

ZUCCHINI

High Power

SCP - HR - EdM



CATALOGUE 08/09

ZHP08C/GB

HIGH POWER

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EdM - CAST RESIN TRANSFORMERS

Integrated solutions for global projects

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

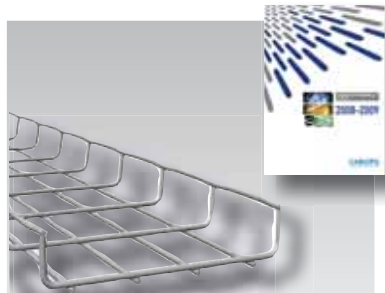
- Distribution, automation panels and protection equipment
- Cable management (trunking, cable trays and wire mesh)
- Cast resin transformers
- Busbars and lighting busbars

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



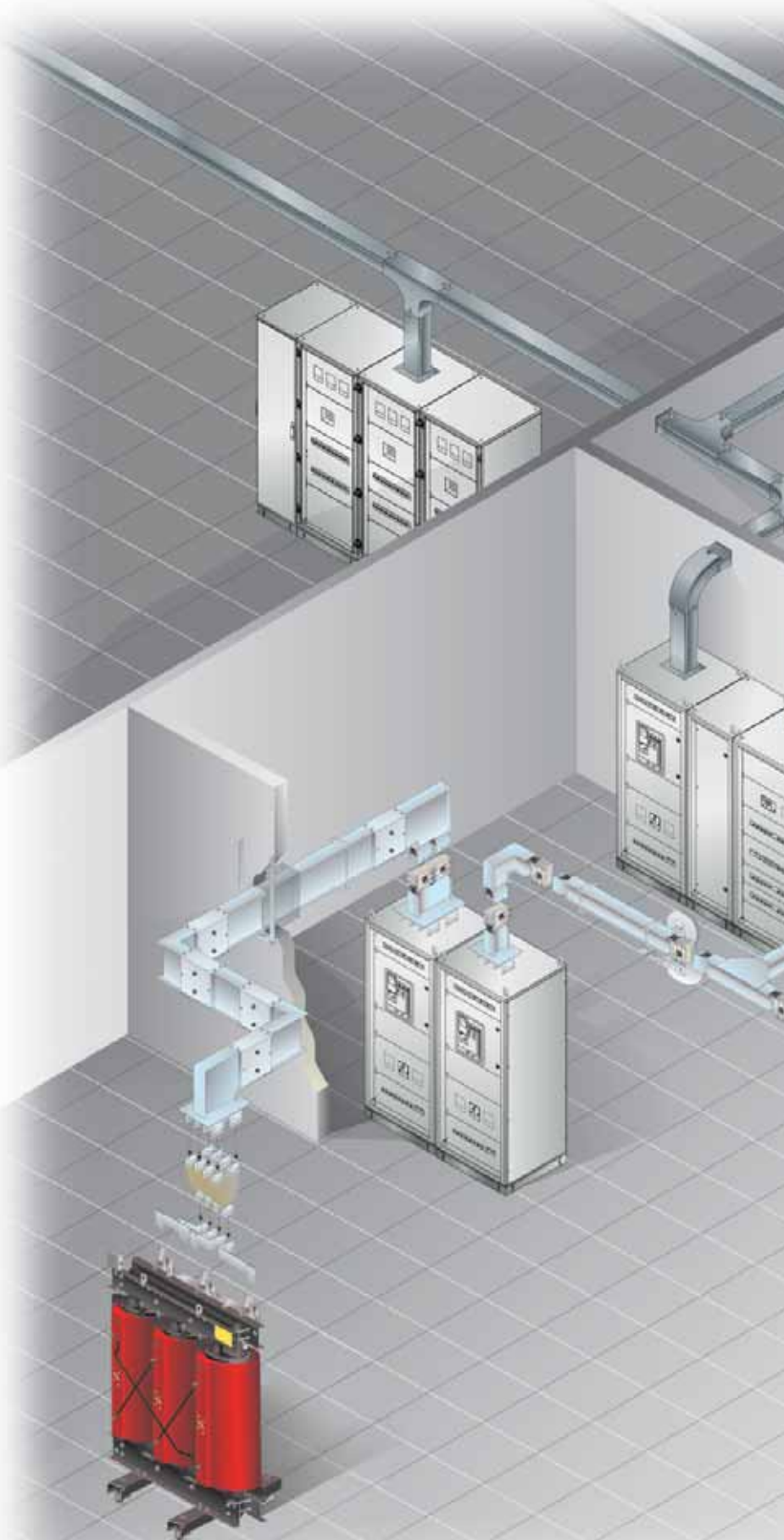
Altis™ industrial cabinets
Atlantic and Marina boxes

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



XL³ distribution cabinets



Zucchini busbars



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 supply 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 regardless 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 potential 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.

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.

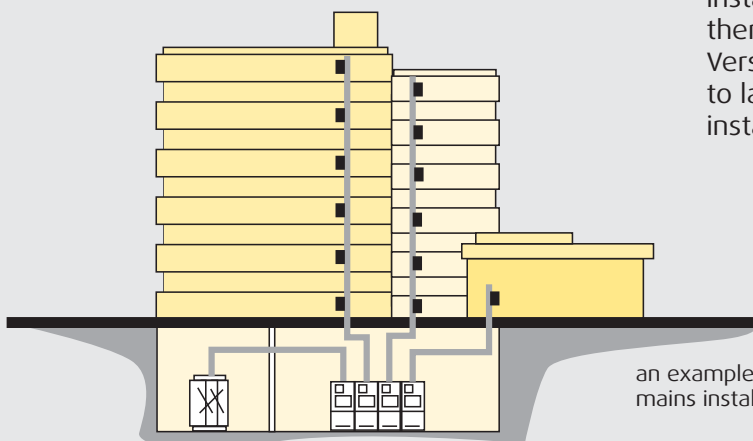
The HP range gives you all the necessary elements for a quick, efficient and safe installation.

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.

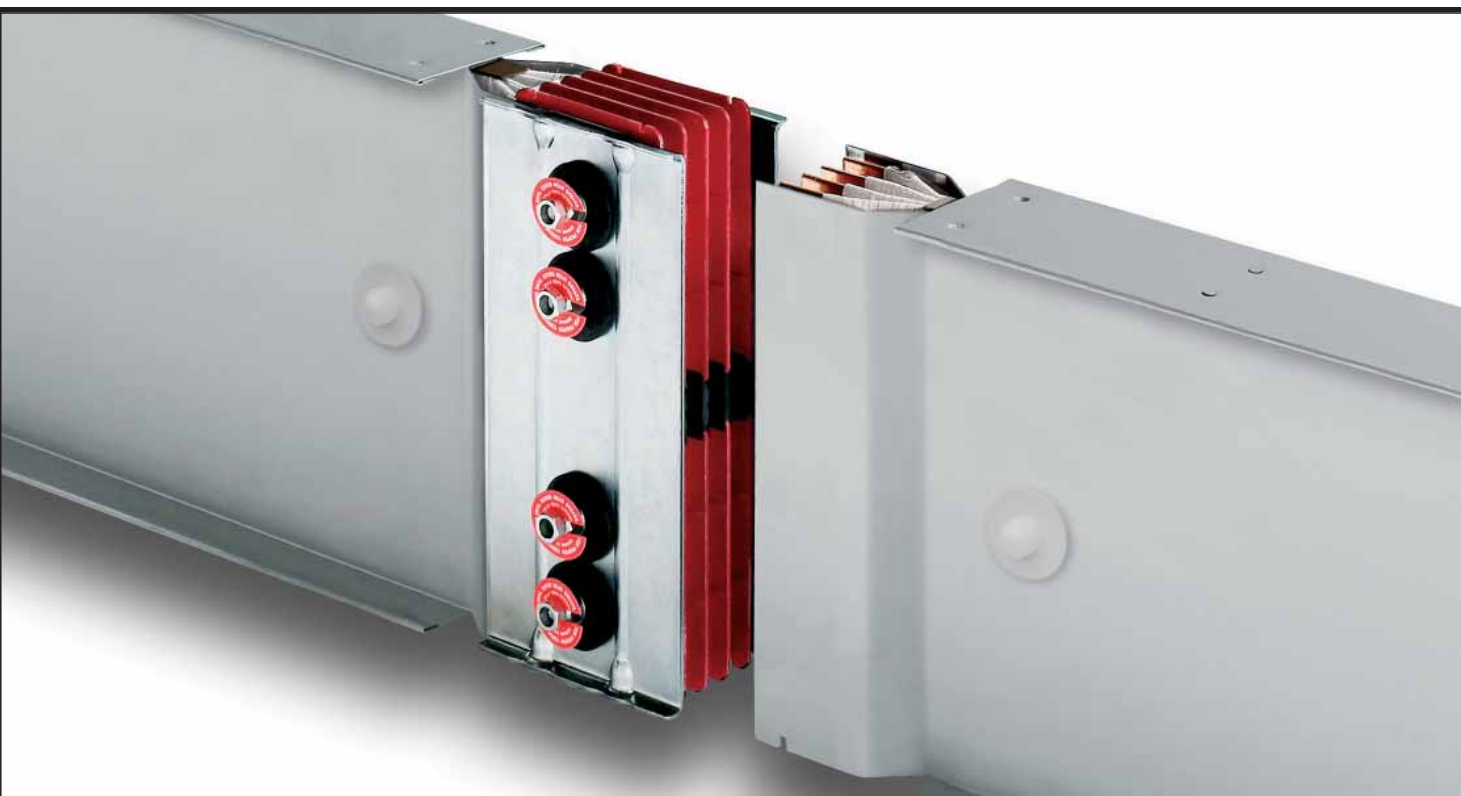
The high quality standard of all Zucchini insulating components are suitable for being installed in environments subject to high thermal stress.

Versatility also means immediately adapting to layout modifications or expansions of the installation environment.



an example of a rising mains installation.

SUPER COMPACT - SCP



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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

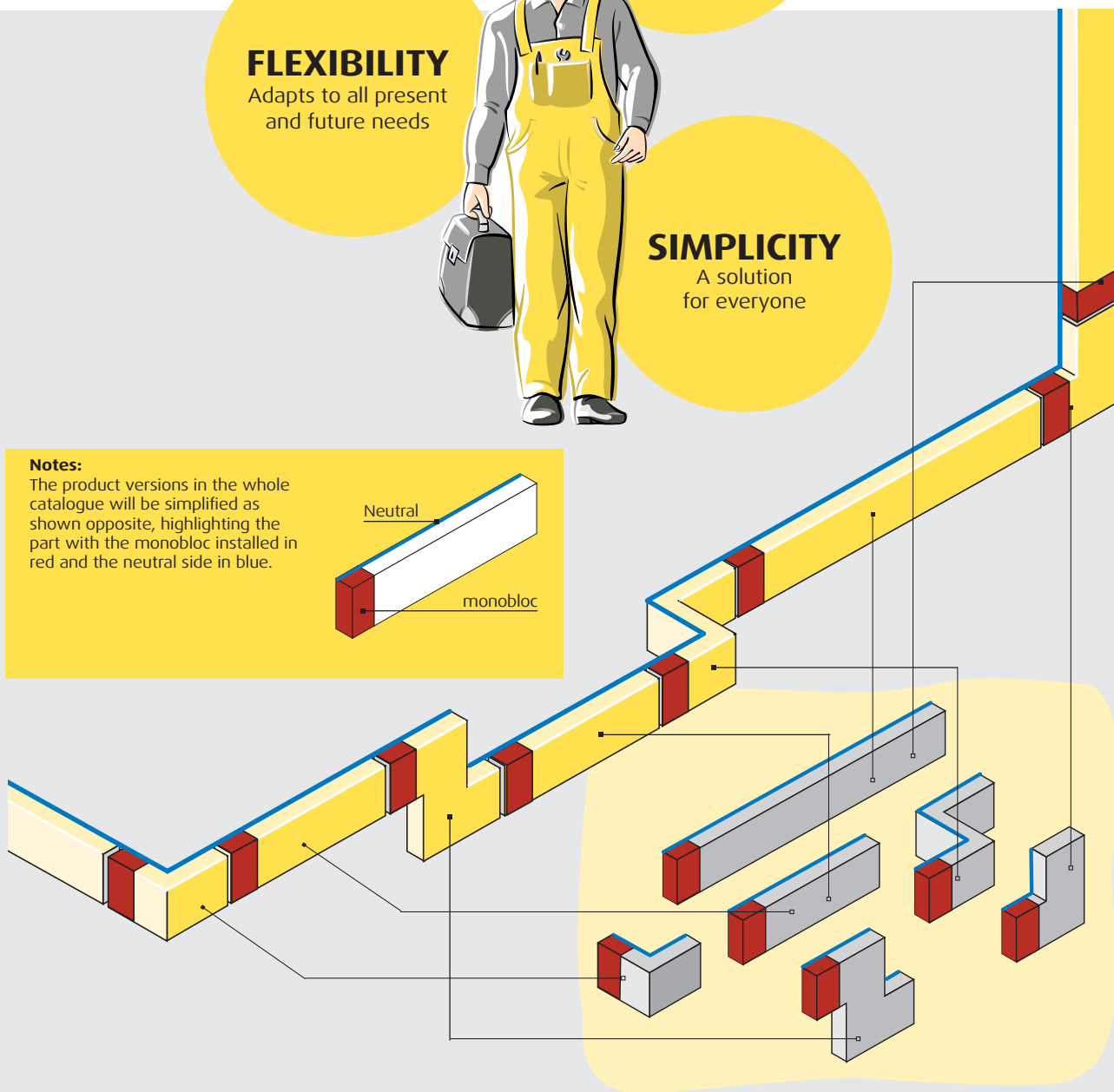
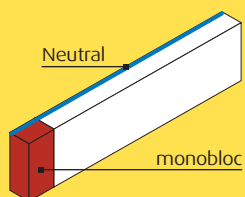
SIMPLICITY

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**.

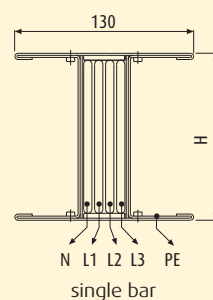
The junction contact is ensured by **two silver-plated copper plates** for each **phase**, insulated with red **class F thermosetting plastic material**. The **monobloc** has **shearhead bolts**: after tightening the nuts with a standard wrench, the outer head will break at the correct torque value, 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**.

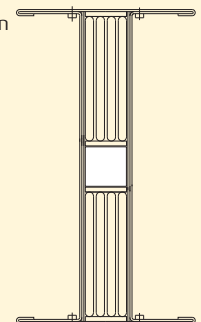
Standard versions:

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)



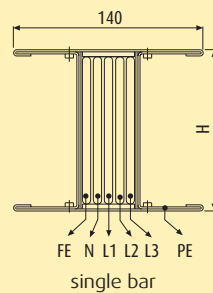
single bar



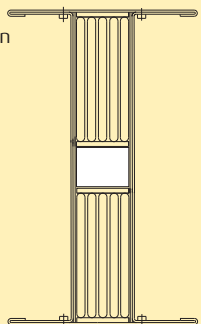
double bar

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)



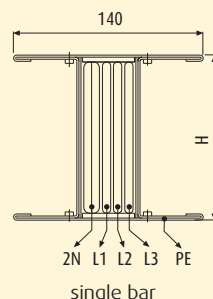
single bar



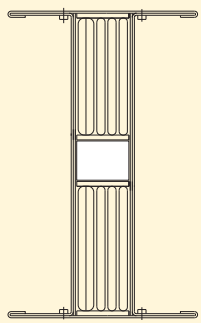
double bar

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

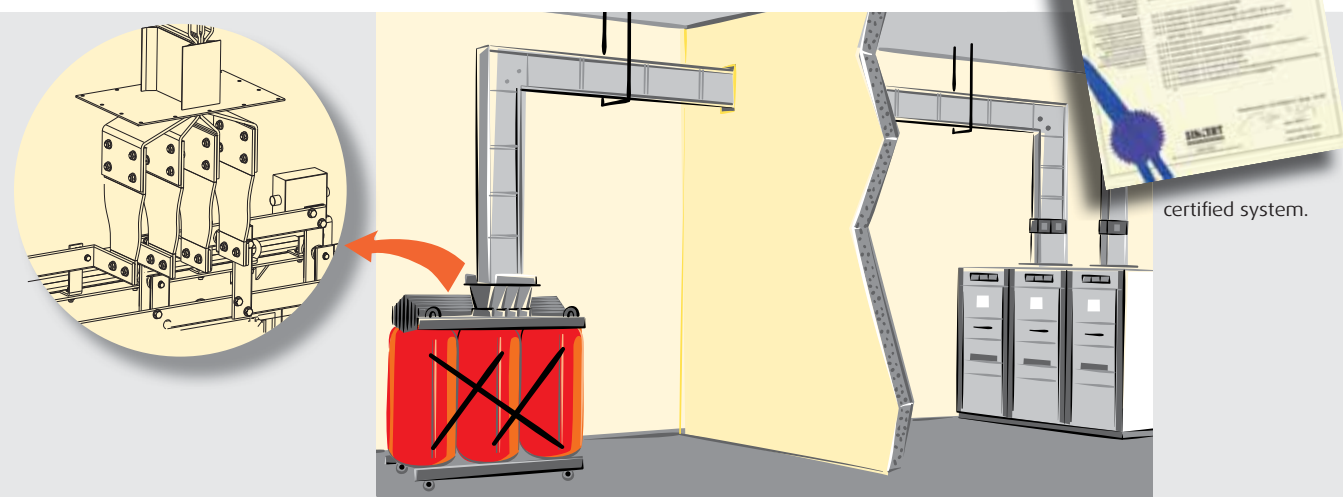
Zucchini - Legrand - EdM system concept

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:

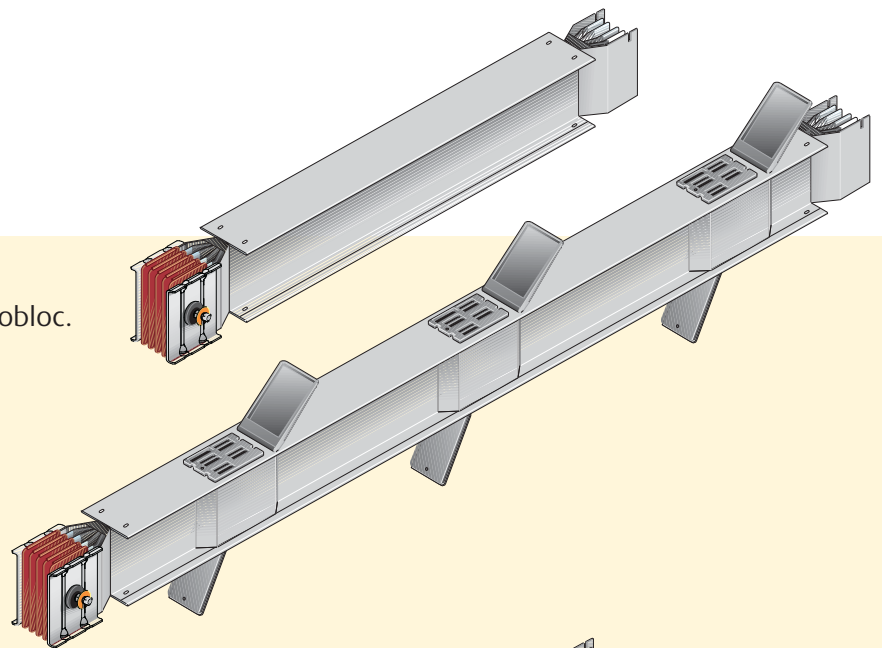
Supplied with its pre-installed monobloc.

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



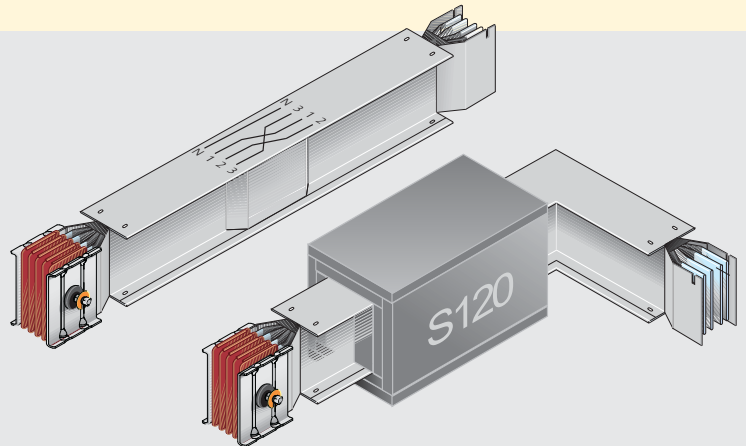
Additional elements:

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



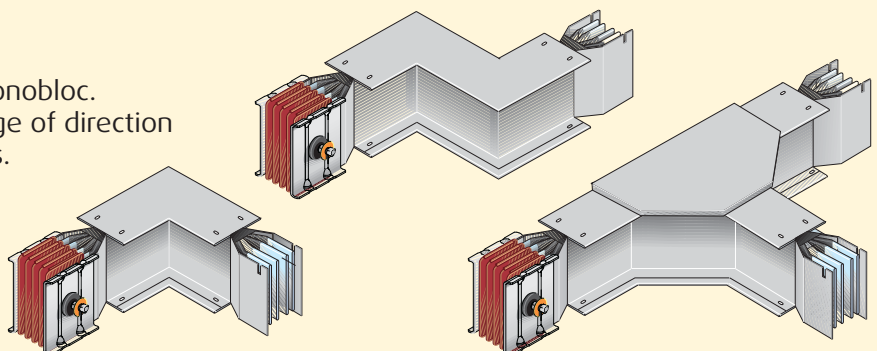
Angle components:

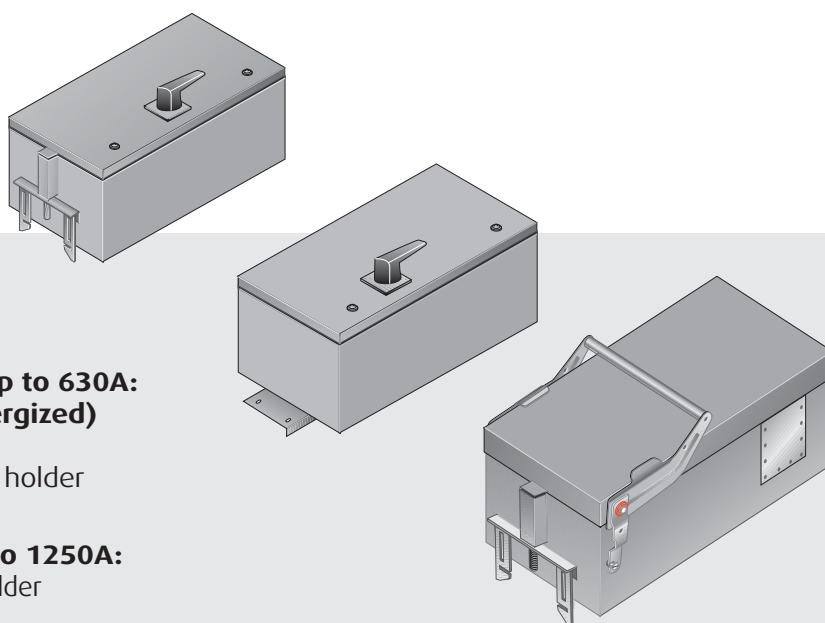
Supplied with its pre-installed monobloc.
Elements able to meet any change of direction
with standard or special solutions.

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 disconnecter and fuse holder
- for DPX circuit breakers

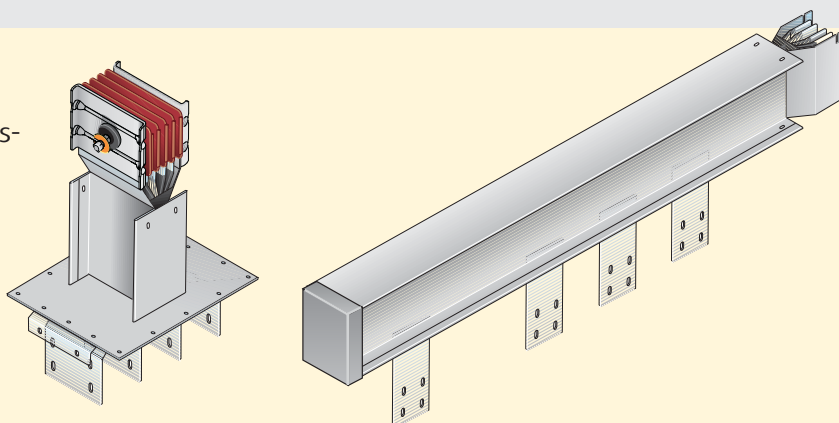
Bolted tap-off boxes from 125A to 1250A:

- with switch disconnecter and fuse holder
- for DPX circuit breakers

Connection interfaces:

Elements used for connecting the busbar to the cabinet or transformer.

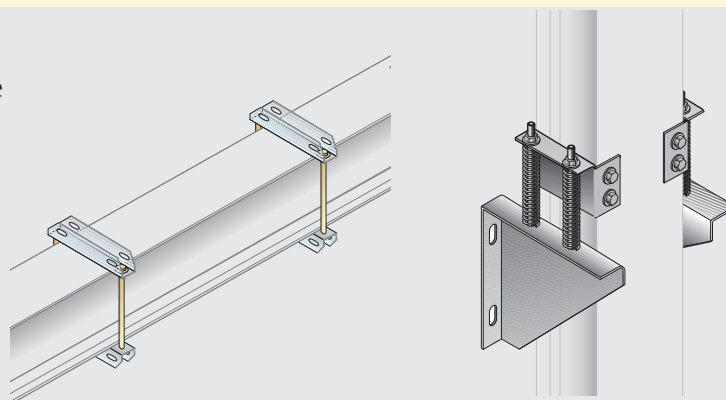
Solutions for Legrand XL³ cabinets and EdM cast resin transformers Universal solutions



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)

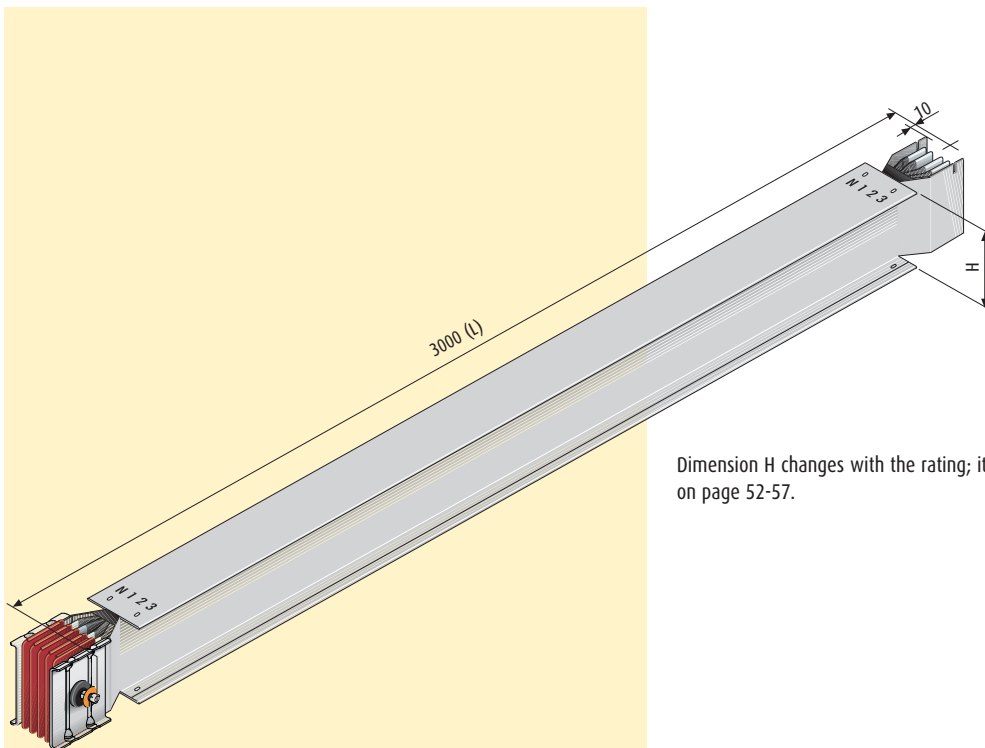


Feeder elements

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	

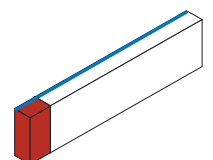
Copper	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A	5000A
L = 3000 mm	65280100P	65280101P	65280103P	65280105P	65280106P	65280108P	65390105P	65390106P	65390108P
L = 1000-1500 mm	65280170P	65280171P	65280173P	65280175P	65280176P	65280178P	65390175P	65390176P	65390178P
L = 1501-2000 mm	65280120P	65280121P	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 52-57.

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 3000MM

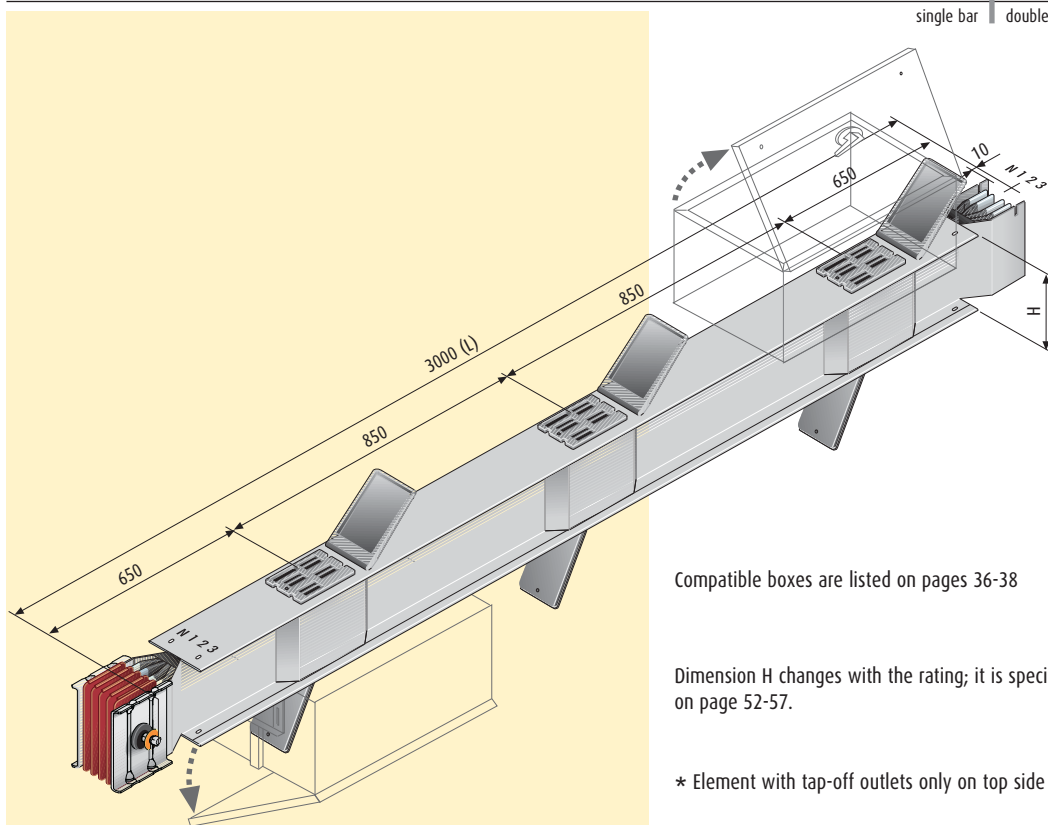
Tap-off outlets on both sides

Aluminium	No. 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 = 2000 mm	2+2	60280260P	60280261P	60280262P	60280264P	60280266P	60280267P	60390264P	60390266P	60390267P
L = 1000 mm	1+1	60280280P	60280281P	60280282P	60280284P	60280286P	60280287P	60390284P	60390286P	60390287P

single bar | double bar

Copper	No. of outlets	800A*	1000A	1250A	1600A	2000A	2500A	3200A	4000A	5000
L = 3000 mm	3+3	65280130P	65280131P	65280133P	65280135P	65280136P	65280138P	65390135P	65390136P	65390138P
L = 2000 mm	2+2	65280260P	65280261P	65280263P	65280265P	65280266P	65280268P	65390265P	65390266P	65390268P
L = 1000 mm	1+1	65280280P	65280281P	65280283P	65280285P	65280286P	65280288P	65390285P	65390286P	65390288P

single bar | double bar



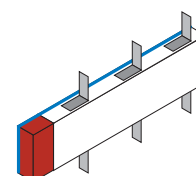
Compatible boxes are listed on pages 36-38

Dimension H changes with the rating; it is specified in the specifications on page 52-57.

