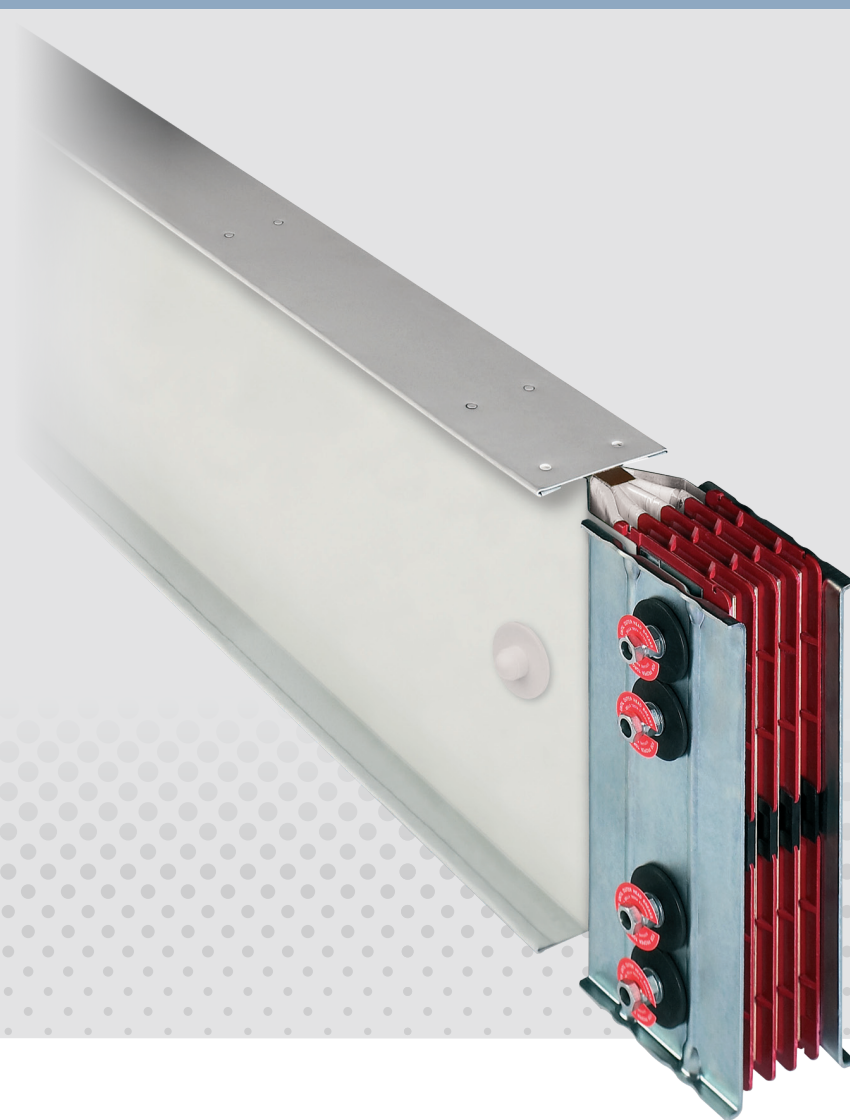


BUSBAR TRUNKING SYSTEM

# ZUCCHINI



**SCP - 630 - 5000A**  
(Super Compact-Painted)

## Integrated solutions for global projects

Legrand is a global specialist in electrical and digital building infrastructures:

- Distribution, panels and protection equipment
- Cable management (DLP trunking, cable trays and wire mesh)
- Busbars and lighting busbars

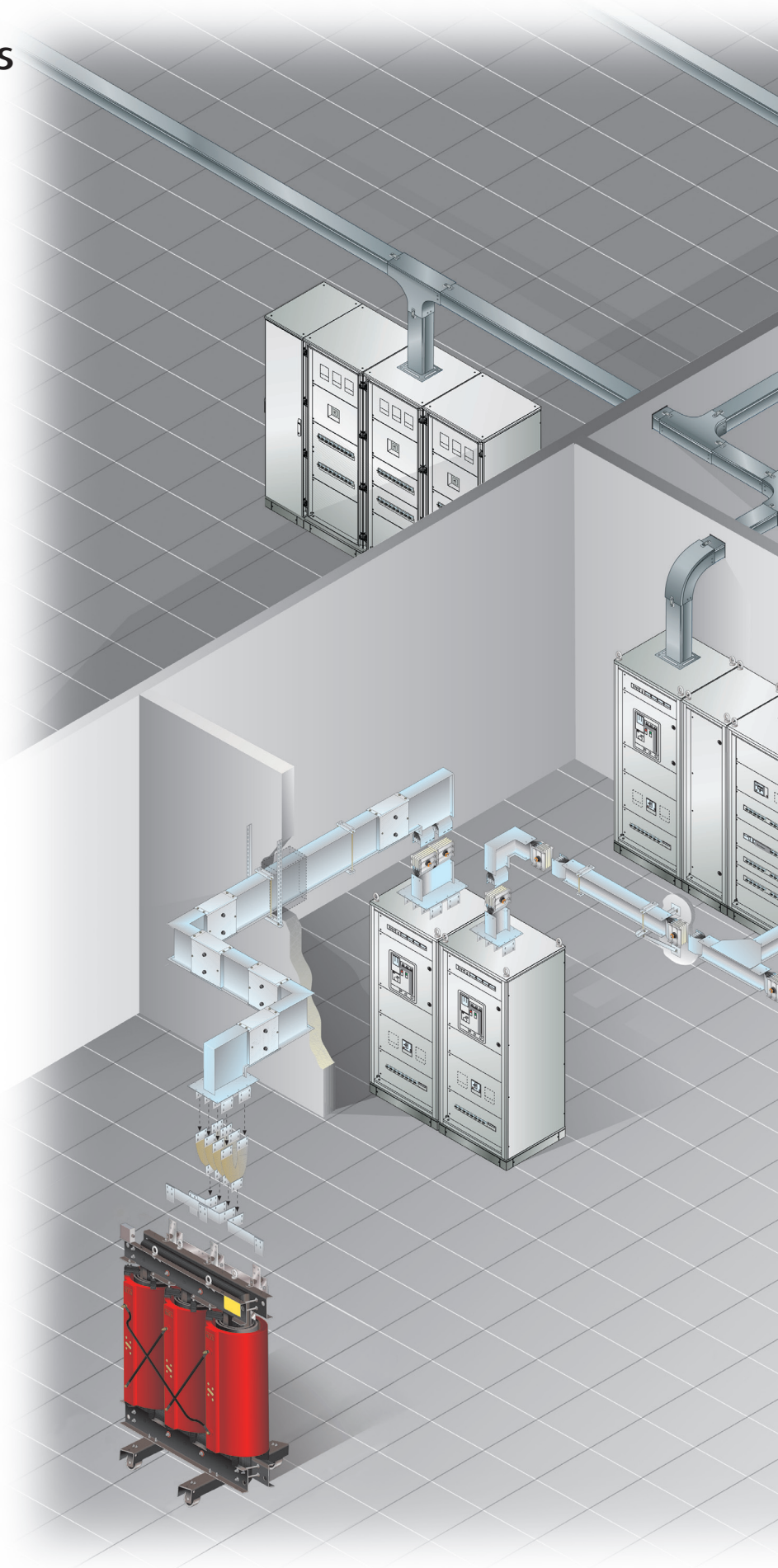
Every product and system needed for distributing energy and protecting people and property.

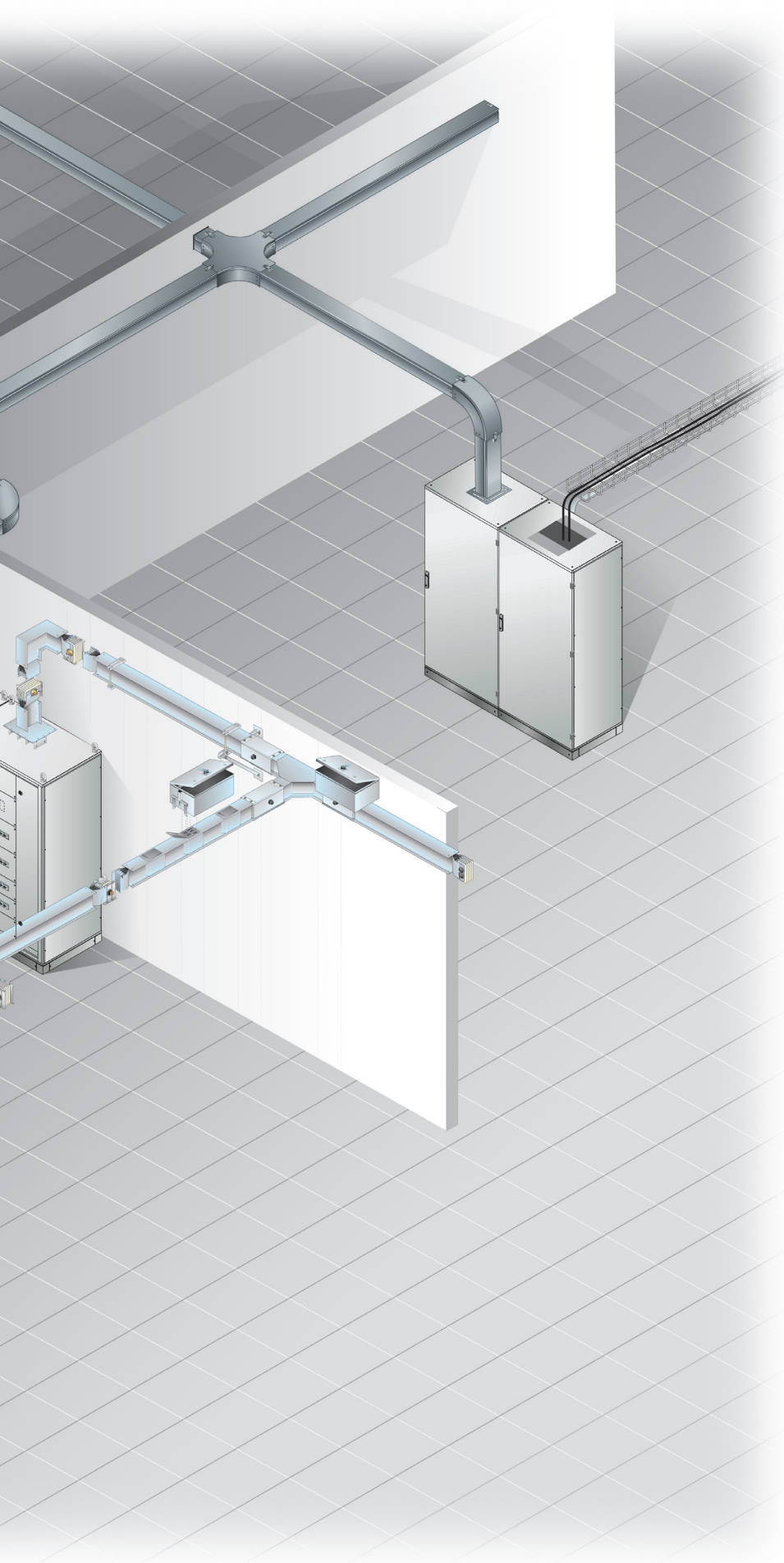


DMX<sup>3</sup>

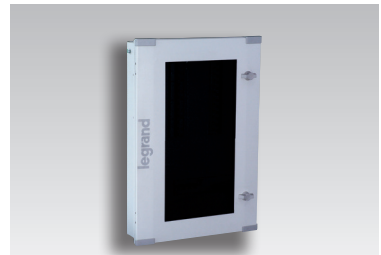


DPX MCCB

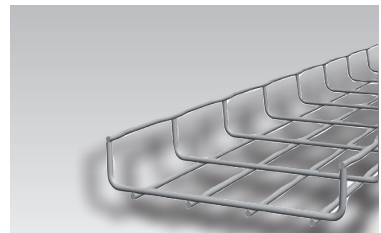




Lexic - MCB/RCD



Ekinox DB



Cablofil cable trays



Zucchini busbars



Plugs & Socket



# 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, 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.

### SAFETY

The best protection  
for your system

### FLEXIBILITY

Adapts to all present  
and future needs

### SIMPLICITY

A solution  
for everyone







## 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.

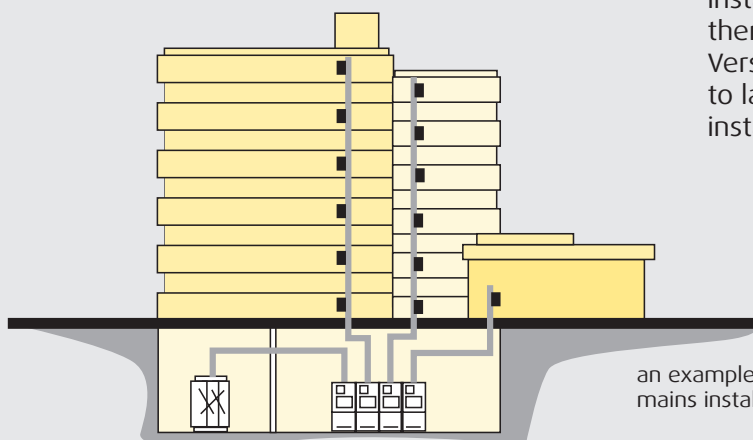
The HP range gives you all the necessary elements for a quick, efficient and safe installation.

### 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.

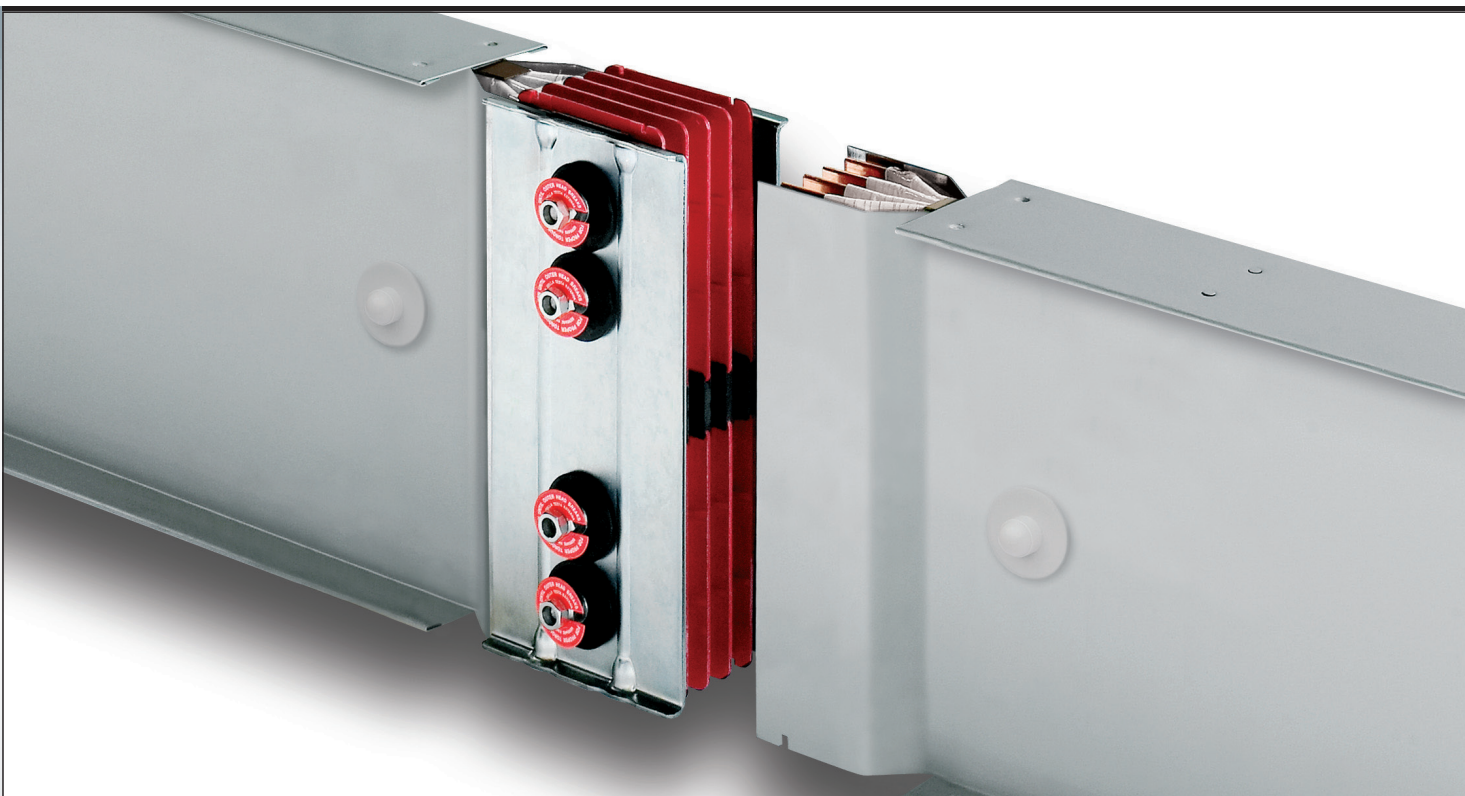
The high quality standard of all Zucchini insulating components are suitable for being installed in environments subject to high thermal stress.

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



an example of a rising mains installation.

