ZUCCHINI

Low-Medium Power

CATALOGUE 08/09

CG08Z/GB

Integrated solutions for global projects

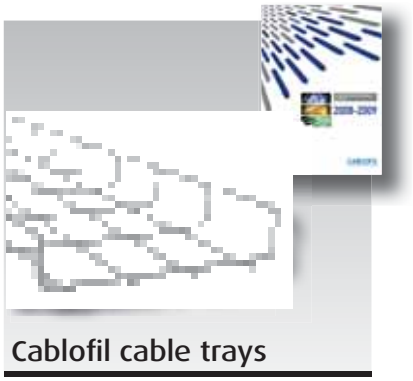
Legrand is the world specialist in products and systems for electrical installations and information networks:

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

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

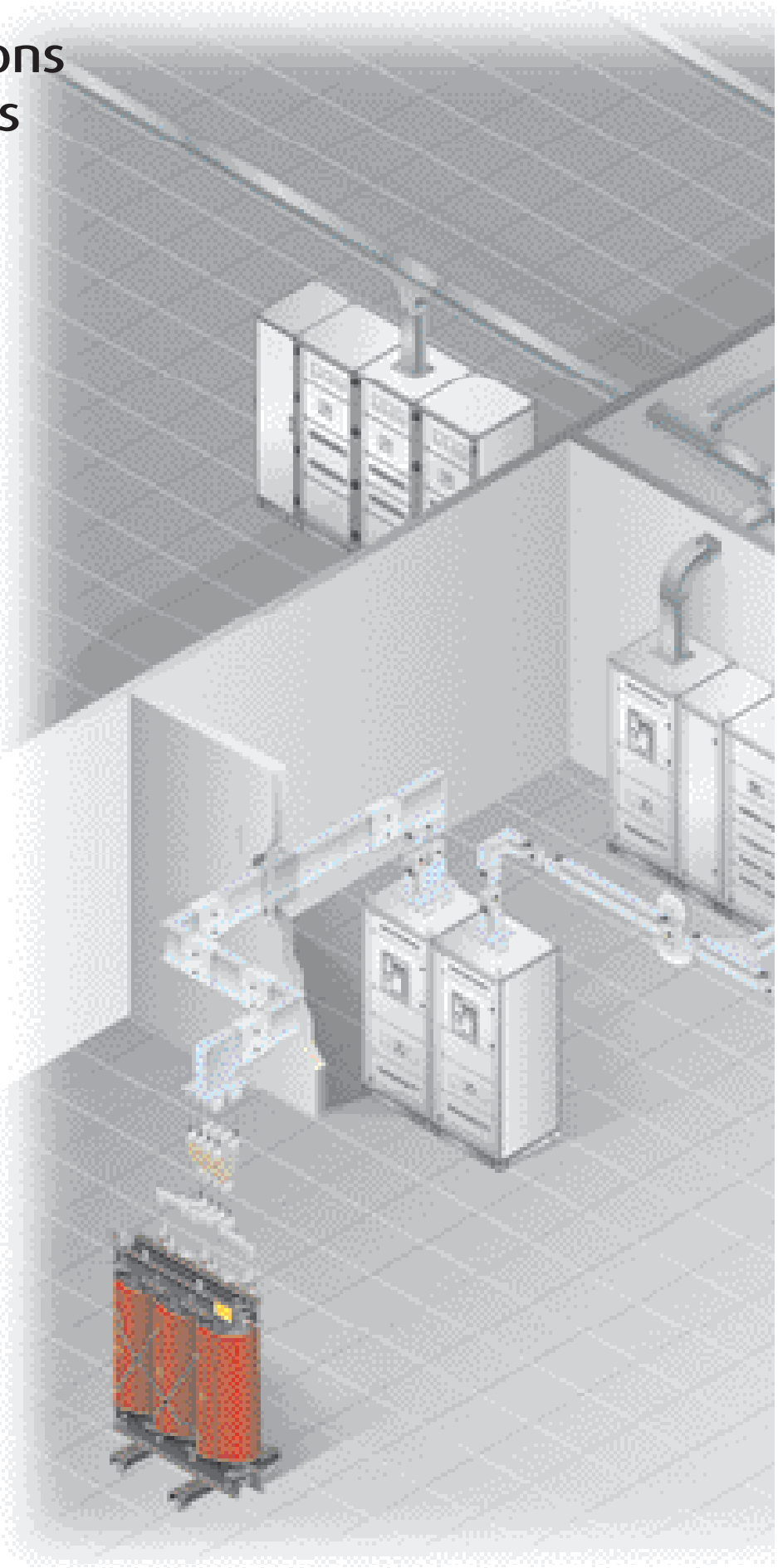
Altis™ industrial cabinets
Atlantic and Marina boxes

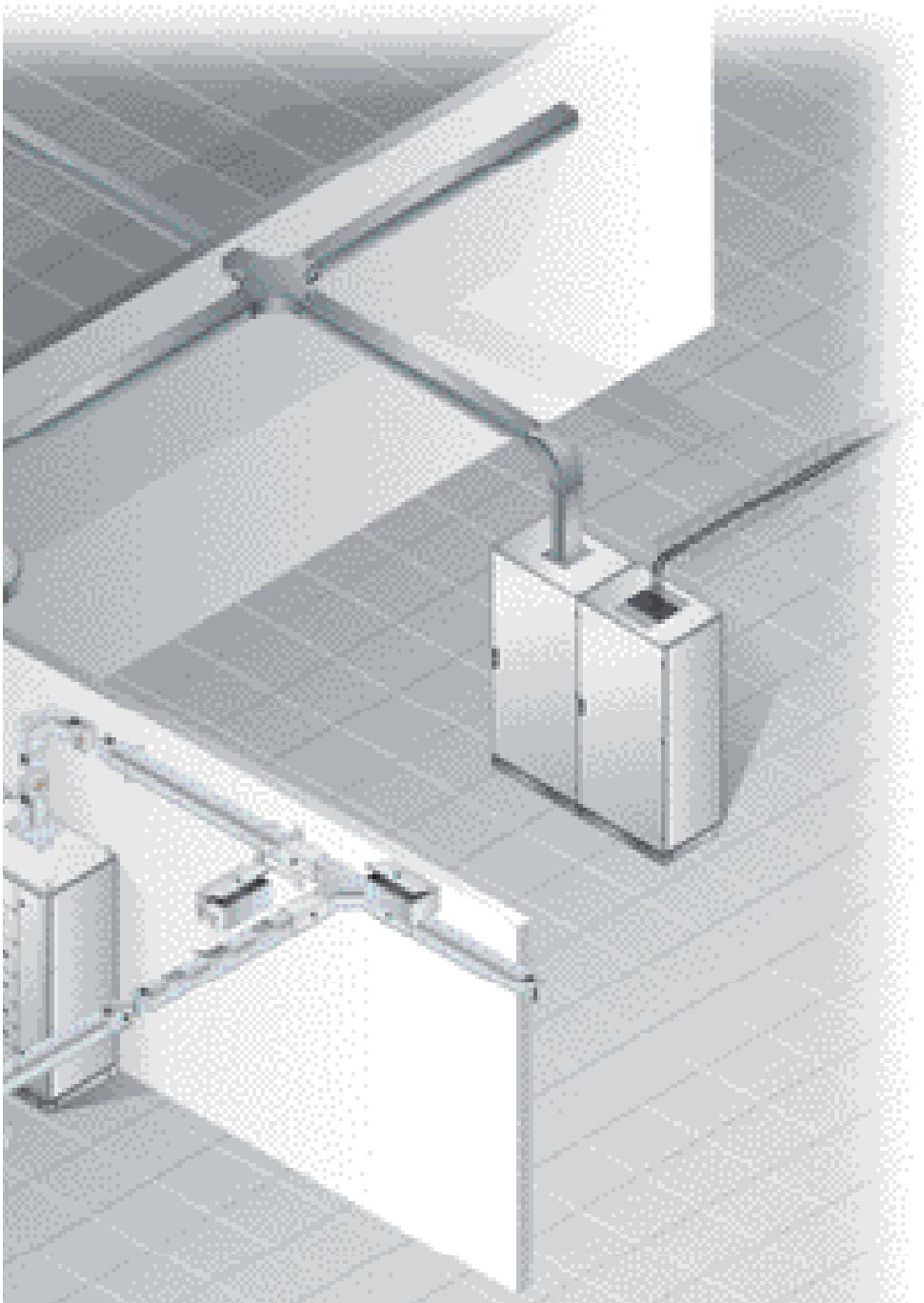
legrand®



Cablofil cable trays

CABLOFIL®





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

DMX, DPX,
DX circuit breakers

legrand®

XL³ distribution cabinets

legrand®

Zucchini busbars

ZUCCHINI

EdM
cast resin transformers

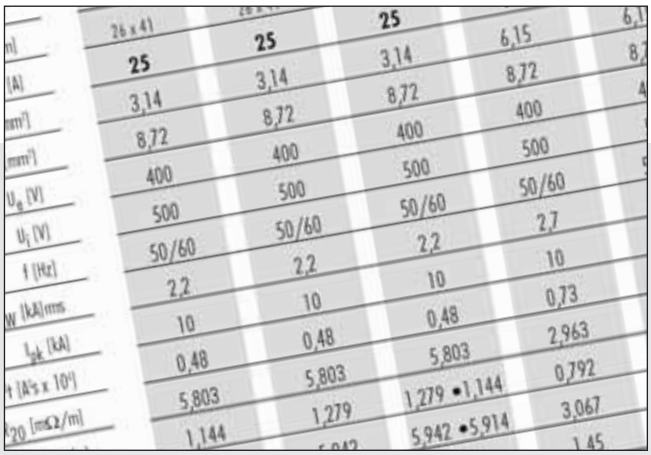
Basic concepts for busbars

The busbar is the most modern solution for the distribution of energy in an installation for machinery, equipment and lighting fittings, in all types of buildings such as warehouses, trade fairs, or any place where the pace of installation operations provide tangible benefits immediately, but also continue to cumulate benefits at every maintenance intervention or modification. The busbar is also frequently used to power the (horizontal and vertical) backbones of buildings used for the commercial-service sectors, thus observing the time required for the installation and providing a final solution with remarkable technical advantages compared to an equivalent traditional system made with cables.
Zucchini's busbars, available in 3 segmented ranges (Low Power, Medium Power and High Power), are able to meet all installation requirements, from 25A to over 5000A.

EASY TO DESIGN

The electric design of the busbars is achieved by Zucchini in compliance with the product Standards. The rated current of our busbars is guaranteed at a room temperature of 40 °C (n.d.r. the Standard requires 35 °C). After choosing the busbar which is able to meet the operating current regulations, it will be very easy to verify the voltage drop as well as the protection against overcurrents by using the technical tables available for all our production lines. In particular, these tables define: the short circuit and peak currents that can be supported by the busbar waiting for the protection device located upstream to start operating, the specific voltage drop based on the average cos phi of the loads, the losses and other data (R, X, Rpe, etc.) which allow the planning engineer to carry out calculations with electric values, which are not estimated but the result of measurements made during heating and short circuit tests (in certified LOVAG laboratories), which have certified all our product lines.

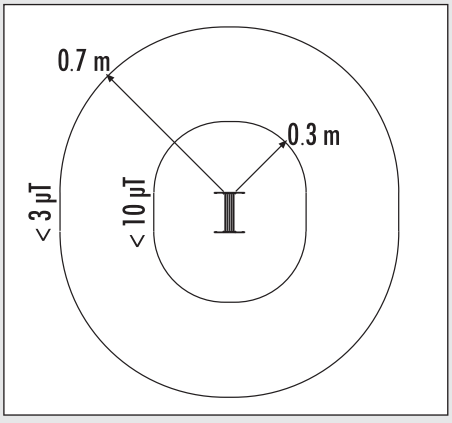
When using busbars, the load protection is located very close to the device (decentralized protection); junction boxes can contain protection devices such as thermal magnetic circuit breakers, fuse carriers and motorized switches which allow you to easily and efficaciously manage the system.



Example of an elctric characteristics table

INTRINSIC SAFETY

A busbar does not use large amounts of insulating plastic material and potentially dangerous materials in case of fire. Furthermore, the plastic materials used for the insulating parts of the busbars are always self-extinguishing (from V0 to V2) and the gas emission is generally very low (Halogen Free).
Low electromagnetic emission is another advantage of the busbars compared to that of an equivalent cable system: as a result, the metal plate casing of the busbars serves as a screen for the electric field (shielded enclosure); the extreme vicinity between the phase conductors also reduces the emission of the magnetic field considerably. The Italian law, according to the DPCM (Prime Ministerial Decree) of July 8th 2003, sets the "target level" to 10 μT and the "quality level" limit to 3 μT. The tests carried out on one of our 2500A SCP busbars at full operating current has shown that the emission of the magnetic field (magnetic induction) is lower than the "target level" of the Decree at a distance of 0.3m, whereas the threshold considered as the "quality target" can be achieved at a distance of only 0.7m from the busbar. These features make our busbars the unavoidable choice for hospital facilities, data processing centres and wherever it is necessary to supply a large amount of power in the vicinity of workplaces and/or sensitive equipment.

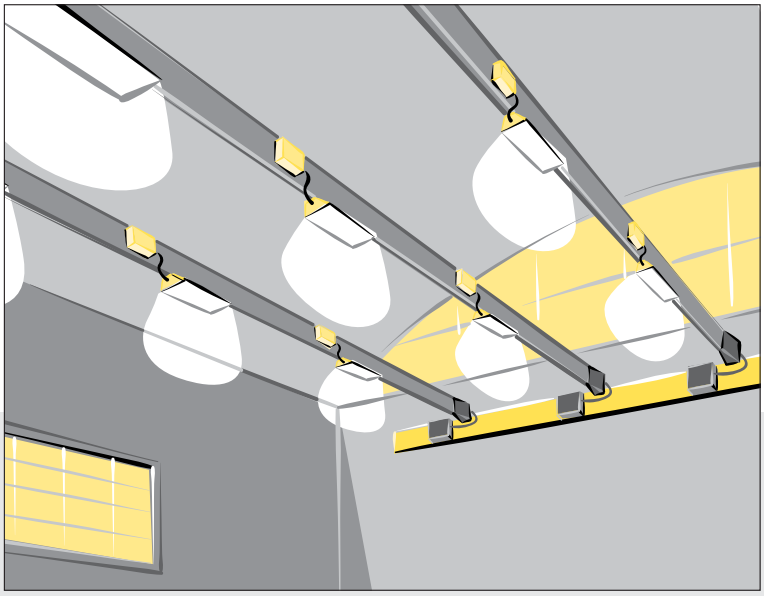


Zucchini busbar electromagnetic emission

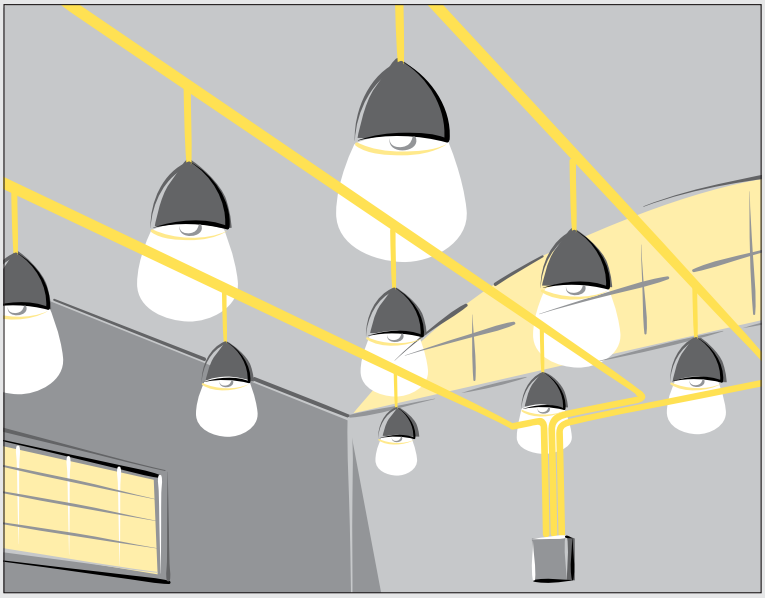
Basic concepts for busbars

FLEXIBILITY

By using the outlet windows located on the straight elements, the busbars provide high management flexibility, both when planning (electrical engineer) and when installing the system (installer); they are also used for the unavoidable changes required by the electric system to adapt to the varied needs of the end user. The junction boxes can be inserted and removed from their windows when the busbar is electrically powered and inserted in another junction window, thus avoiding downtime. The engineering department in charge of designing the busbar does not have to know the exact position of the machinery and of the electric loads that will be installed in the company; the project that will be carried out will be open to changes and variations which will be defined by the end user when operationally using the system. No more point-point connections but only one power distribution system to which you will always be able to connect to wherever there is a free window. Because of its flexibility and durability features Zucchini's busbar, installed inside a building, allows you to easily change the destination of its intended use of the rooms, thus giving also advantages to those who manage and locate the various parts of the building premises.



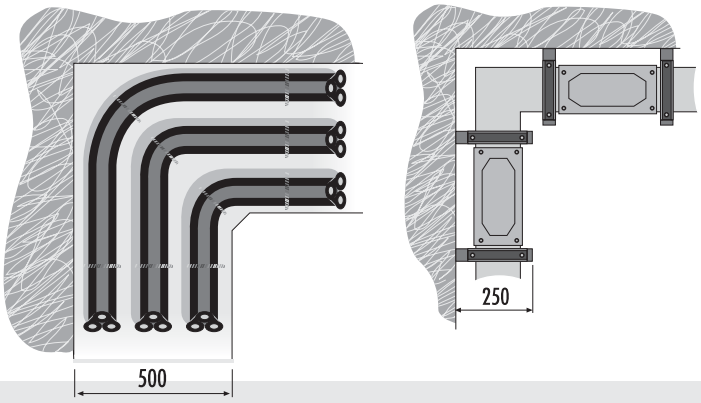
Busbar system

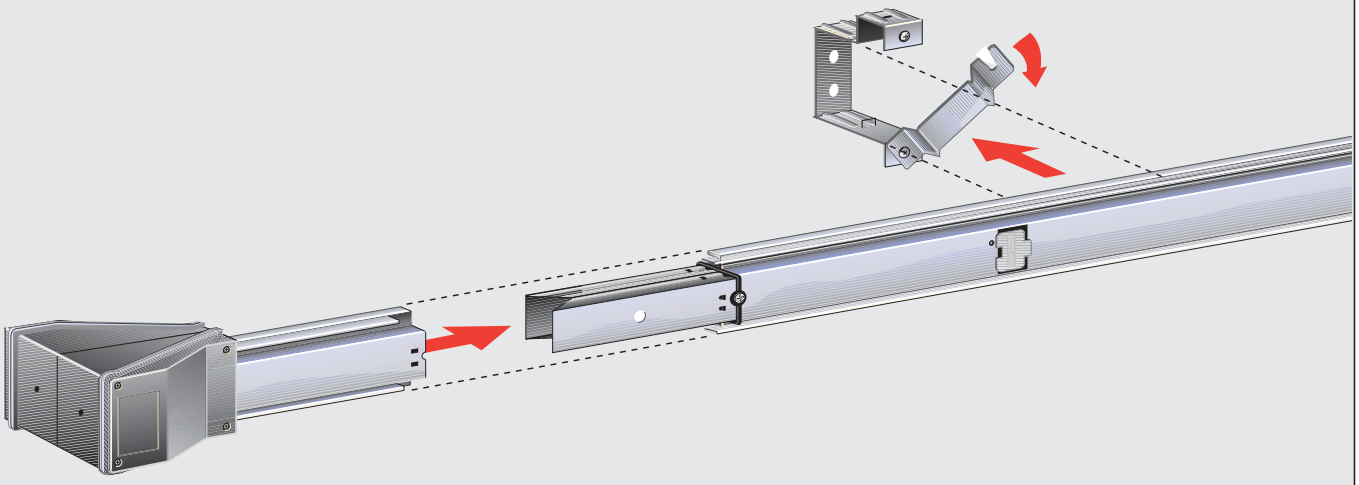


Cable and tube lighting system

QUICK INSTALLATION

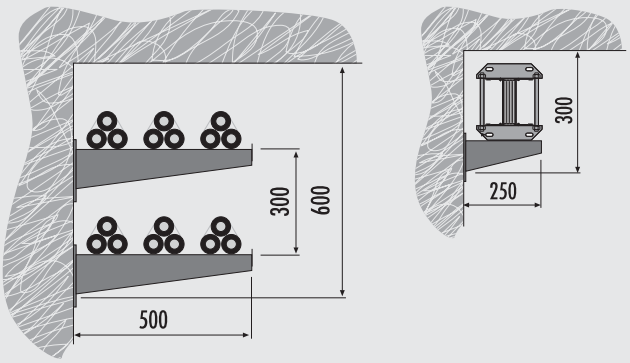
Zucchini's junction and fixing systems have been designed and created to install busbars easily. In a cable and tray system, the time required to install only the tray is the same used to install a complete system in busbars. Furthermore, given the same capacity, a power busbar, which generally has aluminium conductors, is much lighter than a system made with (copper) trays and cables: lighter weights require a lower number of supporting frames or, in any case, more simple and inexpensive supporting frames. That is why the installation time of a busbar is obviously shorter than a similar system made with cables.





REDUCED DIMENSIONS

The overall dimensions of the busbars are generally smaller than an equivalent system made with cables, especially when the currents to be carried exceed 1000A and when several cables in parallel are necessary to ensure such capacity. Other advantages can be achieved when there are changes of direction where the radius of curvature of the cables is minimal and enough to not damage the insulating material; busbars allow you to change directions with 90° angles, thus optimizing the small spaces used in service areas.

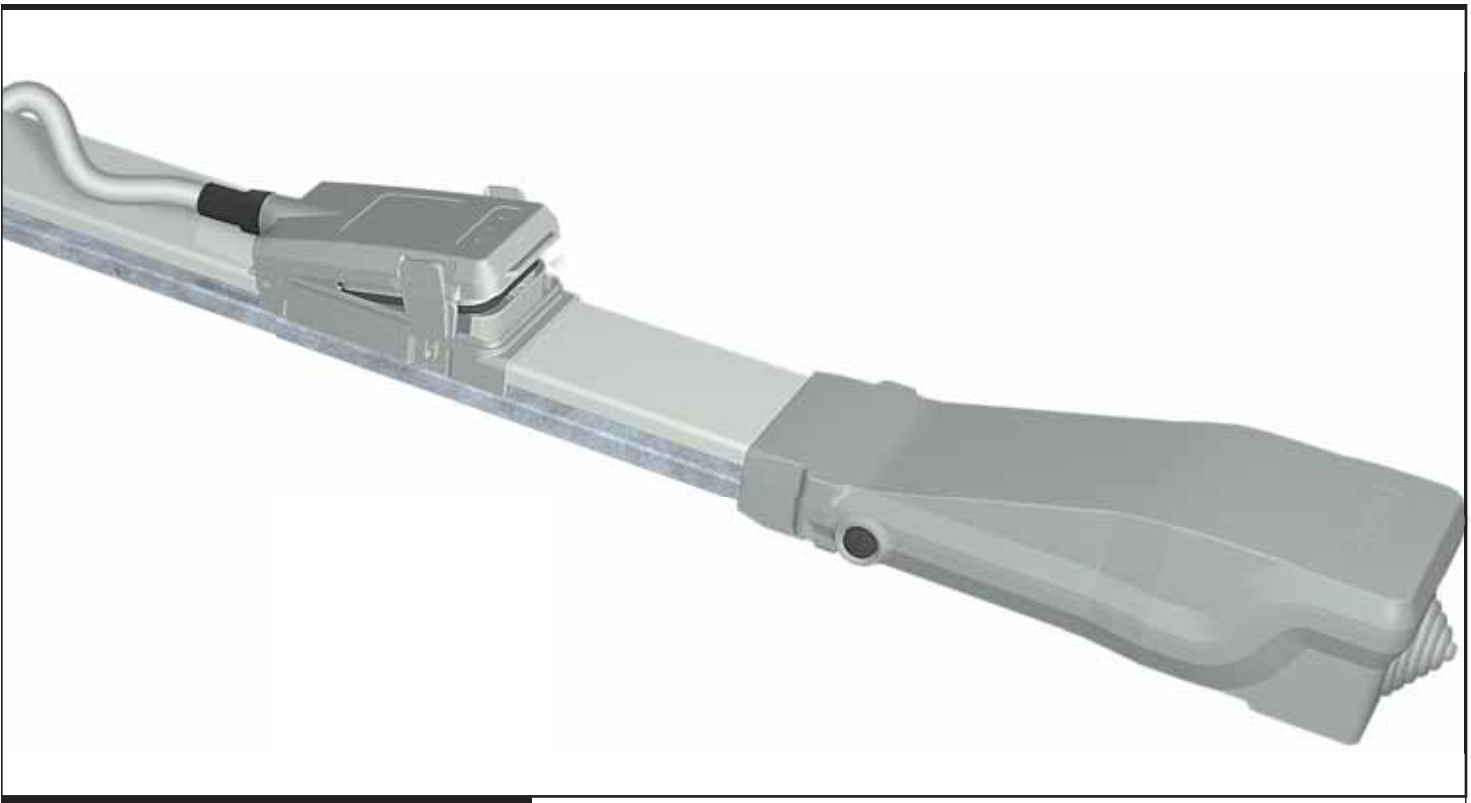


ZUCCHINI

EB - EASYBAR
25 - 40A

THE NEWS

A lot of energy in little space



SECTION CONTENTS

The innovative system for the distribution of energy

EASYBAR is the perfect solution for the distribution of energy within any service and industrial sector. Its **maximum height of only 50mm, the thinnest on the market**, makes it an exclusive and innovative product.
With EASYBAR, it is possible to distribute 25A or 40A currents, maintaining an IP55 degree of protection when the installation is complete. The elements are available in 2m and 3m lengths.
EASYBAR can be positioned:

- under the raised floor
- On the wall to outfit work stations
- in the interspaces of the dry wall plasterboard
- in the false ceiling

FLOOR INSTALLATION

EASYBAR busbars, because of its reduced 50mm height (with accessories installed), can be positioned in particularly low raised floors. It is suitable for new installations as well as for renovations in which it is not possible to raise the floor.
By using **tap-off plugs**, which can be **positioned anywhere on the trunking**, it is also possible to connect Legrand fast-connection installation system products such as floor boxes, mini columns and multiple outlet extensions, which can be combined with the **Cablofil type wire mesh cable trays system** used for the data network distribution and safety circuits.

CEILING INSTALLATION

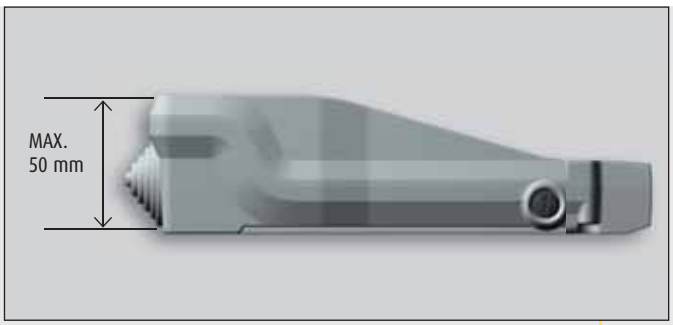
Thank to the innovative tap-off plugs, EASYBAR is well suited for distribution of energy for lighting in false ceilings.
Specific tap-offs for each phase allow to distribute an even load and quickly connect the lighting fixtures.