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

MINIMUM AND MAXIMUM DIMENSIONS OF SINGLE AND DOUBLE BAR

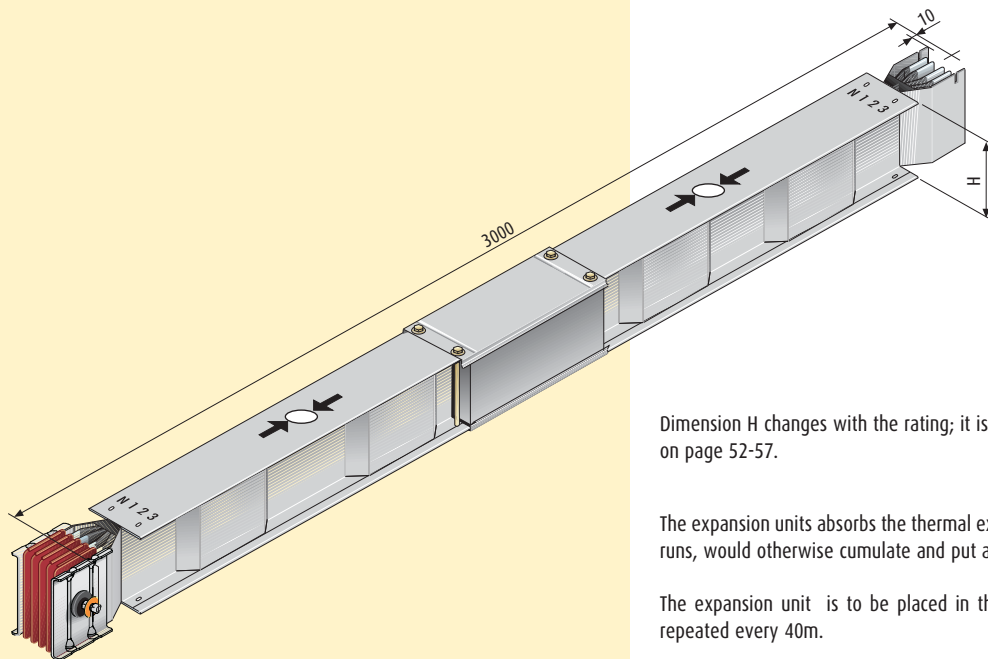
Aluminium	630A to 4000A
Copper	800A to 5000A
(L) min/MAX [mm]	1000/3000



Trunking components

EXPANSION ELEMENT

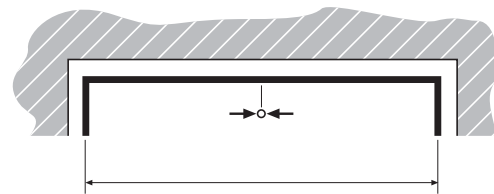
Aluminium	630A	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A
	60280290P	60280291P	60280292P	60280294P	60280296P	60280297P	60390294P	60390296P	60390297P
	single bar						double bar		
Copper	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A	5000A
	65280290P	65280291P	65280293P	65280295P	65280296P	65280298P	65390295P	65390296P	65390298P
	single bar						double bar		



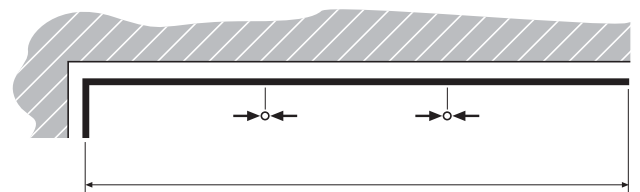
Dimension H changes with the rating; it is specified in the specifications on page 52-57.

The expansion unit 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

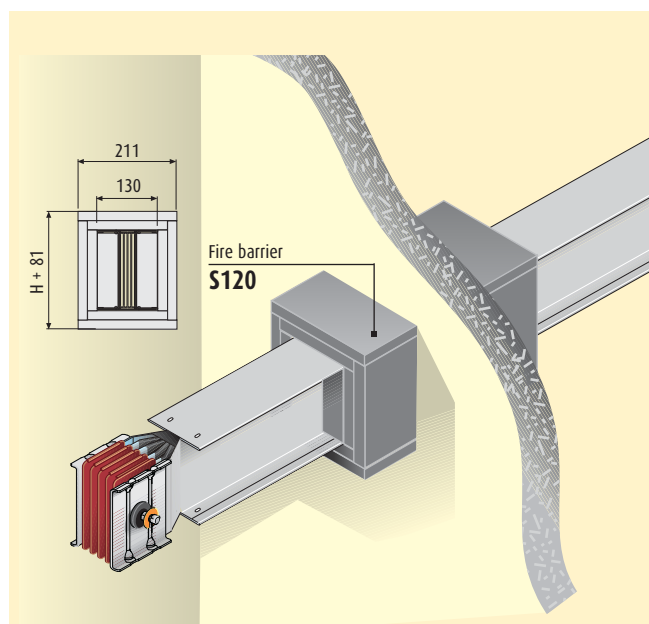
FIRE BARRIER S120 (EN 1366-3, DIN 4102-09)

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

single bar | double bar



Dimension H changes with the rating; it is specified in the specifications on page 52-57.

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

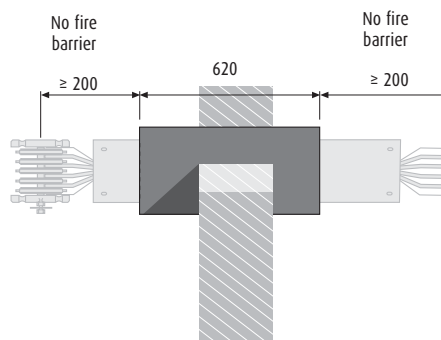
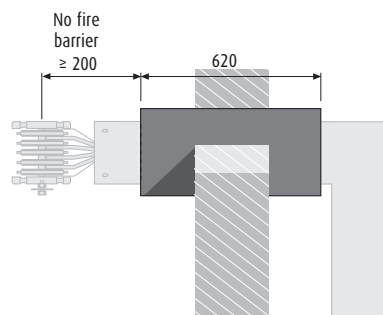


Figure 2



Direction changes

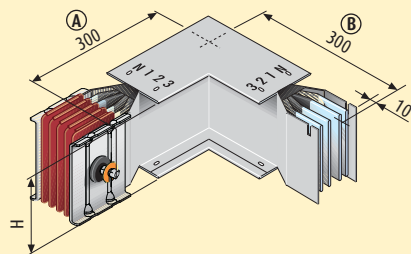
HORIZONTAL ELBOW

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 52-57.

The dimensions are referred to standard elements.

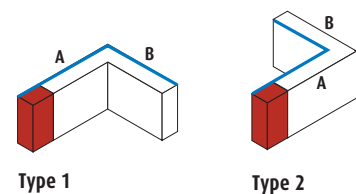
The word "special" is referred to an element with measurements that are different from those shown in the figure, yet included between the MIN/MAX values specified in the table.

MINIMUM AND MAXIMUM DIMENSIONS OF SINGLE BAR

Aluminium	630A to 2000A
Copper	800A to 2500A
(A) min/MAX [mm]	250/1299
(B) min/MAX [mm]	250/1299

MINIMUM AND MAXIMUM DIMENSIONS OF DOUBLE BAR

Aluminium	2500A to 4000A
Copper	3200A to 5000A
(A) min/MAX [mm]	250/1449
(B) min/MAX [mm]	250/1449



Type 1

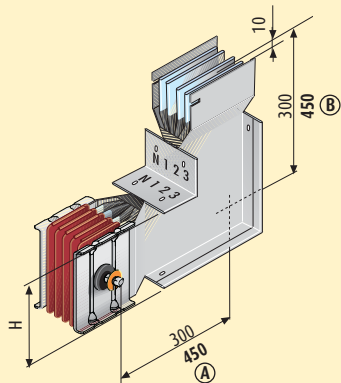
Type 2

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 52-57.

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

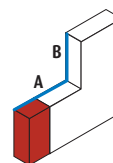
The word "special" is referred to an element with measurements that are different from those shown in the figure, yet included between the MIN/MAX values specified in the table.

MINIMUM AND MAXIMUM DIMENSIONS OF SINGLE BAR

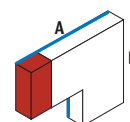
Aluminium	630A to 2000A
Copper	800A to 2500A
(A) min/MAX [mm]	300/1299
(B) min/MAX [mm]	300/1299

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



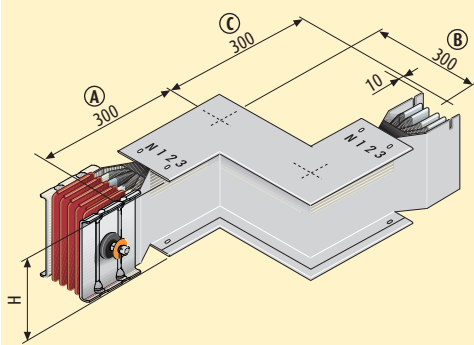
Type 2

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 52-57.

The dimensions are referred to standard elements.

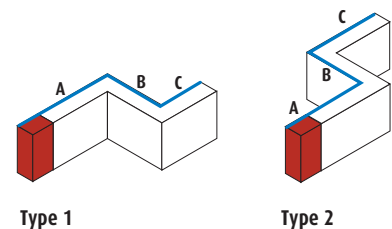
Non Standard elements (with measurements that are different from those shown in the figure) are referred to the MIN/MAX values specified in the table.

MINIMUM AND MAXIMUM DIMENSIONS OF SINGLE BAR

Aluminium	630A to 2000A
Copper	800A to 2500A
(A) min/MAX [mm]	250/1299
(B) min/MAX [mm]	50/599
(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]	250/1449
(B) min/MAX [mm]	50/599
(C) min/MAX [mm]	250/1449

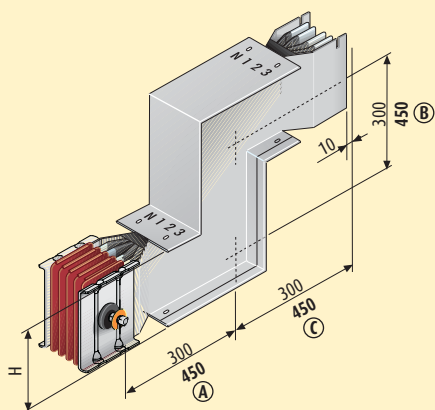


Direction changes

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 52-57.

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

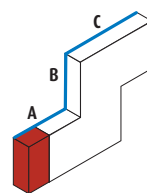
Non Standard elements (with measurements that are different from those shown in the figure) are referred to the MIN/MAX values specified in the table.

MINIMUM AND MAXIMUM DIMENSIONS OF SINGLE BAR

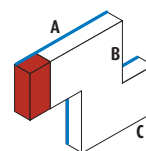
Aluminium	630A to 2000A
Copper	800A to 2500A
(A) min/MAX [mm]	300/1299
(B) min/MAX [mm]	50/599
(C) min/MAX [mm]	300/1299

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]	50/599
(C) min/MAX [mm]	450/1449



Type 1



Type 2

Direction changes

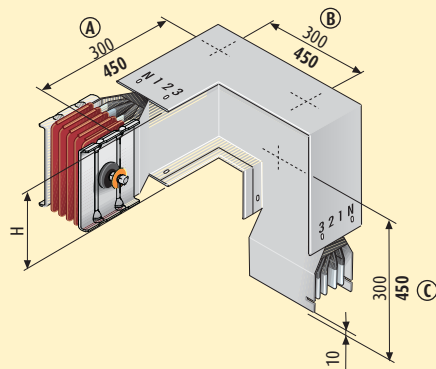
DOUBLE ELBOW HORIZONTAL+VERTICAL

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 52-57.

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

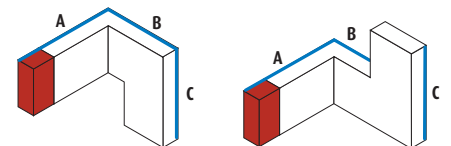
Non Standard elements (with measurements that are different from those shown in the figure) are referred to the MIN/MAX values specified in the table.

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

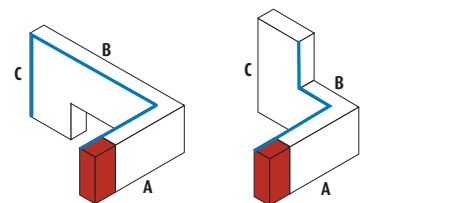
MINIMUM AND MAXIMUM DIMENSIONS OF DOUBLE BAR

Aluminium	2500A to 4000A
Copper	3200A to 5000A
(A) min/MAX [mm]	250/1449
(B) min/MAX [mm]	330 - 749
(C) min/MAX [mm]	450/1449



Type 1

Type 2



Type 3

Type 4

Direction changes

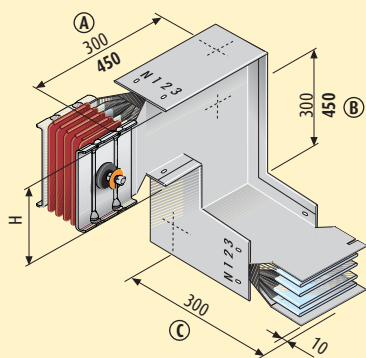
DOUBLE ELBOW VERTICAL+HORIZONTAL

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 52-57.

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

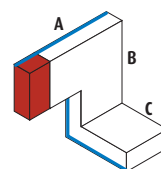
Non Standard elements (with measurements that are different from those shown in the figure) are referred to the MIN/MAX values specified in the table.

MINIMUM AND MAXIMUM DIMENSIONS OF SINGLE BAR

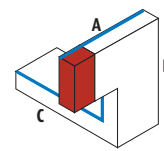
Aluminium	630A to 2000A
Copper	800A to 2500A
(A) min/MAX [mm]	300/1299
(B) min/MAX [mm]	200 - 599
(C) min/MAX [mm]	250/1299

MINIMUM AND MAXIMUM DIMENSIONS OF DOUBLE BAR

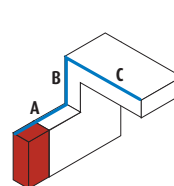
Aluminium	2500A to 4000A
Copper	3200A to 5000A
(A) min/MAX [mm]	450/1449
(B) min/MAX [mm]	330 - 749
(C) min/MAX [mm]	250/1449



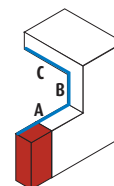
Type 1



Type 2



Type 3



Type 4

Direction changes

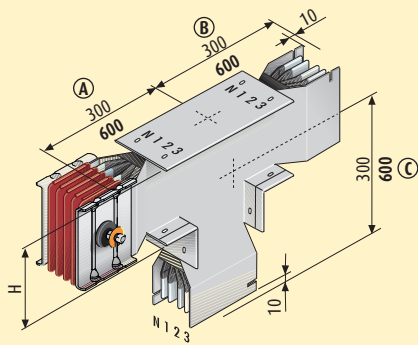
VERTICAL "T"

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 52-57.

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

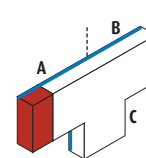
Non Standard elements (with measurements that are different from those shown in the figure) are referred to the MIN/MAX values specified in the table.

MINIMUM AND MAXIMUM DIMENSIONS OF SINGLE BAR

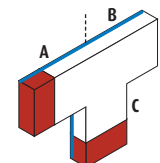
Aluminium	630A to 2000A
Copper	800A to 2500A
(A) min/MAX [mm]	300/1299
(B) min/MAX [mm]	300/1299
(C) min/MAX [mm]	300/1299

MINIMUM AND MAXIMUM DIMENSIONS OF DOUBLE BAR

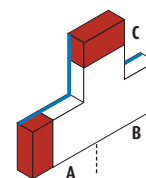
Aluminium	2500A to 4000A
Copper	3200A to 5000A
(A) min/MAX [mm]	450/1449
(B) min/MAX [mm]	450/1449
(C) min/MAX [mm]	450/1449



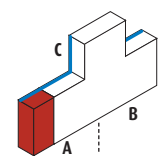
Type 1



Type 2



Type 3



Type 4

Direction changes

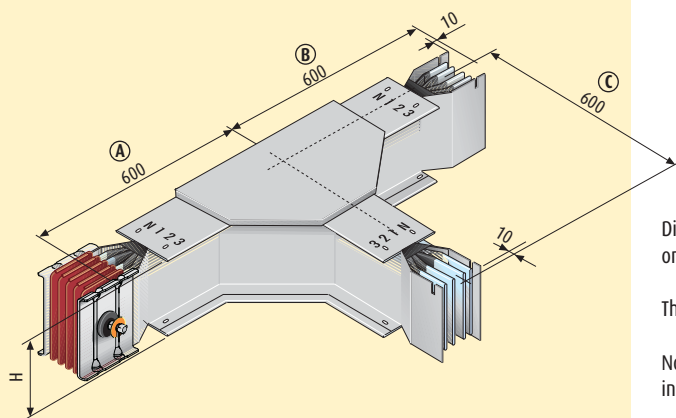
HORIZONTAL "T"

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

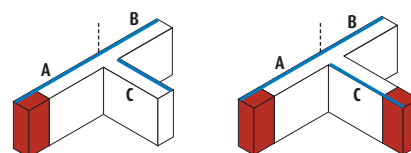
single bar | double bar



Dimension H changes with the rating; it is specified in the specifications on page 52-57.

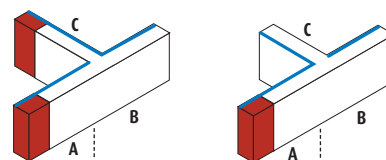
The dimensions are referred to standard elements.

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.



Type 1

Type 2



Type 3

Type 4

MINIMUM AND MAXIMUM DIMENSIONS OF SINGLE AND DOUBLE BAR

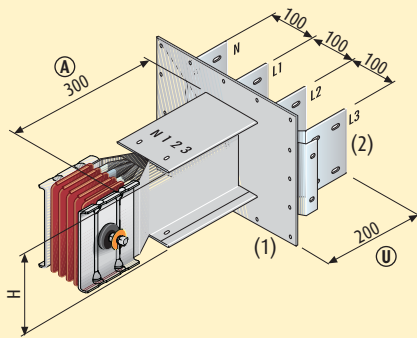
Aluminium	630A to 4000A
Copper	800A to 5000A
(A) min/MAX [mm]	550/1049
(B) min/MAX [mm]	550/1049
(C) min/MAX [mm]	550/1049

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		



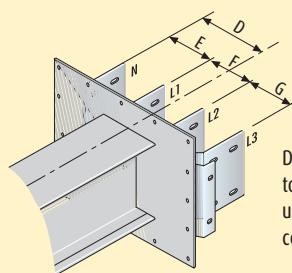
Dimension H changes with the rating; it is specified in the specifications on page 52-57.

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 25 for dimensions of coverplate (1) and bars (2).

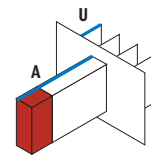
Special element with non-standard centre distance



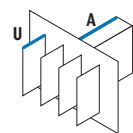
Dimensioning indications to be provided when using a non-standard centre distance

MINIMUM AND MAXIMUM DIMENSIONS OF SINGLE AND DOUBLE BAR

Aluminium	630A to 4000A
Copper	800A to 5000A
(A) min/MAX [mm]	200/1000
(U) min/MAX [mm]	150/400



Type 1

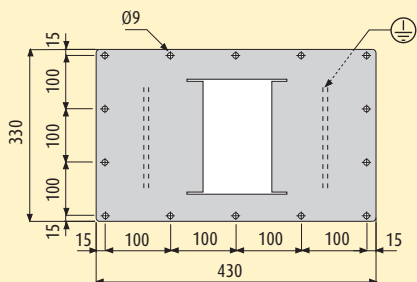


Type 2

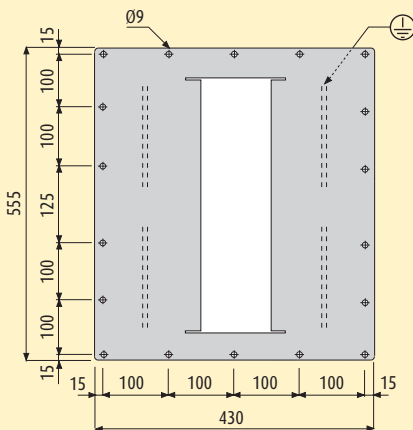
Connection interfaces

COVERPLATE DRILLING DETAILS (1)

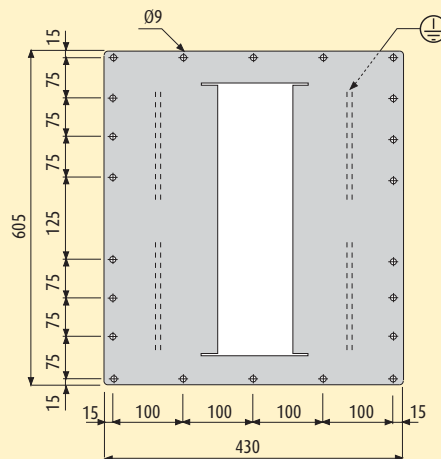
Aluminium 630A to 2000A
Copper 800A to 2500A



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

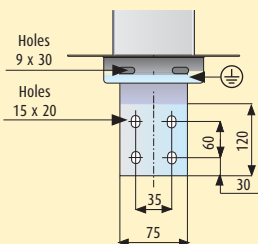


Aluminium 4000A
Copper 5000A

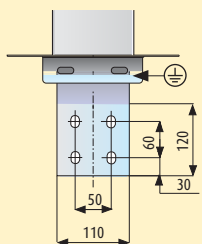


BAR DRILLING DETAILS (2)

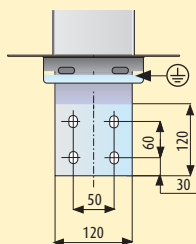
Al 630A
Cu 800A



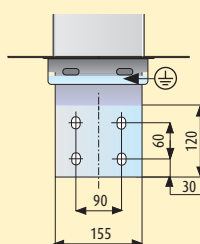
Al 800A-1000A
Cu 1000A-1250A



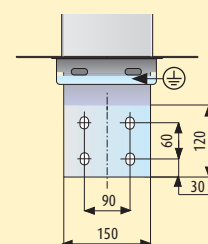
Al 1250A



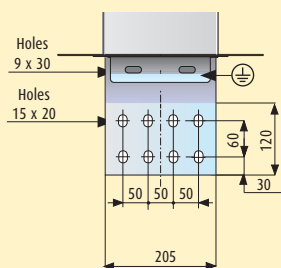
Al 1600A



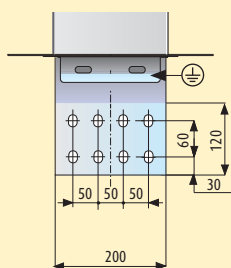
Cu 1600A



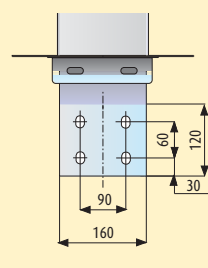
Al 2000A



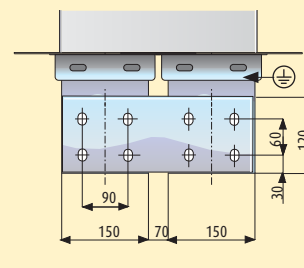
Cu 2500A



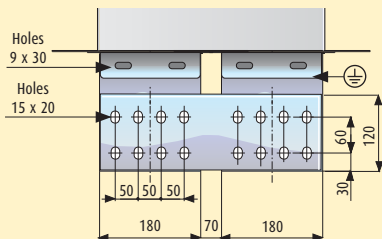
Cu 2000A



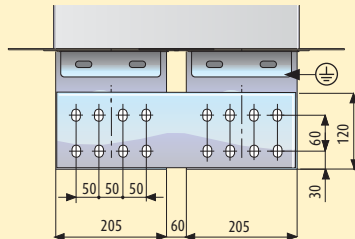
Al 2500A
Cu 3200A



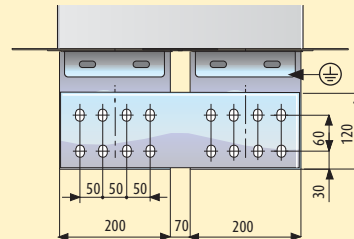
Al 3200A
Cu 4000A



Al 4000A



Cu 5000A

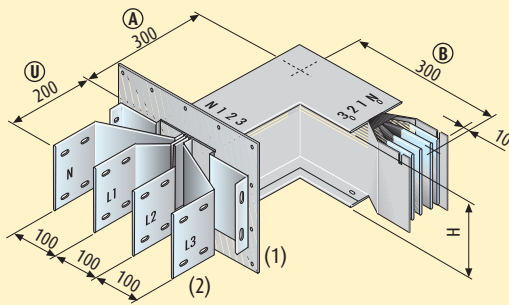


Connection interfaces

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 52-57.

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.

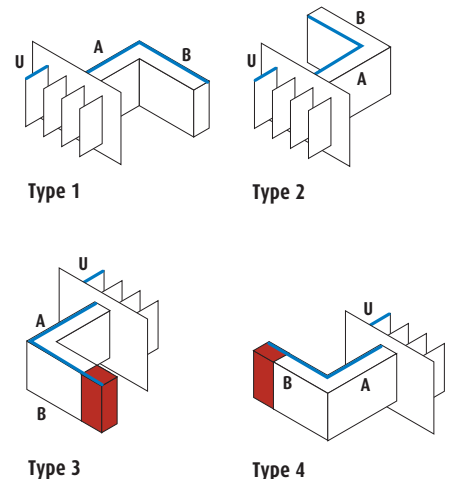
See page 25 for dimensions of coverplate (1) and bars (2).

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]	165/1299
(B) 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]	165/1449
(B) min/MAX [mm]	250/1449



Connection interfaces

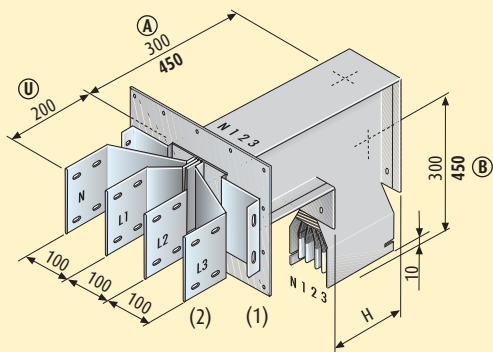
CONNECTION INTERFACE + VERTICAL ELBOW

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 52-57.

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.

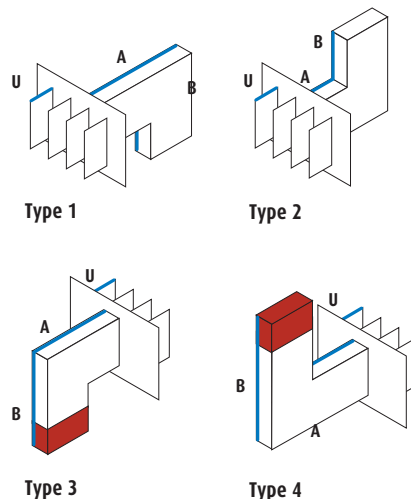
See page 25 for dimensions of coverplate (1) and bars (2).

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]	300/1299
(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]	450/1449
(B) min/MAX [mm]	450/1449

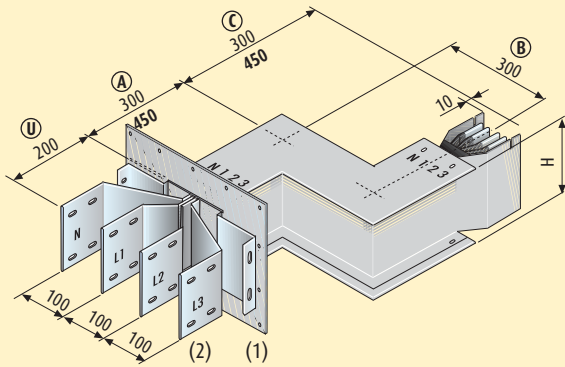


Connection interfaces

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 52-57.

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.

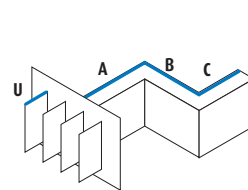
See page 25 for dimensions of coverplate (1) and bars (2).

MINIMUM AND MAXIMUM DIMENSIONS OF SINGLE BAR

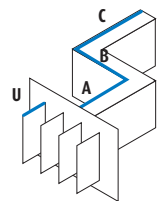
Aluminium	630A to 2000A
Copper	800A to 2500A
(U) min/MAX [mm]	150/400
(A) min/MAX [mm]	100/1299
(B) min/MAX [mm]	50/599
(C) min/MAX [mm]	250/1299

MINIMUM AND MAXIMUM DIMENSIONS OF DOUBLE BAR

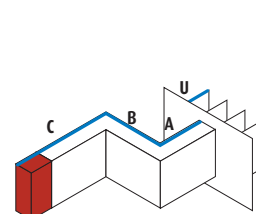
Aluminium	2500A to 4000A
Copper	3200A to 5000A
(U) min/MAX [mm]	150/400
(A) min/MAX [mm]	165/1449
(B) min/MAX [mm]	50/599
(C) min/MAX [mm]	250/1449



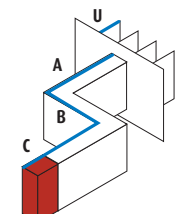
Type 1



Type 2



Type 3



Type 4

Connection interfaces

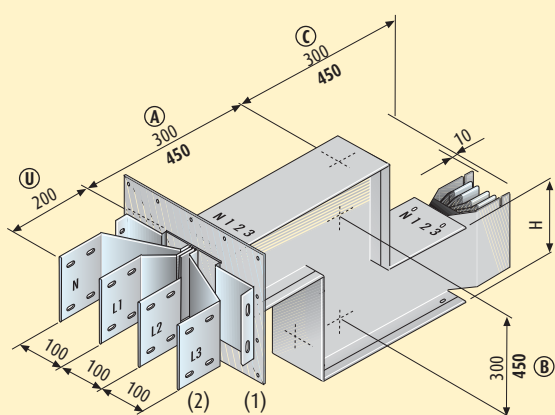
CONNECTION INTERFACE + DOUBLE VERTICAL ELBOW

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 52-57.

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.

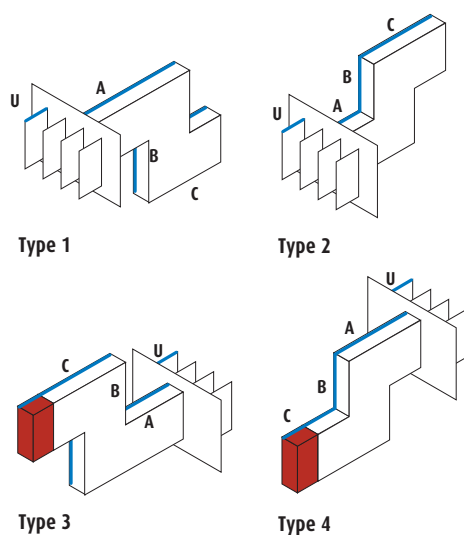
See page 25 for dimensions of coverplate (1) and bars (2).