# SUPER COMPACT - SCP



## SECTION CONTENTS

8	Features
14	Feeder elements
15	Distribution Elements
16	Expansion elements
17	Fire barrier elements
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20	Double elbows
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26	Connection interfaces
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30	Double elbows with connection interface
34	Section isolator
36	Feed units
38	Tap-off boxes
41	Fixing supports
44	Phase transposition and with neutral rotation
44	End cover
45	Protection accessories
46	Riser mains
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55	SCP5 Technical Data
57	SCP2N Technical Data
59	Calculating the operating current



## 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

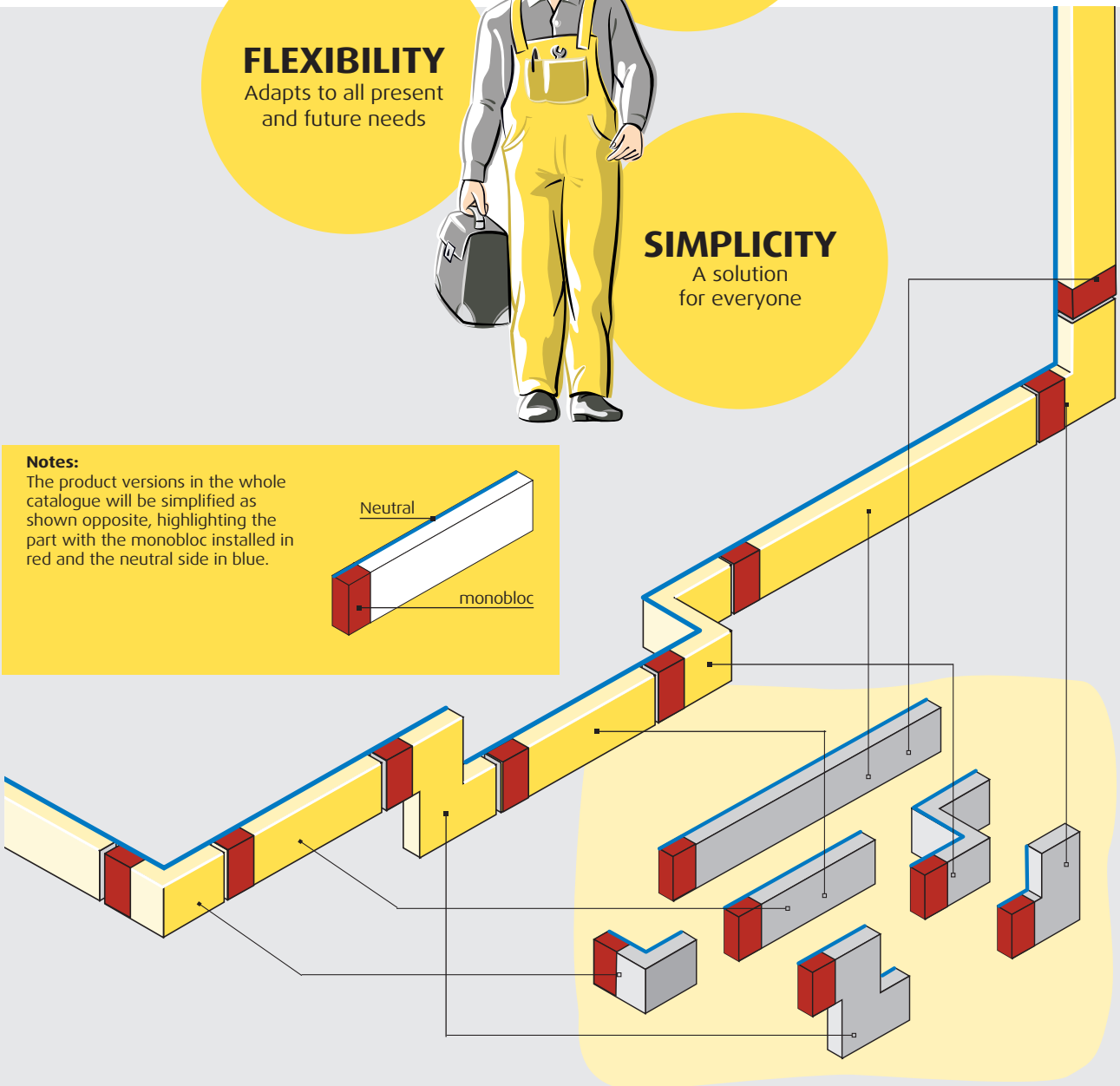
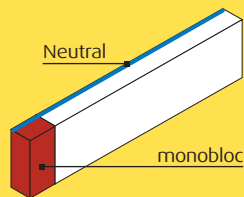
## SIMPLICITY

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**.

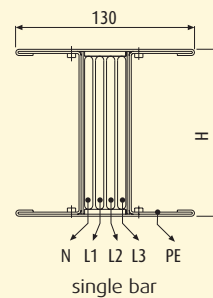
The junction contact is ensured by **two silver-plated copper plates** for each **phase**, insulated with red **class F thermosetting plastic material**. The **monobloc** has **shearhead bolts**: after tightening the nuts with a standard wrench, the outer head will break at the correct torque value,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

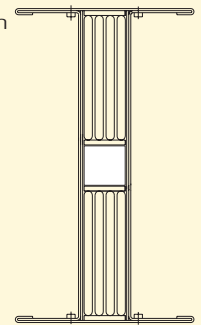
## Standard versions:

### 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)



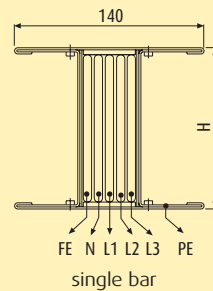
single bar



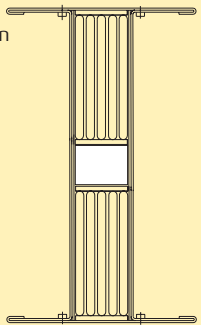
double bar

### 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)



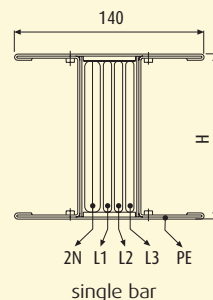
single bar



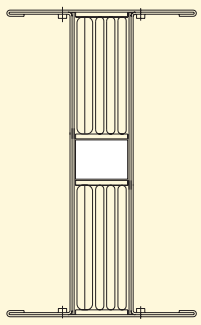
double bar

### 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



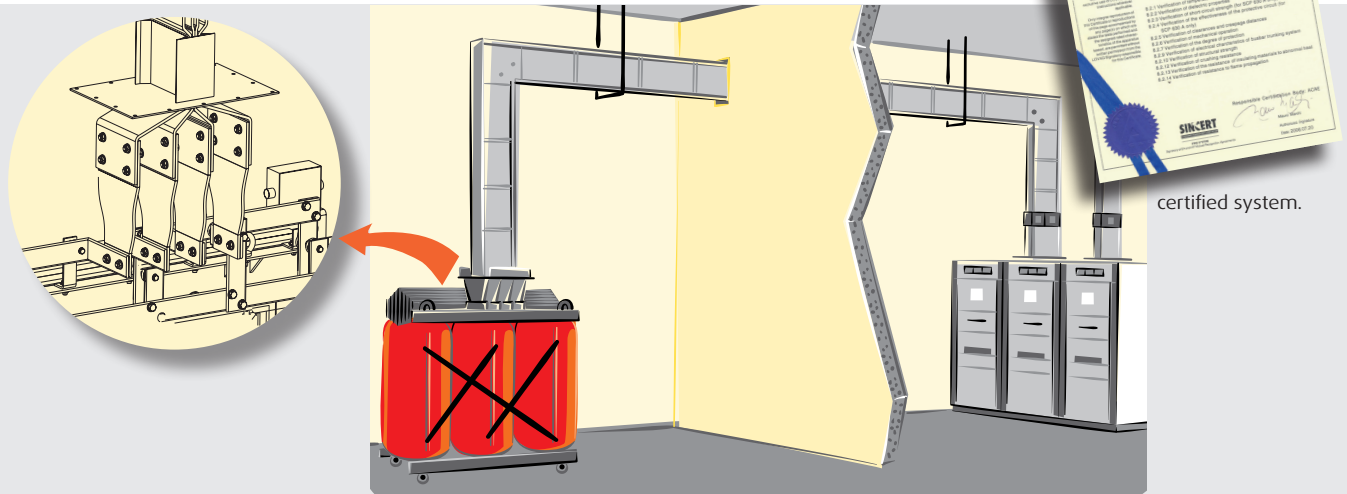
# Zucchini - Legrand – EdM system concept

**Group synergy** allows for immediate integration between **ZUCCHINI busbar trunking systems**, **EdM cast resin transformers** and **Legrand XL<sup>3</sup> cabinets**.

EdM cast resin transformers can be made to order with a pre-installed interface connection for the ZUCCHINI busbar trunking systems.

XL<sup>3</sup> 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.



certified system.

## Transformer

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

## Transformer

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

## Main features of the SCP line

### Straight elements:

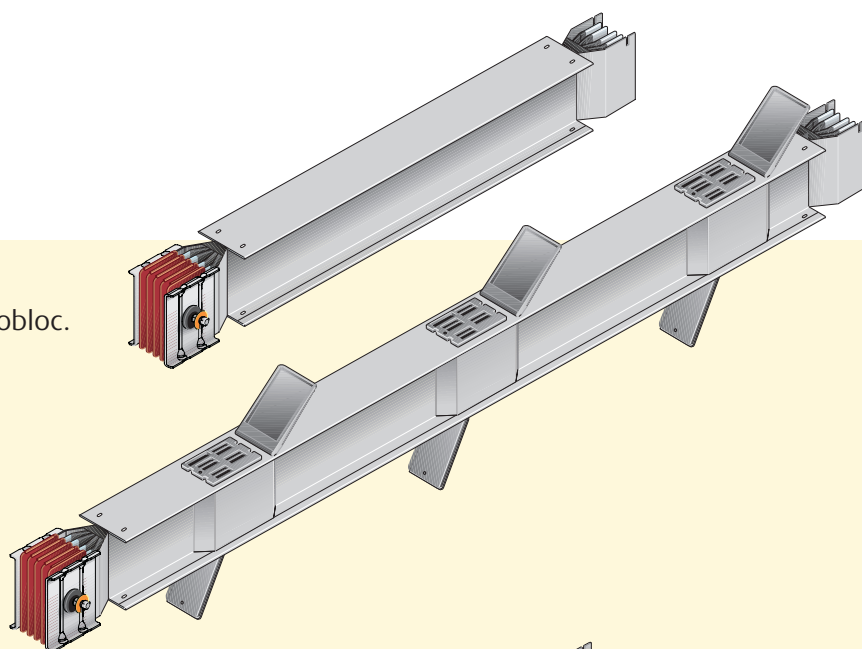
Supplied with its pre-installed monobloc.

### 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



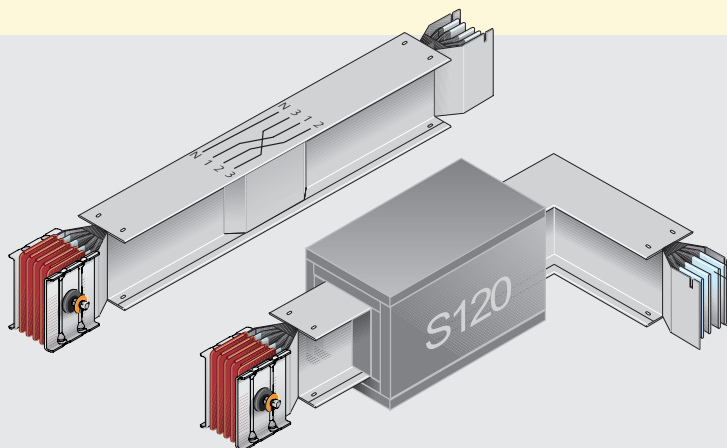
### Additional elements:

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



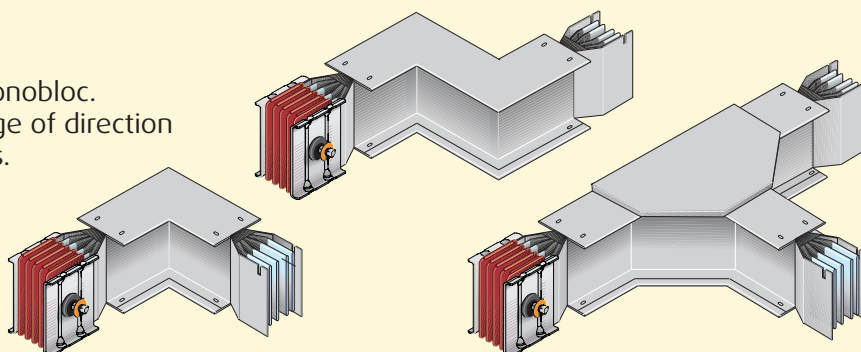
### Angle components:

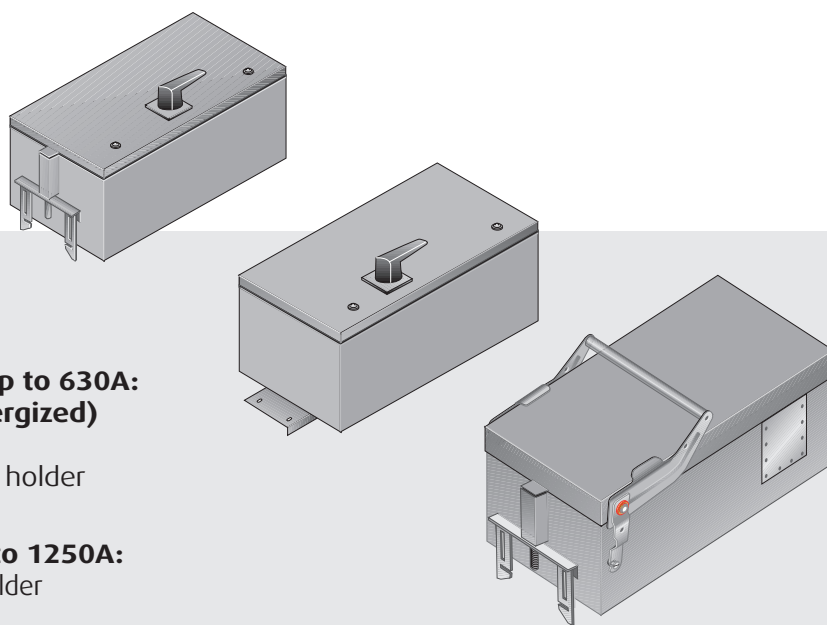
Supplied with its pre-installed monobloc. Elements able to meet any change of direction with standard or special solutions.

#### 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

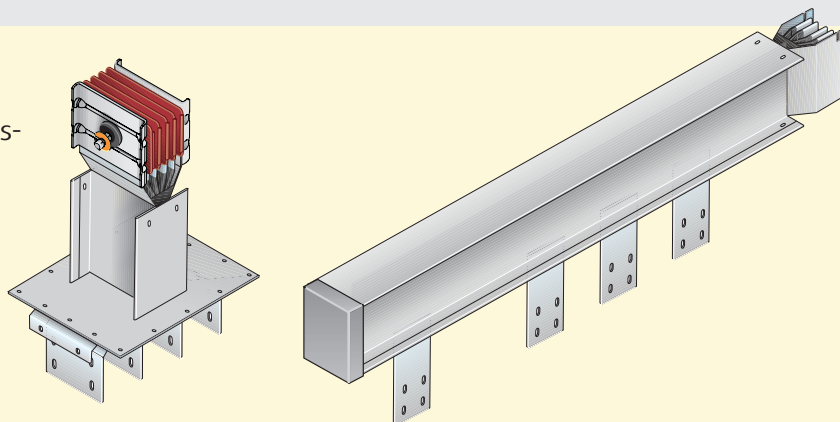
#### Bolted tap-off boxes from 125A to 1250A:

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

### Connection interfaces:

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

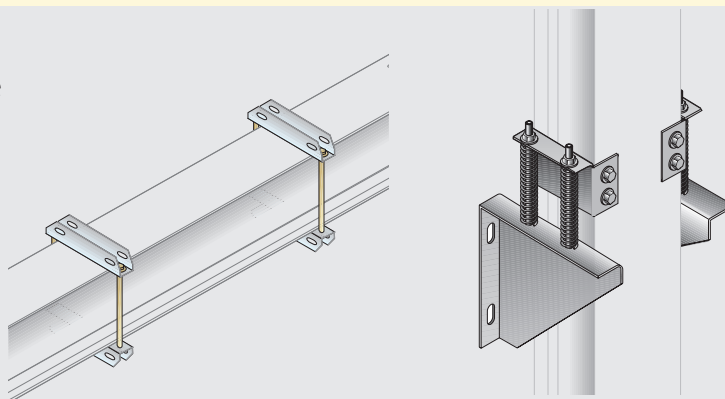
#### Solutions for Legrand XL<sup>3</sup> cabinets and EdM cast resin transformers Universal solutions



### 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

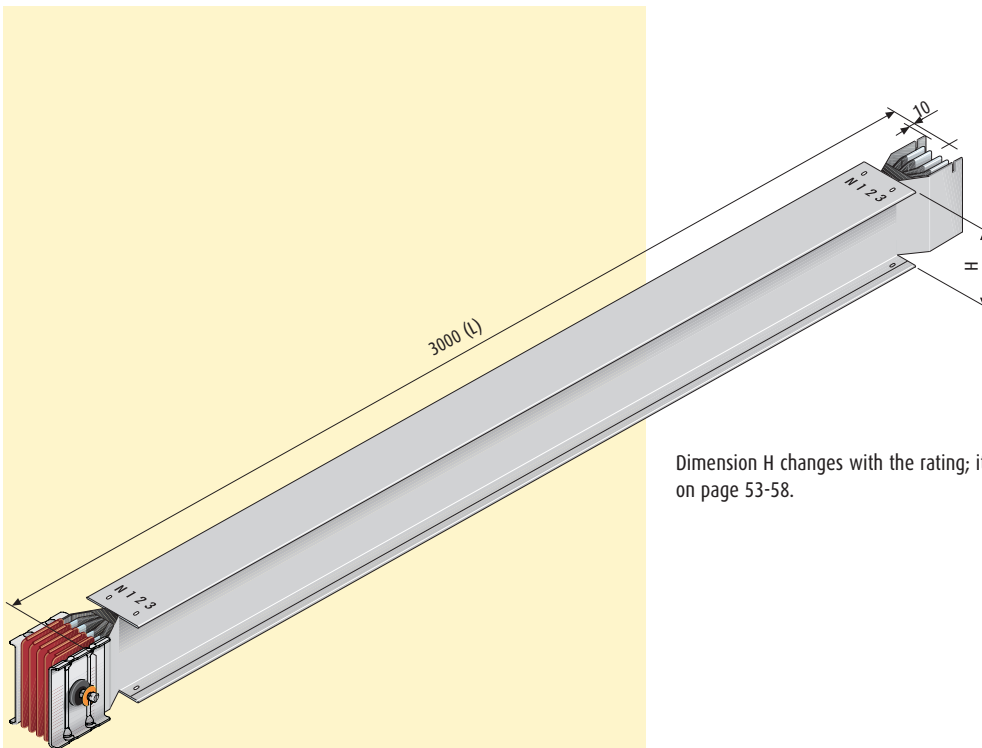
## FEEDER ELEMENT - STANDARD 3000 mm

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

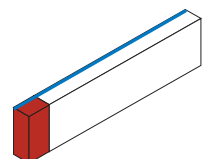
single bar | double bar



Dimension H changes with the rating; it is specified in the specifications on page 53-58.