Advantages

The EASYBAR system has been studied to make installation operations easier and quicker. When using EASYBAR, unlike a traditional energy distribution with trunking lines and cables, the installation time can be reduced by using the snap-on components and through the possibility of creating the lines in 2 ways:

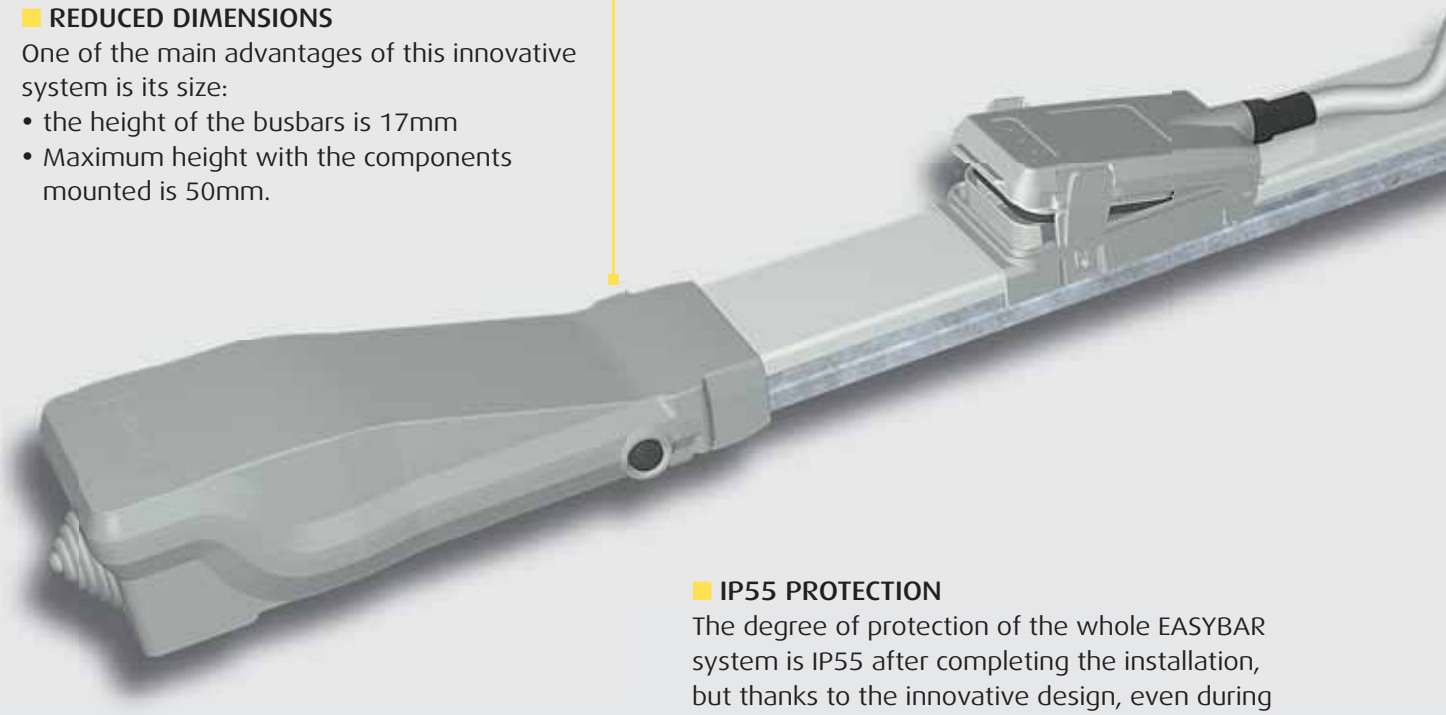
1 - **by first positioning the fixing clamping brackets onto the mounting surface, and then clipping in the straight element.**
With this installation method, all brackets need to be put in the line roughly or with laser tools

2 - **by positioning the brackets onto the busbars and then fixing the product.**
The side fastening system gives you the advantage of having the brackets already aligned by the straight element.

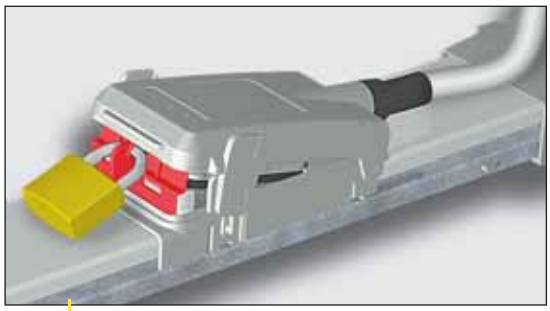


ENERGY TAP-OFF WHEREVER YOU NEED IT
The tap-off plugs have been designed to be positioned at any point on the busbar for complete modularity

REDUCED DIMENSIONS
One of the main advantages of this innovative system is its size:
- the height of the busbars is 17mm
- Maximum height with the components mounted is 50mm.



IP55 PROTECTION
The degree of protection of the whole EASYBAR system is IP55 after completing the installation, but thanks to the innovative design, even during installation, if an end cover, joint or covering film is missing, an IP2X protection is always guaranteed against direct contact.

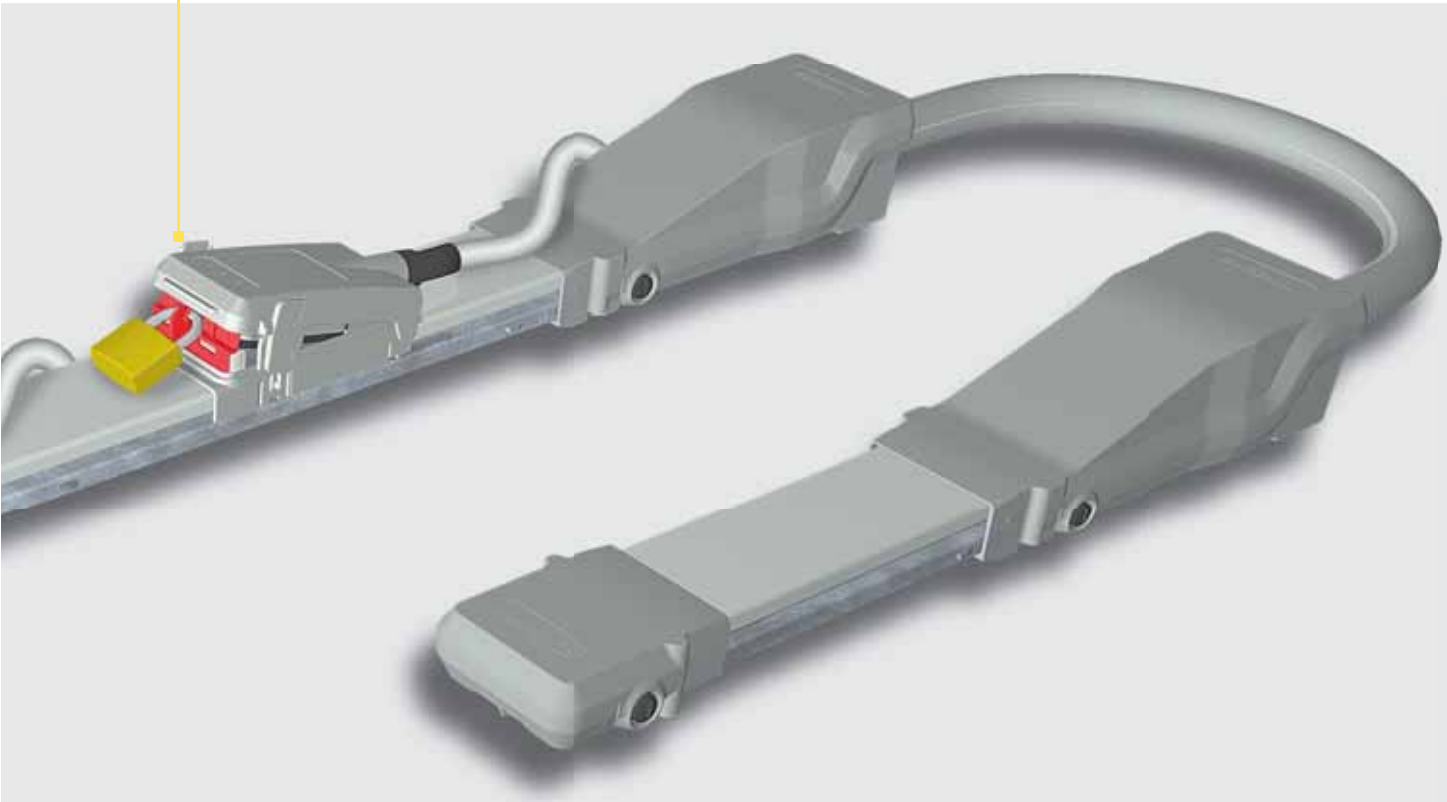


UP TO 7 TAP-OFFS PER METRE

Possibility to install up to 7 tap-off plugs per metre, thus allowing a complete utilisation as well as a widespread distribution of energy for different configurations.

EASY AND QUICK INSTALLATION

The snap-on system reduces the installation time considerably.



CONVENIENT IN EVERY WAY

Only one element and few installation accessories that guarantee an easy, fast and inexpensive distribution of energy.

RESISTANCE AND SAFETY

EASYBAR is particularly resistant; in fact the straight elements can be stepped on without damaging them. EASYBAR gives you the possibility of a good, safe installation when worksite jobs are being started. With the safety lock system, even under load, a worker can isolate a line to work in complete security. Thus even during installation or modifications, potential accidents are avoided with EASYBAR.

Installation SOLUTION: traditional or EASYBAR?

A traditional energy distribution system requires the use of trunking systems as well as multiple cables. There are various installation operations which are carried at different times, thus prolonging the installation and testing time and hence with increases in cost.
By using the innovative EASYBAR system, the installation time is greatly reduced, thus facilitating reliable project management and planning.
Furthermore, EASYBAR is easily integrated both with the Cablofil cable tray system and with Legrand products for distribution in offices and all commercial applications.
The busbar can be simply clipped onto the same wire mesh cable tray used for the data VDI structured cabling system.

The worksite is a extremely severe environment during the installation stage, with all trades coming and going continuously, so EASYBAR was conceived as a very resistant product: it can even be stepped on, allowing the installation without waiting for the floor – this factor shall be taken into consideration as many types of underfloor trunking systems do not have this level of robustness.
The following table illustrates the cost effective solution of EASTBAR compared to traditional distribution.

INSTALLATION STAGES

Description	Traditional	EASYBAR	The advantages of using EASYBAR
System planning	√	No	It is not necessary to know in advance how many work stations there will be
Derivation points	√	No	If it is necessary to add new stations, all you need to do is install the tap-off plugs on the straight element
Material order	√	√	Limited only to the straight elements, plugs, brackets and to the power lock
Trunking installation	√	No	The snap-on system allows busbar ducts to be installed easily and quickly
Wiring devices	√	No	No need for derivation boxes and terminal strips to be cabled each time, just plug in where the derivation is needed
Cable insertion	√	No	When using Legrand fast connection plugs it is possible to connect EASYBAR tap-off plugs to the Legrand Fast Connection distribution system easily and quickly
System testing	√	√	There is no risk of having disconnections due to cable failure
Flexibility	No	√	
Possibility of being stepped on	No	√	EASYBAR can be stepped on and has a degree of protection IP55 after completing the installation

TRADITIONAL SOLUTION
- complex
- little flexibility
- long installation time requirements

EASYBAR SOLUTION
- neat
- fast
- flexible and integrated

Integration with the Cablofil wire cable tray

The EASYBAR range

STRAIGHT ELEMENTS

Straight elements are available with four 25A or 40A conductors with lengths of 3m, 2m and a 1.8m length which can be cut to measure at the worksite. The main features are:

- derivation from any point of the straight element
- structure made of galvanized steel
- degree of protection IP55, for the completed installation

TAP-OFF PLUGS

Tap-off are used for distributing energy in different points and are available with 10A or 16A rated currents, with or without fuse. The main features are:

- default phase selection or three-phase version
- plugs made of self-extinguishing-insulation material
- plugs that can be installed at any point of the straight element
- snap-on connection
- large available surface for clear identification marking

FEED UNIT

Once wired from the main power network, the feed unit is snapped into place onto the EASYBAR element without using any tools.

FLEXIBLE JOINT

The flexible joint is used to connect two busbar ducts with a bending angle of up to 180°.
The flexible joint is also useful for changing levels between ducts.

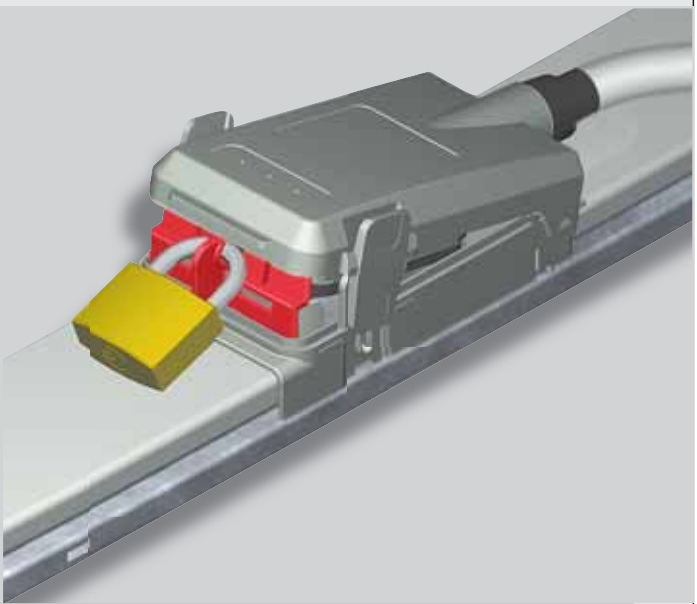
END COVER

The end cover ensures the IP55 protection degree at the end of the line.

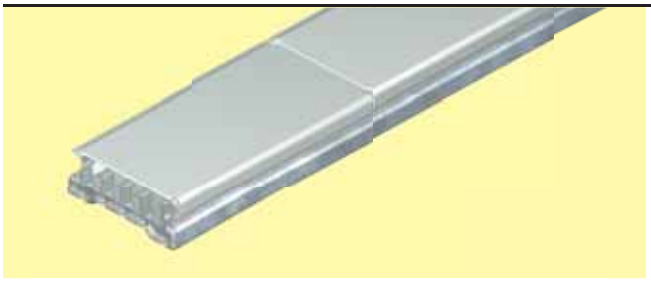
SAFETY BLOCK

To ensure maximum safety, the optional safety block maintains the plug in the open position and prevents unintentional closure.

This safety device can be installed very easily when the plug is open and can be guaranteed by means of a padlock to ensure the safest possible conditions to carry out safely all maintenance operations of the connected loads.



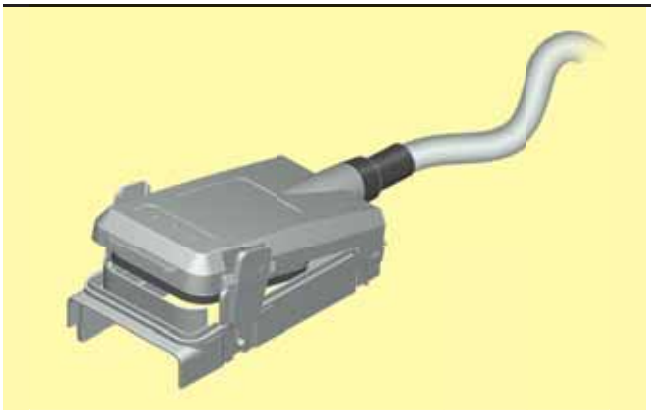
Straight elements and tap-off plugs



25A AND 40A STRAIGHT ELEMENTS

Straight elements with 4 copper conductors (3P+N). Supplied with a pre-cut, modular cover and a joining module (for clipping two straight lengths together).
IP55

Item	Description
74160101	25A - 3 m
74160102	25A - 2 m
74180101	40A - 3 m
74180102	40A - 2 m



10A SINGLE-PHASE TAP-OFF PLUGS WITH A 1 m CABLE

Single-phase tap-off plugs without fuse protection with self-extinguishing insulating body, 3 X 1.5 mm² cable.
IP55

Item	Description
74005011	L1+N
74005012	L2+N
74005013	L3+N
74005014	L2+N2

Single-phase tap-off plugs protected with a 6.3A ø5x20 mm fuse with self-extinguishing insulating body, 3 X 1.5 mm² cable.
IP55

Item	Description
74005111	L1+N
74005112	L2+N
74005113	L3+N
74005114	L2+N2

16 A SINGLE-PHASE TAP-OFF PLUGS WITH A 3 m CABLE

Single-phase tap-off plugs without fuse protection with self-extinguishing insulating body.
IP55

Item	Description
74005021	L1+N
74005022	L2+N
74005023	L3+N
74005024	L2+N2

Single-phase tap-off plugs supplied with a ø8.5x31.5 fuse carrier with self-extinguishing insulating body.
IP55

Item	Description
74005221	L1+N
74005222	L2+N
74005223	L3+N
74005224	L2+N2

16 A SINGLE-PHASE TAP-OFF PLUGS WITH A 5 m CABLE

Single-phase tap-off plugs supplied with a ø8.5x31.5 mm fuse carrier with self-extinguishing insulating body.
IP55

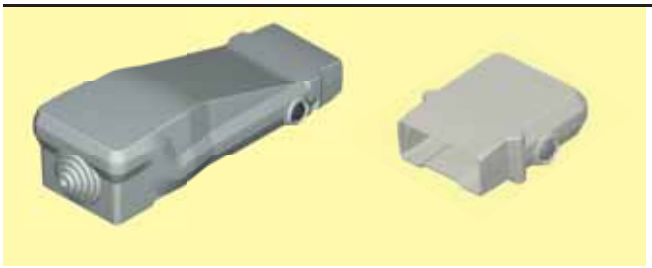
Item	Description
74005231	L1+N
74005232	L2+N
74005233	L3+N
74005234	L2+N2

16 A THREE-PHASE TAP-OFF PLUGS WITH A 3 m CABLE

Three-phase tap-off plugs without fuse protection with self-extinguishing insulating body.
IP55

Item	Description
74005025	L1+L2+L3+N (5x2.5mm²)

Installation accessories



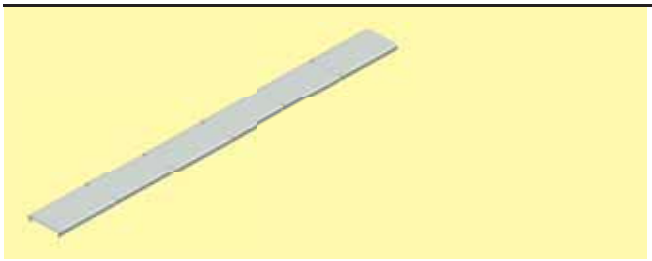
FEED UNIT WITH END COVER

Feed unit with closing cap for 25/40A busbars.
For special applications, the End Line feed unit can be used: when power feed is needed at both ends of a run, or whenever installation layout demands feed at opposite end. Foolproof mounting to avoid errors.
IP55

Item	Description
74181001	Standard feed unit for 25/40A busbars.
74181002	End line feed unit for 25/40A busbars. for special applications

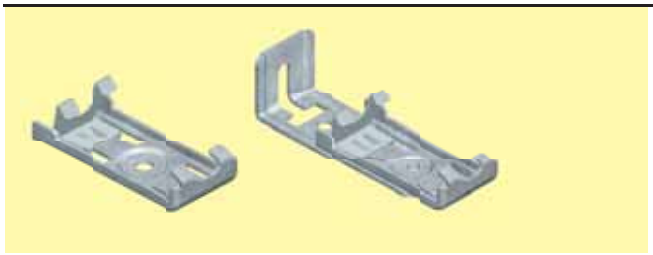
FLEXIBLE JOINT

Item	Description
74181200	flexible joint for 25/40A busbar with radius of action up to 180° for connecting 2 straight elements



MODULAR COVERS

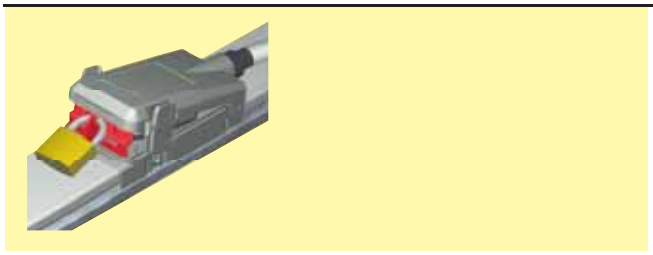
Item	Description
74104001	box with five 0.6 m covers and 10 individual blanking plates. - The 0.6 metre covers have pre-cut modules which allow you to install plugs at any place without removing the whole cover. Snap-on installation - the 10 individual blanking plates allow to recreate the IP55 protection degree if the tap-off plugs are removed



CLAMPING BRACKETS

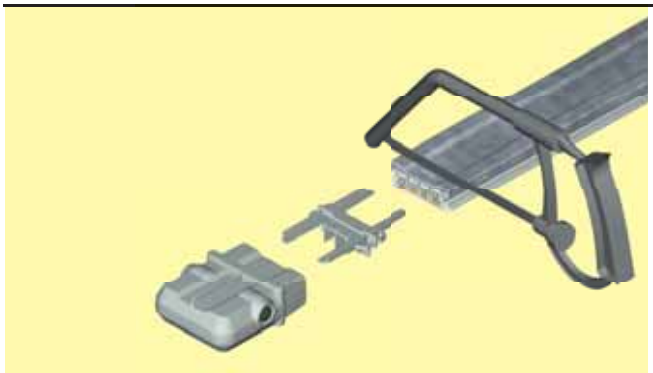
Brackets for fastening the straight elements in raised floors or in false ceilings. Can also be used to attach other material to the busbar

Item	Description
74003700	clamping bracket with centre installation hole
74003001	clamping bracket with side installation hole



SAFETY BLOCK

Item	Description
74003801	safety block to prevent unauthorised personnel from tampering with open plugs
74003800	ø6mm padlock



CUT TO MEASURE ELEMENT

Item	Description
74180300	straight element that can be cut on the jobsite, – possibility to cut every 20 cm – 1.8 m in length – including an additional accessory for resetting the correct insulation between components.

GENERAL RULES FOR INSTALLATION

The EASYBAR system is very easy and fast to install. In fact with few operations and with all the snap-on accessories it is possible to create a complete floor, ceiling and wall energy distribution system. The following pages describe the basic operations for the installation of the busbar and for the distribution of energy in different points. Remember that the EASYBAR distribution system is part of the Legrand solution for the workstations: It is the integrated electrical backbone for the DLP columns, mini-columns and floor boxes alongside the Cablofil cable trays for the VDI structured cabling system. Remember that the maximum height of 50 mm (elements and plugs/feed units installed) allows EASYBAR to be used in even the most restrictive modern day installations.

INSTALLATION OF THE BUSBARS

For the electrical distribution, there is no need to follow the office layout of the furniture. Generally speaking, in order to guarantee the most complete and flexible distribution system under the raised floor or on the ceiling, parallel backbone distribution runs are used.

The creation of an EASYBAR layout can be carried out with two methods, making use of two fixing brackets (item 74003700 and item 74003001):

- the first method (traditional) is to make use of the fixing bracket item 74003700 where elements are placed on the floor, without the busbar, and set in line with laser indicators. The busbar will then be positioned accordingly. This is the most classical solution but it is also the most difficult because the installation needs to be carried out in two steps (figure 1),
- the second (the fastest) method can be carried out in one step, that is to make use of fixing brackets item 74003001. This accessory is first installed directly on the busbar and then positioned on the floor so that it can be fastened. This solution is possible because the bracket is fastened on one side, hence the hole is not obstructed by the busbar. By making use of this solution, the installation time will be reduced. The busbar will help you to line up all fixing brackets in line (see figure 2).

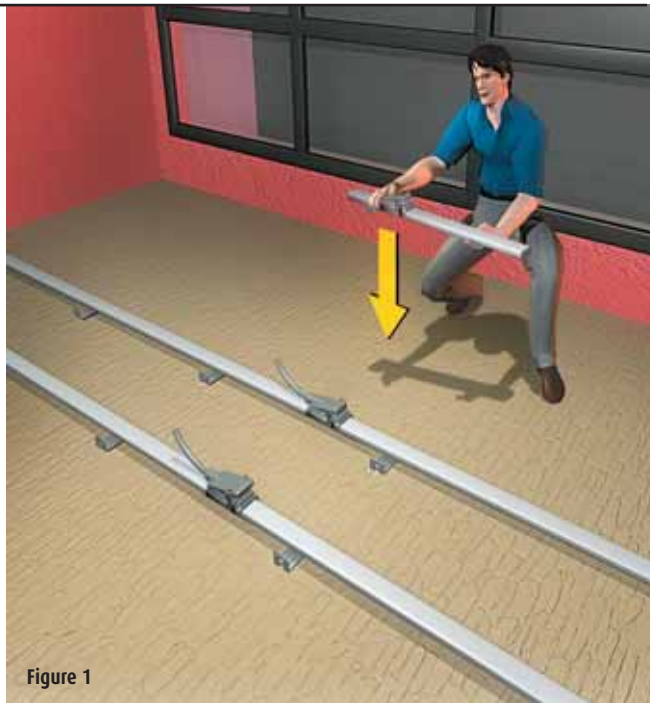


Figure 1

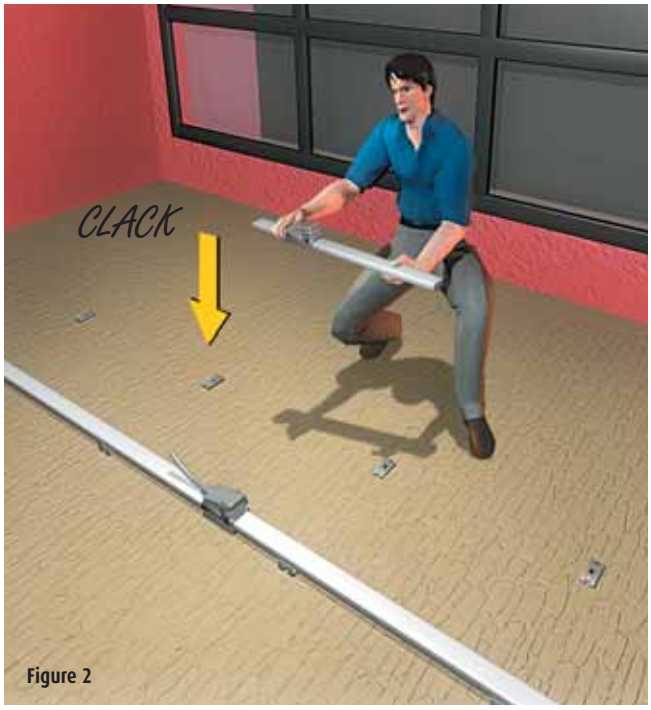


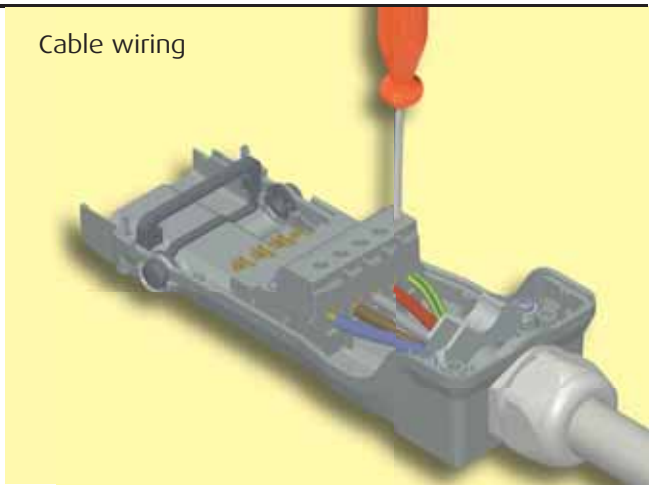
Figure 2

FEED UNIT

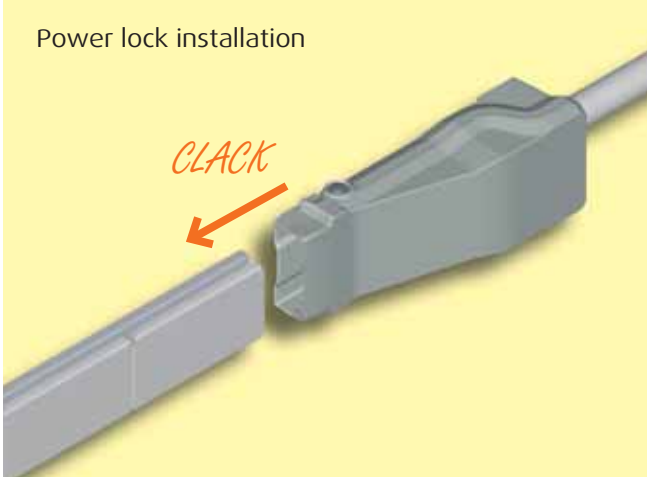
The feed units item 74181001 and item 74181002 can be wired in a few steps:

1. open the feed unit and wire the cables coming from the main line to the busbar by making use font
2. close the feed unit
3. slide it directly onto the straight element until it automatically clicks into place.
4. remove by a 90° rotation of the 2 screws located on the side of the feed unit and pull off.