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]	200/1299
(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]	350/1449
(B) min/MAX [mm]	50/599
(C) min/MAX [mm]	450/1449



Connections interfaces

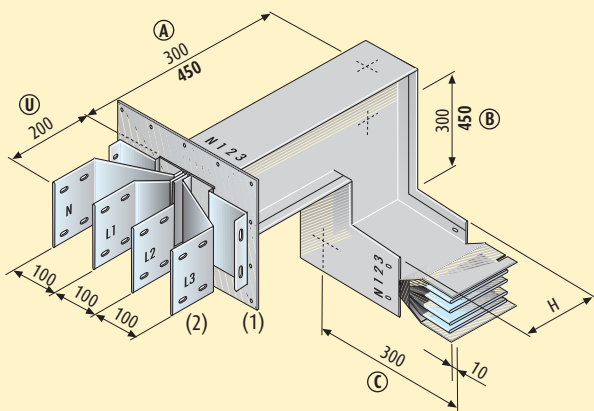
CONNECTION INTERFACE + VERTICAL ELBOW + HORIZONTAL ELBOW

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 52-57.

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.

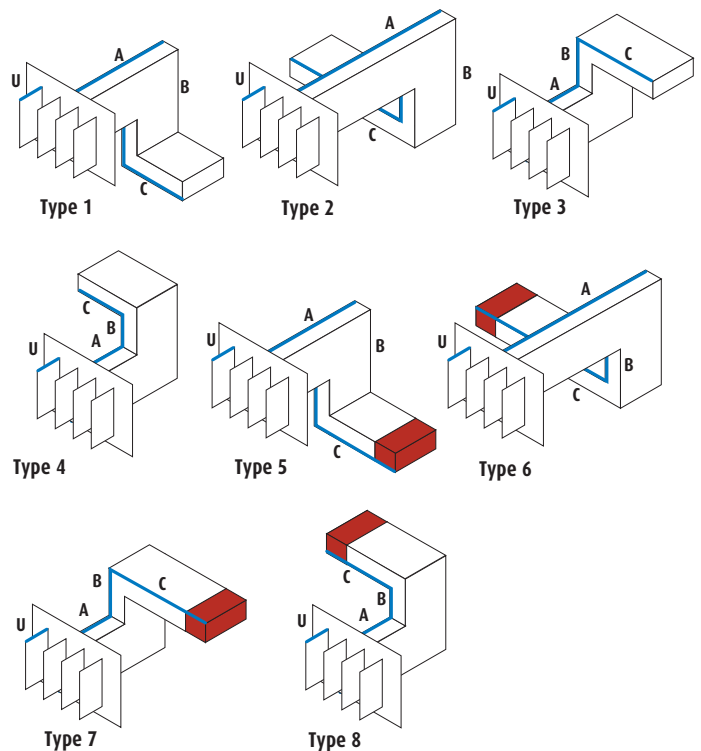
See page 25 for dimensions of coverplate (1) and bars (2).

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]	200/1299
(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]	350/1449
(B) min/MAX [mm]	330 - 749
(C) min/MAX [mm]	250/1449



Connection interfaces

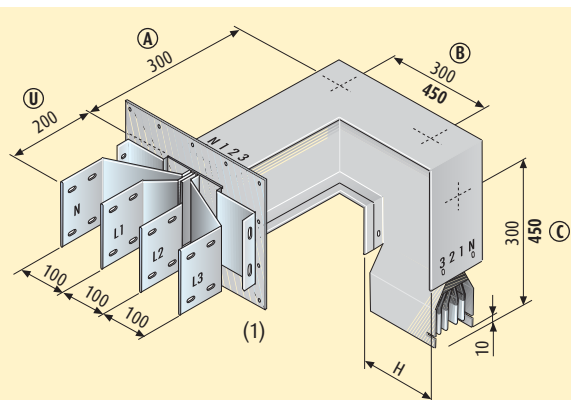
CONNECTION INTERFACE + HORIZONTAL ELBOW + VERTICAL ELBOW

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

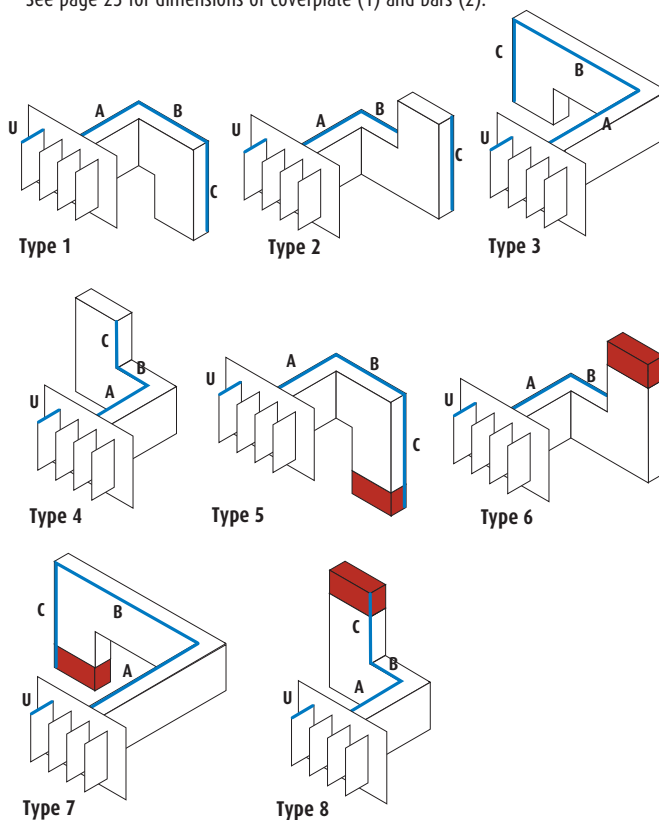


Dimension H changes with the rating; it is specified in the specifications on page 52-57.

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 25 for dimensions of coverplate (1) and bars (2).



MINIMUM AND MAXIMUM DIMENSIONS OF SINGLE BAR

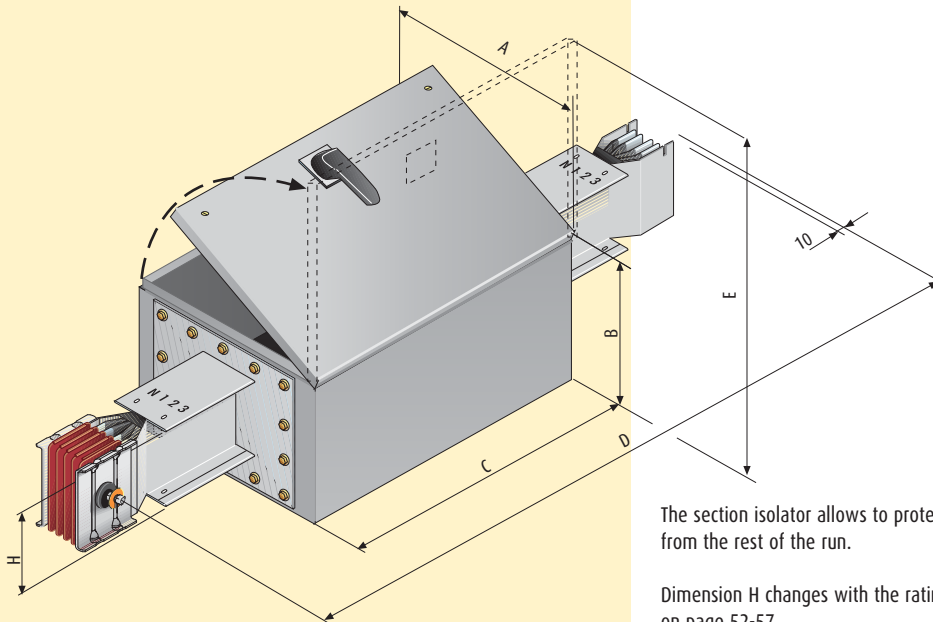
Aluminium	630A to 2000A
Copper	800A to 2500A
(U) min/MAX [mm]	150/400
(A) min/MAX [mm]	100/1299
(B) min/MAX [mm]	200 - 599
(C) min/MAX [mm]	300/1299

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]	165/1449
(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.

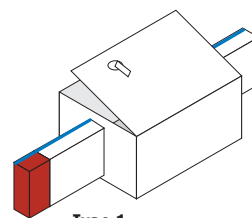
Dimension H changes with the rating; it is specified in the specifications on page 52-57.

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

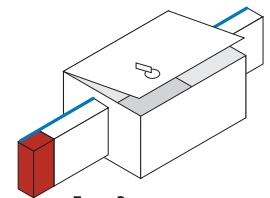
The direction of the disconnector (fuses) must be specified when ordering.

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

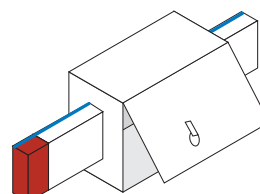
For operating voltages (Ue) different from 400V, please contact Zucchini.



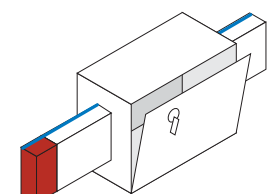
Type 1



Type 2



Type 3



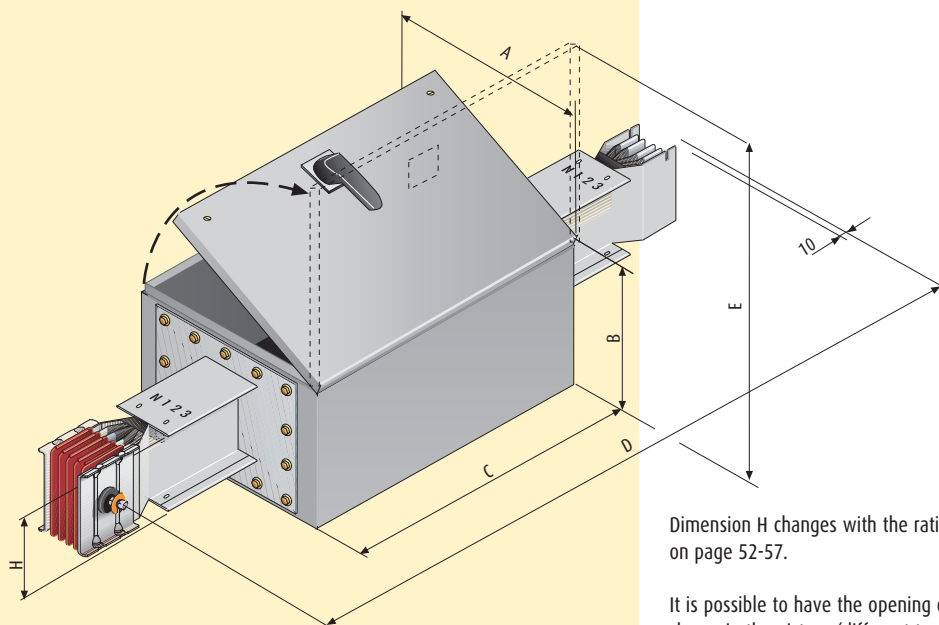
Type 4

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

Complementary run components

RATE REDUCER WITH ISOLATOR SWITCH



Dimension H changes with the rating; it is specified in the specifications on page 52-57.

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

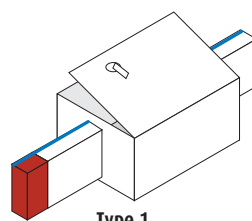
The direction of the reducer must be specified when ordering.

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

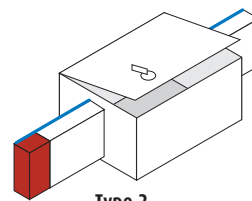
Fuses not included. See Legrand catalogue.

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

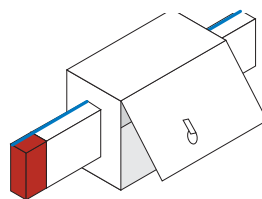
For operating voltages (Ue) different from 400V, please contact Zucchini.



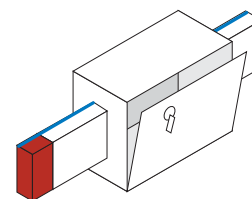
Type 1



Type 2



Type 3



Type 4

GENERAL DIMENSIONS OF THE DISCONNECTOR WITH REFERENCE TO THE RATING

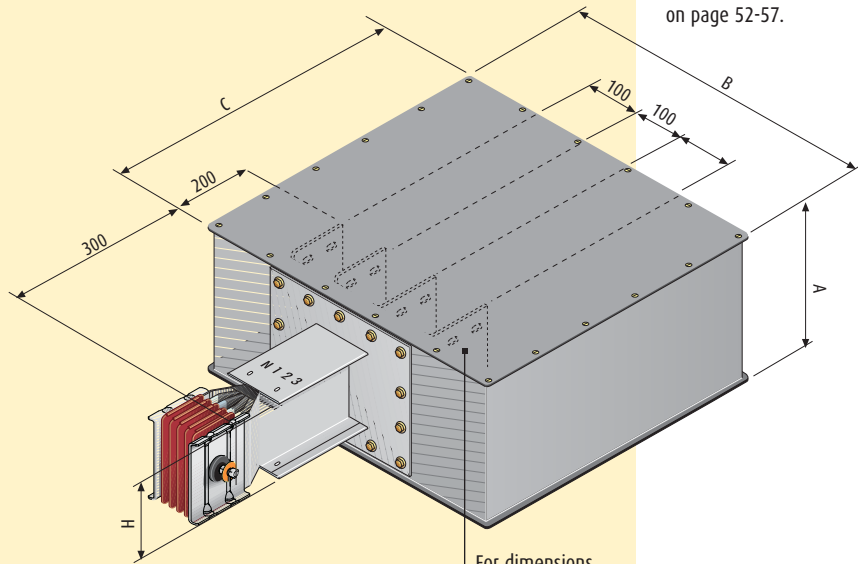
Dimensions according to type 1	A	B	C	D	E
From 630A to 1250A (in mm)	450	300	1050	1500	750
From 1600A to 2500A (in mm)	700	400	1300	2000	1100

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 52-57.

REAR CABLE INPUT

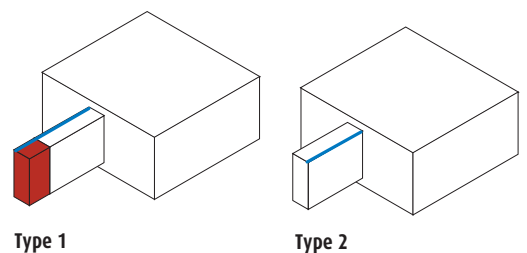
Aluminium gland plate(s)
for cable entry
170mm x 410mm

Single bar : 1 plate
Double bar : 2 plates

For dimensions
of holes for
connections, see
page 27

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



Bolt-on tap-off boxes

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

Aluminium

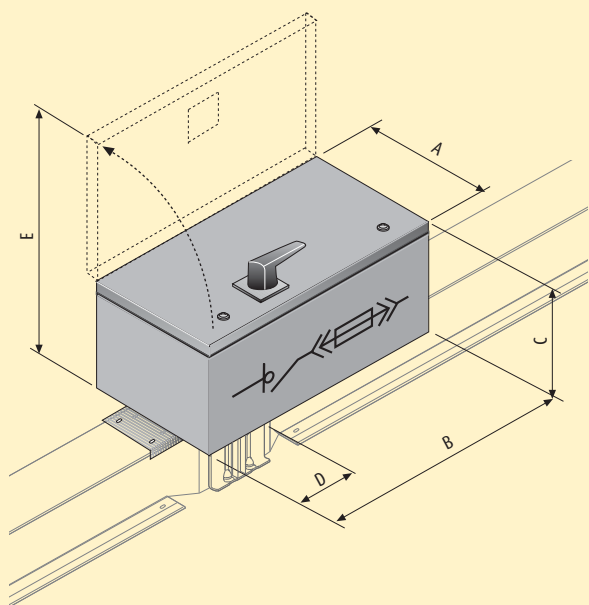
	NH	630A	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A
125A	00	65281811P	65281811P	65281811P	65281811P	65281812P	65281814P	65391812P	65391813P	65391814P
250A	1	65281821P	65281821P	65281821P	65281821P	65281822P	65281824P	65391822P	65391823P	65391824P
400A	2	65281831P	65281831P	65281831P	65281831P	65281832P	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 (U_e) different from 400V please contact Zucchini.

Fuses not included. See Legrand catalogue.

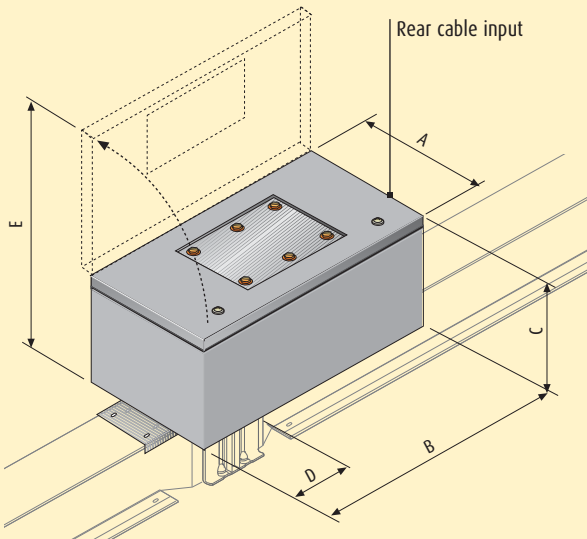
Rated insulating AC voltage	U_i [V]	1000
Rated impulse withstand voltage	U_{imp} [kV]	12
Type of rated duty		AC23A
Rated conditional short circuit current	[kA]	100
CEI EN 60947-3		

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

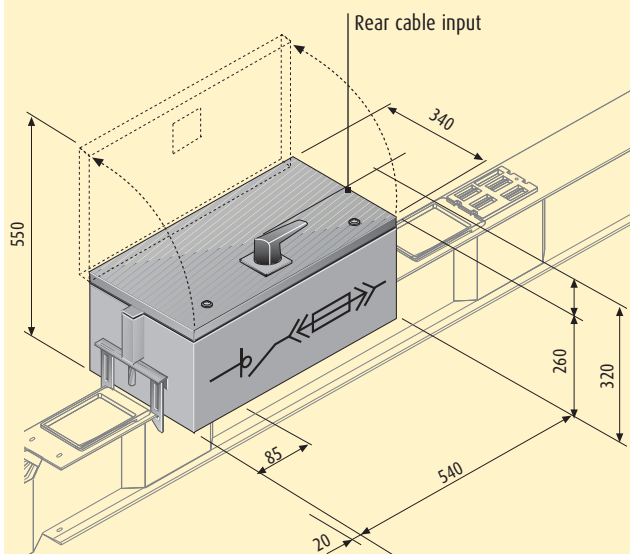
WARNING

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		

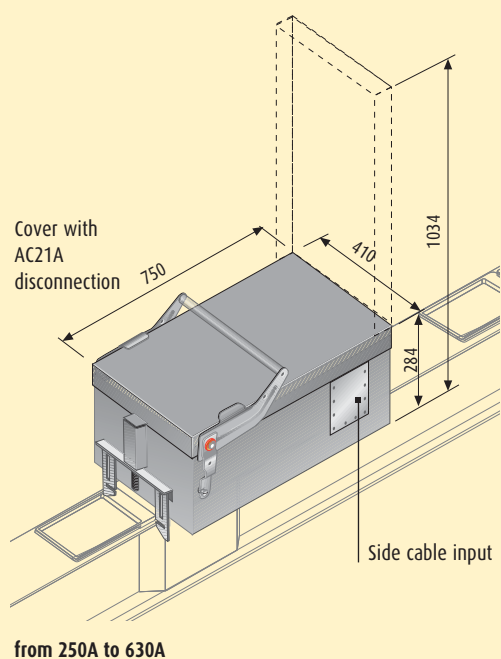
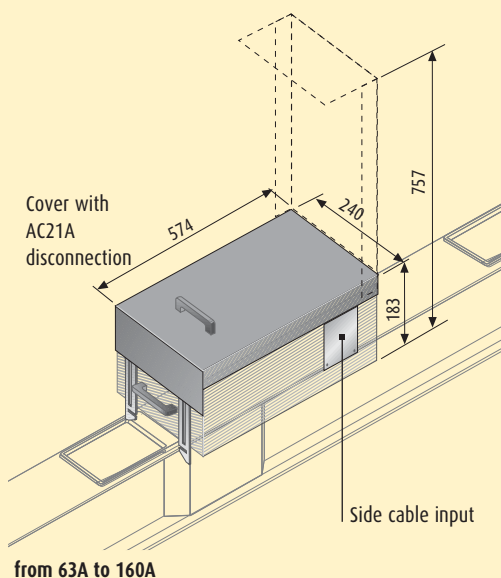
Can be installed and removed when the busbar is energized.
To be applied on elements with any rating, with tap-off outlets.

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



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).

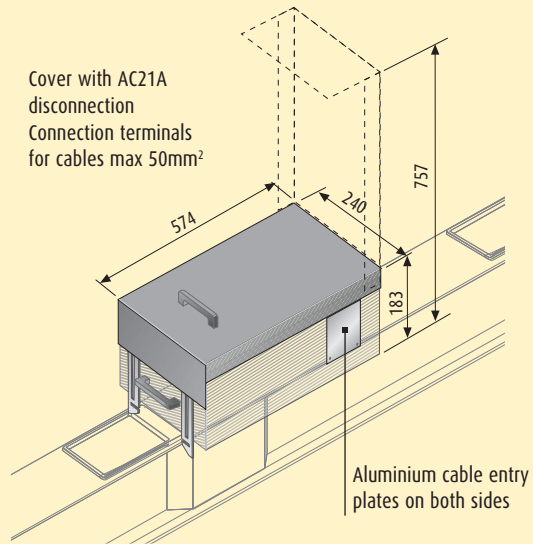
N.B. Cover with AC21A disconnection: it is not possible to open, close, install or pull out the tap-off box if the switch is in "ON" position.

Fuses not included. See Legrand catalogue.

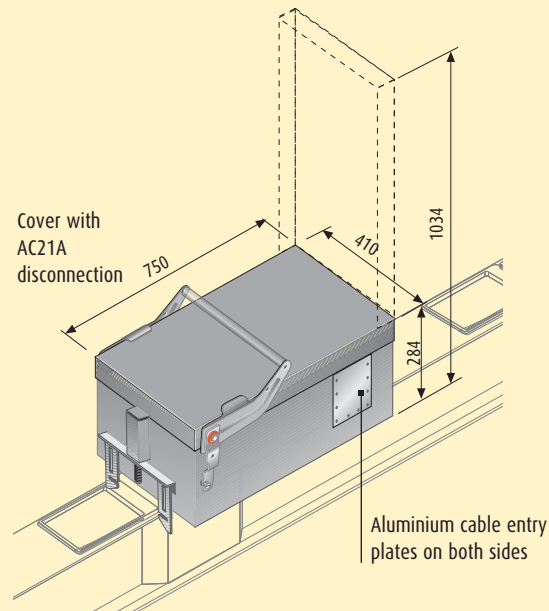
Can be installed and removed when the busbar is energized. To be applied on elements with any rating, with tap-off outlets.

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.

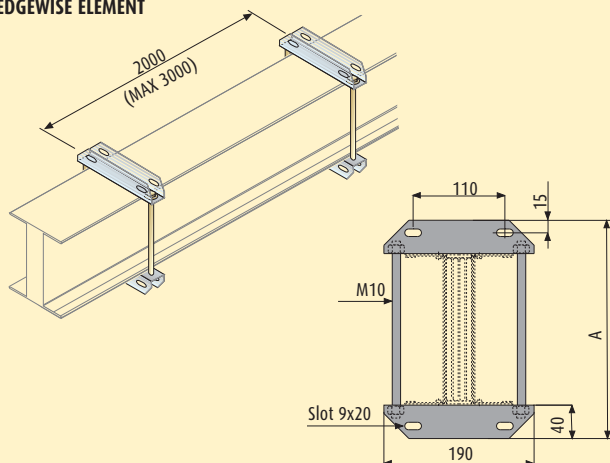
Fixing supports

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

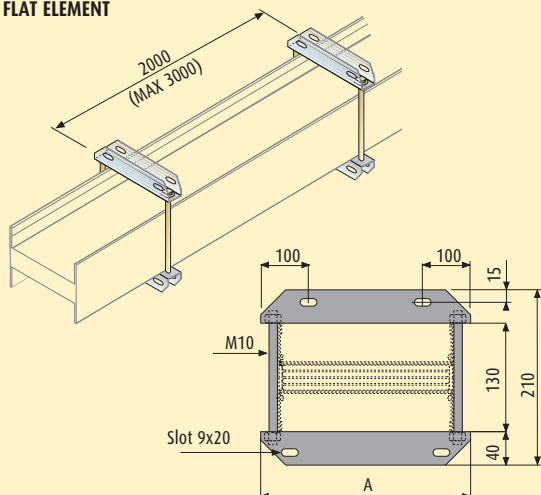


SUSPENSION BRACKET FOR FLAT INSTALLATION

	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

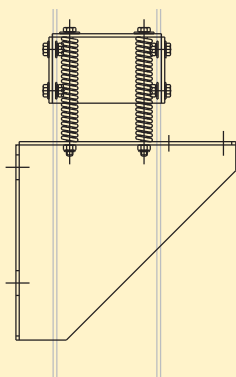
BRACKETS FOR VERTICAL ELEMENTS

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

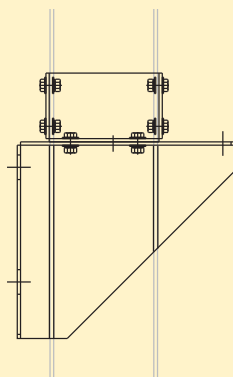
single bar | double bar

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

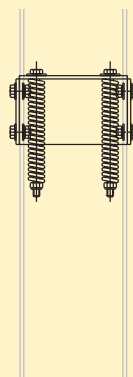
single bar | double bar



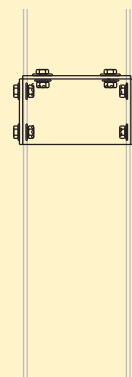
A
WITH BRACKET AND SPRINGS



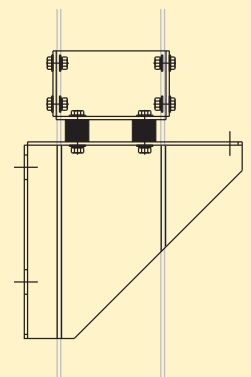
B
WITH ANTI-SEISMIC BRACKET*



C
WITH SPRINGS



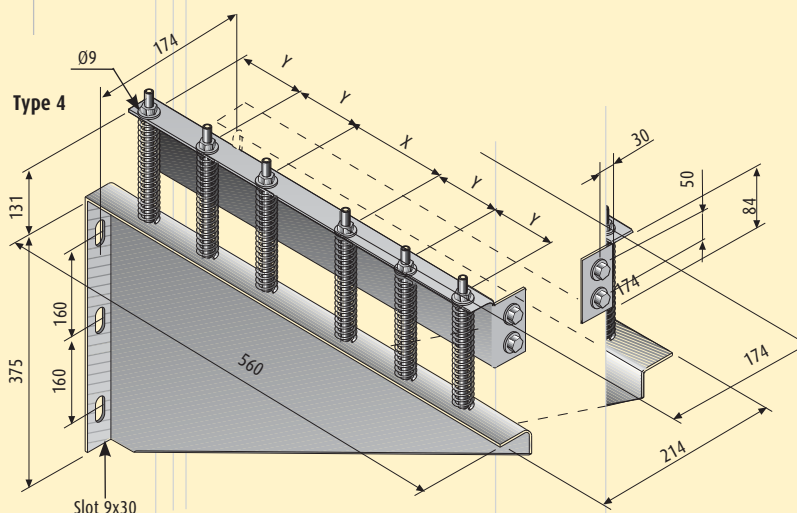
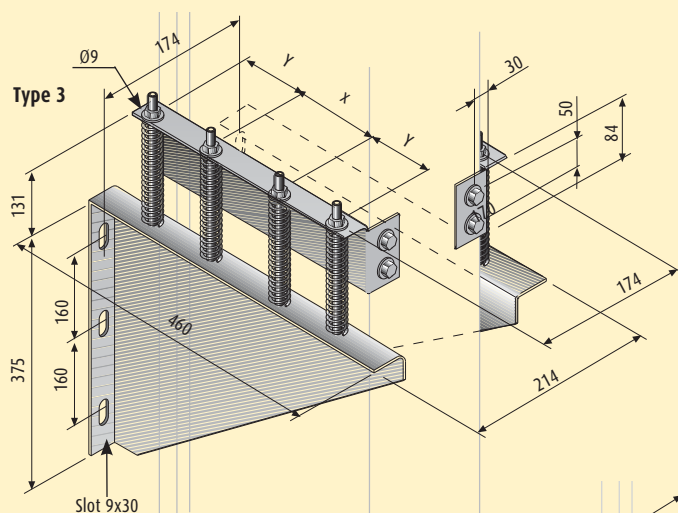
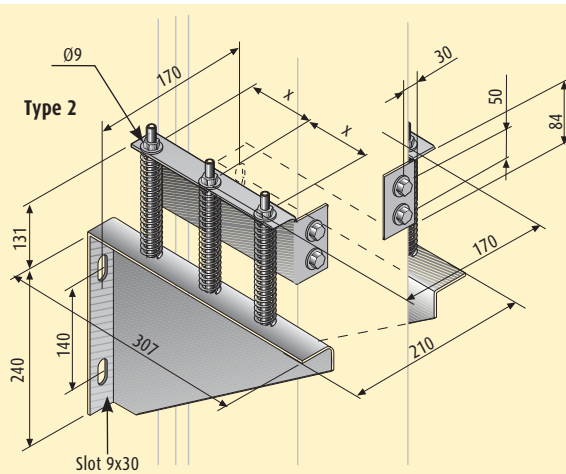
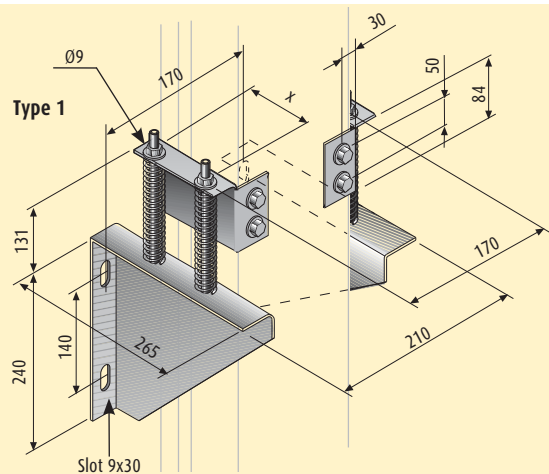
D
BRACKET ONLY



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

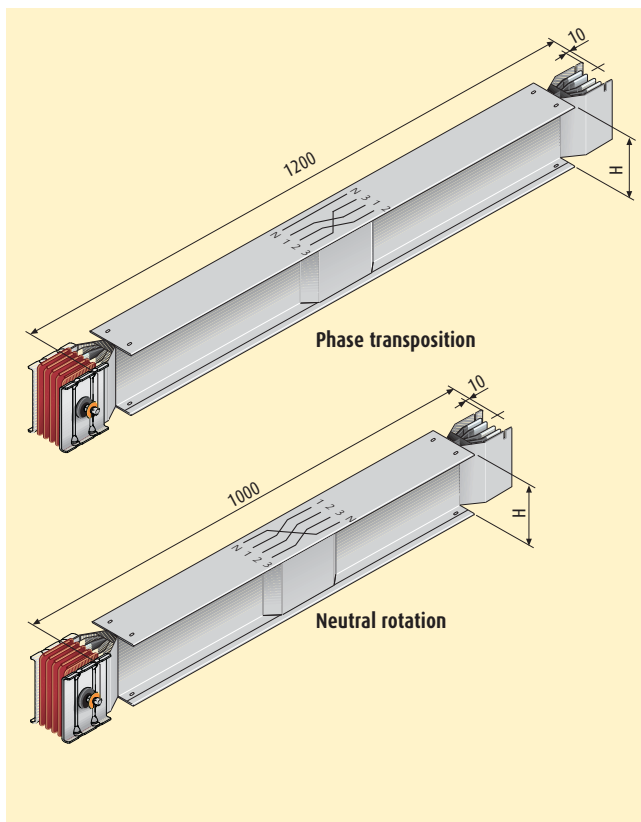
TRANSPOSITION ELEMENTS

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 52-57.