### MINIMUM AND MAXIMUM DIMENSIONS OF SINGLE AND DOUBLE BAR

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



# Distribution elements

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

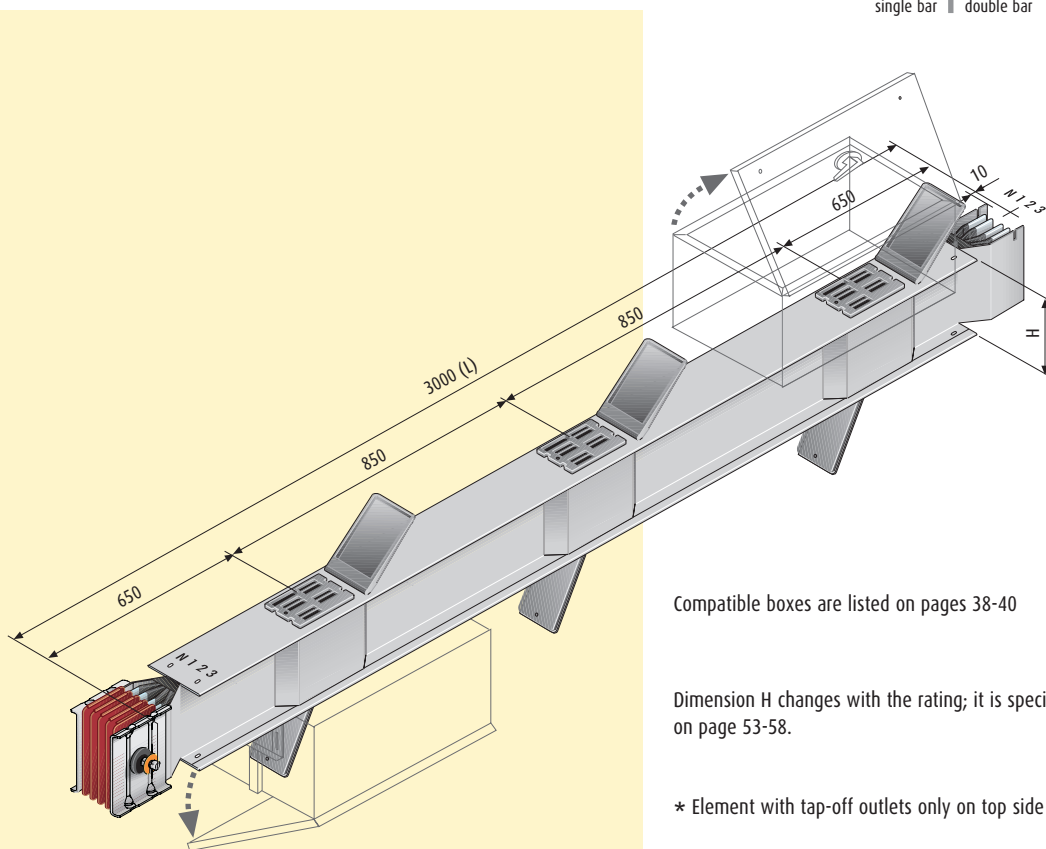
### Tap-off outlets on both sides

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

single bar | double bar

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

single bar | double bar



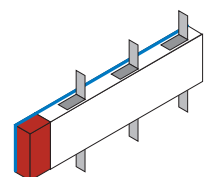
Compatible boxes are listed on pages 38-40

Dimension H changes with the rating; it is specified in the specifications on page 53-58.

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

### MINIMUM AND MAXIMUM DIMENSIONS OF SINGLE AND DOUBLE BAR

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



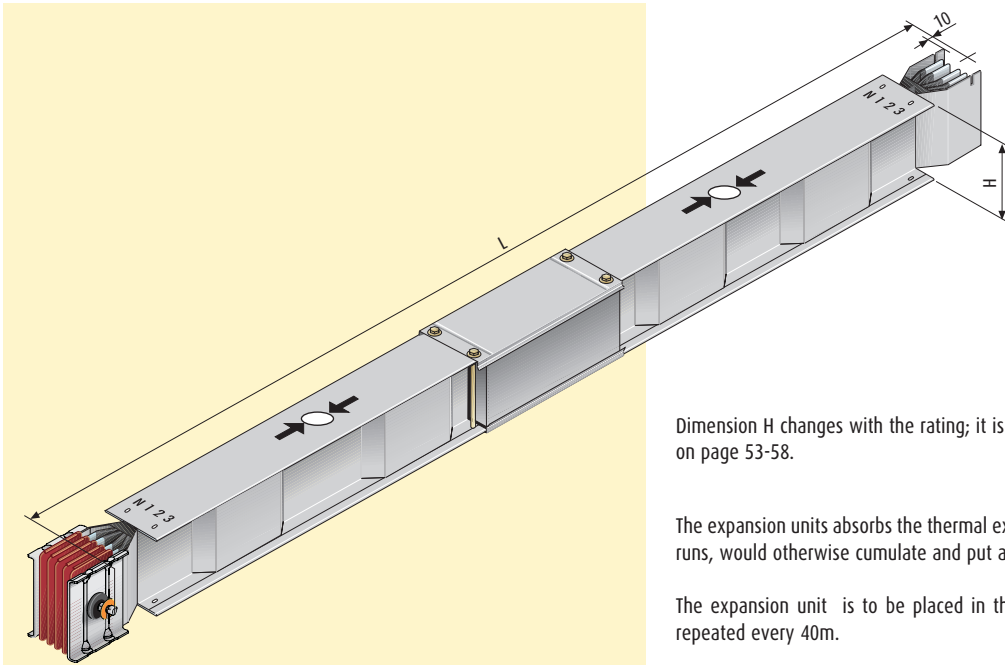
# Trunking components

## EXPANSION ELEMENT

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

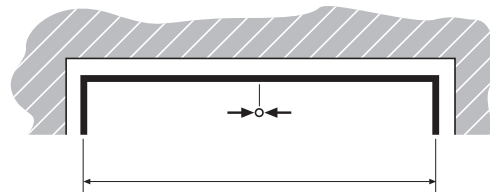
Copper	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A	5000A
Horizontal install. L = 3 m	65280290P	65280291P	65280293P	65280295P	65280296P	65280298P	65390295P	65390296P	65390298P
Riser install. L = 1,5 m	65280200P	65280201P	65280203P	65280205P	65280206P	65280208P	65390205P	65390206P	65390208P
						single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



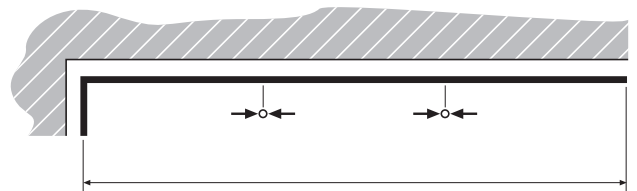
Dimension H changes with the rating; it is specified in the specifications on page 53-58.

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

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



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



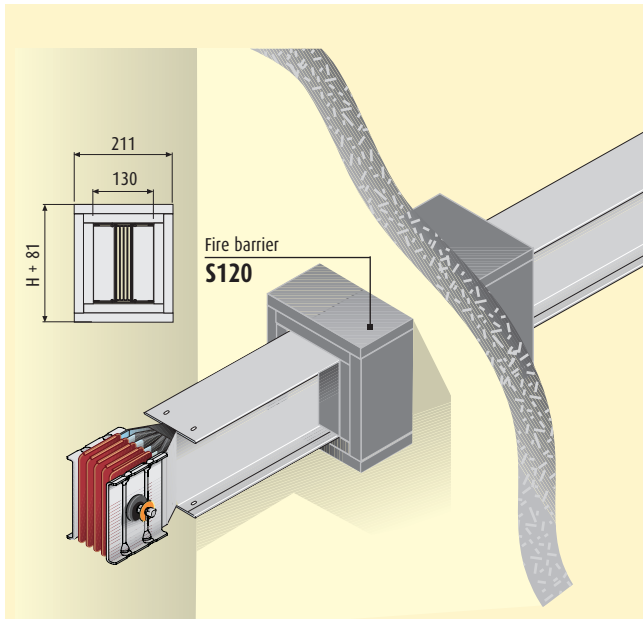
e.g. straight section length m 120 = 2 elements with expansion every ~40 m



# Fire barriers

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

FIRE BARRIER S120 (EN 1366-3, DIN 4102-09)										
<b>Aluminium</b>										
	630A	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A	
internal	653IFB01	-	-	-	-	-	653IFB01	653IFB01	653IFB01	
external	652EFB01	652EFB01	652EFB01	652EFB01	652EFB02	652EFB04	653EFB02	653EFB03	653EFB04	
						single bar	double bar			
<b>Copper</b>										
		800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A	5000A
internal		653IFB01	-	-	-	-	-	653IFB01	653IFB01	653IFB01
external		652EFB01	652EFB01	652EFB01	652EFB02	652EFB02	652EFB04	653EFB02	653EFB03	653EFB04
							single bar	double bar		



Dimension H changes with the rating; it is specified in the specifications on page 53-58.

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

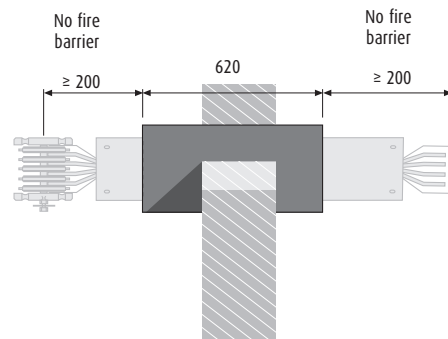
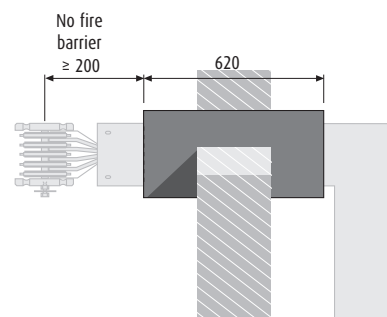


Figure 2

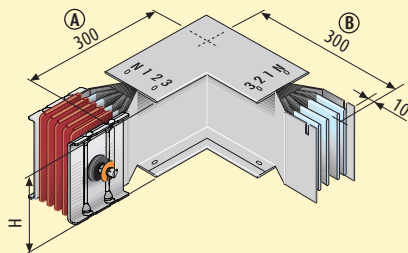


# Direction changes

## 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		



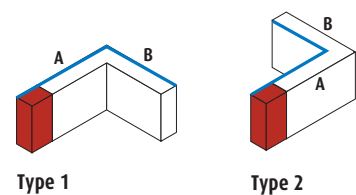
Dimension H changes with the rating; it is specified in the specifications on page 53-58.

The dimensions are referred to standard elements.

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

### MINIMUM AND MAXIMUM DIMENSIONS

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

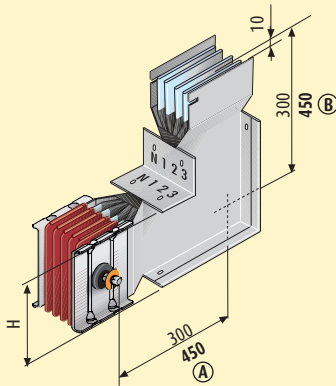


# Direction changes

## 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	<b>65280400P</b>	<b>65280401P</b>	<b>65280403P</b>	<b>65280405P</b>	<b>65280406P</b>	<b>65280408P</b>	<b>65390405P</b>	<b>65390406P</b>	<b>65390408P</b>
Type 1	Standard LH	<b>65280410P</b>	<b>65280411P</b>	<b>65280413P</b>	<b>65280415P</b>	<b>65280416P</b>	<b>65280418P</b>	<b>65390415P</b>	<b>65390416P</b>	<b>65390418P</b>
Type 2	Special RH	<b>65280420P</b>	<b>65280421P</b>	<b>65280423P</b>	<b>65280425P</b>	<b>65280426P</b>	<b>65280428P</b>	<b>65390425P</b>	<b>65390426P</b>	<b>65390428P</b>
Type 1	Special LH	<b>65280430P</b>	<b>65280431P</b>	<b>65280433P</b>	<b>65280435P</b>	<b>65280436P</b>	<b>65280438P</b>	<b>65390435P</b>	<b>65390436P</b>	<b>65390438P</b>
							single bar	double bar		



Dimension H changes with the rating; it is specified in the specifications on page 53-58.

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

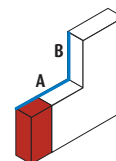
The word "special" is referred to an element with measurements that are different from those shown in the figure, yet included between the MIN/MAX values specified in the table.

### MINIMUM AND MAXIMUM DIMENSIONS OF SINGLE BAR

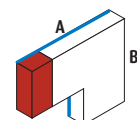
Aluminium	630A to 2000A
Copper	800A to 2500A
(A) min/MAX [mm]	300/1299
(B) min/MAX [mm]	300/1299

### 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

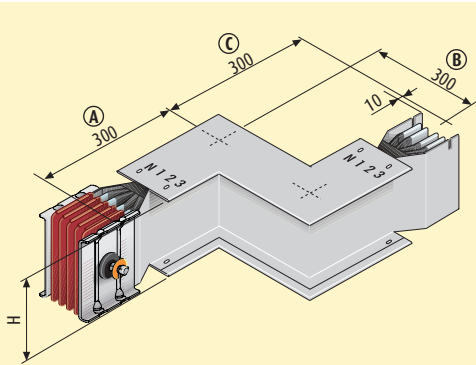
# Direction changes

## 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		



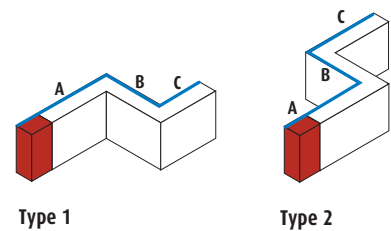
Dimension H changes with the rating; it is specified in the specifications on page 53-58.

The dimensions are referred to standard elements.

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

### MINIMUM AND MAXIMUM DIMENSIONS

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

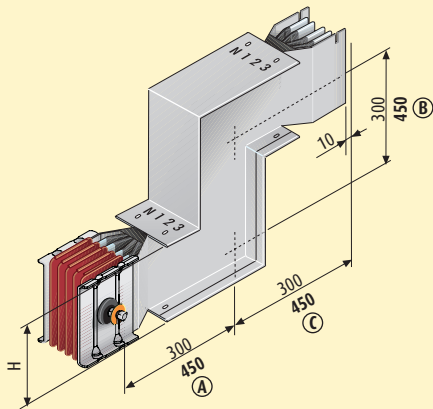


# Direction changes

## DOUBLE VERTICAL ELBOW

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

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



Dimension H changes with the rating; it is specified in the specifications on page 53-58.

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

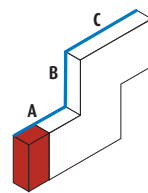
Non Standard elements (with measurements that are different from those shown in the figure) are referred to the MIN/MAX values specified in the table.

### MINIMUM AND MAXIMUM DIMENSIONS OF SINGLE BAR

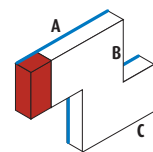
Aluminium	630A to 2000A
Copper	800A to 2500A
(A) min/MAX [mm]	<b>300/1299</b>
(B) min/MAX [mm]	<b>50/599</b>
(C) min/MAX [mm]	<b>300/1299</b>

### MINIMUM AND MAXIMUM DIMENSIONS OF DOUBLE BAR

Aluminium	2500A to 4000A
Copper	3200A to 5000A
(A) min/MAX [mm]	<b>450/1449</b>
(B) min/MAX [mm]	<b>50/899</b>
(C) min/MAX [mm]	<b>450/1449</b>



Type 1



Type 2



# Direction changes

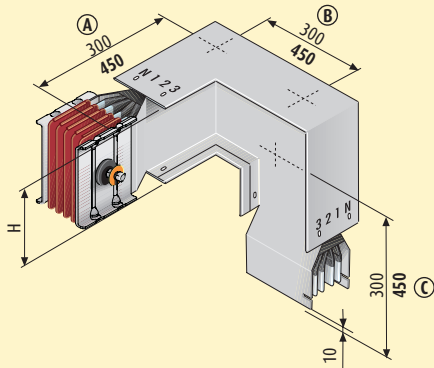
## DOUBLE ELBOW HORIZONTAL+VERTICAL

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 53-58.

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

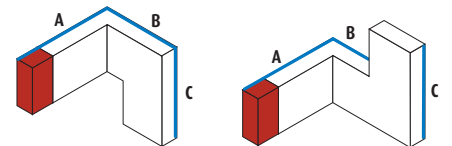
Non Standard elements (with measurements that are different from those shown in the figure) are referred to the MIN/MAX values specified in the table.

### 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

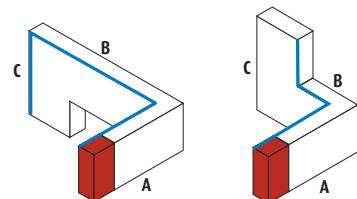
### MINIMUM AND MAXIMUM DIMENSIONS OF DOUBLE BAR

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

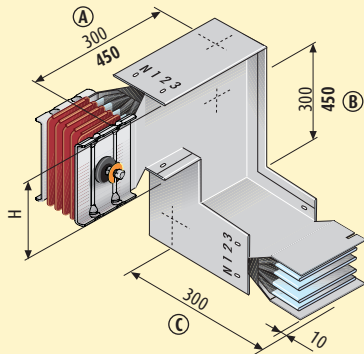
## DOUBLE ELBOW VERTICAL+HORIZONTAL

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	<b>65280500P</b>	<b>65280501P</b>	<b>65280503P</b>	<b>65280505P</b>	<b>65280506P</b>	<b>65280508P</b>	<b>65390505P</b>	<b>65390506P</b>	<b>65390508P</b>
Type 2	<b>65280510P</b>	<b>65280511P</b>	<b>65280513P</b>	<b>65280515P</b>	<b>65280516P</b>	<b>65280518P</b>	<b>65390515P</b>	<b>65390516P</b>	<b>65390518P</b>
Type 3	<b>65280520P</b>	<b>65280521P</b>	<b>65280523P</b>	<b>65280525P</b>	<b>65280526P</b>	<b>65280528P</b>	<b>65390525P</b>	<b>65390526P</b>	<b>65390528P</b>
Type 4	<b>65280530P</b>	<b>65280531P</b>	<b>65280533P</b>	<b>65280535P</b>	<b>65280536P</b>	<b>65280538P</b>	<b>65390535P</b>	<b>65390536P</b>	<b>65390538P</b>

single bar | double bar



Dimension H changes with the rating; it is specified in the specifications on page 53-58.

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

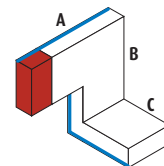
Non Standard elements (with measurements that are different from those shown in the figure) are referred to the MIN/MAX values specified in the table.

