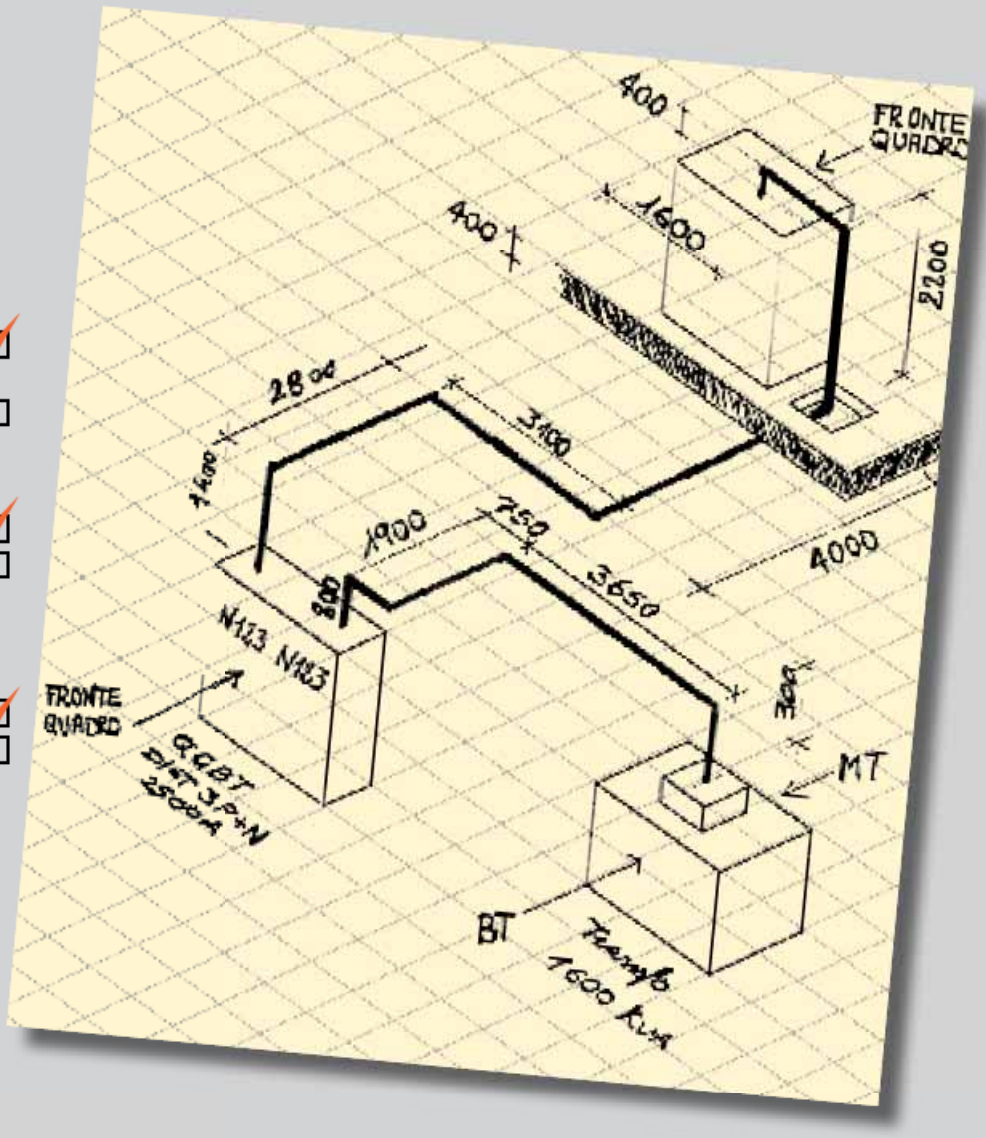
5. **Degree of protection**:
   IP55 (standard) ☑

6. **Painting**:
   RAL7035 (standard) ☑
   Different RAL
   colour on request ..... ☐

7. **Neutral section**:
   100% SCP (standard) ☑
   200% SCP2N ☐

8. **Nominal ambient temperature**:
   40°C (standard) ☑
   Other on request..... ☐

9. **Attach Busbar layout***
   Drawing ☑
   Dwg file ☐



CHECKLIST TO BE DONE DURING THE PROJECT

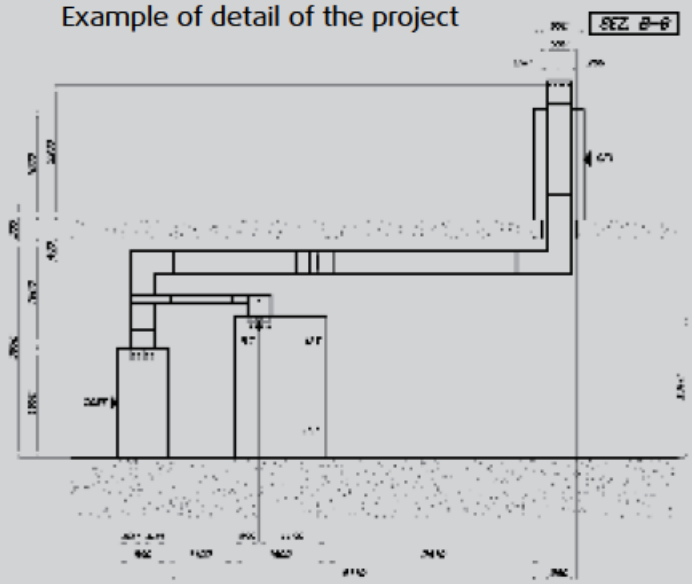
1. Verify the measurements of the drawings, the correct position of the equipment (MV/LV transformer and LV switchboard enclosures

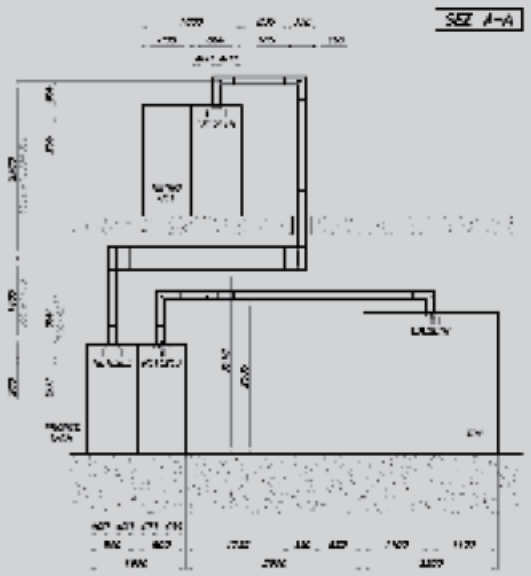
2. Check the availability of drawings required (transformer, switchboard board, etc.)

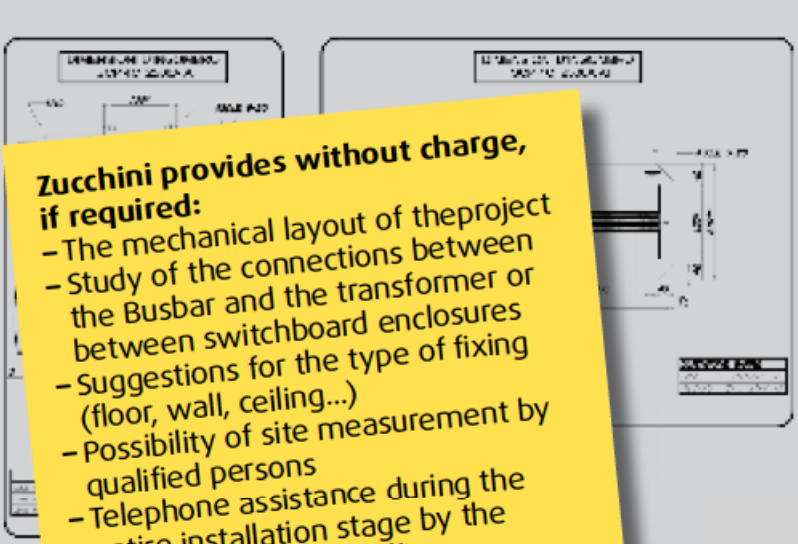
3. Check for the existence of unforeseen obstacles in the installation which could impede the run of the Busbar (for example pipelines, ventilation and air-conditioning ducts).

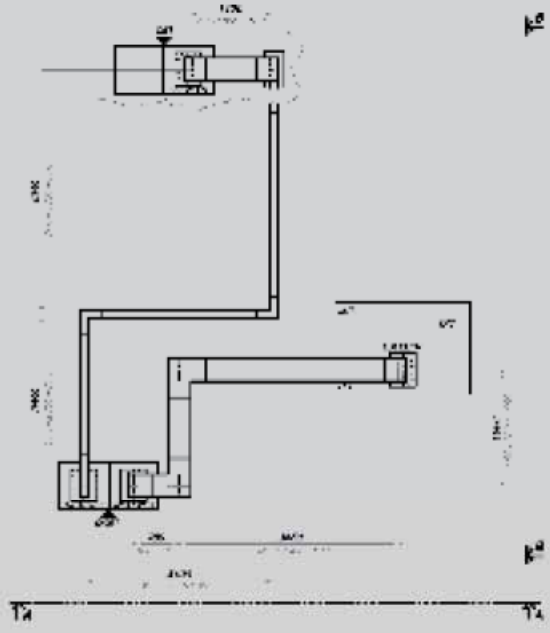
4. Agree upon who is responsible for providing the connection from the Busbar to the other devices (MV/LV transformer and LV switchboards).

Example of detail of the project





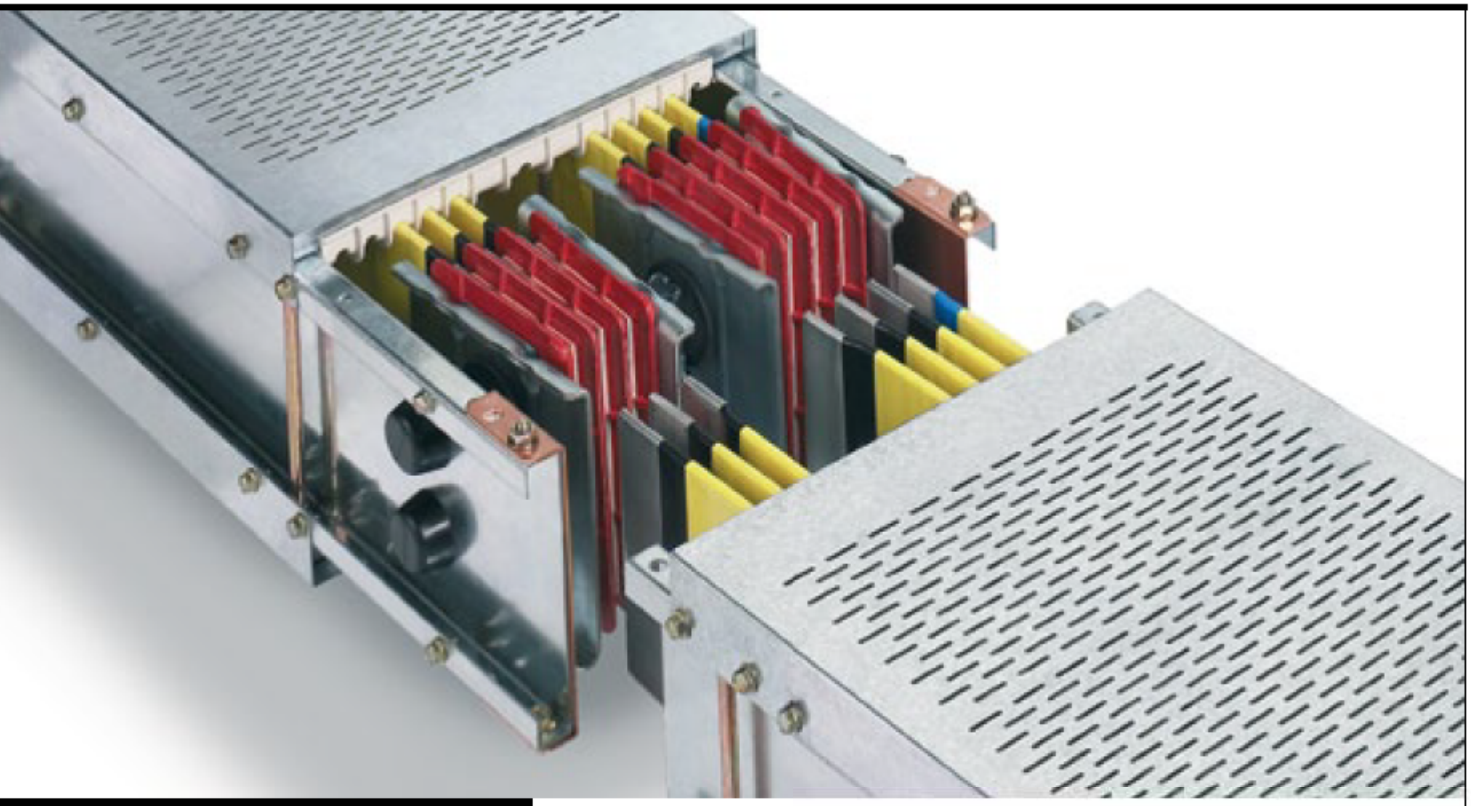




Zucchini provides without charge, if required:

- The mechanical layout of theproject
- Study of the connections between the Busbar and the transformer or between switchboard enclosures
- Suggestions for the type of fixing (floor, wall, ceiling...)
- Possibility of site measurement by qualified persons
- Telephone assistance during the entire installation stage by the Engineering Design Office.

HIGH RATING - HR

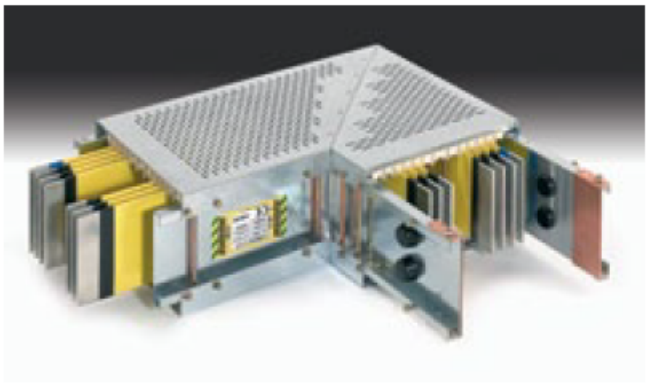


SECTION CONTENTS

HR Features

HR is the Zucchini line used for transport and distribution of High Power.
The applications include all industrial, commercial and service sector buildings.

The HR line is available: **from 1000A to 4500A** with **aluminium** alloy conductors and **up to 5000A** with **copper** conductors.
HR, as all Zucchini products, is not only in **compliance with the harmonised Standards CEI EN 60439-1 / 2** but it also goes beyond the required regulations: as a result, according to the manufacturer's choice, the **rated current** of Zucchini's busbar trunking systems is always **referred to the average ambient temperature** of **40 °C** against the 35 °C required by the Standard, thus providing the markets with suitably **upgraded products**.

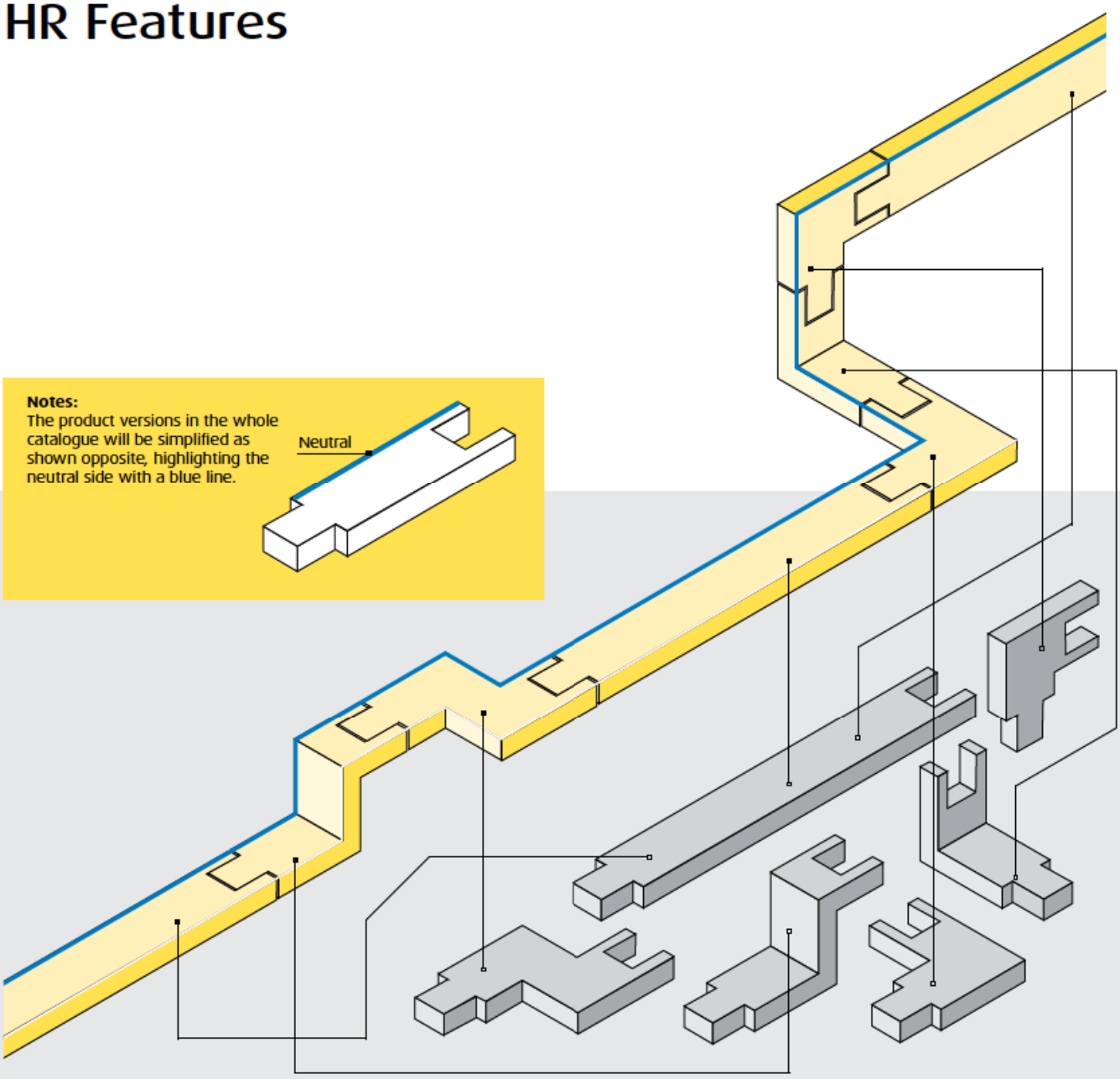


The outer casing of the HR line is built with four rib-shaped C-type section metal structural components (**thickness 2.0 mm**), made with hot galvanized steel with processes in compliance with UNI EN 10327. The casing of the line has ventilation holes which, along with the shape of the conductors, facilitate the air circulation inside the duct as well as the heat loss generated by the Joule effect. The standard **degree of protection** is **IP30**, (IP31 on request).
The busbar conductors have a rectangular cross-section with rounded corners; there are two versions:

- **Electrolytic copper** ETP 99.9 UNI EN13601
- **Aluminium alloy** treated over the whole surface with **5 galvanic processes** (copper plating + tin plating)

The insulation of the busbars is ensured by a plastic, insulating, non-desiccant double-tape **with high di-electric strength** and through an extended clearance.
The busbar conductors are supported by plastic insulators reinforced with 20% glass fibre, with **class B thermal resistance (130°C)**.
All plastic components have a **V1 self-extinguishing** degree (as per UL94) and comply with the glow-wire test according to EN 60695-2-1 (CEI 50.11).
The junction contact is ensured by a **monobloc** with **two silver-plated copper plates** for each **phase**, insulated with **class F thermosetting plastic material**.
Finally, in order to completely verify the insulation level, every element undergoes an **insulation test** (phase-phase, phase-PE) with a test voltage of 5000V.

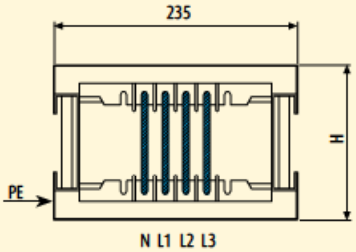
HR Features



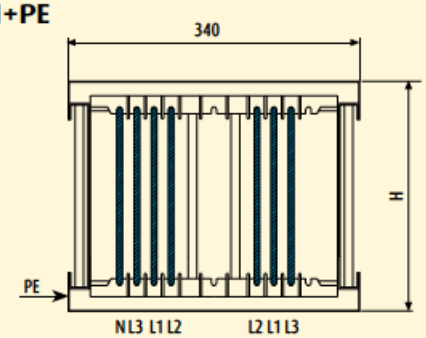
Notes:
The product versions in the whole catalogue will be simplified as shown opposite, highlighting the neutral side with a blue line.

Standard versions:

Single bar (HR C1)
3L+100%N+PE



Double bar (HR C2)
3L+50%N+PE



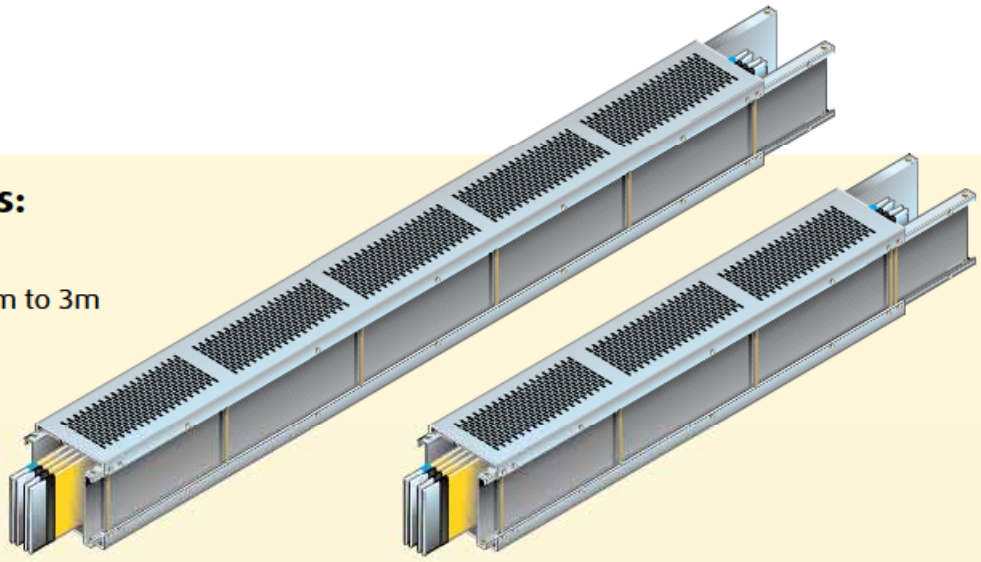
Availability of special versions

Main features of the HR line

Straight elements:

Feeder elements:

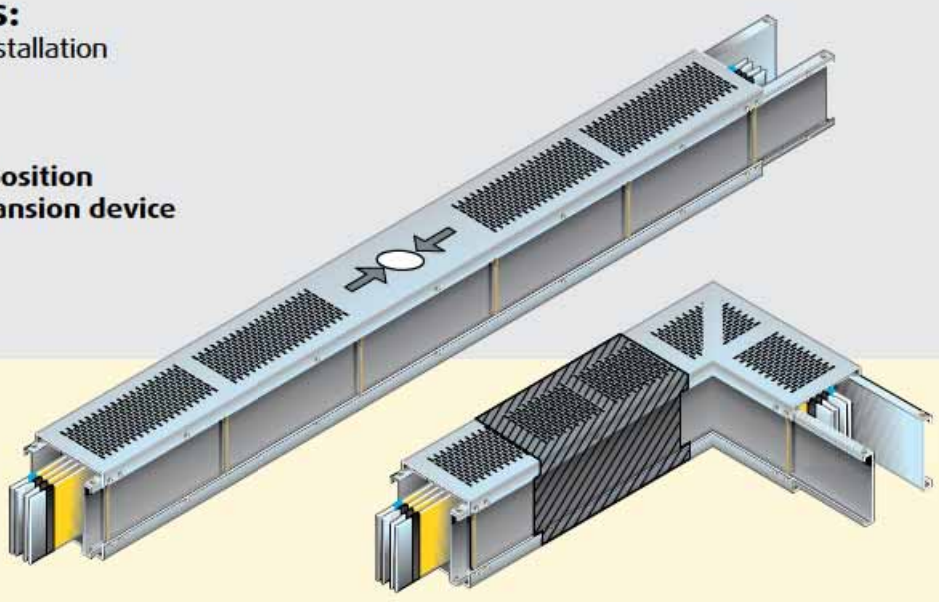
- standard length: 3m
- special length: from 0.5m to 3m

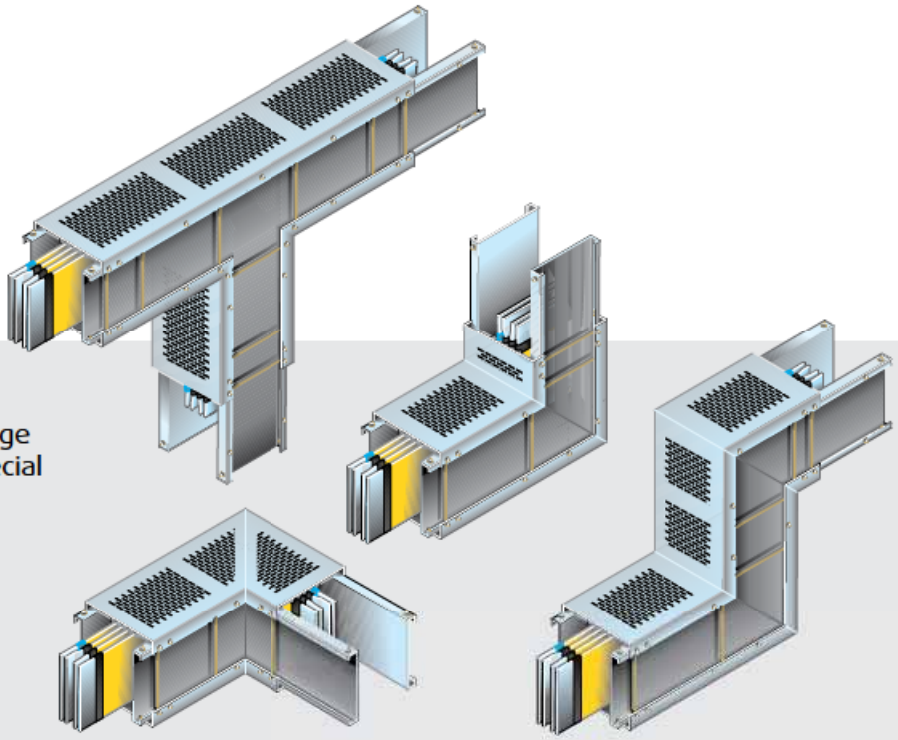


Additional elements:

Elements able to meet any installation requirement.

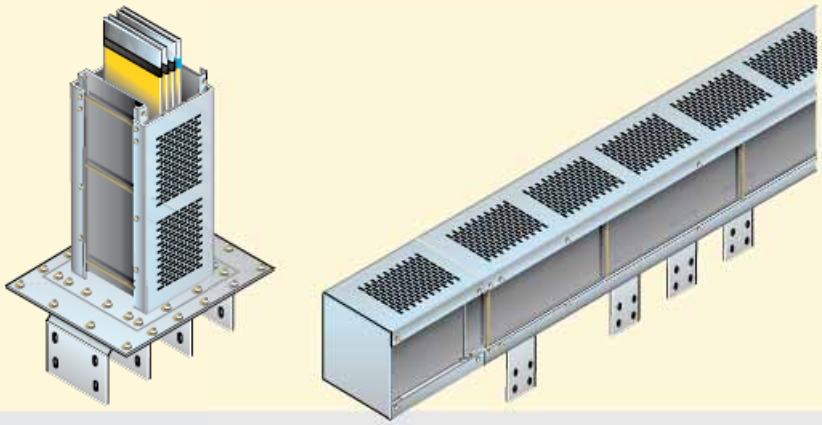
Elements with fire barrier
Elements with phase transposition
Elements with thermal expansion device





Direction changes:
Elements able to meet any change of direction with standard or special solutions.

Elbows
Double elbows
Special T, X elements
Disconnectors
Capacity reducers



Connection interfaces:
Elements used for connecting the busbar to the board or transformer.

Fixing supports:
Elements used for fixing the busbar to the structure of the building.