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.

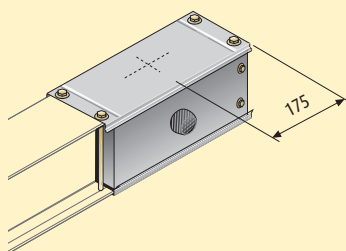
END COVER IP55

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

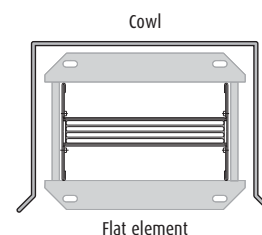
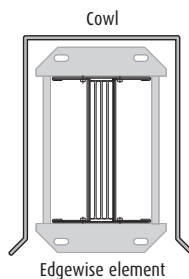
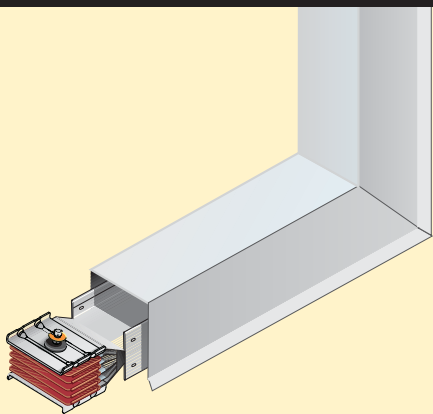
single bar | double bar



Completes the IP55 Degree of protection of the line

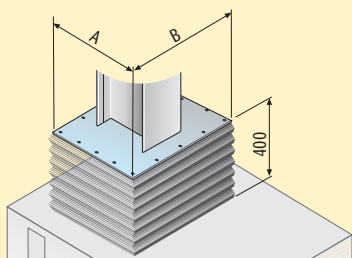
Protection accessories

PROTECTIVE COVER FOR OUTDOOR APPLICATIONS



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

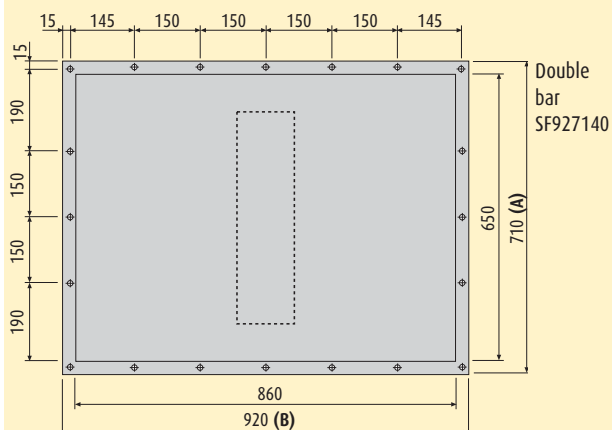
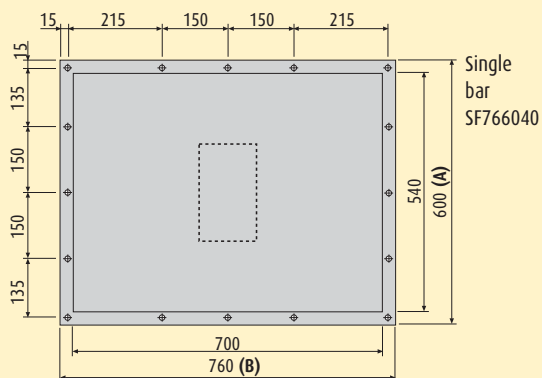
PROTECTIVE BELLOWS



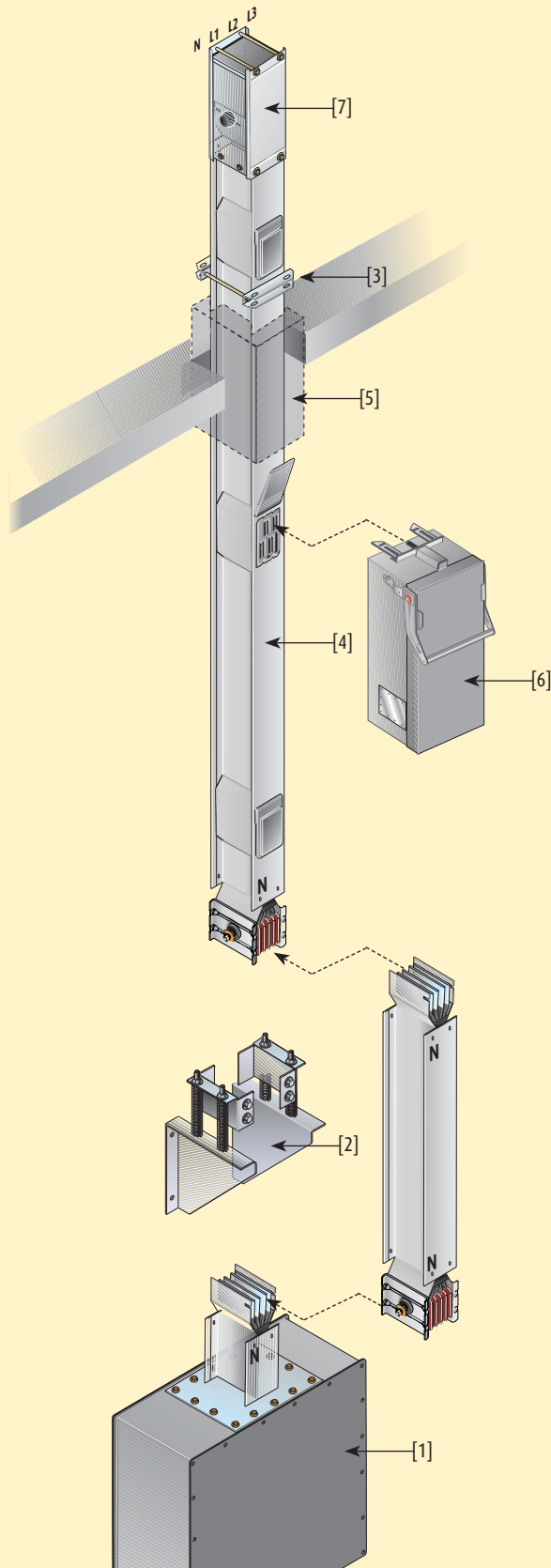
Aluminium	630A to 2000A	2500A to 4000A
	SF766040 single bar	SF927140 double bar
Copper	800A to 2500A	3200A to 5000A
	SF766040 single bar	SF927140 double bar

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 13).
- [5] Use S120 fire barrier kit for each compartment floor (see page 15).
- [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

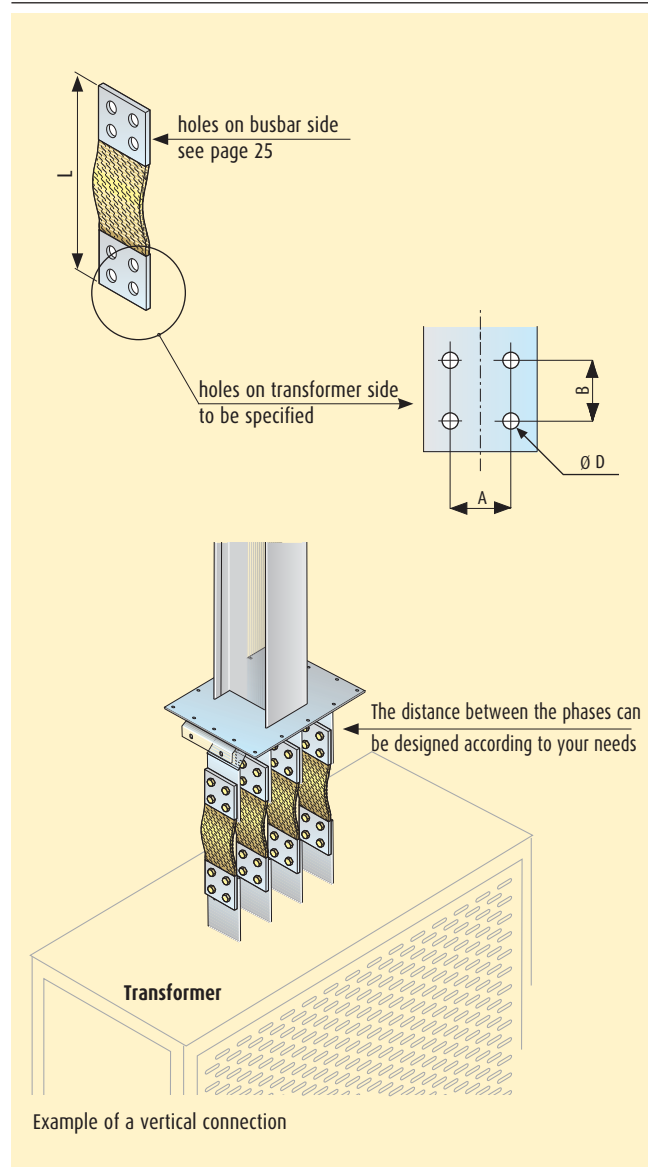
FLEXIBLE BRAID CONNECTIONS

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

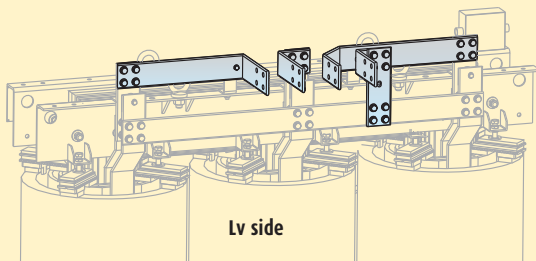
Length [mm]									
300-450	FC100010	FC200010	FC300010	FC500010	FC600010	FC400010	FC500010	FC600010	FC700010
451-600	FC100020	FC200020	FC300020	FC500020	FC600020	FC400020	FC500020	FC600020	FC700020
601-750	FC100030	FC200030	FC300030	FC500030	FC600030	FC400030	FC500030	FC600030	FC700030
More than 750	FC100099	FC200099	FC300099	FC500099	FC600099	FC400099	FC500099	FC600099	FC700099



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

The system: The EdM transformer advantage

TYPE A SETUP

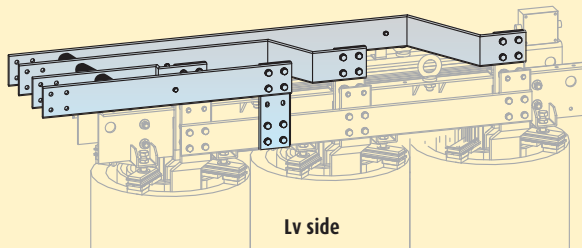


The Legrand group product synergy answers to the global installation need. The EdM cast resin transformers have specifically designed connections for the Zucchini busbars.

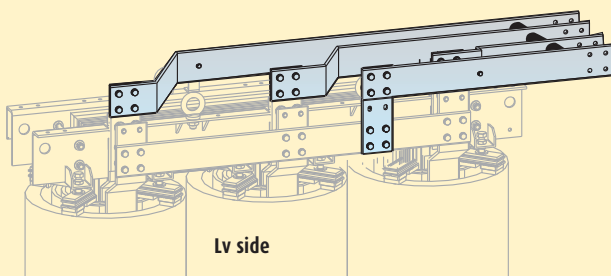
The versions shown represent some of the standardized solutions.

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

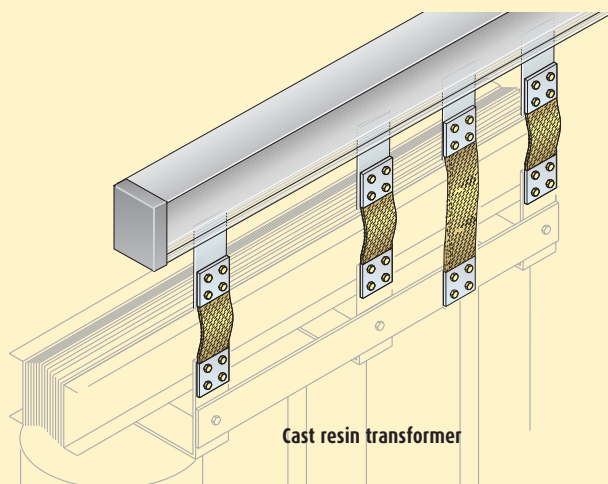
TYPE B SETUP



TYPE C SETUP



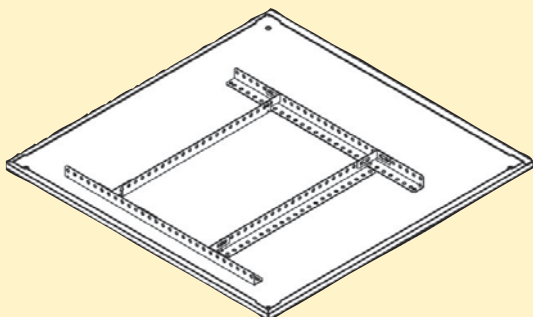
ATR CONNECTION INTERFACE



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

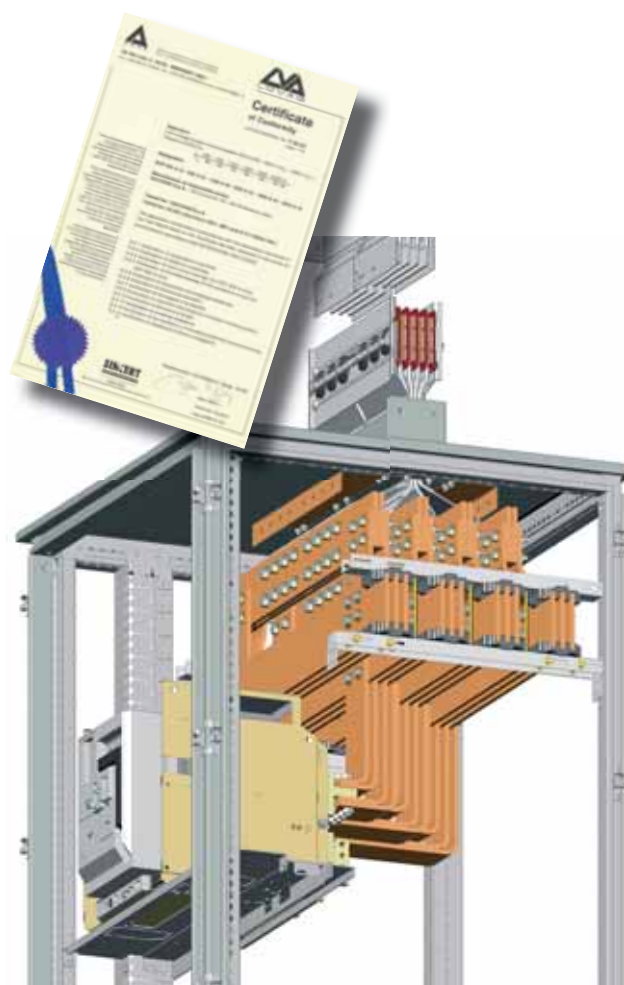
The Super Compact - SCP range can be easily and immediately combined with the Legrand XL³ 4000 cabinets.

The reinforcement kit enables you to install any type of unit to the board (see page 24-31) 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

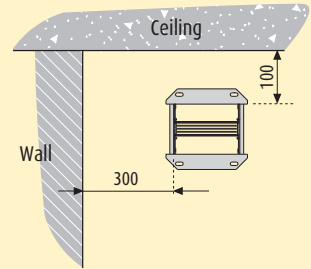
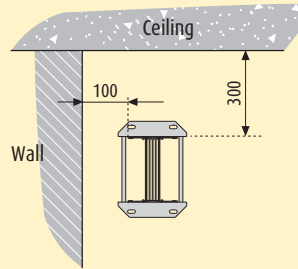
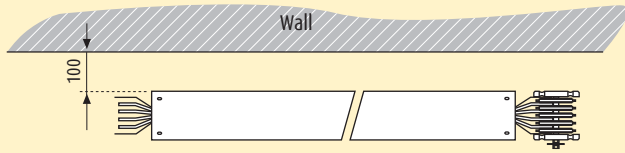
The safety and the operational efficiency of the Zucchini - Legrand system are guaranteed by the **system certification**, achieved after rigorous tests carried out in the most important international laboratories.

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

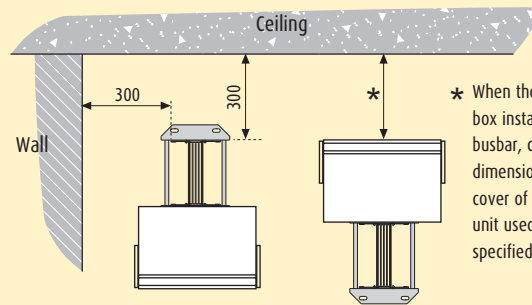
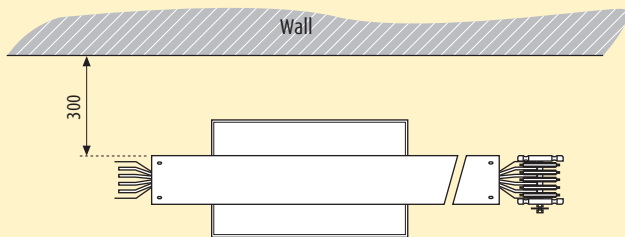


Installation guidelines

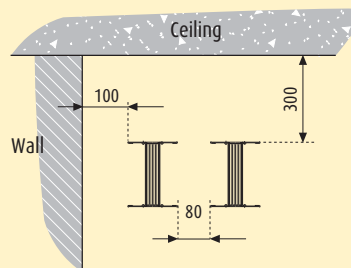
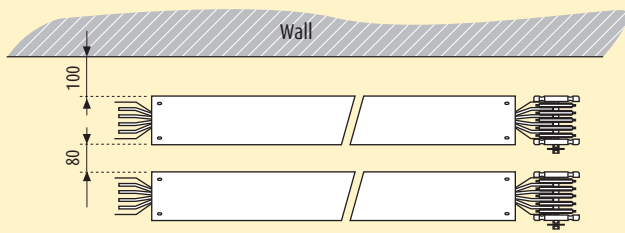
MINIMUM DISTANCE OF THE WALL / CEILING ELEMENTS



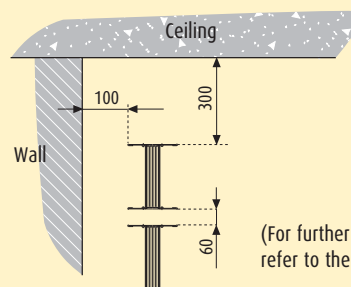
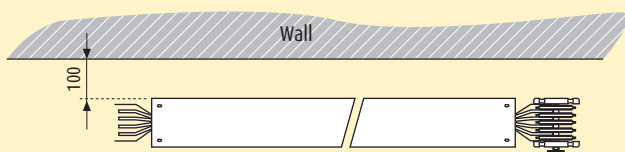
When there are tap-off units along the busbars, the minimum distances depend on the dimensions of the tap-offs selected.



* 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 35-38



Minimum installation distance when there are several adjacent lines

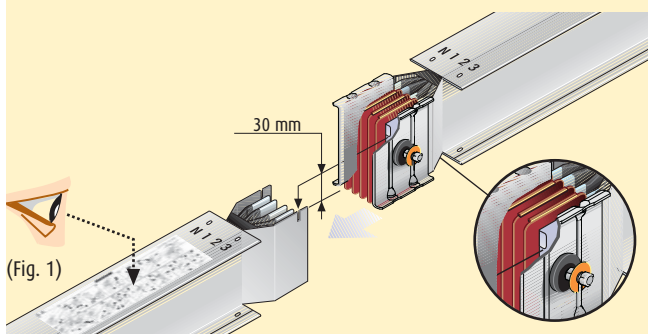


(For further information, please refer to the technical guide)

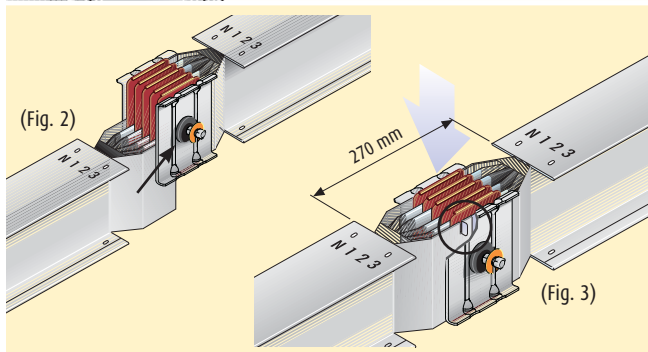
Minimum installation distance when there are several overlapped lines

Installation guidelines

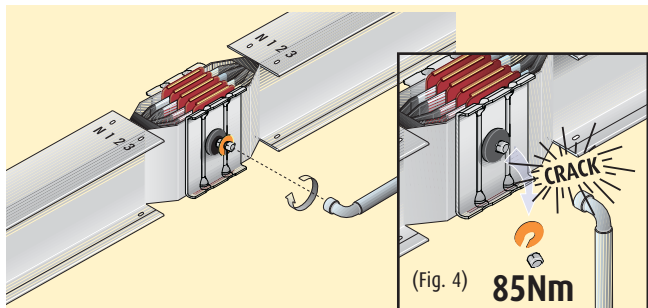
INSTALLATION SEQUENCE OF THE JUNCTION



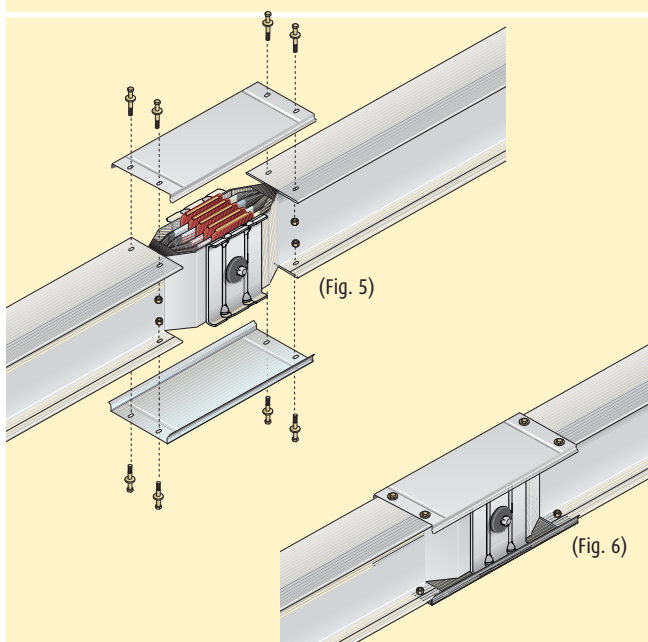
The installation instructions are placed on every element near the junction (Fig.1)
 Make sure that the contacts are clean.
 Join the two elements together.



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).



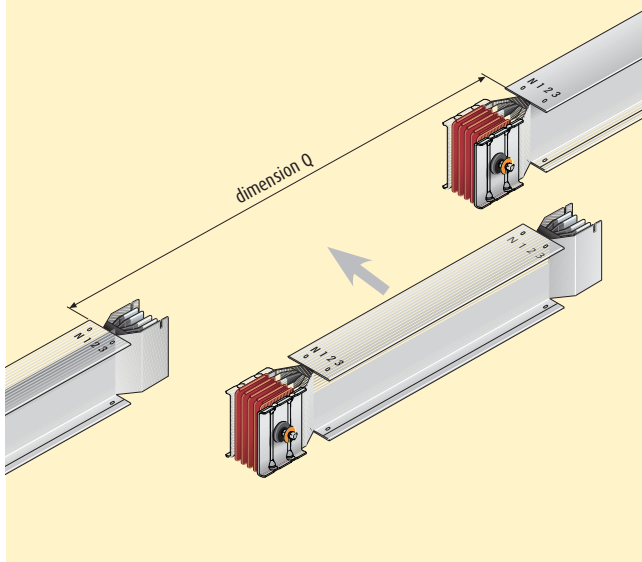
Tighten the bolt of the monobloc until the 1st head breaks off (Fig. 4).
 The bolt that tightens the monobloc has a second head which is used when carrying out operations or inspections on the line.
 The nominal tightening torque is 85Nm.



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

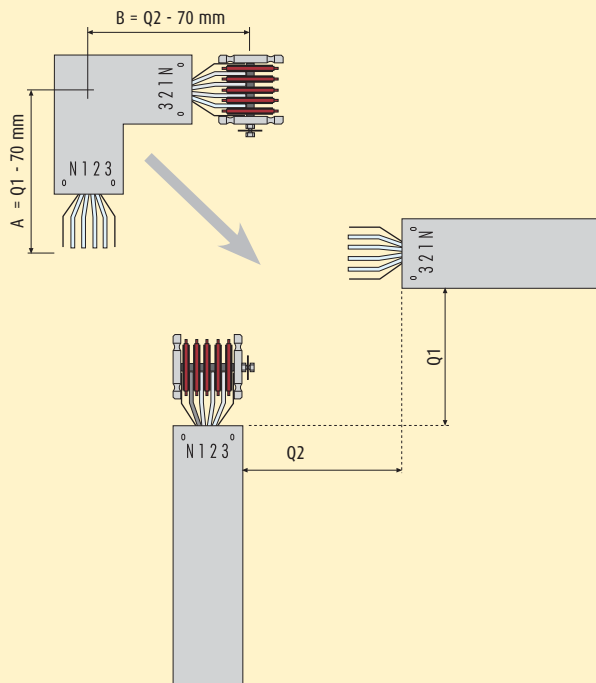


The exact length of the piece to be ordered can be determined by measuring the distance between the elements (as shown in the picture) and then subtracting 270 mm from the dimension that has been taken.

Length of element = $Q - 270\text{mm}$

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:

$A = Q1 - 70\text{ mm}$

$B = Q2 - 70\text{ mm}$

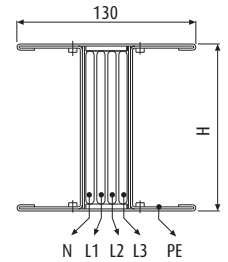
For further information, please refer to the technical guide.

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)

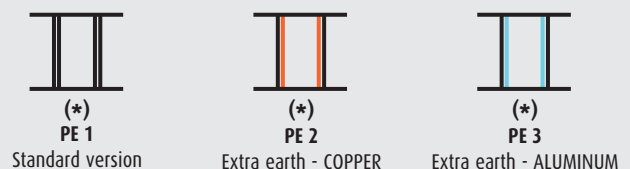
ALUMINIUM

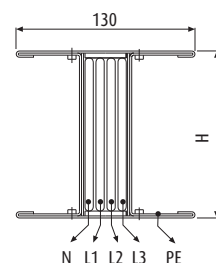
		single bar						double bar		
		630	800	1000	1250	1600	2000	2500	3200	4000
Rated current	I_n [A]	630	800	1000	1250	1600	2000	2500	3200	4000
Casing overall dimensions	L x H [mm]	130x130	130x130	130x130	130x130	130x170	130x220	130x380	130x440	130x480
Operating voltage	[V]	1000	1000	1000	1000	1000	1000	1000	1000	1000
Insulation voltage	U_i [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	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 ² s]	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_o [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_o [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_o [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_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]	0.233	0.212	0.216	0.192	0.163	0.139	0.103	0.092	0.085
Impedance of the fault loop (PE 2)	Z_o [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_o [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 $\Delta V = k \cdot L \cdot I_c \cdot 10^{-6}$ [V]	$\cos\varphi = 0.70$	65.1	49.5	52.5	43.3	33.6	26.3	18.8	15.9	14.2
	$\cos\varphi = 0.75$	67.7	51.5	54.7	45.1	34.7	27.2	19.6	16.5	14.6
	$\cos\varphi = 0.80$	70.1	53.3	56.8	46.7	35.7	28.0	20.4	17.1	15.1
	$\cos\varphi = 0.85$	72.3	55.1	58.7	48.2	36.6	28.7	21.1	17.6	15.4
	$\cos\varphi = 0.90$	74.1	56.5	60.4	49.4	37.3	29.2	21.7	18.0	15.7
	$\cos\varphi = 0.95$	75.3	57.5	61.6	50.3	37.6	29.4	22.1	18.2	15.8
$\cos\varphi = 1.00$	72.7	55.6	60.0	48.6	35.6	27.8	21.6	17.4	14.9	
Weight (PE 1)	ρ [kg/m]	17.5	18.3	18.3	19.8	24.2	29.6	40.1	48.0	54.9
Weight (PE 2)	ρ [kg/m]	20.7	21.5	21.5	23.0	28.4	35.0	48.3	57.6	65.6
Weight (PE 3)	ρ [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*	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

- **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)

In: rated current referred to a room temperature of 40°C
 ΔV : for calculations, see page 95





Technical data SCP (3L+N+PE)

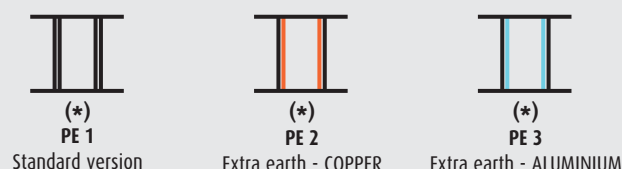
COPPER

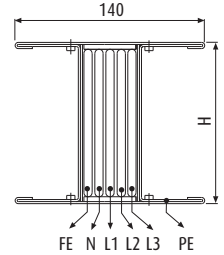
	I_n [A]	single bar						double bar		
		800	1000	1250	1600	2000	2500	3200	4000	5000
Rated current	I_n [A]	800	1000	1250	1600	2000	2500	3200	4000	5000
Casing overall dimensions	L x H [mm]	130x130	130x130	130x130	130x170	130x170	130x220	130x380	130x440	130x480
Operating voltage	U_e [V]	1000	1000	1000	1000	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	[kA]	57	66	79	112	116	116	224	232	232
Allowable specific energy for three-phase fault	I^2t [MA ² s]	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]	0.023	0.017	0.017	0.015	0.014	0.011	0.007	0.006	0.006
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_o [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_o [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_o [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_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]	0.170	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]	0.507	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	0.150	0.124	0.111	0.094	0.086
Zero-sequence Impedance phase - PE	Z_o [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 $\Delta V = k \cdot I \cdot l \cdot 10^{-6}$ [V]	$\cos\varphi = 0.70$	41.3	33.0	34.6	27.1	23.5	18.5	13.2	11.5	9.8
	$\cos\varphi = 0.75$	42.1	33.8	35.5	27.7	23.9	18.8	13.5	11.8	9.9
	$\cos\varphi = 0.80$	42.8	34.5	36.3	28.1	24.2	19.1	13.8	12.1	10.0
	$\cos\varphi = 0.85$	43.3	35.0	37.0	28.4	24.4	19.2	14.0	12.2	10.1
	$\cos\varphi = 0.90$	43.4	35.3	37.3	28.5	24.4	19.2	14.1	12.3	10.1
	$\cos\varphi = 0.95$	42.9	35.1	37.2	28.2	23.9	18.8	14.0	12.2	9.8
$\cos\varphi = 1.00$	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*	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

- **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)

I_n : rated current referred to a room temperature of 40°C
 ΔV : for calculations, see page 95