Cable wiring



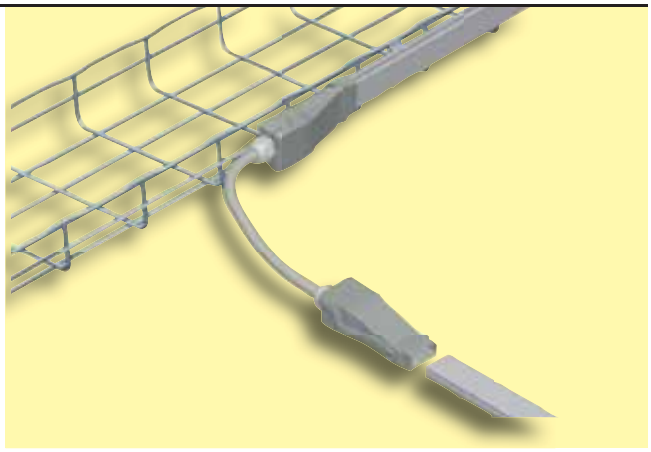
Power lock installation



FLEXIBLE JOINT CONNECTION

In order to make bends, it is necessary to use a flexible joint item 74181200. The installation of this accessory is very simple and can be carried out in a few steps:

1. remove the joining module from the straight element (if installed) by rotating the 2 side screws by 90°
2. slide the joint onto the busbar until locked into place



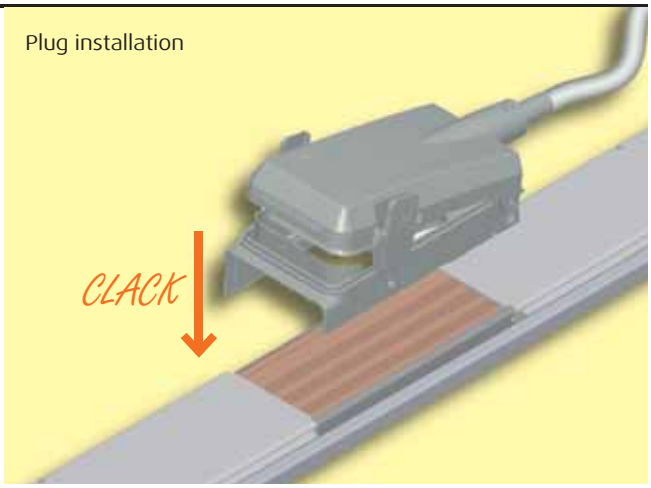
GENERAL RULES FOR INSTALLATION

TAP-OFF PLUG INSTALLATION

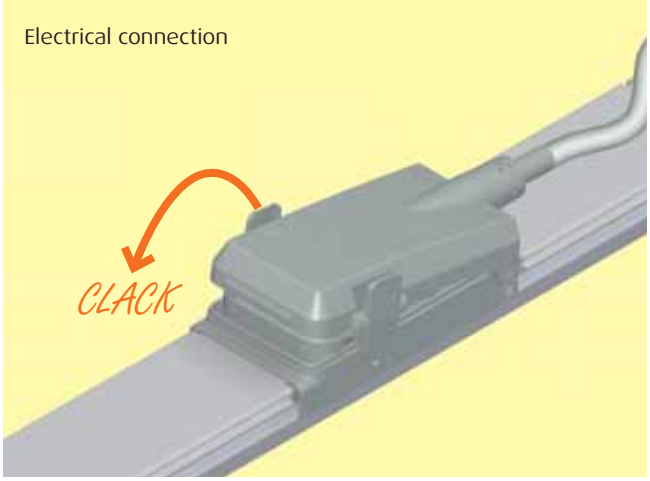
The installation of the tap-off plug is carried out as follows:
- set the plug to OFF position (open)
- snap the plug onto the busbar by placing it on the correct side (foolproof positioning)
- close the plug to the ON position to make the connection

In order to ensure balanced phase distribution, there are also plugs available with a phase-differentiated connection; furthermore, there is an accessory which allows you to prevent unauthorised personnel from unintentionally inserting plugs.
This accessory item 74003801, combined with the padlock item 74003800. is positioned on the plug and prevents it from closing.
After completing the whole installation and after positioning the various covers, it is possible to change the position of the tap-off plugs whilst keeping the IP55 degree of protection. It is possible to carry out this operation with simple operations:
1. set the plug to OFF position
2. remove the plug from the busbar
3. replace the outlet cover (included in the package of covers item 74104001) with the plug; this will reset the IP55 degree
4. re-position the plug in the required position of the busbar. The dimensions of a plug are the same as the knockouts of the cover.

Plug installation



Electrical connection



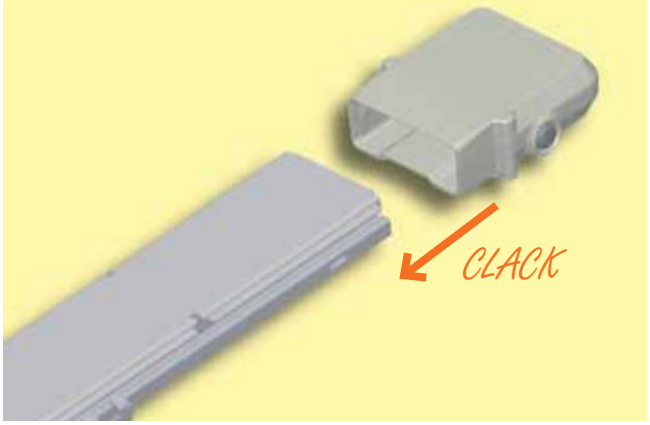
USING THE CUT TO MEASURE ELEMENT

This element is used when it is necessary to have elements cut to size to complete the installation. It is possible to cut this element every 20 cm; its maximum length is 1.8 m.

END COVER

The end cover are used to complete the installation and to guarantee an IP55 degree of protection. They are supplied with the feed units.

End cover installation



SYSTEM INTEGRATION

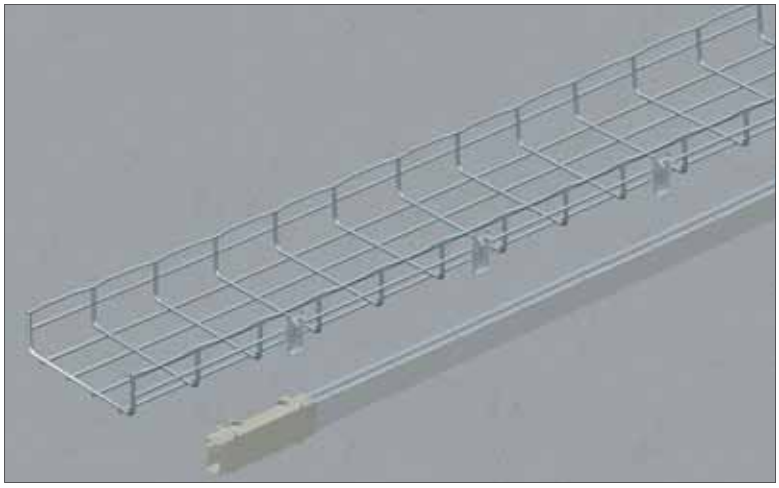
EASYBAR can be combined easily and quickly with the Legrand group cable management systems. Thanks to this integration it is possible to create a complete energy distribution system alongside the VDI structured cabling system with only one installation solution. The integration between the systems occurs as follows:

- the energy distribution occurs through EASYBAR, which can be fixed to the Cablofil wire cable tray trunking system with simple brackets. In this way, it is possible to distribute the data network inside the tray trunking system.

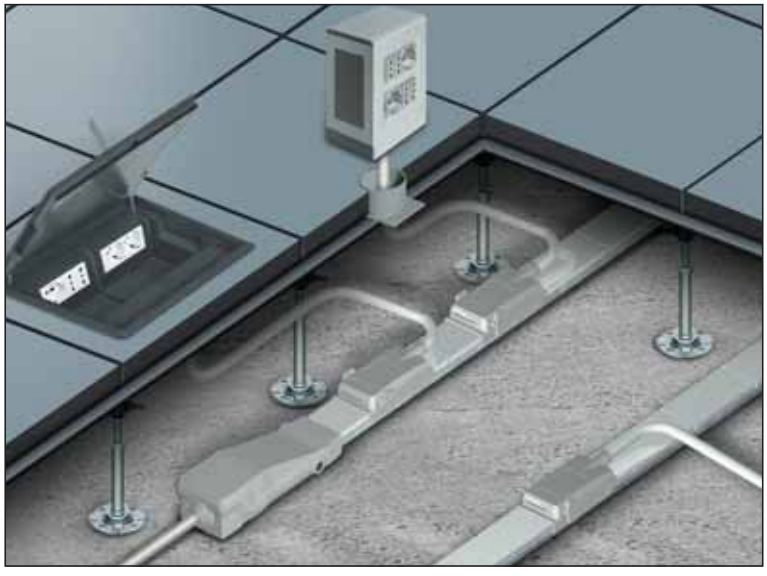
The connection to the workstation is achieved through the Legrand system products:

- from the EASYBAR tap-off plugs the energy is available wherever it is needed
- the Legrand quick-connection plugs connect the output tap-off plug cable to the fast connection junction boxes.
- the floor boxes provides local acces for power and data to the workstations
- distribute the power through the DLP columns and mini-columns

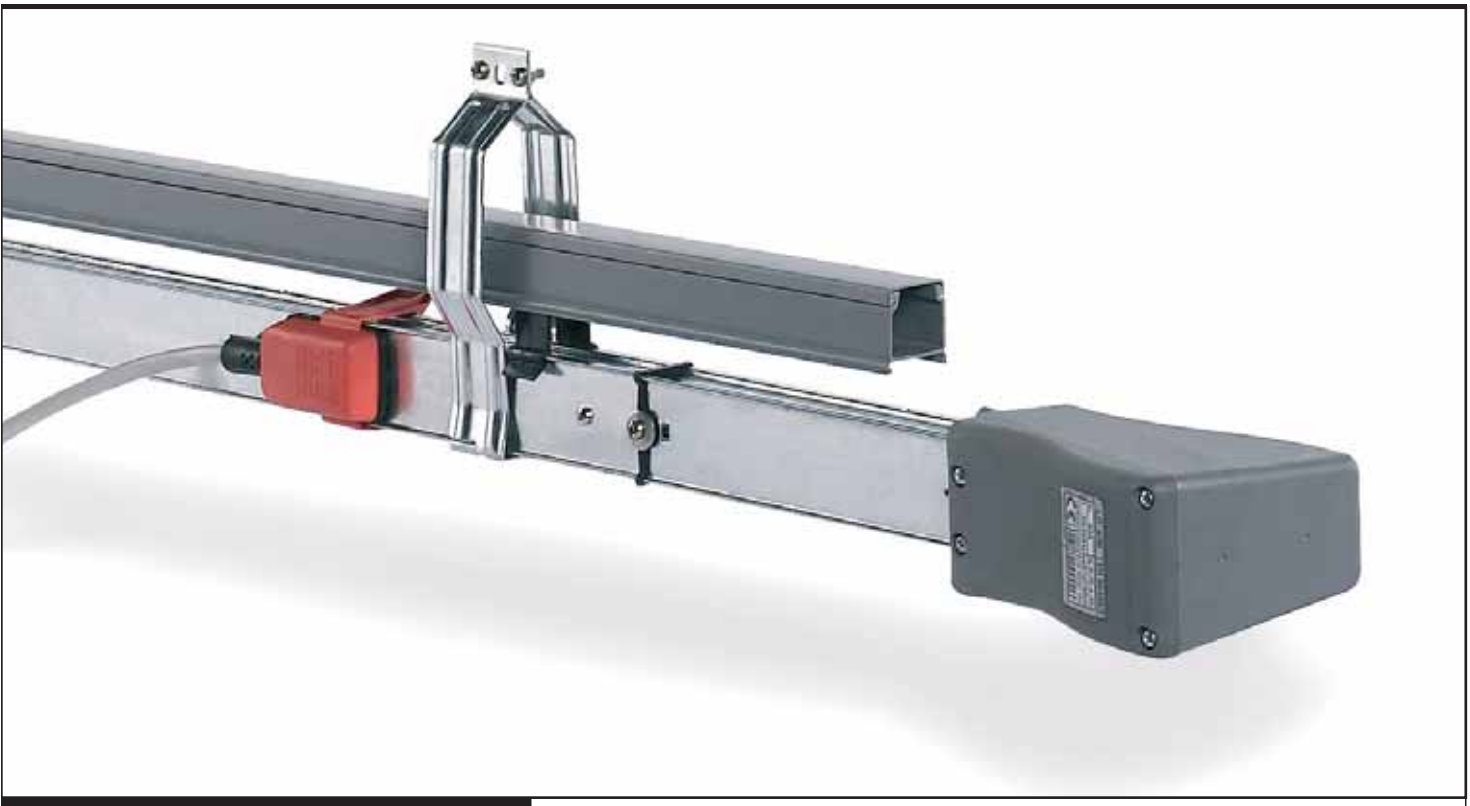
Whatever the need, all Legrand group products are integrated into one system for unlimited solutions to manage power and data.



EASYBAR installation on Cablofil wire cable tray



LB - LIGHTING BUSWAY 25 - 40A



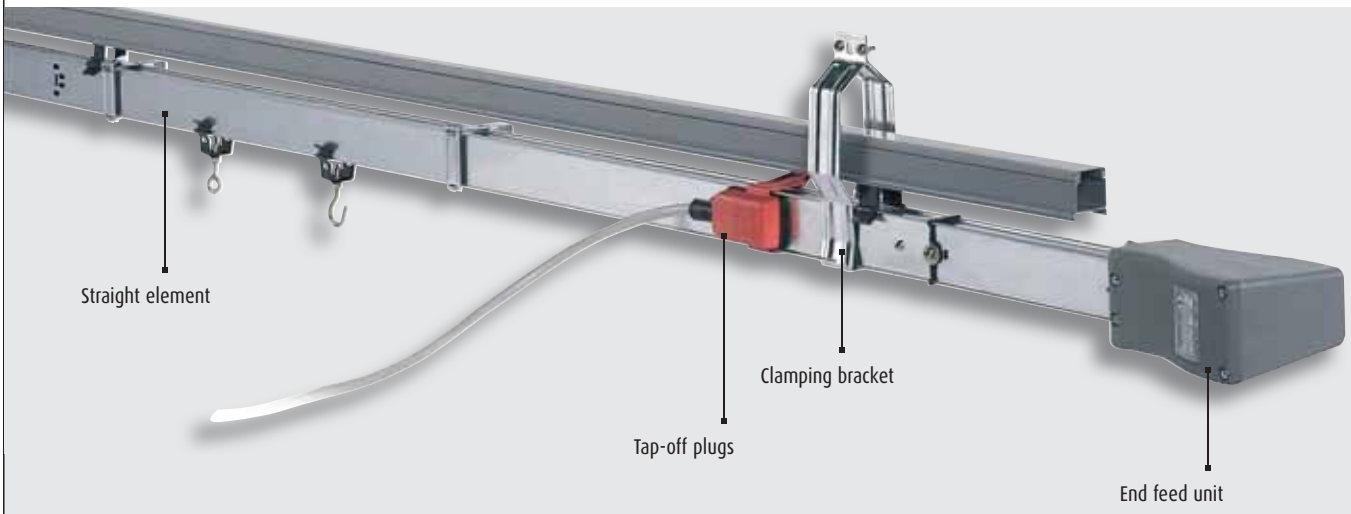
SECTION CONTENTS

LB
Lighting Busway

GENERAL FEATURES

Zucchini's LB product line is the ideal solution for supplying power to light fixtures for commercial and industrial applications. The main features of the LB range are:

- speed, simplicity and flexibility when planning and installing the lines;
- capable of being installed both in false ceilings and below floating floors, because of the IP55 degree of protection;
- compliance with Standard IEC 60439-1 and 2;
- rated at average room temperature of 40°C for a higher performance level compared to the 35°C rating required by the standard.



Shopping centres

Offices

STRAIGHT ELEMENTS

The components and the features of the LB straight elements are:

- a closed and rib-shaped section casing, made with hot galvanized steel (Senzimir) (due to its cross-section and electrical continuity, it also serves as a protective conductor);
- casing thickness 0.6 mm;
- reduced dimensions 26x41 mm;
- painted or with an anodized aluminium casing versions available on request;
- number of conductors: 2, 4 or 6 rigid copper conductors with a 99.9% purity;
- conductor section: 3.14 mm^2 for 25A and 6.15 mm^2 for 40A;
- separation between the conductors by using a V0 (according to UL94) self-extinguishing insulating plastic sheathe and in compliance with the glow-wire test according to IEC 60695-2-10;
- tap-off outlets equidistant every 1m (3 outlets every 3m) or 0.5m (6 outlets every 3m), receiving the corresponding tap-off plugs (in the LB 6 conductor version the outlets are arranged on both sides of the busbar: 3+3 or 6+6 outlets);
- a junction block automatically ensuring electrical continuity.

The connection between two straight elements is quick; with one operation the mechanical and the electrical connection is ensured between two joined elements; at the same time, an IP55 degree of protection is guaranteed without using additional accessories.
The continuity of the protective conductor (casing) is guaranteed by tightening the special connection screw.
The whole busbar is fire retardant in compliance with the IEC 60332-3 standard.

Store house

Hospitals

LB
Lighting Busway

FEED UNITS

Allows you to electrically power the LB line through a cable line; the installation is carried out with a quick junction connection as with the straight elements.
The feed units have terminals for the connection of flexible copper cables for sections of up to 25 mm2.
There is an anti-pullout cable clamp inside the feed unit. The entrance point for the incoming cable is positioned on the end of the feed unit.

Standard end feed unit

END COVER

The end cover ensures the IP55 protection degree at the end of the line.

End cover

FIXING DEVICES

Specific accessories are available for attaching the busbar to the structure of the building (directly or with a steel chain or cable).
The accessories for overhead fixing are:

- snap clamp: the snap-on installation is extremely fast. This bracket is suitable both for overhanging the busbar to the ceiling and for hanging products such as fluorescent lamps, tap-off boxes, etc., to the busbar itself;
- snap clamp with ring or hook: the ring or the hook enables to hang lamps easily.
- simple bracket: used with the ceiling bracket holder, it enables the installation the busbar directly onto the ceiling at a distance of about 25cm;
- wall bracket: enables the fixing of the busbar directly onto the wall of a building, setting it at the required distance enabling the installation of the necessary components.

Fixing accessories for fastening the busbar run to the structure and hanging the lamps onto the busbar

TAP-OFF PLUGS

Used for connecting and energizing light fixtures; their features include:

- can be inserted and removed when the busbar is energized and when the fixure is under load;
- the PE contact (Protective Earth) is the first to make an electrical connection when inserting the plug into the outlet and it is the last to disconnect when pulling it out;
- compliance with all insulating plastic components according to the glow-wire test (IEC 60695-2-10) with V1 self-extinguishing degree (UL94);
- standard IP55 degree of protection without using additional accessories according to Standard IEC 60529.
- The tap-off plugs are common for the LB 2, 4 and 6 conductors offer. These include:

a) 10A pre-wired, pre-positionned phase tap-off plugs with 1m, 3m or 5m of 3x1.5mm^2 cable;
b) 16A phase selection tap-off plugs, with terminals for connecting L+N+PE cable;
c) 16A phase selection tap-off plugs, with ø5x20mm cylindrical ceramic fuse and with terminals for connecting L+N+PE cable;
d) 16A three-phase tap-off plugs, with a set of three cylindrical fuse carriers with terminals for connecting a 3L+N+PE cable.

- In the LB 6 conductor line, the plugs are polarized, in other words the plug which is installed on one side of the busbar cannot be installed on the other side due to a mechanical lock on the outlet.

Phase selection plug

Single-phase plugs with 1, 3, 5 m cable

LB
Lighting Busway

TRUNKING ELEMENTS AND ADDITIONAL ELEMENTS

Depending on the different installation requirements Zucchini can provide various technical solutions:

a) flexible joint: used to make changes of direction or to avoid possible interferences that may be found on the natural path of the BUSBAR.
The features are as follows:

- same connection method as the straight elements;
- electrical and mechanical connection with one operation;
- standard degree of protection: IP55;
- continuity of the protective conductor, made from the casing of the element itself, guaranteed by tightening the special connection screw;

b) cable trunking with cover: this accessory, which can be positioned in the upper part of the busbar, can be used to distribute auxiliary circuits, it is an integral part of the busbar run using special spacers and brackets which support the busbar trunking system firmly. The trunking part is 3 m long and its dimensions are 28x28 mm;

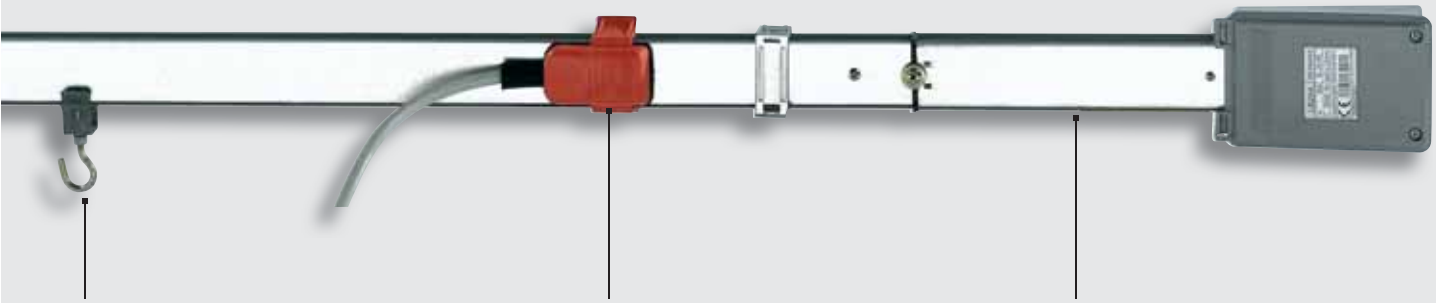
c) intermediate feed unit: it can power the busbar from an intermediate point of the line, thus reducing the voltage drop at the end of the line and/or making the installation easier when the electric energy supply point is near the middle of the line.

PARTS OF THE LINE

Phase selection plug

Three-phase plug with fuse carrier

Single-phase plugs with 1, 3, 5 m cable



Hook for suspending a lamp or for suspending other devices (boxes, loudspeakers, etc.)

Single-phase 10A tap-off plugs with a pre-wired cable and phase identification using colours.

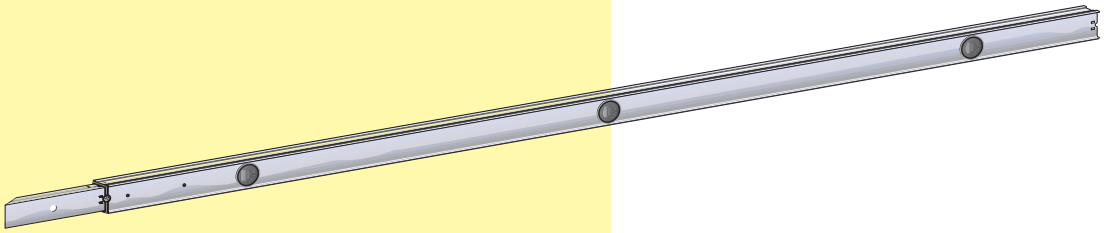
Right end feed units complete with cable clamp and terminals for 25 mm^2 flexible cables.

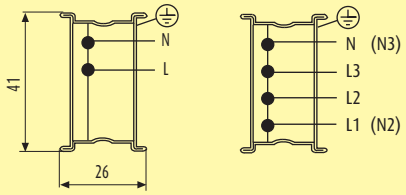
Snap-on stainless steel hook, ring and bracket

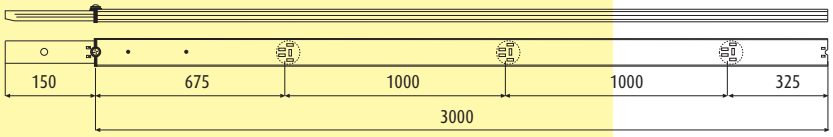
Simple suspension bracket

Bracket for coupling elements and floor fixing

Trunking components



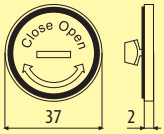




STRAIGHT ELEMENT

Supplied with 3 pre-installed outlet covers
(one cover every other outlet on the 6 outlet model)

Model	Item	Length (m)	Rating (A)	Conductors	No. of outlets	Weight (kg)
LB 252	**70150101**	3	25	2	3	2.900
LB 252	**70150102**	3	25	2	6	2.900
LB 252	**70150111**	1.5	25	2	2	1.500
LB 402	**70170101**	3	40	2	3	3.200
LB 402	**70170102**	3	40	2	6	3.200
LB 402	**70170111**	1.5	40	2	2	1.650
LB 254	**70160101**	3	25	4	3	3.100
LB 254	**70160102**	3	25	4	6	3.100
LB 254	**70160111**	1.5	25	4	2	1.550
LB 404	**70180101**	3	40	4	3	3.400
LB 404	**70180102**	3	40	4	6	3.400
LB 404	**70180111**	1.5	40	4	2	1.750



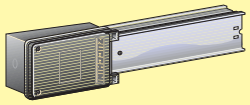
OUTLET COVER (spare part)

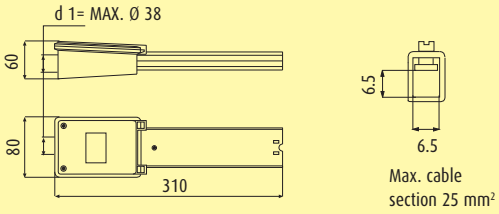
Already mounted on each plug point, for IP55 protection of outlets without plug.

Model	Item	Weight (kg)
All	**70102054**	0.004

Versions with painted and Aluminum casing on request

STANDARD FEED UNIT



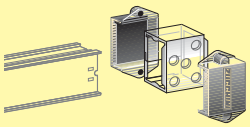


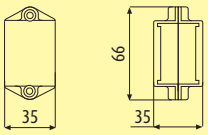
Supplied without an electric and mechanical bayonet connection. It must be installed on one side of the element, located near the linking bayonet.

Model	Item	Weight (kg)
LB 252	**70161001**	0.400
LB 402	**70181001**	0.430
LB 254	**70161001**	0.400
LB 404	**70181001**	0.430

For cable glands see page 175

STANDARD END COVER

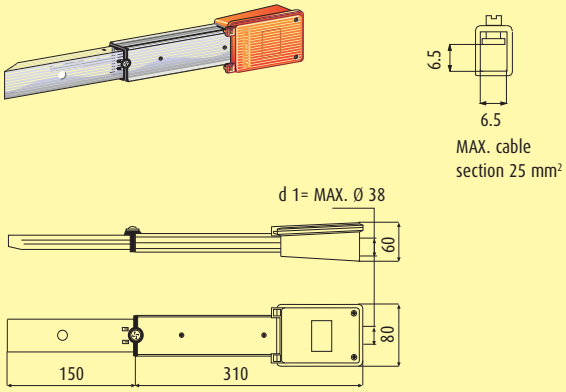




To be used with standard feed units.

Model	Item	Weight (kg)
All	**70101351**	0.060

Trunking element

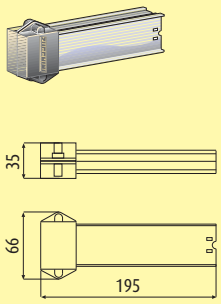


END-LINE FEED UNIT

Supplied with an electric and mechanical bayonet connection. It must be installed on the extremity of the element without the bayonet.
Can be used when power feed is needed at both ends of a run (less voltage drop) or cabled in association with a standard feed unit to create a flexible element to bypass large obstacles (beams, air ducts, etc)

Model	Item	Weight (kg)
LB 252	**70161002**	0.600
LB 402	**70181002**	0.630
LB 254	**70161002**	0.600
LB 404	**70181002**	0.630

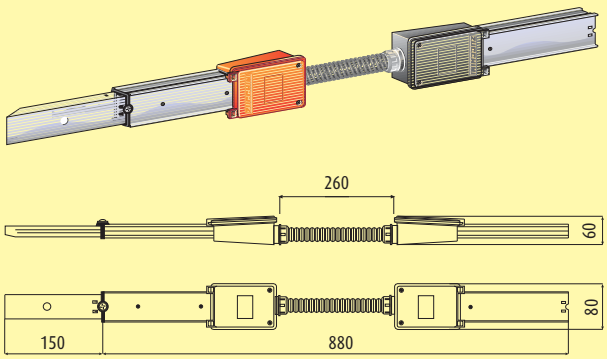
For cable glands see page 175



END COVER

To be used with end-line feed unit.

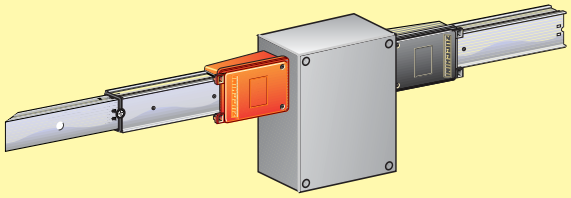
Model	Item	Weight (kg)
All	**70161352**	0.200

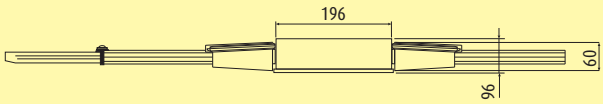


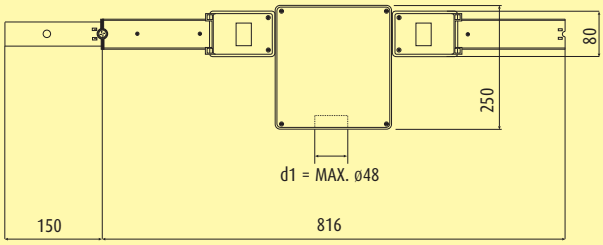
FLEXIBLE JOINT

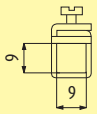
Used to make changes of direction.

Model	Item	Weight (kg)
LB 252	**70161261**	1.350
LB 402	**70181261**	1.400
LB 254	**70161261**	1.350
LB 404	**70181261**	1.400









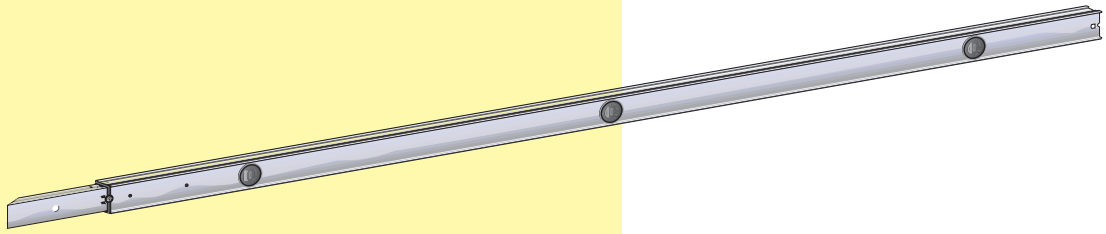
Max. cable section 35 mm²

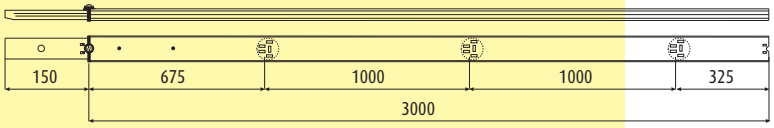
CENTRE FEED UNIT 25/40A

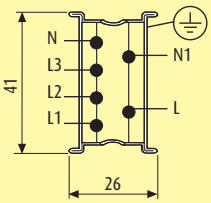
Used to power a busbar straight element from any intermediate point. The centre feed unit is also used for reducing the voltage drop of the line.