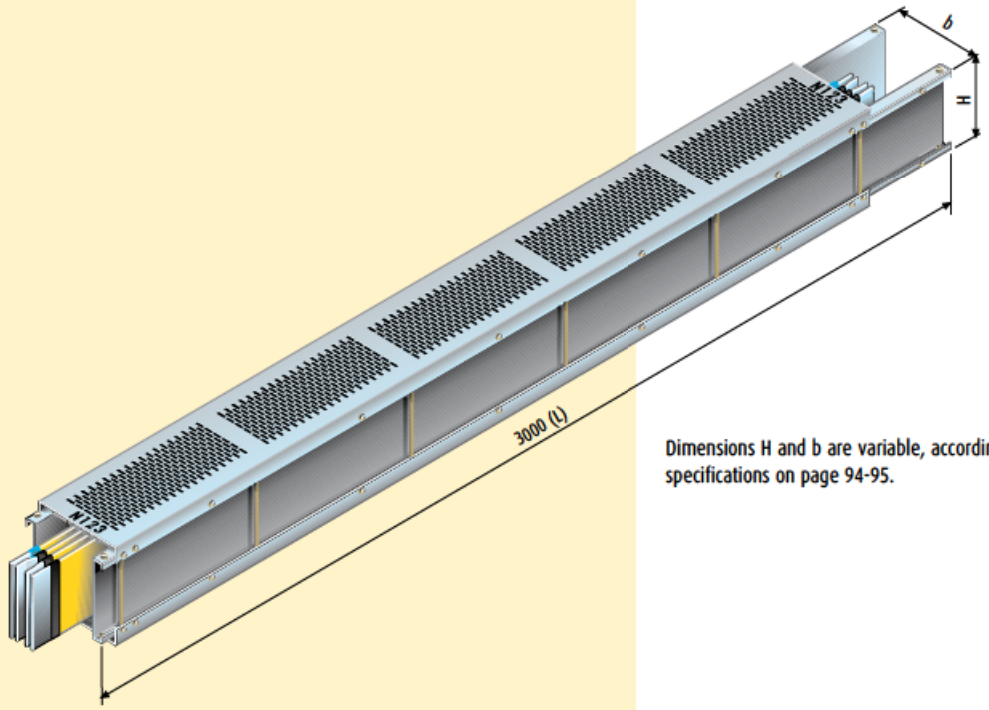
Options for horizontal installations

Feeder elements

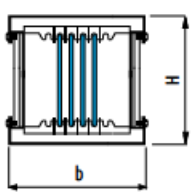
FEEDER ELEMENT

Aluminium	1000A	1250A	1600A	2000A	2250A	2500A	3200A	4000A	4500A
L = 3000 mm	**90600101**	**90600102**	**90600103**	**90600105**	**90620101**	**90620102**	**90620103**	**90620105**	**90620106**
L = 501-1000 mm	**90600111**	**90600112**	**90600113**	**90600115**	**90620111**	**90620112**	**90620113**	**90620115**	**90620116**
L = 1001-1500 mm	**90600171**	**90600172**	**90600173**	**90600175**	**90620171**	**90620172**	**90620173**	**90620175**	**90620176**
L = 1501-2000 mm	**90600121**	**90600122**	**90600123**	**90600125**	**90620121**	**90620122**	**90620123**	**90620125**	**90620126**
L = 2001-2500 mm	**90600181**	**90600182**	**90600183**	**90600185**	**90620181**	**90620182**	**90620183**	**90620185**	**90620186**
L = 2501-2999 mm	**90600131**	**90600132**	**90600133**	**90600135**	**90620131**	**90620132**	**90620133**	**90620135**	**90620136**
				single bar	double bar				

Copper	1000A	1250A	1600A	2000A	2500A	3000A	3200A	4000A	5000A
L = 3000 mm	**95600100**	**95600101**	**95600102**	**95600103**	**95600105**	**95620101**	**95620102**	**95620104**	**95620106**
L = 501-1000 mm	**95600110**	**95600111**	**95600112**	**95600113**	**95600115**	**95620111**	**95620112**	**95620114**	**95620116**
L = 1001-1500 mm	**95600170**	**95600171**	**95600172**	**95600173**	**95600175**	**95620171**	**95620172**	**95620174**	**95620176**
L = 1501-2000 mm	**95600120**	**95600121**	**95600122**	**95600123**	**95600125**	**95620121**	**95620122**	**95620124**	**95620126**
L = 2001-2500 mm	**95600180**	**95600181**	**95600182**	**95600183**	**95600185**	**95620181**	**95620182**	**95620184**	**95620186**
L = 2501-2999 mm	**95600130**	**95600131**	**95600132**	**95600133**	**95600135**	**95620131**	**95620132**	**95620134**	**95620136**
					single bar	double bar			



Dimensions H and b are variable, according to the rating specified in the specifications on page 94-95.

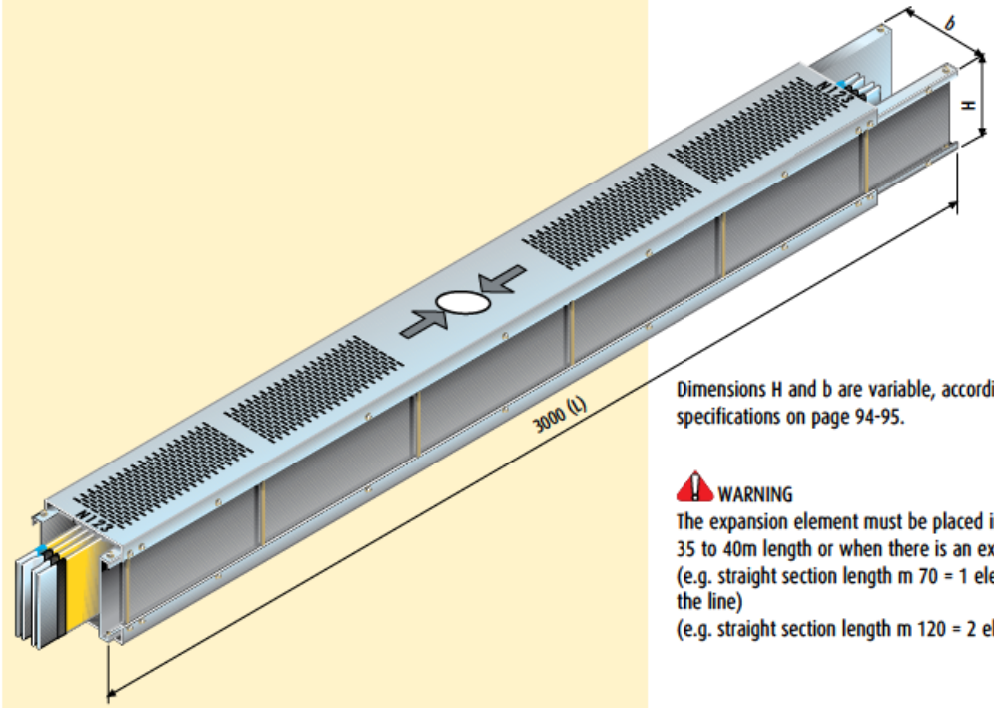


Trunking components

EXPANSION ELEMENT

Aluminium	1000A	1250A	1600A	2000A	2250A	2500A	3200A	4000A	4500A
L= 3000 mm	**90600201**	**90600202**	**90600203**	**90600205**	**90620201**	**90620202**	**90620203**	**90620205**	**90620206**
				single bar	double bar				

Copper	1000A	1250A	1600A	2000A	2500A	3000A	3200A	4000A	5000A
L= 3000 mm	**95600200**	**95600201**	**95600202**	**95600203**	**95600205**	**95620201**	**95620202**	**95620204**	**95620206**
					single bar	double bar			



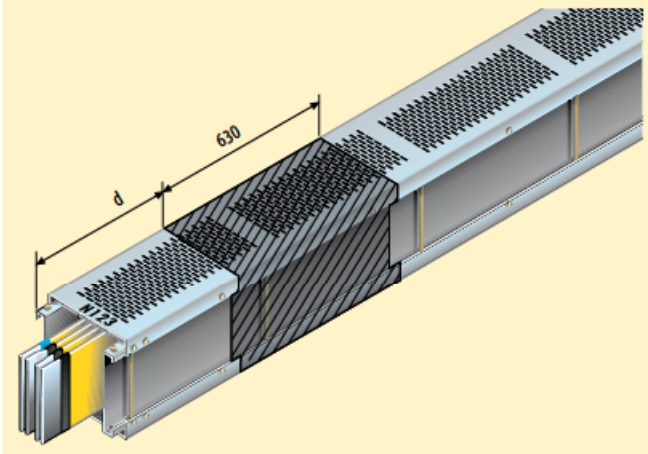
Dimensions H and b are variable, according to the rating specified in the specifications on page 94-95.

WARNING
The expansion element must be placed in the straight sections of the line with a 35 to 40m length or when there is an expansion joint in the building structure.
(e.g. straight section length m 70 = 1 element with expansion In the middle of the line)
(e.g. straight section length m 120 = 2 elements with expansion every ~40 m)

FIRE BARRIER

Aluminium	1000A	1250A	1600A	2000A	2250A	2500A	3200A	4000A	4500A
internal	**956IFB01**	**956IFB01**	**956IFB01**	**956IFB01**	**956IFB02**	**956IFB02**	**956IFB02**	**956IFB02**	**956IFB02**
external	**956EFB01**	**956EFB01**	**956EFB01**	**956EFB01**	**956EFB02**	**956EFB02**	**956EFB02**	**956EFB02**	**956EFB02**
				single bar	double bar				

Copper	1000A	1250A	1600A	2000A	2500A	3000A	3200A	4000A	5000A
internal	**956IFB01**	**956IFB01**	**956IFB01**	**956IFB01**	**956IFB01**	**956IFB02**	**956IFB02**	**956IFB02**	**956IFB02**
external	**956EFB01**	**956EFB01**	**956EFB01**	**956EFB01**	**956EFB01**	**956EFB02**	**956EFB02**	**956EFB02**	**956EFB02**
					single bar	double bar			



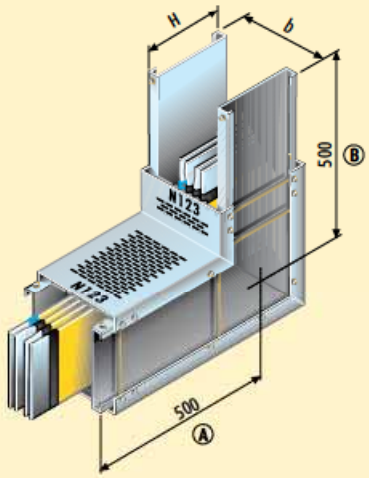
WARNING
The codes are referred only to the fire barrier, not the straight element.
Dimension "d" must be specified when ordering

Direction changes

VERTICAL ELBOW

Aluminium	1000A	1250A	1600A	2000A	2250A	2500A	3200A	4000A	4500A
Type 2 Standard RH	**90600301**	**90600302**	**90600303**	**90600305**	**90620301**	**90620302**	**90620303**	**90620305**	**90620306**
Type 1 Standard LH	**90600311**	**90600312**	**90600313**	**90600315**	**90620311**	**90620312**	**90620313**	**90620315**	**90620316**
Type 2 Special RH	**90600321**	**90600322**	**90600323**	**90600325**	**90620321**	**90620322**	**90620323**	**90620325**	**90620326**
Type 1 Special LH	**90600331**	**90600332**	**90600333**	**90600335**	**90620331**	**90620332**	**90620333**	**90620335**	**90620336**
				single bar	double bar				

Copper	1000A	1250A	1600A	2000A	2500A	3000A	3200A	4000A	5000A
Type 2 Standard RH	**95600300**	**95600301**	**95600302**	**95600303**	**95600305**	**95620301**	**95620302**	**95620304**	**95620306**
Type 1 Standard LH	**95600310**	**95600311**	**95600312**	**95600313**	**95600315**	**95620311**	**95620312**	**95620314**	**95620316**
Type 2 Special RH	**95600320**	**95600321**	**95600322**	**95600323**	**95600325**	**95620321**	**95620322**	**95620324**	**95620326**
Type 1 Special LH	**95600330**	**95600331**	**95600332**	**95600333**	**95600335**	**95620331**	**95620332**	**95620334**	**95620336**
					single bar	double bar			

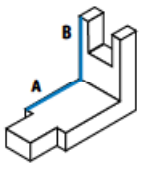


Dimensions H and b are variable, according to the rating specified in the specifications on page 94-95.

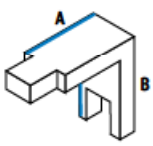
The dimensions are referred to standard elements.

The word "special" is referred to an element with measurements that are different from those shown in the figure, yet included between the MIN/MAX values specified in the table.

MINIMUM AND MAXIMUM DIMENSIONS	
Aluminium	1000A to 4500A
Copper	1000A to 5000A
(A) min/MAX [mm]	**310/1099**
(B) min/MAX [mm]	**500/1099**



Type 1



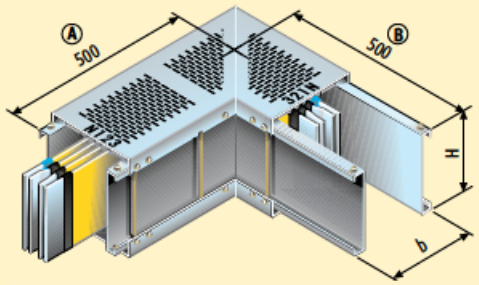
Type 2

Direction changes

HORIZONTAL ELBOW

Aluminium	1000A	1250A	1600A	2000A	2250A	2500A	3200A	4000A	4500A
Type 1 Standard RH	**90600401**	**90600402**	**90600403**	**90600405**	**90620401**	**90620402**	**90620403**	**90620405**	**90620406**
Type 2 Standard LH	**90600411**	**90600412**	**90600413**	**90600415**	**90620411**	**90620412**	**90620413**	**90620415**	**90620416**
Type 1 Special RH	**90600421**	**90600422**	**90600423**	**90600425**	**90620421**	**90620422**	**90620423**	**90620425**	**90620426**
Type 2 Special LH	**90600431**	**90600432**	**90600433**	**90600435**	**90620431**	**90620432**	**90620433**	**90620435**	**90620436**
				single bar	double bar				

Copper	1000A	1250A	1600A	2000A	2500A	3000A	3200A	4000A	5000A
Type 1 Standard RH	**95600400**	**95600401**	**95600402**	**95600403**	**95600405**	**95620401**	**95620402**	**95620404**	**95620406**
Type 2 Standard LH	**95600410**	**95600411**	**95600412**	**95600413**	**95600415**	**95620411**	**95620412**	**95620414**	**95620416**
Type 1 Special RH	**95600420**	**95600421**	**95600422**	**95600423**	**95600425**	**95620421**	**95620422**	**95620424**	**95620426**
Type 2 Special LH	**95600430**	**95600431**	**95600432**	**95600433**	**95600435**	**95620431**	**95620432**	**95620434**	**95620436**
					single bar	double bar			

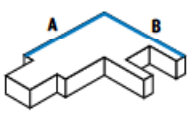


Dimensions H and b are variable, according to the rating specified in the specifications on page 94-95.

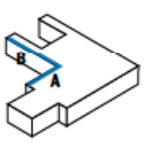
The dimensions are referred to standard elements.

The word "special" is referred to an element with measurements that are different from those shown in the figure, yet included between the MIN/MAX values specified in the table.

MINIMUM AND MAXIMUM DIMENSIONS	
Aluminium	1000A to 4500A
Copper	1000A to 5000A
(A) min/MAX [mm]	**310/1099**
(B) min/MAX [mm]	**500/1099**



Type 1



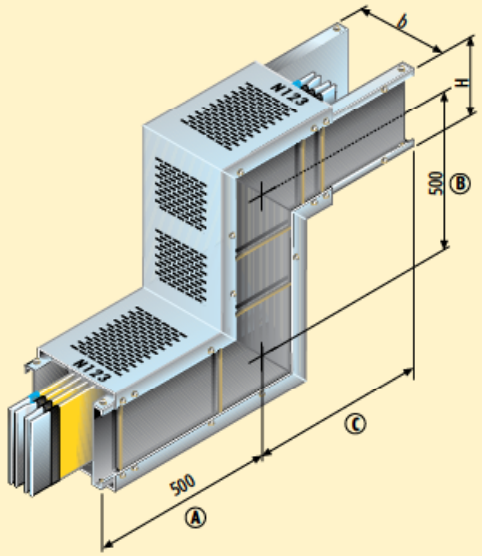
Type 2

Direction changes

DOUBLE VERTICAL ELBOW

Aluminium	1000A	1250A	1600A	2000A	2250A	2500A	3200A	4000A	4500A
Type 2 RH	**90600341**	**90600342**	**90600343**	**90600345**	**90620341**	**90620342**	**90620343**	**90620345**	**90620346**
Type 1 LH	**90600351**	**90600352**	**90600353**	**90600355**	**90620351**	**90620352**	**90620353**	**90620355**	**90620356**
				single bar	double bar				

Copper	1000A	1250A	1600A	2000A	2500A	3000A	3200A	4000A	5000A
Type 2 RH	**95600340**	**95600341**	**95600342**	**95600343**	**95600345**	**95620341**	**95620342**	**95620344**	**95620346**
Type 1 LH	**95600350**	**95600351**	**95600352**	**95600353**	**95600355**	**95620351**	**95620352**	**95620354**	**95620356**
					single bar	double bar			

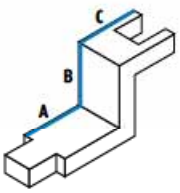


Dimensions H and b are variable, according to the rating specified in the specifications on page 94-95.

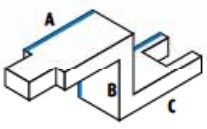
The dimensions are referred to standard elements.

Non Standard elements (with measurements that are different from those shown in the figure) are referred to the MIN/MAX values specified in the table.

MINIMUM AND MAXIMUM DIMENSIONS	
Aluminium	1000A to 4500A
Copper	1000A to 5000A
(A) min/MAX [mm]	**310/1099**
(B) min/MAX [mm]	**100/999**
(C) min/MAX [mm]	**500/1099**



Type 1



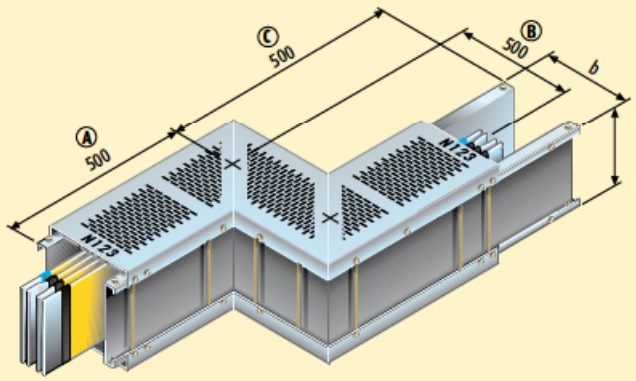
Type 2

Direction changes

DOUBLE HORIZONTAL ELBOW

Aluminium	1000A	1250A	1600A	2000A	2250A	2500A	3200A	4000A	4500A
Type 1 RH	**90600441**	**90600442**	**90600443**	**90600445**	**90620441**	**90620442**	**90620443**	**90620445**	**90620446**
Type 2 LH	**90600451**	**90600452**	**90600453**	**90600455**	**90620451**	**90620452**	**90620453**	**90620455**	**90620456**
				single bar	double bar				

Copper	1000A	1250A	1600A	2000A	2500A	3000A	3200A	4000A	5000A
Type 1 RH	**95600440**	**95600441**	**95600442**	**95600443**	**95600445**	**95620441**	**95620442**	**95620444**	**95620446**
Type 2 LH	**95600450**	**95600451**	**95600452**	**95600453**	**95600455**	**95620451**	**95620452**	**95620454**	**95620456**
					single bar	double bar			

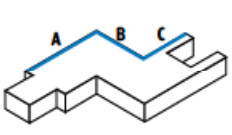


Dimensions H and b are variable, according to the rating specified in the specifications on page 94-95.

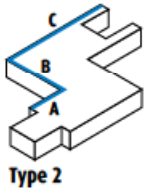
The dimensions are referred to standard elements.

Non Standard elements (with measurements that are different from those shown in the figure) are referred to the MIN/MAX values specified in the table.

MINIMUM AND MAXIMUM DIMENSIONS	
Aluminium	1000A to 4500A
Copper	1000A to 5000A
(A) min/MAX [mm]	**310/1099**
(B) min/MAX [mm]	**100/999**
(C) min/MAX [mm]	**500/1099**



Type 1



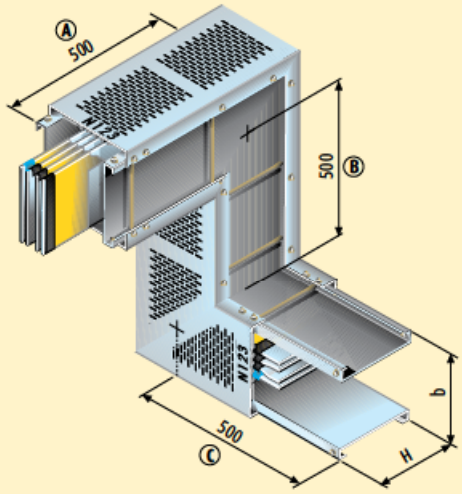
Type 2

Direction changes

DOUBLE ELBOW VERTICAL + HORIZONTAL

Aluminium	1000A	1250A	1600A	2000A	2250A	2500A		3200A	4000A	4500A	
Type 1	**90600601**	**90600602**	**90600603**	**90600605**	**90620601**	**90620602**	-	**90620604**	**90620605**	**90620606**	-
Type 2	**90600611**	**90600612**	**90600613**	**90600615**	**90620611**	**90620612**	-	**90620614**	**90620615**	**90620616**	-
Type 3	**90600621**	**90600622**	**90600623**	**90600625**	**90620621**	**90620622**	-	**90620624**	**90620625**	**90620626**	-
Type 4	**90600631**	**90600632**	**90600633**	**90600635**	**90620631**	**90620632**	-	**90620634**	**90620635**	**90620636**	-
				single bar	double bar						

Copper	1000A	1250A	1600A	2000A	2500A	3000A	3200A	4000A	5000A
Type 1	**95600600**	**95600601**	**95600602**	**95600603**	**95600605**	**95620601**	**95620602**	**95620604**	**95620606**
Type 2	**95600610**	**95600611**	**95600612**	**95600613**	**95600615**	**95620611**	**95620612**	**95620614**	**95620616**
Type 3	**95600620**	**95600621**	**95600622**	**95600623**	**95600625**	**95620621**	**95620622**	**95620624**	**95620626**
Type 4	**95600630**	**95600631**	**95600632**	**95600633**	**95600635**	**95620631**	**95620632**	**95620634**	**95620636**
					single bar	double bar			



Dimensions H and b are variable, according to the rating specified in the specifications on page 94-95.

The dimensions are referred to standard elements.

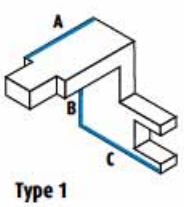
Non Standard elements (with measurements that are different from those shown in the figure) are referred to the MIN/MAX values specified in the table.

MINIMUM AND MAXIMUM DIMENSIONS OF SINGLE BAR

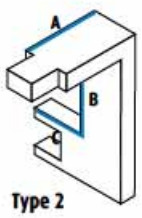
Aluminium	1000A to 2000A
Copper	1000A to 2500A
(A) min/MAX [mm]	**310/1099**
(B) min/MAX [mm]	**280/999**
(C) min/MAX [mm]	**500/1099**

MINIMUM AND MAXIMUM DIMENSIONS OF DOUBLE BAR

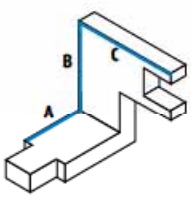
Aluminium	2250A to 4500A
Copper	3000A to 5000A
(A) min/MAX [mm]	**310/1099**
(B) min/MAX [mm]	**310/999**
(C) min/MAX [mm]	**500/1099**



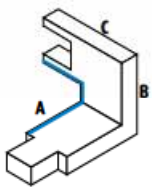
Type 1



Type 2



Type 3



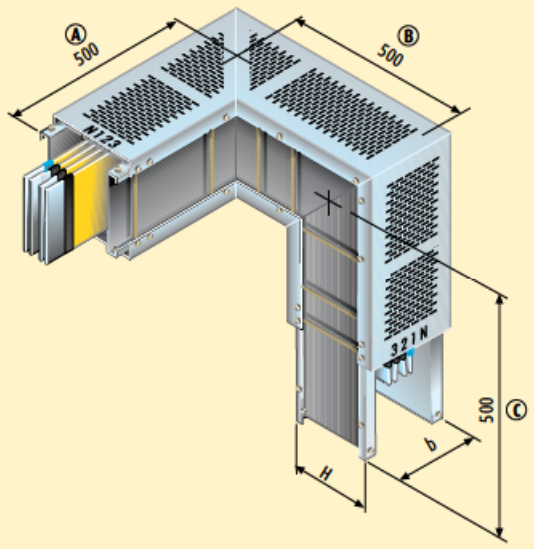
Type 4

Direction changes

DOUBLE ELBOW HORIZONTAL + VERTICAL

Aluminium	1000A	1250A	1600A	2000A	2250A	2500A	3200A	4000A	4500A
Type 1	**90600501**	**90600502**	**90600503**	**90600505**	**90620501**	**90620502**	**90620503**	**90620505**	**90620506**
Type 2	**90600511**	**90600512**	**90600513**	**90600515**	**90620511**	**90620512**	**90620513**	**90620515**	**90620516**
Type 3	**90600521**	**90600522**	**90600523**	**90600525**	**90620521**	**90620522**	**90620523**	**90620525**	**90620526**
Type 4	**90600531**	**90600532**	**90600533**	**90600535**	**90620531**	**90620532**	**90620533**	**90620535**	**90620536**
				single bar	double bar				

Copper	1000A	1250A	1600A	2000A	2500A	3000A	3200A	4000A	5000A
Type 1	**95600500**	**95600501**	**95600502**	**95600503**	**95600505**	**95620501**	**95620502**	**95620504**	**95620506**
Type 2	**95600510**	**95600511**	**95600512**	**95600513**	**95600515**	**95620511**	**95620512**	**95620514**	**95620516**
Type 3	**95600520**	**95600521**	**95600522**	**95600523**	**95600525**	**95620521**	**95620522**	**95620524**	**95620526**
Type 4	**95600530**	**95600531**	**95600532**	**95600533**	**95600535**	**95620531**	**95620532**	**95620534**	**95620536**
					single bar	double bar			



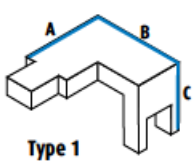
Dimensions H and b are variable, according to the rating specified in the specifications on page 94-95.

The dimensions are referred to standard elements.

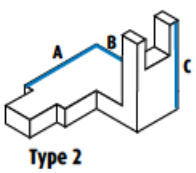
Non Standard elements (with measurements that are different from those shown in the figure) are referred to the MIN/MAX values specified in the table.

MINIMUM AND MAXIMUM DIMENSIONS OF SINGLE BAR	
Aluminium	1000A to 2000A
Copper	1000A to 2500A
(A) min/MAX [mm]	**310/1099**
(B) min/MAX [mm]	**280/999**
(C) min/MAX [mm]	**500/1099**

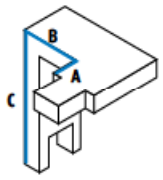
MINIMUM AND MAXIMUM DIMENSIONS OF DOUBLE BAR	
Aluminium	2250A to 4500A
Copper	3000A to 5000A
(A) min/MAX [mm]	**310/1099**
(B) min/MAX [mm]	**310/999**
(C) min/MAX [mm]	**500/1099**



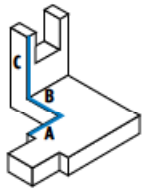
Type 1



Type 2



Type 3



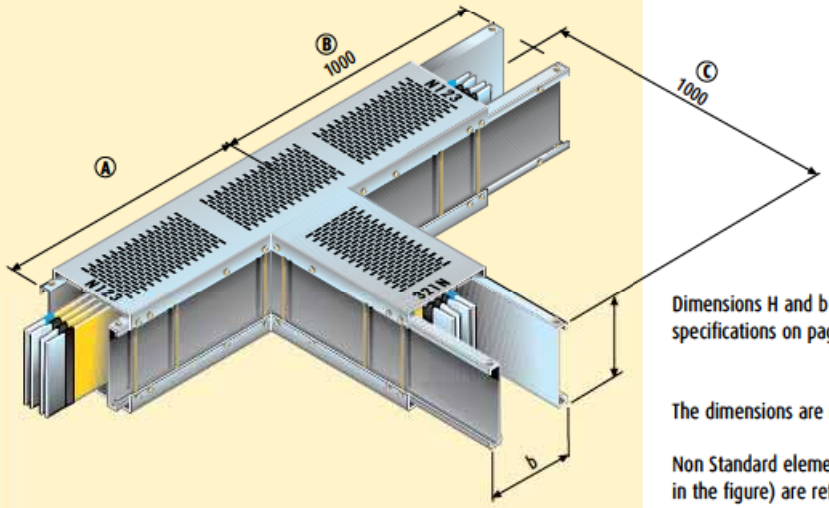
Type 4

Direction changes

HORIZONTAL "T"

Aluminium	1000A	1250A	1600A	2000A	2250A	2500A	3200A	4000A	4500A
Type 1	**90600801**	**90600802**	**90600803**	**90600805**	**90620801**	**90620802**	**90620803**	**90620805**	**90620806**
Type 2	**90600811**	**90600812**	**90600813**	**90600815**	**90620811**	**90620812**	**90620813**	**90620815**	**90620816**
Type 3	**90600821**	**90600822**	**90600823**	**90600825**	**90620821**	**90620822**	**90620823**	**90620825**	**90620826**
Type 4	**90600831**	**90600832**	**90600833**	**90600835**	**90620831**	**90620832**	**90620833**	**90620835**	**90620836**
				single bar	double bar				

Copper	1000A	1250A	1600A	2000A	2500A	3000A	3200A	4000A	5000A
Type 1	**95600800**	**95600801**	**95600802**	**95600803**	**95600805**	**95620801**	**95620802**	**95620804**	**95620806**
Type 2	**95600810**	**95600811**	**95600812**	**95600813**	**95600815**	**95620811**	**95620812**	**95620814**	**95620816**
Type 3	**95600820**	**95600821**	**95600822**	**95600823**	**95600825**	**95620821**	**95620822**	**95620824**	**95620826**
Type 4	**95600830**	**95600831**	**95600832**	**95600833**	**95600835**	**95620831**	**95620832**	**95620834**	**95620836**
					single bar	double bar			

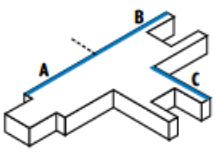


Dimensions H and b are variable, according to the rating specified in the specifications on page 94-95.

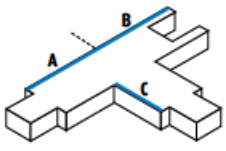
The dimensions are referred to standard elements.

Non Standard elements (with measurements that are different from those shown in the figure) are referred to the MIN/MAX values specified in the table.

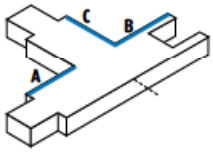
MINIMUM AND MAXIMUM DIMENSIONS	
Aluminium	1000A to 4500A
Copper	1000A to 5000A
(A) min/MAX [mm]	**310/1000**
(B) min/MAX [mm]	**500/1099**
(C) min/MAX [mm]	**500/1099**



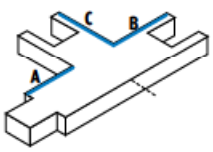
Type 1



Type 2



Type 3



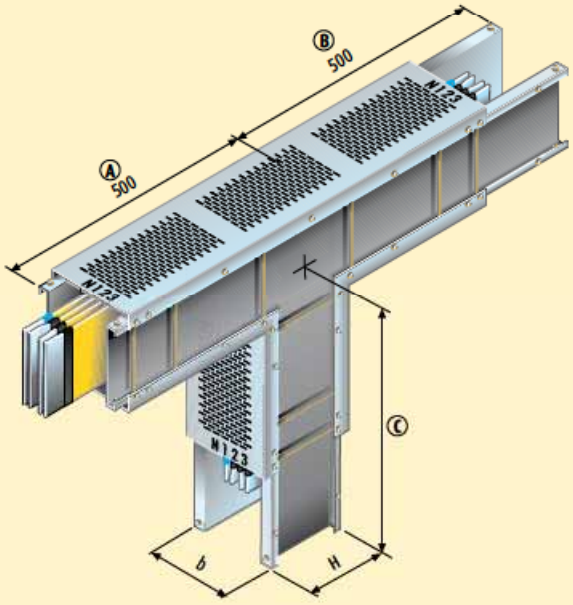
Type 4

Direction changes

VERTICAL "T"

Aluminium	1000A	1250A	1600A	2000A	2250A	2500A	3200A	4000A	4500A
Type 1	**90600501**	**90600502**	**90600503**	**90600505**	**90620501**	**90620502**	**90620503**	**90620505**	**90620506**
Type 2	**90600511**	**90600512**	**90600513**	**90600515**	**90620511**	**90620512**	**90620513**	**90620515**	**90620516**
Type 3	**90600521**	**90600522**	**90600523**	**90600525**	**90620521**	**90620522**	**90620523**	**90620525**	**90620526**
Type 4	**90600531**	**90600532**	**90600533**	**90600535**	**90620531**	**90620532**	**90620533**	**90620535**	**90620536**
				single bar	double bar				

Copper	1000A	1250A	1600A	2000A	2500A	3000A	3200A	4000A	5000A
Type 1	**95600500**	**95600501**	**95600502**	**95600503**	**95600505**	**95620501**	**95620502**	**95620504**	**95620506**
Type 2	**95600510**	**95600511**	**95600512**	**95600513**	**95600515**	**95620511**	**95620512**	**95620514**	**95620516**
Type 3	**95600520**	**95600521**	**95600522**	**95600523**	**95600525**	**95620521**	**95620522**	**95620524**	**95620526**
Type 4	**95600530**	**95600531**	**95600532**	**95600533**	**95600535**	**95620531**	**95620532**	**95620534**	**95620536**
					single bar	double bar			



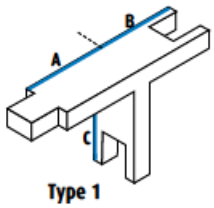
Dimensions H and b are variable, according to the rating specified in the specifications on page 94-95.