### MINIMUM AND MAXIMUM DIMENSIONS OF SINGLE BAR

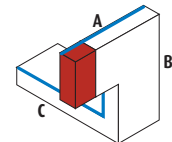
Aluminium	630A to 2000A
Copper	800A to 2500A
(A) min/MAX [mm]	<b>300/1299</b>
(B) min/MAX [mm]	<b>200/599</b>
(C) min/MAX [mm]	<b>250/1299</b>

### MINIMUM AND MAXIMUM DIMENSIONS OF DOUBLE BAR

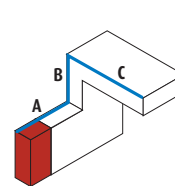
Aluminium	2500A to 4000A
Copper	3200A to 5000A
(A) min/MAX [mm]	<b>450/1449</b>
(B) min/MAX [mm]	<b>330/749</b>
(C) min/MAX [mm]	<b>250/1449</b>



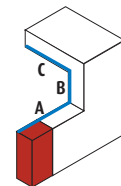
Type 1



Type 2



Type 3



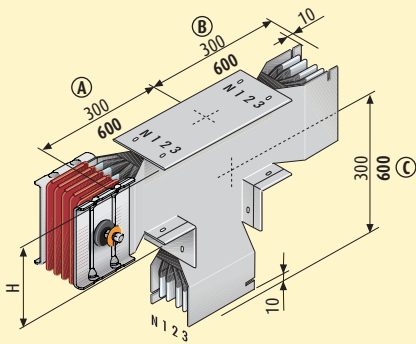
Type 4

# 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 53-58.

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

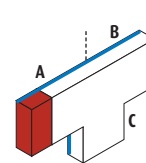
Non Standard elements (with measurements that are different from those shown in the figure) are referred to the MIN/MAX values specified in the table.

### MINIMUM AND MAXIMUM DIMENSIONS OF SINGLE BAR

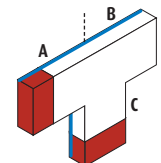
Aluminium	630A to 2000A
Copper	800A to 2500A
(A) min/MAX [mm]	300/1299
(B) min/MAX [mm]	300/1299
(C) min/MAX [mm]	300/1299

### MINIMUM AND MAXIMUM DIMENSIONS OF DOUBLE BAR

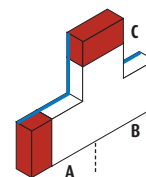
Aluminium	2500A to 4000A
Copper	3200A to 5000A
(A) min/MAX [mm]	450/1449
(B) min/MAX [mm]	450/1449
(C) min/MAX [mm]	450/1449



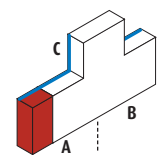
Type 1



Type 2



Type 3



Type 4

# Direction changes

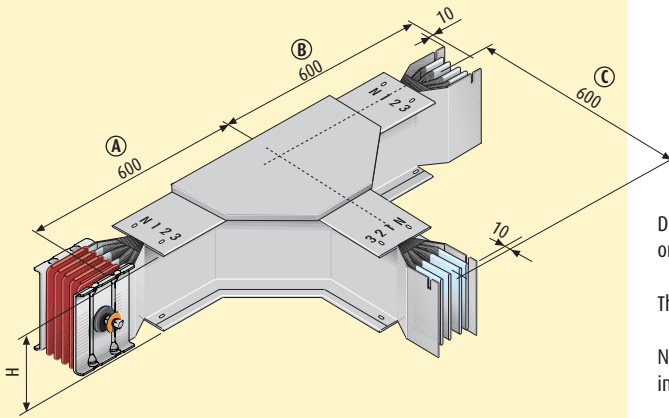
## HORIZONTAL "T"

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

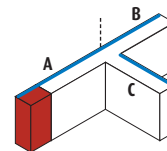
single bar | double bar



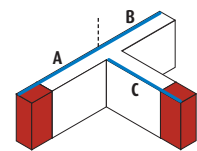
Dimension H changes with the rating; it is specified in the specifications on page 53-58.

The dimensions are referred to standard elements.

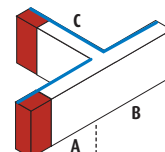
Non Standard elements (with measurements that are different from those shown in the figure) are referred to the MIN/MAX values specified in the table.



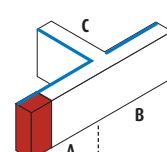
Type 1



Type 2



Type 3



Type 4

### MINIMUM AND MAXIMUM DIMENSIONS OF SINGLE AND DOUBLE BAR

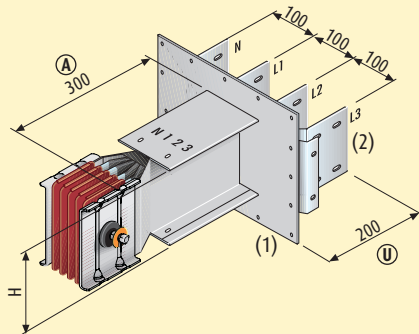
Aluminium	630A to 4000A
Copper	800A to 5000A
(A) min/MAX [mm]	550/1049
(B) min/MAX [mm]	550/1049
(C) min/MAX [mm]	550/1049

# Connection interfaces

## STANDARD CONNECTION INTERFACE

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

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



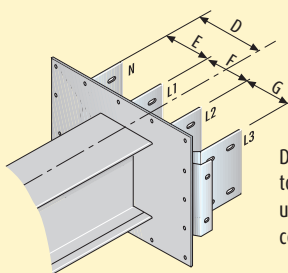
Dimension H changes with the rating; it is specified in the specifications on page 53-58.

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

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

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

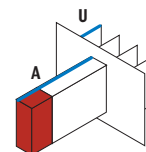
### Special element with non-standard centre distance



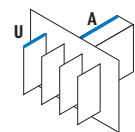
Dimensioning indications to be provided when using a non-standard centre distance

### MINIMUM AND MAXIMUM DIMENSIONS OF SINGLE AND DOUBLE BAR

Aluminium	630A to 4000A
Copper	800A to 5000A
(A) min/MAX [mm]	<b>200/1299</b>
(U) min/MAX [mm]	<b>150/400</b>



Type 1



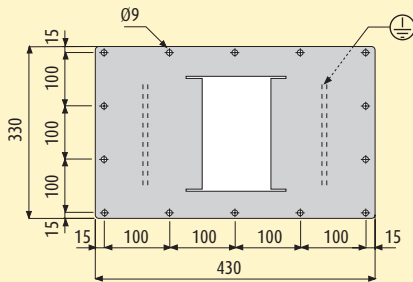
Type 2



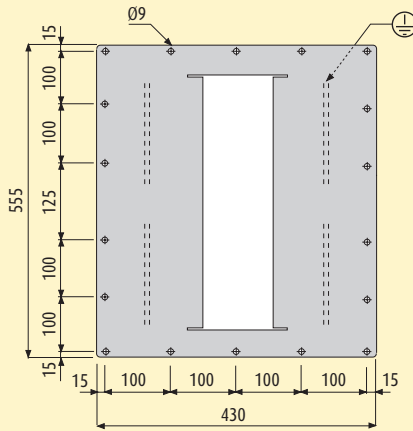
# Connection interfaces

## COVERPLATE DRILLING DETAILS (1)

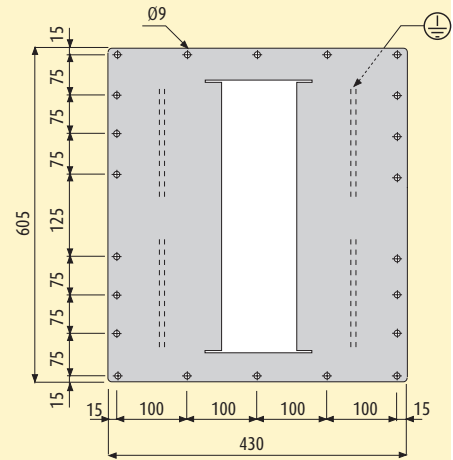
Aluminium 630A to 2000A  
Copper 800A to 2500A



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

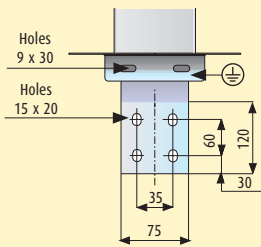


Aluminium 4000A  
Copper 5000A

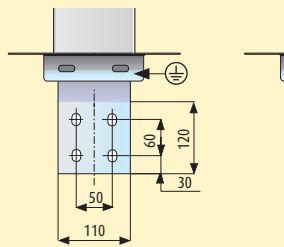


## BAR DRILLING DETAILS (2)

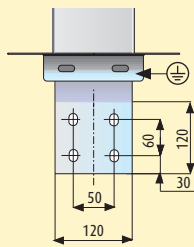
Al 630A  
Cu 800A



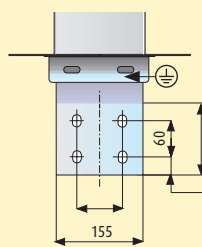
Al 800A-1000A  
Cu 1000A-1250A



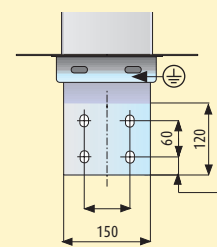
Al 1250A



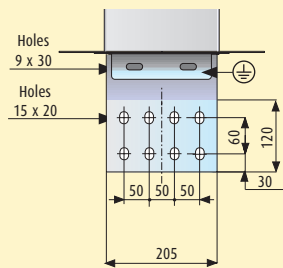
Al 1600A



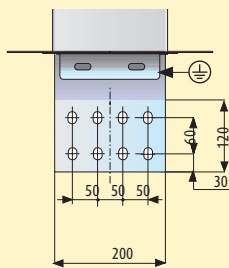
Cu 1600A



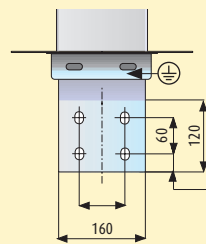
Al 2000A



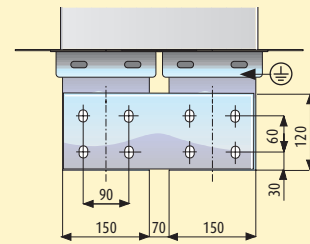
Cu 2500A



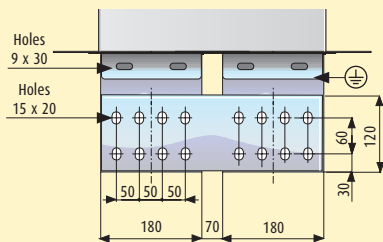
Cu 2000A



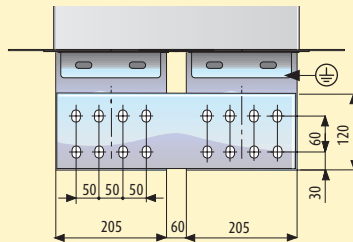
Al 2500A  
Cu 3200A



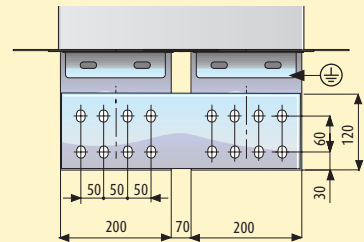
Al 3200A  
Cu 4000A



Al 4000A



Cu 5000A



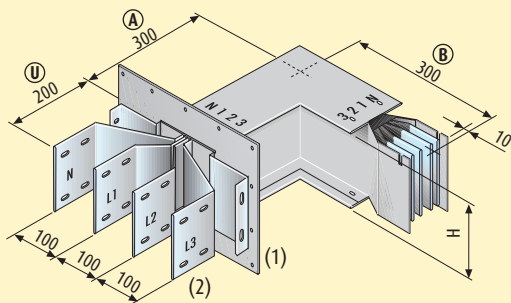
# Connection interfaces

## 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 53-58.

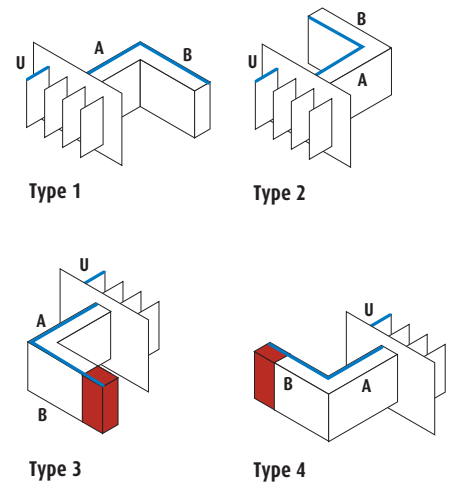
The dimensions are referred to standard elements.

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

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

### MINIMUM AND MAXIMUM DIMENSIONS

Aluminium	630A to 4000A
Copper	800A to 5000A
(U) min/MAX [mm]	150/400
(A) min/MAX [mm]	165/1299
(B) min/MAX [mm]	250/1299

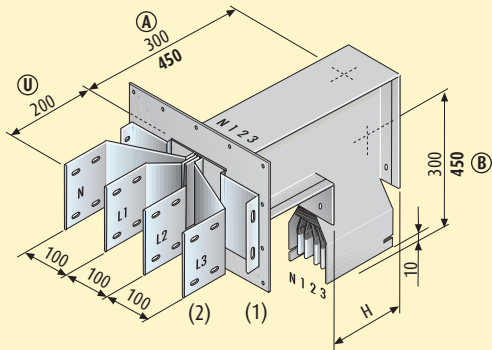


# Connection interfaces

## 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	<b>65281400P</b>	<b>65281401P</b>	<b>65281403P</b>	<b>65281405P</b>	<b>65281406P</b>	<b>65281408P</b>	<b>65391405P</b>	<b>65391406P</b>	<b>65391408P</b>
Type 2	<b>65281410P</b>	<b>65281411P</b>	<b>65281413P</b>	<b>65281415P</b>	<b>65281416P</b>	<b>65281418P</b>	<b>65391415P</b>	<b>65391416P</b>	<b>65391418P</b>
Type 3	<b>65281420P</b>	<b>65281421P</b>	<b>65281423P</b>	<b>65281425P</b>	<b>65281426P</b>	<b>65281428P</b>	<b>65391425P</b>	<b>65391426P</b>	<b>65391428P</b>
Type 4	<b>65281430P</b>	<b>65281431P</b>	<b>65281433P</b>	<b>65281435P</b>	<b>65281436P</b>	<b>65281438P</b>	<b>65391435P</b>	<b>65391436P</b>	<b>65391438P</b>
						single bar	double bar		



Dimension H changes with the rating; it is specified in the specifications on page 53-58.

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

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

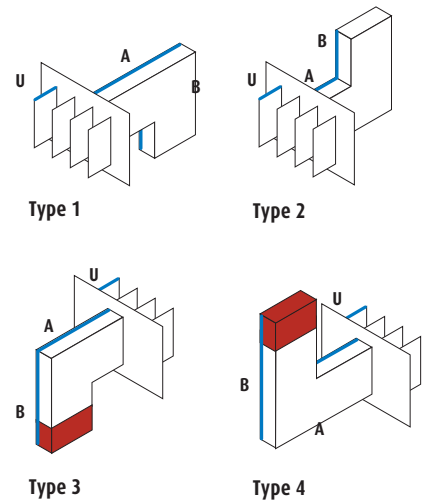
See page 27 for dimensions of coverplate (1) and bars (2).

### MINIMUM AND MAXIMUM DIMENSIONS OF SINGLE BAR

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

### MINIMUM AND MAXIMUM DIMENSIONS OF DOUBLE BAR

Aluminium	2500A to 4000A
Copper	3200A to 5000A
(U) min/MAX [mm]	150/400
(A) min/MAX [mm]	300/1449
(B) min/MAX [mm]	450/1449

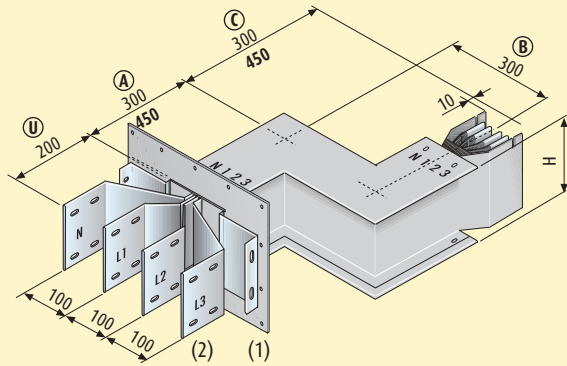


# Connection interfaces

## 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 53-58.

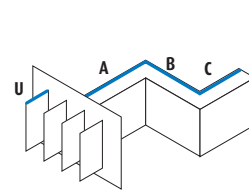
The dimensions are referred to standard elements. The ones used for double bar elements are in bold type.

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

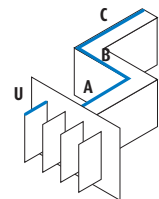
See page 27 for dimensions of coverplate (1) and bars (2).

### MINIMUM AND MAXIMUM DIMENSIONS OF DOUBLE BAR

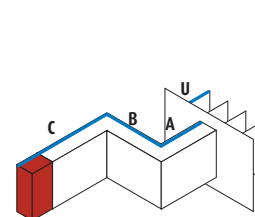
Aluminium	630A to 4000A
Copper	800A to 5000A
(U) min/MAX [mm]	150/400
(A) min/MAX [mm]	150/1299
(B) min/MAX [mm]	50/599
(C) min/MAX [mm]	250/1299



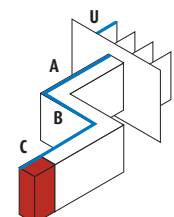
Type 1



Type 2



Type 3



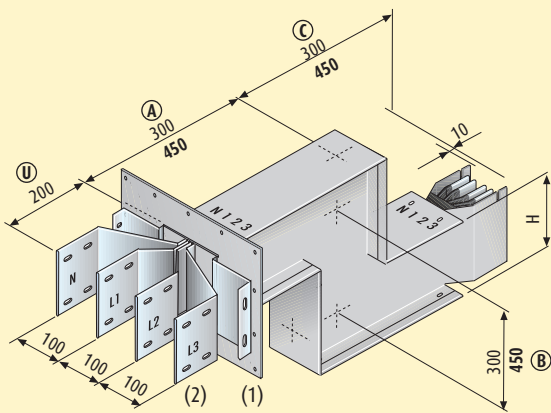
Type 4

# Connection interfaces

## CONNECTION INTERFACE + DOUBLE VERTICAL ELBOW

Aluminium	630A	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A
Type 1	60281440P	60281441P	60281442P	60281443P	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 53-58.

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

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

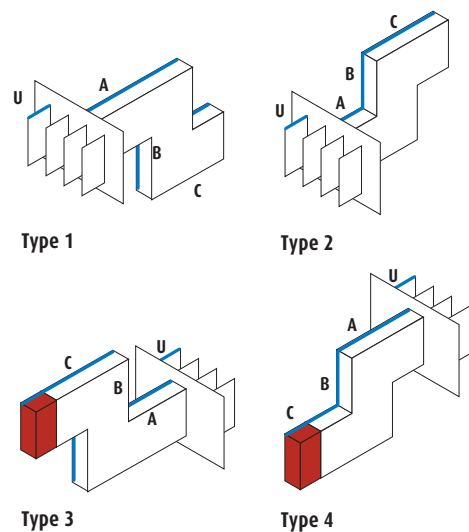
See page 27 for dimensions of coverplate (1) and bars (2).