Model	Item	Weight (kg)
All	**70181151**	2.100

Trunking components - LB6



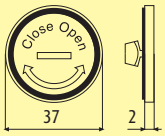




STRAIGHT ELEMENT

Supplied with 3+3 pre-installed outlet covers
(one cover every other outlet on the 6+6 outlet model)
The outlets are positioned on both sides in alternating pattern

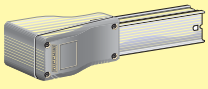
Model	Item	Length [m]	Rating A	Conductors	No. of outlets	Weight (kg)
LB 256	**70250101**	3	25	6	3 + 3	3.100
LB 256	**70250102**	3	25	6	6 + 6	3.100
LB 256	**70250111**	1.5	25	6	2 + 2	1.550
LB 406	**70260101**	3	40	6	3 + 3	3.400
LB 406	**70260102**	3	40	6	6 + 6	3.400
LB 406	**70260111**	1.5	40	6	2 + 2	1.750

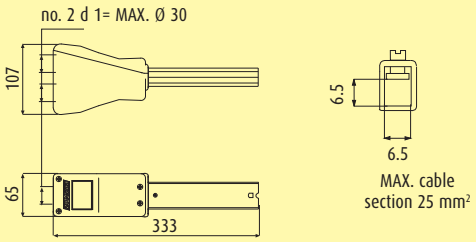


OUTLET COVER (spare part)

Already mounted on each plug point, for IP55 protection of outlets without plug.

Model	Item	Weight (kg)
All	**70102054**	0.004





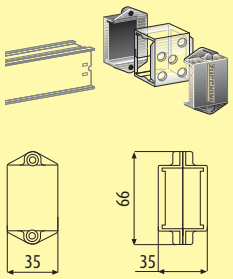
STANDARD FEED UNIT

Supplied without an electric and mechanical bayonet connection. It must be installed on one side of the element, located near the linking bayonet. Removable top and bottom cover to make cable connections easier.

Model	Item	Weight (kg)
All	**70261101**	0.430

For cable glands see page 175

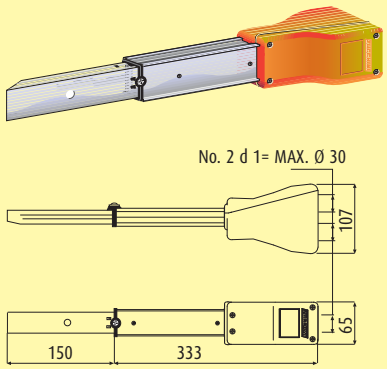
Versions with painted and Aluminum casing on request



STANDARD END COVER

To be used with standard feed units.

Model	Item	Weight (kg)
All	**70101351**	0.080

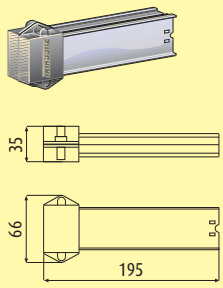


END-LINE FEED UNIT

Supplied with an electric and mechanical bayonet connection. It must be installed on the extremity of the element without the bayonet.
Can be used when power feed is needed at both ends of a run (less voltage drop) or cabled in association with a standard feed unit to create a flexible element to bypass large obstacles (beams, air ducts, etc) Removable top and bottom cover to make cable connections easier.

Model	Item	Weight (kg)
All	**70261102**	0.600

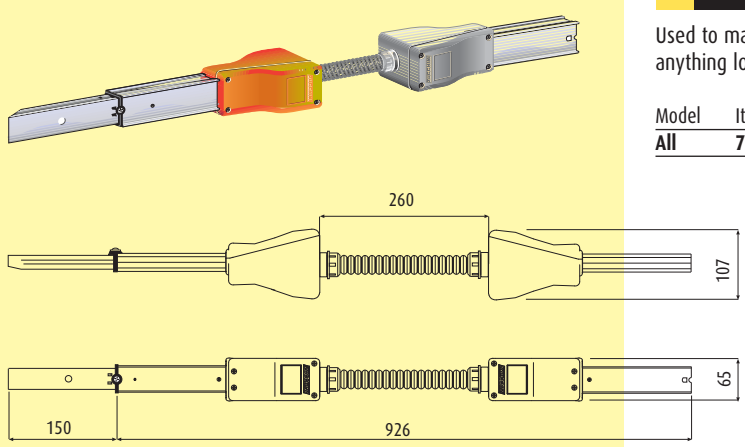
For cable glands see page 175



END COVER

To be used with end-line feed unit.

Model	Item	Weight (kg)
All	**70263102**	0.130



FLEXIBLE JOINT

Used to make changes of direction or avoid columns, obstructions or anything located along the path of the line.

Model	Item	Weight (kg)
All	**70263201**	1.350

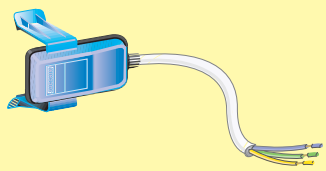
Plugs for all versions

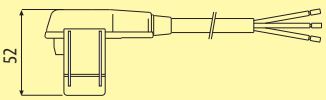
SINGLE-PHASE PLUGS WITH CABLE

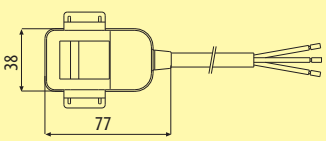
	LB Model 252 402	LB Model 254 404	LB Model 256 406	Item	Capacity	Fuse	Phase	Cable length	Cable type	Colour
			4 conductors side							
=>		•	•	**70105016**	10A	-	L1-N	1m	FROR	grey
		•	•	**70105116**	10A	-	L1-N	3m	FROR	grey
		•	•	**70105126**	10A	-	L1-N	5m	FROR	grey
		•	•	**70105090**	10A	-	L1-N	1m	FG7	grey
=>		•	•	**70105017**	10A	-	L2-N	1m	FROR	orange
		•	•	**70105117**	10A	-	L2-N	3m	FROR	orange
		•	•	**70105127**	10A	-	L2-N	5m	FROR	orange
		•	•	**70105091**	10A	-	L2-N	1m	FG7	orange
=>	•	•	•	**70105018**	10A	-	L3-N	1m	FROR	blue
	•	•	•	**70105118**	10A	-	L3-N	3m	FROR	blue
	•	•	•	**70105128**	10A	-	L3-N	5m	FROR	blue
	•	•	•	**70105092**	10A	-	L3-N	1m	FG7	blue
=>		•	•	**70105063**	10A	-	L2-N2	1m	FROR	black
		•	•	**70105163**	10A	-	L2-N2	3m	FROR	black
		•	•	**70105173**	10A	-	L2-N2	5m	FROR	black
		•	•	**70105093**	10A	-	L2-N2	1m	FG7	black
			2 conductors side							
=>			•	**70265001**	10A	-	L1-N	1m	FROR	orange
			•	**70265101**	10A	-	L1-N	3m	FROR	orange
			•	**70265111**	10A	-	L1-N	5m	FROR	orange
			•	**70265004**	10A	-	L1-N	1m	FG7	orange

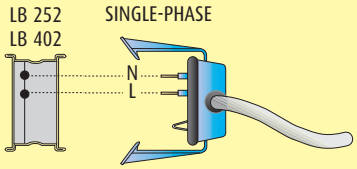
The availability of plugs having different colours allows you to immediately identify the circuit the device belongs to, hence giving you considerable installation advantages for future modifications. The balance control of the loads on the various phases is immediate thanks to the different colours.

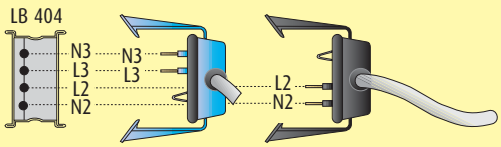
=> Specifies the most frequently used plugs.

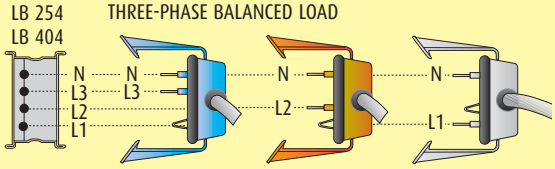


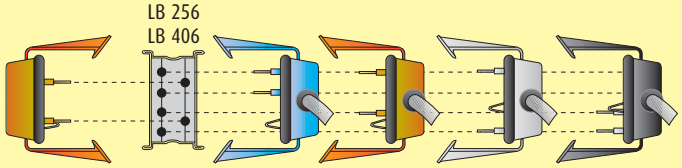








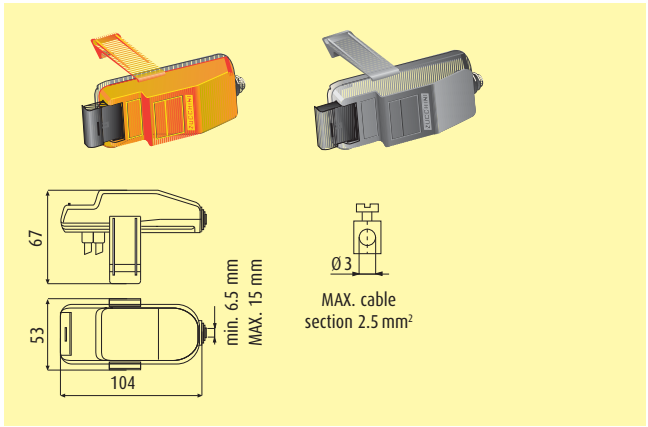




SAFETY PLUGS

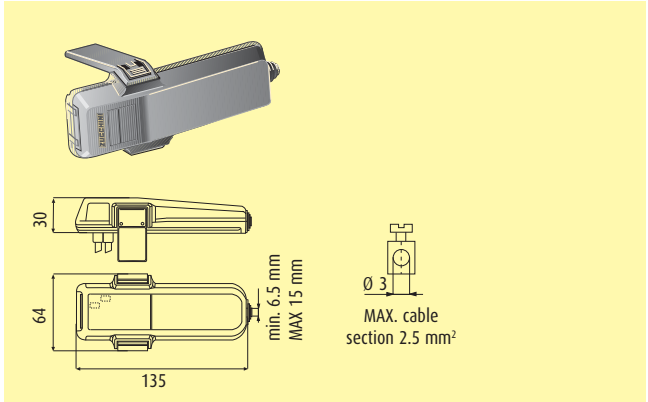
	LB Model			Item	Capacity	Fuse	Phase	Cable length	Cable type	Colour
	252 402	254 404	256 406							
			4 conductors side	**Phase selection single-phase plug**						
=>	•	•	•	**70105030**	16A	Ø5x20 6.3A	selectable	-	-	grey
=>	•	•	•	**70105031**	16A	-	selectable	-	-	grey
	•	•	•	**70105130**	16A	Ø5x20 6.3A	selectable	3m	FROR	grey
	•	•	•	**70105131**	16A	Ø5x20 6.3A	selectable	5m	FROR	grey
				Three-phase plugs						
=>		•	•	**70105141**	16A	-	L1-L2-L3-N	-	-	grey
		•	•	**70105142**	16A	-	L1-L2-L3-N	3m	FROR	grey
		•	•	**70105143**	16A	-	L1-L2-L3-N	5m	FROR	grey
			2 conductors side							
=>			•	**70265002**	16A	Ø5x20 6.3A	-	-	-	orange
=>			•	**70265003**	16A	-	-	-	-	orange
			•	**70265102**	16A	-	-	3m	FROR	orange
			•	**70265103**	16A	-	-	5m	FROR	orange

=> Specifies the most frequently used plugs.



PLUGS WITH FUSE CARRIER CH8 - 16A SINGLE-PHASE

LB Model			Item	Capacity	Fuse	Phase	Cable length	Cable type	Colour
252 402	254 404	256 406							
		4 conductors side							
•	•	•	**70105071**	16A	Ø8.5x31.5	selectable	-	-	grey

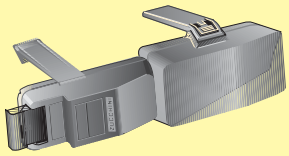


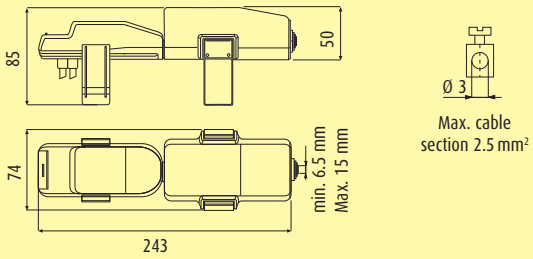
Plugs for all versions

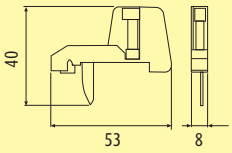
PLUGS WITH FUSE CARRIER - 16A THREE-PHASE

LB Model 252 402	LB Model 254 404	LB Model 256 406 4 conductors side	Item	Capacity A	Fuse	Phase	Cable length	Cable type	Colour
	•	•	**70105035**	16A	Ø8.5x31.5*	L1-L2-L3-N	-	-	grey
	•	•	**70105045**	16A	Ø6.3x31.5*	L1-L2-L3-N	-	-	grey

* Fuse not included







MOBILE CONTACT

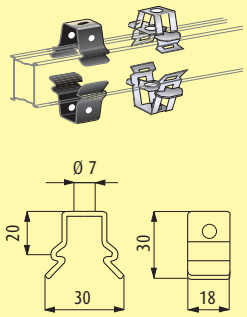
Can be used to transform a single phase selection plug into a three-phase plug

Item	Capacity A	Fuse	Weight (kg)
71005028**	16	1	0.008
71005029	16	0	0.008

** 16A contact with 6.3A ceramic fuse

For fuse features, see pag. 175

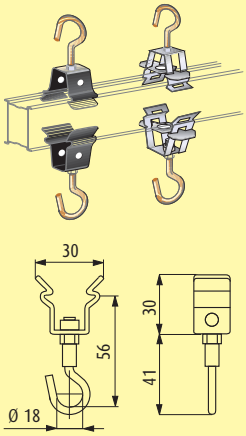
Fixing supports



SNAP-ON BRACKET (MAX. 15 KG)

Clamp to be clipped onto the element's top or bottom edge.

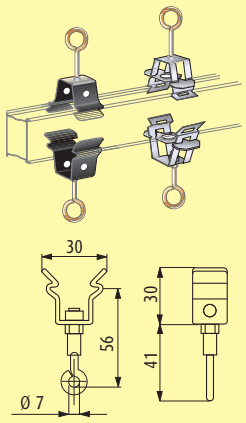
Model	Item	Weight (kg)
Burnished Steel	**71003003**	0.021
STAINLESS STEEL	**71203701**	0.021



SUSPENSION HOOK (MAX. 15 kg)

Clamp to be clipped onto the element's top or bottom edge.

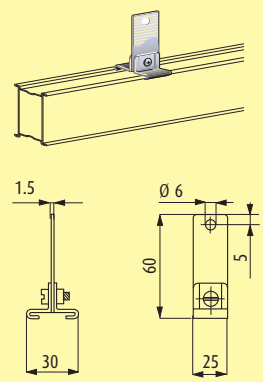
Model	Item	Weight (kg)
Burnished Steel	**71005002**	0.025
STAINLESS STEEL	**71203702**	0.025



SUSPENSION RING (MAX. 15 kg)

Clamp to be clipped onto the element's top or bottom edge.

Model	Item	Weight (kg)
Burnished Steel	**71005015**	0.025
STAINLESS STEEL	**71203703**	0.025

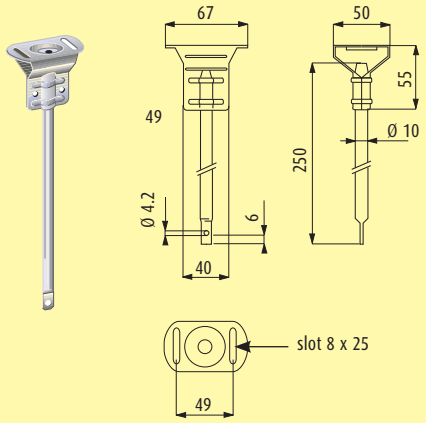


SUSPENSION BRACKET (MAX. 15 kg)

Clamp to be clipped onto the element's top or bottom edge.

Item	Weight (kg)
71003001	0.033

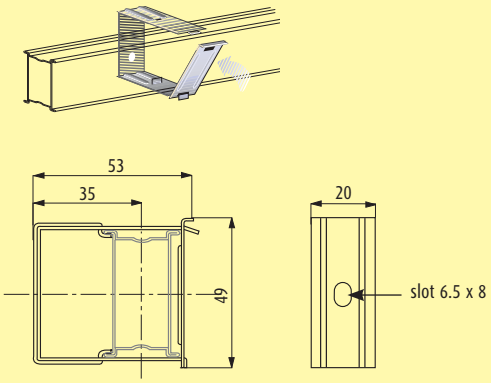
Fixing elements



BRACKET HOLDER

Must be used with code 71003001 suspension bracket.

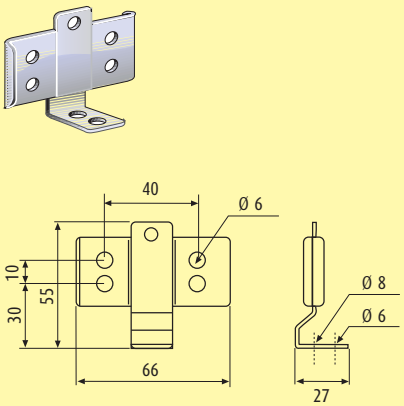
Item	Weight (kg)
73003312	0.136



WALL SUSPENSION BRACKET

Cannot be used with LB6 (no access to back side for plugs)

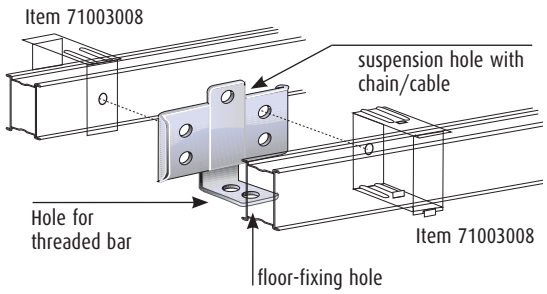
Item	Weight (kg)
71003008	0.030



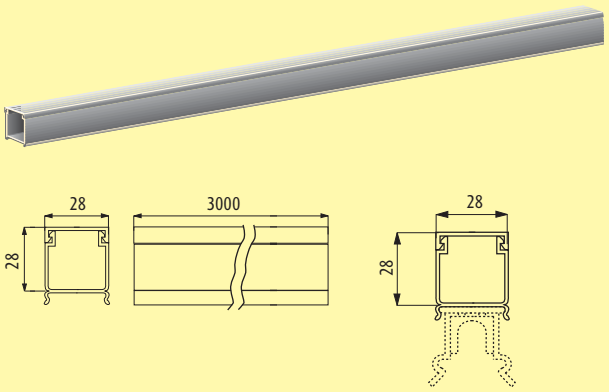
BRACKET FOR COUPLING ELEMENTS

Bracket suitable for positioning two lines in parallel. The reduced dimensions are also specified for floor installations.

Item	Weight (kg)
70105043	0.060

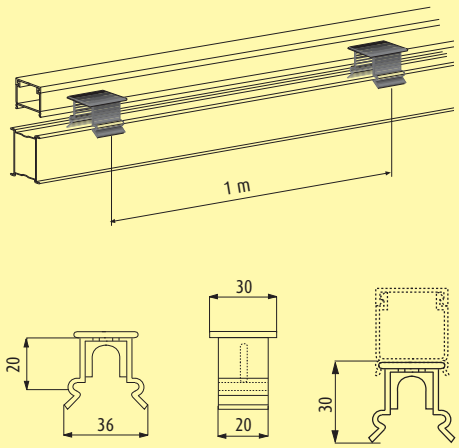


Cable channel and accessories



CABLE CHANNEL WITH COVER (RIGID PVC)

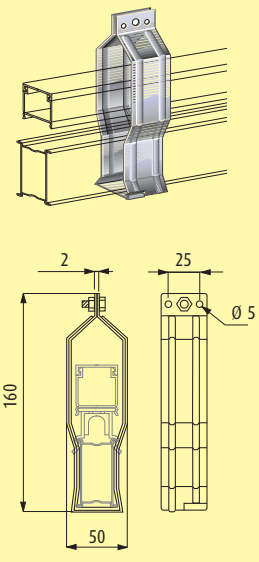
Item	Length [m]	Weight (kg)
71000104	3	0.884



SPACER FOR CABLE CHANNEL

When ordering, consider using spacer every metre of conduit.

Item	Weight (kg)
71003007	0.006

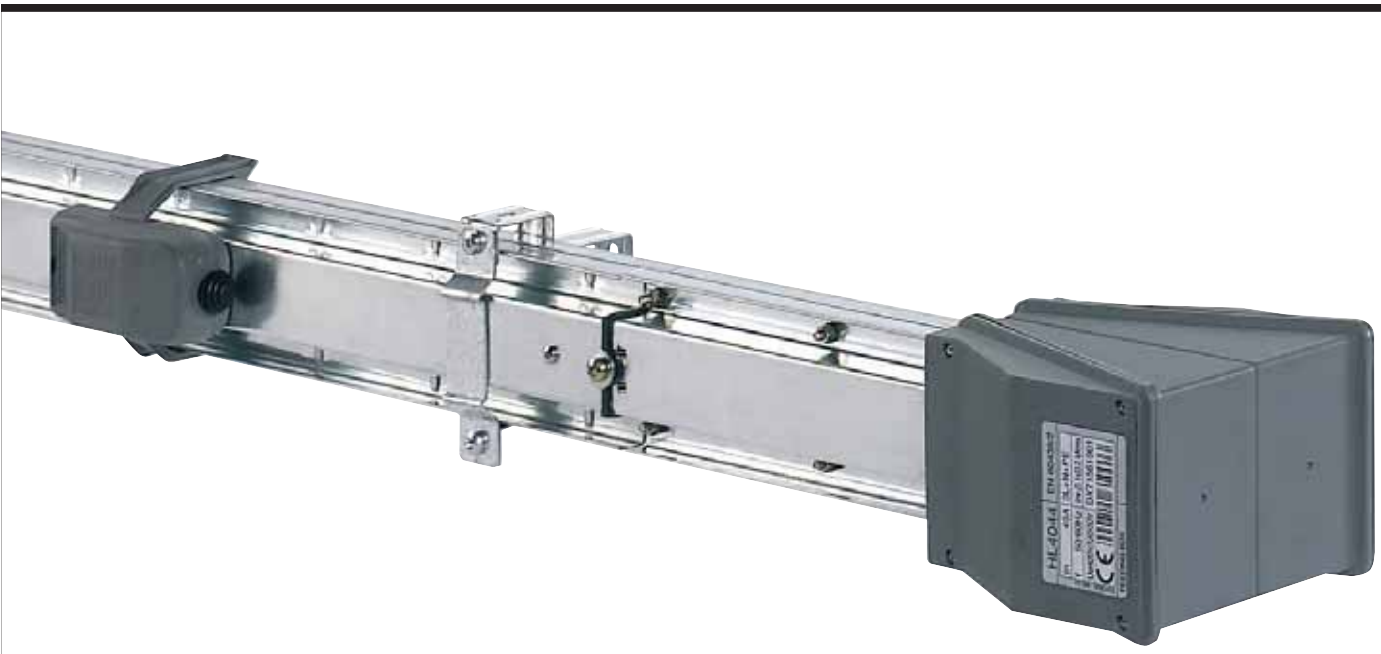


SUSPENSION BRACKET FOR CABLE CHANNEL

Suspension bracket to be used when the cable cable channel is used.

Item	Weight (kg)
71003006	0.108

HL - HIGH LIGHTING
25 - 40A



SECTION CONTENTS

HL
High Lighting

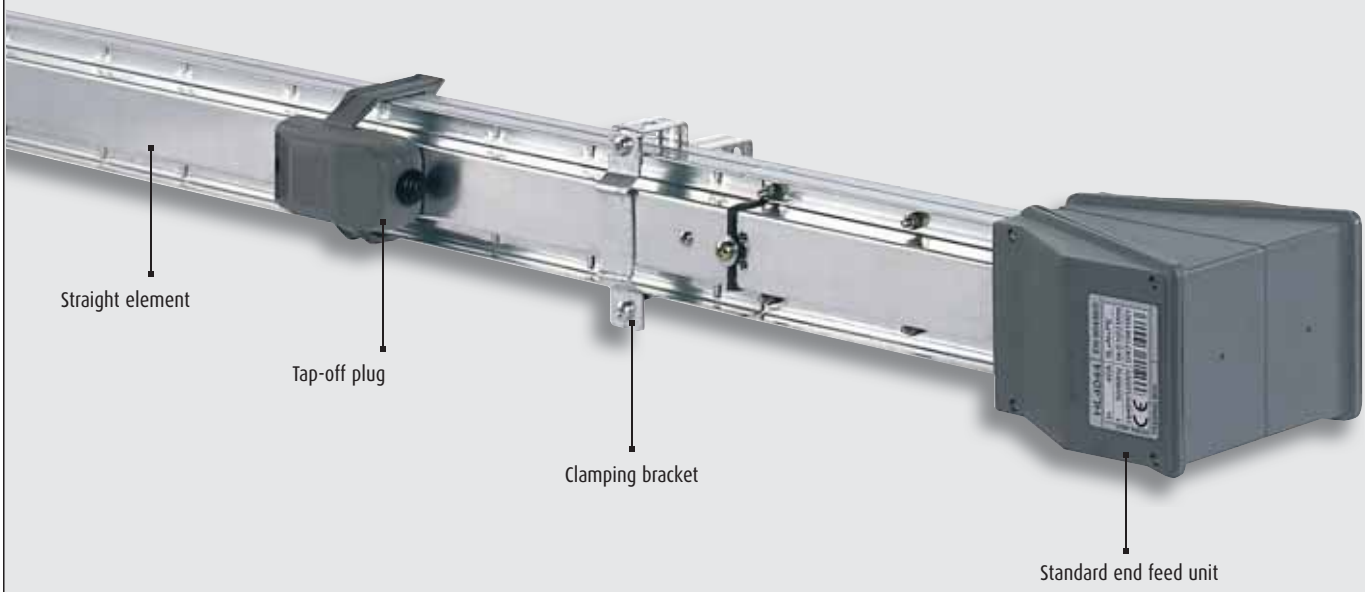
GENERAL FEATURES

The HL busbar line is ideal for powering lighting fixtures wherever it is necessary to hang heavy accessories onto the busbar. The main features of the HL range are:

- speed, simplicity and flexibility when installing and planning the lines;
- high mechanical rigidity obtained by the particular "beam-type configuration" and by an increased thickness of the metal casing;
- capable of being installed in systems with a distance of up to 6m between suspension brackets;
- compliance with Standard IEC 60439-1 and 2;
- rated at average room temperature of 40°C for a higher performance level compared to the 35°C rating required by the standard.

HL is available in two dimensions:

- **HLs** single version for 2 and 4 conductors
- **HLd** dual version for 2+2; 4+2; 4+4 and 2x4 conductors.



Exhibition pavilions

Car parks

STRAIGHT ELEMENTS

The components and the features of the HL straight elements are:

- a beam-shaped casing, made with hot galvanized steel (Senzimir) (due to its cross-section and electrical continuity, it also serves as the protective earth).
- HLs busbar dimensions: 26x62mm; HLd: 40x70mm;
- upon request, the straight elements are also available in the Aisi 304 stainless steel version;
- number of conductors: 2, 4, 6 or 8 rigid copper conductors with a 99.9% purity;
- conductor section: 3.14 mm^2 for 25A and 6.15 mm^2 for 40A.;
- separation between the conductors by using a V0 (according to UL94) self-extinguishing insulating plastic sheathe and in compliance with the glow-wire test according to IEC 60695-2-10;
- tap-off outlets equidistant every 1m (3 outlets every 3m) or 0.5m (6 outlets every 3m), receiving the corresponding tap-off plugs (in the LB 6 conductor version the outlets are arranged on both sides of the busbar: 3+3 or 6+6 outlets);
- a junction block automatically ensuring electrical continuity

The connection between two straight elements is quick; with one operation the mechanical and the electrical connection is ensured between two joined elements; at the same time, an IP55 degree of protection is guaranteed without using additional sealing accessories.
The continuity of the protective conductor (casing) is guaranteed by tightening the special connection screw.
The whole busbar is fire retardant in compliance with the Standard IEC 60332-3.
In the HLd (dual) version, the straight elements are separated over their entire length by a metal plate divider (thickness 0.8 mm) which separates the straight elements in two parts making the two circuits totally independent. Because of this division the HLd busbar can be used for powering "normal" and "emergency" loads.
The HLd line is designed so as to provide two separate rated circuits (25A+25A or 40A+40A) on without a derating factor, and not one one 25 or 40A incoming divided into two circuits.