The dimensions are referred to standard elements.

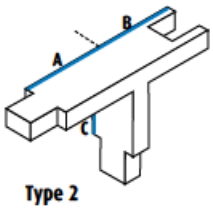
Non Standard elements (with measurements that are different from those shown in the figure) are referred to the MIN/MAX values specified in the table.

MINIMUM AND MAXIMUM DIMENSIONS

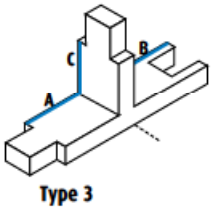
Aluminium	1000A to 4500A
Copper	1000A to 5000A
(A) min/MAX [mm]	**310/1000**
(B) min/MAX [mm]	**500/1099**
(C) min/MAX [mm]	**500/1099**



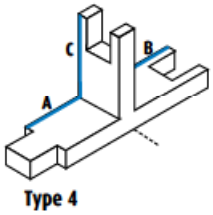
Type 1



Type 2



Type 3



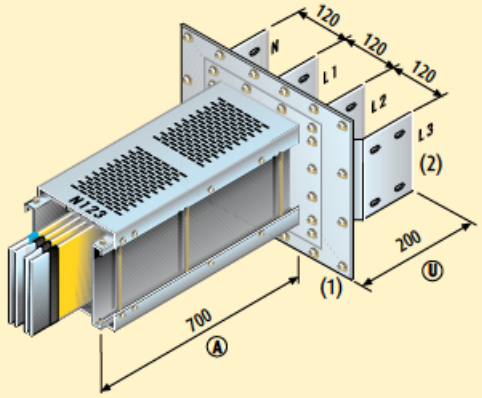
Type 4

Connection interfaces

STANDARD CONNECTION INTERFACE

Aluminium	1000A	1250A	1600A	2000A	2250A	2500A	3200A	4000A	4500A
Type 1 RH	**90601001**	**90601002**	**90601003**	**90601005**	**90621001**	**90621002**	**90621003**	**90621005**	**90621006**
Type 2 LH	**90601011**	**90601012**	**90601013**	**90601015**	**90621011**	**90621012**	**90621013**	**90621015**	**90621016**
Type 1 Special RH	**90601041**	**90601042**	**90601043**	**90601045**	**90621041**	**90621042**	**90621043**	**90621045**	**90621046**
Type 2 Special LH	**90601051**	**90601052**	**90601053**	**90601055**	**90621051**	**90621052**	**90621053**	**90621055**	**90621056**
Bar holes	Holes B	Holes D	Holes D	Holes E	Holes B	Holes D	Holes D	Holes E	Holes F
with Neutral rotation									
Type 1 RH	**90601021**	**90601022**	**90601023**	**90601025**	**90621021**	**90621022**	**90621023**	**90621025**	**90621026**
Type 2 LH	**90601031**	**90601032**	**90601033**	**90601035**	**90621031**	**90621032**	**90621033**	**90621035**	**90621036**
Type 1 Special RH	**90601061**	**90601062**	**90601063**	**90601065**	**90621061**	**90621062**	**90621063**	**90621065**	**90621066**
Type 2 Special LH	**90601071**	**90601072**	**90601073**	**90601075**	**90621071**	**90621072**	**90621073**	**90621075**	**90621076**
Bar holes	Holes B	Holes D	Holes D	Holes E	Holes B	Holes D	Holes D	Holes E	Holes F
				single bar	double bar				

Copper	1000A	1250A	1600A	2000A	2500A	3000A	3200A	4000A	5000A
Type 1 RH	**95601000**	**95601001**	**95601002**	**95601003**	**95601005**	**95621001**	**95621002**	**95621004**	**95621006**
Type 2 LH	**95601010**	**95601011**	**95601012**	**95601013**	**95601015**	**95621011**	**95621012**	**95621014**	**95621016**
Type 1 Special RH	**95601040**	**95601041**	**95601042**	**95601043**	**95601045**	**95621041**	**95621042**	**95621044**	**95621046**
Type 2 Special LH	**95601050**	**95601051**	**95601052**	**95601053**	**95601055**	**95621051**	**95621052**	**95621054**	**95621056**
Bar holes	Holes A	Holes B	Holes C	Holes D	Holes E	Holes C	Holes C	Holes D	Holes F
with Neutral rotation									
Type 1 RH	**95601020**	**95601021**	**95601022**	**95601023**	**95601025**	**95621021**	**95621022**	**95621024**	**95621026**
Type 2 LH	**95601030**	**95601031**	**95601032**	**95601033**	**95601035**	**95621031**	**95621032**	**95621034**	**95621036**
Type 1 Special RH	**95601060**	**95601061**	**95601062**	**95601063**	**95601065**	**95621061**	**95621062**	**95621064**	**95621066**
Type 2 Special LH	**95601070**	**95601071**	**95601072**	**95601073**	**95601075**	**95621071**	**95621072**	**95621074**	**95621076**
Bar holes	Holes A	Holes B	Holes C	Holes D	Holes E	Holes C	Holes C	Holes D	Holes F
					single bar	double bar			



MINIMUM AND MAXIMUM DIMENSIONS OF SINGLE BAR

Aluminium	1000A to 2000A	
Copper	1000A to 2500A	
Type	Type1 - RH	Type 2 - LH
(A) min/MAX [mm]	**350/1299**	**310/1299**
(U) min/MAX [mm]	**200/400**	**200/400**

MINIMUM AND MAXIMUM DIMENSIONS OF DOUBLE BAR

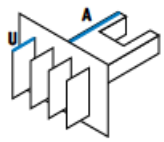
Aluminium	2250A to 4500A	
Copper	3000A to 5000A	
Type	Type1 - RH	Type 2 - LH
(A) min/MAX [mm]	**700/1299**	**700/1299**
(U) min/MAX [mm]	**200/400**	**200/400**

Dimensions H and b are variable, according to the rating specified in the specifications on page 94-95.

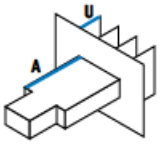
The dimensions are referred to standard elements.

See page 79 for dimensions of coverplate (1) and bars (2)

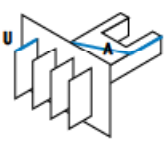
The word "special" is referred to an element with measurements that are different from those shown in the figure, yet included between the MIN/MAX values specified in the table.



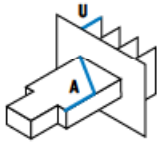
Type 1



Type 2



Type 1 with neutral rotation

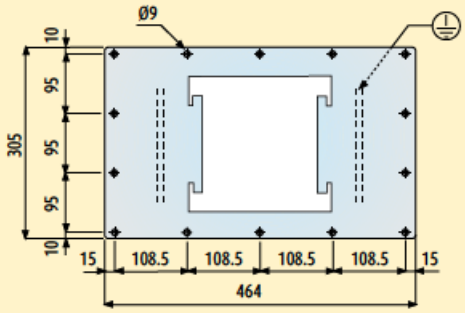


Type 2 with neutral rotation

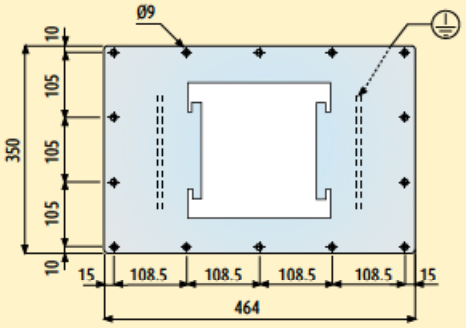
Connection interfaces

COVERPLATE DRILLING DETAILS

Aluminium 1000A-1250A-1600A-2250A-2500A-3200A
Copper 1000A-1250A-1600A-2000A-3000A-3200A-4000A

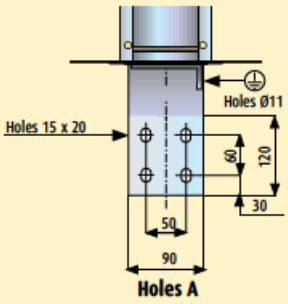


Aluminium 2000A-4000A-4500A
Copper 2500A-5000A



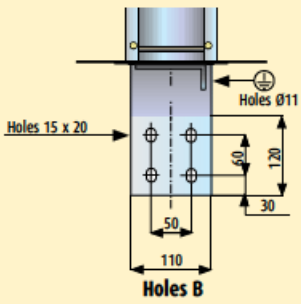
BAR DRILLING DETAILS

Cu 1000A



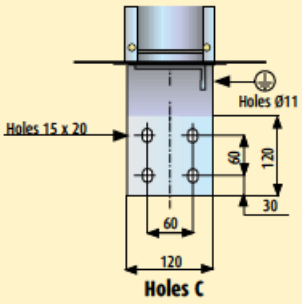
Holes A

Al 1000A-2250A
Cu 1250A



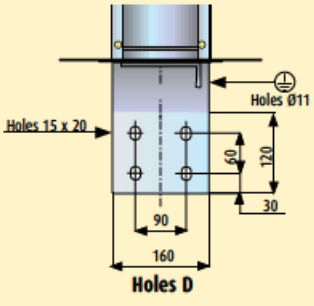
Holes B

Cu 1600A-3000A-3200A



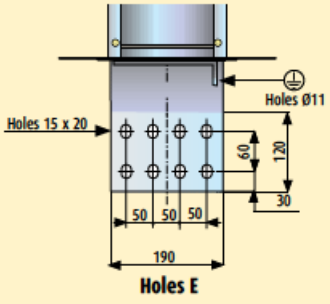
Holes C

Al 1250A-1600A-2500A-3200A
Cu 2000A-4000A



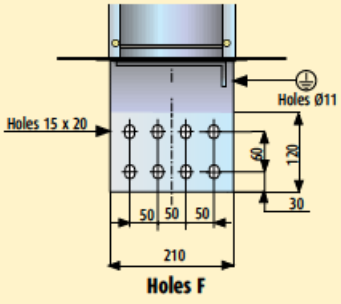
Holes D

Al 2000A-4000A
Cu 2500A



Holes E

Al 4500A
Cu 5000A



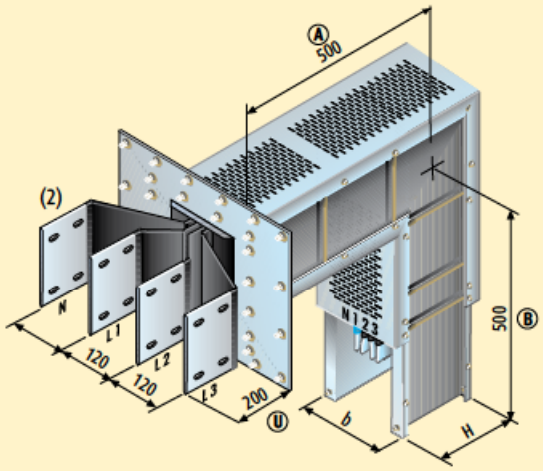
Holes F

Connection interfaces

CONNECTION INTERFACE + VERTICAL ELBOW

Aluminium	1000A	1250A	1600A	2000A	2250A	2500A	3200A	4000A	4500A
Type 1	**90601301**	**90601302**	**90601303**	**90601305**	**90621301**	**90621302**	**90621303**	**90621305**	**90621306**
Type 2	**90601311**	**90601312**	**90601313**	**90601315**	**90621311**	**90621312**	**90621313**	**90621315**	**90621316**
Type 3	**90601321**	**90601322**	**90601323**	**90601325**	**90621321**	**90621322**	**90621323**	**90621325**	**90621326**
Type 4	**90601331**	**90601332**	**90601333**	**90601335**	**90621331**	**90621332**	**90621333**	**90621335**	**90621336**
				single bar	double bar				

Copper	1000A	1250A	1600A	2000A	2500A	3000A	3200A	4000A	5000A
Type 1	**95601300**	**95601301**	**95601302**	**95601303**	**95601305**	**95621301**	**95621302**	**95621304**	**95621306**
Type 2	**95601310**	**95601311**	**95601312**	**95601313**	**95601315**	**95621311**	**95621312**	**95621314**	**95621316**
Type 3	**95601320**	**95601321**	**95601322**	**95601323**	**95601325**	**95621321**	**95621322**	**95621324**	**95621326**
Type 4	**95601330**	**95601331**	**95601332**	**95601333**	**95601335**	**95621331**	**95621332**	**95621334**	**95621336**
					single bar	double bar			



Dimensions H and b are variable, according to the rating specified in the specifications on page 94-95.

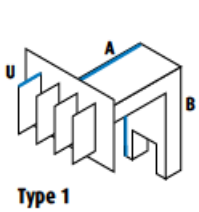
The dimensions are referred to standard elements.

See page 79 for dimensions of coverplate (1) and bars (2)

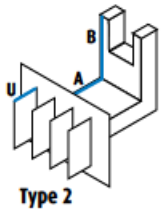
Non Standard elements (with measurements that are different from those shown in the figure) are referred to the MIN/MAX values specified in the table.

MINIMUM AND MAXIMUM DIMENSIONS OF TYPE 1 AND TYPE 2	
Aluminium	1000A to 4500A
Copper	1000A to 5000A
(U) min/MAX [mm]	**200/400**
(A) min/MAX [mm]	**280/1199**
(B) min/MAX [mm]	**500/1099**

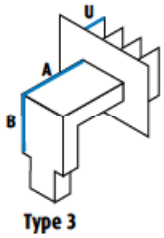
MINIMUM AND MAXIMUM DIMENSIONS OF TYPE 3 AND TYPE 4	
Aluminium	1000A to 4500A
Copper	1000A to 5000A
(U) min/MAX [mm]	**200/400**
(A) min/MAX [mm]	**280/1199**
(B) min/MAX [mm]	**310/1099**



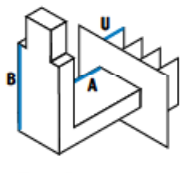
Type 1



Type 2



Type 3



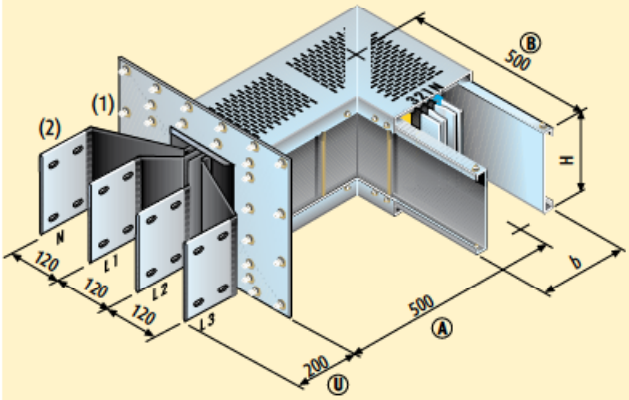
Type 4

Connection interfaces

CONNECTION INTERFACE + HORIZONTAL ELBOW

Aluminium	1000A	1250A	1600A	2000A	2250A	2500A	3200A	4000A	4500A
Type 1	**90601401**	**90601402**	**90601403**	**90601405**	**90621401**	**90621402**	**90621403**	**90621405**	**90621406**
Type 2	**90601411**	**90601412**	**90601413**	**90601415**	**90621411**	**90621412**	**90621413**	**90621415**	**90621416**
Type 3	**90601421**	**90601422**	**90601423**	**90601425**	**90621421**	**90621422**	**90621423**	**90621425**	**90621426**
Type 4	**90601431**	**90601432**	**90601433**	**90601435**	**90621431**	**90621432**	**90621433**	**90621435**	**90621436**
				single bar	double bar				

Copper	1000A	1250A	1600A	2000A	2500A	3000A	3200A	4000A	5000A
Type 1	**95601400**	**95601401**	**95601402**	**95601403**	**95601405**	**95621401**	**95621402**	**95621404**	**95621406**
Type 2	**95601410**	**95601411**	**95601412**	**95601413**	**95601415**	**95621411**	**95621412**	**95621414**	**95621416**
Type 3	**95601420**	**95601421**	**95601422**	**95601423**	**95601425**	**95621421**	**95621422**	**95621424**	**95621426**
Type 4	**95601430**	**95601431**	**95601432**	**95601433**	**95601435**	**95621431**	**95621432**	**95621434**	**95621436**
					single bar	double bar			



Dimensions H and b are variable, according to the rating specified in the specifications on page 94-95.

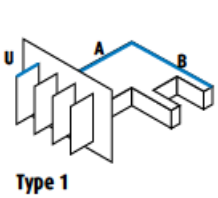
The dimensions are referred to standard elements.

See page 79 for dimensions of coverplate (1) and bars (2)

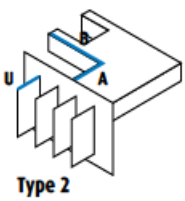
Non Standard elements (with measurements that are different from those shown in the figure) are referred to the MIN/MAX values specified in the table.

MINIMUM AND MAXIMUM DIMENSIONS OF TYPE 1 AND TYPE 2	
Aluminium	1000A to 4500A
Copper	1000A to 5000A
(U) min/MAX [mm]	**200/400**
(A) min/MAX [mm]	**310/1199**
(B) min/MAX [mm]	**500/1099**

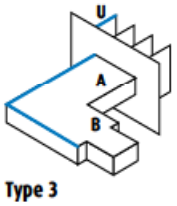
MINIMUM AND MAXIMUM DIMENSIONS OF TYPE 3 AND TYPE 4	
Aluminium	1000A to 4500A
Copper	1000A to 5000A
(U) min/MAX [mm]	**200/400**
(A) min/MAX [mm]	**280/1199**
(B) min/MAX [mm]	**310/1099**



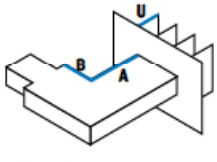
Type 1



Type 2



Type 3



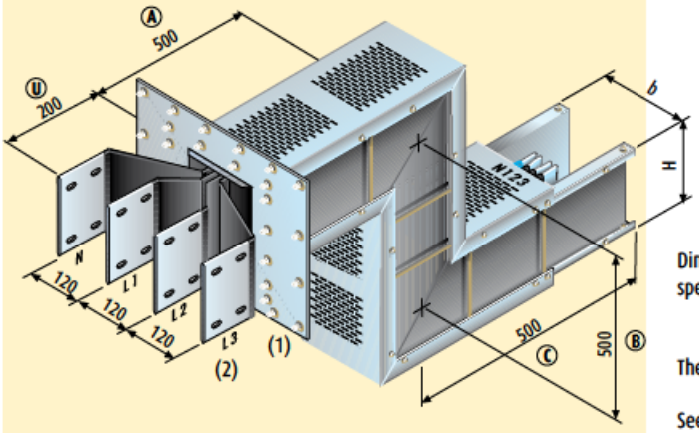
Type 4

Connection interfaces

CONNECTION INTERFACE + DOUBLE VERTICAL ELBOW

Aluminium	1000A	1250A	1600A	2000A	2250A	2500A	3200A	4000A	4500A
Type 1	**90601341**	**90601342**	**90601343**	**90601345**	**90621341**	**90621342**	**90621343**	**90621345**	**90621346**
Type 2	**90601351**	**90601352**	**90601353**	**90601355**	**90621351**	**90621352**	**90621353**	**90621355**	**90621356**
Type 3	**90601361**	**90601362**	**90601363**	**90601365**	**90621361**	**90621362**	**90621363**	**90621365**	**90621366**
Type 4	**90601371**	**90601372**	**90601373**	**90601375**	**90621371**	**90621372**	**90621373**	**90621375**	**90621376**
				single bar	double bar				

Copper	1000A	1250A	1600A	2000A	2500A	3000A	3200A	4000A	5000A
Type 1	**95601340**	**95601341**	**95601342**	**95601343**	**95601345**	**95621341**	**95621342**	**95621344**	**95621346**
Type 2	**95601350**	**95601351**	**95601352**	**95601353**	**95601355**	**95621351**	**95621352**	**95621354**	**95621356**
Type 3	**95601360**	**95601361**	**95601362**	**95601363**	**95601365**	**95621361**	**95621362**	**95621364**	**95621366**
Type 4	**95601370**	**95601371**	**95601372**	**95601373**	**95601375**	**95621371**	**95621372**	**95621374**	**95621376**
					single bar	double bar			



Dimensions H and b are variable, according to the rating specified in the specifications on page 94-95.

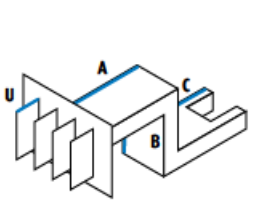
The dimensions are referred to standard elements.

See page 79 for dimensions of coverplate (1) and bars (2)

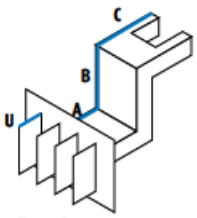
Non Standard elements (with measurements that are different from those shown in the figure) are referred to the MIN/MAX values specified in the table.

MINIMUM AND MAXIMUM DIMENSIONS OF TYPE 1 AND TYPE 2	
Aluminium	1000A to 4500A
Copper	1000A to 5000A
(U) min/MAX [mm]	**200/400**
(A) min/MAX [mm]	**280/1299**
(B) min/MAX [mm]	**100/999**
(C) min/MAX [mm]	**500/1099**

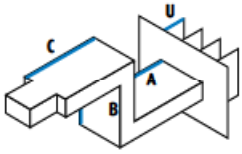
MINIMUM AND MAXIMUM DIMENSIONS OF TYPE 3 AND TYPE 4	
Aluminium	1000A to 4500A
Copper	1000A to 5000A
(U) min/MAX [mm]	**200/400**
(A) min/MAX [mm]	**280/1299**
(B) min/MAX [mm]	**100/999**
(C) min/MAX [mm]	**310/1099**



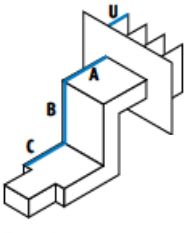
Type 1



Type 2



Type 3



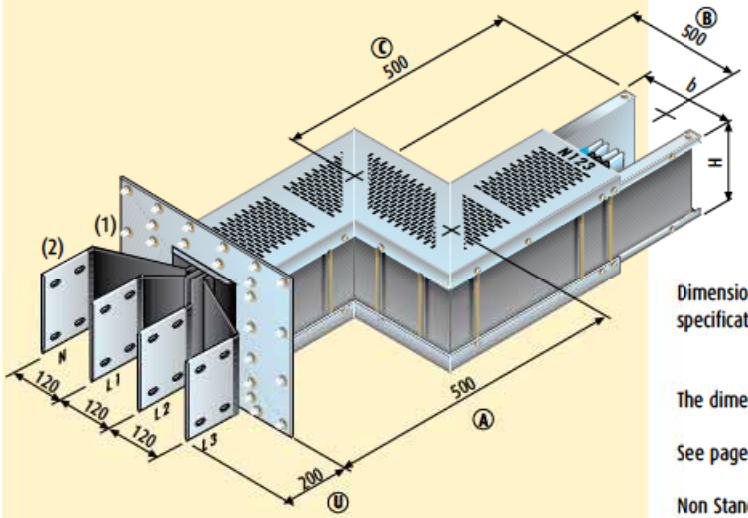
Type 4

Connection interfaces

CONNECTION INTERFACE + DOUBLE HORIZONTAL ELBOW

Aluminium	1000A	1250A	1600A	2000A	2250A	2500A	3200A	4000A	4500A
Type 1	**90601441**	**90601442**	**90601443**	**90601445**	**90621441**	**90621442**	**90621443**	**90621445**	**90621446**
Type 2	**90601451**	**90601452**	**90601453**	**90601455**	**90621451**	**90621452**	**90621453**	**90621455**	**90621456**
Type 3	**90601461**	**90601462**	**90601463**	**90601465**	**90621461**	**90621462**	**90621463**	**90621465**	**90621466**
Type 4	**90601471**	**90601472**	**90601473**	**90601475**	**90621471**	**90621472**	**90621473**	**90621475**	**90621476**
				single bar	double bar				

Copper	1000A	1250A	1600A	2000A	2500A	3000A	3200A	4000A	5000A
Type 1	**95601440**	**95601441**	**95601442**	**95601443**	**95601445**	**95621441**	**95621442**	**95621444**	**95621446**
Type 2	**95601450**	**95601451**	**95601452**	**95601453**	**95601455**	**95621451**	**95621452**	**95621454**	**95621456**
Type 3	**95601460**	**95601461**	**95601462**	**95601463**	**95601465**	**95621461**	**95621462**	**95621464**	**95621466**
Type 4	**95601470**	**95601471**	**95601472**	**95601473**	**95601475**	**95621471**	**95621472**	**95621474**	**95621476**
					single bar	double bar			



Dimensions H and b are variable, according to the rating specified in the specifications on page 94-95.

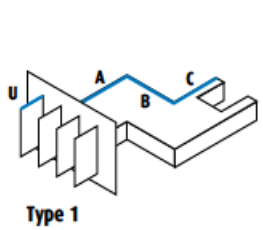
The dimensions are referred to standard elements.

See page 79 for dimensions of coverplate (1) and bars (2)

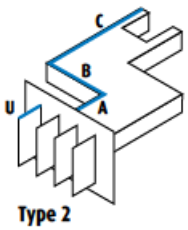
Non Standard elements (with measurements that are different from those shown in the figure) are referred to the MIN/MAX values specified in the table.

MINIMUM AND MAXIMUM DIMENSIONS OF TYPE 1 AND TYPE 2	
Aluminium	1000A to 4500A
Copper	1000A to 5000A
(U) min/MAX [mm]	**200/400**
(A) min/MAX [mm]	**280/1299**
(B) min/MAX [mm]	**100/999**
(C) min/MAX [mm]	**500/1099**

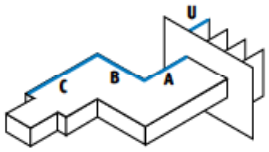
MINIMUM AND MAXIMUM DIMENSIONS OF TYPE 3 AND TYPE 4	
Aluminium	1000A to 4500A
Copper	1000A to 5000A
(U) min/MAX [mm]	**200/400**
(A) min/MAX [mm]	**280/1299**
(B) min/MAX [mm]	**100/999**
(C) min/MAX [mm]	**310/1099**



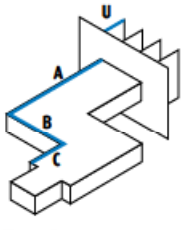
Type 1



Type 2



Type 3



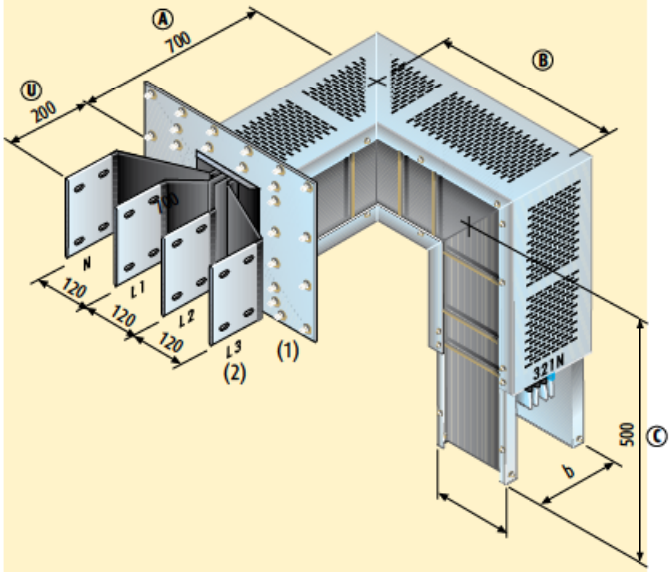
Type 4

Connection interfaces

CONNECTION INTERFACE + HORIZONTAL ELBOW + VERTICAL ELBOW

Aluminium	1000A	1250A	1600A	2000A	2250A	2500A	3200A	4000A	4500A
Type 1	**90601601**	**90601602**	**90601603**	**90601605**	**90621601**	**90621602**	**90621603**	**90621605**	**90621606**
Type 2	**90601611**	**90601612**	**90601613**	**90601615**	**90621611**	**90621612**	**90621613**	**90621615**	**90621616**
Type 3	**90601621**	**90601622**	**90601623**	**90601625**	**90621621**	**90621622**	**90621623**	**90621625**	**90621626**
Type 4	**90601631**	**90601632**	**90601633**	**90601635**	**90621631**	**90621632**	**90621633**	**90621635**	**90621636**
Type 5	**90601641**	**90601642**	**90601643**	**90601645**	**90621641**	**90621642**	**90621643**	**90621645**	**90621646**
Type 6	**90601651**	**90601652**	**90601653**	**90601655**	**90621651**	**90621652**	**90621653**	**90621655**	**90621656**
Type 7	**90601661**	**90601662**	**90601663**	**90601665**	**90621661**	**90621662**	**90621663**	**90621665**	**90621666**
Type 8	**90601671**	**90601672**	**90601673**	**90601675**	**90621671**	**90621672**	**90621673**	**90621675**	**90621676**
				single bar	double bar				

Copper	1000A	1250A	1600A	2000A	2500A	3000A	3200A	4000A	5000A
Type 1	**95601600**	**95601601**	**95601602**	**95601603**	**95601605**	**95621601**	**95621602**	**95621604**	**95621606**
Type 2	**95601610**	**95601611**	**95601612**	**95601613**	**95601615**	**95621611**	**95621612**	**95621614**	**95621616**
Type 3	**95601620**	**95601621**	**95601622**	**95601623**	**95601625**	**95621621**	**95621622**	**95621624**	**95621626**
Type 4	**95601630**	**95601631**	**95601632**	**95601633**	**95601635**	**95621631**	**95621632**	**95621634**	**95621636**
Type 5	**95601640**	**95601641**	**95601642**	**95601643**	**95601645**	**95621641**	**95621642**	**95621644**	**95621646**
Type 6	**95601650**	**95601651**	**95601652**	**95601653**	**95601655**	**95621651**	**95621652**	**95621654**	**95621656**
Type 7	**95601660**	**95601661**	**95601662**	**95601663**	**95601665**	**95621661**	**95621662**	**95621664**	**95621666**
Type 8	**95601670**	**95601671**	**95601672**	**95601673**	**95601675**	**95621671**	**95621672**	**95621674**	**95621676**
					single bar	double bar			

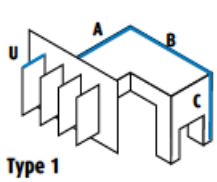


Dimensions H and b are variable, according to the rating specified in the specifications on page 94-95.