### MINIMUM AND MAXIMUM DIMENSIONS OF SINGLE BAR

<b>Aluminium</b>	630A to 2000A
<b>Copper</b>	800A to 2500A
(U) min/MAX [mm]	150/400
(A) min/MAX [mm]	150/1299
(B) min/MAX [mm]	50/599
(C) min/MAX [mm]	300/1299

### MINIMUM AND MAXIMUM DIMENSIONS OF DOUBLE BAR

<b>Aluminium</b>	2500A to 4000A
<b>Copper</b>	3200A to 5000A
(U) min/MAX [mm]	150/400
(A) min/MAX [mm]	300/1449
(B) min/MAX [mm]	50/899
(C) min/MAX [mm]	450/1449





# Connections interfaces

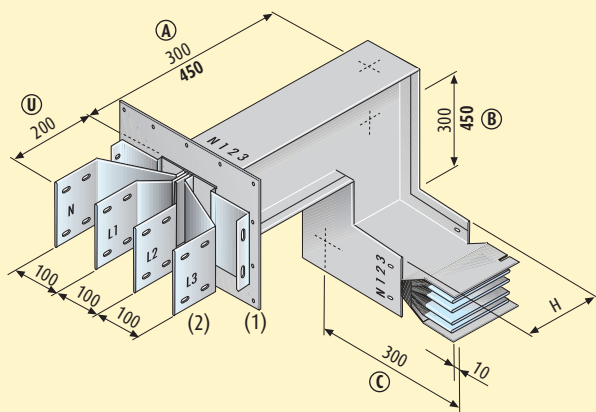
## CONNECTION INTERFACE + VERTICAL ELBOW + HORIZONTAL ELBOW

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 53-58.

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

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

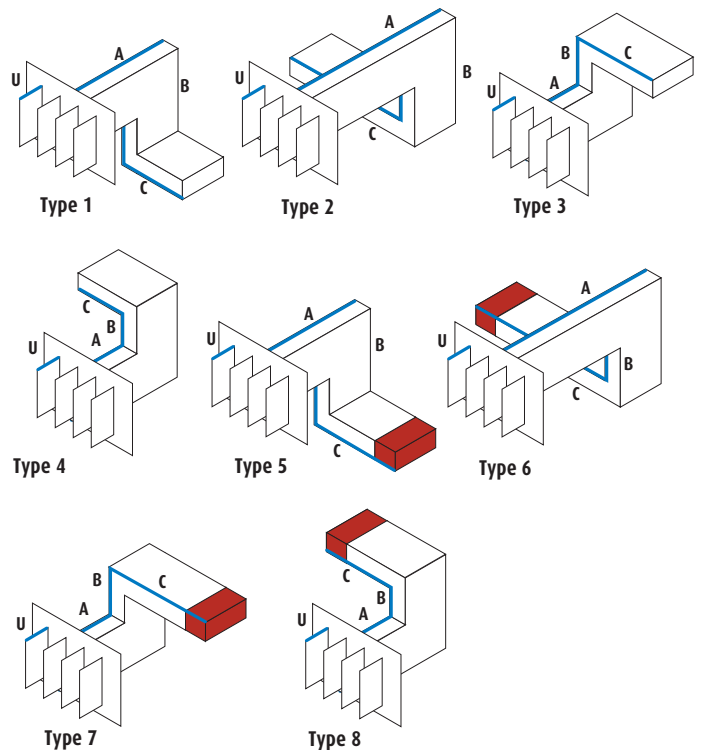
See page 27 for dimensions of coverplate (1) and bars (2).

### MINIMUM AND MAXIMUM DIMENSIONS OF SINGLE BAR

Aluminium	630A to 2000A
Copper	800A to 2500A
(U) min/MAX [mm]	150/400
(A) min/MAX [mm]	150/1299
(B) min/MAX [mm]	200 - 599
(C) min/MAX [mm]	250/1299

### MINIMUM AND MAXIMUM DIMENSIONS OF DOUBLE BAR

Aluminium	2500A to 4000A
Copper	3200A to 5000A
(U) min/MAX [mm]	150/400
(A) min/MAX [mm]	300/1449
(B) min/MAX [mm]	330 - 749
(C) min/MAX [mm]	250/1299



# Connection interfaces

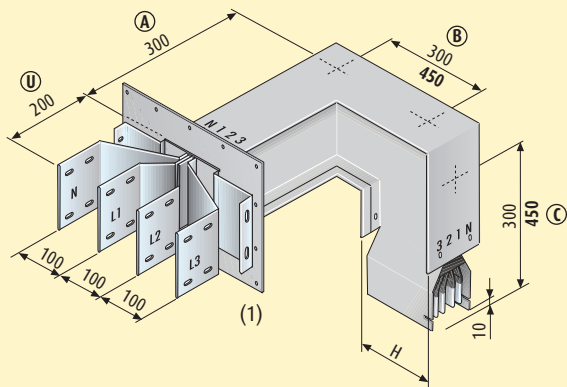
## CONNECTION INTERFACE + HORIZONTAL ELBOW + VERTICAL ELBOW

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

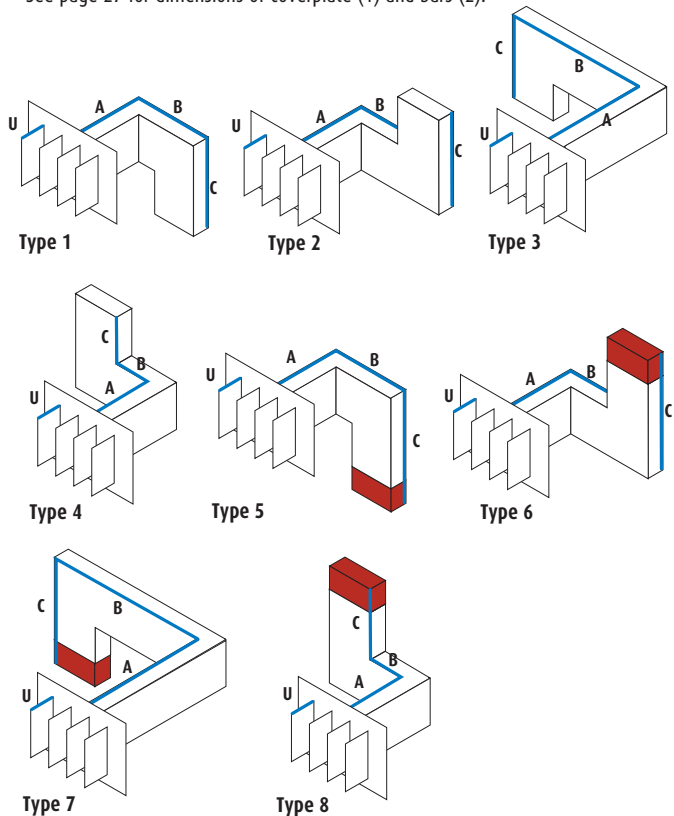


Dimension H changes with the rating; it is specified in the specifications on page 53-58.

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

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

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



### MINIMUM AND MAXIMUM DIMENSIONS OF SINGLE BAR

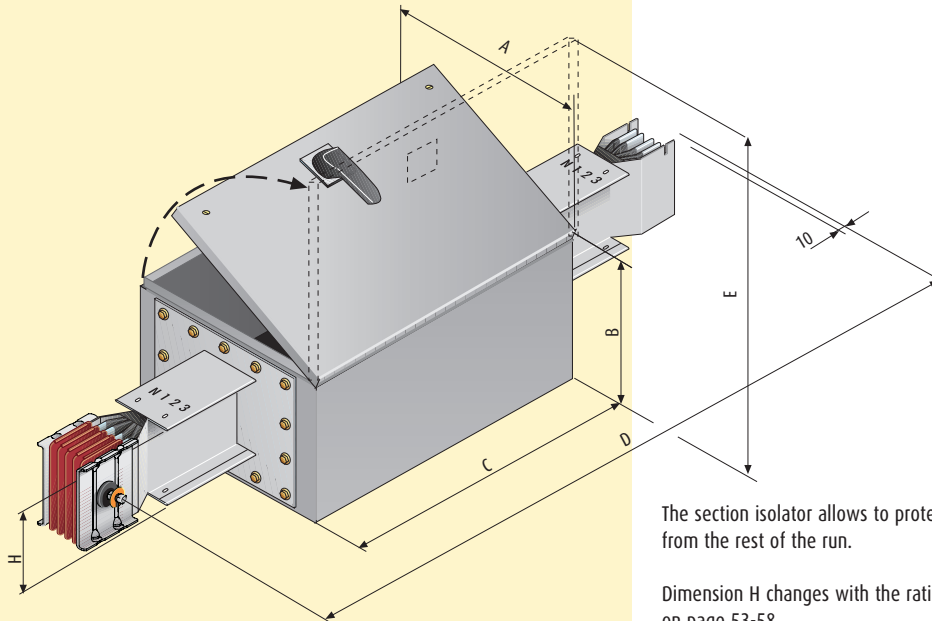
Aluminium	630A to 2000A
Copper	800A to 2500A
(U) min/MAX [mm]	150/400
(A) min/MAX [mm]	150/1299
(B) min/MAX [mm]	200/599
(C) min/MAX [mm]	300/1299

### MINIMUM AND MAXIMUM DIMENSIONS OF DOUBLE BAR

Aluminium	2500A to 4000A
Copper	3200A to 5000A
(U) min/MAX [mm]	150/400
(A) min/MAX [mm]	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.

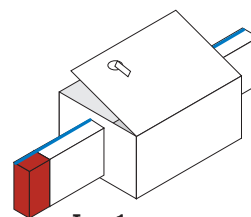
Dimension H changes with the rating; it is specified in the specifications on page 53-58.

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

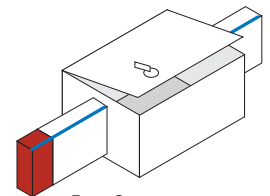
The direction of the disconnecter (fuses) must be specified when ordering.

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

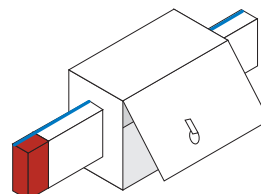
For operating voltages (Ue) different from 400V, please contact Zucchini.



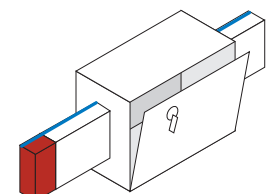
Type 1



Type 2



Type 3



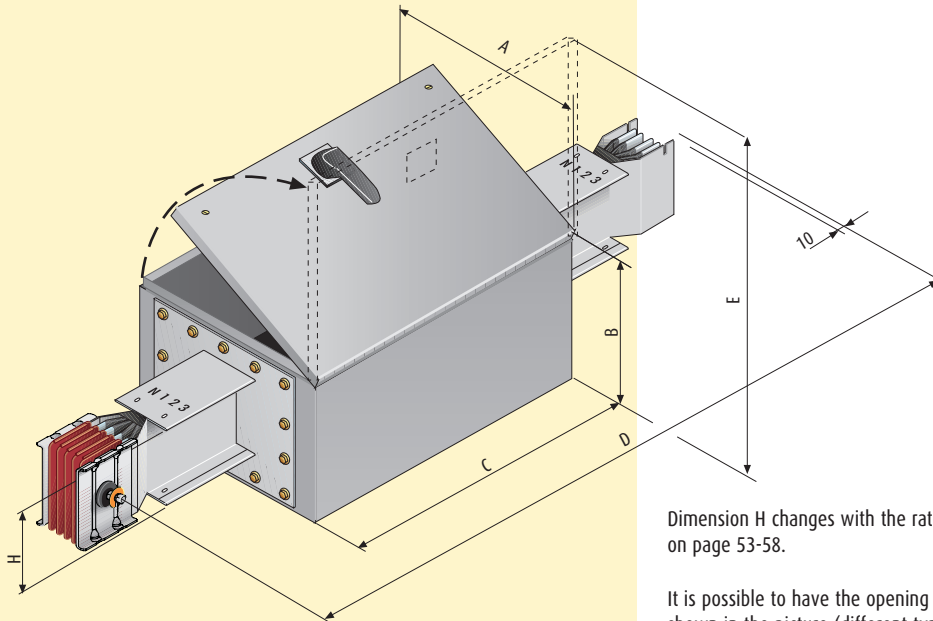
Type 4

#### GENERAL DIMENSIONS OF THE DISCONNECTER 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 53-58.

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

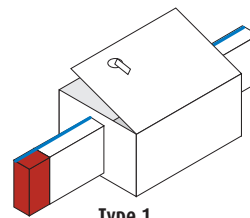
The direction of the reducer must be specified when ordering.

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

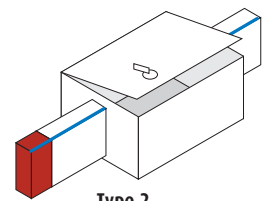
Fuses not included. See Legrand catalogue.

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

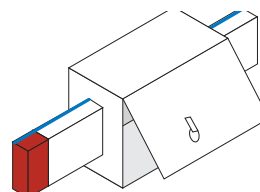
For operating voltages ( $U_e$ ) different from 400V, please contact Zucchini.



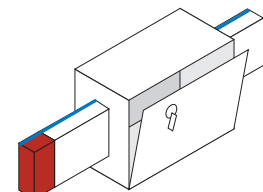
Type 1



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

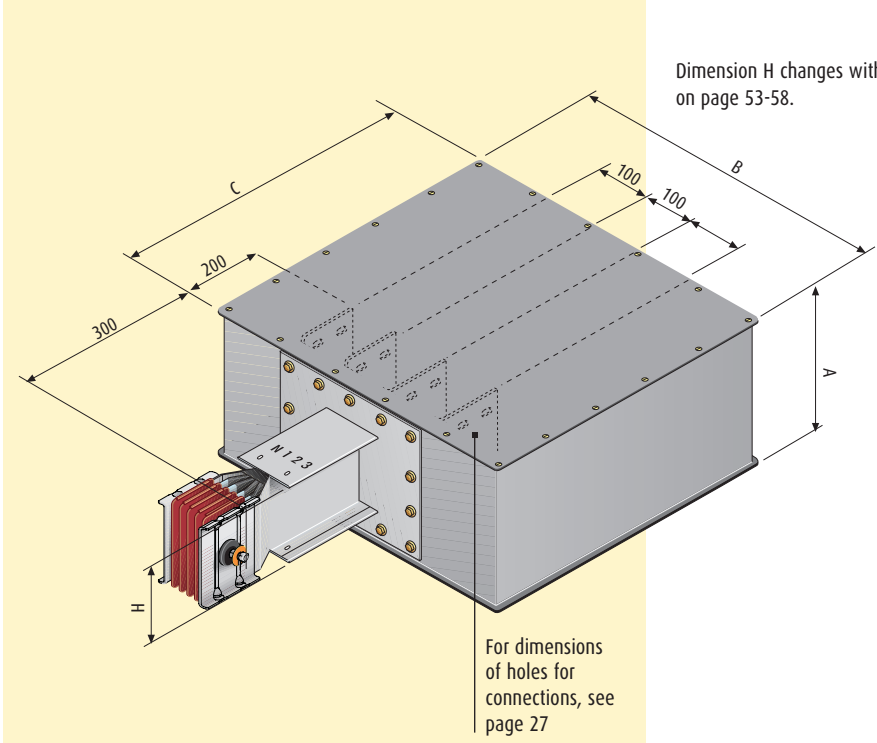
# Feed units

## 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	

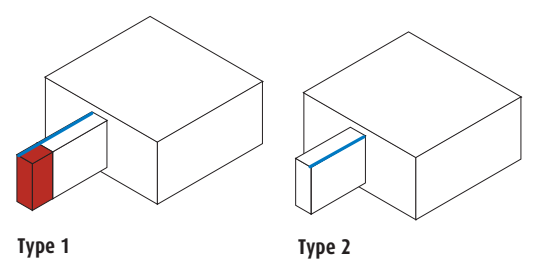
Copper		800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A	5000A
Type 2	RH	65281100P	65281101P	65281103P	65281105P	65281106P	65281108P	65391105P	65391106P	65391108P
Type 1	LH	65281110P	65281111P	65281113P	65281115P	65281116P	65281118P	65391115P	65391116P	65391118P
								single bar	double bar	



**REAR CABLE INPUT**  
 Aluminium gland plate(s) for cable entry  
 170mm x 410mm  
 Single bar : 1 plate  
 Double bar : 2 plates

**DIMENSIONS OF THE BOX**

Aluminium	630A to 1250A	1600 to 2000A	2500A to 4000A
<b>Copper</b>	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

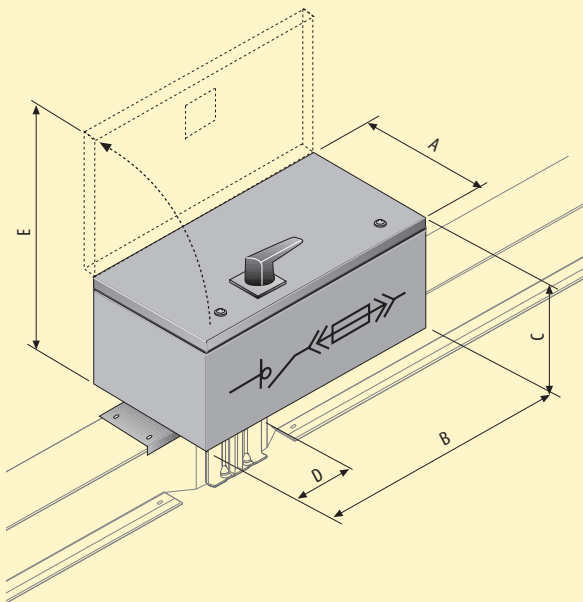
	NH	630A	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A
125A	00	65281811P	65281811P	65281811P	65281811P	65281812P	65281814P	65391812P	65391813P	65391814P
250A	1	65281821P	65281821P	65281821P	65281821P	65281822P	65281824P	65391822P	65391823P	65391824P
400A	2	65281831P	65281831P	65281831P	65281831P	65281832P	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.