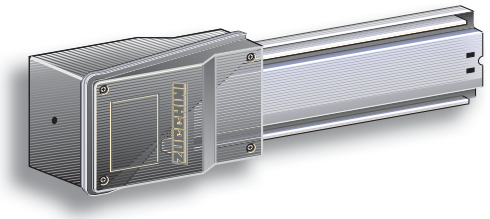
Small/medium industries

Gyms

HL
High Lighting

FEED UNITS

Allows you to electrically power the HL line through one (HLs) or two separate lines (HLd); the installation is carried out with a quick junction connection as with the straight elements.
The feed units have terminals for the connection of flexible cables for sections of up to 25 mm^2. There is an anti-pullout cable clamp inside the feed unit. The entrance point for the incoming cable is positioned on the end of the feed unit.



Standard end feed unit

END COVER

The end cover ensures the IP55 protection degree at the end of the line.

Standard end cover

FIXING DEVICES

Specific accessories are available for attaching the busbar to the structure of the building (directly or with a steel chain or cable). The accessories for overhead fixing are:

- snap clamp: the snap-on installation is extremely fast. This bracket is suitable both for overhanging the busbar to the ceiling and for hanging products such as fluorescent lamps, tap-off boxes, etc., to the busbar itself;
- snap clamp with ring or hook: the ring or the hook enables to hang lamps easily;
- simple bracket: used with the ceiling bracket holder, it enables the installation the busbar directly onto the ceiling at a distance of about 25cm;
- wall bracket: enables the fixing of the busbar directly onto the wall of a building, setting it at the required distance enabling the installation of the necessary components.

Fixing accessories for fastening the busbar run to the structure and hanging the lamps onto the busbar

TAP-OFF PLUGS

Used for connecting and energizing light fixtures; their features include:

- can be inserted and removed when the busbar is energized and when the fixure is under load;
- the PE contact (protective earth) is the first to make an electrical connection when inserting the plug into the outlet and it is the last to disconnect when pulling it out;
- all insulating plastic components are in compliance with the glow-wire test (IEC 60695-2-10) with V1 self-extinguishing degree (UL94);
- standard IP55 degree of protection without using additional accessories according to Standard IEC 60529;
- in the HLd line, the plugs are polarized, in other words the plug which is busbar on one side of the element cannot be installed on the other side due to a mechanical lock on the outlet;
- the tap-off plugs are different for the HLs 2, 4 and HLd 2+2, 4+2, 4+4; 2x4 conductors offer. They include:

a) 16A phase selection tap-off plugs, pre-wired with 1m of 3x1.5mm^2 FROR cable;
b) 16A phase selection tap-off plugs, with terminals for connecting a cable;
c) 16A phase selection tap-off plugs, with ø5x20mm cylindrical ceramic fuse and with terminals for connecting an L+N+PE cable;
d) 16A three-phase tap-off plugs, with a set of three cylindrical fuse carriers (8.5x31.5mm) with terminals for connecting a 3L+N+PE cable.

Single-phase selection plug

Plug with fuse carrier

Trunking components and additional elements

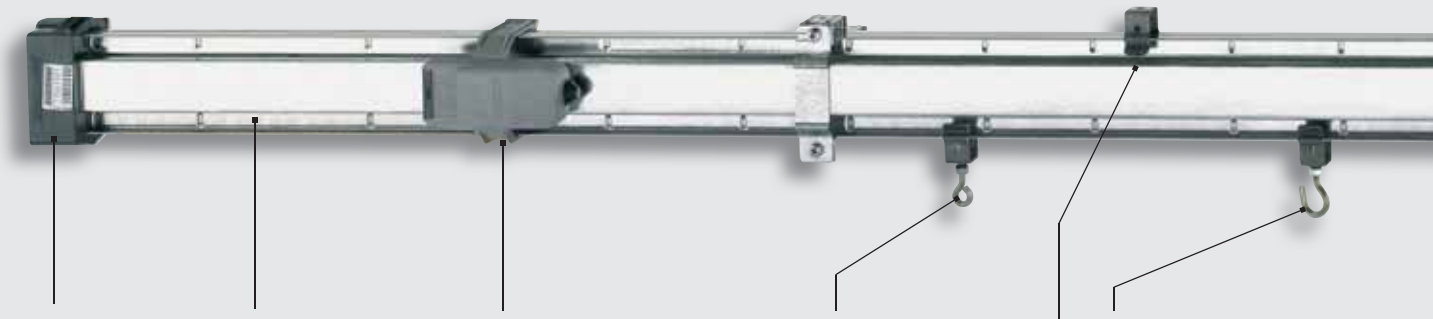
Depending on the different installation requirements Zucchini can provide various technical solutions:

a) flexible joint: used to make changes of direction or to avoid possible interferences that may be found on the path of the busbar.
Their main technical features are:

- same connection method as the straight elements;
- electrical and mechanical connection with one operation;
- standard degree of protection: IP55;
- continuity of the protective conductor, made from the casing of the element itself, guaranteed by tightening the special connection screw;

b) cable trunking with cover: this accessory, which can be positioned in the upper part of the busbar, can be used to distribute auxiliary circuits, it is an integral part of the busbar run using special spacers and brackets which support the busbar trunking system firmly. The trunking part is 3 m long and its dimensions are 28x28 mm;

c) intermediate feed unit: it can power the busbar from an intermediate point of the line, thus reducing the voltage drop at the end of the line and/or making the installation easier when the electric energy supply point is near the middle of the line.



The end cap completes the installation of the lines and guarantees the IP55 degree of protection of the line.

Straight elements, with tap-off outlets every 1000 mm on both sides, with pre-installed blanking accessory.

Phase selection tap-off plugs, also available with fuses.

Ring for suspending a lamp or for suspending other accessories of the busbar. (boxes, loudspeakers, etc.)

Hook for suspending a lamp or for suspending busbar itself and other devices (lamps, etc)

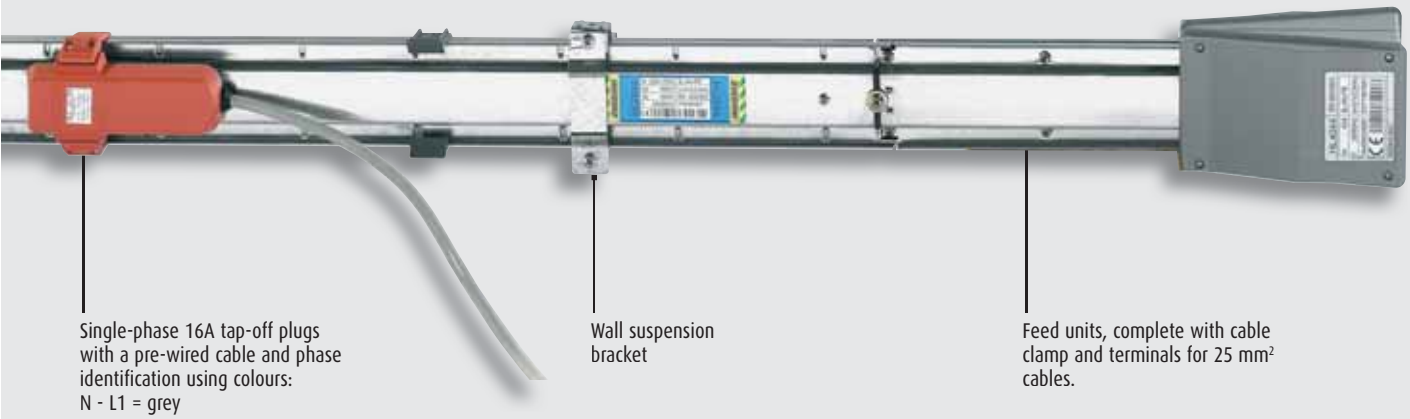
Snap-on bracket that can be used for suspending the line and devices

PARTS OF THE LINE

Single-phase selection plug

Plug with fuse carrier

Ceiling suspension bracket



Single-phase 16A tap-off plugs with a pre-wired cable and phase identification using colours:
N - L1 = grey
N - L2 = orange
N - L3 = blue
for L+N circuit
and
N3 - L3 = blue
N2 - L2 = black
for single-phase dual circuit.

Wall suspension bracket

Feed units, complete with cable clamp and terminals for 25 mm^2 cables.

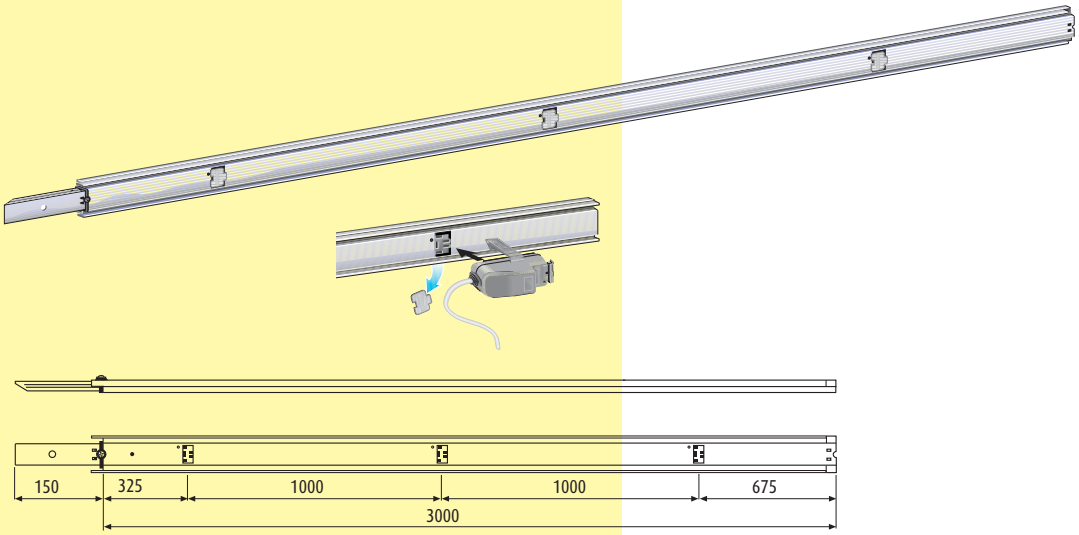
Wall mounting bracket

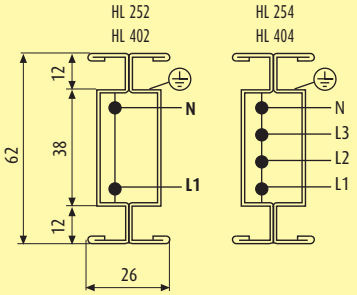
Simple suspension bracket

Snap-on stainless steel hook, ring and bracket

Outlet cover (spare)

HL Trunking components - single

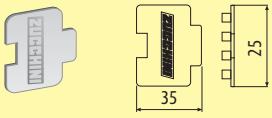




STRAIGHT ELEMENT

Elements with pre-installed outlet covers.

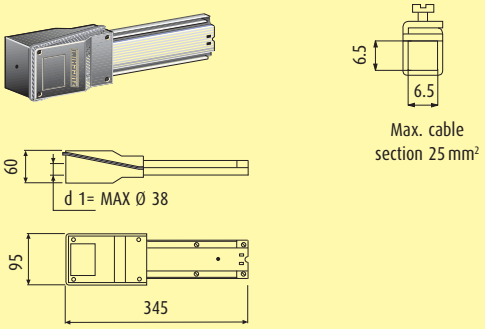
Model	Item	Length (m)	Rating (A)	Conductors	No. of outlets	Weight (kg)
HL 252	**71010151**	3	25	2	3	4.5
HL 252	**71010161**	1.5	25	2	2	2.25
HL 402	**71030151**	3	40	2	3	4.8
HL 402	**71030161**	1.5	40	2	2	2.4
HL 254	**71020151**	3	25	4	3	4.8
HL 254	**71020161**	1.5	25	4	2	2.4
HL 404	**71040151**	3	40	4	3	5.1
HL 404	**71040161**	1.5	40	4	2	2.55



OUTLET COVER (Spare)

The straight elements are supplied with outlet cover pre-installed on the outlets.

Model	Item	Colour	Weight (kg)
All	**71023601**	grey	0.011

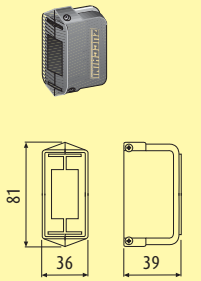


STANDARD FEED UNIT

Supplied without an electric and mechanical bayonet connection. It must be installed on one side of the element, located near the linking bayonet.

Model	Item	Weight (kg)
All	**71041001**	0.800

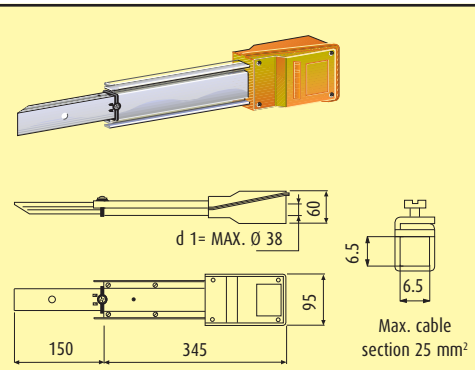
For cable glands see page 175



STANDARD END COVER

To be used with standard feed units

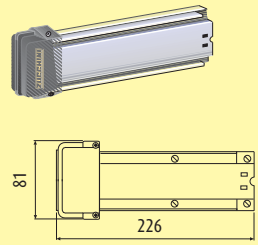
Model	Item	Weight (kg)
All	**71041301**	0.050



END-LINE FEED UNIT

Supplied with an electric and mechanical bayonet connection. It must be installed on the extremity of the element without the bayonet.
Can be used when power feed is needed at both ends of a run (less voltage drop) or cabled in association with a standard feed unit to create a flexible element to bypass large obstacles (beams, air ducts, etc)

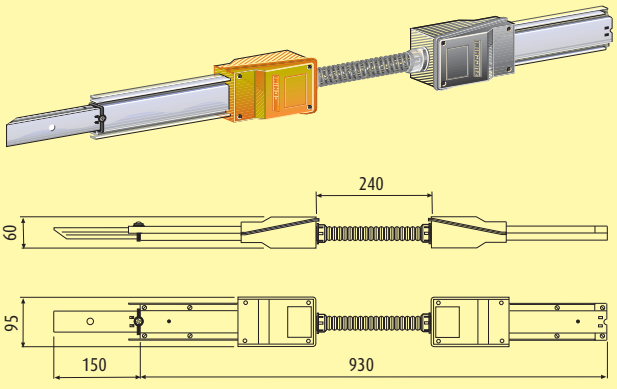
Model	Item	Weight (kg)
All	**71041002**	1.000



END COVER

To be used with end-line feed unit.

Model	Item	Weight (kg)
All	**71041302**	0.360

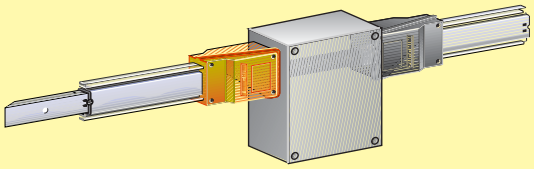


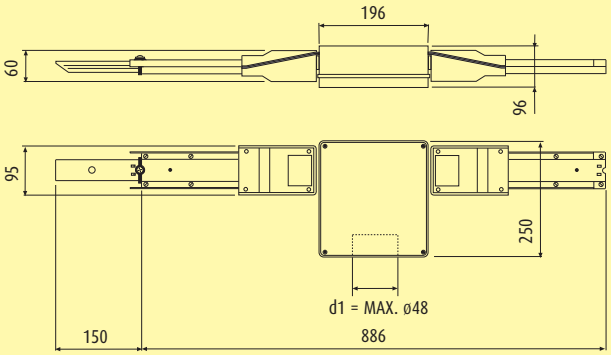
FLEXIBLE JOINT

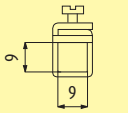
Used to make changes of direction.

Model	Item	Weight (kg)
All	**71041261**	2.500

HLs Trunking components







Max. cable section 35 mm²

CENTRE FEED UNIT 25/40A

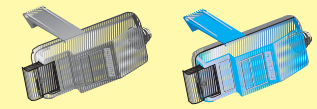
Used to power a busbar from an intermediate point. The intermediate power box is also used for reducing the voltage drop of the line.

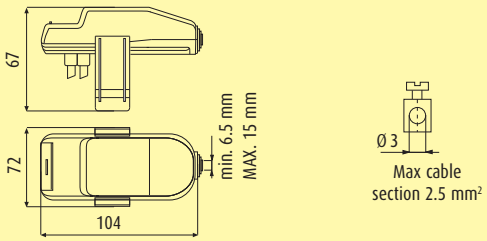
Model	Item	Weight (kg)
All	**71041151**	2.900

HLs plugs

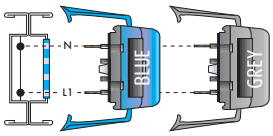
PHASE SELECTION SAFETY PLUGS

Model 252	Model 254	Item	Rating	Fuse	Phase	Cable length	Cable type	Colour
Model 402	Model 404							
•	•	**71005030**	16A	Ø5x20	selectable	-	-	grey
•	•	**71005031**	16A	-	selectable	-	-	grey
•	•	**71005032**	16A	-	selectable	1m	FROR	grey
•		**71015030**	16A	Ø5x20	L1-N	-	-	blue



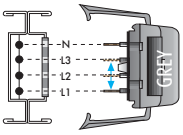


HL 252
HL 402
blue outlet



71015030 **71005030** **71005031** **71005032**

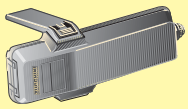
HL 254
HL 404
grey outlet

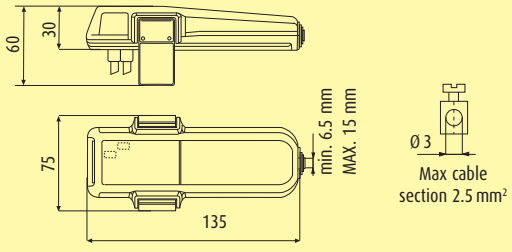


71005030 **71005031**

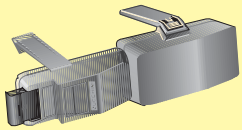
SINGLE-PHASE PLUGS WITH FUSE CARRIER

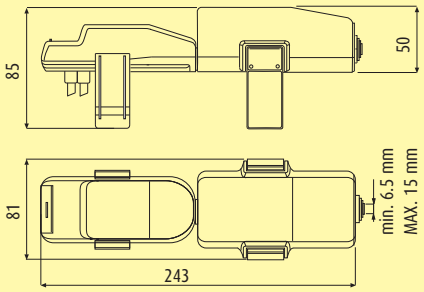
Model 252	Model 254	Item	Rating	Fuse	Phase	Cable length	Cable type	Colour
Model 402	Model 404							
•	•	**71005068**	16A	Ø8.5x31.5	selectable	-	-	grey
•	•	**71005070**	16A	Ø8.5x31.5	L1-N	1m	FROR	grey
	•	**71005071**	16A	Ø8.5x31.5	L2-N	1m	FROR	orange
	•	**71005072**	16A	Ø8.5x31.5	L3-N	1m	FROR	blue





HLs plugs

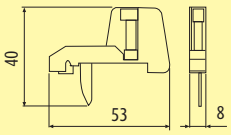




THREE-PHASE PLUGS WITH FUSE CARRIER

Model		Item	Rating	Fuse	Phase	Colour
252	**254**					
402	**404**					
	•	**71005035**	16A	Ø8.5x31.5 *	L1-L2-L3-N	grey

* Fuse not included



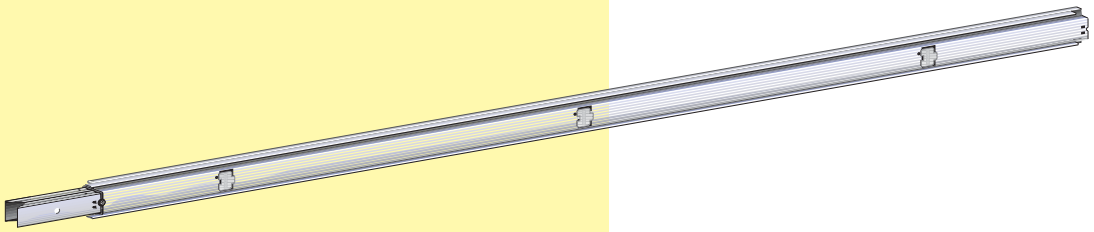
MOVABLE CONTACT

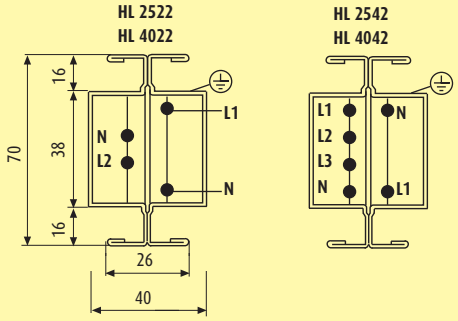
To be added when creating three-phase versions of the safety tap-off plugs (2 for each plug).

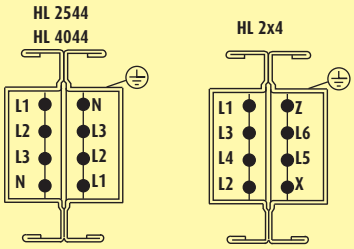
Item		Capacity	Fuse	Weight (kg)
71005028	**	16 A	1	0.010
71005029		16 A	0	0.010

** 16A contact with 6.3 A fuse

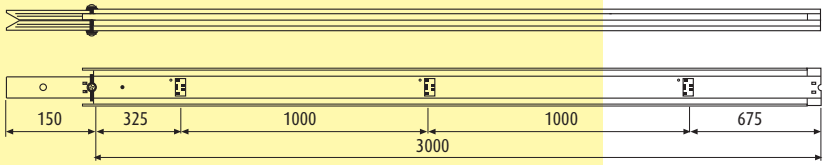
HLd Trunking components







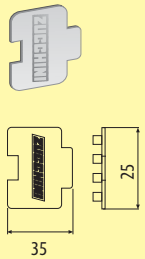
HL 2x4 to create
4 interlocked single-phase circuits



STRAIGHT ELEMENT

Elements with pre-installed outlet covers.

Model	Item	Length (m)	Rating (A)	Conductors	No. of outlets	Weight (kg)
HL 2522	**71510151**	3	25+25	2 + 2	6	8.4
HL 2522	**71510161**	1.5	25+25	2 + 2	4	4.2
HL 4022	**71540151**	3	40+40	2 + 2	6	8.7
HL 4022	**71540161**	1.5	40+40	2 + 2	4	4.35
HL 2542	**71520151**	3	25+25	4 + 2	6	8.7
HL 2542	**71520161**	1.5	25+25	4 + 2	4	4.35
HL 4042	**71550151**	3	40+40	4 + 2	6	9.3
HL 4042	**71550161**	1.5	40+40	4 + 2	4	4.65
HL 2544	**71530151**	3	25+25	4 + 4	6	8.7
HL 2544	**71530161**	1.5	25+25	4 + 4	4	4.35
HL 4044	**71560151**	3	40+40	4 + 4	6	9.6
HL 4044	**71560161**	1.5	40+40	4 + 4	4	4.8
HL 2x4	**71570151**	3	25+25	2+2+2+2	6	8.7
HL 2x4	**71570161**	1.5	25+25	2+2+2+2	4	4.35

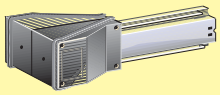


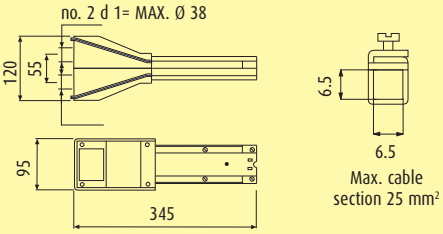
OUTLET COVER (spare)

The elements are supplied with outlet covers pre-installed on the outlet covers.

Model	Item	Colour	Weight (kg)
All	**01150048**	grey	0.011

HLd Trunking components



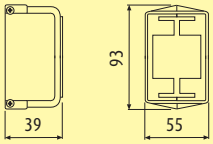


STANDARD FEED UNIT 25/40A

Supplied without an electric and mechanical bayonet connection. It must be installed on one side of the element, located near the linking bayonet. The feed unit has two separate cable inputs and the terminals are totally separated and independent.

Model	Item	Weight (kg)
All	**71561001**	1.100

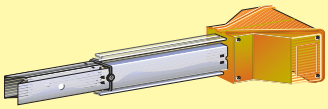
Cable gland selection page 175.

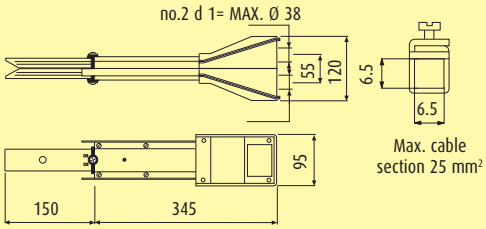


STANDARD END COVER

To be used with the standard feed unit

Model	Item	Weight (kg)
All	**71561301**	0.090



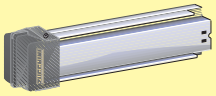


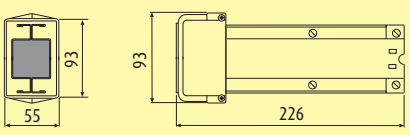
END-LINE FEED UNIT 25/40A

Supplied with an electric and mechanical bayonet connection. It must be installed on one side of the element, not located near the linking bayonet. The feed unit has two separate cable inputs and the terminals are totally separated and independent.

Model	Item	Weight (kg)
All	**71561002**	1.600

Cable gland selection page 175.



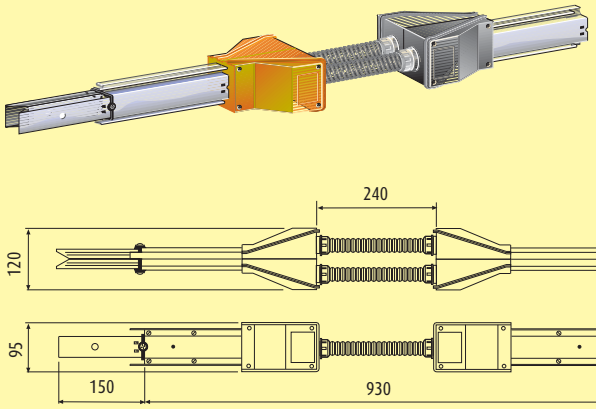


END COVER

To be used with the end-line feed unit.

Model	Item	Weight (kg)
All	**71561302**	0.786

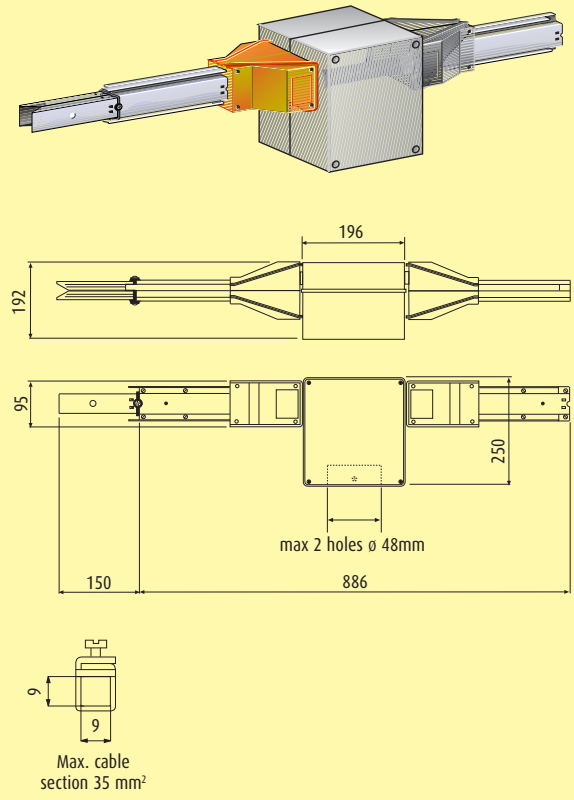
FLEXIBLE JOINT 25/40A



Used to make changes of direction.

Model	Item	Weight (kg)
All	**71561261**	3.000

CENTRE FEED UNIT 25/40A



Used to power a busbar from an intermediate point. The intermediate power box is also used for reducing the voltage drop of the line.

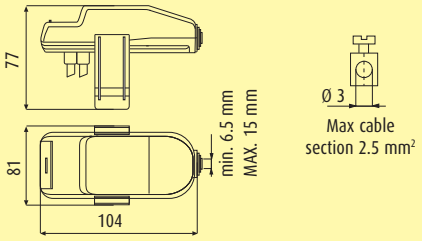
Model	Item	Weight (kg)
All	**71561151**	3.800

HLd plugs

HLd PLUGS

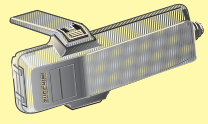
	Model				Item	Rating	Fuse	Phase	Cable length	Cable type	Colour
	2522 4022	2542 4042	2544 4044	2x4							
=>	•	•	•	•	**71505030**	16A	Ø5x20	selectable	-	-	grey
=>	•	•	•	•	**71505031**	16A	-	selectable	-	-	grey
	•	•	•	•	**71505032**	16A	-	selectable	1m	FROR	grey
	•	•			**71515030**	16A	Ø5x20	L1-N	-	-	blue
	•				**71515031**	16A	Ø5x20	L2-L3	-	-	orange
				•	**71575030**	16A	Ø5x20	L1-L2	-	-	blue
				•	**71575031**	16A	Ø5x20	L3-L4	-	-	black
				•	**71575032**	16A	Ø5x20	L5-L6	-	-	orange
				•	**71575033**	16A	Ø5x20	X-Z	-	-	brown

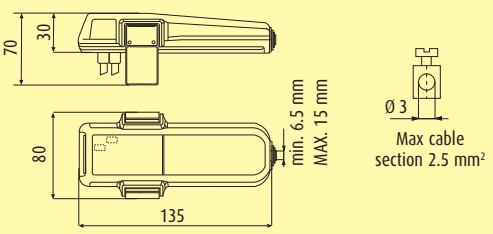
=> Specifies the most frequently used plugs.