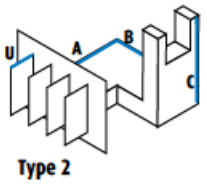
The dimensions are referred to standard elements.

See page 79 for dimensions of coverplate (1) and bars (2)

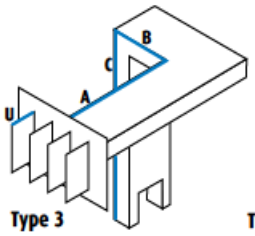
Non Standard elements (with measurements that are different from those shown in the figure) are referred to the MIN/MAX values specified in the table.



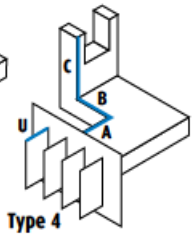
Type 1



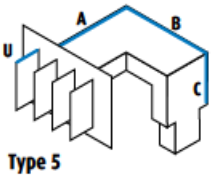
Type 2



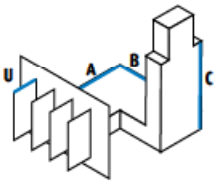
Type 3



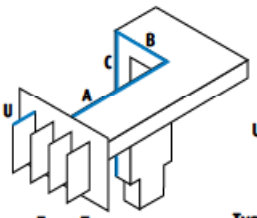
Type 4



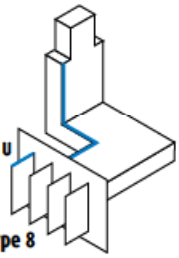
Type 5



Type 6



Type 7



Type 8

MINIMUM AND MAXIMUM DIMENSIONS OF TYPES 1, 2, 3, 4

Aluminium	1000A to 2000A	2250A to 4500A
Copper	1000A to 2500A	3000A to 5000A
(U) min/MAX [mm]	**200/400**	**200/400**
(A) min/MAX [mm]	**280/1199**	**280/1199**
(B) min/MAX [mm]	**280/999**	**310/999**
(C) min/MAX [mm]	**500/1099**	**500/1099**

MINIMUM AND MAXIMUM DIMENSIONS OF TYPES 5, 6, 7, 8

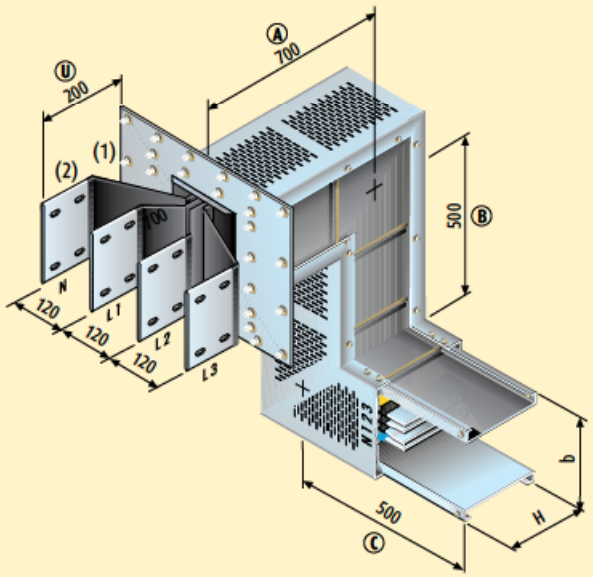
Aluminium	1000A to 2000A	2250A to 4500A
Copper	1000A to 2500A	3000A to 5000A
(U) min/MAX [mm]	**200/400**	**200/400**
(A) min/MAX [mm]	**280/1199**	**280/1199**
(B) min/MAX [mm]	**280/999**	**310/999**
(C) min/MAX [mm]	**310/1099**	**310/1099**

Connection interfaces

CONNECTION INTERFACE + VERTICAL ELBOW + HORIZONTAL ELBOW

Aluminium	1000A	1250A	1600A	2000A	2250A	2500A	3200A	4000A	4500A
Type 1	**90601501**	**90601502**	**90601503**	**90601505**	**90621501**	**90621502**	**90621503**	**90621505**	**90621506**
Type 2	**90601511**	**90601512**	**90601513**	**90601515**	**90621511**	**90621512**	**90621513**	**90621515**	**90621516**
Type 3	**90601521**	**90601522**	**90601523**	**90601525**	**90621521**	**90621522**	**90621523**	**90621525**	**90621526**
Type 4	**90601531**	**90601532**	**90601533**	**90601535**	**90621531**	**90621532**	**90621533**	**90621535**	**90621536**
Type 5	**90601541**	**90601542**	**90601543**	**90601545**	**90621541**	**90621542**	**90621543**	**90621545**	**90621546**
Type 6	**90601551**	**90601552**	**90601553**	**90601555**	**90621551**	**90621552**	**90621553**	**90621555**	**90621556**
Type 7	**90601561**	**90601562**	**90601563**	**90601565**	**90621561**	**90621562**	**90621563**	**90621565**	**90621566**
Type 8	**90601571**	**90601572**	**90601573**	**90601575**	**90621571**	**90621572**	**90621573**	**90621575**	**90621576**
				single bar	double bar				

Copper	1000A	1250A	1600A	2000A	2500A	3000A	3200A	4000A	5000A
Type 1	**95601500**	**95601501**	**95601502**	**95601503**	**95601505**	**95621501**	**95621502**	**95621504**	**95621506**
Type 2	**95601510**	**95601511**	**95601512**	**95601513**	**95601515**	**95621511**	**95621512**	**95621514**	**95621516**
Type 3	**95601520**	**95601521**	**95601522**	**95601523**	**95601525**	**95621521**	**95621522**	**95621524**	**95621526**
Type 4	**95601530**	**95601531**	**95601532**	**95601533**	**95601535**	**95621531**	**95621532**	**95621534**	**95621536**
Type 5	**95601540**	**95601541**	**95601542**	**95601543**	**95601545**	**95621541**	**95621542**	**95621544**	**95621546**
Type 6	**95601550**	**95601551**	**95601552**	**95601553**	**95601555**	**95621551**	**95621552**	**95621554**	**95621556**
Type 7	**95601560**	**95601561**	**95601562**	**95601563**	**95601565**	**95621561**	**95621562**	**95621564**	**95621566**
Type 8	**95601570**	**95601571**	**95601572**	**95601573**	**95601575**	**95621571**	**95621572**	**95621574**	**95621576**
					single bar	double bar			



MINIMUM AND MAXIMUM DIMENSIONS OF TYPES 1, 2, 3, 4

Aluminium	1000A to 2000A	2250A to 4500A
Copper	1000A to 2500A	3000A to 5000A
(U) min/MAX [mm]	**200/400**	**200/400**
(A) min/MAX [mm]	**280/1199**	**280/1199**
(B) min/MAX [mm]	**280/999**	**310/999**
(C) min/MAX [mm]	**500/1099**	**500/1099**

MINIMUM AND MAXIMUM DIMENSIONS OF TYPES 5, 6, 7, 8

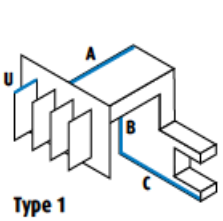
Aluminium	1000A to 2000A	2250A to 4500A
Copper	1000A to 2500A	3000A to 5000A
(U) min/MAX [mm]	**200/400**	**200/400**
(A) min/MAX [mm]	**280/1199**	**280/1199**
(B) min/MAX [mm]	**280/999**	**310/999**
(C) min/MAX [mm]	**310/1099**	**310/1099**

Dimensions H and b are variable, according to the rating specified in the specifications on page 94-95.

The dimensions are referred to standard elements.

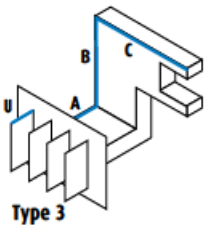
See page 79 for dimensions of coverplate (1) and bars (2)

Non Standard elements (with measurements that are different from those shown in the figure) are referred to the MIN/MAX values specified in the table.

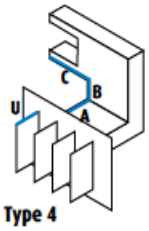


Type 1

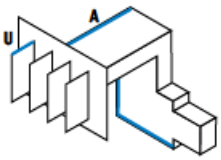
Type 2



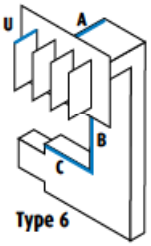
Type 3



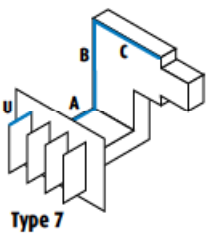
Type 4



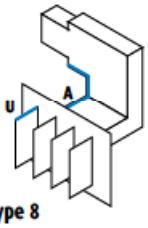
Type 5



Type 6



Type 7



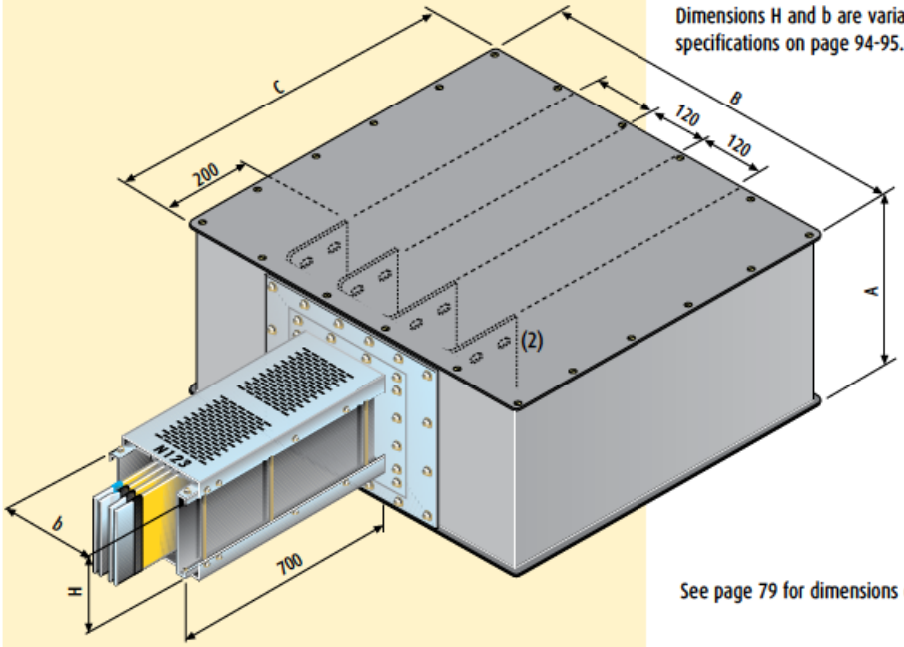
Type 8

Feed units

END FEED UNIT

Aluminium	1000A	1250A	1600A	2000A	2250A	2500A	3200A	4000A	4500A
RH	**90601101**	**90601102**	**90601103**	**90601105**	**90621101**	**90621102**	**90621103**	**90621105**	**90621106**
LH	**90601111**	**90601112**	**90601113**	**90601115**	**90621111**	**90621112**	**90621113**	**90621115**	**90621116**
				single bar	double bar				

Copper	1000A	1250A	1600A	2000A	2500A	3000A	3200A	4000A	5000A
RH	**95601100**	**95601101**	**95601102**	**95601103**	**95601105**	**95621101**	**95621102**	**95621104**	**95621106**
LH	**95601110**	**95601111**	**95601112**	**95601113**	**95601115**	**95621111**	**95621112**	**95621114**	**95621116**
					single bar	double bar			



Dimensions H and b are variable, according to the rating specified in the specifications on page 94-95.

REAR CABLE ENTRY

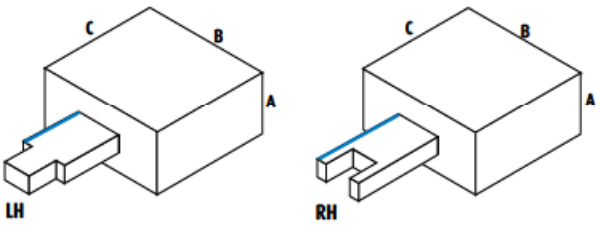
Aluminium gland plate(s) for cable entry
170mm x 410mm

Single bar : 1 plate
Double bar : 2 plates

See page 79 for dimensions of bars (2)

DIMENSIONS OF THE BOX

Aluminium	630A to 2000A	2250A to 4500A
Copper	1000A to 2500A	3000 to 5000A
(A) [mm]	**320**	**320**
(B) [mm]	**610**	**810**
(C) [mm]	**610**	**610**



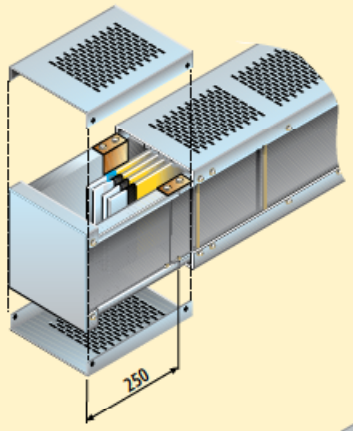
Protection accessories

END COVER

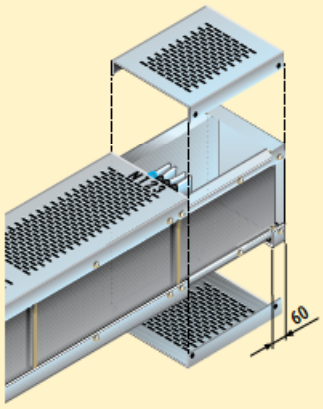
Aluminium	1000A	1250A	1600A	2000A	2250A	2500A	3200A	4000A	4500A
RH	**95503111**	**95503131**	**95503131**	**95503141**	**95513111**	**95513131**	**95513131**	**95513141**	**95513151**
LH	**95503211**	**95503231**	**95503231**	**95503241**	**95513211**	**95513231**	**95513231**	**95513241**	**95513251**
				single bar	double bar				

Copper	1000A	1250A	1600A	2000A	2500A	3000A	3200A	4000A	5000A
RH	**95503101**	**95503111**	**95503121**	**95503131**	**95503141**	**95513121**	**95513121**	**95513131**	**95513151**
LH	**95503201**	**95503211**	**95503221**	**95503231**	**95503241**	**95513221**	**95513221**	**95513231**	**95513251**
					single bar	double bar			

Right end cover



Left end cover



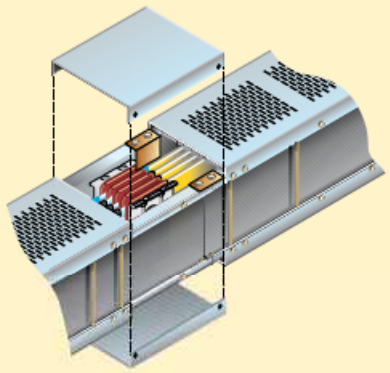
Use RH covers when starting with a LH feed unit or when reaching the LH board.

Use LH covers when starting with a RH feed unit or when reaching the RH board.

IP 31 COVER PLATES

Aluminium	1000A	1250A	1600A	2000A	2250A	2500A	3200A	4000A	4500A
IP31 junction	**95600071**	**95600081**	**95600081**	**95600051**	**95610001**	**95610081**	**95610081**	**95610071**	**95610061**
				single bar	double bar				

Copper	1000A	1250A	1600A	2000A	2500A	3000A	3200A	4000A	5000A
IP31 junction	**95600061**	**95600071**	**95600091**	**95600081**	**95600051**	**95610091**	**95610091**	**95610081**	**95610061**
					single bar	double bar			



Tap-off boxes

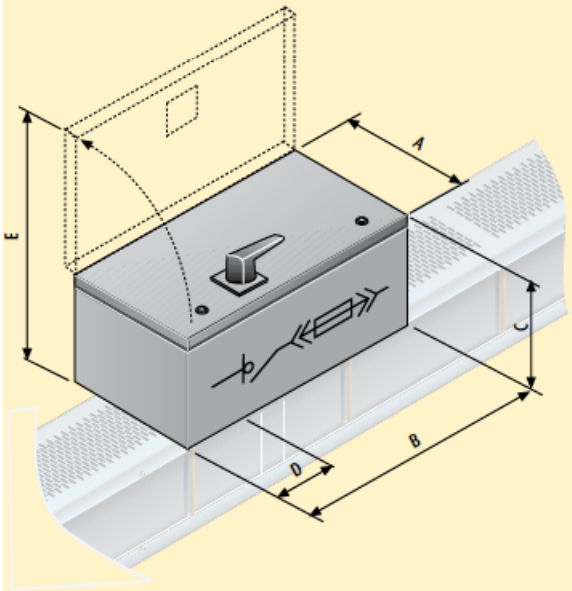
WITH AC 23A SWITCH DISCONNECTOR AND FUSE CARRIER : BOLT-ON TYPE

Aluminium

	NH	1000A	1250A	1600A	2000A	2250A	2500A	3200A	4000A	4500A
125A	00	**90601811**	**90601831**	**90601831**	**90601841**	**90621811**	**90621831**	**90621831**	**90621841**	**90621851**
250A	1	**90601812**	**90601832**	**90601832**	**90601842**	**90621812**	**90621832**	**90621832**	**90621842**	**90621852**
400A	2	**90601813**	**90601833**	**90601833**	**90601843**	**90621813**	**90621833**	**90621833**	**90621843**	**90621853**
630A	3	**90601814**	**90601834**	**90601834**	**90601844**	**90621814**	**90621834**	**90621834**	**90621844**	**90621854**
800A	4	**90601815**	**90601835**	**90601835**	**90601845**	**90621815**	**90621835**	**90621835**	**90621845**	**90621855**
1000A	4	**90601816**	**90601836**	**90601836**	**90601846**	**90621816**	**90621836**	**90621836**	**90621846**	**90621856**
1250A	4		**90601837**	**90601837**	**90601847**	**90621817**	**90621837**	**90621837**	**90621847**	**90621857**
					single bar	double bar				

Copper

	NH	1000A	1250A	1600A	2000A	2500A	3200A	3200A	4000A	5000A
125A	00	**95601801**	**95601811**	**95601821**	**95601831**	**95601841**	**95621821**	**95621821**	**95621831**	**95621851**
250A	1	**95601802**	**95601812**	**95601822**	**95601832**	**95601842**	**95621822**	**95621822**	**95621832**	**95621852**
400A	2	**95601803**	**95601813**	**95601823**	**95601833**	**95601843**	**95621823**	**95621823**	**95621833**	**95621853**
630A	3	**95601804**	**95601814**	**95601824**	**95601834**	**95601844**	**95621824**	**95621824**	**95621834**	**95621854**
800A	4	**95601805**	**95601815**	**95601825**	**95601835**	**95601845**	**95621825**	**95621825**	**95621835**	**95621855**
1000A	4	**95601806**	**95601816**	**95601826**	**95601836**	**95601846**	**95621826**	**95621826**	**95621836**	**95621856**
1250A	4		**95601817**	**95601827**	**95601837**	**95601847**	**95621827**	**95621827**	**95621837**	**95621857**
						single bar	double bar			



The direction of the disconnector (fuses) must be specified when ordering.
The bolted boxes are to be installed when the busbar is disconnected and not energized.
For operating voltages (Ue) different from 400V, please contact Zucchini.

Fuses not included. See Legrand catalogue.

Rated insulating AC voltage	Ui [V]	**1000**
Rated impulse withstand voltage	Uimp [kV]	**12**
Type of rated duty		**AC23A**
Rated conditional short circuit current	[kA]	**100**
		CEI EN 60947-3

If required, the box can be supplied so that It can be used with a DPX moulded case circuit breaker (MCCB) or empty.

DIMENSIONS OF THE BOX

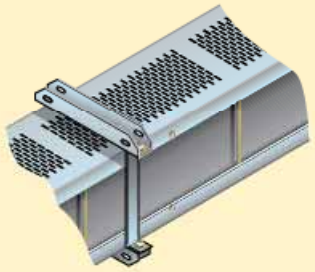
Box rating	125A to 400A	630A	800A to 1250A
(A) [mm]	**365**	**400**	**450**
(B) [mm]	**630**	**750**	**1050**
(C) [mm]	**270**	**280**	**300**
(D) [mm]	**95**	**115**	**115**
(E) [mm]	**635**	**680**	**750**

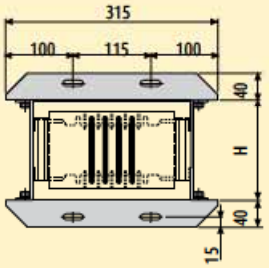
Fixing supports

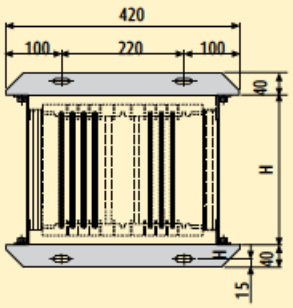
SUSPENSION BRACKETS

Aluminium	1000A	1250A	1600A	2000A	2250A	2500A	3200A	4000A	4500A
	95503711	**95503731**	**95503731**	**95503741**	**95513711**	**95513731**	**95513731**	**95513741**	**95513751**
				single bar	double bar				

Copper	1000A	1250A	1600A	2000A	2500A	3000A	3200A	4000A	5000A
	95503701	**95503711**	**95503721**	**95503731**	**95503741**	**95513721**	**95513721**	**95513731**	**95513751**
					single bar	double bar			







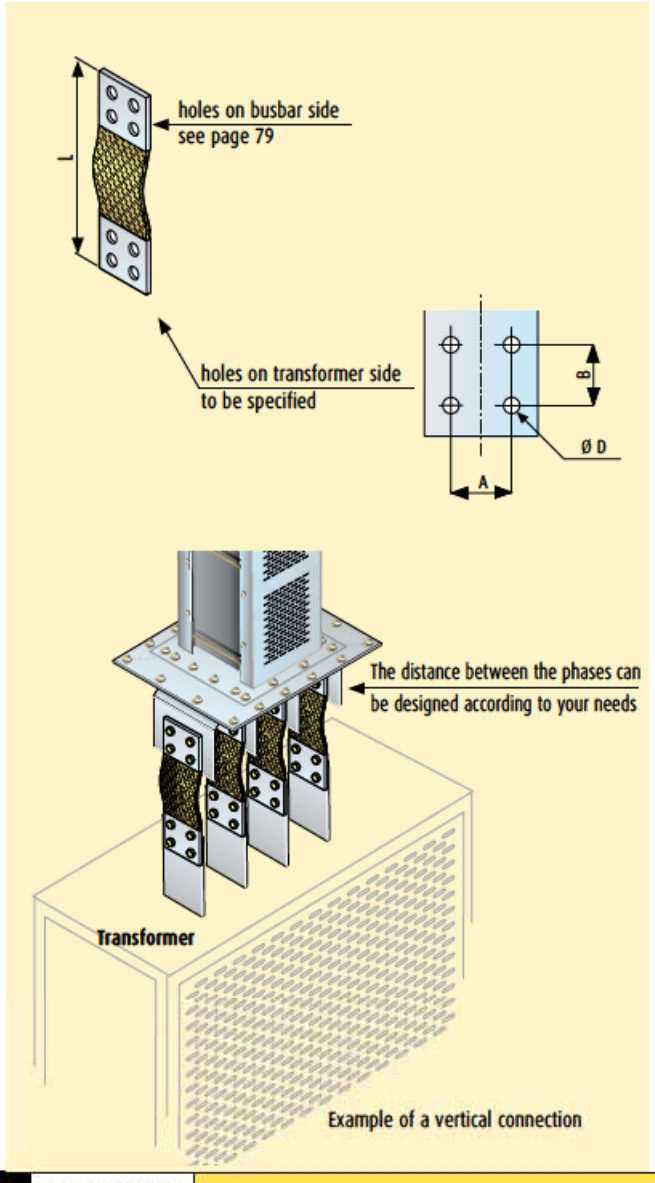
Dimension H is variable, according to the rating specified in the specifications on page 94-95

Zucchini transformer connections

FLEXIBLE BRAID CONNECTIONS

Aluminium	1000A	1250A	1600A	2000A	2250A	2500A	3200A	4000A	4500A
braid / phase	**1**	**1**	**1**	**1**	**2**	**2**	**2**	**2**	**2**
Length [mm]									
300-450	**FC200010**	**FC300010**	**FC500010**	**FC600010**	**FC400010**	**FC400010**	**FC500010**	**FC600010**	**FC700010**
451-600	**FC200020**	**FC300020**	**FC500020**	**FC600020**	**FC400020**	**FC400020**	**FC500020**	**FC600020**	**FC700020**
601-750	**FC200030**	**FC300030**	**FC500030**	**FC600030**	**FC400030**	**FC400030**	**FC500030**	**FC600030**	**FC700030**
More than 750	**FC200099**	**FC300099**	**FC500099**	**FC600099**	**FC400099**	**FC400099**	**FC500099**	**FC600099**	**FC700099**

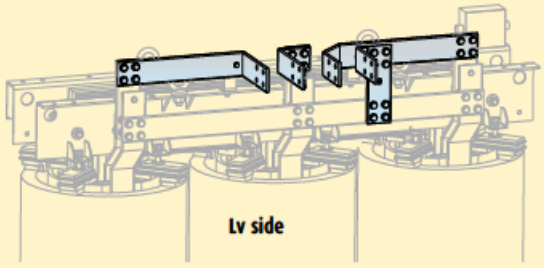
Copper	1000A	1250A	1600A	2000A	2500A	3000A	3200A	4000A	5000A
braid / phase	**1**	**1**	**1**	**1**	**2**	**2**	**2**	**2**	**2**
Length [mm]									
300-450	**FC200010**	**FC300010**	**FC500010**	**FC600010**	**FC400010**	**FC500010**	**FC500010**	**FC600010**	**FC700010**
451-600	**FC200020**	**FC300020**	**FC500020**	**FC600020**	**FC400020**	**FC500020**	**FC500020**	**FC600020**	**FC700020**
601-750	**FC200030**	**FC300030**	**FC500030**	**FC600030**	**FC400030**	**FC500030**	**FC500030**	**FC600030**	**FC700030**
More than 750	**FC200099**	**FC300099**	**FC500099**	**FC600099**	**FC400099**	**FC500099**	**FC500099**	**FC600099**	**FC700099**



When ordering, specify:
holes on transformer side (dimensions A, B, Ø D) and length L.

The system:
The EdM transformer advantage

CONNECTION SETUP

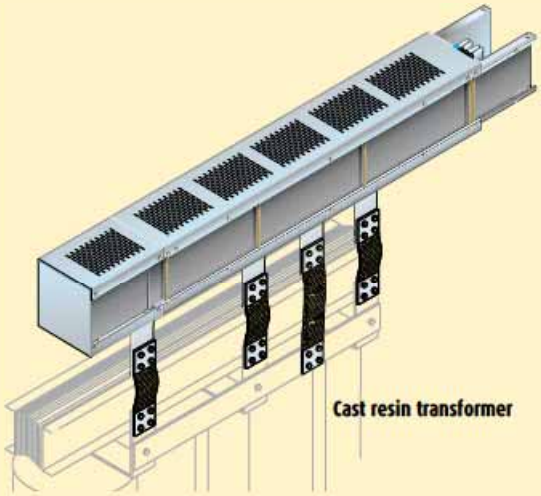


The Legrand group product synergy answers to the global installation need.
The EdM cast resin transformers have specifically designed connections for the Zucchini busbars.

The version shown represents one of the standardized solutions.

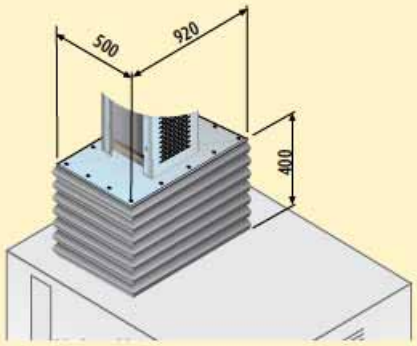
For the outgoing busbar run from the transformer, see pages 78-85.

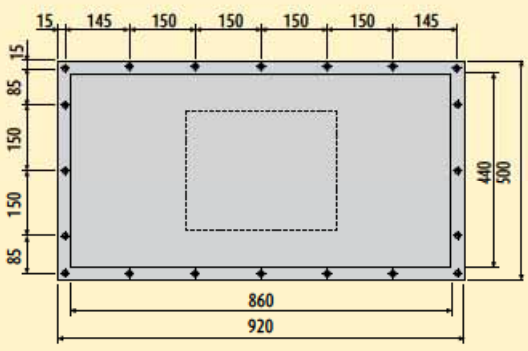
ATR CONNECTION INTERFACE



In order to achieve an ATR element, it is necessary to have the technical drawing of the transformer.

PROTECTIVE BELLOWS



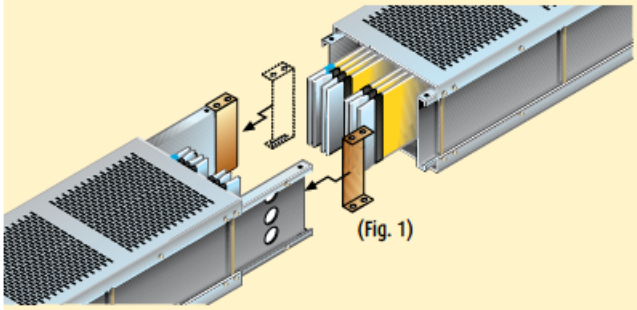


All ratings	Item
	SF925040

Recommended for protection of the interface connection on panelboards, dry-type transformer with enclosure and oil-type transformers.
For EdM cast resin transformers, custom-made connections are available upon request (see above)

Installation instructions

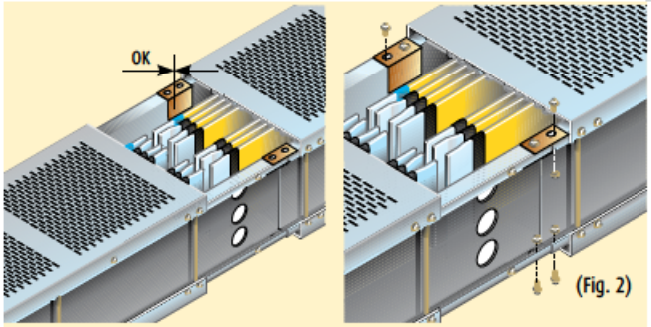
INSTALLATION SEQUENCE OF THE JUNCTION



(Fig. 1)

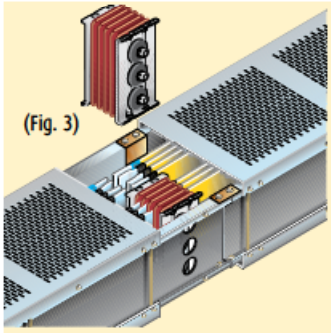
Make sure that the contacts are clean.