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

ALUMINIUM

		single bar						double bar		
		630	800	1000	1250	1600	2000	2500	3200	4000
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_c [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 ² s]	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 $\Delta V = k \cdot L \cdot I_c \cdot 10^{-6}$ [V]	$\cos\varphi = 0.70$	65.1	49.5	52.5	43.3	33.6	26.3	18.8	15.9	14.2
	$\cos\varphi = 0.75$	67.7	51.5	54.7	45.1	34.7	27.2	19.6	16.5	14.6
	$\cos\varphi = 0.80$	70.1	53.3	56.8	46.7	35.7	28.0	20.4	17.1	15.1
	$\cos\varphi = 0.85$	72.3	55.1	58.7	48.2	36.6	28.7	21.1	17.6	15.4
	$\cos\varphi = 0.90$	74.1	56.5	60.4	49.4	37.3	29.2	21.7	18.0	15.7
	$\cos\varphi = 0.95$	75.3	57.5	61.6	50.3	37.6	29.4	22.1	18.2	15.8
$\cos\varphi = 1.00$	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*	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 95



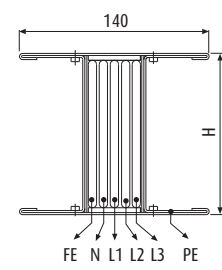
(*)
PE 1
Standard version



(*)
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			
		800	1000	1250	1600	2000	2500	3200	4000	5000	
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_c [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 ² s]	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 $\Delta V = k \cdot I \cdot L \cdot 10^{-6}$ [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*	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 95

(*)
PE 1
Standard version

(*)
PE 2
Extra earth - COPPER

(*)
PE 3
Extra earth - ALUMINIUM

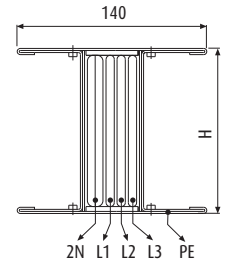
Regulations and conformity:
 IEC/EN 60439-1 & 2; DIN VDE 0660 500 & 502

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)



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

ALUMINIUM

		single bar						double bar		
		630	800	1000	1250	1600	2000	2500	3200	4000
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_c [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 ² s]	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]	$\cos\varphi = 0.70$	65.1	49.5	52.5	43.3	33.6	26.3	18.8	15.9	14.2
	$\cos\varphi = 0.75$	67.7	51.5	54.7	45.1	34.7	27.2	19.6	16.5	14.6
	$\cos\varphi = 0.80$	70.1	53.3	56.8	46.7	35.7	28.0	20.4	17.1	15.1
	$\cos\varphi = 0.85$	72.3	55.1	58.7	48.2	36.6	28.7	21.1	17.6	15.4
	$\cos\varphi = 0.90$	74.1	56.5	60.4	49.4	37.3	29.2	21.7	18.0	15.7
	$\cos\varphi = 0.95$	75.3	57.5	61.6	50.3	37.6	29.4	22.1	18.2	15.8
$\cos\varphi = 1.00$	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*	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 95



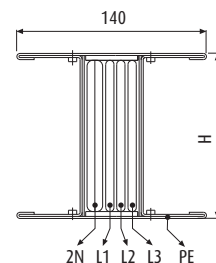
(*)
PE 1
Standard version



(*)
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_c [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 ² s]	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]	$\cos\varphi = 0.70$	41.3	33.0	34.6	27.1	23.5	18.5	13.2	11.5	9.8
	$\cos\varphi = 0.75$	42.1	33.8	35.5	27.7	23.9	18.8	13.5	11.8	9.9
	$\cos\varphi = 0.80$	42.8	34.5	36.3	28.1	24.2	19.1	13.8	12.1	10.0
	$\cos\varphi = 0.85$	43.3	35.0	37.0	28.4	24.4	19.2	14.0	12.2	10.1
	$\cos\varphi = 0.90$	43.4	35.3	37.3	28.5	24.4	19.2	14.1	12.3	10.1
	$\cos\varphi = 0.95$	42.9	35.1	37.2	28.2	23.9	18.8	14.0	12.2	9.8
	$\cos\varphi = 1.00$	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*	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 95



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 linekA

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:

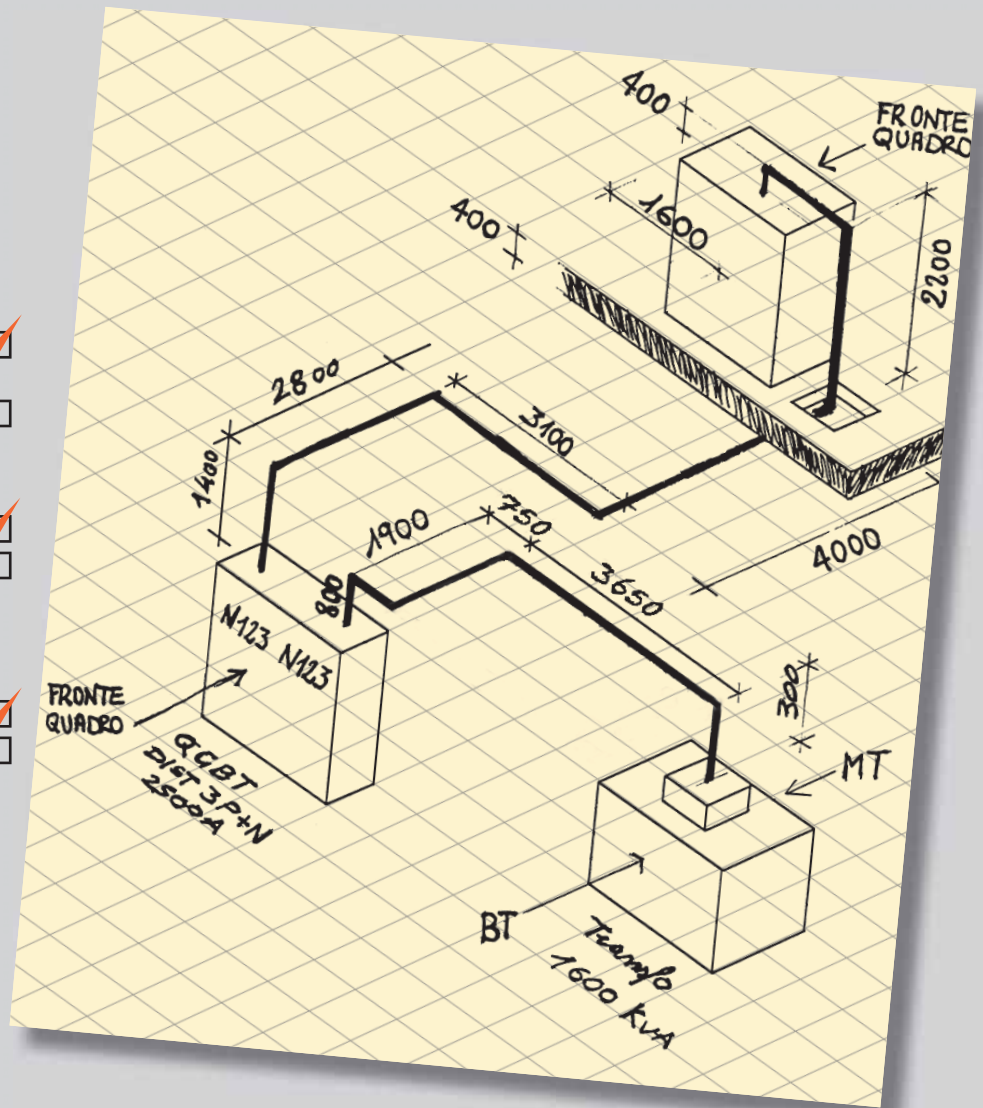
40°C (standard)

Other on request.....

9. Attach Busbar layout*

Drawing

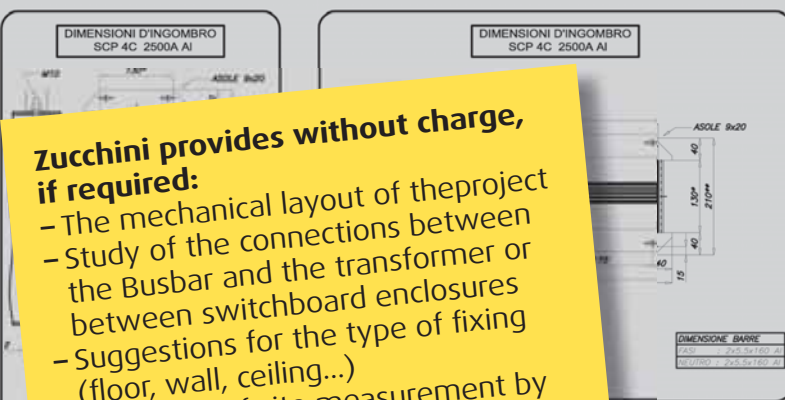
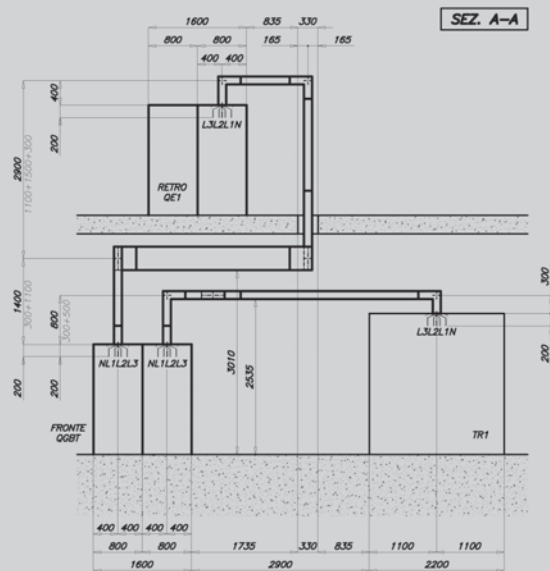
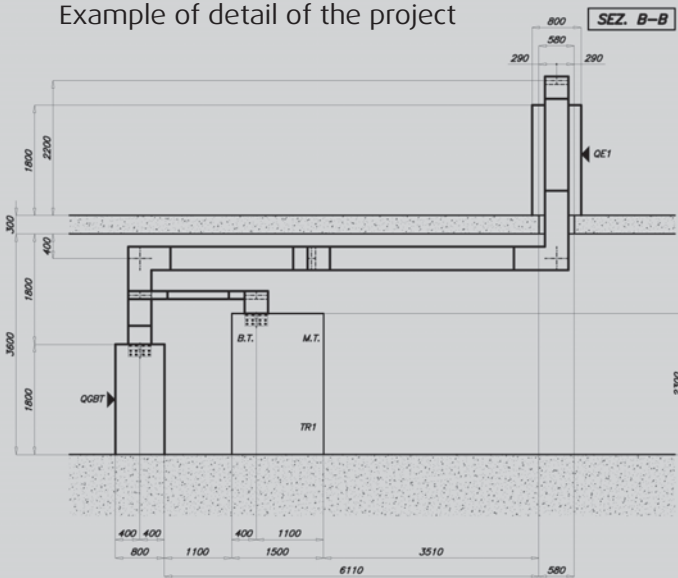
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CHECKLIST TO BE DONE DURING THE PROJECT

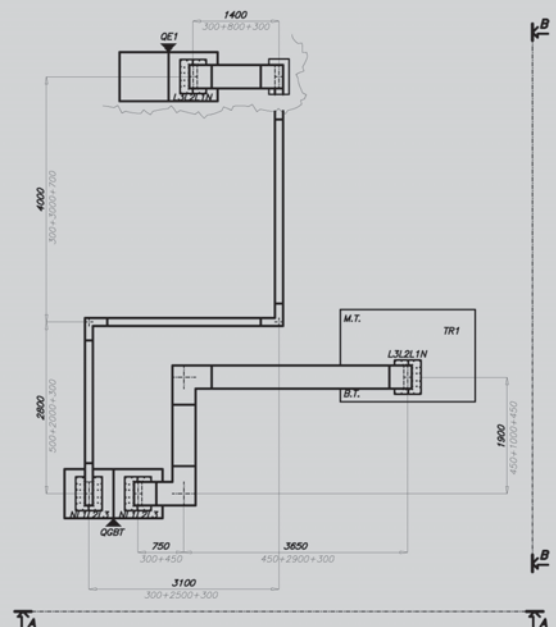
1. Verify the measurements of the drawings, the correct position of the equipment (MV/LV transformer and LV switchboard enclosures)
2. Check the availability of drawings required (transformer, switchboard board, etc.)
3. Check for the existence of unforeseen obstacles in the installation which could 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

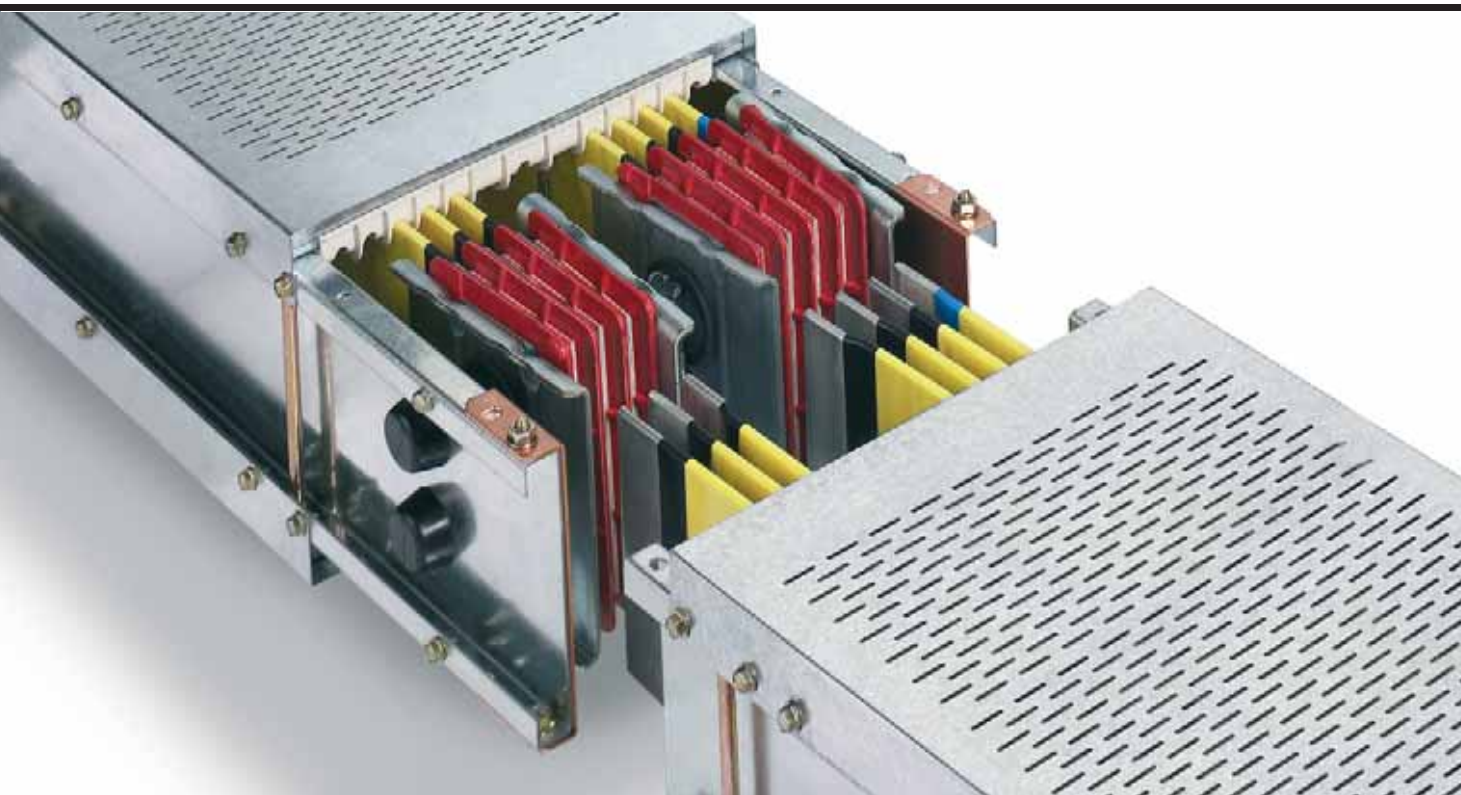


Zucchini provides without charge, if required:

- The mechanical layout of the project
- 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

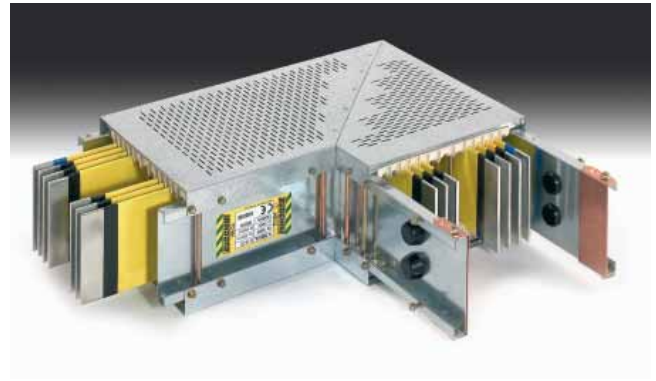
64	Features
68	Feeder elements
69	Expansion elements
69	Fire barrier elements
70	Elbows
72	Double elbows
76	T-elements
78	Connection interfaces
80	Elbows with connection interface
82	Double elbows with connection interface
86	Feed units
87	End cover
87	IP31 cover plates
88	Tap-off boxes
89	Fixing supports
90	Transformer connections
91	The EdM CRT transformer advantage
92	Installation guidelines
93	Measurement guidelines
94	Technical data
96	Certificates
97	Calculating the operating current

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).

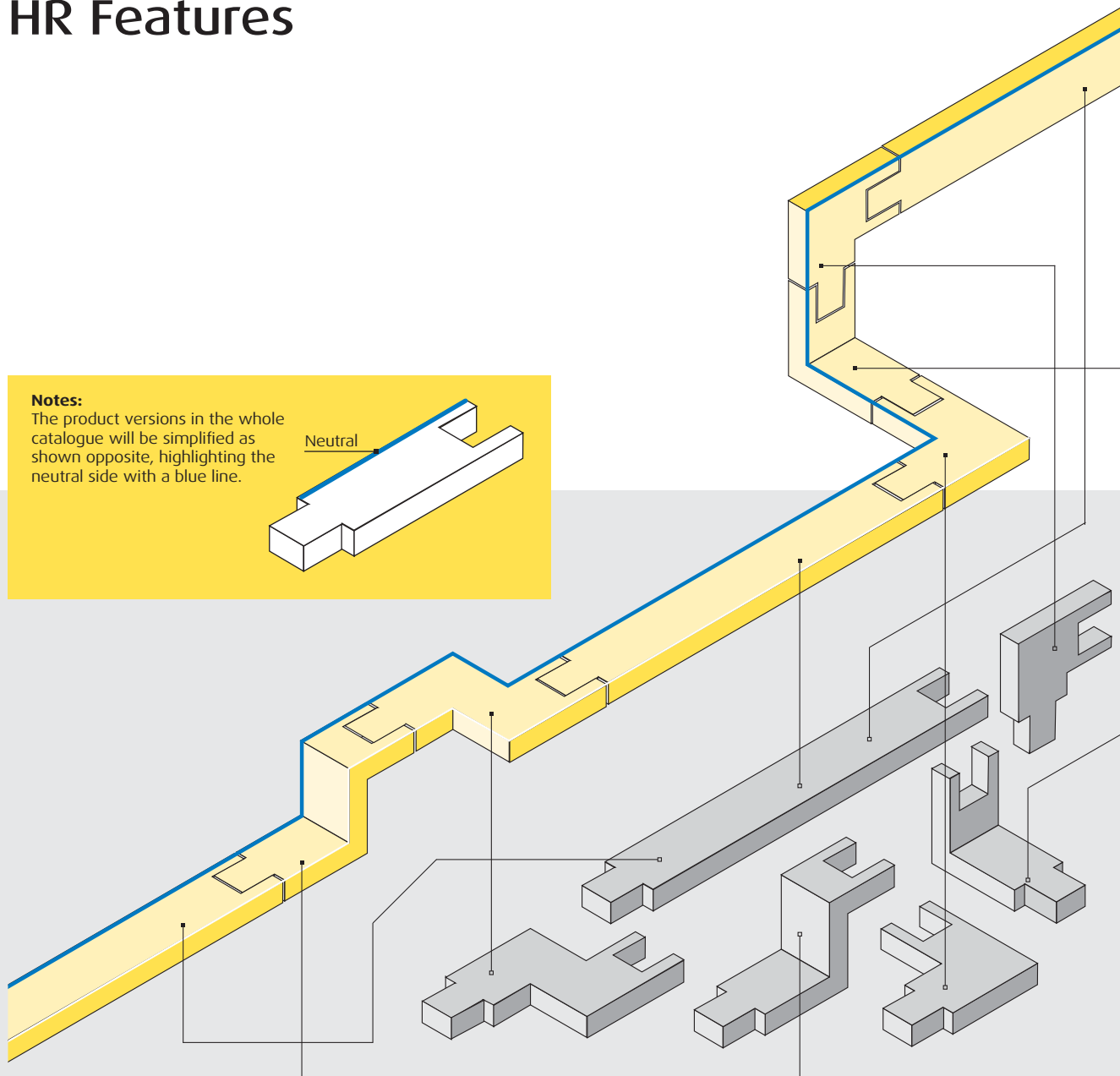
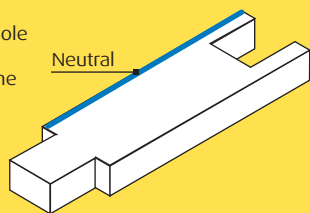
The junction contact is ensured by a **monobloc** with **shearhead bolts** and **two silver-plated copper plates** for each **phase**, insulated with **class F thermosetting plastic material**.

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:

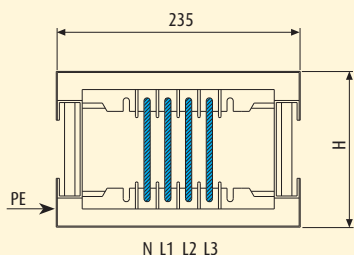
The product versions in the whole catalogue will be simplified as shown opposite, highlighting the neutral side with a blue line.



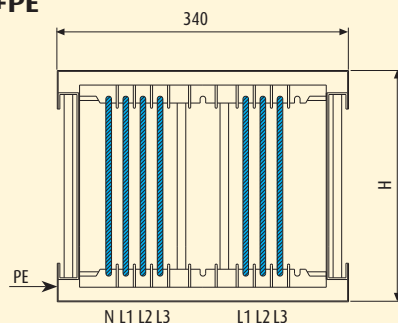
HR
HIGH RATING

Standard versions:

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



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



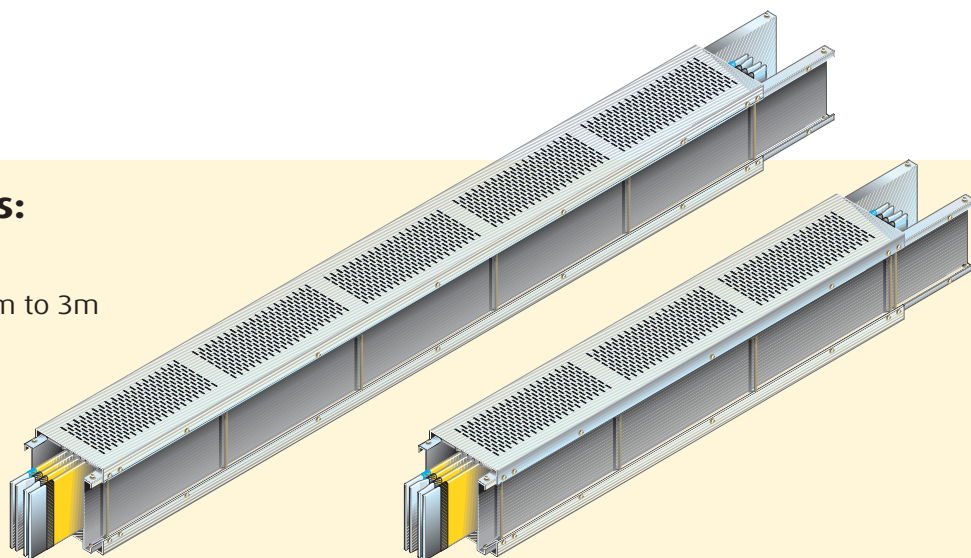
Availability of special versions

Main features of the HR line

Straight elements:

Feeder elements:

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



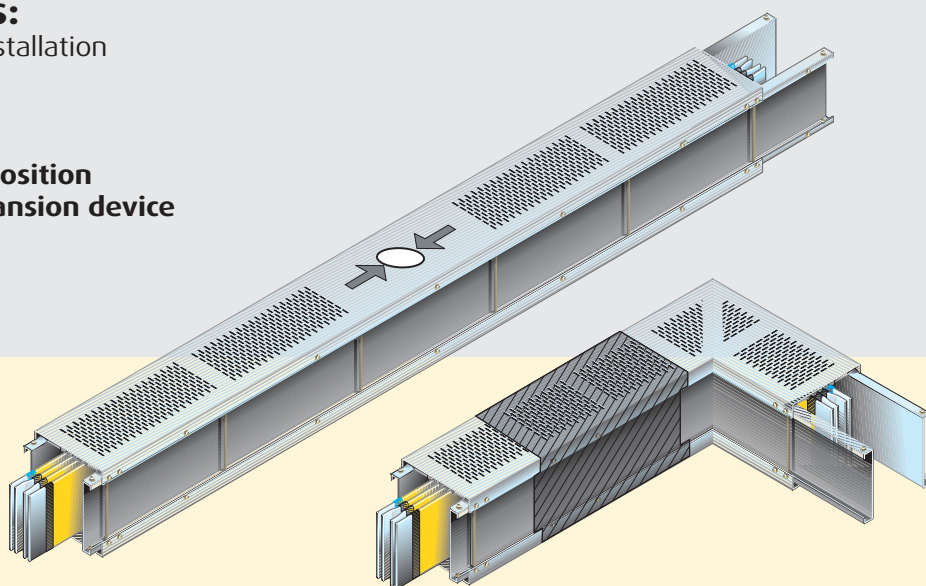
Additional elements:

Elements able to meet any installation requirement.

Elements with fire barrier

Elements with phase transposition

Elements with thermal expansion device

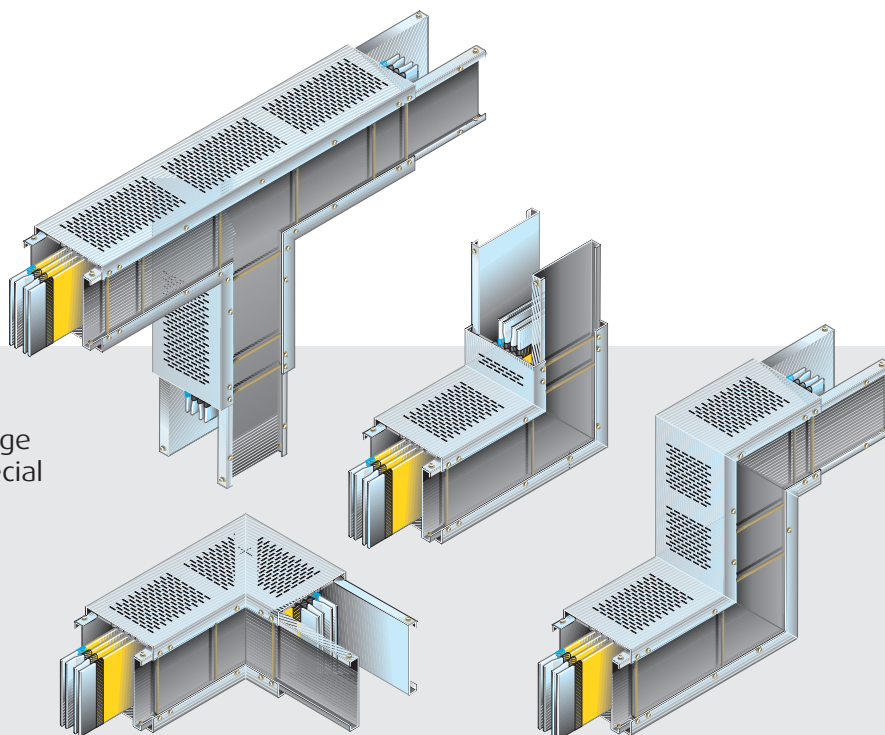


Direction changes:

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

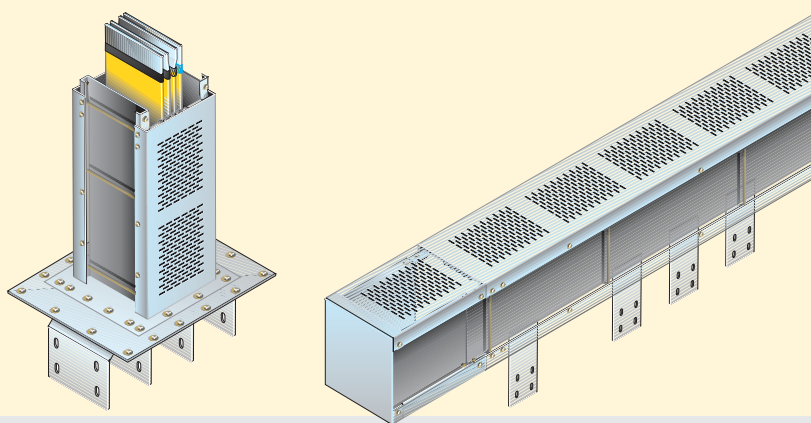
Elbows

- Double elbows
- Special T, X elements
- Disconnectors
- Capacity reducers



Connection interfaces:

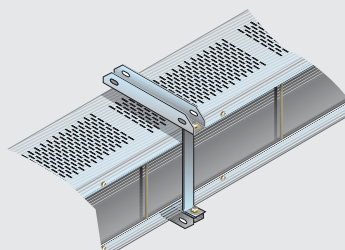
Elements used for connecting the busbar to the board or transformer.



Fixing supports:

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

Options for horizontal installations



Feeder elements

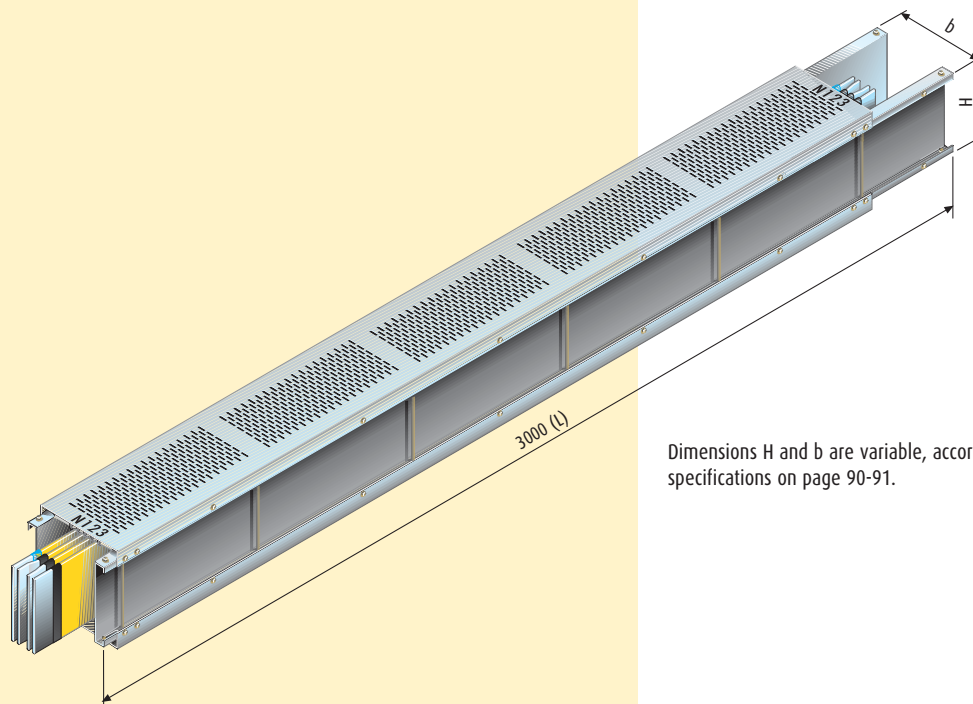
FEEDER ELEMENT

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

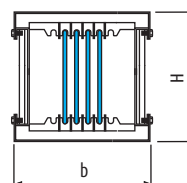
single bar | double bar

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 90-91.