SINGLE-PHASE PLUGS WITH CH8 FUSE CARRIER

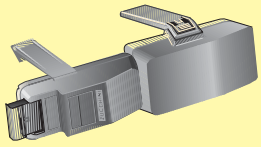
	Model				Item	Rating	Fuse	Phase	Cable length	Cable type	Colour
	2522 4022	2542 4042	2544 4044	2x4							
	•	•	•	•	**71505059**	16A	Ø8.5x31.5	selectable	-	-	grey
		•	•		**71505070**	16A	Ø8.5x31.5	L1-N	1m	FROR	grey
		•	•		**71505071**	16A	Ø8.5x31.5	L2-N	1m	FROR	orange
		•	•		**71505072**	16A	Ø8.5x31.5	L3-N	1m	FROR	blue

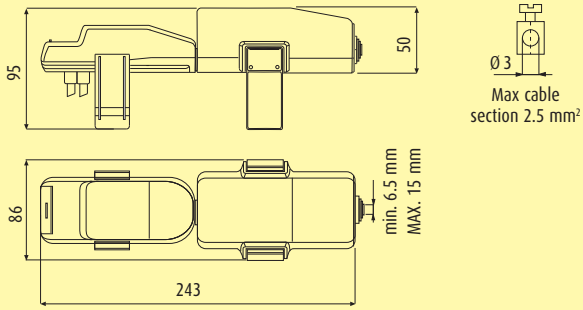


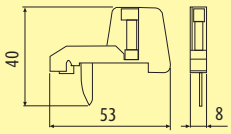


THREE-PHASE PLUGS WITH FUSE CARRIER

Model				Item	Rating A	Fuse	Phase	Colour
2522	**2542**	**2544**	**2x4**					
4022	**4042**	**4044**						
	•	•		**71505035**	16A	Ø8.5x31.5	L1-L2-L3-N	grey







MOVABLE CONTACT

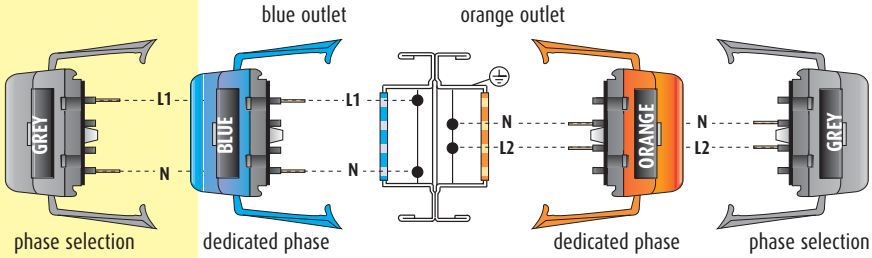
To be added to create three-phase versions of the safety tap-off plugs (2 for each plug).

Item	Rating A	Fuse	Weight (kg)
71005028*	16	1	0.010
71005029	16	0	0.010

* 16A contact with 6.3 A fuse

HLd plugs

HL 2522 - HL 4022



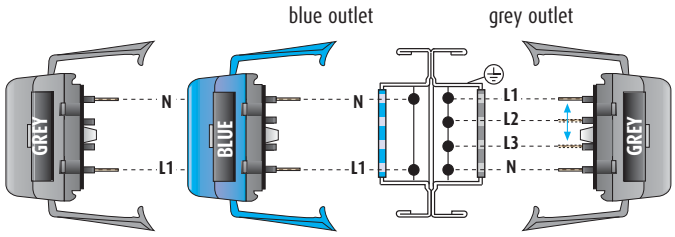
phase selection
71505030
71505031

dedicated phase
71515030

dedicated phase
71515031

phase selection
71505030
71505031

HL 2542 - HL 4042

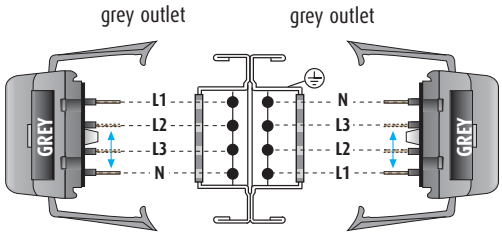


phase selection
71505030
71505031

dedicated phase
71515030

phase selection
71505030
71505031

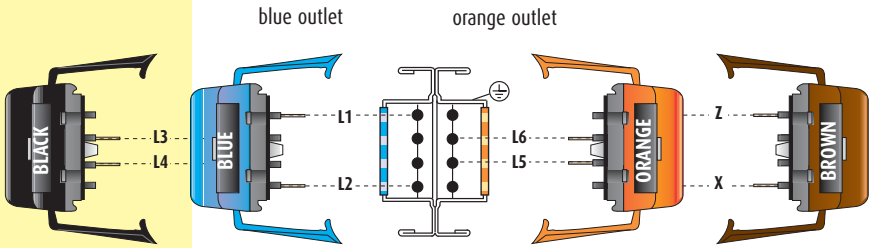
HL 2544 - HL 4044



phase selection
71505030
71505031

phase selection
71505030
71505031

HL 2 X 4



71575031

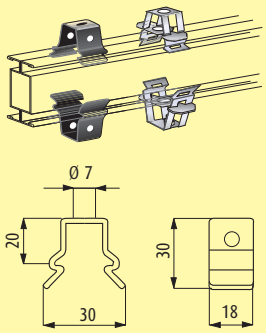
71575030

71575032

71575033

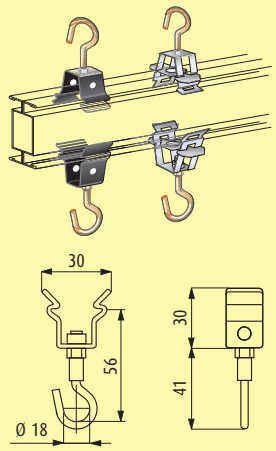
4 INDEPENDENT single-phase circuits

Fixing supports



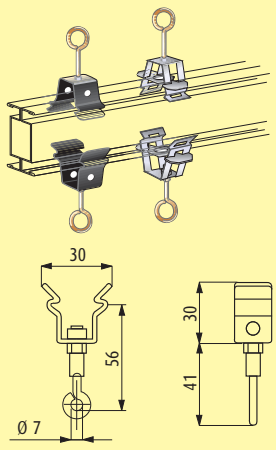
SNAP-ON BRACKET (MAX. 15 kg)

Model	Item	Weight (kg)
Burnished Steel	**71003003**	0.021
STAINLESS STEEL	**71203701**	0.021



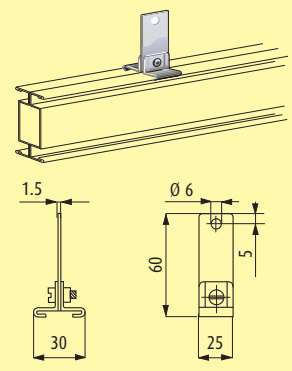
SUSPENSION HOOK (MAX. 15 kg)

Model	Item	Weight (kg)
Burnished Steel	**71005002**	0.025
STAINLESS STEEL	**71203702**	0.025



SUSPENSION RING (MAX. 15 kg)

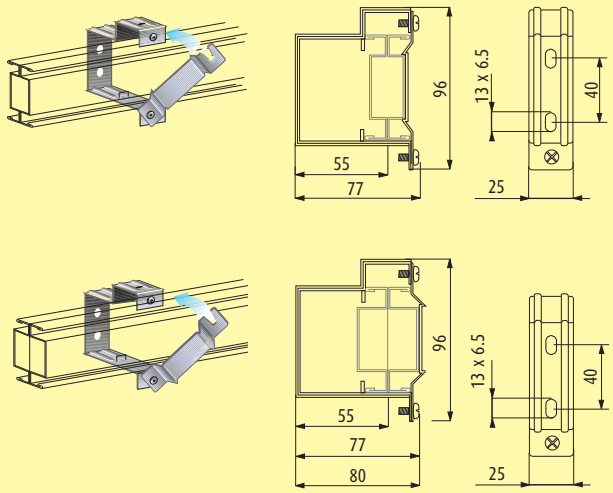
Model	Item	Weight (kg)
Burnished Steel	**71005015**	0.025
STAINLESS STEEL	**71203703**	0.025



SUSPENSION BRACKET (MAX. 15 kg)

Item	Weight (kg)
71003001	0.033

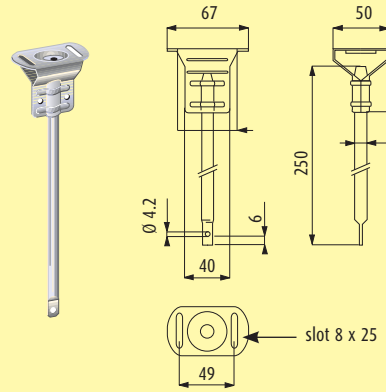
Fixing elements



WALL SUSPENSION BRACKET

For wall mounting of the HLd elements, it is possible to connect the plug on the internal side only if the busbar is taken out of the wall bracket, inserted, and replaced afterward.

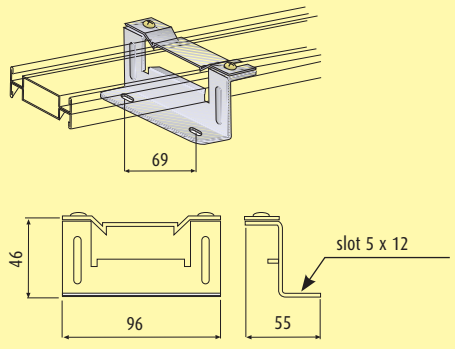
Item	Weight (kg)
71003009	0.090



CEILING BRACKET HOLDER

Must be used with the code 71003001 suspension bracket.

Item	Weight (kg)
73003312	0.136

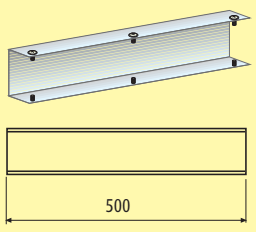


FLOOR FIXING BRACKET

Only for the HLs single version. Suitable for horizontal HLs floor fastening.

Item	Weight (kg)
71003018	0.090

Compatible with:
HL 252, HL 402, HL 254, HL 404

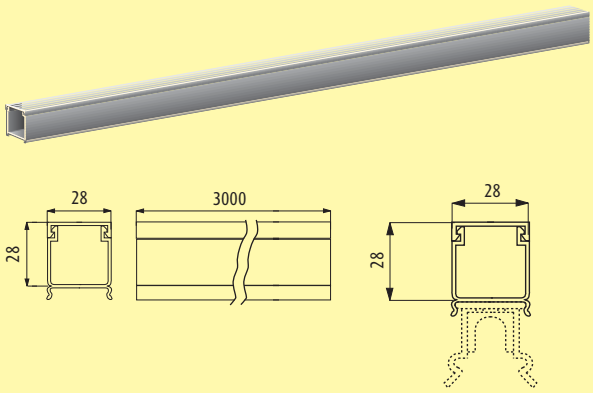


JUNCTION STIFFENER

To be used for strengthening bracket links with suspension centre distances that are over 5m.

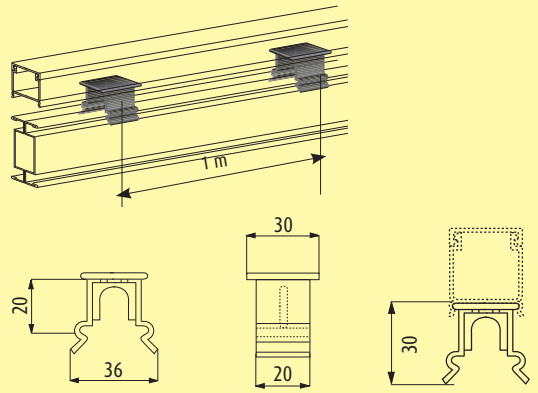
Model	Item	Weight (kg)
for single-type	**71042024**	0.200
for dual-type	**71042025**	0.200

Cable channel and accessories



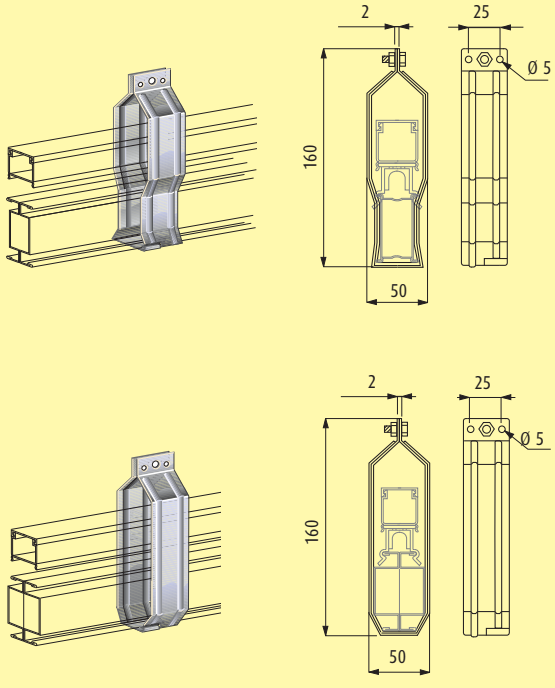
CABLE CHANNEL WITH COVER (RIGID PVC)

Model	Length [m]	Weight (kg)
71000104	3	0.884



SPACER FOR CABLE CHANNEL

Item	Weight (kg)
71003007	0.006



HLs - SUSPENSION BRACKET FOR CABLE CHANNEL

Overhead bracket to be used when the cable trunking is used above the busbar.

Item	Weight (kg)
71003006	0.108

Compatible with:
HL 252, HL 402, HL 254, HL 404

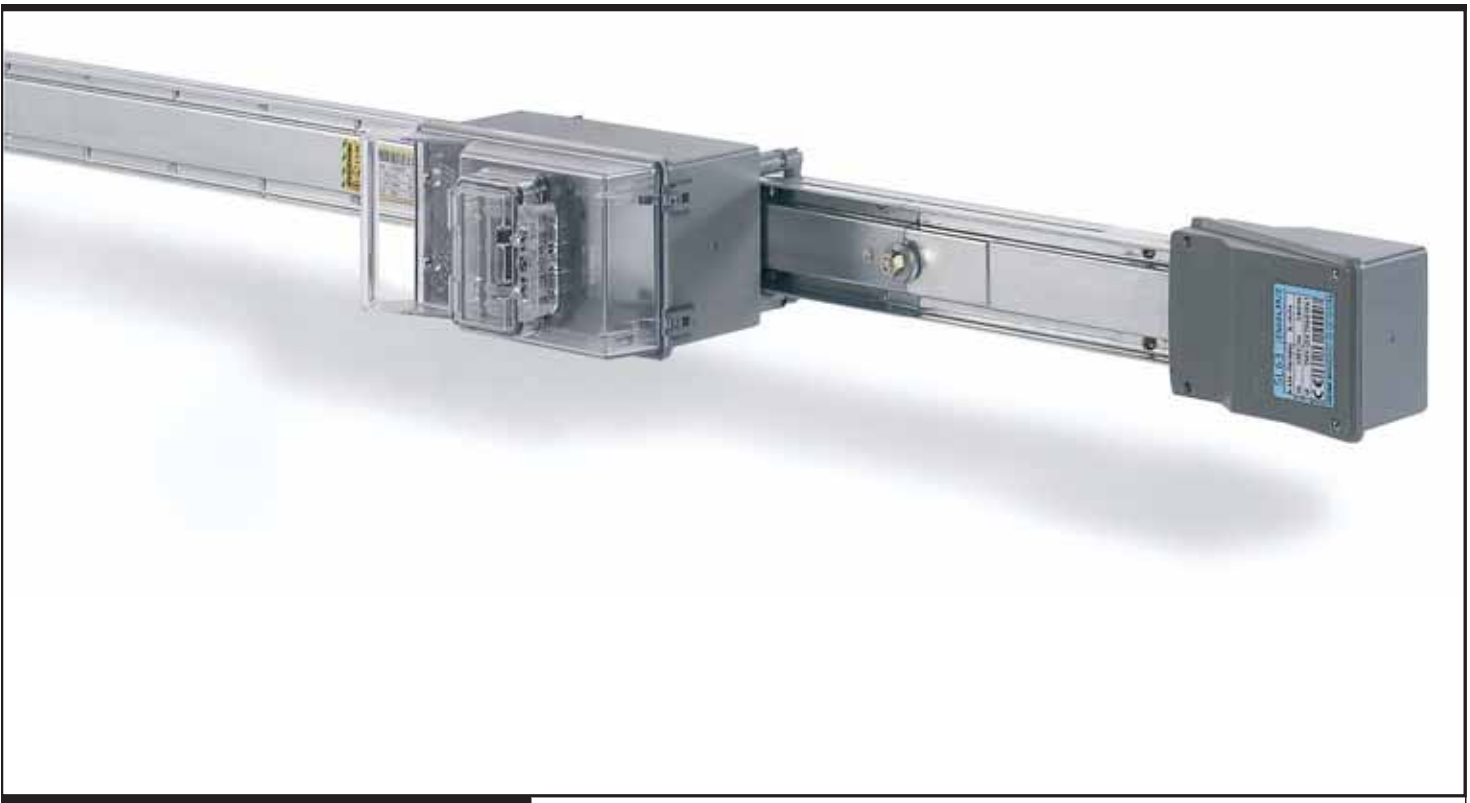
HLd - SUSPENSION BRACKET FOR CABLE CHANNEL

Suspension bracket to be used when the cable trunking is used above the busbar.

Item	Weight (kg)
71503006	0.108

Compatible with:
HL 2522, HL 4022, HL 2544, HL 4044, HL 2542, HL 4042, HL 2 x 4

SL - SERIE LUCE
40 - 63A



SECTION CONTENTS

SL
Serie Luce

GENERAL FEATURES

The Zucchini SL line is suitable for powering small one-phase and three-phase equipment, such as: industrial refrigerators, lathes, hand tools, etc.
The main features of the SL range are:

- speed, simplicity and flexibility when installing and planning the lines;
- reduced dimensions;
- a rigid and robust structural design for severe installation conditions;
- tap-off boxes with possibility of local protection with mcbs (Legrand Lexic series);
- capable of being installed in systems with a bracket centre distance of up to 6m;
- compliance with Standard IEC 60439-1 and 2;
- rated at average room temperature of 40°C for a higher performance level compared to the 35°C rating required by the standard.

Shopping centres

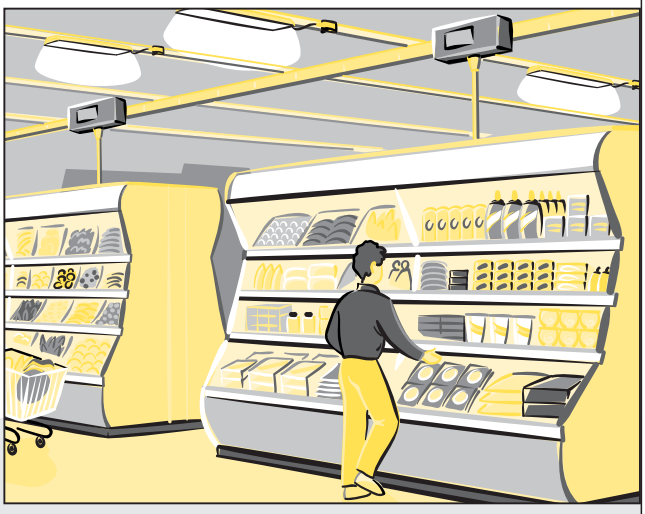

Small industries

STRAIGHT ELEMENTS

The components and the features of the SL straight elements are:

- a “beam-shaped” section, made with hot galvanized steel (Senzimir) which, thanks to its section and electrical continuity, can also serve as a protective conductor;
- section bar length: 0.8mm;
- section dimensions: 26x62mm;
- number of conductors: 4 copper conductors with purity no less than 99.9%; section of conductors: 9.5 mm^2 per In 40A and 12.3 mm^2 per In 63A;
- separation between the conductors by using a V0 self-extinguishing insulating plastic sheathe (according to UL94) and in compliance with the glow-wire test according to IEC 60695-2-10;
- tap-off outlets (IP40/IP55) with a centre distance of 0.75 m (4 outlets every 3m), set up for being connected with plugs and/or tap-off boxes;
- an electrical joint block for automatically connecting live parts.

The connection between two straight elements is quick; with one operation the electric and a mechanical connection is easily made. The IP40 performance of the SL line can be easily upgraded to IP55 with joint covers and outlet covers. The continuity of the protective earth is automatically ensured when two components are joined. The whole busbar is fire retardant in compliance with the IEC 60332-3 standard. There are also 3m straight elements with 6 or 10 tap-off outlets. These versions, which are characterized by high density junction points, are particularly valued in floating underfloor installations or when distributing energy on board the machine.



Power lines

Light lines

SL
Serie Luce

FEED UNITS

The feed unit is assembled to the run in an identical manner as with the straight elements. The feed units have terminals for the connection of copper cables for sections of up to 25 mm².
There is an anti-pullout cable clamp jumper inside the power supply. The entrance point of the cables is positioned on the end of the feed unit.

Feed unit

END COVER

The end cover ensures the IP55 protection degree at the end of the line.

End cover

FIXING SUPPORTS

Specific accessories are available for fixing the line to the structure of the building (directly or with a steel chain or cable). The accessories for overhead fixing are:

- snap clamp: the snap-on installation is extremely fast. This bracket is suitable both for overhanging the busbar to the ceiling and for hanging products such as fluorescent lamps, tap-off boxes, etc., to the busbar itself;
- snap clamp with ring or hook: the ring or the hook enables to hang lamps easily;
- simple bracket: used with the ceiling bracket holder, it enables the installation the busbar directly onto the ceiling at a distance of about 25cm;
- wall bracket: enables the fixing of the busbar directly onto the wall of a building, setting it at the required distance enabling the installation of the necessary components.

Fixing accessories for fastening the busbar run to the structure and hanging the lamps onto the busbar

PLUGS AND TAP-OFF BOXES

Used for connecting and energizing small single and three-phase loads; their features include:

- manoeuvrability when energized;
- the PE contact (protective earth) is the first to make an electrical connection when inserting the plug into the outlet and it is the last to disconnect when pulling it out;
- all insulating plastic components are in compliance with the glow-wire test (IEC 60695-2-10) with V1 self-extinguishing degree (UL94);
- IP55 according to Standard IEC 60529, with no additional accessories.

Tap-off plugs are three-phase, 32A plugs available in two versions; without fuse or with 10.3 x 38mm fuse carriers.

Tap-off boxes allow local protection of the derivation using the Legrand Lexic DIN rail mounting mcbs.
The following are available:

a) 32A empty tap-off boxes with a disconnection system integrated into the cover: when the cover is opened the power is automatically disconnected from all the accessible metal parts;
b) 32A tap-off box with a 4 module DIN window: In these boxes, the window allows the possibility of operating the Lexic DIN rail modules without opening the cover.

Tap-off box

Trunking components and additional elements

Depending on the different installation requirements Zucchini can provide various technical solutions:

a) Flexible joint: used to make changes of direction or to avoid possible interferences that may be found on the natural path of the busbar. The features are as follows:

- same connection method as the straight elements;
- electrical and mechanical connection with one operation;
- degree of basic protection IP40 (IP55 with joint covers and outlet covers);
- continuity of the protective conductor, made from the casing of the element itself, guaranteed by tightening the special connection screw;

b) cable trunking with cover: this accessory, which can be positioned on the upper or lower part of the busbar, can be used to distribute auxiliary circuits. It is an integral part of the busbar by using special spacers and brackets which hold the busbar trunking system firmly.

The end cover completes the installation of the lines and guarantees the degree of protection of the line.

32A tap-off boxes with transparent cover for modular circuit breakers – 4 DIN modules.

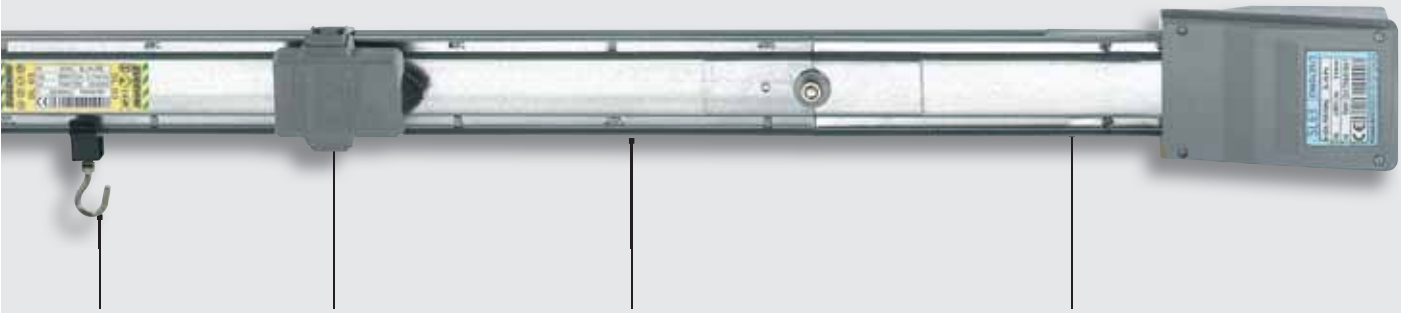
Ring clamp for hanging lighting or suspension of the busbar with chain or wire cable.

Snap-on bracket.

PARTS OF THE LINE

Tap-off box

Flexible joint



Overhead hook for lamps

32A three-phase tap-off plugs, available with a set of three fuse carriers

Straight elements with tap-off outlets every 1000 mm on one side, with pre-installed outlet covers.
If required, straight elements are available with 6 junctions (every 500 mm).

Standard or end-line feed units, according to the trend of the line, complete with cable clamp and terminals for 25 mm^2 cables.

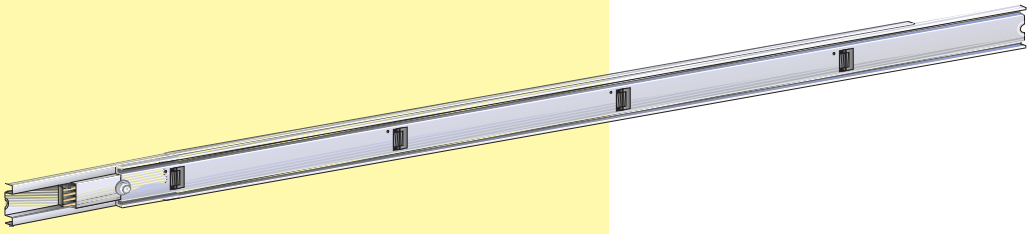
Wall mounting bracket

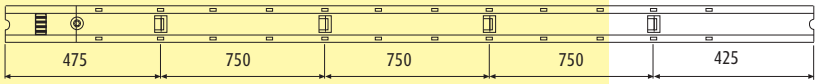
Simple suspension bracket

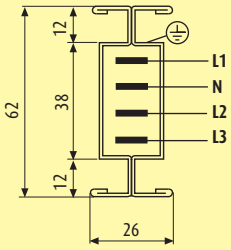
Snap-on stainless steel brackets

Outlet cover

Trunking components

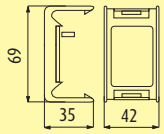






STRAIGHT ELEMENT

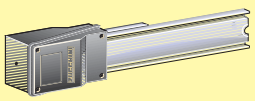
Model (kg)	Item	Length (m)	Rating (A)	No. of outlets	Weight
SL40	**70400101**	3	40	4	6.200
SL40	**70400111**	3	40	6	6.800
SL40	**70400112**	3	40	10	7.300
SL40	**70600102**	1.5	63	2	3.850
SL63	**70600101**	3	63	4	6.500
SL63	**70600111**	3	63	6	6.900
SL63	**70600112**	3	63	10	7.400
SL63	**70600102**	1.5	63	2	3.850

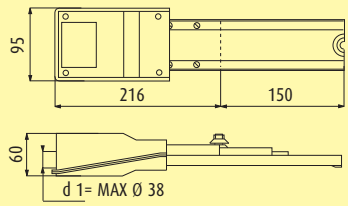


IP55 OUTLET COVER

Item	Weight (kg)
71002062	0.474

One cover needed per unused outlet



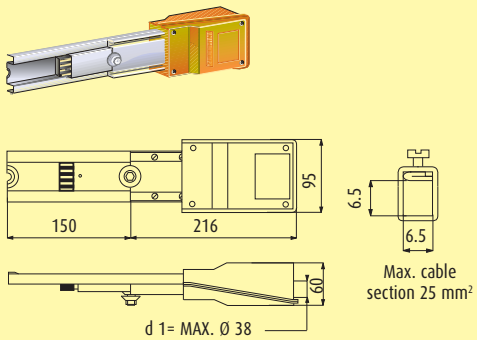


STANDARD FEED UNIT

Model	Item	Weight (kg)
IP 55	**70601061**	0.750

Cable gland selection page 175

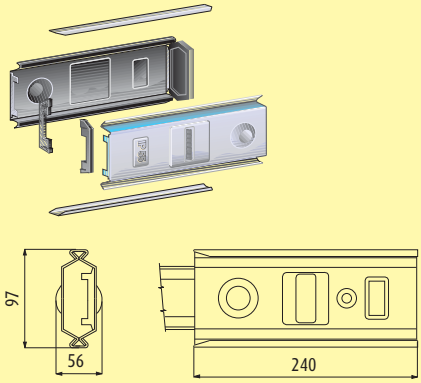
END-LINE FEED UNIT



Model	Item	Weight (kg)
IP 55	**70601062**	0.826

Cable gland selection page 175

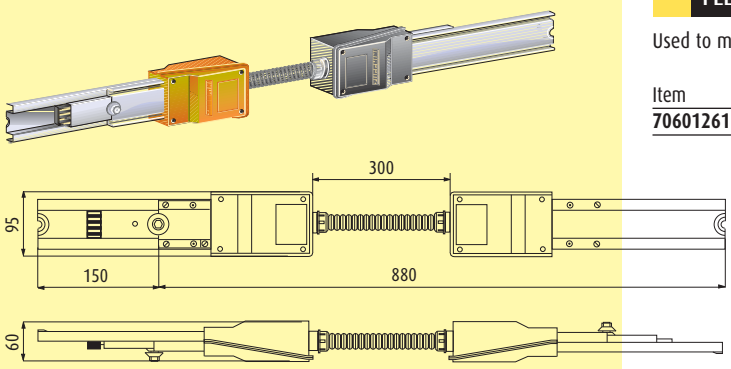
IP55 END COVER



Ensures the IP55 at the end of the line. Used with standard and end-line feed unit.