Insert the C-plates on both sides of the structure of the element (fig.1).

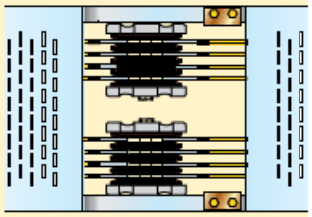


(Fig. 2)

When the elements are close, slide the plates to overlap them. Tighten the screws (supplied) (Fig. 2).



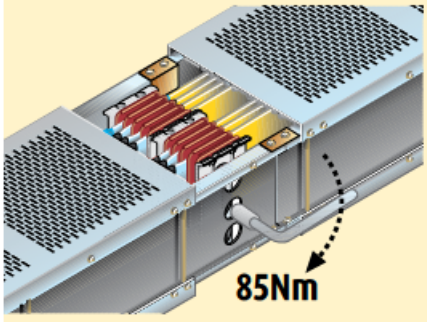
(Fig. 3)

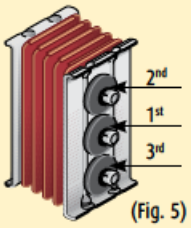


(Fig. 4)

Insert the monoblocs to connect the phases (Fig. 3).

Extremely fast installation: in the most complex configuration there are only 6 bolts to tighten.

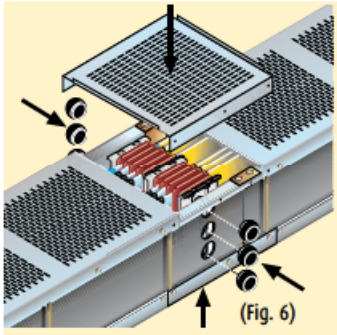




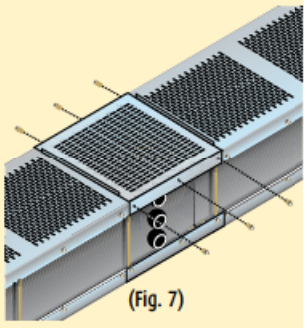
(Fig. 5)

Tighten the monoblocs (CH19 – 85Nm).

In the version with the 210mm bar, tighten the first central screw through the hole on the plate and then tighten the other ones (Fig. 5).



(Fig. 6)



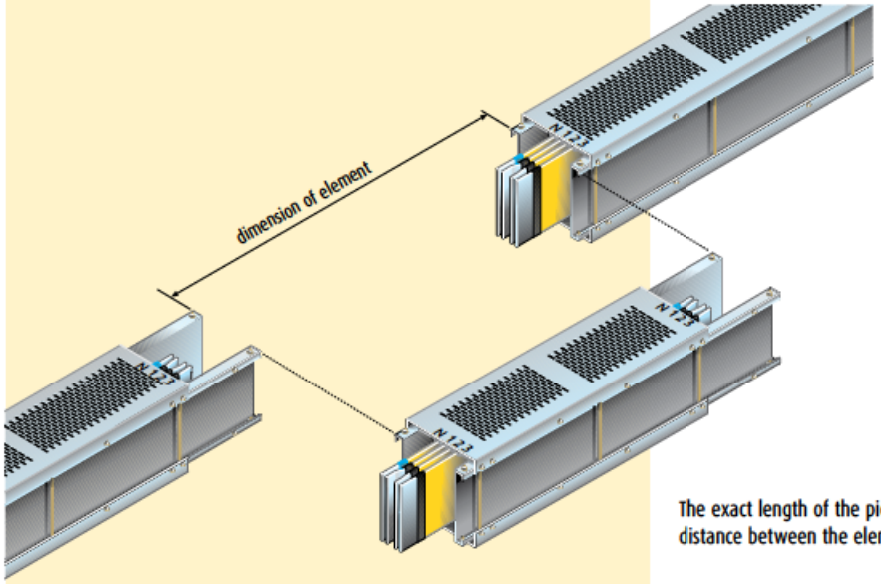
(Fig. 7)

Place the black caps on the holes of the plates and complete the connection by using the junction covers (Fig. 6).

Complete the assembly by tightening the screws of the covers (Fig. 7).

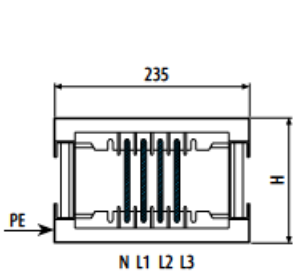
Measurement of special element lengths

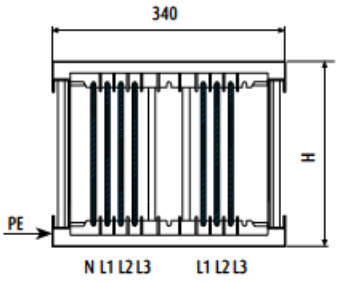
MEASUREMENT OF THE DIMENSION TO ORDER A SPECIAL STRAIGHT ELEMENT



The exact length of the piece to be ordered can be determined by measuring the distance between the elements (as shown in the picture).

Technical data





ALUMINIUM

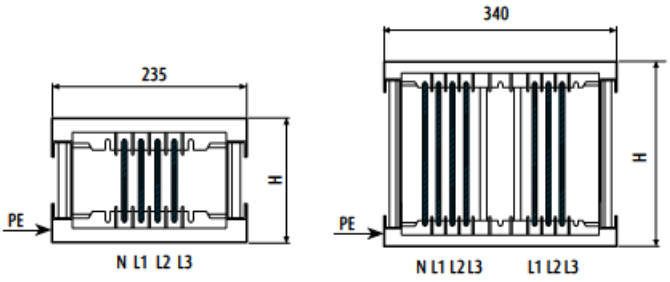
		HR C1 [3L+N 100%+PE (casing)] single bar				HR C2 [3L+N 50%+PE (casing)] double bar				
Rated current (standard installation)	In [A]	**1000**	**1250**	**1600**	**2000**	**2250**	**2500**	**3200**	**4000**	**4500**
Rating for different installation	In [A]	700	875	1120	1400	1575	1750	2240	2800	3150
Casing overall dimensions	b x H [mm]	235x171	235x221	235x221	235x251	340x171	340x221	340x221	340x251	340x271
Operating/insulation voltage	Ue [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000
Frequency	f [Hz]	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60
Rated short-time current for three-phase fault (1s)	I_{cw} [kA]rms	40	50	50	60	70	90	90	90	100
Allowable peak current for three-phase fault	I_{pk} [kA]	84	105	105	132	154	198	198	198	220
Rated short-time current for single-phase fault (1 s)	I_{cw} [kA]rms	24	30	30	36	42	54	54	54	60
Allowable peak current for single-phase fault	I_{pk} [kA]	50	63	63	76	88	119	119	119	132
Allowable specific energy for three-phase fault	I^2t [MA^2s]	1600	2500	2500	3600	4900	8100	8100	8100	10000
Phase resistance at 20° C	R_{20} [mΩ/m]	0.056	0.037	0.034	0.029	0.027	0.018	0.017	0.014	0.012
Neutral resistance at 20 °C	R_{20} [mΩ/m]	0.056	0.037	0.034	0.029	0.054	0.037	0.034	0.029	0.024
Phase reactance	X [mΩ/m]	0.087	0.066	0.066	0.053	0.049	0.034	0.034	0.024	0.024
Neutral reactance	X_n [mΩ/m]	0.087	0.066	0.066	0.053	0.098	0.068	0.068	0.048	0.048
Phase resistance at thermal conditions	R_t [mΩ/m]	0.076	0.050	0.046	0.038	0.036	0.025	0.023	0.019	0.016
Resistance of the protective conductor	R_{PE} [mΩ/m]	0.113	0.099	0.099	0.092	0.095	0.085	0.085	0.080	0.076
Reactance of the protective conductor	X_{PE} [mΩ/m]	0.130	0.130	0.130	0.130	0.110	0.110	0.110	0.110	0.110
Resistance of the fault loop Phase-PE	R_0 [mΩ/m]	0.189	0.149	0.145	0.131	0.131	0.110	0.107	0.099	0.093
Reactance of the fault loop Phase-Pe (50 Hz)	X_0 [mΩ/m]	0.217	0.196	0.196	0.183	0.159	0.144	0.144	0.134	0.134
Resistance of the fault loop phase-neutral	R_0 [mΩ/m]	0.132	0.087	0.080	0.067	0.090	0.062	0.057	0.048	0.040
Reactance of the fault loop phase-neutral (50 Hz)	X_0 [mΩ/m]	0.217	0.196	0.196	0.183	0.208	0.178	0.178	0.158	0.158
Voltage drop factor with distributed load k [V/m/A]10^{-6} $\Delta V = k \cdot L \cdot I_e \cdot 10^{-6}$ [V]	cosφ = 0.70	99.9	71.1	68.5	56.1	50.3	36.2	34.9	26.5	24.6
	cosφ = 0.75	99.2	70.2	65.7	55.4	51.8	35.7	34.3	26.3	24.2
	cosφ = 0.80	97.9	68.9	65.9	54.2	50.6	35.0	34.5	25.8	23.6
	cosφ = 0.85	95.6	65.8	63.8	52.5	49.1	33.9	32.4	25.1	22.8
	cosφ = 0.90	92.0	63.7	60.6	50.0	46.7	32.8	30.7	24.1	21.6
	cosφ = 0.95	86.1	58.9	55.4	46.0	43.1	28.7	23.0	22.3	18.7
	cosφ = 1.00	65.8	43.2	39.6	33.3	31.4	21.6	18.8	16.6	13.9
Weight	p [kg/m]	21.2	26.2	27.1	30.0	30.8	37.9	39.5	44.0	49.0
Fire load	[kWh/m]	4.1	4.1	4.1	4.1	6.6	6.6	6.6	6.6	6.6
Degree of protection (CEI EN60529)	IP	30-31	30-31	30-31	30-31	30-31	30-31	30-31	30-31	30-31
Joule effect losses at rated current	P [W/m]	228	234	351	462	551	467	702	924	976

Product fully in compliance with the following Standards:
IEC 439-1 and 2, EN 60439 part 1 and 2, DIN VDE 0660 part 500 and 502
Product suitable for these climates:
Constant humid climate (DIN IEC 68 / 2- 3)
Cyclical humid climate (DIN IEC 68 / 2- 30)

Contact Zucchini for the technical data tables of the other versions.

In: rated current referred to a room temperature of 40°C
ΔV : for calculations, see page 97

Technical data



COPPER

		HR C1 [3L+N 100%+PE (casing)] single bar					HR C2 [3L+N 50%+PE (casing)] double bar			
Rated current (standard installation)	In [A]	**1000**	**1250**	**1600**	**2000**	**2500**	**3000**	**3200**	**4000**	**5000**
Rating for different installation	In [A]	700	875	1120	1400	1575	2100	2240	2800	3500
Casing overall dimensions	b x H [mm]	235x151	235x171	235x181	235x221	235x251	340x181	340x181	340x221	340x271
Operating/insulation voltage	Ue [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000
Frequency	f [Hz]	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60
Rated short-time current for three-phase fault (1s)	I_{cw} [kA]rms	40	50	50	60	70	90	90	90	100
Allowable peak current for three-phase fault	I_{pk} [kA]	84	105	105	132	154	198	198	198	220
Rated short-time current for single-phase fault (1 s)	I_{cw} [kA]rms	24	30	30	36	42	54	54	54	60
Allowable peak current for single-phase fault	I_{pk} [kA]	50	63	63	76	88	119	119	119	132
Allowable specific energy for three-phase fault	I^2t [MA^2s]	1600	2500	2500	3600	4900	8100	8100	8100	10000
Phase resistance at 20° C	R_{20} [mΩ/m]	0.032	0.029	0.028	0.021	0.016	0.014	0.012	0.009	0.007
Neutral resistance at 20 °C	R_{20} [mΩ/m]	0.032	0.029	0.028	0.021	0.016	0.028	0.025	0.019	0.013
Phase reactance	X [mΩ/m]	0.097	0.076	0.074	0.074	0.040	0.031	0.031	0.026	0.023
Neutral reactance	X_n [mΩ/m]	0.097	0.076	0.074	0.074	0.040	0.062	0.062	0.052	0.046
Phase resistance at thermal conditions	R_t [mΩ/m]	0.043	0.040	0.038	0.029	0.021	0.019	0.017	0.013	0.009
Resistance of the protective conductor	R_{PE} [mΩ/m]	0.119	0.112	0.109	0.098	0.078	0.091	0.091	0.084	0.075
Reactance of the protective conductor	X_{PE} [mΩ/m]	0.130	0.130	0.130	0.130	0.130	0.110	0.110	0.110	0.110
Resistance of the fault loop Phase-PE	R_0 [mΩ/m]	0.161	0.152	0.147	0.126	0.099	0.110	0.108	0.096	0.084
Reactance of the fault loop Phase-Pe (50 Hz)	X_0 [mΩ/m]	0.227	0.206	0.204	0.204	0.170	0.141	0.141	0.136	0.133
Resistance of the fault loop phase-neutral	R_0 [mΩ/m]	0.074	0.069	0.066	0.050	0.037	0.047	0.041	0.031	0.022
Reactance of the fault loop phase-neutral (50 Hz)	X_0 [mΩ/m]	0.227	0.206	0.204	0.204	0.170	0.172	0.172	0.162	0.156
Voltage drop factor with distributed load $\Delta V = k \cdot L \cdot I_e \cdot 10^{-6}$ [V]	k [V/m/A]10^{-6} cosφ = 0.70	85.5	71.1	68.9	63.1	37.5	30.7	29.3	23.6	19.6
	cosφ = 0.75	83.3	69.3	67.2	60.9	36.6	30.2	26.6	23.0	18.9
	cosφ = 0.80	80.0	67.0	64.9	58.3	35.4	29.3	27.7	22.2	18.0
	cosφ = 0.85	75.7	63.9	61.8	54.8	33.7	28.2	26.4	21.0	16.9
	cosφ = 0.90	68.9	59.6	57.6	50.2	31.5	26.6	24.7	18.6	15.6
	cosφ = 0.95	61.4	53.2	51.4	43.5	28.2	24.0	22.1	17.3	13.4
	cosφ = 1.00	37.0	34.4	33.0	24.7	18.2	16.5	14.5	10.8	7.6
Weight	p [kg/m]	34.2	36.4	37.7	46.5	60.3	59.0	64.6	81.0	108.2
Fire load	[kWh/m]	4.1	4.1	4.1	4.1	4.1	6.6	6.6	6.6	6.6
Degree of protection (CEI EN60529)	IP	30-31	30-31	30-31	30-31	30-31	30-31	30-31	30-31	30-31
Joule effect losses at rated current	P [W/m]	128	186	293	343	395	515	513	601	660

Product fully in compliance with the following Standards:
IEC 439-1 and 2, EN 60439 part 1 and 2, DIN VDE 0660 part 500 and 502
Product suitable for these climates:
Constant humid climate (DIN IEC 68 / 2- 3)
Cyclical humid climate (DIN IEC 68 / 2- 30)

Contact Zucchini for the technical data tables of the other versions.

In: rated current referred to a room temperature of 40°C
ΔV : for calculations, see page 97

Certificates

The High Rating has been given Type-Approval Certifications by the most prestigious Electro-technical Agencies:

- Certificate of Compliance with Standards CEI EN 60439-2 (CESI - LOVAG)
- GOST Type-Approval Certification (Russia)
- CESI certificate for IP30 - IP31
- Fire resistance measurements of the Fire Barrier
- Electromagnetic emissions measurements

Determination of the operating current of a busbar

In order to determine the current whereby it is necessary to choose the busbar, the following planning data must be known:

- type of load inputs: three-phase or single-phase;
- type of circuit input: from one end, from both ends, central input, etc.;
- nominal input voltage;
- number, power and cosφ of loads which are to be fed by the busbar;
- load diversity factor;
- load use nominal factor;
- assumed short circuit current at the input point;
- room temperature;
- type of busbar installation (edgewise, flat, vertical).

When using a three-phase power supply, the operating current is determined by the following formula:

$$I_b = \frac{PTOT \cdot \alpha \cdot \beta \cdot d}{\sqrt{3} \cdot Ue \cdot \cos\varphi_{medium}} [A]$$

where:

I_b	operating current [A];
α	load diversity factor [.];
β	load use factor [.];
d	feed factor [.];
P_{TOT}	sum of the total active power of installed loads [W];
Ue	operating voltage [V];
$\cos\varphi_{medium}$	average load power factor [.];

The "d" input factor has a value of 1 when the busbar is fed from one end only. The value is 1/2 if fed from the centre or if it is fed from each end.

Once the operating current has been determined, choose the busbar with a rated current immediately higher than the one calculated.

All Zucchini products have been designed and tested for an average room temperature of 40°C; should they be installed in rooms with average daily temperatures different from 40 °C the rated current of the busbar should be multiplied by a k1 factor that is greater than the unit for temperatures lower than 40°C and lower than the unit if the room temperature is higher than 40°C.

Room temperature [°C]	15	20	25	30	35	40	45	50	55	60
k_t thermal correction factor [.]	1.15	1.12	1.08	1.05	1.025	1	0.975	0.95	0.93	0.89

Finally, the following should be considered for the most appropriate busbar choice:

$$I_{nt} \geq I_b \rightarrow I_{nt} = k_1 \cdot I_n$$

where I_{nt} represents the maximum current loaded by a busbar for an indefinite time at the specified room temperature.

CHOICE OF THE RATING WHEN IN THE PRESENCE OF HARMONICS

When in the presence of harmonics, and when using the chosen I_{nt} rated current, the HP busbar to be used shall have the rating specified in the following table:

rated current	630A	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A	5000A
HP busbar to be used:										
THD ≤ 15%	630A	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A	5000A
15% < THD ≤ 33%	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A	5000A	-
THD > 33%	1000A	1250A	1600A	2000A	2500A	3200A	4000A	5000A	-	-

VOLTAGE DROP

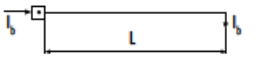
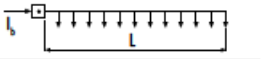
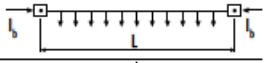
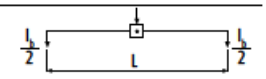
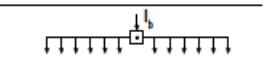
If the length of the line is particularly long (>100m) it is necessary to check the voltage drop (hereinafter specified as v.d.). If the installation is a three phase system and the power factor is not lower than cosφ = 0.7 the v.d. may be calculated with the coefficients of the voltage drop specified in the technical data table.

$$\Delta v\% = b \cdot \frac{k \cdot I_b \cdot L}{Vn} \cdot 100$$

defined

I_b	= the current that supplies the busbar [A]
Vn	= the voltage power supply of the busbar [V]
L	= the length of the busbar [m]
Δv%	= the voltage drop percentage
b	= the distribution factor of the current [.]
k	= corresponding voltage drop factor a cosφ [V/m/A] (see technical data table)

The current distribution factor "b" depends on how the circuit is fed and on the distribution of the electric loads along the busbar:

b =2	supplies at one end and load at the end of the line	
b =1	supplies at one end and with load evenly distributed	
b =0.5	supplies at both ends and with load evenly distributed	
b =0.5	central supply with loads at both ends	
b =0.25	central supply with load distributed evenly	

example: SCP 2000A Al for riser mains feed

I_b=	1600A operating current
b=1	supply from one end
k=28.7	see technical data table, page 54 (SCP 2000A Al cosφ = 0.85)
L=	100m line length
Vn=	400V operating voltage

$$\Delta v\% = 1 \cdot \frac{28.7 \cdot 10^{-6} \cdot 1600 \cdot 100}{400} \cdot 100 = 1.15\%$$

SHORT-CIRCUIT CURRENT

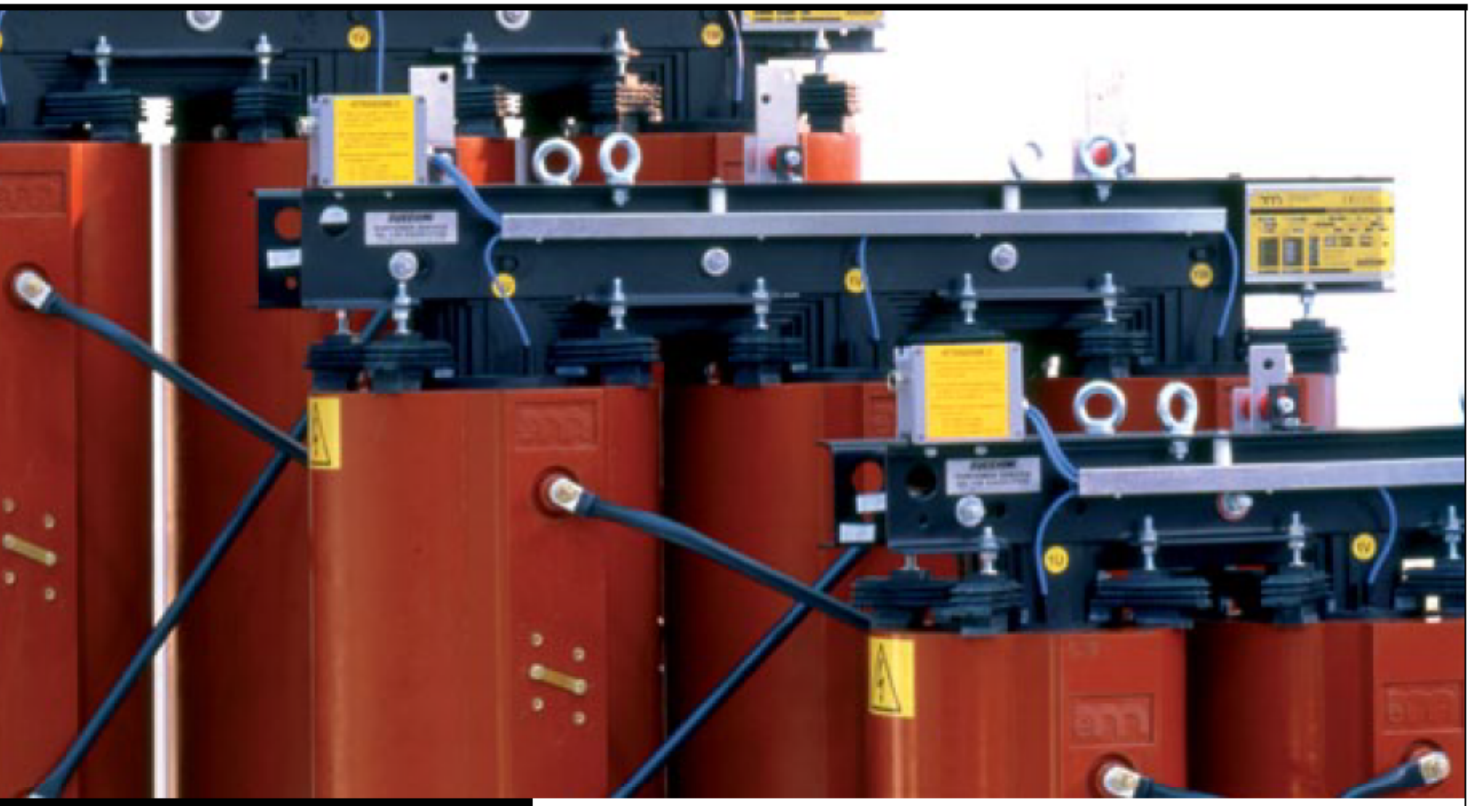
The short circuit current value I_{cw} that can be supported by our busbar trunking systems allows for both electrodynamic stress and thermal energy dissipated during the fault. The busbars must be able to sustain the short circuit current for the entire duration of the fault - i.e. for the time required for the protective device (circ. breacker) to start operating, cutting off the metal continuity and extinguishing the electric arc.

JOULE EFFECT LOSSES

Losses due to the Joule effect are essentially caused by the electrical resistance of the busbar. Lost energy is transformed into heat and contributes to the heating of the conduit.

Three-phase rating	Single phase rating
$P = 3 \cdot R_t \cdot I_b^2 \cdot 10^{-3} [W/m]$	$P = 2 \cdot R_t \cdot I_b^2 \cdot 10^{-3} [W/m]$

EdM
CAST RESIN TRANSFORMERS



SECTION CONTENTS

EdM cast resin transformers

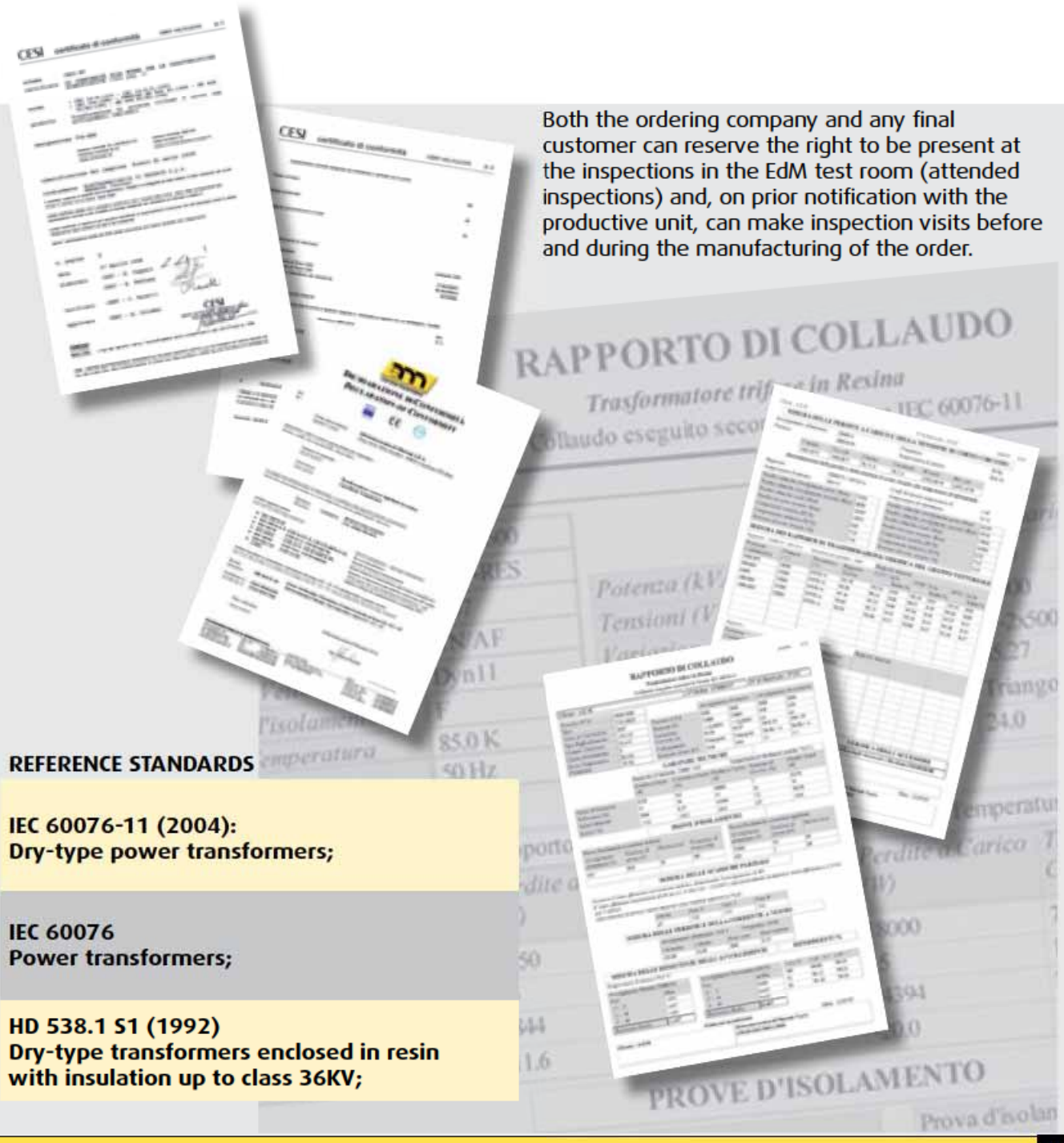
EdM has been producing cast resin transformers for over 50 years and has been providing the market with high quality and high performance products, suitable for different types of applications.
EdM is one of the most important producers of cast resin transformers in Europe: : as a result of its constant investment in research and development, it is able to provide a state-of-the-art product in every way.

Correspondence to the specific International and National Standards and **conformity** to **classes C2, E2 and F1** mean that EdM transformers can be used under particularly severe environmental conditions, in high mountain and sea environments.
The absence of inflammable insulating liquids, the self-extinguishing materials exempt of toxic gas emissions, and the low noise levels as well as the **low electromagnetic emissions** represent an environmental protection for health and public security.

Certified quality

STANDARDS
The safety and continuity of operation of the specific users depend essentially on the reliability of the transformers installed.
EdM cast resin transformers have been designed and manufactured according to the provisions laid down by the main national and international standards.

TESTS AND INSPECTION
Before the **cast resin transformers** produced by EdM are supplied to the customer, they are **individually inspected** thus eventually passing the **acceptance and type-approval tests**, if expressly requested when ordering.
At the end of the acceptance tests a specific inspection report is attached to each transformer with all executed checks.



Both the ordering company and any final customer can reserve the right to be present at the inspections in the EdM test room (attended inspections) and, on prior notification with the productive unit, can make inspection visits before and during the manufacturing of the order.

REFERENCE STANDARDS

IEC 60076-11 (2004):
Dry-type power transformers;

IEC 60076
Power transformers;

HD 538.1 S1 (1992)
Dry-type transformers enclosed in resin with insulation up to class 36KV;

Applications for EdM cast resin transformers

EdM cast resin transformers are used in a vast range of applications and represent the most reliable answer for distribution systems, energy co-generation, rectification, traction and for special needs.