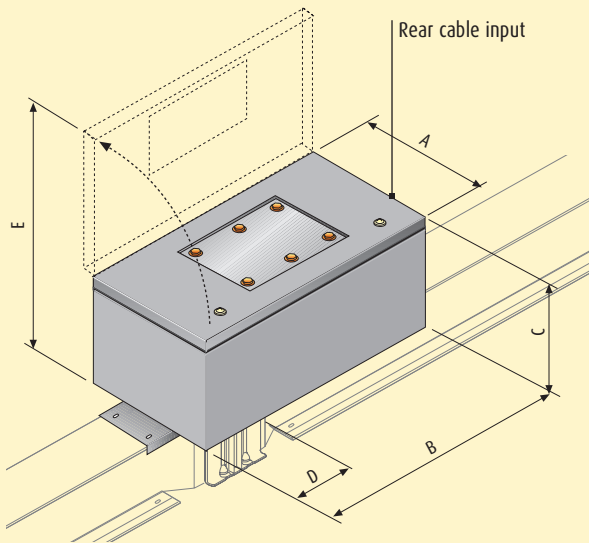
Rated insulating AC voltage	$U_i$ [V]	1000
Rated impulse withstand voltage	$U_{imp}$ [kV]	12
Type of rated duty		AC23A
Rated conditional short circuit current	[kA]	100
CEI EN 60947-3		

## 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

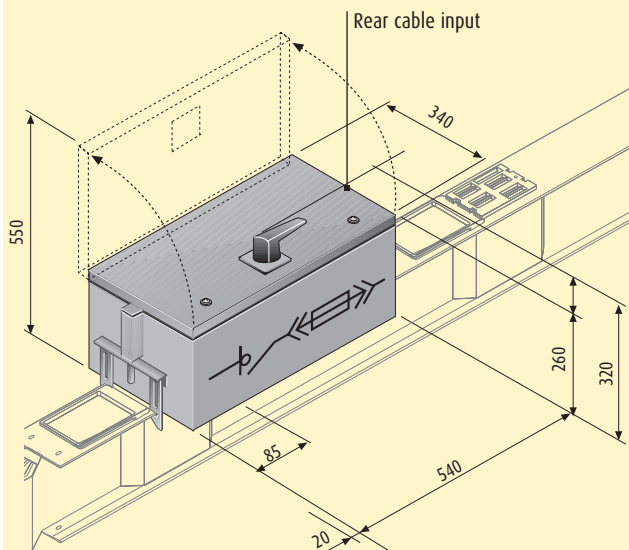
### ⚠ WARNING

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		

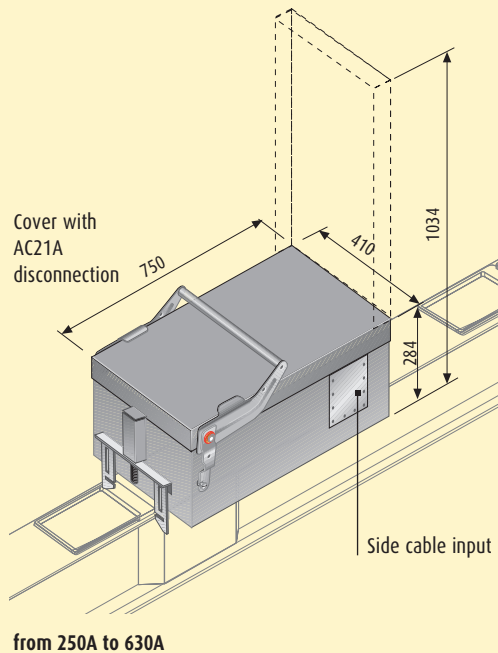
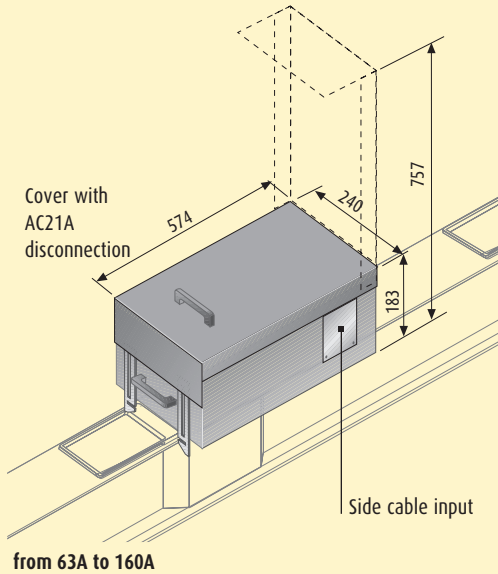
Can be installed and removed when the busbar is energized.  
To be applied on elements with any rating, with tap-off outlets.

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).

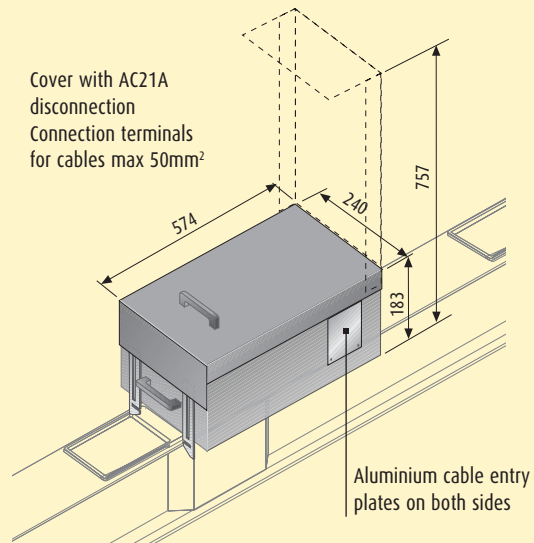
N.B. Cover with AC21A disconnection: it is not possible to open, close, install or pull out the tap-off box if the switch is in "ON" position.

Fuses not included. See Legrand catalogue.

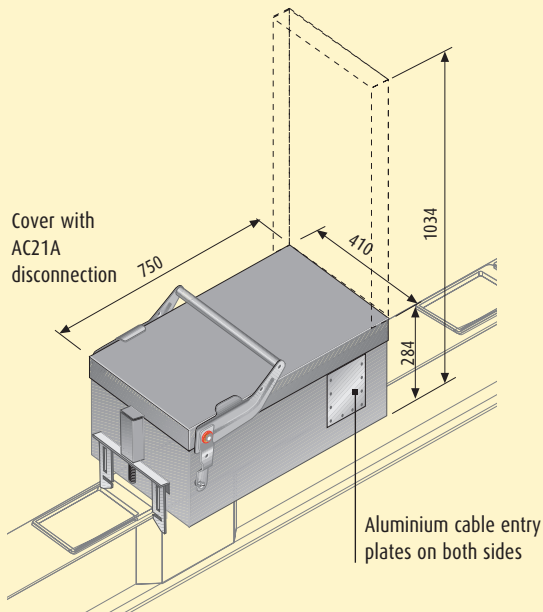
Can be installed and removed when the busbar is energized. To be applied on elements with any rating, with tap-off outlets.

# 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.

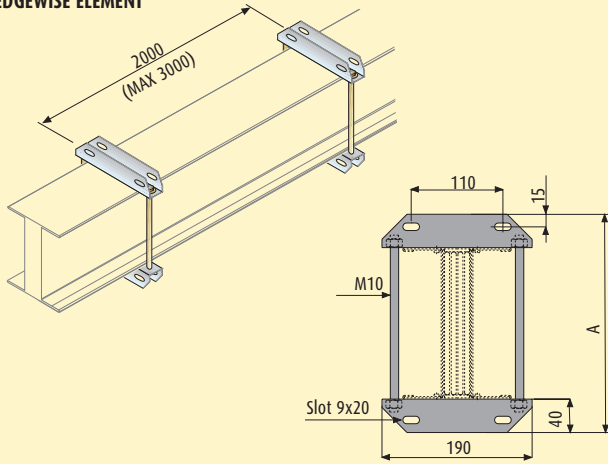
Can be installed and removed when the busbar is energized.  
To be applied on elements with any rating, with tap-off outlets.

# Fixing supports

## SUSPENSION BRACKET FOR EDGEWISE INSTALLATION

	630A	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A	
<b>Al busbars</b>	<b>65202001</b>	<b>65202001</b>	<b>65202001</b>	<b>65202001</b>	<b>65202002</b>	<b>65202004</b>	<b>65222002</b>	<b>65222003</b>	<b>65222004</b>	
Dimension A	210	210	210	210	250	300	460	520	560	
	single bar						double bar			
		800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A	5000A
<b>Cu busbars</b>		<b>65202001</b>	<b>65202001</b>	<b>65202001</b>	<b>65202002</b>	<b>65202002</b>	<b>65202004</b>	<b>65222002</b>	<b>65222003</b>	<b>65222004</b>
Dimension A		210	210	210	250	250	300	460	520	560
		single bar						double bar		

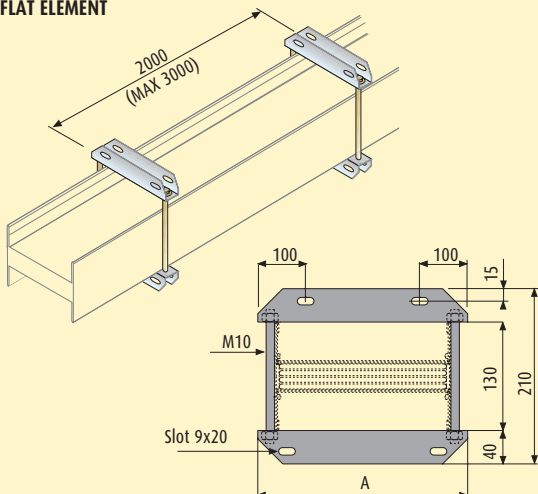
### EDGEWISE ELEMENT



## SUSPENSION BRACKET FOR FLAT INSTALLATION

	630A	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A	
<b>Al busbars</b>	<b>65202001</b>	<b>65202001</b>	<b>65202001</b>	<b>65202001</b>	<b>65202013</b>	<b>65202013</b>	<b>65202112</b>	<b>65202113</b>	<b>65202114</b>	
Dimension A	190	190	190	190	315	315	430	490	530	
	single bar						double bar			
		800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A	5000A
<b>Cu busbars</b>		<b>65202001</b>	<b>65202001</b>	<b>65202001</b>	<b>65202013</b>	<b>65202013</b>	<b>65202013</b>	<b>65202112</b>	<b>65202113</b>	<b>65202114</b>
Dimension A		190	190	190	315	315	315	430	490	530
		single bar						double bar		

### FLAT ELEMENT



# Fixing supports

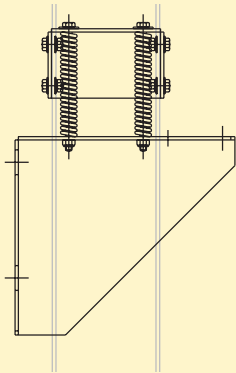
## BRACKETS FOR VERTICAL ELEMENTS

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

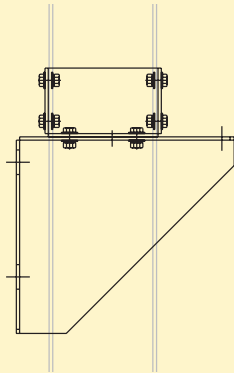
single bar | double bar

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

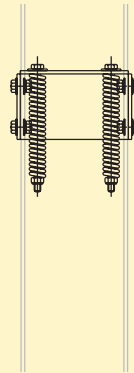
single bar | double bar



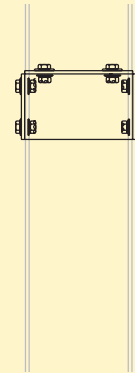
**A**  
WITH BRACKET AND SPRINGS



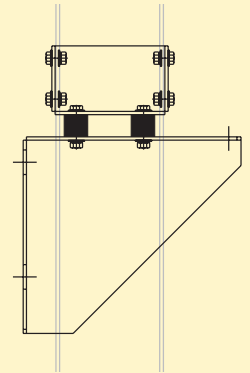
**B**  
WITH ANTI-SEISMIC BRACKET\*



**C**  
WITH SPRINGS



**D**  
BRACKET ONLY



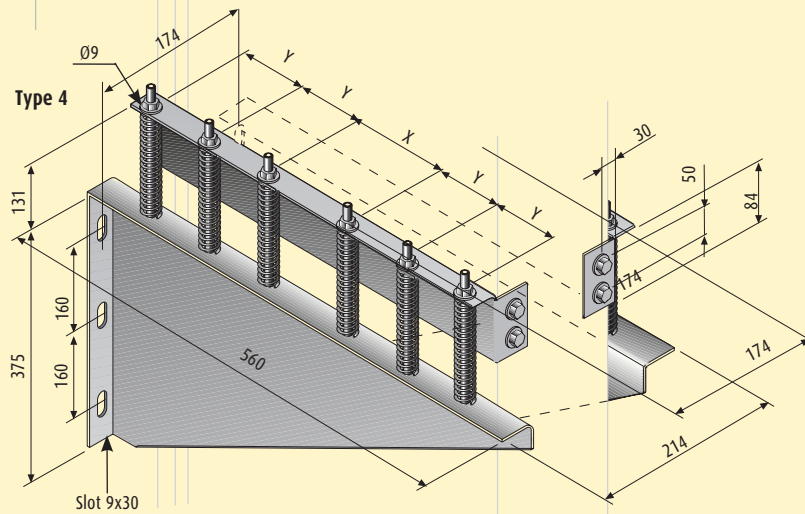
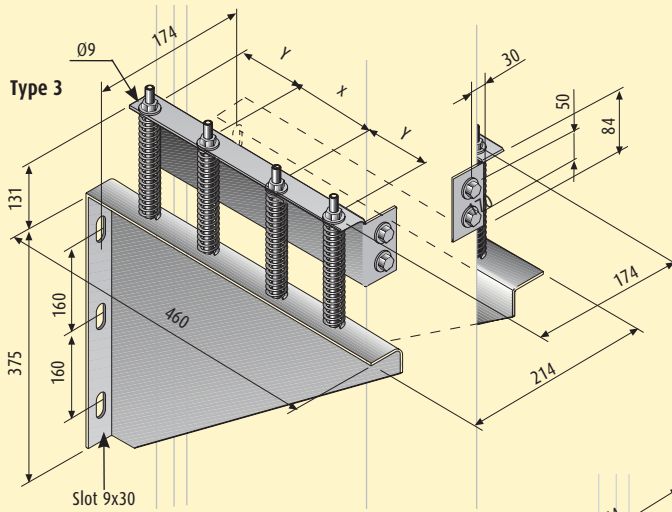
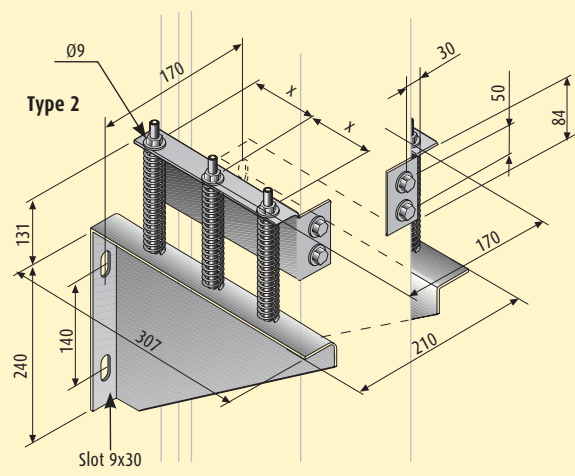
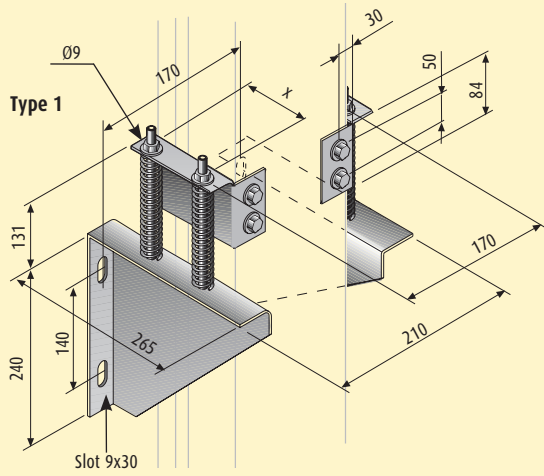
**E**  
NAVAL APPLICATIONS

\*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
<b>Aluminium</b>	630A to 1000A	1250A	1600A	2000A	2500A	3200A	4000A
<b>Copper</b>	800A to 1250A	1600A	2000A	2500A	3200A	4000A	5000A
x [mm]	90	120	80	90	80	80	80
y [mm]	-	-	-	-	110	80	90

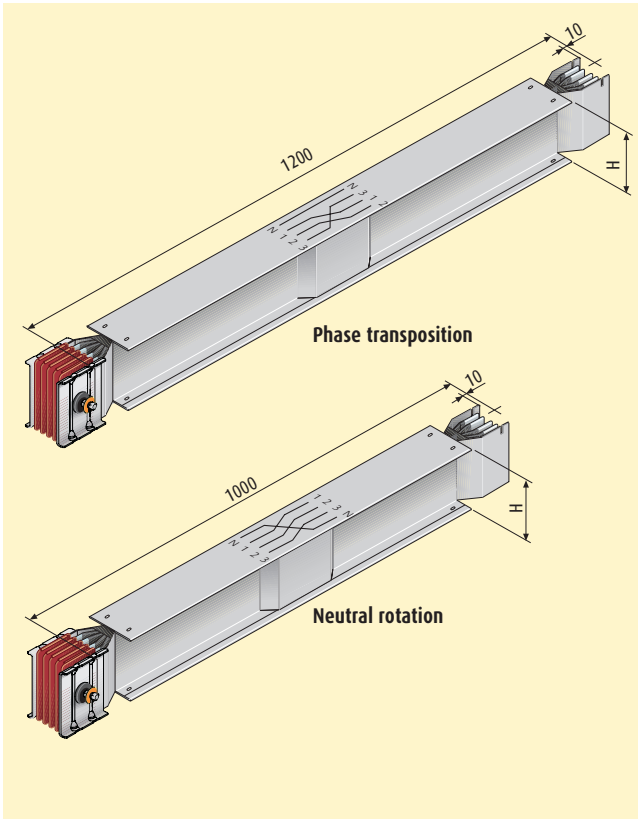
# Transposition element

## 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.

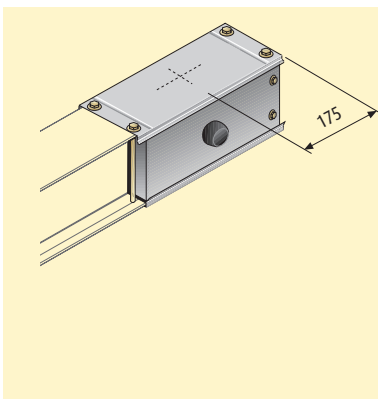
Dimension H changes with the rating; it is specified in the specifications on page 53-58.