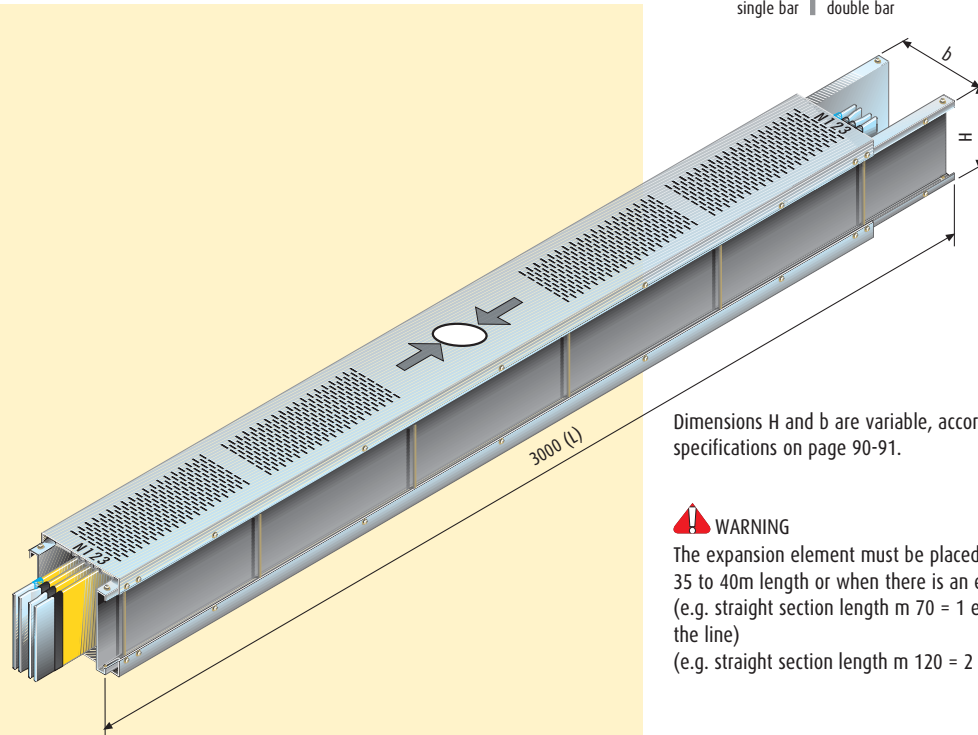


Trunking components

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 90-91.

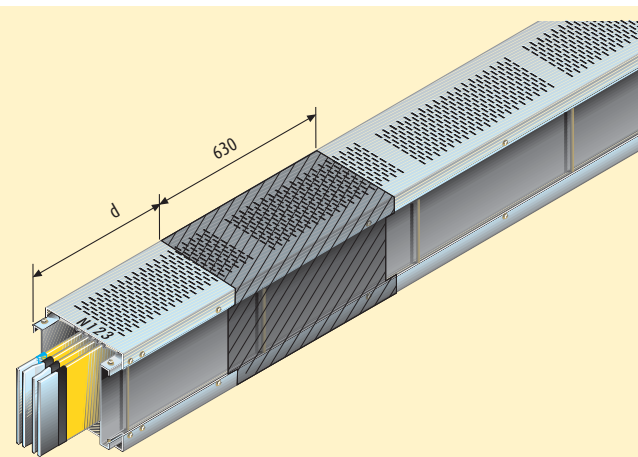
WARNING

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	9561FB01	9561FB01	9561FB01	9561FB01	9561FB02	9561FB02	9561FB02	9561FB02	9561FB02
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	9561FB01	9561FB01	9561FB01	9561FB01	9561FB01	9561FB02	9561FB02	9561FB02	9561FB02
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

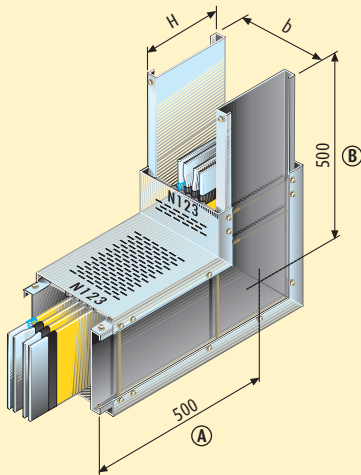
VERTICAL ELBOW

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



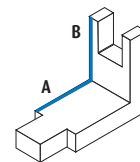
Dimensions H and b are variable, according to the rating specified in the specifications on page 90-91.

The dimensions are referred to standard elements.

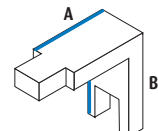
The word "special" is referred to an element with measurements that are different from those shown in the figure, yet included between the MIN/MAX values specified in the table.

MINIMUM AND MAXIMUM DIMENSIONS OF SINGLE AND DOUBLE BAR

Aluminium	1000A to 4500A
Copper	1000A to 5000A
(A) min/MAX [mm]	330/1099
(B) min/MAX [mm]	500/1099



Type 1



Type 2

Direction changes

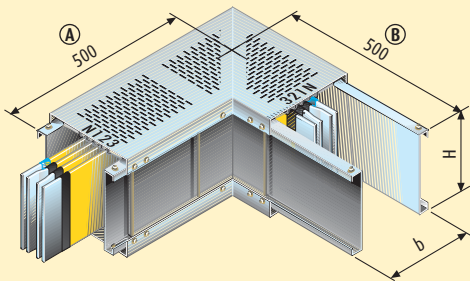
HORIZONTAL ELBOW

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



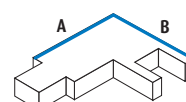
Dimensions H and b are variable, according to the rating specified in the specifications on page 90-91.

The dimensions are referred to standard elements.

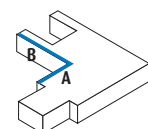
The word "special" is referred to an element with measurements that are different from those shown in the figure, yet included between the MIN/MAX values specified in the table.

MINIMUM AND MAXIMUM DIMENSIONS OF SINGLE AND DOUBLE BAR

Aluminium	1000A to 4500A
Copper	1000A to 5000A
(A) min/MAX [mm]	310/909
(B) min/MAX [mm]	500/1099



Type 1



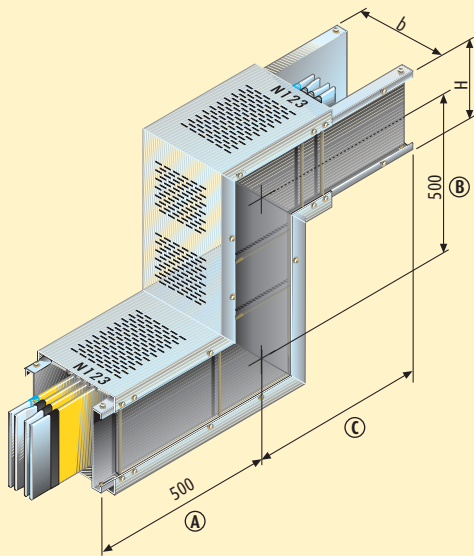
Type 2

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				



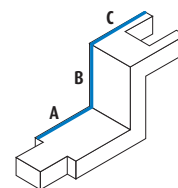
Dimensions H and b are variable, according to the rating specified in the specifications on page 90-91.

The dimensions are referred to standard elements.

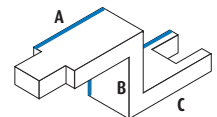
Non Standard elements (with measurements that are different from those shown in the figure) are referred to the MIN/MAX values specified in the table.

MINIMUM AND MAXIMUM DIMENSIONS OF SINGLE AND DOUBLE BAR

Aluminium	1000A to 4500A
Copper	1000A to 5000A
(A) min/MAX [mm]	310/909
(B) min/MAX [mm]	100/999
(C) min/MAX [mm]	500/1099



Type 1



Type 2

Direction changes

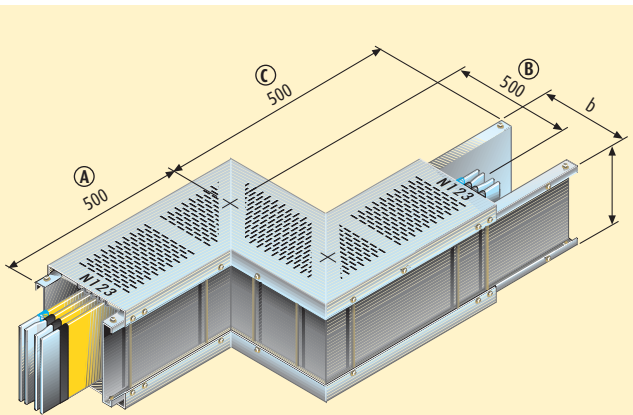
DOUBLE HORIZONTAL ELBOW

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



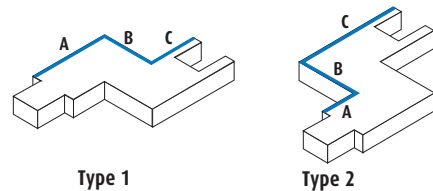
Dimensions H and b are variable, according to the rating specified in the specifications on page 90-91.

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	1000A to 4500A
Copper	1000A to 5000A
(A) min/MAX [mm]	310/909
(B) min/MAX [mm]	100/999
(C) min/MAX [mm]	500/1099



Type 1

Type 2

Direction changes

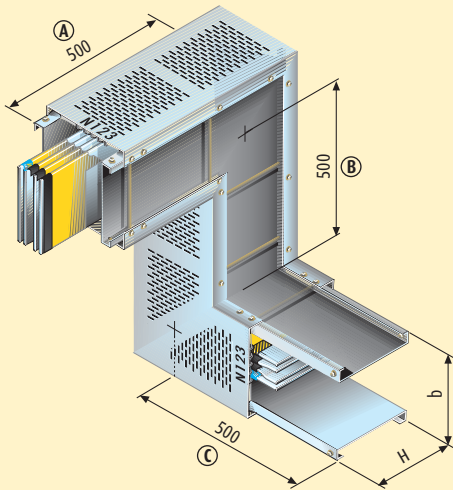
DOUBLE ELBOW VERTICAL + HORIZONTAL

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

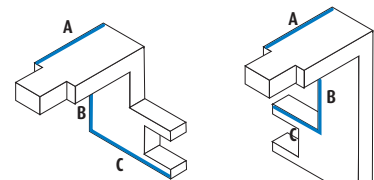
single bar | double bar



Dimensions H and b are variable, according to the rating specified in the specifications on page 90-91.

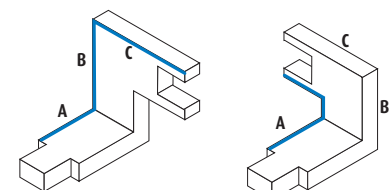
The dimensions are referred to standard elements.

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.



Type 1

Type 2



Type 3

Type 4

MINIMUM AND MAXIMUM DIMENSIONS OF SINGLE AND DOUBLE BAR

Aluminium	1000A to 4500A
Copper	1000A to 5000A
(A) min/MAX [mm]	310/909
(B) min/MAX [mm]	280/999
(C) min/MAX [mm]	500/1099

Direction changes

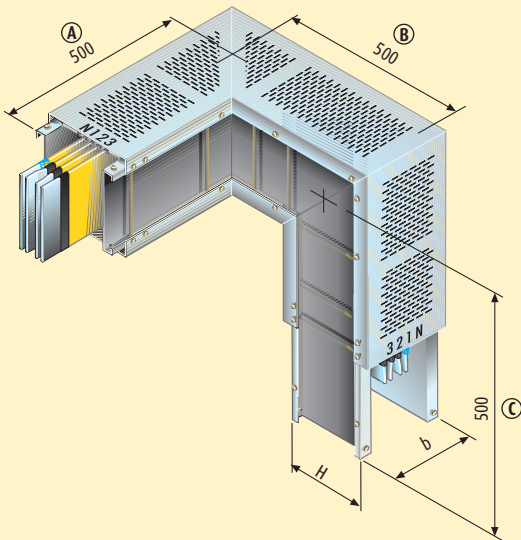
DOUBLE ELBOW HORIZONTAL + VERTICAL

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



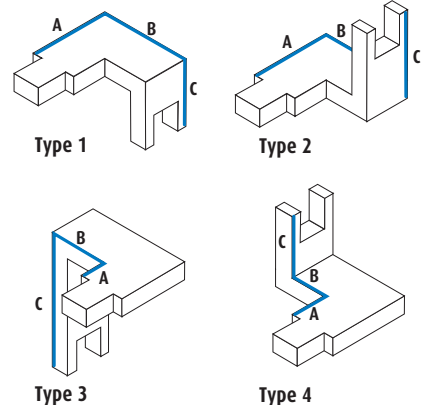
Dimensions H and b are variable, according to the rating specified in the specifications on page 90-91.

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	1000A to 4500A
Copper	1000A to 5000A
(A) min/MAX [mm]	310/909
(B) min/MAX [mm]	280/999
(C) min/MAX [mm]	500/1099



Direction changes

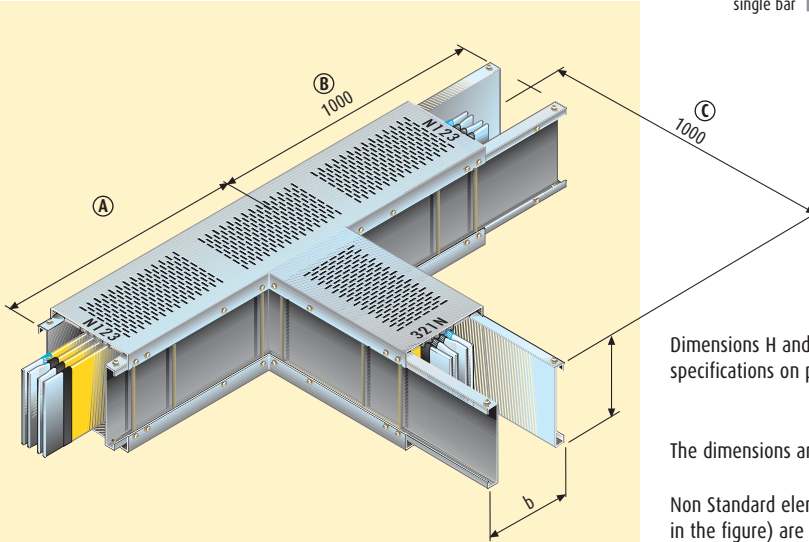
HORIZONTAL "T"

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

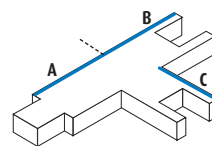
single bar | double bar



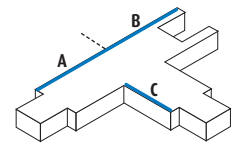
Dimensions H and b are variable, according to the rating specified in the specifications on page 90-91.

The dimensions are referred to standard elements.

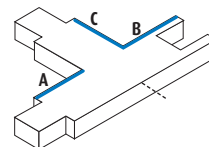
Non Standard elements (with measurements that are different from those shown in the figure) are referred to the MIN/MAX values specified in the table.



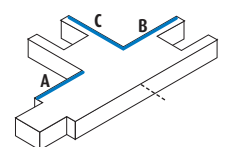
Type 1



Type 2



Type 3



Type 4

MINIMUM AND MAXIMUM DIMENSIONS OF SINGLE AND DOUBLE BAR

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

Direction changes

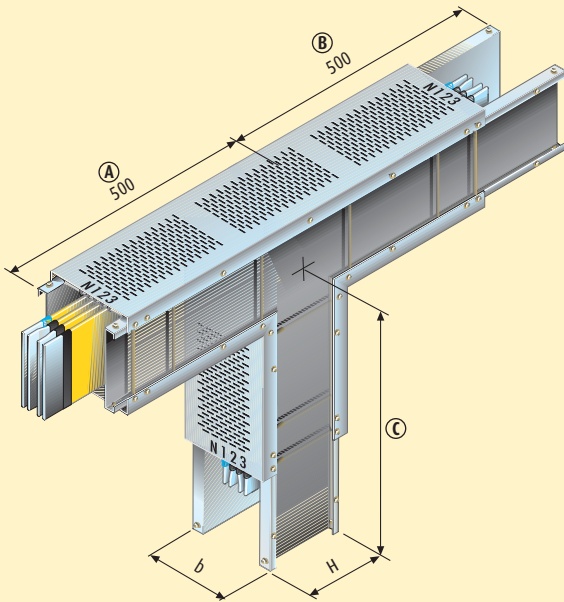
VERTICAL "T"

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

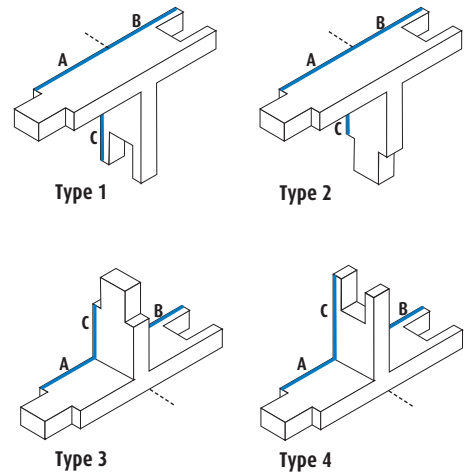
single bar | double bar



Dimensions H and b are variable, according to the rating specified in the specifications on page 90-91.

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	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

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

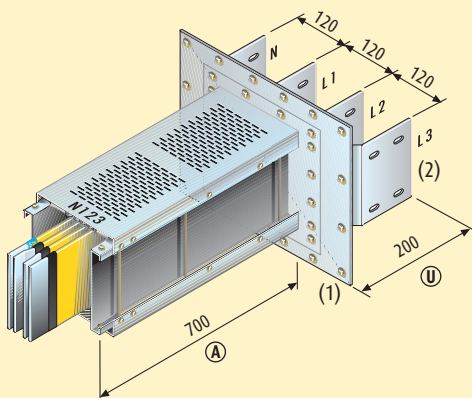
single bar double bar

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



Dimensions H and b are variable, according to the rating specified in the specifications on page 90-91.

The dimensions are referred to standard elements.

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

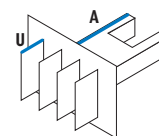
The word "special" is referred to an element with measurements that are different from those shown in the figure, yet included between the MIN/MAX values specified in the table.

MINIMUM AND MAXIMUM DIMENSIONS OF SINGLE BAR

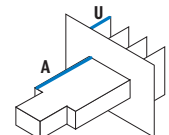
Aluminium and Copper	RH	LH
(A) min/MAX [mm]	350/949	310/909
(U) min/MAX [mm]	200/2000	200/2000

MINIMUM AND MAXIMUM DIMENSIONS OF DOUBLE BAR

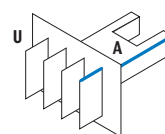
Aluminium and Copper	RH	LH
(A) min/MAX [mm]	700/1299	700/1299
(U) min/MAX [mm]	200/2000	200/2000



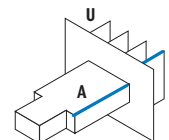
Type 1



Type 2



Type 1 with neutral rotation

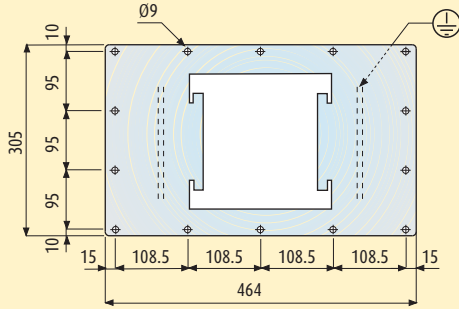


Type 2 with neutral rotation

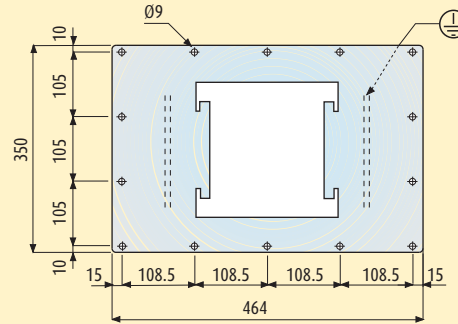
Connection interfaces

COVERPLATE DRILLING DETAILS

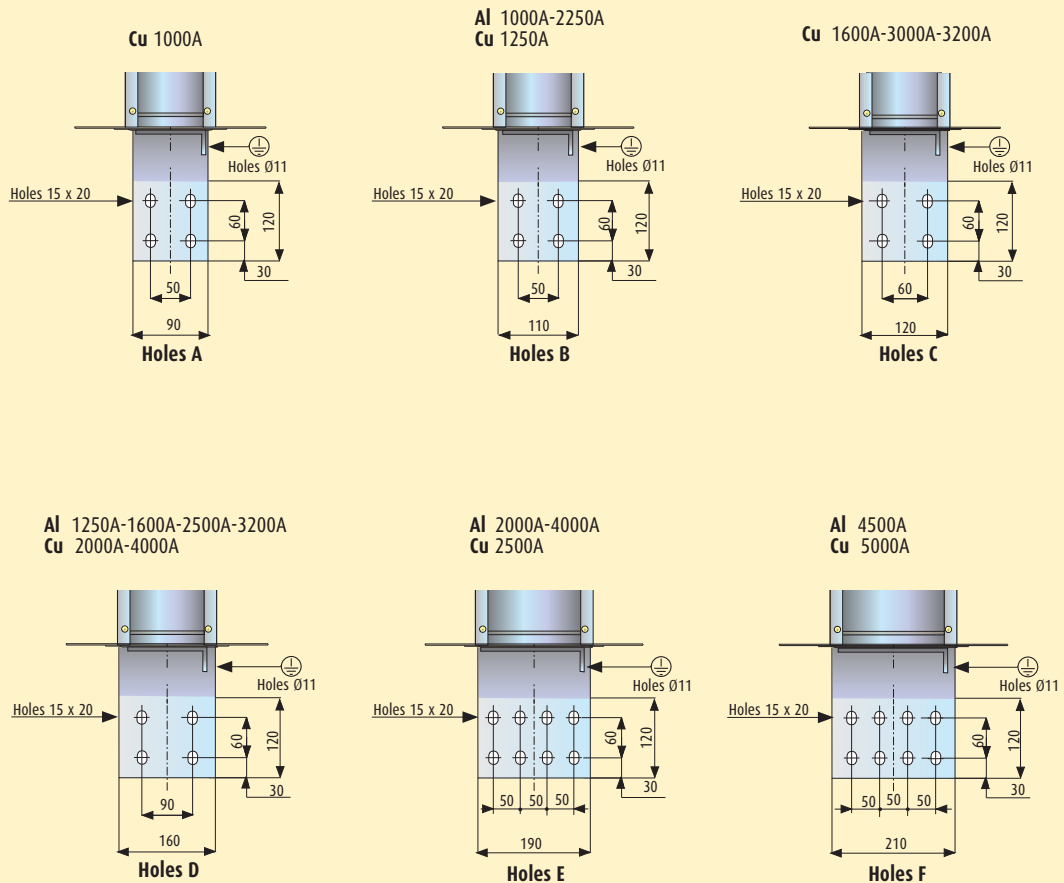
Aluminium 1000A-1250A-1600A-2250A-2500A-3200A
Copper 1000A-1250A-1600A-2000A-3000A-3200A-4000A



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



BAR DRILLING DETAILS



HR
 HIGH RATING

Connection interfaces

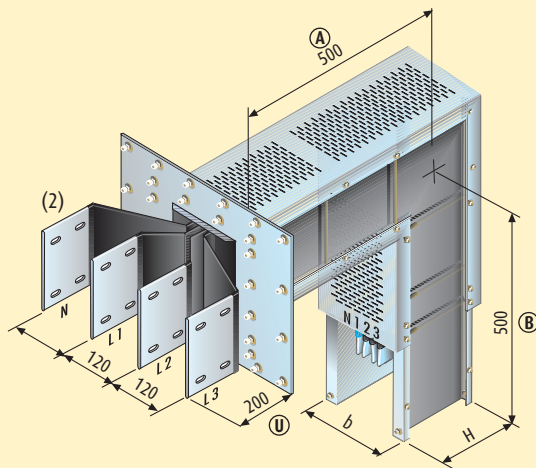
CONNECTION INTERFACE + VERTICAL ELBOW

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 90-91.

The dimensions are referred to standard elements.

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

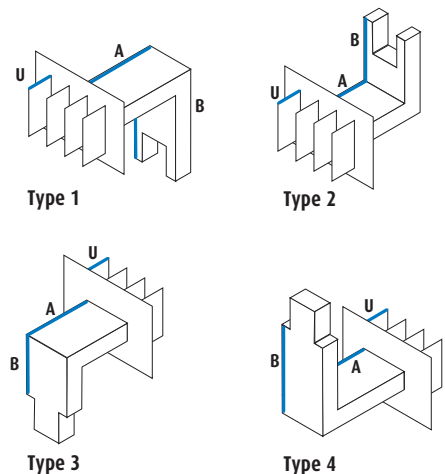
Non Standard elements (with measurements that are different from those shown in the figure) are referred to the MIN/MAX values specified in the table.

MINIMUM AND MAXIMUM DIMENSIONS OF SINGLE BAR

Aluminium	630A to 4000A
Copper	800A 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 DOUBLE BAR

Aluminium	2500A to 4000A
Copper	3200A to 5000A
(U) min/MAX [mm]	200/400
(A) min/MAX [mm]	700/1199
(B) min/MAX [mm]	500/1099



Connection interfaces

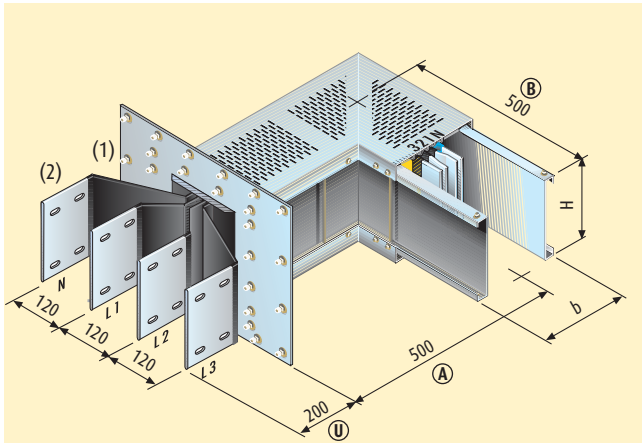
CONNECTION INTERFACE + HORIZONTAL ELBOW

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 90-91.

The dimensions are referred to standard elements.

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

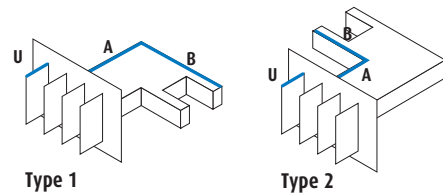
Non Standard elements (with measurements that are different from those shown in the figure) are referred to the MIN/MAX values specified in the table.

MINIMUM AND MAXIMUM DIMENSIONS OF SINGLE BAR

Aluminium	630A to 4000A
Copper	800A to 5000A
(U) min/MAX [mm]	200/400
(A) min/MAX [mm]	310/1199
(B) min/MAX [mm]	500/1099

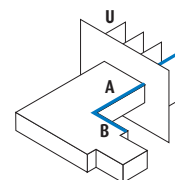
MINIMUM AND MAXIMUM DIMENSIONS OF DOUBLE BAR

Aluminium	2500A to 4000A
Copper	3200A to 5000A
(U) min/MAX [mm]	200/400
(A) min/MAX [mm]	310/1199
(B) min/MAX [mm]	500/1099

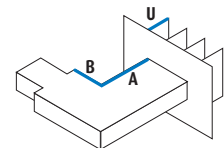


Type 1

Type 2



Type 3



Type 4

Connection interfaces

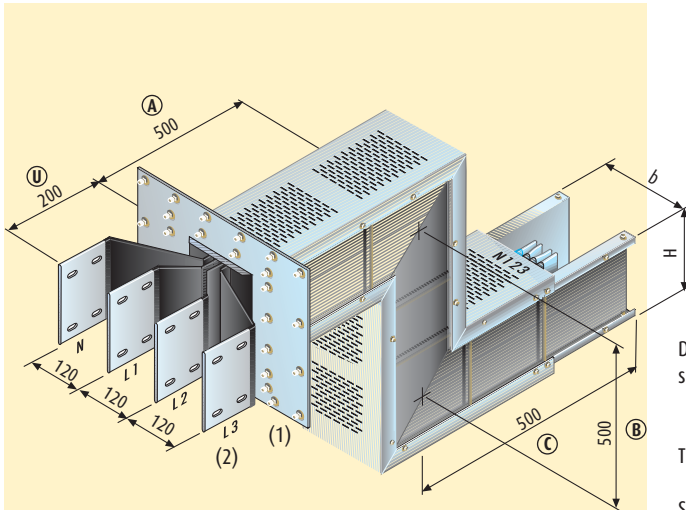
CONNECTION INTERFACE + DOUBLE VERTICAL ELBOW

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 90-91.