DISTRIBUTION OF ELECTRICAL POWER:

SERVICE SECTOR
- Hospitals
- Banks
- Schools
- Shopping and cultural centres
- Management centres
- IT

INFRASTRUCTURES
- Airports
- Military installations
- Ports
- Off-shore installations

INDUSTRY IN GENERAL
- Automotive technology
- Mechanical industries
- Chemical industries
- Paper mills
- Foundries

CONVERSION AND RECTIFICATION

- Air-conditioning systems
- Continuity units
- Railways, underground railways, tramways and cable cars
- Lifting systems
- Welding lines
- Induction furnaces
- Naval propulsion
- Pumping stations

STEP-UP TRANSFORMERS FOR THE PRODUCTION OF POWER

- Wind parks
- Photovoltaic systems
- Cogeneration systems
- Industrial applications

TRANSFORMERS FOR RECTIFICATION AND TRACTION

Transformers for rectification and traction feature:

- very low total losses
- optimised design on the basis of the specific harmonic load of the application
- small dimensions
- windings designed to optimise the temperature rise of operation
- design resistant to network stresses

TRANSFORMERS FOR WIND AND PHOTOVOLTAIC GENERATORS

Transformers for wind and photovoltaic generators feature:

- very low total losses
- reduced small height and width
- resistance to atmospheric force 125kV
- design optimised for variable loads
- very silent operation
- pre-equipped for the mounting of surge arresters
- designed to be housed into the wind generator

TRANSFORMERS FOR MARINE APPLICATIONS

Transformers for marine applications feature:

- optimised design on the basis of the specific harmonic loads
- small dimensions and weight
- EdM's experience in the specific sector
- the design's adaptability to the installation dimensional conditions
- specific containment and cooling enclosure

EdM range

The EdM range of cast resin transformers is large and can answer every market need, by proposing standard products and special products on specific request and in close collaboration with the customer.

Supply of standard products:

Distribution transformers
– Rated power: 100 to 3150 kVA
– Primary rated voltage: up to 36kV
– Secondary rated voltage: up to 433V

Supply of special products:

Special transformers
– Rated power: up to 20,000 kVA
– Primary rated voltage: up to 36kV
– Secondary rated voltage: on request

Please contact EdM for the special transformers. The company is able to offer all the necessary assistance and technical competence in identifying the solution which will best satisfy the specific design features and needs.

EdM range

EdM standard cast resin transformers are classified on the basis of their use.

SERIES:

CLE – CERTIFIED LOW ELECTROMAGNETIC-EMISSIONS

R – REDUCED LOSSES

N – NORMAL LOSSES

D – DISTRIBUTION

S – STANDARD

EdM cast resin transformers are supplied:
- in standard version (without enclosure IP00)
- with protective enclosure (degree of protection IP21, IP31 or IP23)

STANDARD EQUIPMENT
- Bi-directional castors
- Lifting eyebolts
- Terminals for earth connection

ACCESSORIES ON REQUEST
- Pt100 thermosensors with connection box
- PTC thermistors (as an alternative to the Pt100 thermosensors)
- Electronic unit for thermal control, with inputs for Pt100, without temperature display
- Electronic unit for thermal control, with inputs for Pt100 and temperature display
- Forced ventilation systems to temporarily increase the transformer power
- MV terminations for plug-in connections (Elastimold)
- Protective boxes
- Surge arrester kit
- Antivibrating supports

Contact EdM for further accessories or special versions.

Benefits of an EdM transformer

The EdM high-quality cast resin transformer is the ideal choice for all needs.
Using technical, state-of-the-art solutions and materials of the highest quality, EdM cast resin transformers can give you many advantages: total safety for the customer, guaranteed by the total absence of combustible products; maximum environmental protection, thanks to the absence of polluting and inflammable insulating liquids; energy saving, with the exclusive "reduced loss" range. Unlike the oil solution, a cast resin transformer does not require additional building structures, thus guaranteeing the maximum practicality and flexibility straight from the beginning of the installation.
Furthermore, no cooling fluids are used, hence minimizing maintenance costs.

REDUCTION OF THE ENVIRONMENTAL IMPACT
- low fire hazard
- no risk of insulating fluid losses into the environment
- possibility of retrieving end-of-life materials
- availability of a "reduced loss" range (energy saving)

INSTALLATION SIMPLIFICATION
- reduction of the overall dimensions
- reduction of expensive construction achievements, i.e. oil recovery sump, (required according to DpR 547/55 for oil transformers with power equal to or higher than 630 KVA), absence of fire-resistant separation barriers (not required for class F1 cast resin transformers)
- possibility of installation inside buildings, including places attended by people
- immediate integration with Zucchini busbars

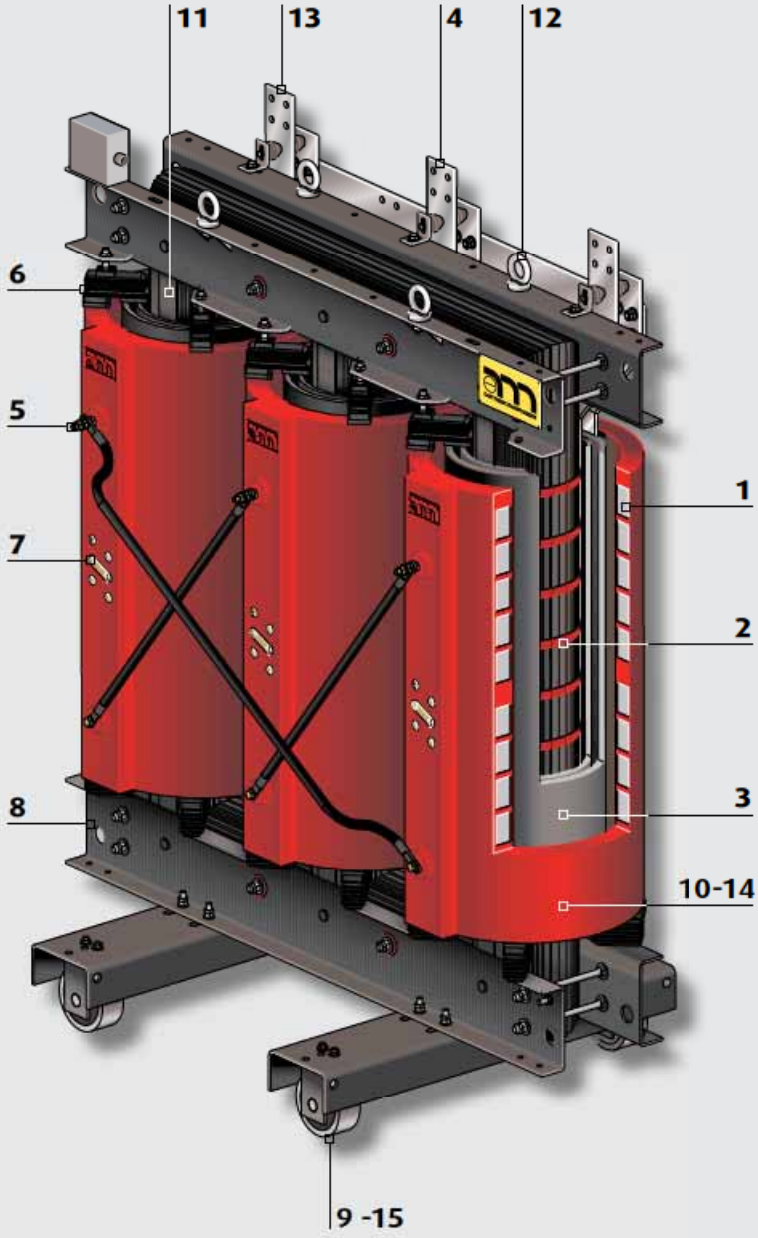
FLEXIBILITY DURING USAGE
- it is possible to increase the delivered power through the application of special ventilation systems, to be used when dealing with particular operating situations (temporary overloads or high environmental temperatures) or when it is necessary to have a temporary reserve capacity in case of emergency (nonfunctional transformer)
- no maintenance is required besides the standard periodic checks.

ENERGY SAVING
By using EdM "reduced loss" cast resin transformers, end-users will not only be able to reduce management costs, typical of cast resin transformers, but also save money on energy costs, thus protecting the environment and taking action against energy waste.
EdM has developed a simple mathematical model (available on the website) which - depending on the transformer selected, energy usage profile of the customer and on the energy costs - will produce a curve of costs whereby it is possible to point out the attainable cost and energy saving.
For instance, comparing a 1000 kVA (cl. 24kV) "reduced loss" transformer with a "distribution" transformer, after 20 years of operation the energy saving will be 12000 KWh (less environmental impact) and the cost effectiveness for the customer will be about 28000 *.
For more details, see section Energy Saving on our website.

* the calculation was based on 3% of the cost of money and considering an energy cost of 0.19 /kWh.

The EdM technology

EdM is distinguished by its high-quality production. Using state-of-the-art constructional techniques and equipment and with constant attention throughout the production process (ISO 9001:2000) and a rigorous check in the final phase, guarantees quality for 100% of the production.



1 MV windings in aluminium strip coils, cast in resin under vacuum.

2 Core in three columns in magnetic lamination with high-permeability oriented crystals, also available with low losses.

3 LV windings in aluminium plate/sheet and vacuum-cast impregnated insulation material.

4 LV connections upwards (standard) or downwards version (on request).

5 MV connections upwards (standard) or downwards version (on request).

6 Rubber inserts attenuate the transmission of vibrations between core and windings and reduce to a minimum the operating noise generated by the transformer as well as absorbing the thermal expansion of the components.

7 Sockets on the MV side to adapt the primary voltage to the mains, which can be set with transformer switched OFF.

8 Structure, armatures and carriage, made in strong painted sheet steel.

9 Carriage with bi-directional castors.

10 The epoxy resin insulation makes the transformer low maintenance.

11 The operating temperature is checked by Pt100 sensor or PTC in the LV windings.

12 Lifting eyebolts conform to the DIN-580 UNI-2947 standards with safety hooking at 4 points.

13 Optional pre-equipment for connection of the LV connection to Zucchini busbar trunking system.

14 Class F insulating material, at 155°C, allowing for a temperature rise of 100°K. (100°C)

15 The carriage allows safe movement and is pre-equipped for the mounting of an IP reinforced boxes.

The EdM technology
Medium-voltage winding

The medium-voltage winding, made by highly automated winding machines, is constructed with the **continuous disk technique** and made in aluminium strip, interleaved with double insulation. This type of working produces uniformity of the internal and external thickness of the resin and guarantees uniform resistance to the dielectric stresses to which the transformer will be subjected in the inspection phase or during its operation at the place of installation.

The primary winding has sockets to adjust the primary voltage equal to the value ± 2 x 2.5%, made with **brass bushes protruding from the resin, copper nuts and bolts and indelible numbering.**
The insulating materials used belong to class F and the permitted temperature rises are those specified in Standards IEC 60076-11.

The pouring system under high vacuum.

Modern electronically controlled winding machines

The EdM technology
Low voltage winding

The Low Voltage winding, made with special automatic winding machines, consists of one **aluminium strip** with an intermediate **class F or class H** insulating sheet.
This solution gives the winding a certain compactness capable of forming a one-piece cylinder that can withstand possible axial and radial stresses resulting from short circuit phenomena within the system and at the downstream side of the transformer.

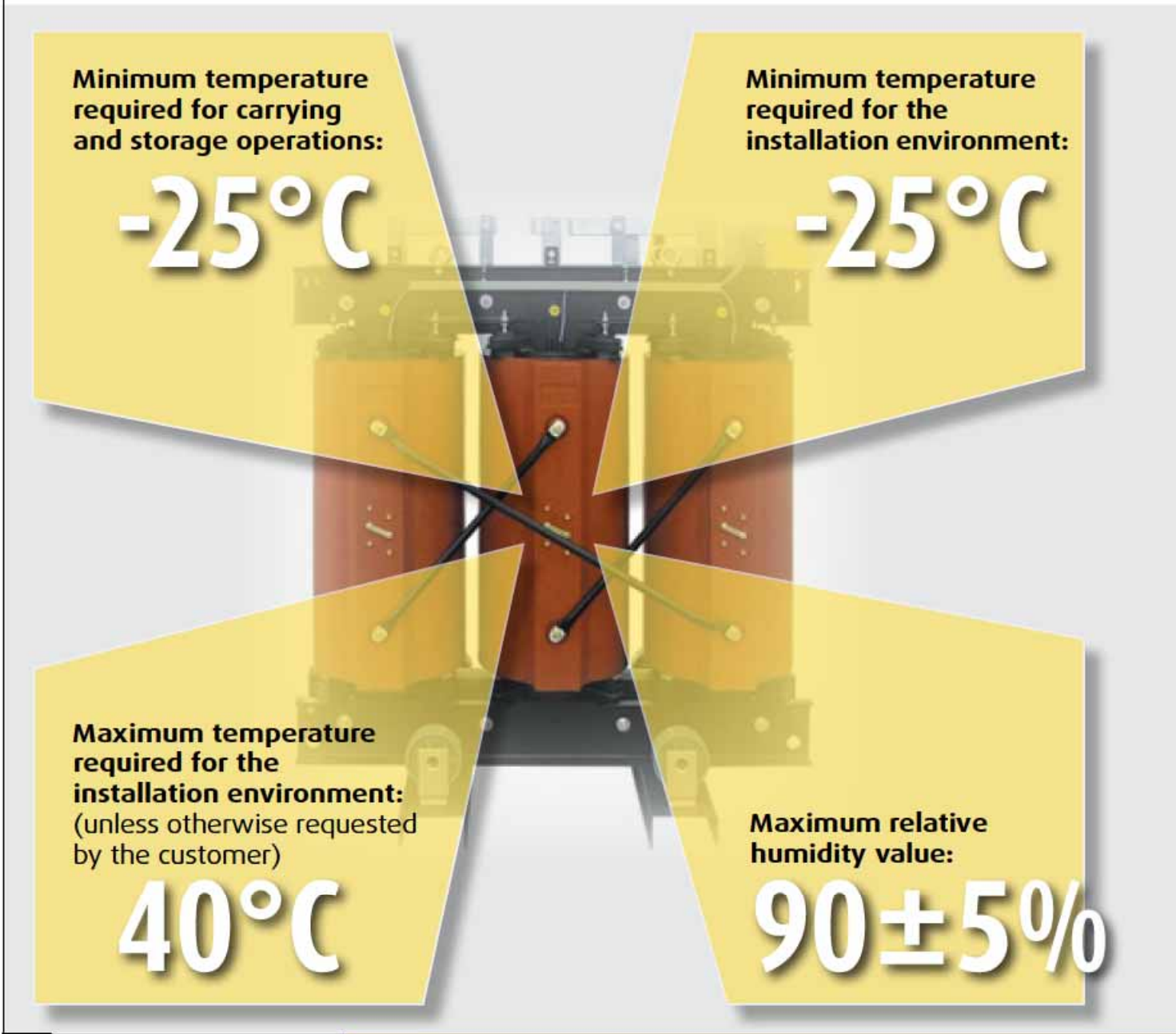
All the welds of the conductor strip with the output bars are made by butt welding in inert atmosphere and under electronic control, so as to avoid possible damage.
This winding is then vacuum-impregnated with epoxy resin so as to give it the required compactness and uniformity and to avoid the absorption of humidity throughout the life of the machine, whatever environment it needs to operate in.
This treatment also allows EdM cast resin transformers to comply with the F1 classification according to the Standards and IEC 60076-11.

LV winding system

EdM cast resin transformers: the perfect solution for any condition

EdM includes a range that can also be used under the most severe environmental conditions.

The standard installation is carried out indoors, protected from direct sunlight and with normal industrial atmosphere.



EdM cast resin transformers: the perfect solution for any condition

Standard IEC 60076-11 uses an alphanumeric code to identify the environmental, climatic and fire behaviour classes of dry-type cast resin transformers.
The whole EdM range can also be used to withstand the most severe conditions:

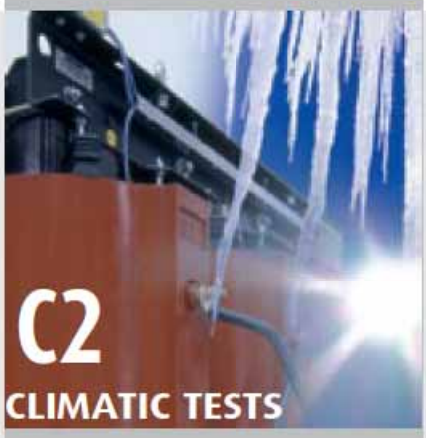
- **environmental class E2**
- **climatic class C2**
- **fire-behaviour class F1**

E2
ENVIRONMENTAL TESTS

E0
No condensation on the transformer, negligible pollution, installation in a clean and dry room.

E1
Occasional condensation and little pollution.

E2
The transformer is subject to consistent condensation, to intense pollution, or to both phenomena.



C2
CLIMATIC TESTS

C1
The transformer will not operate at temperatures lower than -5°C, but may be exposed to -25°C during transport and storage.

C2
The transformer can operate and be transported and stored at temperatures down to -25°C.

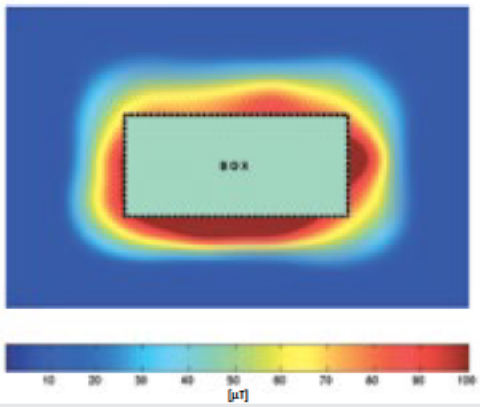
F1
FIRE RESISTANCE

F0
The risk of fire is not expected and no measures are taken to limit inflammability.

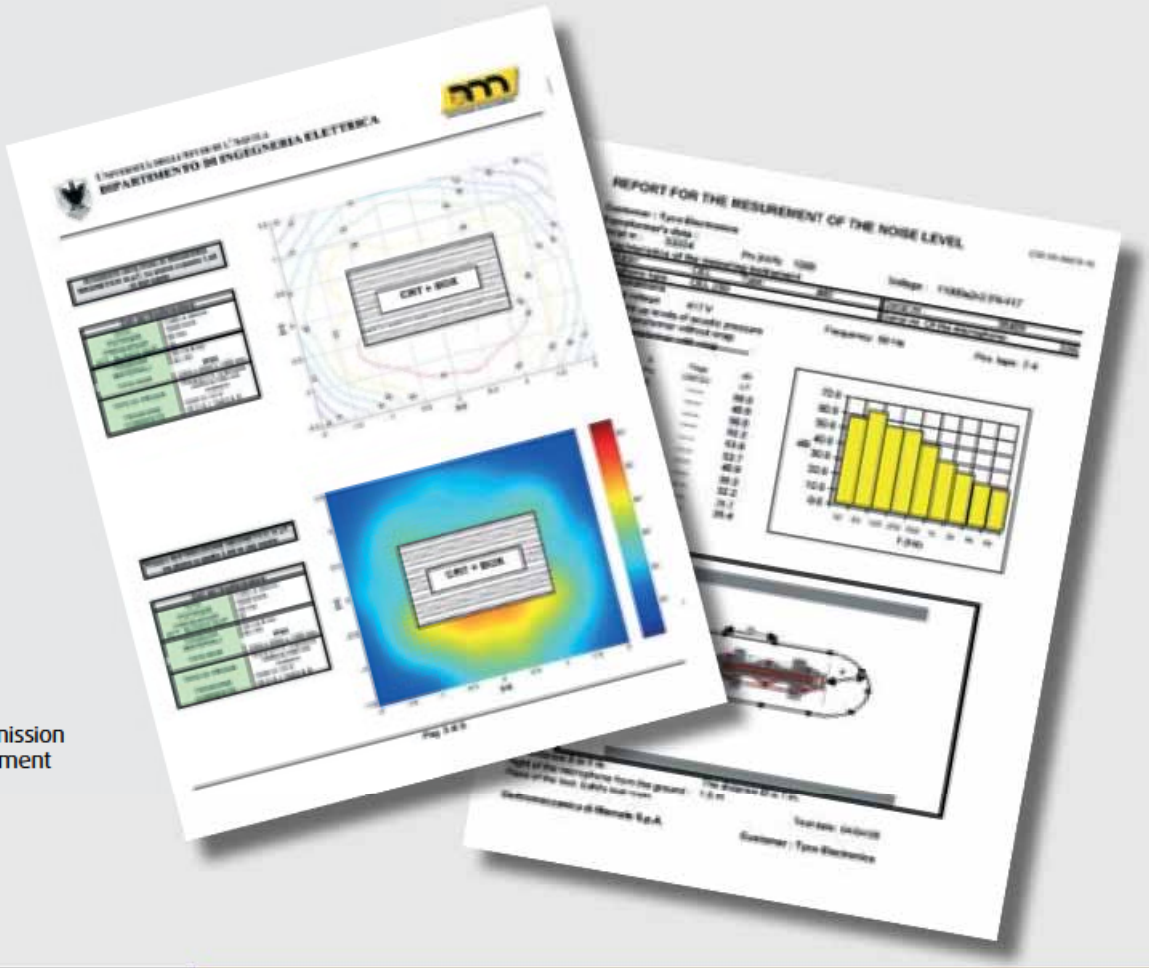
F1
The transformer is subject to the risk of fire and reduced inflammability is required. Fire on the transformer must be extinguished within laid-down limits.

The CLE range (certified low electromagnetic emission)

CLE transformers (Certified Low electromagnetic Emissions) are specifically designed and built for reducing electromagnetic emissions.
This is the ideal solution for places continuously attended by people or, for example, with particularly sensitive electronic equipment.
As a result, the EdM CLE range is fully in compliance with the DPCM regulations of 8/7/2003 (electromagnetic emissions lower than 10 microTesla), and the EdM quality target" is set to a threshold of 3 microTesla.
EdM provides each CLE cast resin transformer with a specific measurement ratio of the electromagnetic emissions.



Furthermore, by using a modern **semi-anechoic** chamber located inside the EdM laboratory, the CLE transformation systems can also be supplied with a **noise measurement** ratio **based on different emission bands**.



Example of an electromagnetic emission and noise measurement report

EdM: a system under control
Temperature and ventilation surveillance

TEMPERATURE SURVEILLANCE TOOLS
EdM gives you the possibility of combining all its transformers of any size with the best temperature detection tools now available on the market:

- **Thermal sensors - PT100**: positioned by EdM near the warmest area of the winding; they can be programmed according to the specific requirements of any installation.

- **PTC thermistors**: positioned by EdM near the warmest area of the winding; their preset alarm threshold and trip threshold are chosen by the customer when the order is placed.

The wiring of the connections used for the temperature sensors are protected and screened by a special metal plate conduit and are connected to a terminal board installed inside a strong metallic box.

Furthermore, when combined with control sensors, EdM can supply the following, if required:

- **T154 Unit or MT200 Unit**: equipment used for controlling the PT100 thermistors with temperature display, output relay for alarm, optional trip and control of the ventilation bars supplied as a detached part to be installed on the electric panel.

- **T119 Unit**: equipment used for controlling the PTC thermistors with output relay for alarm, optional trip and control of the ventilation bars supplied for being installed on the electric panel.

VENTILATION ACCESSORIES
If required, EdM can directly equip its own transformers at the factory with special ventilation bars.
These special tangential fans are designed to allow temporary and limited increase of the power delivered by the transformer, up to +40% of the rated power.

- **VRT200 Unit**: equipment for automatic activation and control of the fans.

Installing an EdM transformer

EdM cast resin transformers can be installed easily and quickly.
Since no additional construction or building activities are necessary, the installation safety can be ensured by following a few simple steps:

Standard execution: indoor installation, in dry / clean environments, protected from direct sun radiations, with no possibility of water going in

Sea level altitude no higher than 1000m (for higher heights, contact EdM)

Room temperature with transformer in operation (for higher values, contact EdM):
- T minimum: – 25°C
- T maximum: + 40°C

With a Standard execution, the transformers are designed in accordance with the IEC Standards 60076-11 for the following room air temperatures:
- 40°C at all times
- 30°C as a monthly average in the warmest month
- 20°C as a yearly average

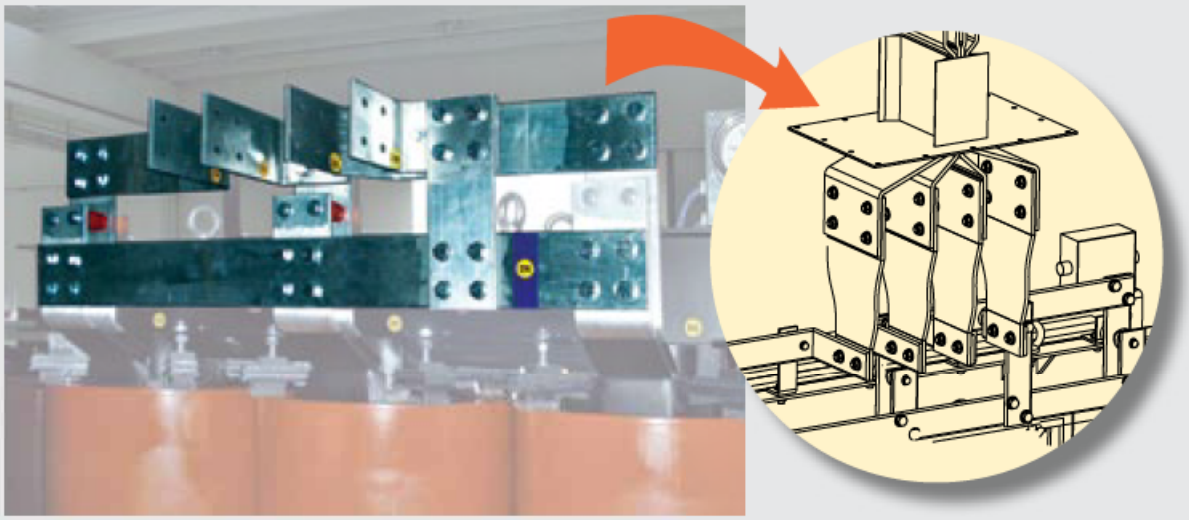
In order to protect the transformers from external environment impacts and people from the risk of having direct contacts, a set of standard boxes is available with different degrees of protection: IP21-IP31-IP23.

The advantage of choosing Zucchini busbars

The ZUCCHINI SCP busbar trunking system and EdM cast resin transformers, have been designed in perfect synergy for a direct connection.
The versions shown below represent just a few of the standardised solutions.

Transformer				Aluminium busbar	
kVA (kVA)	Insulation class (kV)	400 V current (A)	I_k 6% (kA)	Family	Connection component
630	12 - 17.5 - 24 - 36	910	15.2	SCP 1000 A Al	**60281012P**
800		1155	19.5	SCP 1250 A Al	**60281014P**
1000		1443	24.1	SCP 1600 A Al	**60281016P**
1250		1804	30.1	SCP 2000 A Al	**60281017P**
1600		2310	38.5	SCP 2500 A Al	**60391014P**
2000		2887	48.2	SCP 3200 A Al	**60391016P**
2500		3608	60.2	SCP 4000 A Al	**60391017P**

Transformer				Copper busbar	
kVA (kVA)	Insulation class (kV)	400 V current (A)	I_k 6% (kA)	Family	Connection component
630	12 - 17.5 - 24 - 36	910	15.2	SCP 1000 A Cu	**65281011P**
800		1155	19.5	SCP 1250 A Cu	**65281013P**
1000		1443	24.1	SCP 1600 A Cu	**65281015P**
1250		1804	30.1	SCP 2000 A Cu	**65281016P**
1600		2310	38.5	SCP 2500 A Cu	**65281018P**
2000		2887	48.2	SCP 3200 A Cu	**65391015P**
2500		3608	60.2	SCP 4000 A Cu	**65391016P**
3150		4552	65.0 (I_k 7%)	SCP 5000 A Cu	**65391018P**



12 kV insulation class
Technical information (100-500 kVA)

TECHNICAL DATA from 100 to 500 kVA

kVA	Item	Prim V	Sec V	Uk%	Po (W)	Pk(W)		Io%	Sound pressure level	Sound power level	Weight
		kV	V			120°	75°		dB	dB	kg
100	**EB2RBCBA**	10	400	4	320	2000	1760	1.8	40	51	550
	EB2NBCBA	10	400	4	440	2000	1760	1.9	46	59	550
160	**EC2RBCBA**	10	400	4	440	2700	2380	1.6	43	54	700
	EC2NBCBA	10	400	4	610	2700	2380	1.7	50	62	700
200	**ED2RBCBA**	10	400	4	540	3150	2770	1.4	45	56	800
	ED2NBCBA	10	400	4	720	3150	2770	1.5	51	63	800
250	**EE2RBCBA**	10	400	4	600	3500	3080	1.1	46	57	950
	EE2RACBA	10	400	6	580	3700	3260	1.1	46	57	910
	EE2NBCBA	10	400	4	820	3500	3080	1.2	52	65	950
	EE2NACBA	10	400	6	750	3700	3260	1.2	52	65	910
	EE2DACBA	10	400	6	910	3800	3340	1.5	55	67	980
	EE2SACBA	10	400	6	1050	3800	3340	1.9	58	70	1050
315	**EF2RBCBA**	10	400	4	730	4400	3870	1	47	59	1050
	EF2RACBA	10	400	6	700	4600	4050	1	47	59	1000
	EF2NBCBA	10	400	4	880	4400	3870	1.1	53	67	1050
	EF2NACBA	10	400	6	850	4600	4050	1.1	53	67	1000
	EF2DACBA	10	400	6	1050	4600	4050	1.4	56	69	1150
	EF2SACBA	10	400	6	1320	4600	4050	1.8	59	72	1200
400	**EG2RBCBA**	10	400	4	880	4900	4360	0.9	48	60	1250
	EG2RACBA	10	400	6	790	5400	4810	0.9	48	60	1200
	EG2NBCBA	10	400	4	1150	4900	4360	1	53	68	1250
	EG2NACBA	10	400	6	1000	5400	4810	1	53	68	1200
	EG2DACBA	10	400	6	1320	5600	5000	1.3	57	70	1200
	EG2SACBA	10	400	6	1630	5600	5000	1.7	60	73	1250
500	**EH2RBCBA**	10	400	4	1020	6500	5780	0.8	49	61	1450
	EH2RACBA	10	400	6	920	6700	5960	0.8	49	61	1400
	EH2NBCBA	10	400	4	1300	6500	5780	0.9	54	69	1450
	EH2NACBA	10	400	6	1200	6700	5960	0.9	54	69	1400
	EH2DACBA	10	400	6	1630	6700	5960	1.2	57	71	1400
	EH2SACBA	10	400	6	1790	6700	5960	1.5	60	74	1500

Standards	IEC 60076-11		
Power (kVA)	100 to 3150		
Frequency (Hz)	50		
Primary Voltages (kV)	6 - 10 - 11	insulation class	12 kV BIL 60/75 kV
Secondary Voltages (V)	400 - 433	insulation class	1.1 kV
Adjustment, MV side	± 2 x 2.5%		
Vectorial group	Dyn11 (replace the final letter of the item code with "B" for Dyn5 or "C" for Dyn1)		
Insulating system insulation class	F / F		
Temperature rise	100 / 100 K		
Class	E2 - C2 - F1 Certified CESI A9032391		
Tolerances	According to IEC		