Item	Weight (kg)
71001351	0.570

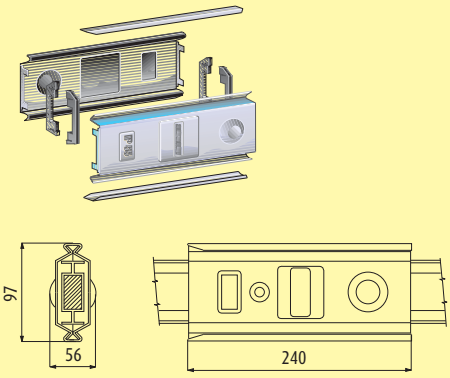
FLEXIBLE JOINT



Used to make changes of direction.

Item	Weight (kg)
70601261	1.900

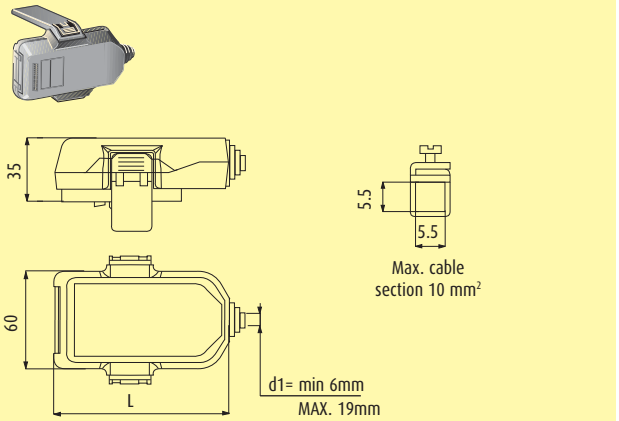
IP55 JOINT COVER



When applied to each joint it increases the line from IP40 to IP55.

Item	Weight (kg)
71002051	0.474

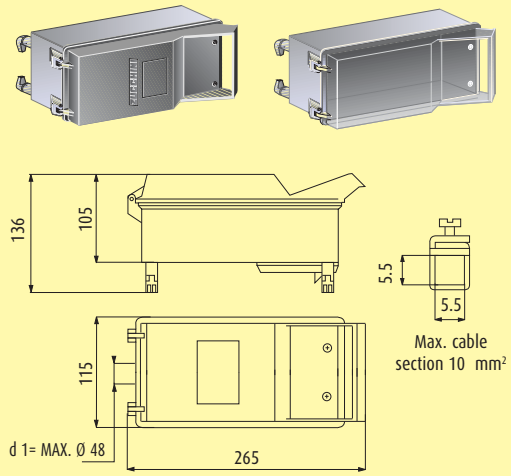
Plugs and tap-off boxes



32A TAP-OFF PLUGS 3P+N

Model	Item	Rating (A)	Fuse junctions	L= [mm]	Weight (kg)
IP 55	**70605051**	32	-	80	0.070
IP 55	**70605052**	32	Ø 10.3x38 *	105	0.100

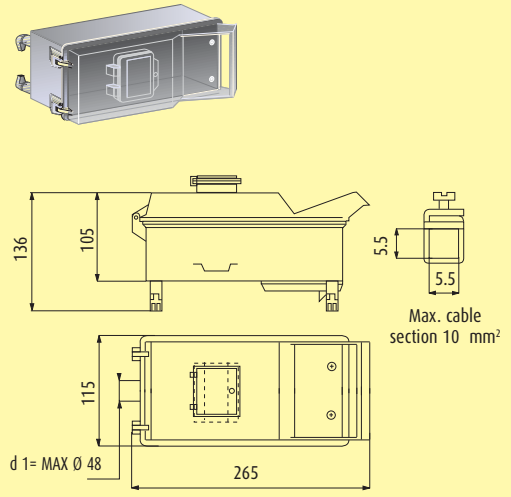
* Fuses not supplied



32A EMPTY TAP-OFF BOXES 3P+N

Model	Item	Feature	Weight (kg)
IP 55	**70605054**	Grey cover	0.700
IP 55	**70605055**	Transparent cover	0.700

Cable gland selection page 175



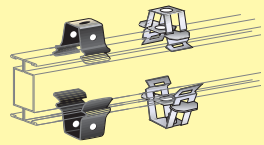
32A TAP-OFF BOX WITH TRANSPARENT COVER AND DOOR

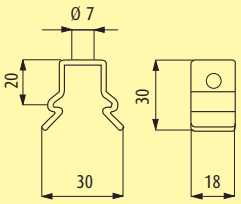
(set up for modular circuit breakers - max 4 DIN modules).

Model	Item	Weight (kg)
IP 55	**70605053**	0.800

Cable gland selection page 175

Fixing supports

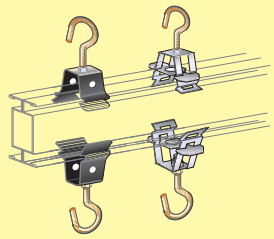


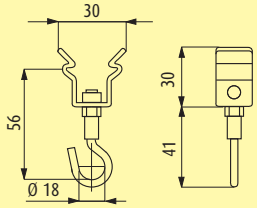


SNAP-ON BRACKET (MAX 15 KG)

Suspension support to be fixed on the element edges.

Model	Item	Weight (kg)
Burnished Steel	**71003003**	0.021
Stainless steel	**71203701**	0.021

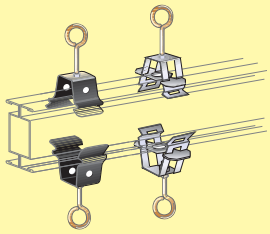


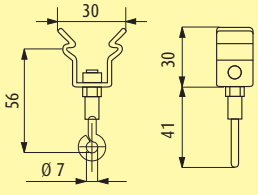


SUSPENSION HOOK (MAX 15 KG)

Suspension support to be fixed on the element edges.

Model	Item	Weight (kg)
Burnished Steel	**71005002**	0.025
Stainless steel	**71203702**	0.025

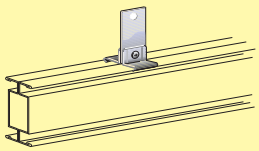


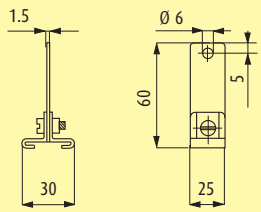


SUSPENSION RING (MAX 15 KG)

Suspension support to be fixed on the element edges.

Model	Item	Weight (kg)
Burnished Steel	**71005015**	0.025
Stainless steel	**71203703**	0.025



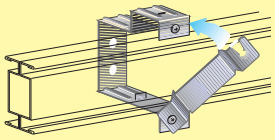


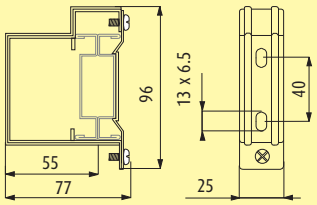
STANDARD SUSPENSION BRACKET (MAX 15 KG)

Suspension support to be fixed on the element edges.

Item	Weight (kg)
71003001	0.033

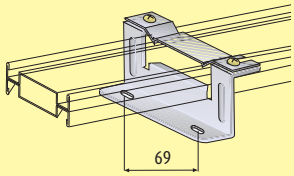
Fixing supports

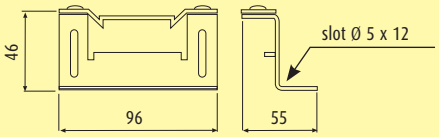




WALL SUSPENSION BRACKET

Item	Weight (kg)
71003009	0.090



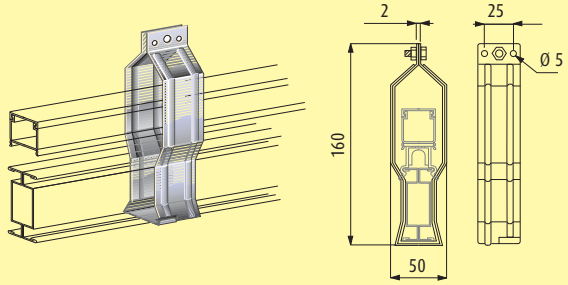


FLOOR FIXING BRACKET

Suitable for horizontal floor fastening.

Item	Weight (kg)
71003018	0.090

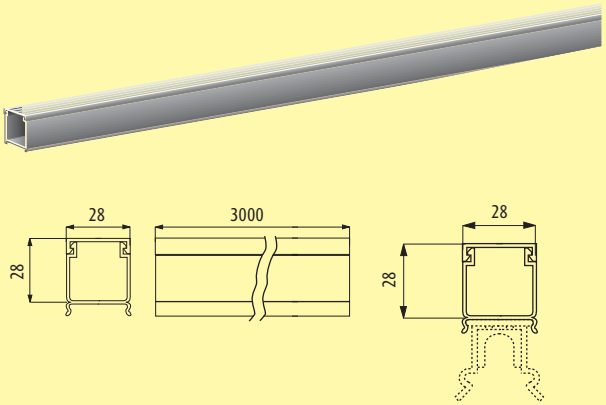
Cable trunking and accessories



SUSPENSION BRACKET FOR CABLE CHANNEL

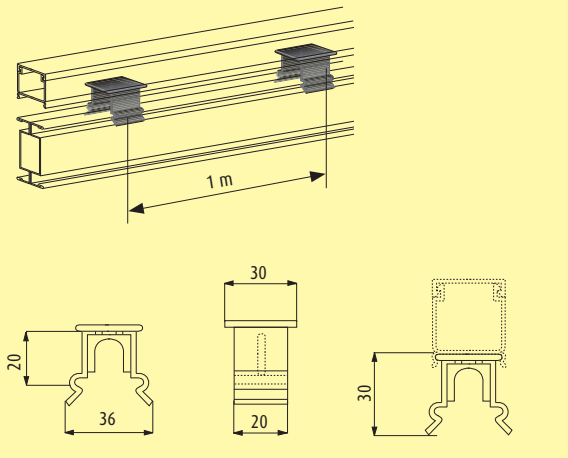
Overhead bracket to be used when the cable trunking is used.

Item	Weight (kg)
71003006	0.108



CABLE CHANNEL WITH COVER (RIGID PVC)

Item	Length [m]	Weight (kg)
71000104	3	0.884

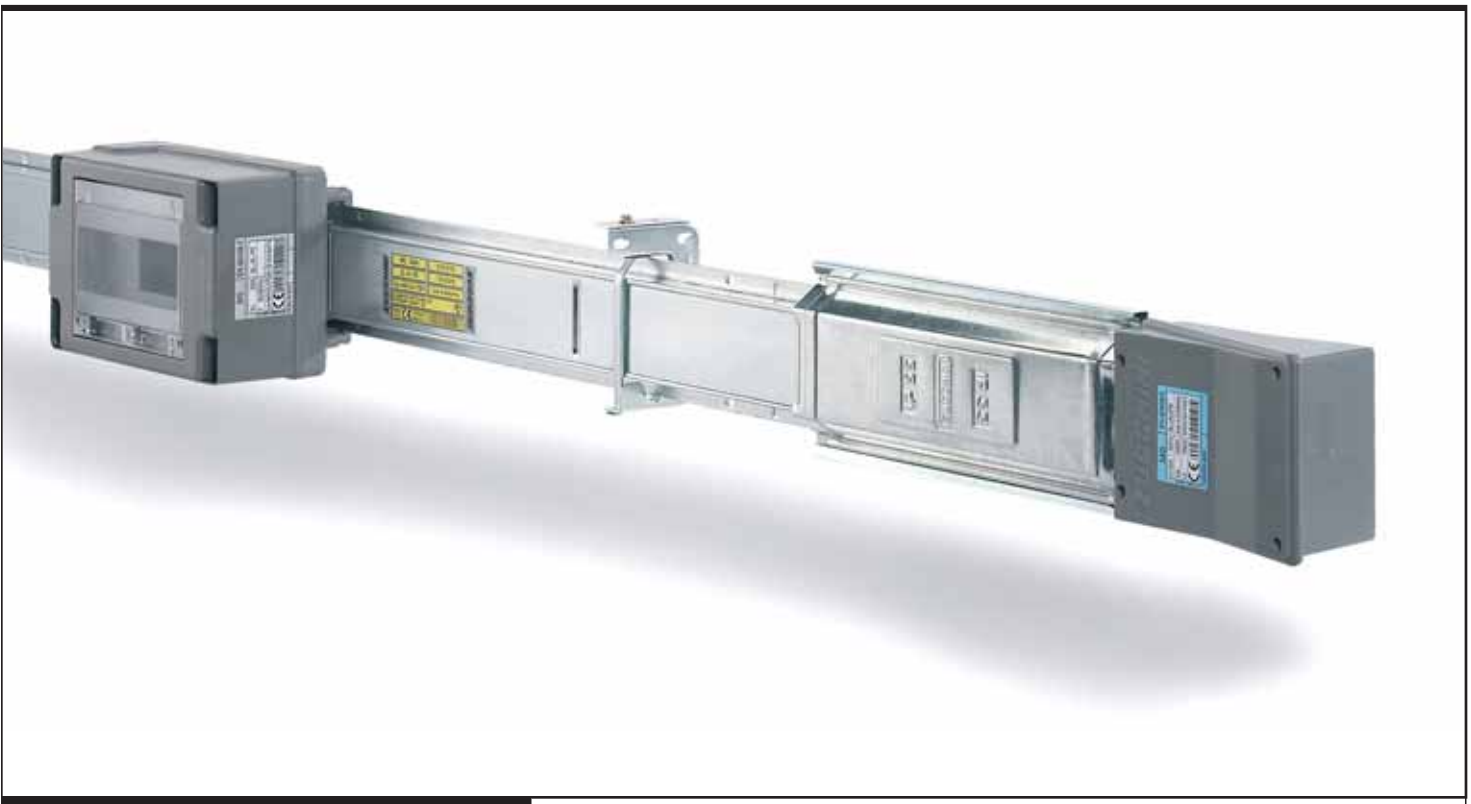


SPACER FOR CABLE CHANNEL

Item	Weight (kg)
71003007	0.006

A spacer must be used for every metre of conduit

MS - MINI SBARRA
63 - 100 - 160A



SECTION CONTENTS

MS
Technical description

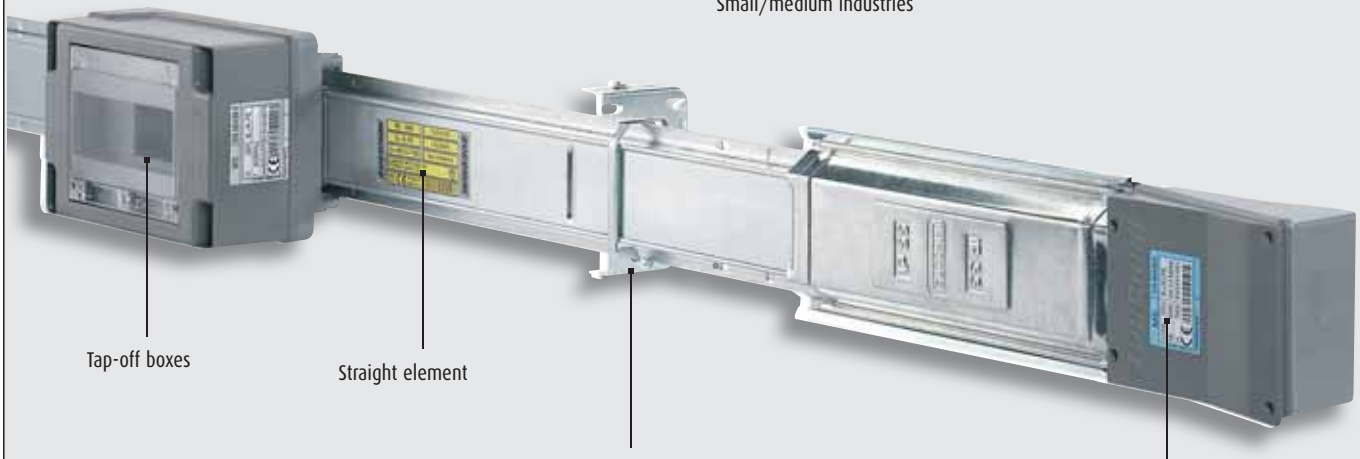
GENERAL FEATURES

MS is the smallest line of the Medium Power range. It is the ideal solution for energy distribution in small and medium sized industries. The main features of the MS range are:

- speed, simplicity and flexibility when planning and installing the lines;
- strongly built, despite the reduced dimensions;
- availability of tap-off boxes with housing capacity up to 16 DIN modules (i.e. Legrand Lexic mcbs);
- compliance with the harmonised Standards IEC 60439 - 1 and 2;
- rated at average room temperature of 40°C for a higher performance level compared to the 35°C rating required by the standard.

Laboratories

Small/medium industries

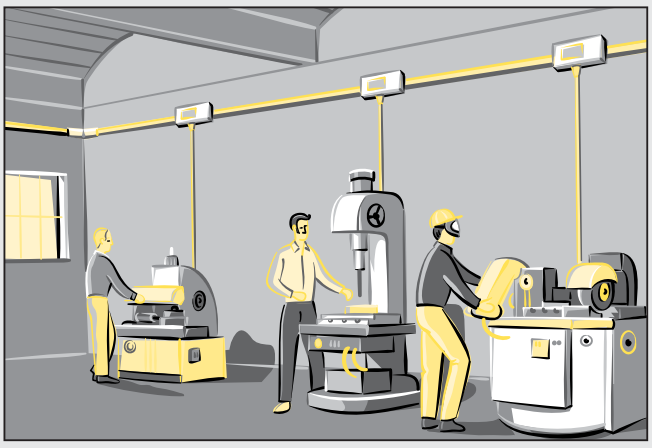


STRAIGHT ELEMENTS

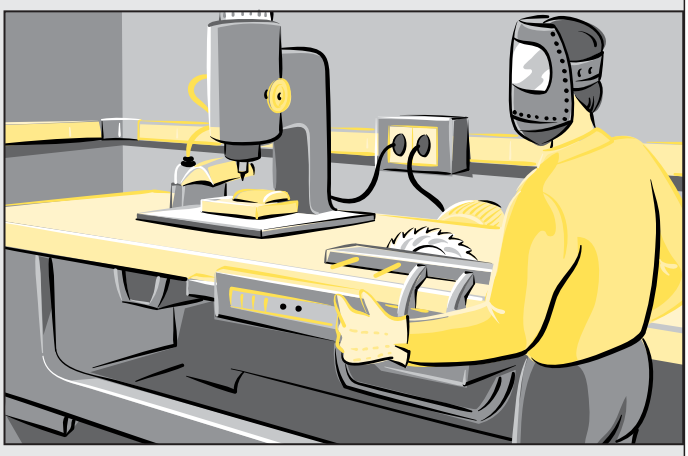
The components and the features of the MS straight elements are:

- a casing made of Senzimir quality galvanized steel, with a sheet-metal thickness that allows its use as the protective earth (PE) and ensures the electrical continuity during mounting with no added accessories;
- section bar dimensions: 39x97mm;
- number of conductors: 4 with the same section 3P+N available for capacities 63A, 100A and 160A;
- separation between the conductors using plastic insulating devices, reinforced with 20% of glass fibres, which are able to ensure a V1 self-extinguishing degree (according to UL94) and are in compliance with the glow-wire test according to IEC 60695-2-10;
- tap-off outlets with a constant centre distance of 1 m on both sides of the busbar (3+3 windows every 3m), set up for being connected to tap-off boxes;
- an electric joint block, with silver-plated copper contacts for automatically connecting live parts and the PE (protective conductor).

The connection between two straight elements is quick; with one operation it is possible to have an electric and a mechanical connection; hence, at the same time, an IP40 degree of protection is guaranteed. The upgrade to IP55 is easily obtained by adding joint covers and outlet covers. The whole duct is fire retardant in compliance with the IEC 60332-3 standard.



Installation in small industries



Installation in laboratories

MS
Technical description

FIXING SUPPORT

In order to attach the line to the structure of the building, directly or with wall supports, it is necessary to use a bracket which serves as a collar around the busbar. The bracket has holes to be easily paired with the available supports (see pag. 119).

Bracket

TAP-OFF BOXES

Used to connect and energize one-phase and three-phase loads up to 63A; their features include:

- the PE contact (protective earth) is the first to make an electrical connection when inserting the box into the outlet and it is the last to disconnect when pulling it out;
- compliance with all insulating plastic components according to the glow-wire test (IEC 60695-2-10) with V1 self-extinguishing degree (UL94);
- standard IP55 degree of protection without using additional accessories;
- can be inserted and removed when the busbar is energized and when the fixure is under load, up to a capacity of 32A.

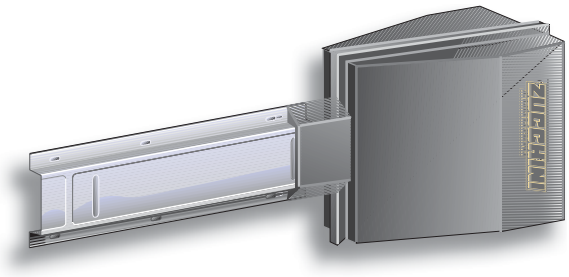
These boxes are available in a wide range of versions:

- 63A empty boxes (only with a terminal board for connecting cables), with an internal DIN rail and transparent door;
- 16A - available with a set of three cylindrical fuse carriers (10.3x38mm);
- 16/32A - available with a set of three cylindrical fuse carriers - DIAZED (D01: 16A; D02: 32A);
- 50A – available with cylindrical fuse carriers (14x51mm);
- 63A – available with 4-7-16 DIN mod;
- 16 to 63A – available with a disconnection device integral with the cover.

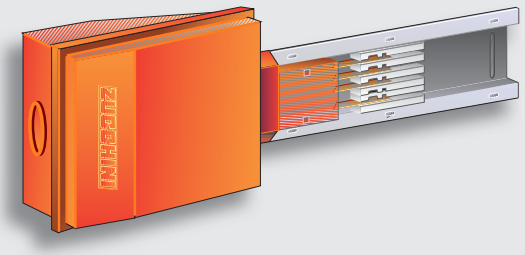
Example of a tap-off box with a transparent cover for modular circuit breakers

FEED UNIT

Allows you to electrically power the MS line through a cable line; the installation is carried out with a quick junction connection as with the straight elements.
The feed units have terminals for the connection of copper cables for sections of up to 35 mm^2 for the 63/100A feed unit and 70 mm^2 for the 160A feed unit.
The entrance point of the cables is positioned on the back side of the feed unit. The MS line offers also central feed units as well as power supply boxes with a switch-disconnector which allows you to select the whole line for carrying out maintenance operations or layout changes, if required.



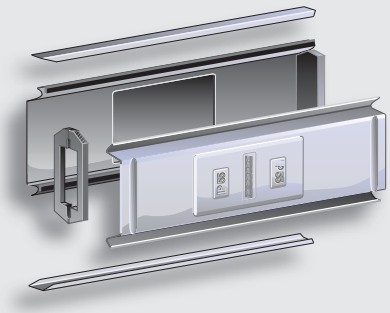
Standard feed unit



End-line feed unit

END COVER

The end cover ensures the IP55 protection degree at the end of the line.



End cover

Trunking components and additional elements

Depending on the different installation requirements Zucchini can provide various technical solutions:

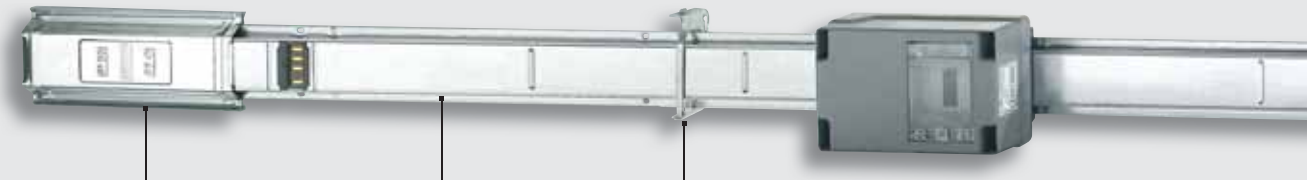
a) 90° angles: available for carrying out changes of direction both horizontally and vertically. There is a quick connection, as with the straight elements. standard IP40 degree of protection (IP55 with pre-installed accessories);

b) T-type and X-type elements: available on request for special applications;

c) flexible angle: available for 63A, 100A and 160A capacities and allows changes of direction with angles different, horizontal and vertical, from 90°;

d) straight elements with flame barrier (internal + external). These elements - used when it is necessary to move through fire-resistant walls - have been tested in laboratories (in compliance with DIN Standards 4102-9 and EN 1366- 3) to confirm that, if correctly installed, they can maintain the intrinsic fire-resistant properties of the wall;

e) straight elements with bar lock: when the busbar is installed vertically (riser mains) these elements are equipped with a device that prevents the conductors from sliding due to the weight of the portion of column over it. This type of element is required at about every 10 m of column.



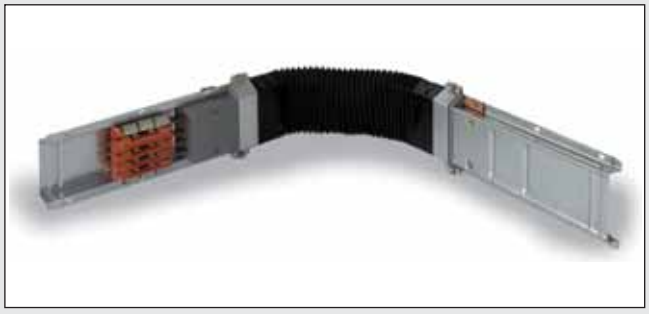
End cap: completes the installation of the lines and guarantees the IP55 degree of protection of the line.

Straight elements, with tap-off outlets every 1000 mm from both sides.

Wall suspension bracket or bracket for connecting a support.

PARTS OF THE LINE

Centre feed unit



Flexible joint

Tap-off box complete with terminals for cables of up to 25 mm^2. Made from self-extinguishing plastic material, high mechanical resistance and resistance to static currents. The Box can be connected and disconnected when energized. Capacities from 16A to 32A.

Joint cover.
It ensures the IP55 degree of protection of the link.

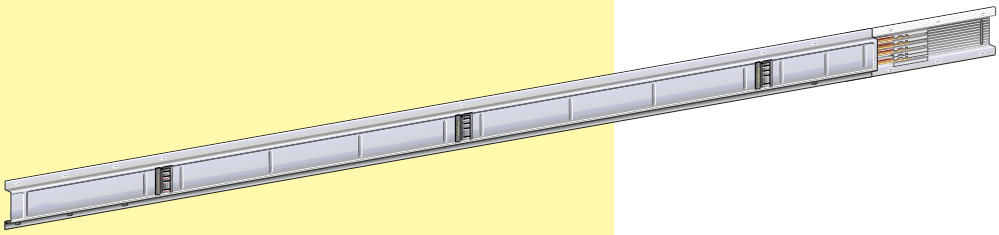
Feed units.