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 SINGLE BAR

Aluminium 630A to 4000A

Copper 800A to 5000A

(U) min/MAX [mm] 200/400

(A) min/MAX [mm] 310/1199

(B) min/MAX [mm] 100/999

(C) min/MAX [mm] 500/1099

MINIMUM AND MAXIMUM DIMENSIONS OF DOUBLE BAR

Aluminium 2500A to 4000A

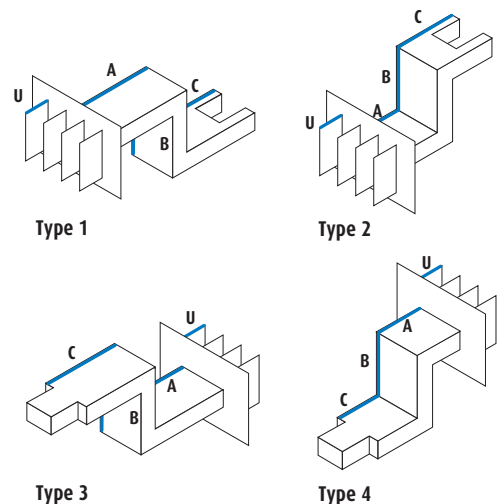
Copper 3200A to 5000A

(U) min/MAX [mm] 200/400

(A) min/MAX [mm] 310/1199

(B) min/MAX [mm] 100/999

(C) min/MAX [mm] 500/1099



Connection interfaces

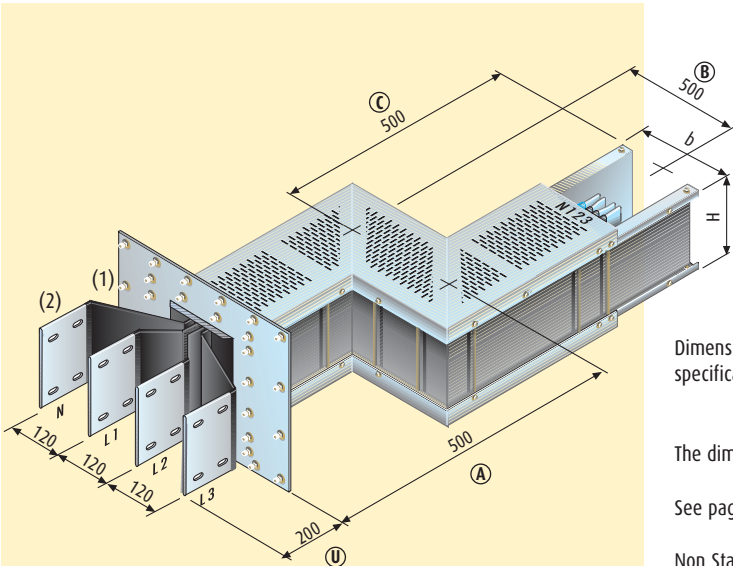
CONNECTION INTERFACE + DOUBLE HORIZONTAL ELBOW

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 SINGLE BAR

Aluminium 630A to 4000A

Copper 800A to 5000A

(U) min/MAX [mm] 200/400

(A) min/MAX [mm] 280/1199

(B) min/MAX [mm] 100/999

(C) min/MAX [mm] 500/1099

MINIMUM AND MAXIMUM DIMENSIONS OF DOUBLE BAR

Aluminium 2500A to 4000A

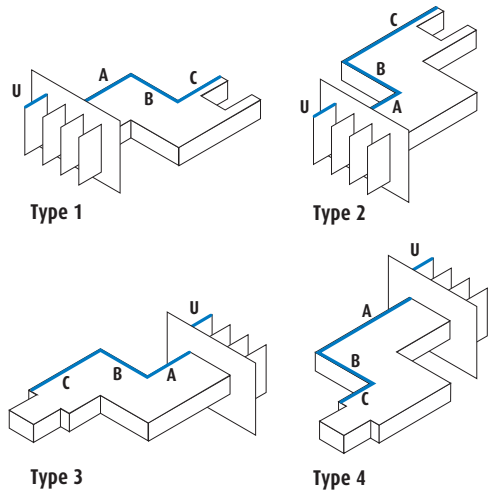
Copper 3200A to 5000A

(U) min/MAX [mm] 200/400

(A) min/MAX [mm] 280/1199

(B) min/MAX [mm] 100/999

(C) min/MAX [mm] 500/1099



Connection interfaces

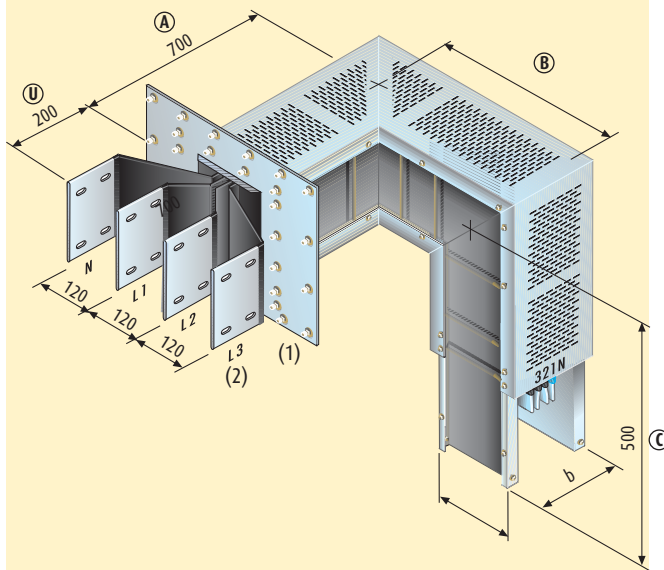
CONNECTION INTERFACE + HORIZONTAL ELBOW + VERTICAL ELBOW

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.

MINIMUM AND MAXIMUM DIMENSIONS OF SINGLE BAR

Aluminium 630A to 4000A

Copper 800A to 5000A

(U) min/MAX [mm] 200/400

(A) min/MAX [mm] 310/1199

(B) min/MAX [mm] 280/999

(C) min/MAX [mm] 500/1099

MINIMUM AND MAXIMUM DIMENSIONS OF DOUBLE BAR

Aluminium 2500A to 4000A

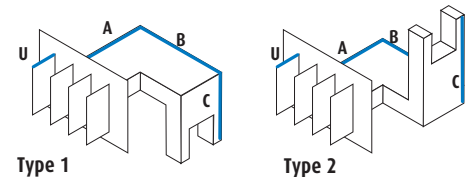
Copper 3200A to 5000A

(U) min/MAX [mm] 200/400

(A) min/MAX [mm] 310/1199

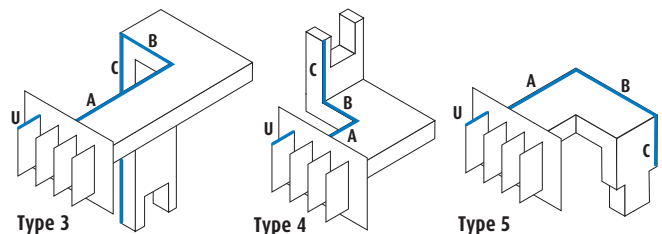
(B) min/MAX [mm] 280/999

(C) min/MAX [mm] 500/1099



Type 1

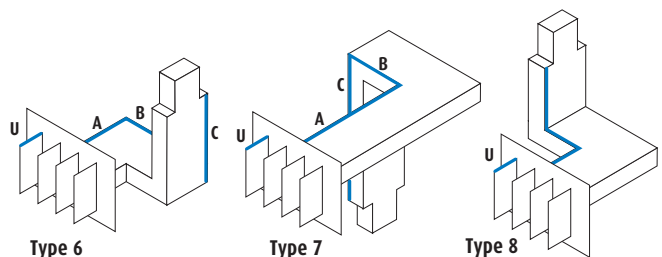
Type 2



Type 3

Type 4

Type 5



Type 6

Type 7

Type 8

Connection interfaces

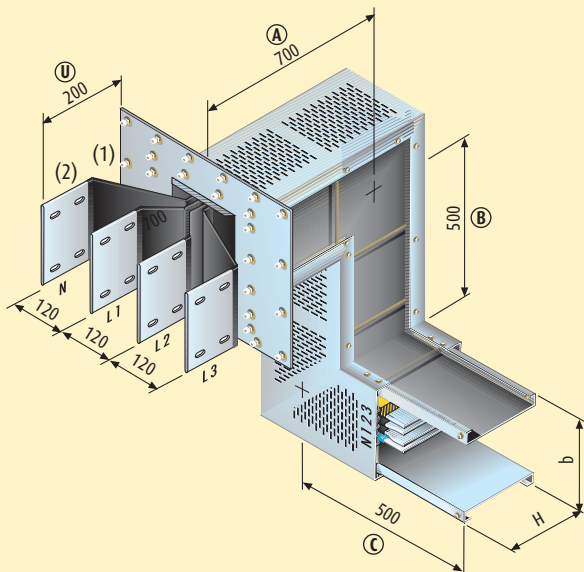
CONNECTION INTERFACE + VERTICAL ELBOW + HORIZONTAL ELBOW

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 SINGLE BAR

Aluminium	630A to 4000A
Copper	800A to 5000A
(U) min/MAX [mm]	200/400
(A) min/MAX [mm]	310/1199
(B) min/MAX [mm]	280/999
(C) min/MAX [mm]	500/1099

MINIMUM AND MAXIMUM DIMENSIONS OF DOUBLE BAR

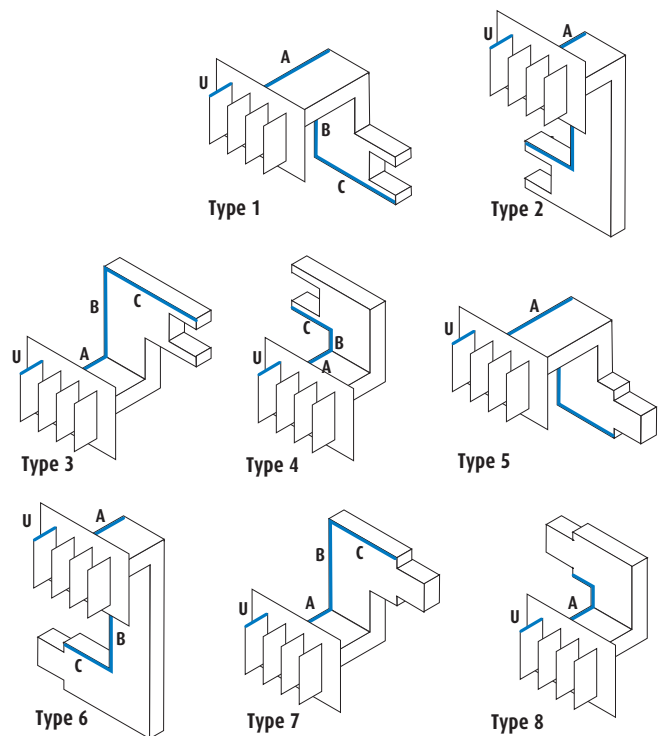
Aluminium	2500A to 4000A
Copper	3200A to 5000A
(U) min/MAX [mm]	200/400
(A) min/MAX [mm]	310/1199
(B) min/MAX [mm]	280/999
(C) min/MAX [mm]	500/1099

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.

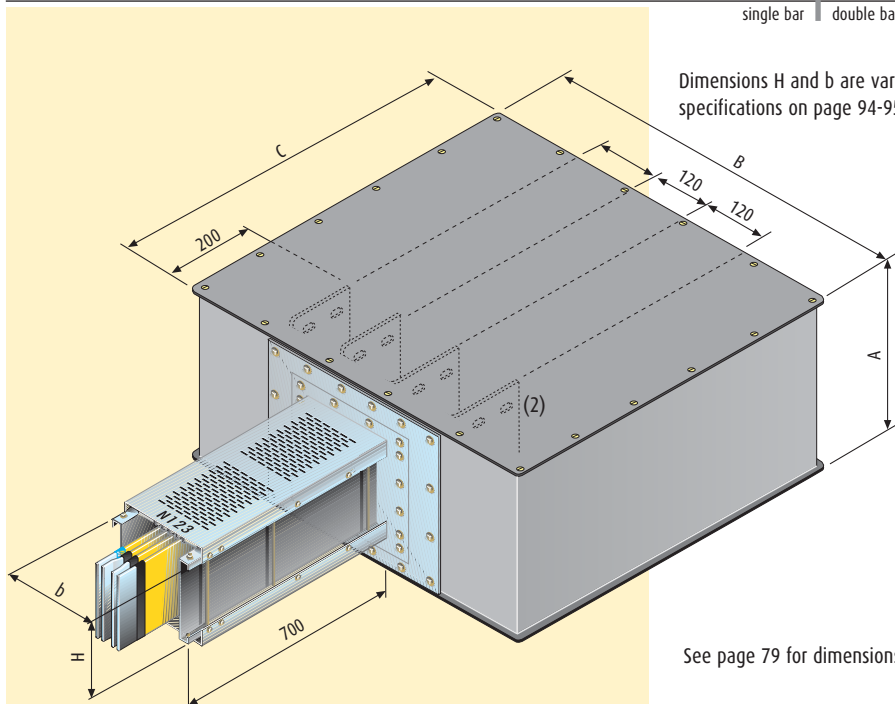


Feed units

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

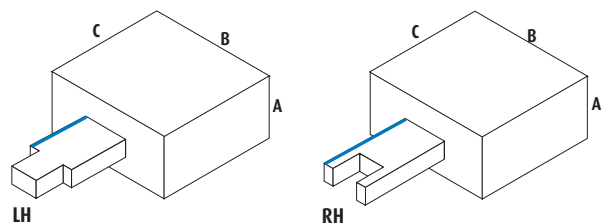
Aluminium gland plate(s) for cable entry
170mm x 410mm

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

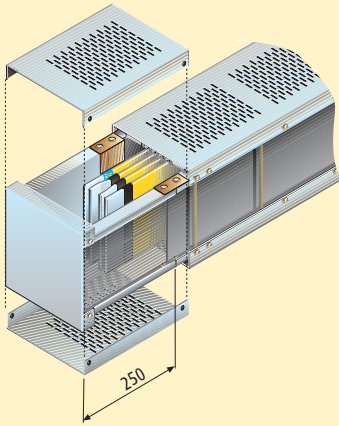


Protection accessories

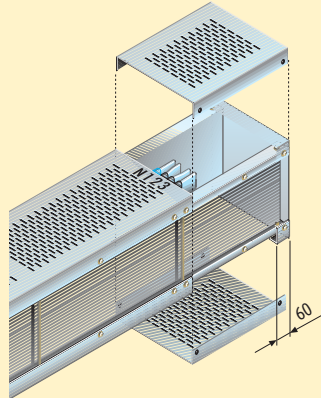
END COVER

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



single bar | double bar

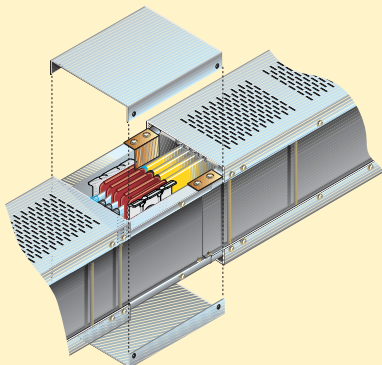
Use RH covers when starting with a LH feed unit or when reaching the LH board.

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

HR
HIGH RATING

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

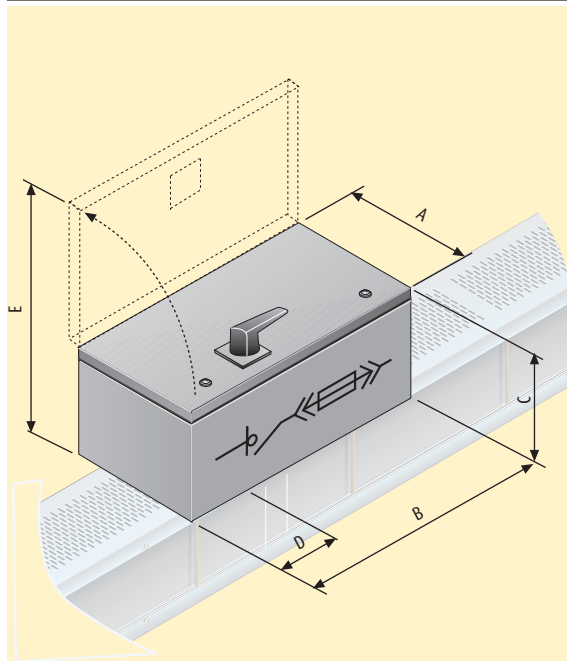
	NH	1000A	1250A	1600A	2000A	2250A	2500A	3200A	4000A	4500A
125A	00	90601811	90601831	90601831	90601841	90621811	90621831	90621831	90621841	90621851
250A	1	90601812	90601832	90601832	90601842	90621812	90621832	90621832	90621842	90621852
400A	2	90601813	90601833	90601833	90601843	90621813	90621833	90621833	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 disconnecter (fuses) must be specified when ordering.
The bolted boxes are to be installed when the busbar is disconnected and not energized.
For operating voltages (U_e) different from 400V, please contact Zucchini.

Fuses not included. See Legrand catalogue.

Rated insulating AC voltage	U_i [V]	1000
Rated impulse withstand voltage	U_{imp} [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

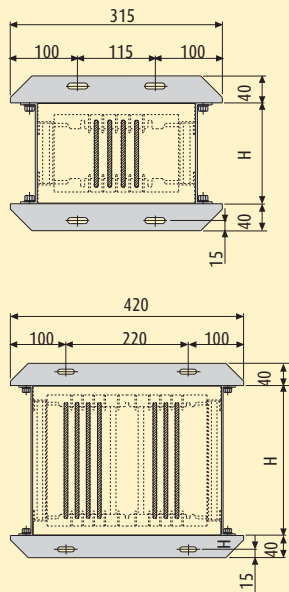
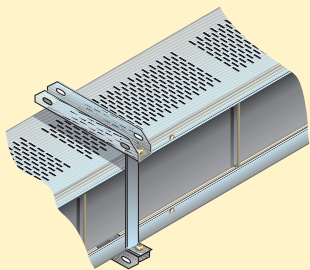
Box rating	125A to 400A	630A	800A to 1250A
(A) [mm]	285	400	450
(B) [mm]	600	750	1050
(C) [mm]	245	280	300
(D) [mm]	95	115	115
(E) [mm]	530	680	750

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

HR
HIGH RATING

Zucchini transformer connections

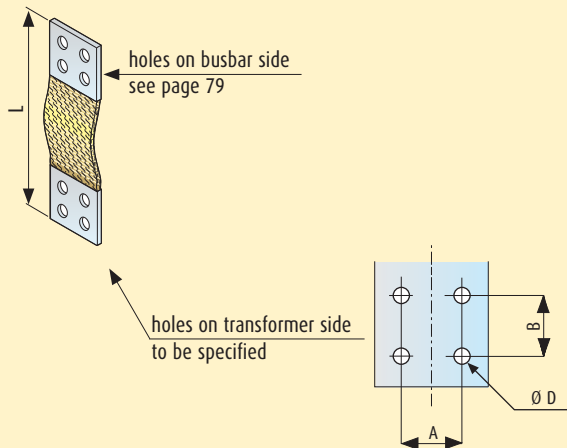
FLEXIBLE BRAID CONNECTIONS

Aluminium	1000A	1250A	1600A	2000A	2250A	2500A	3200A	4000A	4500A
braid / phase	1	1	1	1	2	2	2	2	2

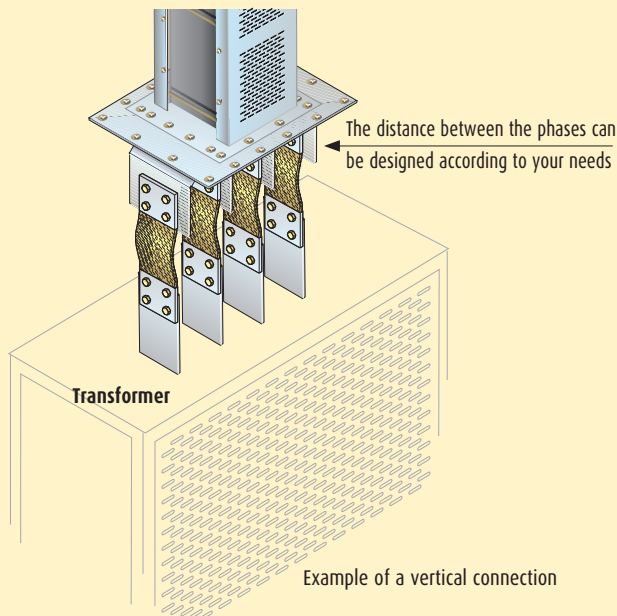
Length [mm]									
300-450	FC200010	FC300010	FC500010	FC600010	FC400010	FC400010	FC500010	FC600010	FC700010
451-600	FC200020	FC300020	FC500020	FC600020	FC400020	FC400020	FC500020	FC600020	FC700020
601-750	FC200030	FC300030	FC500030	FC600030	FC400030	FC400030	FC500030	FC600030	FC700030
More than 750	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

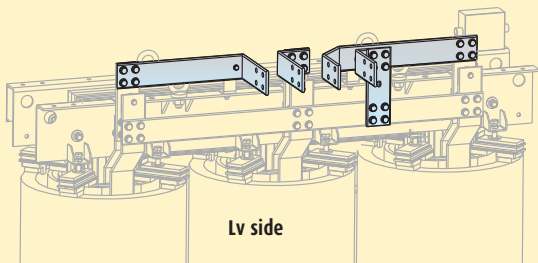


When ordering, specify:
holes on transformer side (dimensions A, B, Ø D) and length L.



The system: The EdM transformer advantage

CONNECTION SETUP

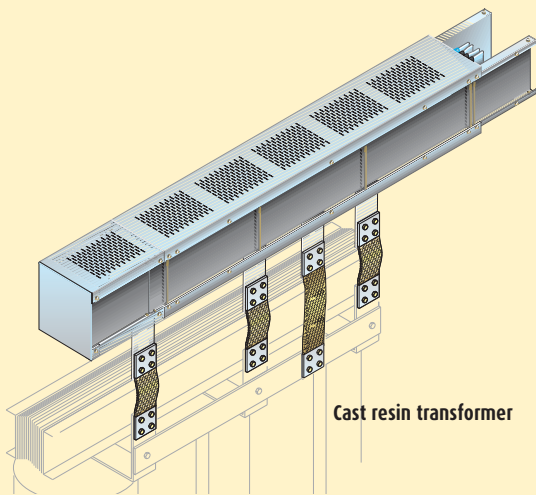


The Legrand group product synergy answers to the global installation need. The EdM cast resin transformers have specifically designed connections for the Zucchini busbars.

The version shown represents one of the standardized solutions.

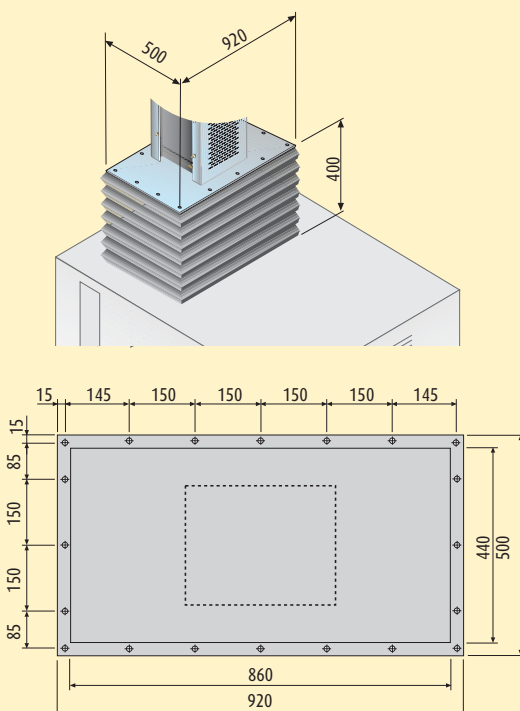
For the outgoing busbar run from the transformer, see pages 78-85.

ATR CONNECTION INTERFACE



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

PROTECTIVE BELLOWS

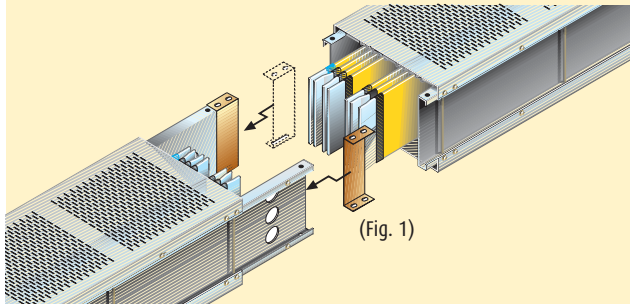


All ratings	Item
	SF925040

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)

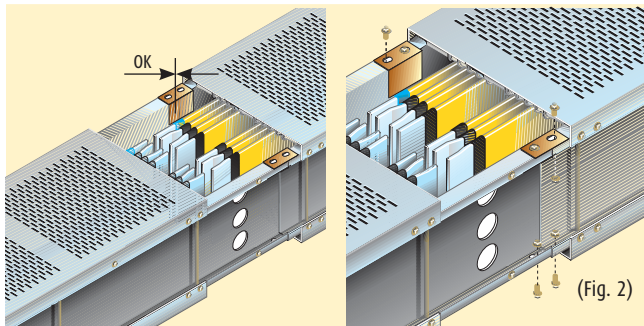
Installation instructions

INSTALLATION SEQUENCE OF THE JUNCTION

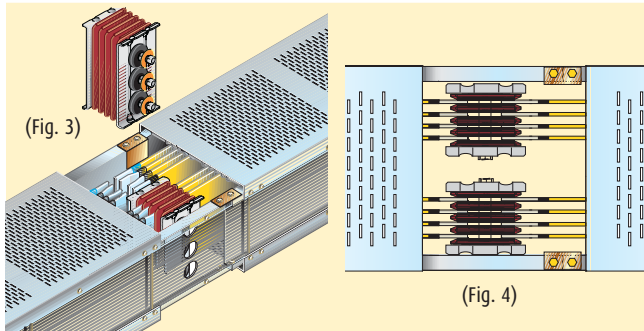


Make sure that the contacts are clean.

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

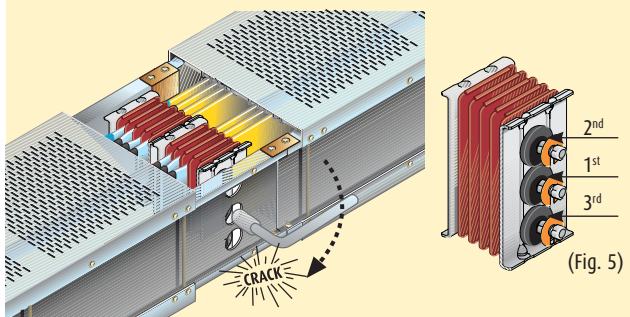


When the elements are close, slide the plates to overlap them. Tighten the screws (supplied) (Fig. 2).



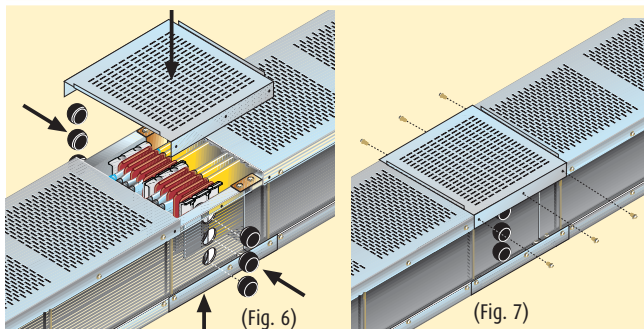
Insert the monoblocs to connect the phases (Fig. 3).

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



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).

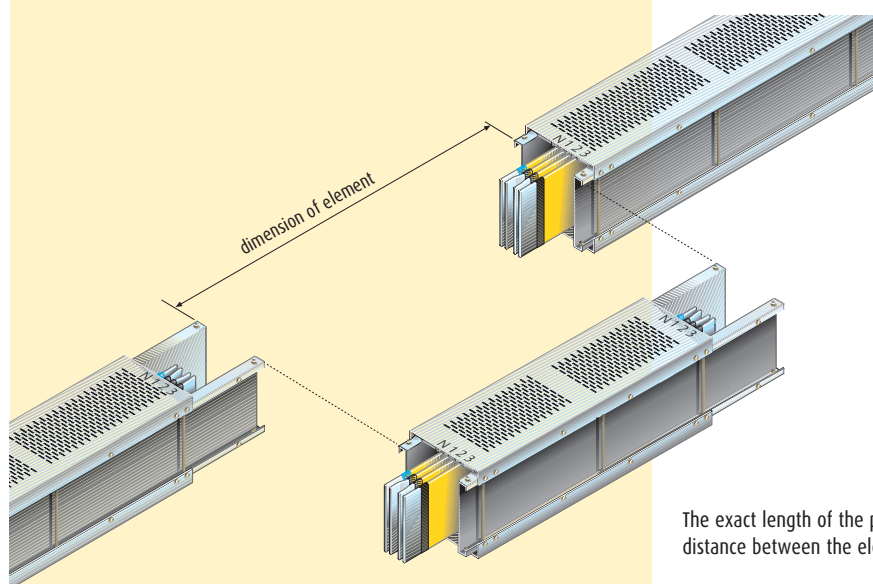


Place the black caps on the holes of the plates and complete the connection by using the junction covers (Fig. 6).

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

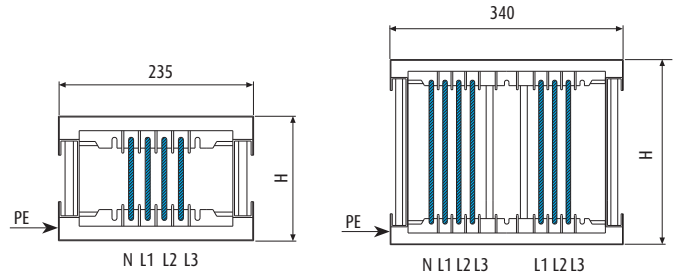
Measurement of special element lengths

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

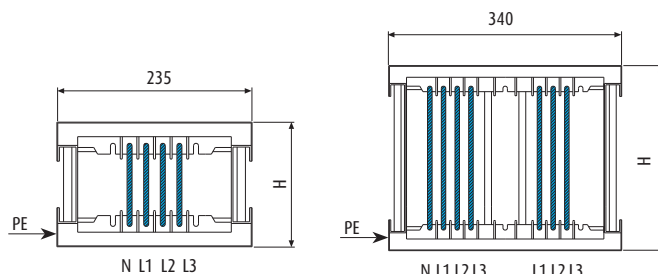
		HR C1 [3L+N 100%+PE (casing)]				HR C2 [3L+N 50%+PE (casing)]					
		single bar				double bar					
Rated current (standard installation)		In [A]	1000	1250	1600	2000	2250	2500	3200	4000	4500
Rating for different installation		In [A]	700	875	1120	1400	1575	1750	2240	2800	3150
Casing overall dimensions		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 ² t [MA ² s]	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 ΔV = k · I · l _c · 10 ⁻⁶ [V]	k [V/m/A]10 ⁻⁶	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)

In: rated current referred to a room temperature of 40°C
 ΔV : for calculations, see page 95

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

Technical data



COPPER

		HR C1 [3L+N 100%+PE (casing)]					HR C2 [3L+N 50%+PE (casing)]				
		single bar					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 ² t [MA ² s]	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 ΔV = k·L·I _c ·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)

In: rated current referred to a room temperature of 40°C
 ΔV : for calculations, see page 95

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

HR
HIGH RATING

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 $\cos\phi$ 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:

$$I_b = \frac{P_{TOT} \cdot \alpha \cdot \beta \cdot d}{\sqrt{3} \cdot U_e \cdot \cos\phi_{medium}} \quad [A]$$

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];
- U_e operating voltage [V];
- $\cos\phi_{medium}$ 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 k_1 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_1 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:

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

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 $\cos\phi = 0.7$ the v.d. may be calculated with the coefficients of the voltage drop specified in the technical data table.