Notes	The values shown are referred to the ratio 10/0.4 kV. These values may slightly change when there are different combinations. dB = Value measured at a distance of one metre, according to standard CEI EN 60076-10 Dimensions and weight of integral boxes: page 131

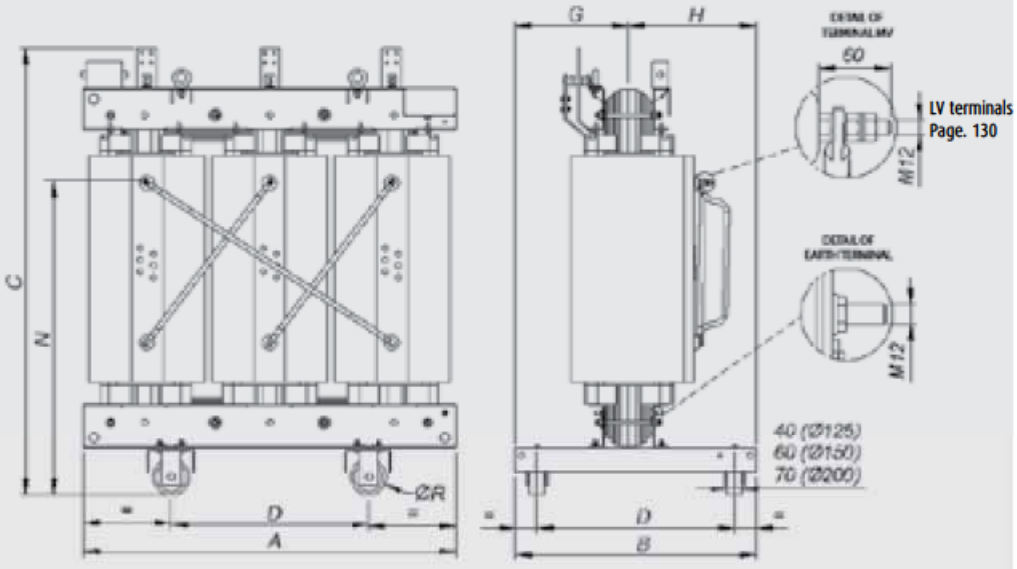
12 kV insulation class
Dimensional information (100-500 kVA)

DIMENSIONS AND WEIGHT

kVA	Item	Uk%	A	B	C	D	ØR	G	H	N	Weight
			[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]
100	**EB2RBCBA**	4	1000	600	1100	520	125	270	330	690	550
	EB2NBCBA	4	1000	600	1100	520	125	270	330	690	550
160	**EC2RBCBA**	4	1050	600	1140	520	125	270	330	710	700
	EC2NBCBA	4	1050	600	1140	520	125	270	330	710	700
200	**ED2RBCBA**	4	1150	620	1190	520	125	270	330	710	800
	ED2NBCBA	4	1150	620	1190	520	125	270	330	710	800
250	**EE2RBCBA**	4	1250	630	1270	520	125	270	330	820	950
	EE2RACBA	6	1250	630	1220	520	125	270	330	800	910
	EE2NBCBA	4	1250	630	1270	520	125	270	330	820	950
	EE2NACBA	6	1250	630	1220	520	125	270	330	800	910
	EE2DACBA	6	1250	640	1300	520	125	270	330	820	980
	EE2SACBA	6	1250	640	1300	520	125	270	330	820	1050
315	**EF2RBCBA**	4	1200	750	1300	670	125	345	405	830	1050
	EF2RACBA	6	1250	750	1250	670	125	345	405	800	1000
	EF2NBCBA	4	1200	750	1300	670	125	345	405	830	1050
	EF2NACBA	6	1250	750	1250	670	125	345	405	800	1000
	EF2DACBA	6	1350	750	1370	670	125	345	405	840	1150
	EF2SACBA	6	1350	750	1370	670	125	345	405	840	1200
400	**EG2RBCBA**	4	1250	750	1370	670	125	345	405	870	1250
	EG2RACBA	6	1300	750	1320	670	125	345	405	850	1200
	EG2NBCBA	4	1250	750	1370	670	125	345	405	870	1250
	EG2NACBA	6	1300	750	1320	670	125	345	405	850	1200
	EG2DACBA	6	1350	750	1430	670	125	345	405	920	1200
	EG2SACBA	6	1350	750	1430	670	125	345	405	920	1250
500	**EH2RBCBA**	4	1250	750	1550	670	125	345	405	1010	1450
	EH2RACBA	6	1300	750	1500	670	125	345	405	1000	1400
	EH2NBCBA	4	1250	750	1550	670	125	345	405	1010	1450
	EH2NACBA	6	1300	750	1500	670	125	345	405	1000	1400
	EH2DACBA	6	1350	750	1540	670	125	345	405	1020	1400
	EH2SACBA	6	1350	750	1540	670	125	345	405	1020	1500

Summary reference values. Use the construction drawing for the design.

All the data given may be modified without warning for reasons of technical production or product improvement.



12 kV insulation class
Technical information (630-3150 kVA)

TECHNICAL DATA from 630 to 3150 kVA

kVA	Item	Prim V	Sec V	Uk%	Po (W)	Pk(W)		Io%	Sound pressure level	Sound power level	Weight
		kV	V			120°	75°		dB	dB	kg
630	EI2RBCBA	10	400	4	1150	7300	6500	0.7	50	62	1650
	EI2RACBA	10	400	6	1050	7600	6750	0.7	50	62	1600
	EI2NBCBA	10	400	4	1500	7300	6500	0.8	55	70	1650
	EI2NACBA	10	400	6	1450	7600	6750	0.8	55	70	1600
	EI2DACBA	10	400	6	1790	7800	6940	1.2	58	72	1650
	EI2SACBA	10	400	6	2100	7800	6940	1.4	61	75	1800
800	EJ2RACBA	10	400	6	1350	9400	8370	0.7	52	64	1950
	EJ2NACBA	10	400	6	1750	9400	8370	0.8	57	71	1950
	EJ2DACBA	10	400	6	2100	9400	8370	1.1	59	73	1900
	EJ2SACBA	10	400	6	2470	9400	8370	1.3	62	76	2100
1000	EK2RACBA	10	400	6	1550	10000	8900	0.6	53	65	2300
	EK2NACBA	10	400	6	2000	10000	8900	0.7	58	73	2300
	EK2DACBA	10	400	6	2470	11000	9800	1	60	74	2300
	EK2SACBA	10	400	6	2940	11000	9800	1.2	63	77	2500
1250	EL2RACBA	10	400	6	1900	12700	11300	0.5	55	67	2700
	EL2NACBA	10	400	6	2300	12700	11300	0.6	59	74	2700
	EL2DACBA	10	400	6	2940	13400	11800	1	61	75	2700
	EL2SACBA	10	400	6	3520	13400	11800	1.1	64	78	2900
1600	EM2RACBA	10	400	6	2200	14000	12460	0.4	56	68	3300
	EM2NACBA	10	400	6	2800	14000	12460	0.5	60	76	3300
	EM2DACBA	10	400	6.5	3520	16400	14400	0.9	63	77	3400
	EM2SACBA	10	400	6.5	3890	16400	14400	1	66	80	3750
2000	EN2RACBA	10	400	6	2800	18000	16200	0.4	58	70	4000
	EN2NACBA	10	400	6	3300	18000	16200	0.5	61	79	4000
	EN2DACBA	10	400	7	3890	19000	17100	0.9	65	80	4250
	EN2SACBA	10	400	7	4830	19000	17100	0.9	68	83	4550
2500	EO2RACBA	10	400	6	3300	21000	18900	0.3	59	71	4800
	EO2NACBA	10	400	6	4300	21000	18900	0.4	63	81	4800
	EO2DACBA	10	400	7	5040	23000	20700	0.8	66	82	4900
	EO2SACBA	10	400	7	5990	23000	20700	0.8	69	85	5250
3150	EP2RACBA	10	400	7	3950	26000	23400	0.3	62	74	5400
	EP2NACBA	10	400	7	4600	26000	23400	0.4	65	83	5400

Standards	IEC 60076-11			
Power (kVA)	100 to 3150			
Frequency (Hz)	50			
Primary Voltages (kV)	6 - 10 - 11	insulation class	12 kV	BIL 60/75 kV
Secondary Voltages (V)	400 - 433	insulation class	1.1 kV	
Adjustment, MV side	± 2 x 2.5%			
Vectorial group	Dyn11 (replace the final letter of the item code with "B" for Dyn5 or "C" for Dyn1)			
Insulating system insulation class	F / F			
Temperature rise	100 / 100 K			
Class	E2 - C2 - F1 Certified CESI A9032391			
Tolerances	According to IEC			

Notes	The values shown are referred to the ratio 10/0.4 kV. These values may slightly change when there are different combinations. dB = Value measured at a distance of one metre, according to standard CEI EN 60076-10 Dimensions and weight of integral boxes: page 131

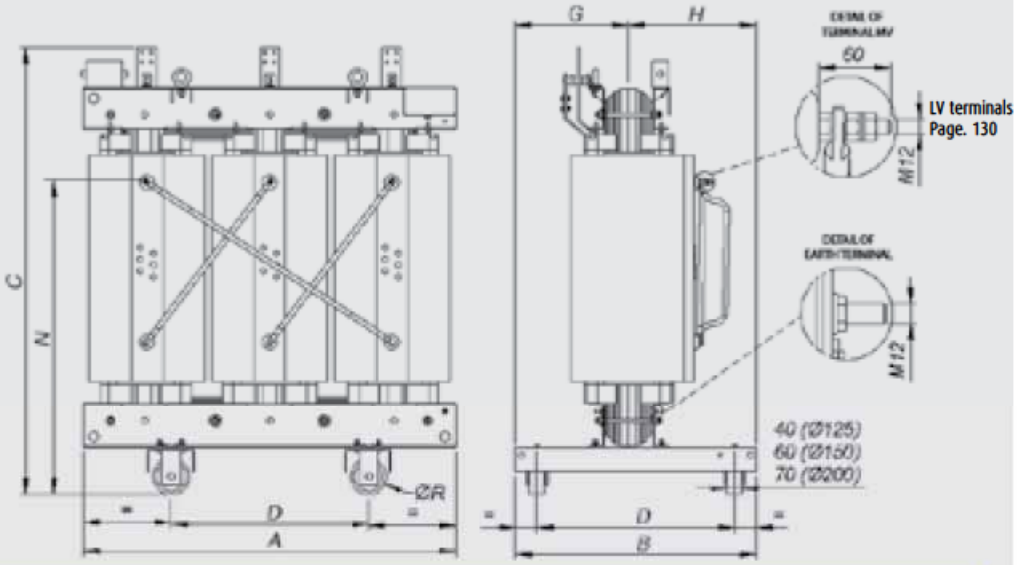
12 kV insulation class
Dimensional information (630-3150 kVA)

DIMENSIONS AND WEIGHT

kVA	Item	Uk%	A	B	C	D	ØR	G	H	N	Weight
			[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]
630	**EI2RBCBA**	4	1350	850	1600	670	150	395	455	1060	1650
	EI2RACBA	6	1500	850	1590	670	150	395	455	1060	1600
	EI2NBCBA	4	1350	850	1600	670	150	395	455	1060	1650
	EI2NACBA	6	1500	850	1590	670	150	395	455	1060	1600
	EI2DACBA	6	1500	850	1670	670	150	395	455	1110	1650
	EI2SACBA	6	1500	850	1670	670	150	395	455	1110	1800
800	**EJ2RACBA**	6	1500	850	1740	670	150	395	455	1160	1950
	EJ2NACBA	6	1500	850	1740	670	150	395	455	1160	1950
	EJ2DACBA	6	1500	850	1780	670	150	395	455	1120	1900
	EJ2SACBA	6	1500	850	1780	670	150	395	455	1120	2100
1000	**EK2RACBA**	6	1550	1000	1820	820	150	470	530	1270	2300
	EK2NACBA	6	1550	1000	1820	820	150	470	530	1270	2300
	EK2DACBA	6	1550	1000	1890	820	150	470	530	1280	2300
	EK2SACBA	6	1550	1000	1890	820	150	470	530	1280	2500
1250	**EL2RACBA**	6	1550	1000	2000	820	150	470	530	1340	2700
	EL2NACBA	6	1550	1000	2000	820	150	470	530	1340	2700
	EL2DACBA	6	1550	1000	2030	820	150	470	530	1440	2700
	EL2SACBA	6	1550	1000	2030	820	150	470	530	1440	2900
1600	**EM2RACBA**	6	1650	1000	2180	820	150	470	530	1460	3300
	EM2NACBA	6	1650	1000	2180	820	150	470	530	1460	3300
	EM2DACBA	6.5	1650	1000	2180	820	150	470	530	1560	3400
	EM2SACBA	6.5	1650	1000	2180	820	150	470	530	1560	3750
2000	**EN2RACBA**	6	1800	1310	2260	1070	200	580	730	1570	4000
	EN2NACBA	6	1800	1310	2260	1070	200	580	730	1570	4000
	EN2DACBA	7	1900	1310	2220	1070	200	580	730	1580	4250
	EN2SACBA	7	1900	1310	2220	1070	200	580	730	1580	4550
2500	**EO2RACBA**	6	2050	1310	2390	1070	200	580	730	1650	4800
	EO2NACBA	6	2050	1310	2390	1070	200	580	730	1650	4800
	EO2DACBA	7	2050	1310	2310	1070	200	580	730	1600	4900
	EO2SACBA	7	2050	1310	2310	1070	200	580	730	1600	5250
3150	**EP2RACBA**	7	2150	1310	2400	1070	200	580	730	1670	5400
	EP2NACBA	7	2150	1310	2400	1070	200	580	730	1670	5400

Summary reference values. Use the construction drawing for the design.

All the data given may be modified without warning for reasons of technical production or product improvement.



17.5 kV insulation class
Technical information (100-630 kVA)

TECHNICAL DATA from 100 to 630 kVA

kVA	Item	Prim V	Sec V	Uk%	Po (W)	Pk(W)		Io%	Sound pressure level	Sound power level	Weight
		kV	V			120°	75°		dB	dB	kg
100	**EB3RAFBA**	15	400	6	380	2050	1800	1.9	40	51	560
	EB3NAFBA	15	400	6	430	1900	1670	2	45	59	560
160	**EC3RAFBA**	15	400	6	480	2900	2550	1.6	43	54	750
	EC3NAFBA	15	400	6	570	2800	2470	1.7	49	62	750
200	**ED3RAFBA**	15	400	6	570	3600	3170	1.4	45	56	800
	ED3NAFBA	15	400	6	680	3600	3170	1.5	51	63	800
250	**EE3RAFBA**	15	400	6	670	3800	3340	1.2	46	57	950
	EE3NAFBA	15	400	6	750	3650	3210	1.3	52	65	950
	EE3DAFBA	15	400	6	910	3800	3340	1.5	55	67	980
	EE3SAFBA	15	400	6	1050	3800	3340	1.9	58	70	1050
315	**EF3RAFBA**	15	400	6	790	4600	4050	1.1	47	59	1050
	EF3NAFBA	15	400	6	880	4500	3970	1.2	54	67	1050
	EF3DAFBA	15	400	6	1050	4600	4050	1.4	56	69	1150
	EF3SAFBA	15	400	6	1320	4600	4050	1.8	59	72	1200
400	**EG3RAFBA**	15	400	6	920	5500	4890	1	48	60	1250
	EG3NAFBA	15	400	6	1000	5200	4630	1.1	54	68	1250
	EG3DAFBA	15	400	6	1320	5600	5000	1.3	57	70	1200
	EG3SAFBA	15	400	6	1630	5600	5000	1.7	60	73	1250
500	**EH3RAFBA**	15	400	6	1170	6700	5960	0.9	49	61	1400
	EH3NAFBA	15	400	6	1200	6700	5960	1	55	69	1400
	EH3DAFBA	15	400	6	1630	6700	5960	1.2	57	71	1400
	EH3SAFBA	15	400	6	1790	6700	5960	1.5	60	74	1500
630	**EI3RAFBA**	15	400	6	1360	7800	6940	0.9	50	62	1700
	EI3NAFBA	15	400	6	1600	7800	6940	1	55	70	1700
	EI3DAFBA	15	400	6	1790	7800	6940	1.2	58	72	1650
	EI3SAFBA	15	400	6	2100	7800	6940	1.4	61	75	1800

Standards	IEC 60076-11
Power (kVA)	100 to 3150
Frequency (Hz)	50
Primary Voltages (kV)	12 - 13.2 - 15 insulation class 17.5 kV BIL 75/95 kV
Secondary Voltages (V)	400 - 410 - 420 insulation class 1.1 kV
Adjustment, MV side	± 2 x 2.5%
Vectorial group	Dyn11 (replace the final letter of the item code with "B" for Dyn5 or "C" for Dyn1)
Insulating system insulation class	F / F
Temperature rise	100 / 100 K
Class	E2 - C2 - F1 Certified CESI A9032391
Tolerances	According to IEC

Notes	The values shown are referred to the ratio 15/0.4 kV. These values may slightly change when there are different combinations. dB = Value measured at a distance of one metre, according to standard CEI EN 60076-10 Dimensions and weight of integral boxes: page 131

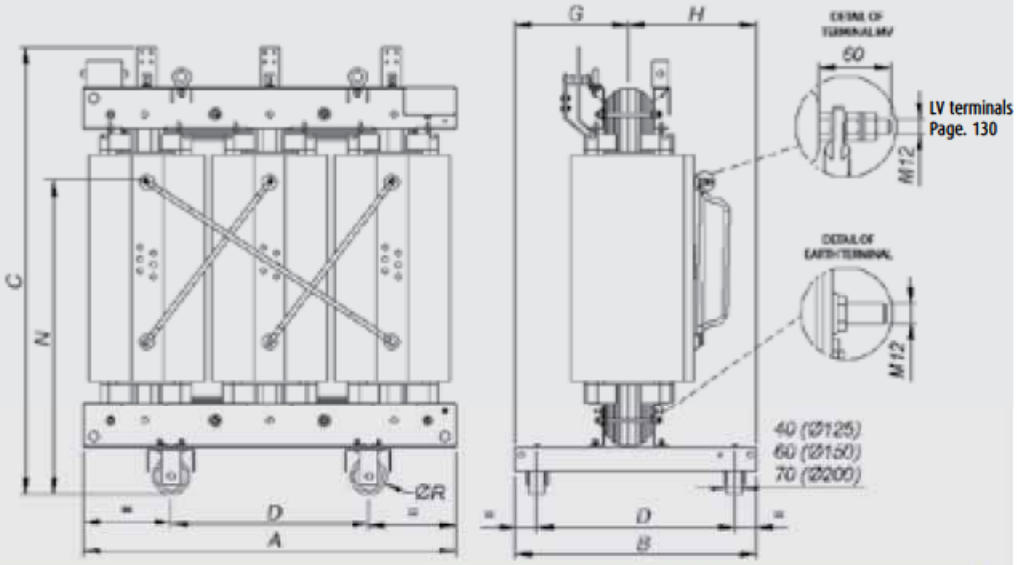
17.5 kV insulation class
Dimensional information (100-630 kVA)

DIMENSIONS AND WEIGHT

kVA	Item	Uk%	A	B	C	D	ØR	G	H	N	Weight
			[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]
100	**EB3RAFBA**	6	1050	600	1090	520	125	270	330	710	560
	EB3NAFBA	6	1050	600	1090	520	125	270	330	710	560
160	**EC3RAFBA**	6	1200	630	1210	520	125	270	330	720	750
	EC3NAFBA	6	1200	630	1210	520	125	270	330	720	750
200	**ED3RAFBA**	6	1250	630	1230	520	125	270	330	730	800
	ED3NAFBA	6	1250	630	1230	520	125	270	330	730	800
250	**EE3RAFBA**	6	1250	640	1240	520	125	270	330	740	950
	EE3NAFBA	6	1250	640	1240	520	125	270	330	740	950
	EE3DAFBA	6	1250	640	1300	520	125	270	330	820	980
	EE3SAFBA	6	1250	640	1300	520	125	270	330	820	1050
315	**EF3RAFBA**	6	1250	750	1300	670	125	345	405	840	1050
	EF3NAFBA	6	1250	750	1300	670	125	345	405	840	1050
	EF3DAFBA	6	1350	750	1370	670	125	345	405	840	1150
	EF3SAFBA	6	1350	750	1370	670	125	345	405	840	1200
400	**EG3RAFBA**	6	1350	750	1390	670	125	345	405	910	1250
	EG3NAFBA	6	1350	750	1390	670	125	345	405	910	1250
	EG3DAFBA	6	1350	750	1430	670	125	345	405	920	1200
	EG3SAFBA	6	1350	750	1430	670	125	345	405	920	1250
500	**EH3RAFBA**	6	1350	750	1520	670	125	345	405	940	1400
	EH3NAFBA	6	1350	750	1520	670	125	345	405	940	1400
	EH3DAFBA	6	1350	750	1540	670	125	345	405	1020	1400
	EH3SAFBA	6	1350	750	1540	670	125	345	405	1020	1500
630	**EI3RAFBA**	6	1500	850	1630	670	150	395	455	1070	1700
	EI3NAFBA	6	1500	850	1630	670	150	395	455	1070	1700
	EI3DAFBA	6	1500	850	1670	670	150	395	455	1110	1650
	EI3SAFBA	6	1500	850	1670	670	150	395	455	1110	1800

Summary reference values. Use the construction drawing for the design.

All the data given may be modified without warning for reasons of technical production or product improvement.



17.5 kV insulation class
Technical information (800-3150 kVA)

TECHNICAL DATA from 800 to 3150 kVA

kVA	Item	Prim V	Sec V	Uk%	Po (W)	Pk(W)		Io%	Sound pressure level*	Sound power level	Weight
		kV	V			120°	75°		dB	dB	kg
800	EJ3RAFBA	15	400	6	1600	9400	8370	0.8	52	64	2000
	EJ3NAFBA	15	400	6	1780	9300	8290	0.9	57	71	2000
	EJ3DAFBA	15	400	6	2100	9400	8370	1.1	59	73	1900
	EJ3SAFBA	15	400	6	2470	9400	8370	1.3	62	76	2100
1000	EK3RAFBA	15	400	6	1890	11000	9800	0.7	53	65	2300
	EK3NAFBA	15	400	6	2000	10800	9630	0.8	58	73	2300
	EK3DAFBA	15	400	6	2470	11000	9800	1	60	74	2300
	EK3SAFBA	15	400	6	2940	11000	9800	1.2	63	77	2500
1250	EL3RAFBA	15	400	6	2100	13000	11600	0.6	55	67	2750
	EL3NAFBA	15	400	6	2350	12600	11250	0.7	59	74	2750
	EL3DAFBA	15	400	6	2940	13400	11800	1	61	75	2700
	EL3SAFBA	15	400	6	3520	13400	11800	1.1	64	78	2900
1600	EM3RAFBA	15	400	6	2420	16000	14240	0.5	56	68	3300
	EM3NAFBA	15	400	6	2750	15500	13800	0.6	60	76	3300
	EM3DAFBA	15	400	6.5	3520	16400	14400	0.9	63	77	3400
	EM3SAFBA	15	400	6.5	3890	16400	14400	1	66	80	3750
2000	EN3RAFBA	15	400	6	2920	19000	17100	0.5	58	70	4000
	EN3NAFBA	15	400	6	3350	18500	16650	0.6	61	79	4000
	EN3DAFBA	15	400	7	3890	19000	17100	0.9	65	80	4250
	EN3SAFBA	15	400	7	4830	19000	17100	0.9	68	83	4550
2500	EO3RAFBA	15	400	6	3650	23000	20700	0.4	59	71	4950
	EO3NAFBA	15	400	6	4300	21800	19620	0.5	63	81	4950
	EO3DAFBA	15	400	7	5040	23000	20700	0.8	66	82	4900
	EO3SAFBA	15	400	7	5990	23000	20700	0.8	69	85	5250
3150	EP3RAFBA	15	400	7	3950	27000	24300	0.3	62	74	5750
	EP3NAFBA	15	400	7	4700	26000	23400	0.4	66	83	5750

Standards	IEC 60076-11
Power (kVA)	100 to 3150
Frequency (Hz)	50
Primary Voltages (kV)	12 - 13.2 - 15 insulation class 17.5 kV BIL 75/95 kV
Secondary Voltages (V)	400 - 410 - 420 insulation class 1.1 kV
Adjustment, MV side	± 2 x 2.5%
Vectorial group	Dyn11 (replace the final letter of the item code with "B" for Dyn5 or "C" for Dyn1)
Insulating system insulation class	F / F
Temperature rise	100 / 100 K
Class	E2 - C2 - F1 Certified CESI A9032391
Tolerances	According to IEC

Notes	The values shown are referred to the ratio 15/0.4 kV. These values may slightly change when there are different combinations. dB = Value measured at a distance of one metre, according to standard CEI EN 60076-10 Dimensions and weight of integral boxes: page 131

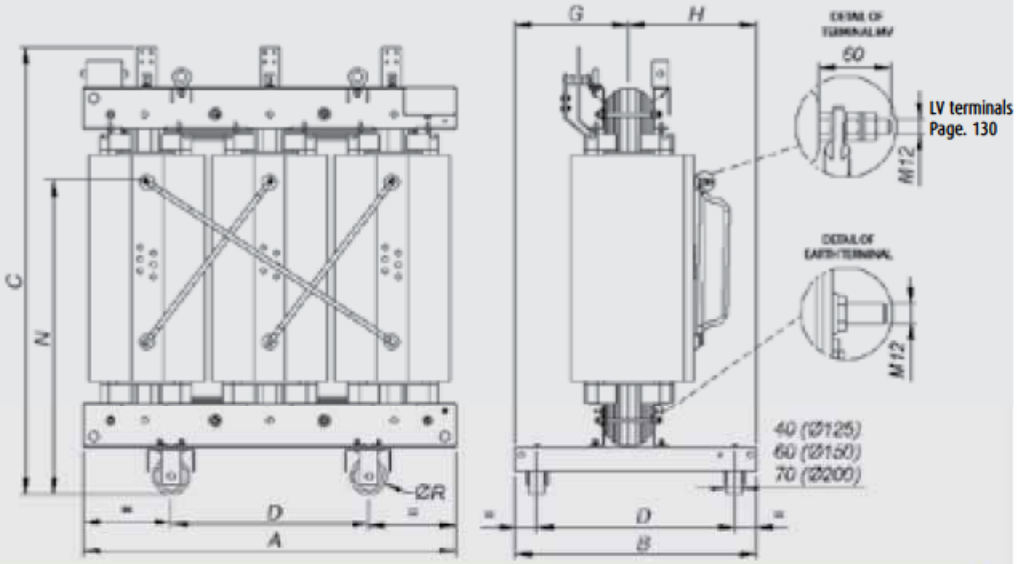
17.5 kV insulation class
Dimensional information (800-3150 kVA)

DIMENSIONS AND WEIGHT

kVA	Item	Uk%	A	B	C	D	ØR	G	H	M	Weight
			[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]
800	EJ3RAFBA	6	1500	850	1780	670	150	395	455	1170	2000
	EJ3NAFBA	6	1500	850	1780	670	150	395	455	1170	2000
	EJ3DAFBA	6	1500	850	1780	670	150	395	455	1120	1900
	EJ3SAFBA	6	1500	850	1780	670	150	395	455	1120	2100
1000	EK3RAFBA	6	1550	1000	1870	820	150	470	530	1290	2300
	EK3NAFBA	6	1550	1000	1870	820	150	470	530	1290	2300
	EK3DAFBA	6	1550	1000	1890	820	150	470	530	1280	2300
	EK3SAFBA	6	1550	1000	1890	820	150	470	530	1280	2500
1250	EL3RAFBA	6	1550	1000	2010	820	150	470	530	1350	2750
	EL3NAFBA	6	1550	1000	2010	820	150	470	530	1350	2750
	EL3DAFBA	6	1550	1000	2030	820	150	470	530	1440	2700
	EL3SAFBA	6	1550	1000	2030	820	150	470	530	1440	2900
1600	EM3RAFBA	6	1650	1000	2190	820	150	470	530	1470	3300
	EM3NAFBA	6	1650	1000	2190	820	150	470	530	1470	3300
	EM3DAFBA	6.5	1650	1000	2180	820	150	470	530	1560	3400
	EM3SAFBA	6.5	1650	1000	2180	820	150	470	530	1560	3750
2000	EN3RAFBA	6	1800	1310	2250	1070	200	580	730	1580	4000
	EN3NAFBA	6	1800	1310	2250	1070	200	580	730	1580	4000
	EN3DAFBA	7	1900	1310	2220	1070	200	580	730	1580	4250
	EN3SAFBA	7	1900	1310	2220	1070	200	580	730	1580	4550
2500	EO3RAFBA	6	1950	1310	2320	1070	200	580	730	1600	4950
	EO3NAFBA	6	1950	1310	2320	1070	200	580	730	1600	4950
	EO3DAFBA	7	2050	1310	2310	1070	200	580	730	1600	4900
	EO3SAFBA	7	2050	1310	2310	1070	200	580	730	1600	5250
3150	EP3RAFBA	7	2150	1310	2350	1070	200	580	730	1610	5750
	EP3NAFBA	7	2150	1310	2350	1070	200	580	730	1610	5750

Summary reference values. Use the construction drawing for the design.

All the data given may be modified without warning for reasons of technical production or product improvement.