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		

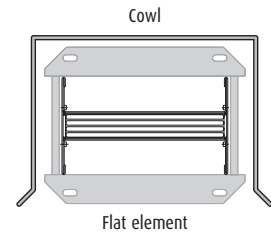
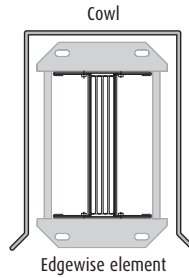
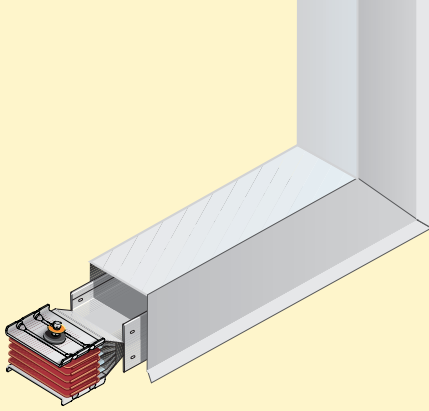
Copper	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A	5000A
	65283101P	65283101P	65283101P	65283102P	65283102P	65283104P	65393102P	65393103P	65393104P
	single bar						double bar		



Completes the IP55 Degree of protection of the line

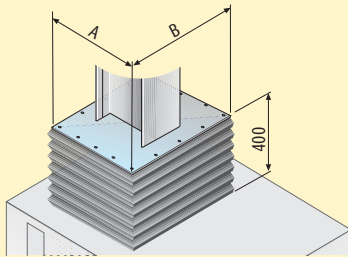
# Protection accessories

## PROTECTIVE COVER FOR OUTDOOR APPLICATIONS



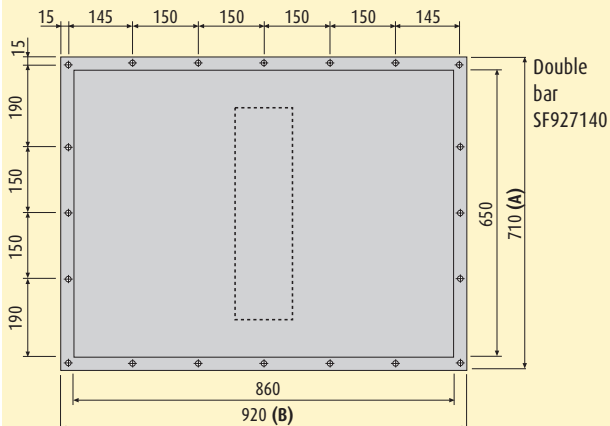
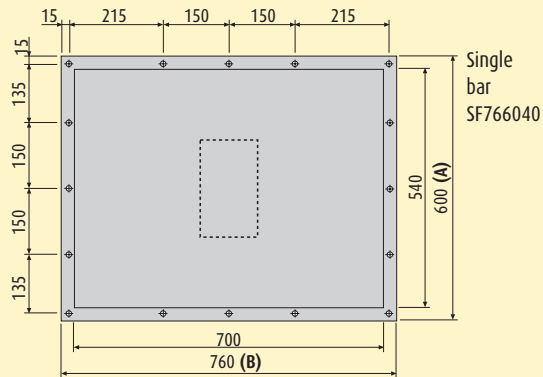
Covering accessory to be used for outdoor installations and wherever the standard IP55 Degree of protection is not adequate.

## PROTECTIVE BELLOWS

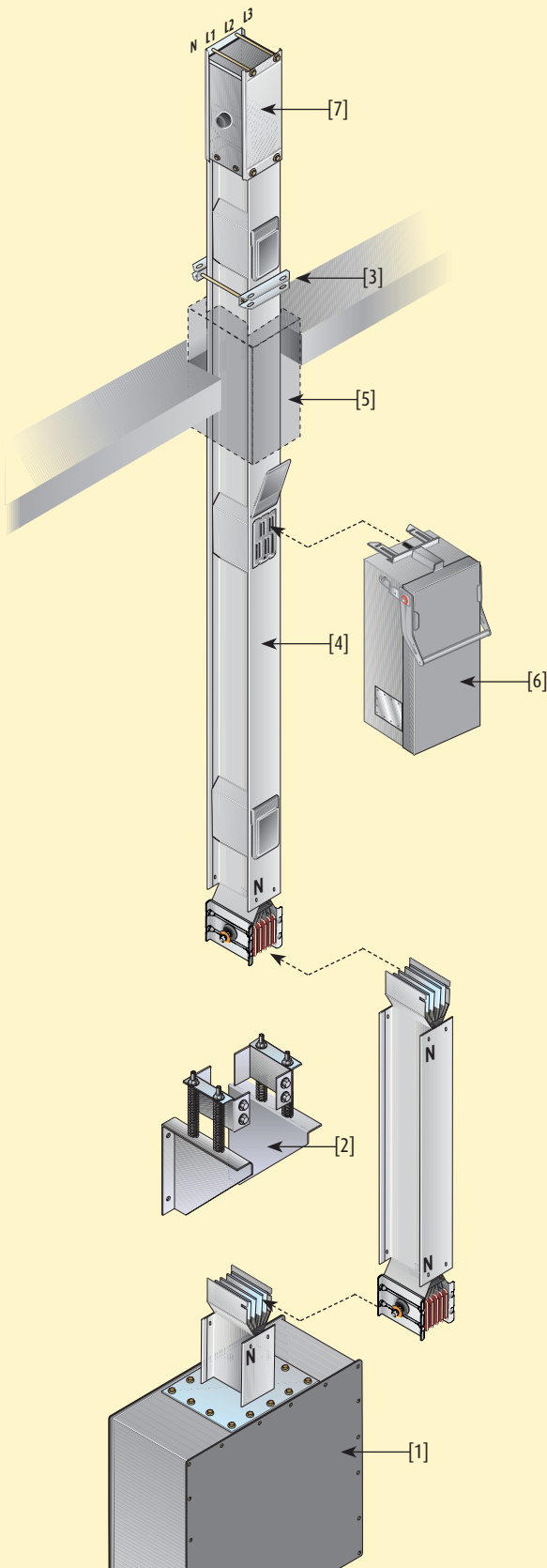


Aluminium	630A to 2000A	2500A to 4000A
	<b>SF766040</b> single bar	<b>SF927140</b> double bar
Copper	800A to 2500A	3200A to 5000A
	<b>SF766040</b> single bar	<b>SF927140</b> double bar

Recommended for protection of the interface connection on panelboards, dry-type transformer with enclosure and oil-type transformers.



## Operating instructions on how to design riser mains



- [1] Use an RH end feed unit (without monobloc).  
In order to position the tap-off boxes correctly, the neutral conductor of the riser main must be on the left side of the element.
- [2] Use one or more suspension brackets for the vertical elements, according to the weight of the whole riser mains.  
For risers that are shorter than 4 metres, fix to the base with type B brackets (see p.42)  
when longer, use a type A suspension bracket (see p. 42) every 300 kg of risers (including the boxes).
- [3] Use a standard suspension bracket to hang the busbar every 2 metres of riser mains.
- [4] Use elements with tap-off outlets (see page 15).
- [5] Use S120 fire barrier kit for each compartment floor (see page 17).
- [6] The tap-off boxes can be installed in the tap-off outlets and near the connection between the elements.  
In both cases, the boxes extend downward.
- [7] At the end of the riser mains, position the IP55 end cover.

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

# Zucchini transformer connections

## FLEXIBLE BRAID CONNECTIONS

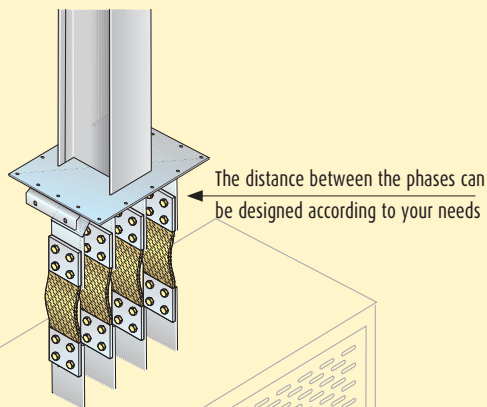
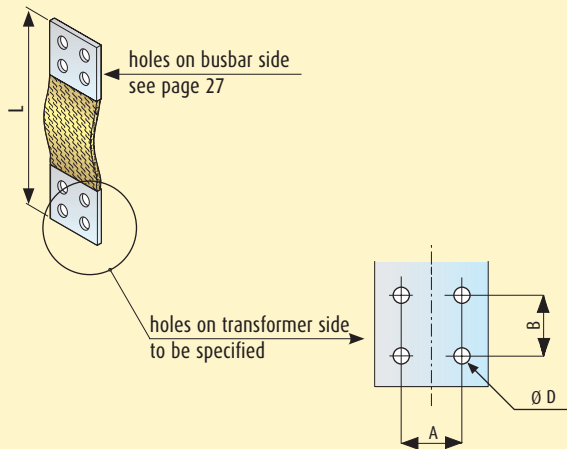
Aluminium	630A	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A
No. of braids per phase	1	1	1	1	1	1	2	2	2

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

Copper	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A	5000A
No. of braids per phase	1	1	1	1	1	2	2	2	2

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

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

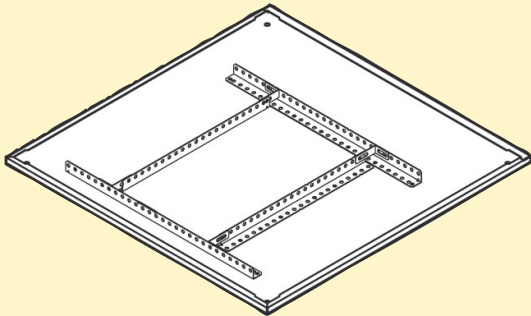


Transformer

Example of a vertical connection

## The system: The Legrand XL<sup>3</sup> advantage

### INSTALLATION KIT FOR MAS 400 CABINET



Item

205 29

kit for reinforcing the roof of the XL<sup>3</sup> cabinets for the installation of the Zucchini interface to connect the busbar systems

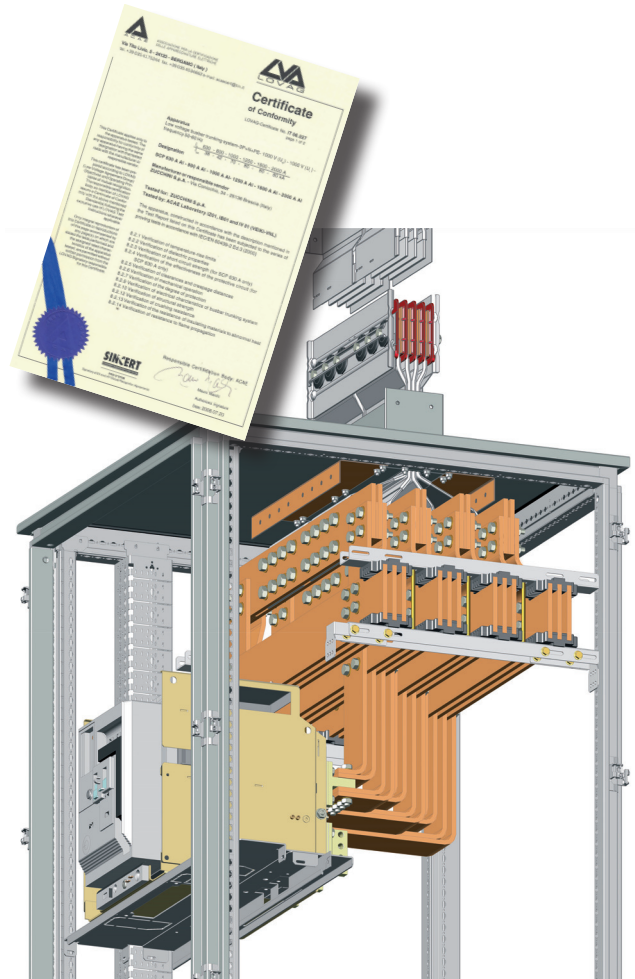
The Super Compact - SCP range can be easily and immediately combined with the Legrand XL<sup>3</sup> 4000 cabinets.

The reinforcement kit enables you to install any type of unit to the board (see page 26-33) onto the roof of the XL<sup>3</sup> 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 XL<sup>3</sup> 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.

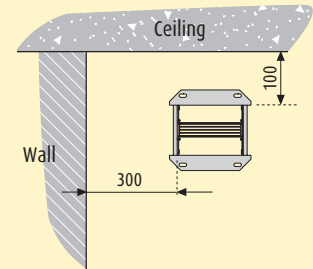
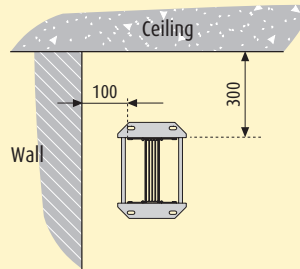
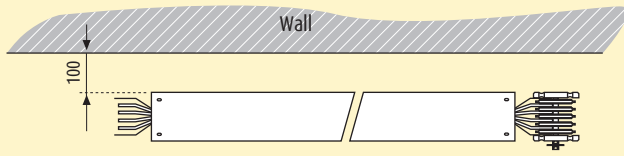
For more details about the XL<sup>3</sup>, please refer to the Legrand Catalogue.



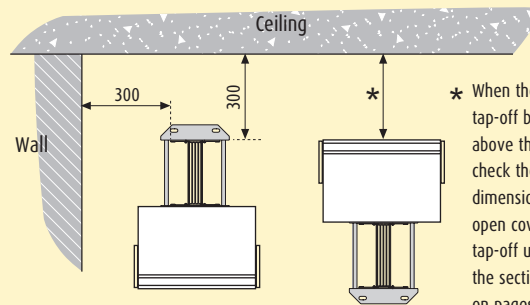
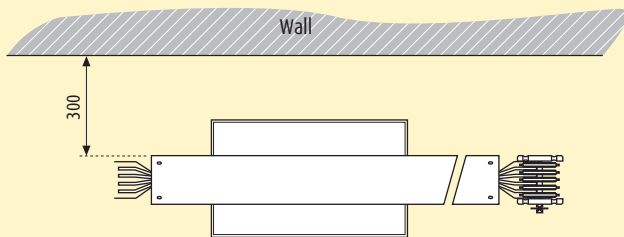


# Installation guidelines

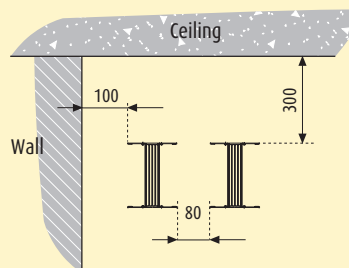
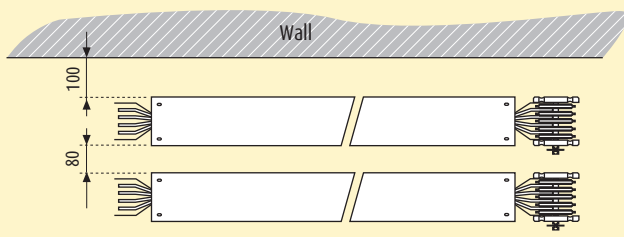
## MINIMUM DISTANCE OF THE WALL / CEILING ELEMENTS



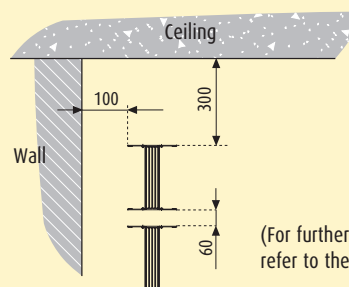
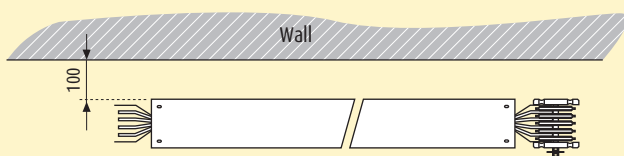
When there are tap-off units along the busbars, the minimum distances depend on the dimensions of the tap-offs selected.



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



Minimum installation distance when there are several adjacent lines

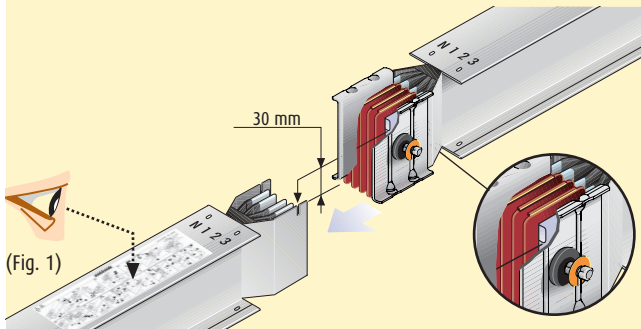


(For further information, please refer to the technical guide)

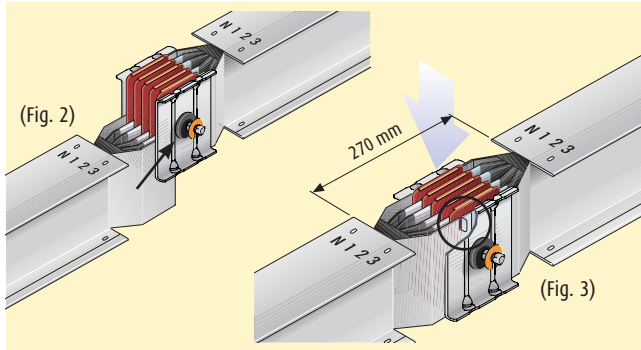
Minimum installation distance when there are several overlapped lines

# Installation guidelines

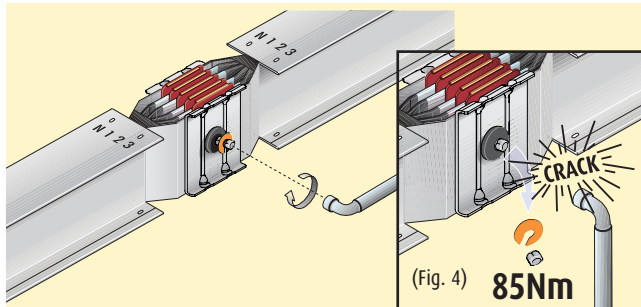
## INSTALLATION SEQUENCE OF THE JUNCTION



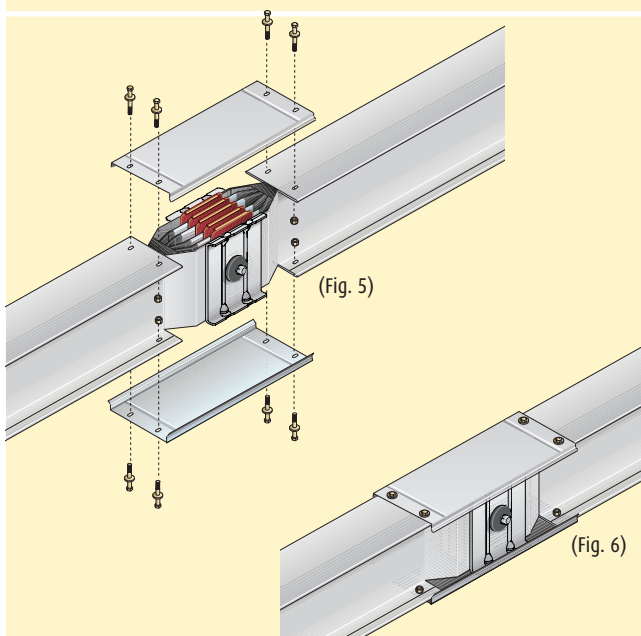
The installation instructions are placed on every element near the junction (Fig.1)  
 Make sure that the contacts are clean.  
 Join the two elements together.