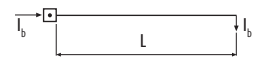
$$\Delta v\% = b \cdot \frac{k \cdot I_b \cdot L}{Vn} \cdot 100$$

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]
- $\Delta v\%$ = the voltage drop percentage
- b = the distribution factor of the current [..]
- k = corresponding voltage drop factor a $\cos\phi$ [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:

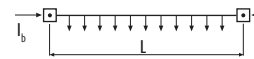
$b = 2$ supplies at one end and load at the end of the line



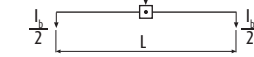
$b = 1$ supplies at one end and with load evenly distributed



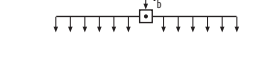
$b = 0.5$ supplies at both ends and with load evenly distributed



$b = 0.5$ 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 $\cos\phi = 0.85$)
- $L = 100m$ line length
- $Vn = 400V$ operating voltage

$$\Delta v\% = 1 \cdot \frac{28.7 \cdot 10^5 \cdot 1600 \cdot 100}{400} \cdot 100 = 1.15\%$$

SHORT-CIRCUIT CURRENT

The short circuit current value I_{sc} 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. breaker) 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

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

Single phase rating

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

EdM CAST RESIN TRANSFORMERS



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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

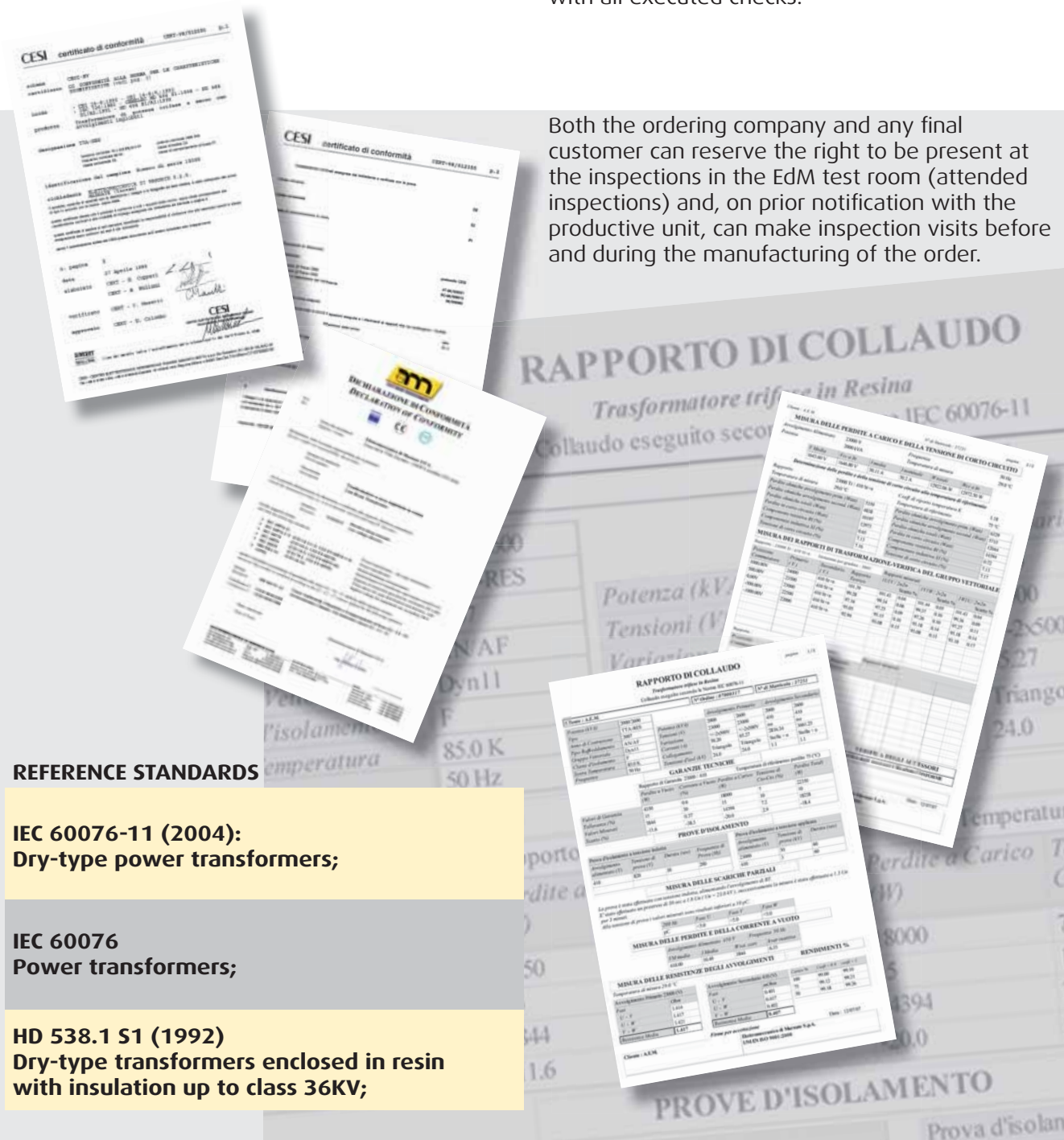
The safety and continuity of operation of the specific users depend essentially on the reliability of the transformers installed.

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.

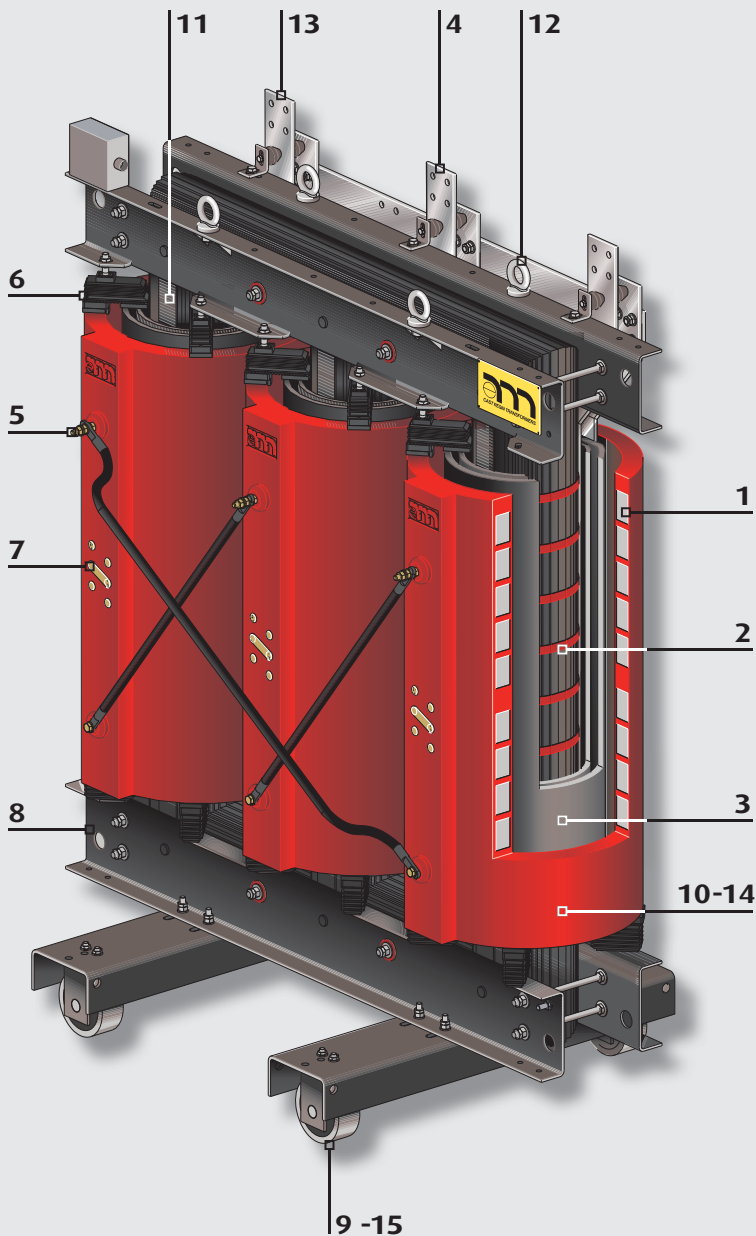
For instance, comparing a 1000 kVA (cl. 24kV) “reduced loss” transformer with a “distribution” transformer, after 20 years of operation the energy saving will be 12000 KWh (less environmental impact) and the cost effectiveness for the customer will be about 28000€*.

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 $\pm 2 \times 2.5\%$, 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.

**Minimum temperature
required for carrying
and storage operations:**

-25°C

**Minimum temperature
required for the
installation environment:**

-5°C

**Maximum temperature
required for the
installation environment:**
(unless otherwise requested
by the customer)

40°C

**Maximum relative
humidity value:**

100%

EdM cast resin transformers: the perfect solution for any condition

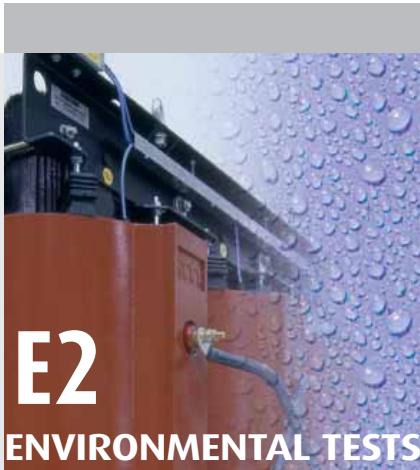
Standard IEC 60076-11 (HDL 464 S1 1988) uses an alphanumeric code to identify the environmental, climatic and fire behaviour classes of dry-type cast resin transformers.

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.

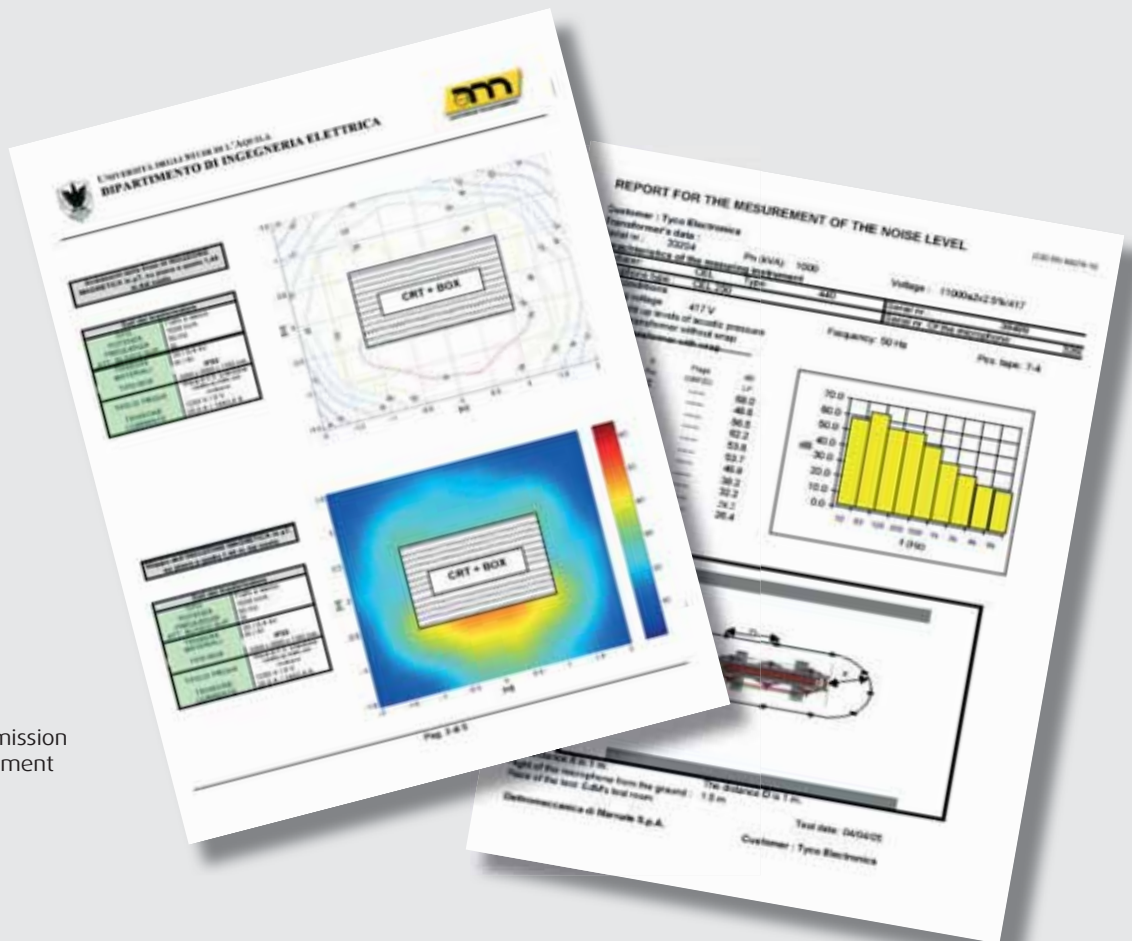
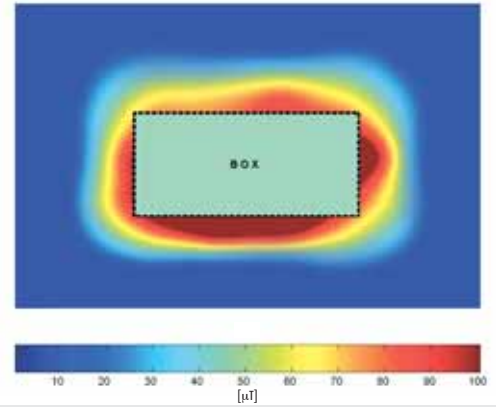
F1

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.

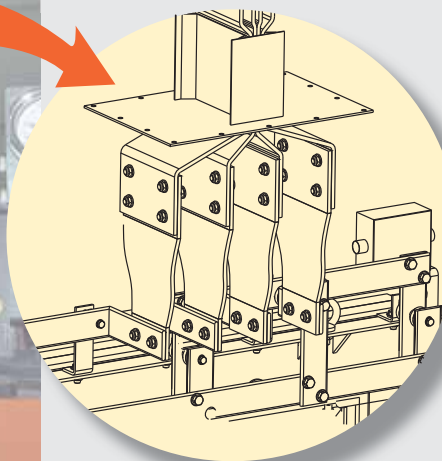


The advantage of choosing Zucchini busbars

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	Sound	Weight
		kV	V			120°	75°		pressure level	power level	
									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	CEI 14-4 and 14-8 - IEC 60076-11 - CENELEC HD 538.1		
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 No. 98/11 908		
Tolerances	According to CEI / 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

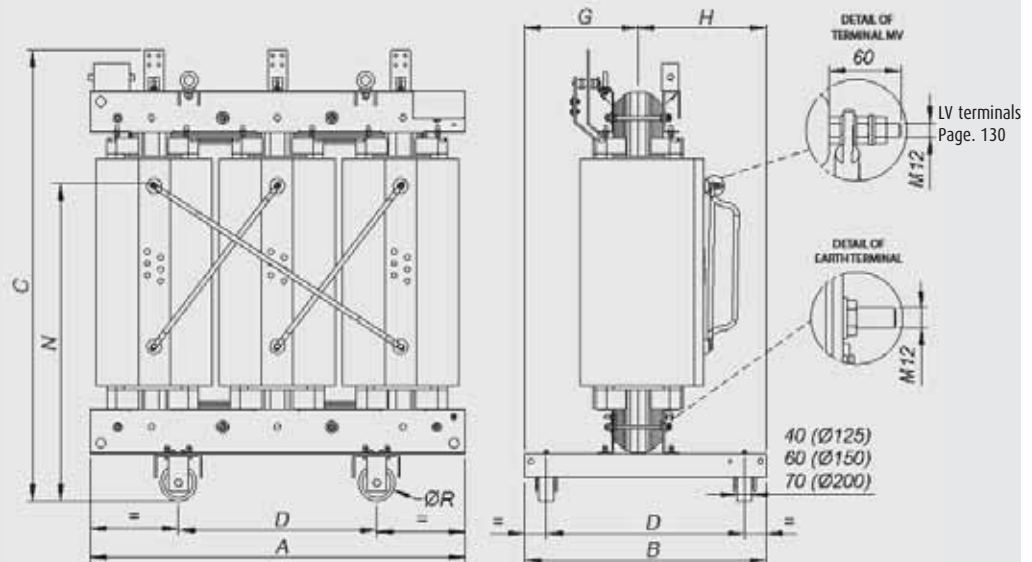
Dimensional information (100-500 kVA)

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 kg
		kV	V		120°	75°	dB		dB		
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	CEI 14-4 and 14-8 - IEC 60076-11 - CENELEC HD 538.1		
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 No. 98/11 908		
Tolerances	According to CEI / 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

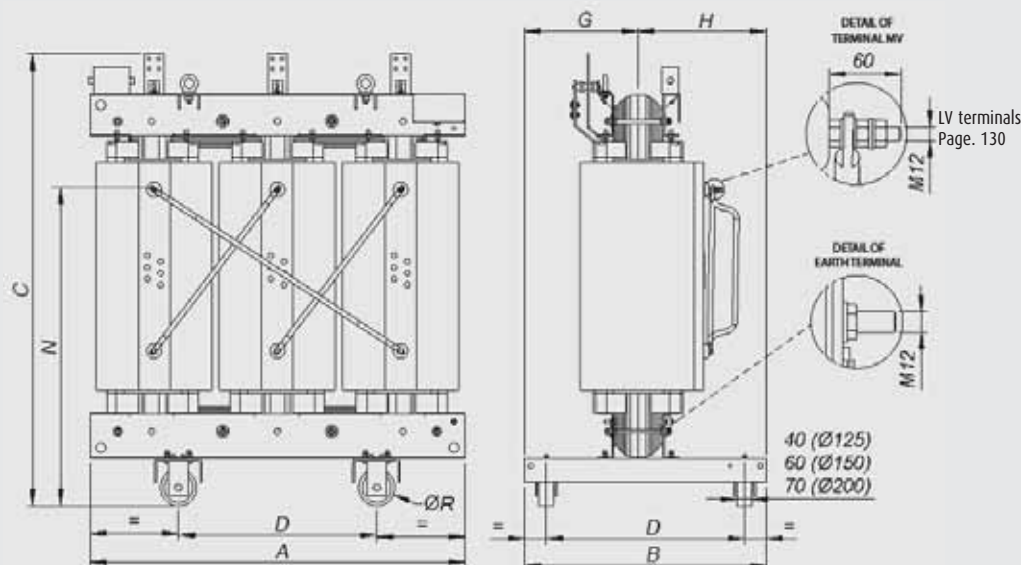
Dimensional information (630-3150 kVA)

DIMENSIONS AND WEIGHT

kVA	Item	Uk%	A	B	C	D	ØR	G	H	N	Peso
			[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	Sound	Weight
		kV	V		120°	75°	pressure level		power level		
									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 CEI 14-4 and 14-8 - IEC 60076-11 - CENELEC HD 538.1

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 $\pm 2 \times 2.5\%$

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 No. 98/11 908

Tolerances According to CEI / 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

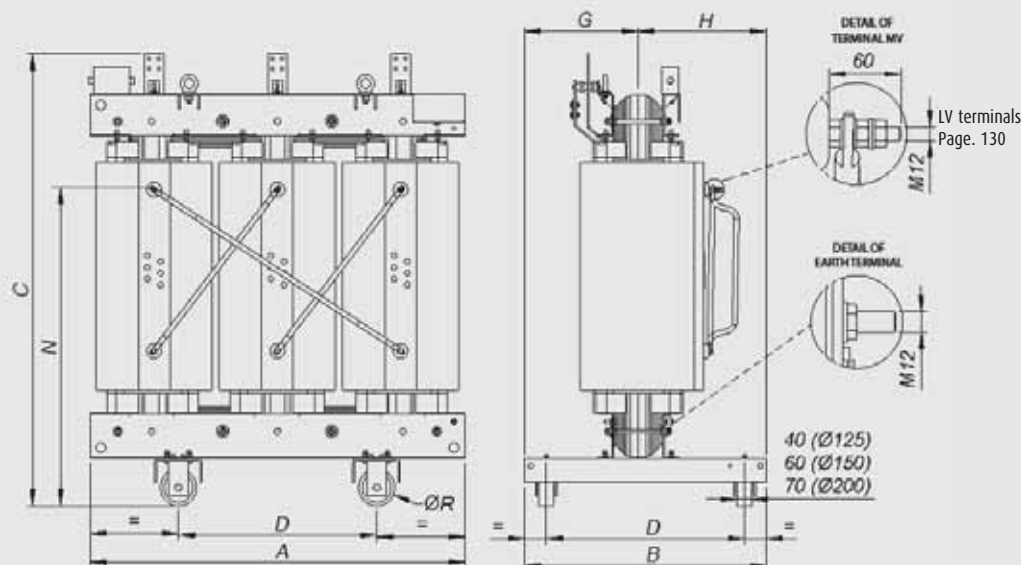
Dimensional information (100-630 kVA)

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	Sound	Weight
		kV	V			120°	75°		pressure level*	power level	
									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	E03RAFBA	15	400	6	3650	23000	20700	0.4	59	71	4950
	E03NAFBA	15	400	6	4300	21800	19620	0.5	63	81	4950
	E03DAFBA	15	400	7	5040	23000	20700	0.8	66	82	4900
	E03SAFBA	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 CEI 14-4 and 14-8 - IEC 60076-11 - CENELEC HD 538.1

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 $\pm 2 \times 2.5\%$

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 No. 98/11 908

Tolerances According to CEI / 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

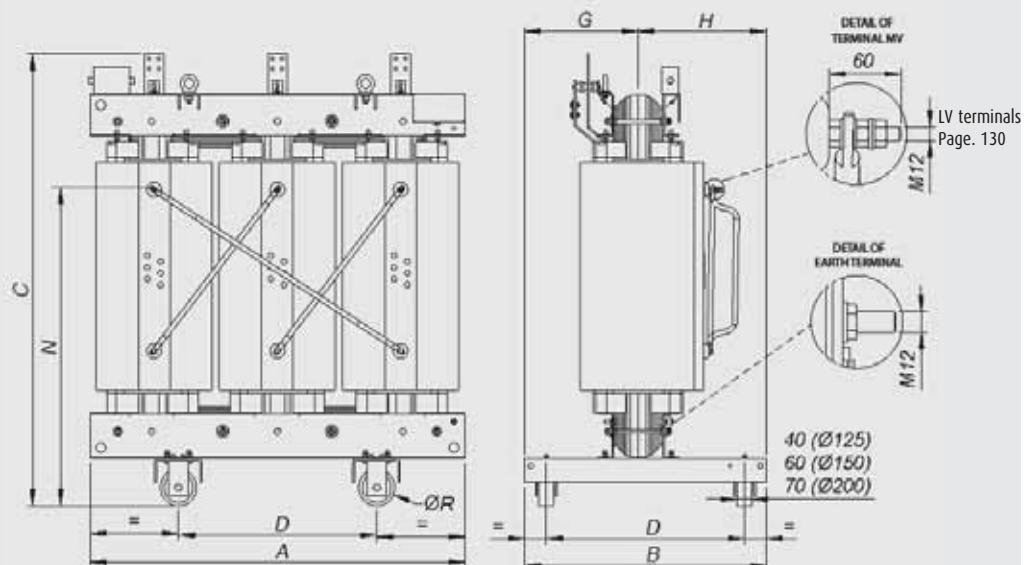
Dimensional information (800-3150 kVA)

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	E03RAFBA	6	1950	1310	2320	1070	200	580	730	1600	4950
	E03NAFBA	6	1950	1310	2320	1070	200	580	730	1600	4950
	E03DAFBA	7	2050	1310	2310	1070	200	580	730	1600	4900
	E03SAFBA	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	Sound	Weight
		kV	V			120°	75°		pressure level	power level	
									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	790	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	840	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	1160	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	1370	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	CEI 14-4 and 14-8 - IEC 60076-11 - CENELEC HD 538.1		
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 No. 98/11 908		
Tolerances	According to CEI / 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

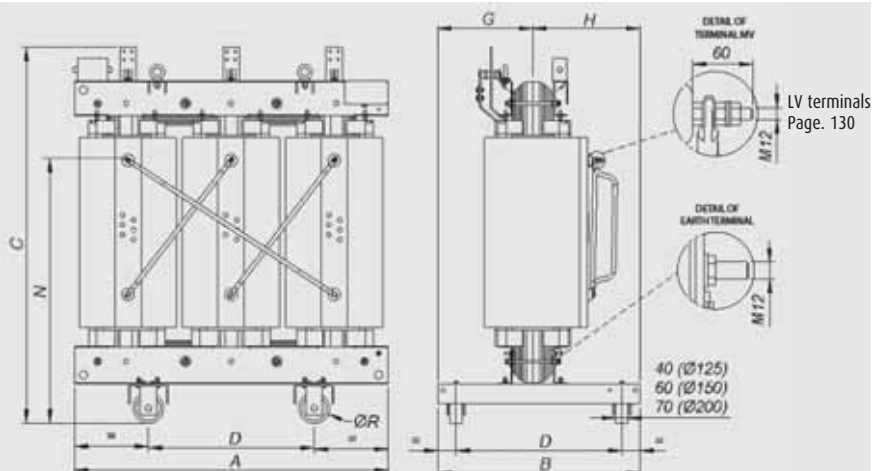
Dimensional information (100-500 kVA)

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.

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



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	Sound	Weight
		kV	V			120°	75°		pressure level	power level	
									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	E04RAGBA	20	400	6	3800	23000	20700	0.4	59	71	5250
	E04NAGBA	20	400	6	4800	22000	19800	0.5	64	81	5250
	E04DAGBA	20	400	7	5880	23000	20700	0.8	66	82	5200
	E04SAGBA	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 CEI 14-4 and 14-8 - IEC 60076-11 - CENELEC HD 538.1

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 $\pm 2 \times 2.5\%$

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 No. 98/11 908

Tolerances According to CEI / 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

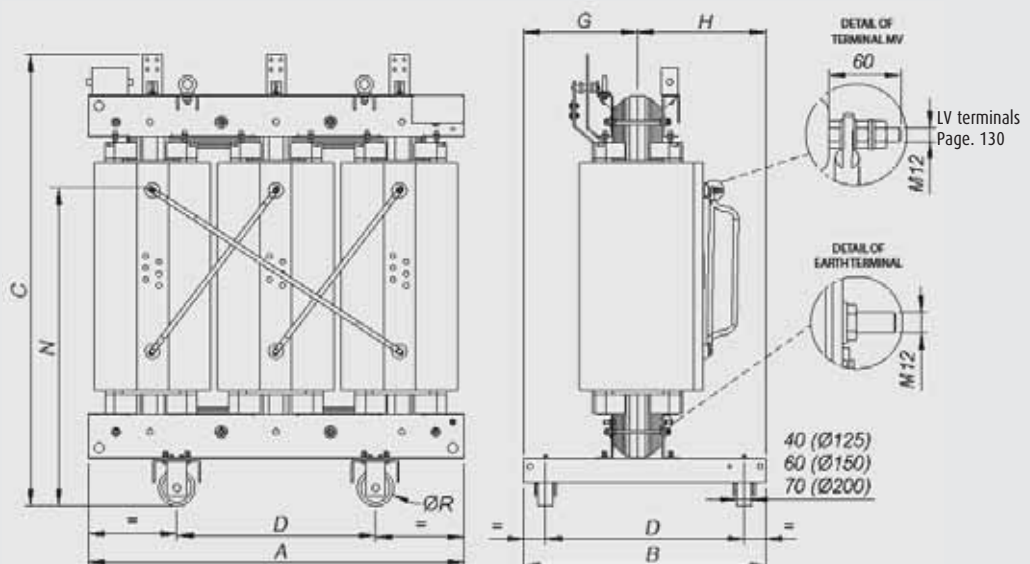
Dimensional information (630-3150 kVA)

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	E04RAGBA	6	1950	1310	2350	1070	200	580	730	1610	5250
	E04NAGBA	6	1950	1310	2350	1070	200	580	730	1610	5250
	E04DAGBA	7	2050	1310	2310	1070	200	580	730	1600	5200
	E04SAGBA	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.

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



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 kg
		kV	V		120°	75°	dB		dB		
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	CEI 14-4 and 14-8 - IEC 60076-11 - CENELEC HD 538.1	
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 No. 98/11 908	
Tolerances	According to CEI / 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

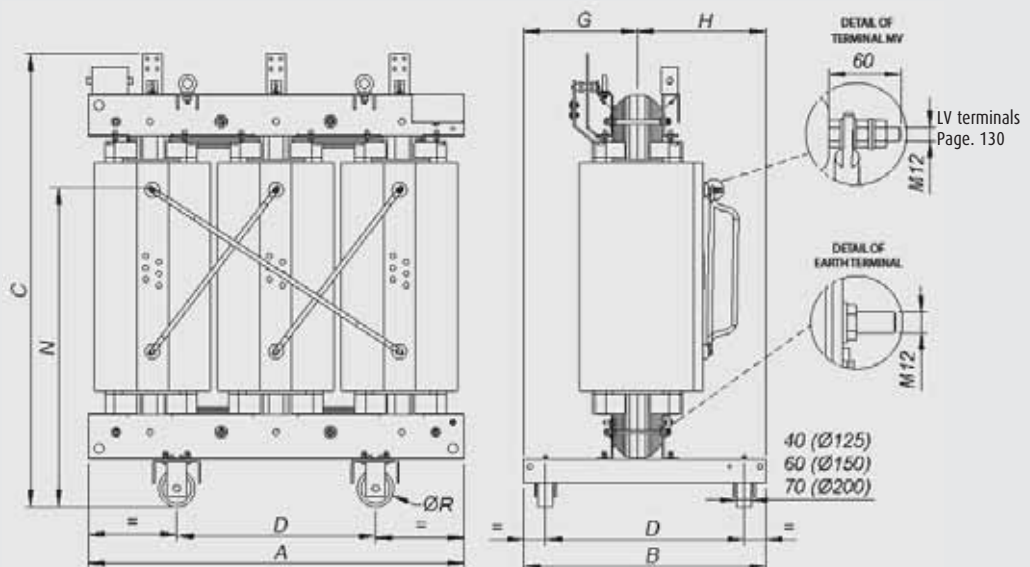
Dimensional information (250-3000 kVA)

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

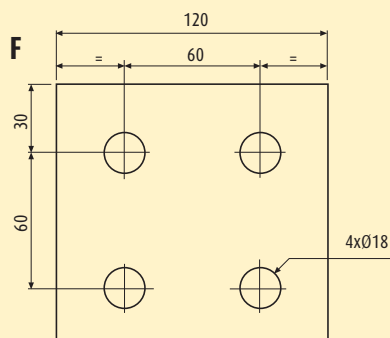
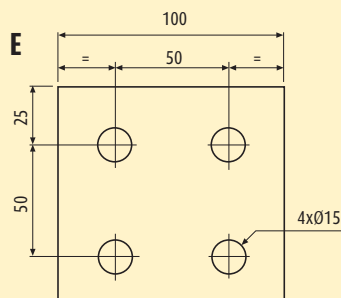
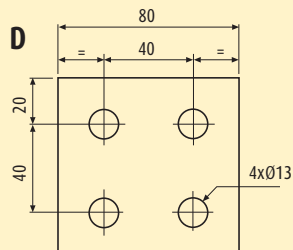
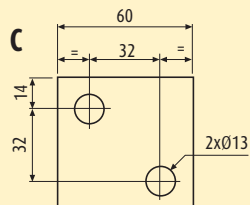
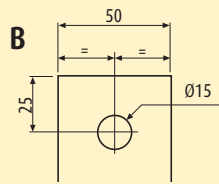
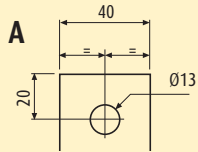
Summary reference values. Use the construction drawing for the design.

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



LV connection terminals

STANDARD DRILLING DETAILS



LV connection terminals are made in aluminium.

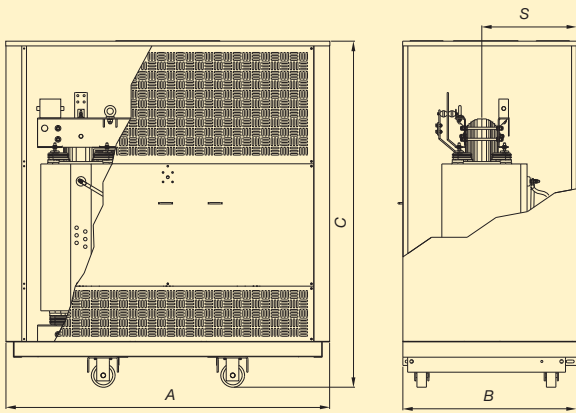
Special CUPAL bimetallic plates can be supplied for the connection of copper cables

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

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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						IP31	
	230288						IP23	
160	230316	1600	900	1470	500	120	IP21	IP20
	230353						IP31	
	230288						IP23	
200	230316	1600	900	1470	500	120	IP21	IP20
	230353						IP31	
	230288						IP23	
250	230211	1700	950	1580	405	140	IP21	IP20
	230263						IP31	
	230273						IP23	
315	230211	1700	950	1580	405	140	IP21	IP20
	230263						IP31	
	230273						IP23	
400	230212	1800	1000	1680	405	160	IP21	IP20
	230234						IP31	
	230215						IP23	
500	230212	1800	1000	1680	405	160	IP21	IP20
	230234						IP31	
	230215						IP23	
630	230204	1900	1050	1950	575	180	IP21	IP20
	230222						IP31	
	230277						IP23	
800	230204	1900	1050	1950	575	180	IP21	IP20
	230222						IP31	
	230277						IP23	
1000	230213	2050	1100	2200	600	210	IP21	IP20
	230223						IP31	
	230221						IP23	
1250	230213	2050	1100	2200	600	210	IP21	IP20
	230223						IP31	
	230221						IP23	
1600	230214	2300	1310	2500	730	280	IP21	IP20
	230249						IP31	
	230267						IP23	
2000	230214	2300	1310	2500	730	280	IP21	IP20
	230249						IP31	
	230267						IP23	
2500	230287	2500	1310	2700	730	300	IP21	IP20
	230371						IP31	
	230309						IP23	
3150	230287	2500	1310	2700	730	300	IP21	IP20
	230371						IP31	
	230309						IP23	

For Class 36 kV boxes dimensions and weight on request

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

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). Supplied mounted on the transformer.

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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