24 kV insulation class
Technical information (100-500 kVA)

TECHNICAL DATA from 100 to 500 kVA

kVA	Item	Prim V	Sec V	Uk%	Po (W)	Pk(W)		Io%	Sound pressure level	Sound power level	Weight
		kV	V			120°	75°		dB	dB	kg
100	**EB4RBGBA**	20	400	4	400	1750	1540	2	40	51	630
	EB4RAGBA	20	400	6	360	2050	1800	2	40	51	570
	EB4NBGBA	20	400	4	540	1750	1540	2.1	46	59	630
	EB4NAGBA	20	400	6	480	2000	1760	2.1	46	59	570
160	**EC4RBGBA**	20	400	4	580	2500	2200	1.7	43	54	900
	EC4RAGBA	20	400	6	480	2900	2550	1.7	43	54	800
	EC4NBGBA	20	400	4	750	2500	2200	1.8	50	62	900
	EC4NAGBA	20	400	6	650	2800	2470	1.8	50	62	800
200	**ED4RBGBA**	20	400	4	680	2900	2550	1.5	45	56	1030
	ED4RAGBA	20	400	6	550	3600	3170	1.5	45	56	900
	ED4NBGBA	20	400	4	900	2900	2550	1.7	51	63	1030
	ED4NAGBA	20	400	6	800	3600	3170	1.7	51	63	900
250	**EE4RBGBA**	20	400	4	800	3450	3040	1.3	46	57	1150
	EE4RAGBA	20	400	6	650	3800	3340	1.3	46	57	1000
	EE4NBGBA	20	400	4	1000	3450	3040	1.5	53	65	1150
	EE4NAGBA	20	400	6	850	3700	3260	1.5	53	65	1000
	EE4DAGBA	20	400	6	1050	3800	3340	1.5	55	67	1050
	EE4SAGBA	20	400	6	1210	3800	3340	1.9	58	70	1150
315	**EF4RBGBA**	20	400	4	970	4500	3970	1.2	47	59	1350
	EF4RAGBA	20	400	6	750	4600	4050	1.2	47	59	1200
	EF4NBGBA	20	400	4	1150	4500	3970	1.4	55	67	1350
	EF4NAGBA	20	400	6	950	4500	3970	1.4	55	67	1200
	EF4DAGBA	20	400	6	1210	4600	4050	1.4	56	69	1200
	EF4SAGBA	20	400	6	1470	4600	4050	1.8	59	72	1250
400	**EG4RBGBA**	20	400	4	1100	4900	4360	1.1	48	60	1500
	EG4RAGBA	20	400	6	940	5500	4890	1.1	48	60	1350
	EG4NBGBA	20	400	4	1360	4900	4360	1.3	55	68	1500
	EG4NAGBA	20	400	6	1150	5400	4810	1.3	55	68	1350
	EG4DAGBA	20	400	6	1470	5600	5000	1.3	57	70	1350
	EG4SAGBA	20	400	6	1740	5600	5000	1.7	60	73	1450
500	**EH4RBGBA**	20	400	4	1300	6400	5700	1.1	49	61	1640
	EH4RAGBA	20	400	6	1050	6700	5960	1.1	49	61	1500
	EH4NBGBA	20	400	4	1580	6400	5700	1.2	56	69	1640
	EH4NAGBA	20	400	6	1350	6700	5960	1.2	56	69	1500
	EH4DAGBA	20	400	6	1740	6700	5960	1.2	57	71	1550
	EH4SAGBA	20	400	6	2000	6700	5960	1.5	60	74	1650

Standards	IEC 60076-11		
Power (kVA)	100 to 3150		
Frequency (Hz)	50		
Primary Voltages (kV)	20 - 23	insulation class	24 kV BIL 95/125 kV
Secondary Voltages (V)	400 - 410 - 420	insulation class	1.1 kV
Adjustment, MV side	± 2 x 2.5%		
Vectorial group	Dyn11 (replace the final letter of the item code with "B" for Dyn5 or "C" for Dyn1)		
Insulating system insulation class	F / F		
Temperature rise	100 / 100 K		
Class	E2 - C2 - F1 Certified CESI A9032391		
Tolerances	According to IEC		

Notes	The values shown are referred to the ratio 20/0.4 kV. These values may slightly change when there are different combinations. dB = Value measured at a distance of one metre, according to standard CEI EN 60076-10 Dimensions and weight of integral boxes: page 131 BIL 125 available on request in the order phase

24 kV insulation class
Dimensional information (100-500 kVA)

DIMENSIONS AND WEIGHT

kVA	Item	Uk%	A	B	C	D	ØR	G	H	N	Weight
			[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]
100	**EB4RBGBA**	4	1200	600	1160	520	125	270	330	730	630
	EB4RAGBA	6	1050	600	1110	520	125	270	330	710	570
	EB4NBGBA	4	1200	600	1160	520	125	270	330	730	630
	EB4NAGBA	6	1050	600	1110	520	125	270	330	710	570
160	**EC4RBGBA**	4	1250	640	1260	520	125	270	330	740	900
	EC4RAGBA	6	1250	640	1240	520	125	270	330	730	800
	EC4NBGBA	4	1250	640	1260	520	125	270	330	740	900
	EC4NAGBA	6	1250	640	1240	520	125	270	330	730	800
200	**ED4RBGBA**	4	1350	640	1320	520	125	270	330	750	1030
	ED4RAGBA	6	1250	640	1250	520	125	270	330	740	900
	ED4NBGBA	4	1350	640	1320	520	125	270	330	750	1030
	ED4NAGBA	6	1250	640	1250	520	125	270	330	740	900
250	**EE4RBGBA**	4	1350	640	1360	520	125	270	330	830	1150
	EE4RAGBA	6	1350	640	1260	520	125	270	330	750	1000
	EE4NBGBA	4	1350	640	1360	520	125	270	330	830	1150
	EE4NAGBA	6	1350	640	1260	520	125	270	330	750	1000
	EE4DAGBA	6	1350	640	1360	520	125	270	330	850	1050
	EE4SAGBA	6	1350	640	1360	520	125	270	330	850	1150
315	**EF4RBGBA**	4	1350	750	1450	670	125	345	405	880	1350
	EF4RAGBA	6	1350	750	1350	670	125	345	405	860	1200
	EF4NBGBA	4	1350	750	1450	670	125	345	405	880	1350
	EF4NAGBA	6	1350	750	1350	670	125	345	405	860	1200
	EF4DAGBA	6	1350	750	1410	670	125	345	405	860	1200
	EF4SAGBA	6	1350	750	1410	670	125	345	405	860	1250
400	**EG4RBGBA**	4	1450	750	1530	670	125	345	405	900	1500
	EG4RAGBA	6	1500	750	1440	670	125	345	405	880	1350
	EG4NBGBA	4	1450	750	1530	670	125	345	405	900	1500
	EG4NAGBA	6	1500	750	1440	670	125	345	405	880	1350
	EG4DAGBA	6	1500	750	1510	670	125	345	405	1020	1350
	EG4SAGBA	6	1500	750	1510	670	125	345	405	1020	1450
500	**EH4RBGBA**	4	1450	750	1610	670	125	345	405	980	1640
	EH4RAGBA	6	1500	750	1560	670	125	345	405	960	1500
	EH4NBGBA	4	1450	750	1610	670	125	345	405	980	1640
	EH4NAGBA	6	1500	750	1560	670	125	345	405	960	1500
	EH4DAGBA	6	1500	750	1570	670	125	345	405	960	1550
	EH4SAGBA	6	1500	750	1570	670	125	345	405	960	1650

Summary reference values. Use the construction drawing for the design.

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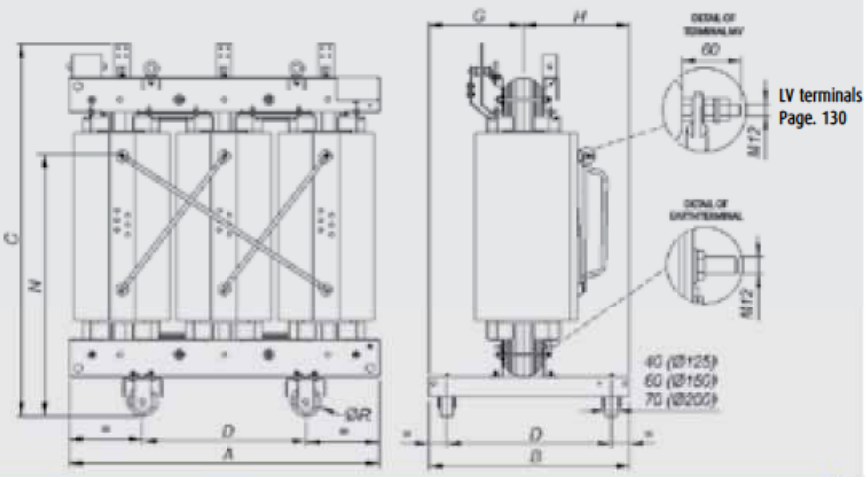

24 kV insulation class
Technical information (630-3150 kVA)

TECHNICAL DATA from 630 to 3150 kVA

kVA	Item	Prim V	Sec V	Uk%	Po (W)	Pk(W)		Io%	Sound pressure level	Sound power level	Weight
		kV	V			120°	75°		dB	dB	kg
630	**EI4RBGBA**	20	400	4	1600	6900	6150	1	50	62	2000
	EI4RAGBA	20	400	6	1250	7800	6940	1	50	62	1800
	EI4NBGBA	20	400	4	1950	6900	6150	1.1	56	70	2000
	EI4NAGBA	20	400	6	1740	7800	6940	1.1	56	70	1800
	EI4DAGBA	20	400	6	2000	7800	6940	1.2	58	72	1800
	EI4SAGBA	20	400	6	2420	7800	6940	1.4	61	75	1950
800	**EJ4RAGBA**	20	400	6	1450	9400	8370	0.9	52	64	2100
	EJ4NAGBA	20	400	6	1950	9300	8290	1	58	71	2100
	EJ4DAGBA	20	400	6	2310	9400	8370	1.1	59	73	2150
	EJ4SAGBA	20	400	6	2730	9400	8370	1.3	62	76	2350
1000	**EK4RAGBA**	20	400	6	1800	11000	9800	0.8	53	65	2500
	EK4NAGBA	20	400	6	2310	10800	9630	0.9	59	73	2500
	EK4DAGBA	20	400	6	2790	11000	9800	1	60	74	2550
	EK4SAGBA	20	400	6	3260	11000	9800	1.2	63	77	2800
1250	**EL4RAGBA**	20	400	6	2100	13000	11600	0.7	55	67	2900
	EL4NAGBA	20	400	6	2730	12800	11430	0.8	60	74	2900
	EL4DAGBA	20	400	6	3260	13400	11800	1	61	75	3000
	EL4SAGBA	20	400	6	3730	13400	11800	1.1	64	78	3250
1600	**EM4RAGBA**	20	400	6	2400	16000	14240	0.6	56	68	3550
	EM4NAGBA	20	400	6	3100	15500	13800	0.7	61	76	3550
	EM4DAGBA	20	400	6.5	3730	16400	14400	0.9	63	77	3600
	EM4SAGBA	20	400	6.5	4410	16400	14400	1.1	66	80	3950
2000	**EN4RAGBA**	20	400	6	2900	19000	17100	0.5	58	70	4300
	EN4NAGBA	20	400	6	3800	18600	16740	0.6	62	79	4300
	EN4DAGBA	20	400	7	4570	19000	17100	0.9	65	80	4500
	EN4SAGBA	20	400	7	5360	19000	17100	0.9	68	83	4900
2500	**EO4RAGBA**	20	400	6	3800	23000	20700	0.4	59	71	5250
	EO4NAGBA	20	400	6	4800	22000	19800	0.5	64	81	5250
	EO4DAGBA	20	400	7	5880	23000	20700	0.8	66	82	5200
	EO4SAGBA	20	400	7	6620	23000	20700	0.8	69	85	5650
3150	**EP4RAGBA**	20	400	7	4500	26000	23400	0.4	62	74	6250
	EP4NAGBA	20	400	7	5360	26000	23400	0.5	67	83	6250

Standards	IEC 60076-11
Power (kVA)	100 to 3150
Frequency (Hz)	50
Primary Voltages (kV)	20 - 23 insulation class 24 kV BIL 95/125 kV
Secondary Voltages (V)	400 - 410 - 420 insulation class 1.1 kV
Adjustment, MV side	± 2 x 2.5%
Vectorial group	Dyn11 (replace the final letter of the item code with "B" for Dyn5 or "C" for Dyn1)
Insulating system insulation class	F / F
Temperature rise	100 / 100 K
Class	E2 - C2 - F1 Certified CESI A9032391
Tolerances	According to IEC
Notes	The values shown are referred to the ratio 20/0.4 kV. These values may slightly change when there are different combinations. dB = Value measured at a distance of one metre, according to standard CEI EN 60076-10 Dimensions and weight of integral boxes: page 131 BIL 125 available on request in the order phase

24 kV insulation class
Dimensional information (630-3150 kVA)

DIMENSIONS AND WEIGHT

kVA	Item	Uk%	A	B	C	D	ØR	G	H	N	Weight
			[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]
630	EI4RBGBA	4	1500	850	1690	670	150	395	455	1100	2000
	EI4RAGBA	6	1500	850	1650	670	150	395	455	1080	1800
	EI4NBGBA	4	1500	850	1690	670	150	395	455	1100	2000
	EI4NAGBA	6	1500	850	1650	670	150	395	455	1080	1800
	EI4DAGBA	6	1500	850	1700	670	150	395	455	1090	1800
	EI4SAGBA	6	1500	850	1700	670	150	395	455	1090	1950
800	EJ4RAGBA	6	1550	850	1810	670	150	395	455	1200	2100
	EJ4NAGBA	6	1550	850	1810	670	150	395	455	1200	2100
	EJ4DAGBA	6	1550	850	1850	670	150	395	455	1300	2150
	EJ4SAGBA	6	1550	850	1850	670	150	395	455	1300	2350
1000	EK4RAGBA	6	1650	1000	1890	820	150	470	530	1310	2500
	EK4NAGBA	6	1650	1000	1890	820	150	470	530	1310	2500
	EK4DAGBA	6	1650	1000	1930	820	150	470	530	1300	2550
	EK4SAGBA	6	1650	1000	1930	820	150	470	530	1300	2800
1250	EL4RAGBA	6	1650	1000	2030	820	150	470	530	1370	2900
	EL4NAGBA	6	1650	1000	2030	820	150	470	530	1370	2900
	EL4DAGBA	6	1650	1000	2070	820	150	470	530	1460	3000
	EL4SAGBA	6	1650	1000	2070	820	150	470	530	1460	3250
1600	EM4RAGBA	6	1750	1000	2200	820	150	470	530	1480	3550
	EM4NAGBA	6	1750	1000	2200	820	150	470	530	1480	3550
	EM4DAGBA	6.5	1800	1000	2250	820	150	470	530	1590	3600
	EM4SAGBA	6.5	1800	1000	2250	820	150	470	530	1590	3950
2000	EN4RAGBA	6	1900	1310	2270	1070	200	580	730	1590	4300
	EN4NAGBA	6	1900	1310	2270	1070	200	580	730	1590	4300
	EN4DAGBA	7	1900	1310	2270	1070	200	580	730	1590	4500
	EN4SAGBA	7	1900	1310	2270	1070	200	580	730	1590	4900
2500	EO4RAGBA	6	1950	1310	2350	1070	200	580	730	1610	5250
	EO4NAGBA	6	1950	1310	2350	1070	200	580	730	1610	5250
	EO4DAGBA	7	2050	1310	2310	1070	200	580	730	1600	5200
	EO4SAGBA	7	2050	1310	2310	1070	200	580	730	1600	5650
3150	EP4RAGBA	7	2250	1310	2400	1070	200	580	730	1670	6250
	EP4NAGBA	7	2250	1310	2400	1070	200	580	730	1670	6250

Summary reference values. Use the construction drawing for the design.

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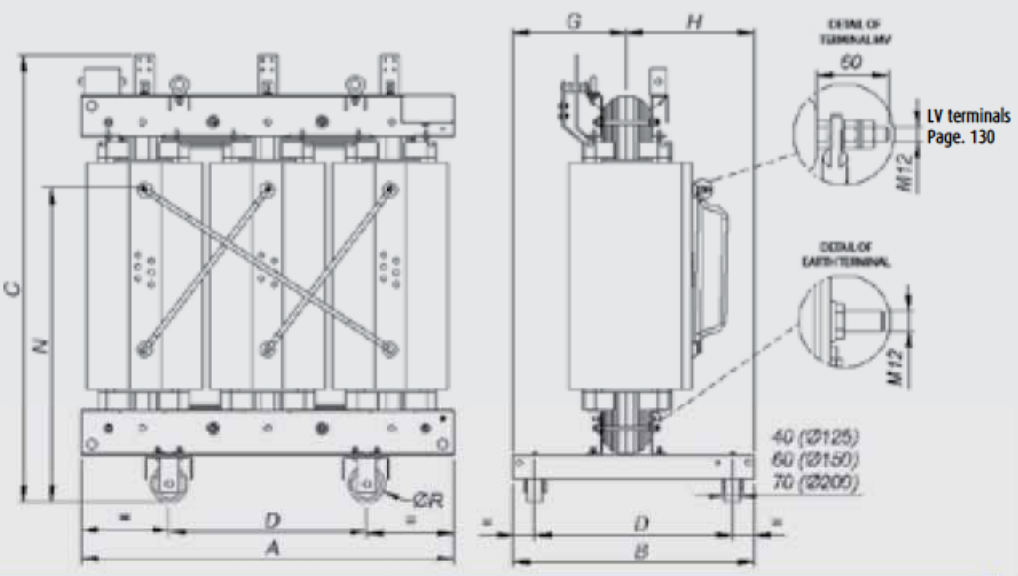

LV terminals Page. 130

36 kV insulation class
Technical information (250-3000 kVA)

TECHNICAL DATA from 250 to 3000 kVA

kVA	Item	Prim V	Sec V	Uk%	Po (W)	Pk(W)		Io%	Sound pressure level	Sound power level	Weight
		kV	V			120°	75°		dB	dB	kg
250	**EE5NAIBA**	25	400	6	1320	3600	3180	1.5	55	68	1380
315	**EF5NAIBA**	25	400	6	1450	4800	4250	1.4	56	69	1500
400	**EG5NAIBA**	25	400	6	1600	5800	5100	1.3	57	70	1700
500	**EH5NAIBA**	25	400	6	1800	7200	6350	1.2	58	71	1900
630	**EI5NAIBA**	25	400	6	2100	7600	6750	1	59	73	2250
800	**EJ5NAIBA**	25	400	6	2580	9400	8370	0.9	60	74	2700
1000	**EK5NAIBA**	25	400	7	2800	10500	9280	0.8	61	75	3100
1250	**EL5NAIBA**	25	400	8	3000	14000	12350	0.7	62	76	3400
1600	**EM5NAIBA**	25	400	8	3600	16500	14600	0.6	64	77	4050
2000	**EN5NAIBA**	25	400	8	4600	18000	16200	0.5	65	79	4900
2500	**EO5NAIBA**	25	400	8	5780	22000	19800	0.5	67	80	6000
3000	**EP5NAIBA**	25	400	8	6620	25500	22500	0.4	68	82	7000

Standards	IEC 60076-11
Power (kVA)	250 to 3000
Frequency (Hz)	50
Primary Voltages (kV)	25 - 33 insulation class 36 kV BIL 145/170 kV
Secondary Voltages (V)	400 - 420 insulation class 1.1 kV
Adjustment, MV side	± 2 x 2.5%
Vectorial group	Dyn11 (replace the final letter of the item code with "B" for Dyn5 or "C" for Dyn1)
Insulating system insulation class	F / F
Temperature rise	100 / 100 K
Class	E2 - C2 - F1 Certified CESI A9032391
Tolerances	According to IEC

Notes	The values shown are referred to the ratio 25/0.4 kV. These values may slightly change when there are different combinations. dB = Value measured at a distance of one metre, according to standard CEI EN 60076-10 Dimensions and weight of integral boxes: page 131 BIL 170 available on request in the order phase

36 kV insulation class
Dimensional information (250-3000 kVA)

DIMENSIONS AND WEIGHT

kVA	Item	Uk%	A	B	C	D	ØR	G	H	N	Weight
			[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]
250	**EE5NAIBA**	6	1600	830	1430	670	125	345	485	880	1380
315	**EF5NAIBA**	6	1600	830	1480	670	125	345	485	900	1500
400	**EG5NAIBA**	6	1650	880	1600	670	150	395	485	1030	1700
500	**EH5NAIBA**	6	1650	890	1700	670	150	395	495	1110	1900
630	**EI5NAIBA**	6	1750	900	1800	670	150	395	515	1180	2250
800	**EJ5NAIBA**	6	1750	910	1920	670	150	395	505	1250	2700
1000	**EK5NAIBA**	7	1900	1000	2030	820	150	470	530	1350	3100
1250	**EL5NAIBA**	8	1900	1000	2180	820	150	470	530	1480	3400
1600	**EM5NAIBA**	8	1950	1020	2300	820	150	470	550	1500	4050
2000	**EN5NAIBA**	8	2050	1310	2320	1070	200	580	730	1520	4900
2500	**EO5NAIBA**	8	2250	1310	2430	1070	200	580	730	1640	6000
3000	**EP5NAIBA**	8	2350	1310	2550	1070	200	580	730	1820	7000

Summary reference values. Use the construction drawing for the design.

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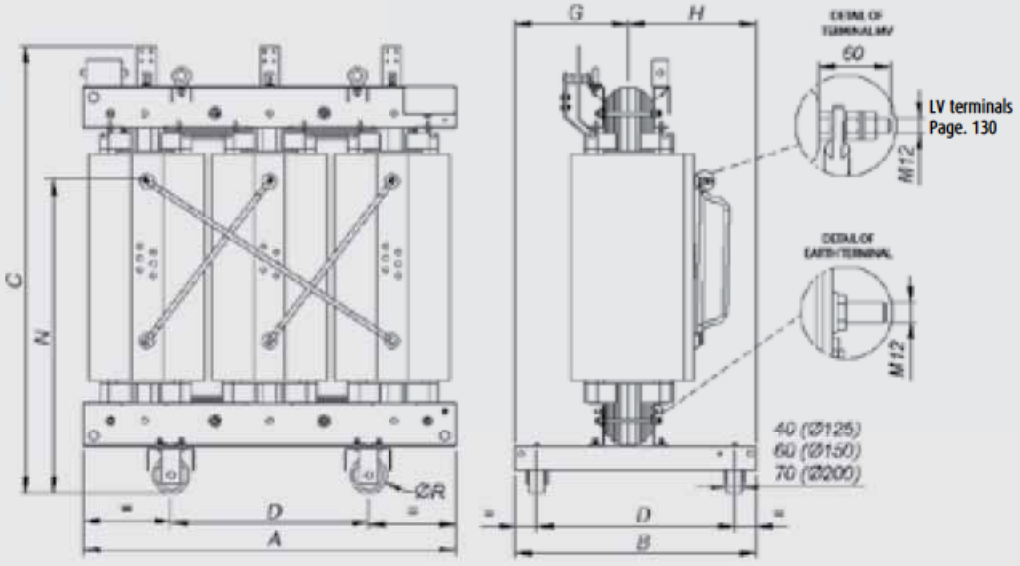
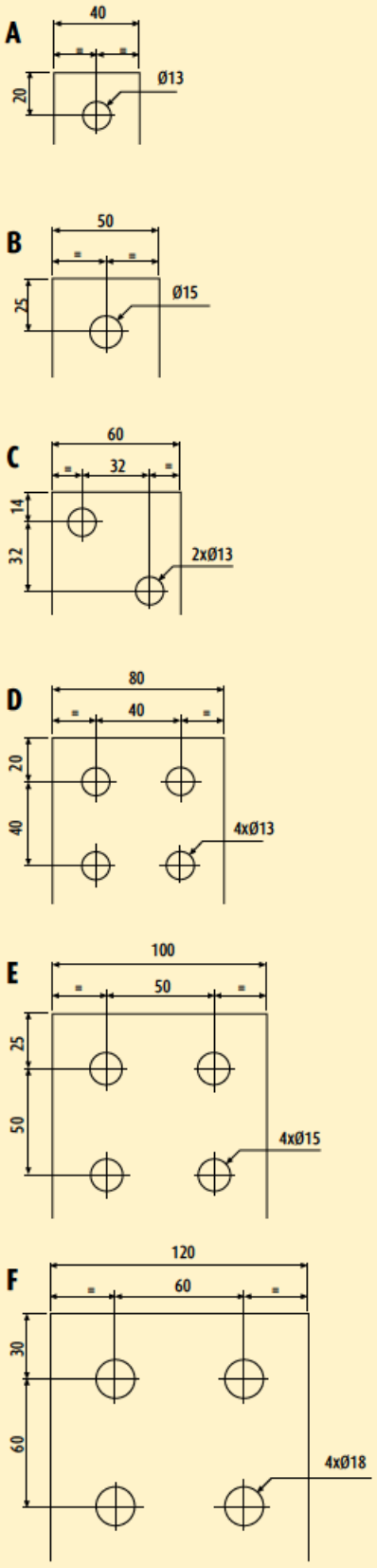


LV connection terminals

STANDARD DRILLING DETAILS



LV connection terminals are made in aluminium.

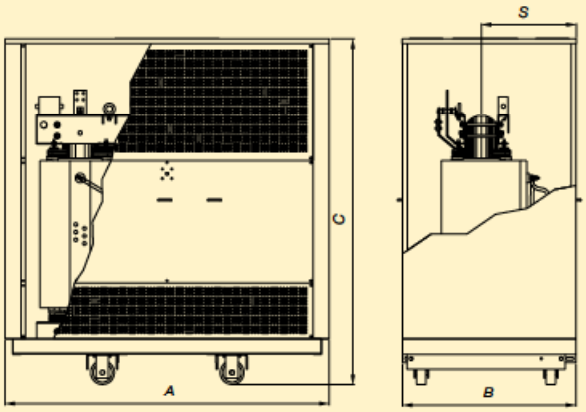
Special CUPAL bimetallic plates can be supplied for the connection of copper cables

Drawing	Range kVA	Thickness [mm]	Width [mm]	No. of holes	Ø holes [mm]
A	**100**	4	40	1	13
	160	4	40	1	13
B	**200**	5	50	1	15
	400	5	50	1	15
C	**500**	6	60	2	13
	630	6	60	2	13
	800	8	60	2	13
D	**1000**	8	80	4	13
E	**1250**	8	100	4	15
F	**1600**	10	120	4	18
	2000	12	120	4	18
	2500	16	120	4	18
	3150	20	120	4	18

All the data given can be modified without warning for reasons of technical production or product improvement.

Enclosures

TECHNICAL DATA from 100 to 3150 kVA



Colour RAL 7032
AREL lock on box code 230076

Degree of protection: IP21-IP31-IP23

Class 12-17.5-24 kV

KVA	Item	A [mm]	B [mm]	C [mm]	S [mm]	Weight [kg]	Degree of protection Walls	Base
100	230316	1600	900	1470	500	120	IP21	IP20
	230353					120	IP31	
	230288					130	IP23	
160	230316	1600	900	1470	500	120	IP21	IP20
	230353					120	IP31	
	230288					130	IP23	
200	230316	1600	900	1470	500	120	IP21	IP20
	230353					120	IP31	
	230288					130	IP23	
250	230211	1700	950	1580	405	140	IP21	IP20
	230263					140	IP31	
	230273					150	IP23	
315	230211	1700	950	1580	405	140	IP21	IP20
	230263					140	IP31	
	230273					150	IP23	
400	230212	1800	1000	1680	405	160	IP21	IP20
	230234					160	IP31	
	230215					170	IP23	
500	230212	1800	1000	1680	405	160	IP21	IP20
	230234					160	IP31	
	230215					170	IP23	
630	230204	1900	1050	1950	575	180	IP21	IP20
	230222					180	IP31	
	230277					200	IP23	
800	230204	1900	1050	1950	575	180	IP21	IP20
	230222					180	IP31	
	230277					200	IP23	
1000	230213	2050	1100	2200	600	210	IP21	IP20
	230223					210	IP31	
	230221					230	IP23	
1250	230213	2050	1100	2200	600	210	IP21	IP20
	230223					210	IP31	
	230221					230	IP23	
1600	230214	2300	1310	2500	730	280	IP21	IP20
	230249					280	IP31	
	230267					340	IP23	
2000	230214	2300	1310	2500	730	280	IP21	IP20
	230249					280	IP31	
	230267					340	IP23	
2500	230287	2500	1310	2700	730	300	IP21	IP20
	230371					300	IP31	
	230309					360	IP23	
3150	230287	2500	1310	2700	730	300	IP21	IP20
	230371					300	IP31	
	230309					360	IP23	

For Class 36 kV boxes dimensions and weight on request

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Accessories

TEMPERATURE MEASUREMENT SENSORS

The sensors are supplied mounted on the transformer and wired to a die-cast aluminium IP 55 junction box.

Type	Range kVA	Item	Qty	Temperature threshold °C	Notes
Pt100	up to 2000	**200073**	3	-	3 sensors mounted on the LV windings and wired in the box
Pt100	from 2500	**200074**	3	-	3 sensors mounted on the LV windings and wired in the box
Pt100	up to 2000	**200137**	4	-	3 sensors mounted on the LV windings plus a sensor mounted on the core and wired in the box
Pt100	from 2500	**200138**	4	-	3 sensors mounted on the LV windings plus a sensor mounted on the core and wired in the box
PTC	-	**CB0012**	6	130 - 140	3 pairs of PTC sensors on the LV windings for alarm and release. Wired in the box
PTC	-	**CB0240**	6	110 - 120	3 pairs of PTC sensors on the LV windings for alarm and release. Wired in the box

VENTILATION BARS

Ventilation bars allow a temporary increase of the rated power (at rated operation conditions).
1. When transformer is ordered AN/AF, they will be supplied mounted on the transformer;
2. When transformer is ordered AN and conversion from AN to AN/AF (within the limits listed in the table below) is made after the same is delivered, the purchaser will have to return the original rating plate to the manufacturer and the manufacturer will supply the relevant assembly instructions and the new rating plate.
N.B.1 In case manufacturer's ventilation bars are already owned by purchaser, the purchaser will have to return to the manufacturer the original rating plate and he will have to send the conversion request in order to receive the new rating plate.
N.B.2 Warranty will automatically expire in case the ventilation bars will not be supplied by the manufacturer or assembly instructions will not be followed.

Range kVA	Item	Power increase %	Notes
100 - 250	**CB02443**	+ 30	a temporary increase in rated conditions
315 - 800	**CB02453**	+ 30	
1000 - 1250	**CB02463**	+ 30	
1600 - 2500	**CB01413**	+ 20	
3150	**CB01411**	+ 15	
100 - 250	**CB02444**	+ 40	
315 - 800	**CB02454**	+ 40	
1000 - 1250	**CB02464**	+ 40	
1600 - 2500	**CB01414**	+ 30	
3150	**CB01412**	+ 20	

FAN CONTROL UNIT

The unit is supplied non-mounted.

Type	Item	Notes
VRT200	**220035**	To control the ventilation bars

TEMPERATURE CONTROL UNIT

The unit is supplied non-mounted.

Type	Item	Notes
T154	**220002**	Unit for 4 Pt100 sensors
MT200	**220023**	Unit for 4 Pt100 sensors
T119 DIN	**220010**	Unit for 6 PTC sensors. Set up for mounting on DIN rail
T 119	**220004**	Unit for 6 Pt100 sensors

RUBBER BUFFERS

Range kVA	Item	Notes
100 - 1600	**170019**	4 buffers supplied for mounting under the transformer casters
2000 - 3150	**170020**	4 buffers supplied for mounting under the transformer casters

NON-MAGNETIC THERMOMETER

Item	Description
250662	Thermometer without support bracket, initial installation or for replacement
250005	Thermometer support bracket (always necessary)

KIT OF SURGE ARRESTERS MOUNTED ON THE TRANSFORMER

Voltage Vn kV	Item
10	**130054D**
15	**130055D**
20	**130056D**

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