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).



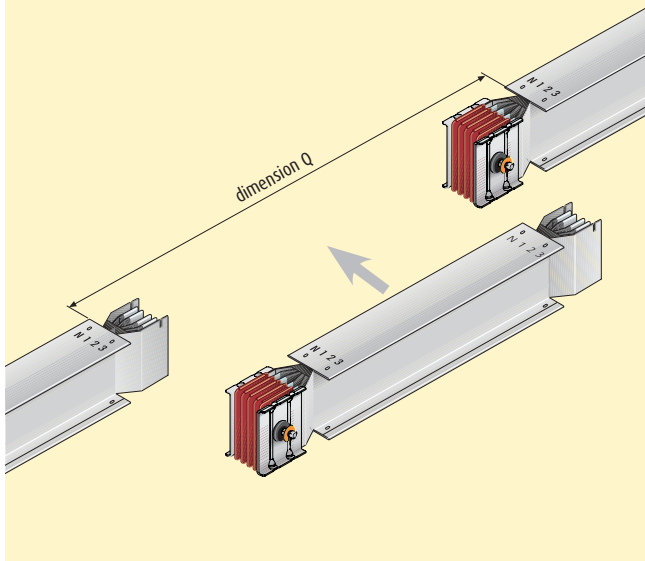
Tighten the bolt of the monobloc until the 1st head breaks off (Fig. 4).  
 The bolt that tightens the monobloc has a second head which is used when carrying out operations or inspections on the line.  
 The nominal tightening torque is 85Nm.



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

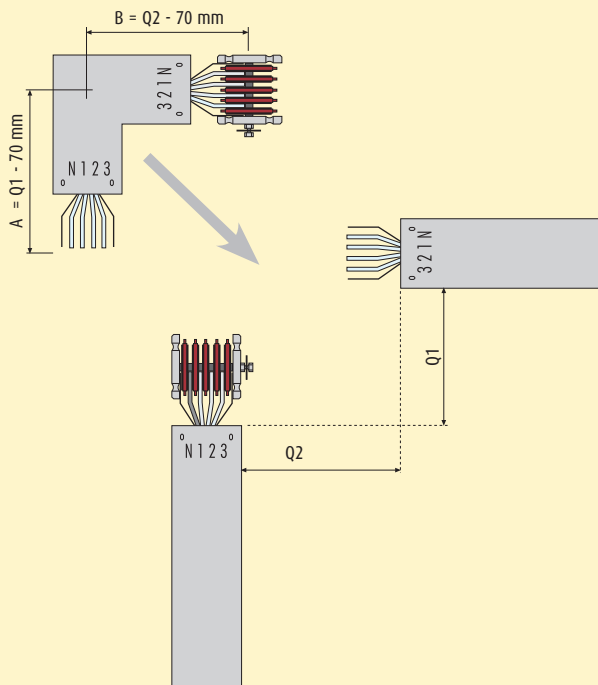


The exact length of the piece to be ordered can be determined by measuring the distance between the elements (as shown in the picture) and then subtracting 270 mm from the dimension that has been taken.

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

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.

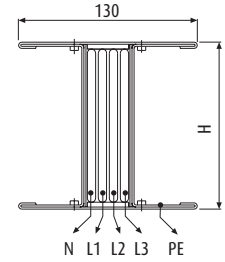
# Certificates

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)



# Technical data SCP (3L+N+PE)



## ALUMINIUM

	$I_n$ [A]	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 (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 <sup>2</sup> 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)	p [kg/m]	17.5	18.3	18.3	19.8	24.2	29.6	40.1	48.0	54.9
Weight (PE 2)	p [kg/m]	20.7	21.5	21.5	23.0	28.4	35.0	48.3	57.6	65.6
Weight (PE 3)	p [kg/m]	18.5	19.3	19.3	20.9	25.6	31.4	42.8	51.1	58.4
Fire load	[kWh/m]	4.5	5.5	5.5	6.0	8.5	10.5	16.0	19.0	21.0
Degree of protection	IP	55	55	55	55	55	55	55	55	55
Thermal resistance class of the insulating materials	B/F*	B/F*	B/F*	B/F*	B/F*	B/F*	B/F*	B/F*	B/F*	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 59



PE 1

Standard version



PE 2

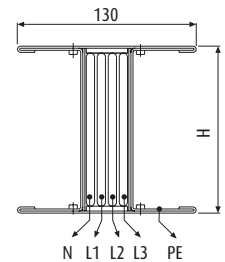
Extra earth - COPPER



PE 3

Extra earth - ALUMINIUM

# Technical data SCP (3L+N+PE)



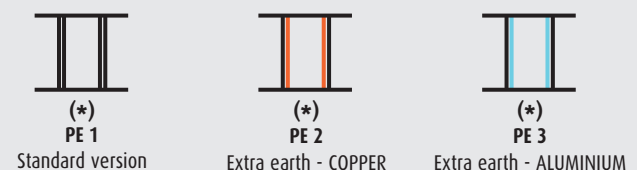
## COPPER

	I <sub>n</sub> [A]	single bar						double bar		
		800	1000	1250	1600	2000	2500	3200	4000	5000
Rated current	L x H [mm]	130x130	130x130	130x130	130x170	130x170	130x220	130x380	130x440	130x480
Casing overall dimensions	U <sub>e</sub> [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000
Operating voltage	U <sub>i</sub> [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000
Insulation voltage	f [Hz]	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60
Frequency	I <sub>cw</sub> [kA]rms	45	50	60	85	88	88	170	176	176
Rated short-time current for three-phase fault (1 s)	I <sub>pk</sub> [kA]	95	110	132	187	194	194	374	387	387
Allowable peak current for three-phase fault	I <sub>cw</sub> [kA]rms	27	30	36	51	53	53	102	106	106
Rated short-time current for single-phase fault (1 s)	I <sub>pk</sub> [kA]	57	66	79	112	116	116	224	232	232
Allowable peak current for single-phase fault	I <sup>2</sup> t [MA <sup>2</sup> s]	2025	2500	3600	7225	7744	7744	28900	30976	30976
Allowable specific energy for three-phase fault	R <sub>20</sub> [mΩ/m]	0.041	0.032	0.032	0.024	0.020	0.016	0.012	0.010	0.008
Phase resistance	X [mΩ/m]	0.023	0.017	0.017	0.015	0.014	0.011	0.007	0.006	0.006
Phase reactance (50 Hz)	Z [mΩ/m]	0.047	0.037	0.037	0.028	0.024	0.019	0.014	0.012	0.010
Phase impedance	R <sub>t</sub> [mΩ/m]	0.045	0.037	0.040	0.029	0.024	0.019	0.015	0.013	0.010
Phase resistance at thermal conditions	R <sub>20</sub> [mΩ/m]	0.041	0.032	0.032	0.024	0.020	0.016	0.012	0.010	0.008
Neutral resistance	Z [mΩ/m]	0.050	0.041	0.043	0.033	0.028	0.022	0.016	0.014	0.012
Phase impedance at thermal conditions	R <sub>PE1</sub> [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 1)	R <sub>PE2</sub> [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 2)	R <sub>PE3</sub> [mΩ/m]	0.050	0.050	0.050	0.041	0.041	0.033	0.021	0.018	0.017
Resistance of the protective conductor (PE 3)	X <sub>PE</sub> [mΩ/m]	0.054	0.054	0.054	0.044	0.044	0.032	0.022	0.017	0.016
Reactance of the protective conductor (50 Hz)	R <sub>0</sub> [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 1)	R <sub>0</sub> [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 2)	R <sub>0</sub> [mΩ/m]	0.095	0.087	0.090	0.070	0.065	0.052	0.036	0.031	0.027
Resistance of the fault loop (PE 3)	X <sub>0</sub> [mΩ/m]	0.077	0.071	0.071	0.059	0.058	0.043	0.029	0.023	0.022
Reactance of the fault loop (50 Hz)	Z <sub>0</sub> [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 1)	Z <sub>0</sub> [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 2)	Z <sub>0</sub> [mΩ/m]	0.122	0.112	0.114	0.092	0.087	0.068	0.046	0.039	0.035
Impedance of the fault loop (PE 3)	R <sub>0</sub> [mΩ/m]	0.170	0.155	0.155	0.115	0.120	0.098	0.083	0.071	0.062
Zero-sequence resistance phase - N	X <sub>0</sub> [mΩ/m]	0.159	0.151	0.151	0.114	0.098	0.065	0.056	0.055	0.042
Zero-sequence reactance phase - N	Z <sub>0</sub> [mΩ/m]	0.233	0.216	0.216	0.162	0.155	0.118	0.100	0.090	0.075
Zero-sequence Impedance phase - N	R <sub>0</sub> [mΩ/m]	0.507	0.429	0.429	0.331	0.283	0.221	0.177	0.178	0.144
Zero-sequence resistance phase - PE	X <sub>0</sub> [mΩ/m]	0.201	0.177	0.177	0.143	0.150	0.124	0.111	0.094	0.086
Zero-sequence reactance phase - PE	Z <sub>0</sub> [mΩ/m]	0.545	0.464	0.464	0.361	0.320	0.253	0.209	0.201	0.168
Zero-sequence Impedance phase - PE	cosφ <sub>q</sub> = 0.70	41.3	33.0	34.6	27.1	23.5	18.5	13.2	11.5	9.8
Voltage drop factor with distributed load ΔV = k · L · I <sub>c</sub> · 10 <sup>-4</sup> [V]	cosφ <sub>q</sub> = 0.75	42.1	33.8	35.5	27.7	23.9	18.8	13.5	11.8	9.9
	cosφ <sub>q</sub> = 0.80	42.8	34.5	36.3	28.1	24.2	19.1	13.8	12.1	10.0
	cosφ <sub>q</sub> = 0.85	43.3	35.0	37.0	28.4	24.4	19.2	14.0	12.2	10.1
	cosφ <sub>q</sub> = 0.90	43.4	35.3	37.3	28.5	24.4	19.2	14.1	12.3	10.1
	cosφ <sub>q</sub> = 0.95	42.9	35.1	37.2	28.2	23.9	18.8	14.0	12.2	9.8
	cosφ <sub>q</sub> = 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

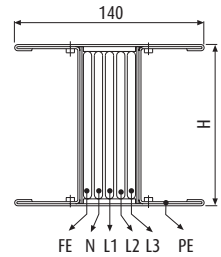
- **Regulations and conformity:**  
IEC/EN 60439-1 & 2; DIN VDE 0660 500 & 502
- **Product suitable for Constant/Cyclic Warm, humid climates:**  
DIN IEC 68 part 2-3; DIN IEC 68 part 2-30
- **Degree of protection:**  
IP55; IPx7 carrying lines available with accessories, on request
- **Insulation and 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)

In: rated current referred to a room temperature of 40°C  
ΔV : for calculations, see page 59





# 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 <sup>2</sup> 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 $\Delta V = k \cdot I \cdot l_e \cdot 10^{-6}$ [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*
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

**$I_n$** : rated current referred to a room temperature of 40°C

**$\Delta V$** : for calculations, see page 59

### Regulations and conformity:

IEC/EN 60439-1 & 2; DIN VDE 0660 500 & 502

### Product suitable for Constant/Cyclic Warm, humid climates:

DIN IEC 68 part 2-3; DIN IEC 68 part 2-30

### Degree of protection:

IP55; IPx7 carrying lines available with accessories, on request

### Insulation and surface treatment of the conductors:

Insulated conductors for the whole length, aluminum copper-plated and tin-plated

### Busbar casing material:

1.5mm galvanized steel plate, pre-painted or stainless steel (available, if required, with special paint and/or with thickness 2mm)



(\*)

PE 1

Standard version



(\*)

PE 2

Extra earth - COPPER



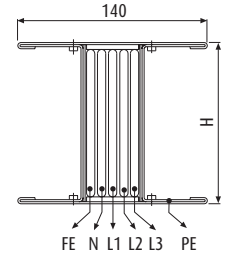
(\*)

PE 3

Extra earth - ALUMINIUM



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



## 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 <sup>2</sup> 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 $\Delta V = k \cdot L \cdot I_n \cdot 10^{-6}$ [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 59



(\*)  
PE 1  
Standard version

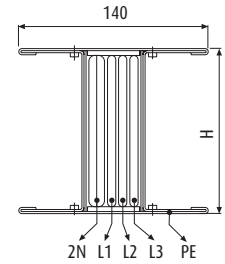


(\*)  
PE 2  
Extra earth - COPPER



(\*)  
PE 3  
Extra earth - ALUMINIUM

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



## ALUMINIUM

		single bar						double bar			
		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 <sup>2</sup> 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 $\Delta V = k \cdot L \cdot I_n \cdot 10^{-4}$ [V]	k [V/m/A]10 <sup>-4</sup>	$\cos\varphi = 0.70$	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

$\Delta V$ : for calculations, see page 59



PE 1

Standard version



PE 2

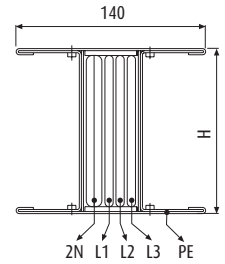
Extra earth - COPPER



PE 3

Extra earth - ALUMINIUM

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



**COPPER**

		single bar						double bar		
		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	$U_e$ [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000
Insulation voltage	$U_i$ [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000
Frequency	f [Hz]	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60
Rated short-time current for three-phase fault (1 s)	$I_{cw}$ [kA]rms	45	50	60	85	88	88	170	176	176
Allowable peak current for three-phase fault	$I_{pk}$ [kA]	95	110	132	187	194	194	374	387	387
Rated short-time current for single-phase fault (1 s)	$I_{cw}$ [kA]rms	27	30	36	51	53	53	102	106	106
Allowable peak current for single-phase fault	$I_{pk}$ [kA]	57	66	79	112	116	116	224	232	232
Rated short-time protection current (1 s)	$I_{cw}$ [kA]rms	27	30	36	51	53	53	102	106	106
Protection circuit peak rated current	$I_{pk}$ [kA]	57	66	79	112	116	116	224	232	232
Allowable specific energy for three-phase fault	$I^2t$ [MA <sup>2</sup> 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	0.0078	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)	$\rho$ [kg/m]	34.7	39.2	39.2	50.1	57.4	72.7	94.8	112.0	140.1
Weight (PE 2)	$\rho$ [kg/m]	37.8	42.3	42.3	54.3	61.6	78.1	103.0	121.7	150.7
Weight (PE 3)	$\rho$ [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 59



(\*)  
**PE 1**  
Standard version



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



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

# 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];
- $\alpha$  load diversity factor [..];
- $\beta$  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:

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

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.

$$\Delta v\% = b \frac{k \cdot I_b \cdot L}{V_n \cdot 10^6} \cdot 100$$

defined

- $I_b$  = the current that supplies the busbar [A]
- $V_n$  = 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	$\Delta v\% = 1 \cdot \frac{28.7 \cdot 1600 \cdot 100}{400 \cdot 10^6} \cdot 100 = 1.15\%$
$b = 1$ supply from one end	
$k = 28.7$ see technical data table, page 53 (SCP 2000A Al $\cos\phi = 0.85$ )	
$\cos\phi = 0.85$	
$L = 100m$ line length	
$V_n = 400V$ operating voltage	

## SHORT-CIRCUIT CURRENT

The short circuit current value  $I_{kw}$  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

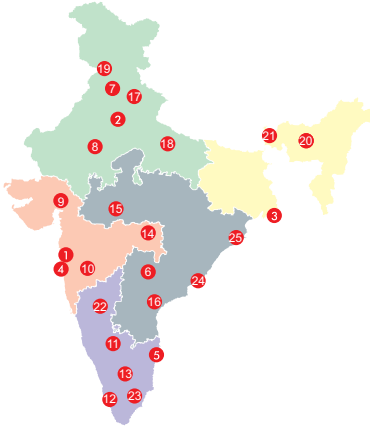
Losses due to the joule effect are essentially caused by the electrical resistance of the busbar. Lost energy is transformed into heat and contributes to the heating of the conduit.

### Three-phase rating

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

### Single phase rating

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



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Website : [www.legrand.co.in](http://www.legrand.co.in)

### Regional sales offices

- A-25, Mohan Co-operative  
Industrial Estate, Mathura Road,  
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Fax : (011) 2699 0047
- Bhakta Towers, 2nd & 3rd Floor,  
Plot No. KB 22, Salt Lake, Sector - 3,  
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Fax : (033) 4021 3537
- 34, 3rd Floor, Kalpataru Square,  
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- 504, Sakar IV,  
Opp. M. J. Library, Ellis Bridge,  
**AHMEDABAD** - 380 006. Gujarat  
Tel : (079) 2658 6561 / 2  
Fax : (079) 2658 6563
- 402, Swastik Chambers,  
Near Ashwamegh Marriage Hall,  
Behind HP Petrol Pump,  
Off Karve Road, Erandwane,  
**PUNE** - 411 004.  
Tel : (020) 6729 5600 / 601  
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- 11nd Floor, Al-Latheef Building,  
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IV-D, Fourth Floor,  
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### Area offices

- ABC Business Club 16,  
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- Cabin No.104/105,  
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5, Park Road, Hazratganj,  
**LUCKNOW** - 226 001.  
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- 94, Udham Singh Sarani,  
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- Plot No. 359,  
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### Technical assistance from Legrand

Telephonic technical assistance for selection of products, technical information, guidance, wiring diagrams and estimation is now made available to you. Contact Legrand technical assistance at the following telephone numbers: **(022) 3041 6253 / 00**. Also you could contact our regional offices:

- New Delhi** : Tel.: (011) 2699 0028, 3990 2200  
**Kolkata** : Tel.: (033) 4021 3535 / 36  
**Mumbai** : Tel.: (022) 3385 6200  
**Chennai** : Tel.: (044) 3024 7200, 2836 4165 / 67 / 68  
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