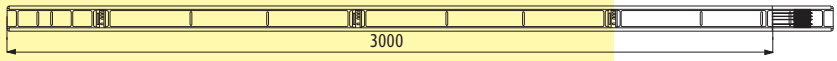
Tap-off boxes

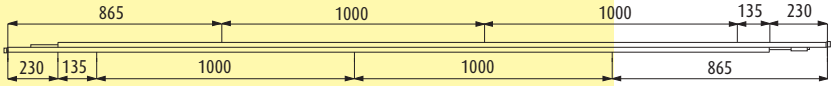
IP55 gasket and joint cover

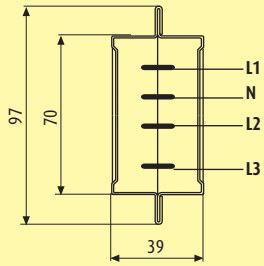
End cover

Trunking components





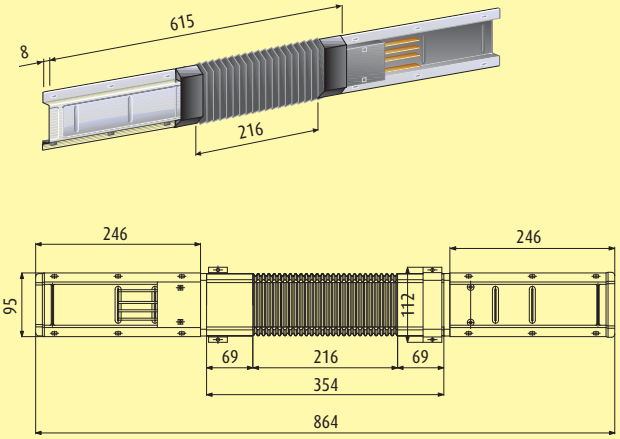




STRAIGHT ELEMENT

Model	Item	Length (m)	Rating (A)	Weight (kg)
MS63	**51530101**	3	63	7.890
MS63	**51530116**	2	63	5.260
MS63	**51530115**	1.5	63	3.945
MS63	**51530114**	1	63	2.630
MS63	**51530112**	< 1.5	63	-
MS63	**51530113**	> 1.5	63	-
MS100	**51510101**	3	100	7.890
MS100	**51510116**	2	100	5.260
MS100	**51510115**	1.5	100	3.945
MS100	**51510114**	1	100	2.630
MS100	**51510112**	< 1.5	100	-
MS100	**51510113**	> 1.5	100	-
MS160	**51520101**	3	160	9.290
MS160	**51520116**	2	160	6.190
MS160	**51520115**	1.5	160	4.645
MS160	**51520114**	1	160	3.100
MS160	**51520112**	< 1.5	160	-
MS160	**51520113**	> 1.5	160	-

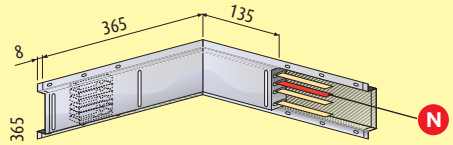
FLEXIBLE JOINT



Enables you to make horizontal and vertical changes of direction

Model	Item
MS63	**51511261**
MS100	**51511261**
MS160	**51521261**

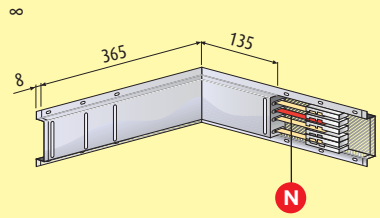
RIGHT HORIZONTAL ELBOW



Model	Item	Weight (kg)
MS63	**51530351**	1.600
MS100	**51500361**	1.600
MS160	**51520351**	2.600

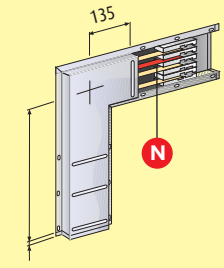
The R and L elbows are different due to the position of the linking block.

LEFT HORIZONTAL ELBOW



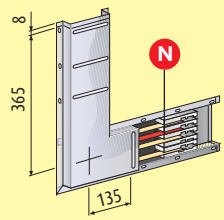
Model	Item	Weight (kg)
MS63	**51530361**	1.600
MS100	**51500362**	1.600
MS160	**51520361**	2.600

RIGHT VERTICAL ELBOW



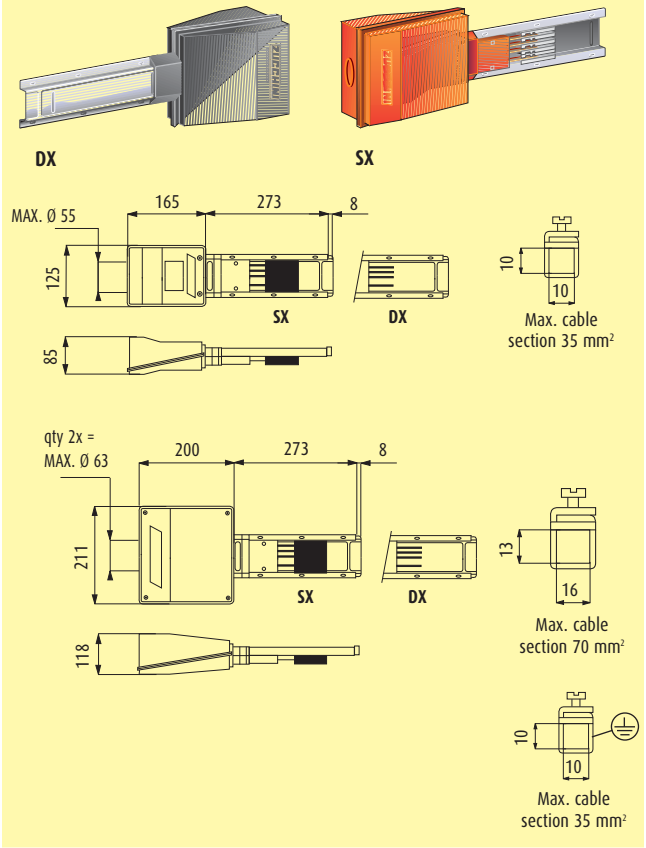
Model	Item	Weight (kg)
MS63	**51530451**	1.600
MS100	**51500461**	1.700
MS160	**51520451**	2.700

LEFT VERTICAL ELBOW



Model	Item	Weight (kg)
MS63	**51530461**	1.600
MS100	**51500462**	1.700
MS160	**51520461**	2.700

Feed units



FEED UNIT IP55 MS63 – MS 100

Model	Item	MS 63	MS100	MS160	Weight (kg)
DX	**51511051**	•	•		1.732
SX	**51511052**	•	•		1.874

Cable gland selection page 175

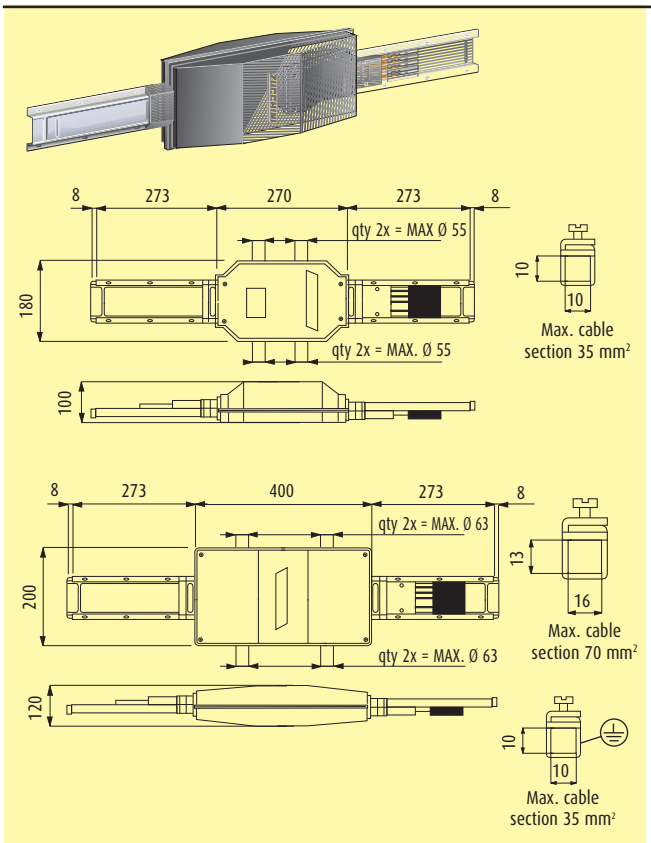
FEED UNIT IP55 MS160

Model	Item	MS 63	MS100	MS160	Weight (kg)
DX	**51521051**			•	2.218
SX	**51521052**			•	2.360

Cable gland selection page 175

Versions with switch-disconnector available on request.

IP55: the feed units are delivered with joint cover 51500161



CENTRE FEED UNIT MS63 - MS100

Model	Item	MS 63	MS100	MS160	Weight (kg)
IP 55	**51511151**	•	•		3.500

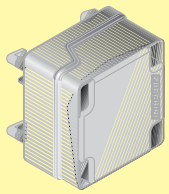
Cable gland selection page 175

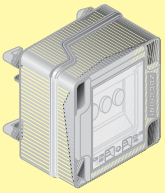
CENTRE FEED UNIT MS160

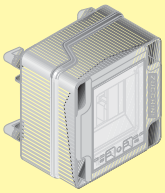
Model	Item	MS 63	MS100	MS160	Weight (kg)
IP 55	**51521151**			•	5.000

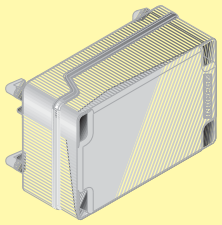
Cable gland selection page 175

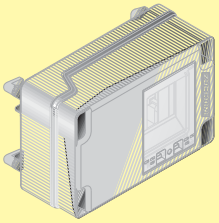
Tap-off boxes

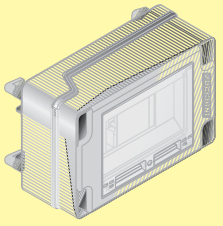


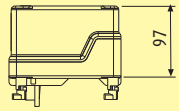


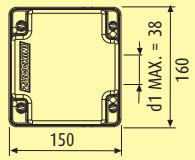


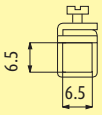




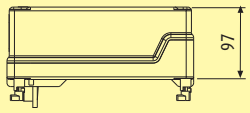


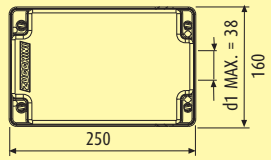


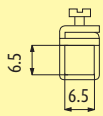




Max. cable section 25 mm²







Max. cable section 25 mm²

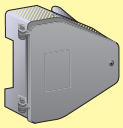
TAP-OFF BOXES

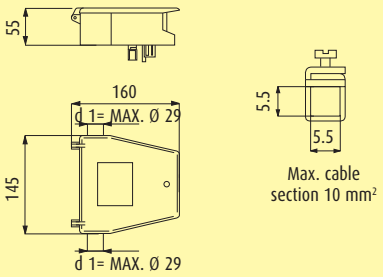
Energy withstand 400.000 A^2s
MAX power loss 10W (16W for long version)
Totally insulated box

Model	Item	Weight (kg)
EMPTY TAP-OFF BOX with 4 module DIN rail		
32A	**51515071**	0.680
TAP-OFF BOX with fuse carrier (10.3x38mm)		
32A	**51515076**	0.680
TAP-OFF BOX with D01 fuse carrier		
16A	**51515077**	0.950
TAP-OFF BOX with D02 fuse carrier		
32A	**51515078**	0.950
Tap-off box for 4 DIN rail modules cover junction		
32A	**51515072**	0.730

Model	Item	Weight (kg)
Empty tap-off box with 8 module DIN rail (long version)		
32A	**51515073**	0.930
Tap-off box with 4 module DIN rail (long version)		
32A	**51515074**	0.960
Tap-off box with 8 module DIN rail (long version)		
32A	**51515075**	0.990

Tap-off boxes with disconnecting device on cover

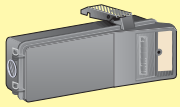


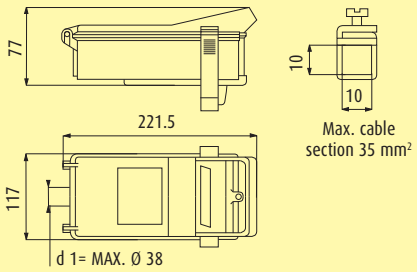


WITH FUSE CARRIER (10.3X38mm)

Model	Item	Fuses	Weight (kg)
16A	**51515051**	Ø 10.3x38*	0.908

* Fuses not supplied

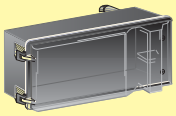


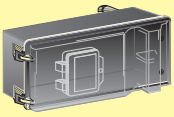


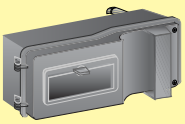
WITH FUSE CARRIER (14X51mm)

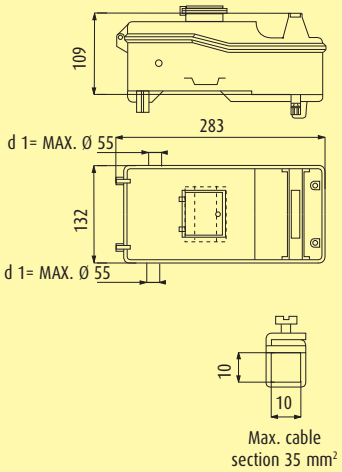
Model	Item	Fuses	Weight (kg)
50A	**51515052**	Ø 14x51*	0.908

* Fuses not supplied





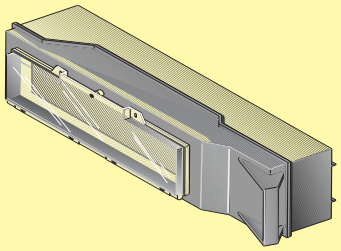


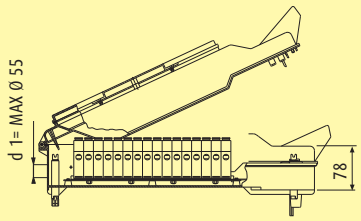


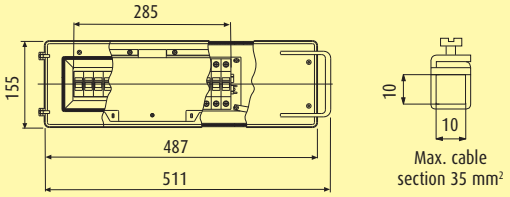
63A TAP-OFF BOXES

Energy withstand 400.000 A^2S
MAX power loss 20W

Model	Item	Weight (kg)
Tap-off box with transparent cover		
63A	**51515057**	1.100
Tap-off box with transparent cover and hinged window (4 modules)		
63A	**51515056**	1.200
Tap-off box with hinged window (7 modules)		
63A	**51515067**	1.100





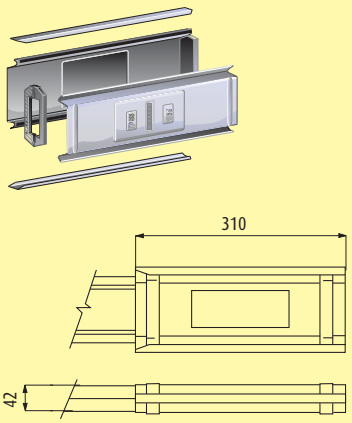


WITH DOOR FOR 16 DIN MODULES

Model	Item	Weight (kg)
63A	**51515058**	2,500

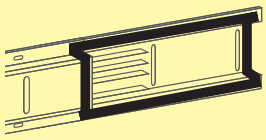
Energy withstand 400.000 A^2S
MAX power loss 20W
Cable gland selection page 175

Accessories



IP55 END COVER

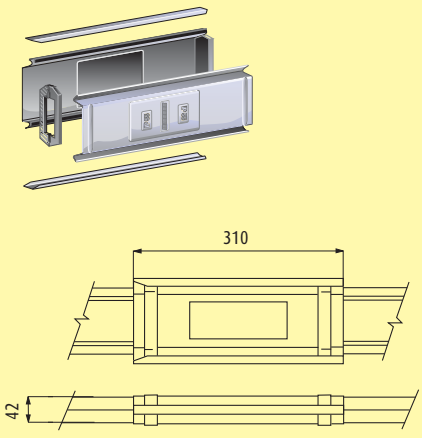
Model	Item	Weight (kg)
All	**51501351**	0.570



SET OF IP55 JOINT GASKETS

Model	Item	Weight (kg)
All	**51500151**	0.050

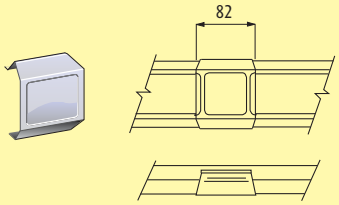
One set for each link



IP55 JOINT COVER

Model	Item	Weight (kg)
All	**51500161**	0.788

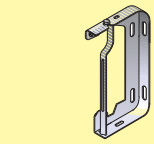
One set for each link

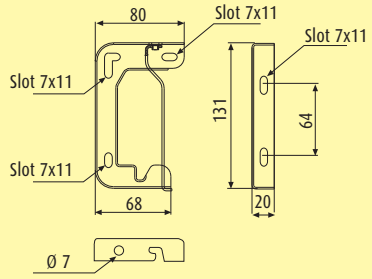


IP55 OUTLET COVER

Model	Item	Weight (kg)
All	**51500160**	0.061

6 every 3m straight element





SUSPENSION BRACKET

Model	Item	Weight (kg)
All	**51002002**	0.100

1 bracket every 2 metres

MR - MEDIUM RATING
160 - 1000A

SECTION CONTENTS

MR
Technical description

GENERAL FEATURES

The Zucchini MR (Medium Rating) line is the ideal solution for the distribution of power in medium – large industries, and for riser mains in commercial and service buildings (banks, insurance companies, trade and business centres, etc.).
The main features of the MR range are:

- speed, simplicity and flexibility when planning and installing and installing the lines;
- availability in sizes ranging from 160A up to 800A with aluminum alloy conductors and from 250A up to 1000A with 99.9% electrolytic copper conductors;
- availability of a wide selection of tap-off boxes from 16A up to 1000A with the possibility of housing protective devices such as fuses, MCBs (Lexic range) and MCCB (DPX range);
- compliance with standard IEC 60439-1 and 2;
- rated at average room temperature of 40°C for a higher performance level compared to the 35°C rating required by the standard;
- Each trunking component (straight element, angle,...) is pre-equipped with a monobloc at one end and with an IP55 joint cover placed at the other end, thus permitting an easy and rapid installation.

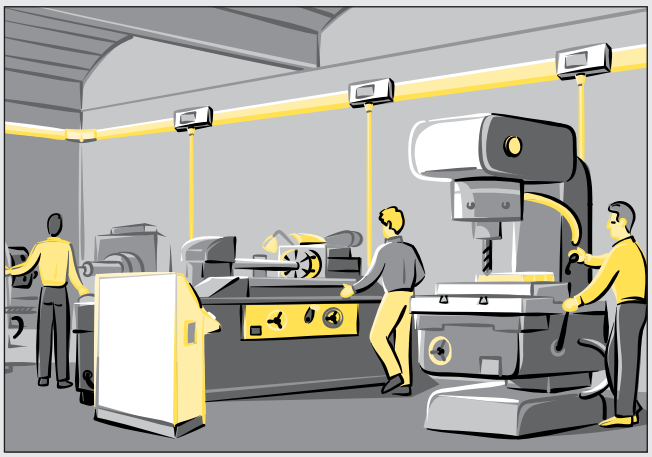
High-rise buildings

Industries

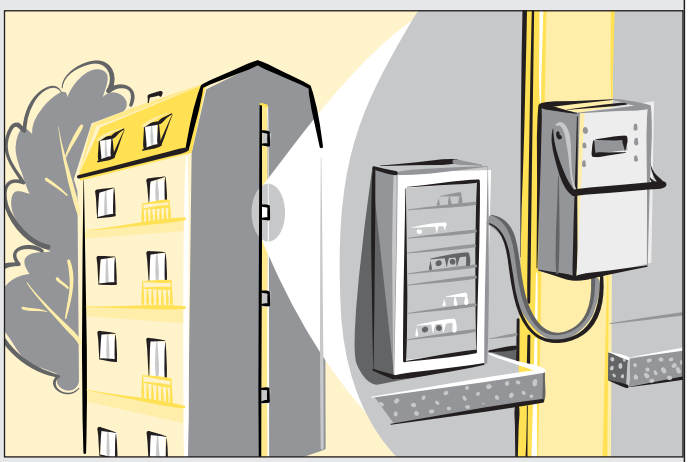
STRAIGHT ELEMENTS

The components and the features of the MR straight elements are:

- a casing made of Senzimir quality galvanized steel used as protective earth (PE);
- overall dimensions: 75 to 135x196 mm;
- painted casing available on request;
- number of conductors: 4 with the same section (3P+N) with PE made from the casing or 5 when using MRfull (3P+N+PE), available in the aluminum or electrolytic copper version with 99.9% purity;
- conductors insulators are made by fiberglass reinforced plastic material, ensuring a V1 self-extinguishing degree (according to UL94), in compliance with the glow-wire test according to IEC 60695-2-10;
- tap-off outlets with a constant centre distance of 1 m on both sides of the busbar (3+3 windows every 3m), set up for being connected to plug-in type tap-off boxes; These outlets open and close automatically when inserting or pulling out a tap-off box;
- "monobloc" electric junction system made with a silver coated copper plate system to connect conductors and PE in a fast and reliable way. The "monobloc" has shear-head bolts with a preset torque setting which ensure good, long-lasting electrical continuity.
- All components and accessories of the MR line are IP55 when the plug outlet covers are installed on the straight elements. Without plug outlet covers there is an IP52 for "edgewise" installations, or IP40 with a"flatwise" installation (outlets facing up).
- The whole busbar is fire retardant in compliance with the IEC 60332-3 standard.



Installation in medium-sized industries

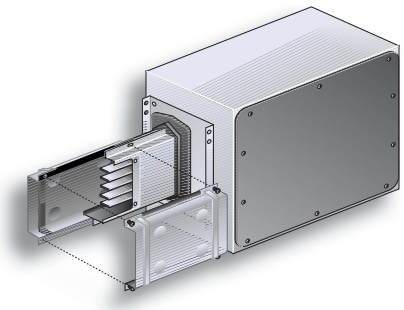


Riser main installations

MR
Technical description

FEED UNITS

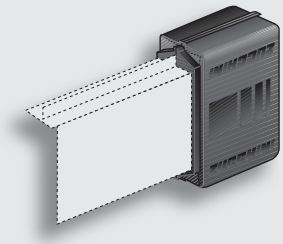
Allows you to electrically power the MR line through a cable line or directly connected to an electric distribution board. The 160 and 250A feed units have terminals for cables up to 150mm^2; for higher ratings, the cable connection to the feed unit requires cable lugs to be fastened to the provided spreaders. The MR line can be provided with centre feed units or end feed units with a switch-disconnector which allows you to isolate the whole line for carrying out maintenance operations or layout changes, if required.



Feed unit

END COVER

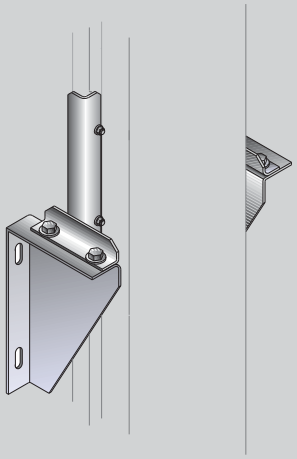
The end cover ensures the IP55 protection degree at the end of the line.



End cover

FIXING SUPPORTS

In order to fix the line to the structure of the building, directly or with wall / ceiling / beam supports, it is necessary to use the bracket supports or vertical suspension supports.



Suspension bracket for vertical elements

TAP-OFF BOXES

Used for energizing three-phase loads from 16A up to 1000A; they can be divided into two big categories:

1) Plug-in type tap-off boxes (from 16A up to 630A) with the following features:

- Intervention under load possible up to 32A;
- disconnection device integrated into the cover of the boxes with a rating from 63A to 630A, ensuring automatic absence of electric current when the cover is opened;
- possibility of padlocking box cover in the open-disconnected position so that all maintenance operations of the loads connected to it can be carried out safely;
- the supplied PE contact (protective conductor) is the first to make an electrical connection when inserting the box into the outlet and it is the last to disconnect when pulling it out;
- all insulating plastic components are in compliance with the IEC 60695-2-1 glow-wire test and rated V2 self-extinguishing according to the UL94;
- standard IP55 degree of protection without using additional accessories;
- availability of boxes in the following versions:
- with a set of three fuse carriers
- with Lexic MCBs
- with EEC sockets and Schuko sockets
- with AC23 switch disconnector and fuse carrier
- for MCCBs.

2) Boxes bolted onto the connection (from 630A to 1000A) which include the following features:

- very easy, fast and reliable installation;
- high rated current;
- rigid connection to the busbar through the use of a monobloc junction similar to the straight element system;
- possibility of removing the boxes only when the busbar is not energized (isolated busbar);
- availability of boxes in the following versions:
- AC23 switch disconnector and fuse carrier
- with MCCBs

Tap-off box with the possibility of installing modular circuit breakers

Tap-off box with integrated disconnecting device

Trunking components and additional elements

Depending on the different installation requirements Zucchini can provide various technical solutions:

a) 90° elbows: available for carrying out changes of direction both horizontally and vertically. There is a quick connection, as for the straight elements. The standard degree of protection is IP55;

b) T-type and X-type elements, Z-type double elbows available. The standard degree of protection is IP55;

c) straight elements with fire barrier (internal + external) S120 (certified for 120min). Tested in laboratories (in compliance with DIN Standards 4102-9 and EN 1366-3) to confirm that, correctly installed, they maintain the intrinsic fire-resistant properties of the wall;

d) straight elements with 5 outlets on one side; they are ideal for riser mains or segments with a large number of derivations;

e) straight elements with no outlets, used for energy transport only.

The MR line is even more advantageous in vertical applications (riser mains) as no thrust unit or thermal expansion element is necessary. The MR monobloc is designed to compensate the thermal expansions of the conductors.

PARTS OF THE LINE


Metal end feed unit


Switchboard - transformer feed unit


Horizontal angle


Vertical angle

Tap-off box complete with terminals for cables of up to 25 mm². Made from self-extinguishing plastic material, ensures high mechanical resistance and resistance to static currents. Plug-in type boxes can be inserted and removed when the busbar is energized.

Joint cover pre-installed on the elements.

Feed units.

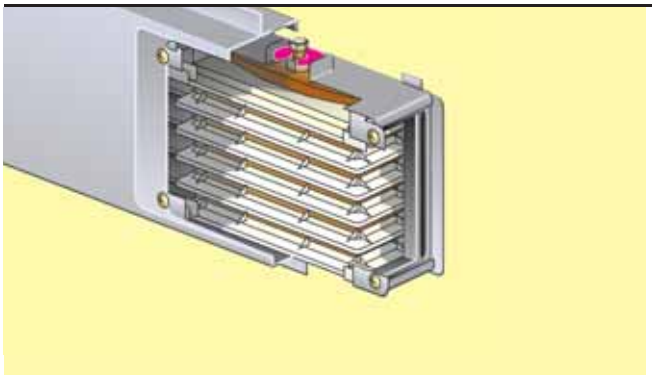
End cover

IP55 outlet cover (accessory)

Tap-off box

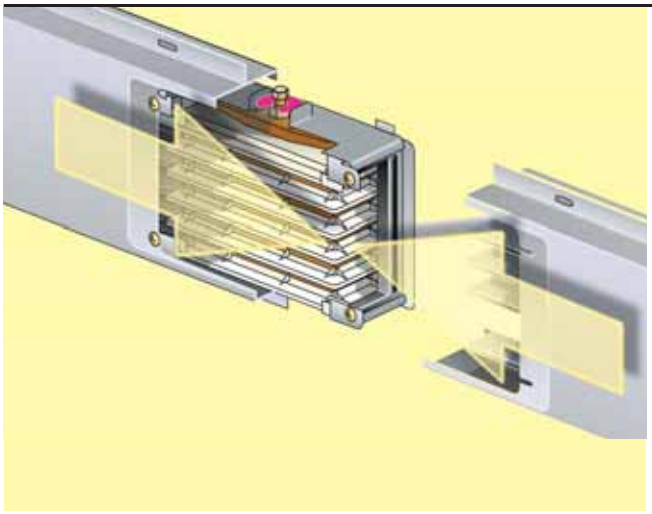
Tap-off box with cover disconnector

Advantages



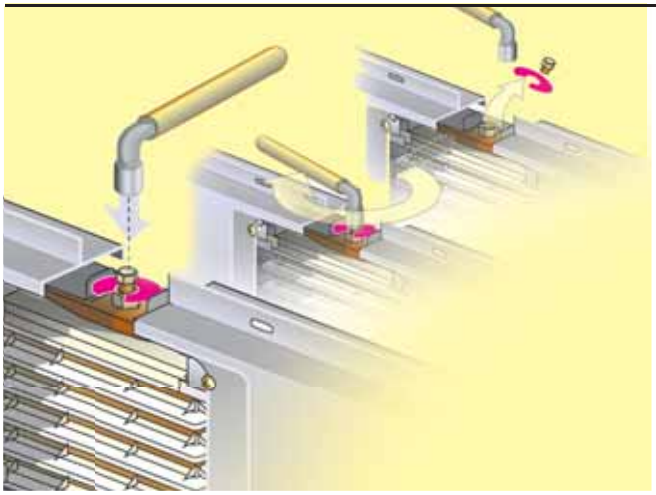
PRE-ASSEMBLED MONOBLOC

All trunking components (straight elements, angles, etc.) are provided with a pre-assembled monobloc which considerably speeds up the installation of the system and makes transportation and storage operations easier.



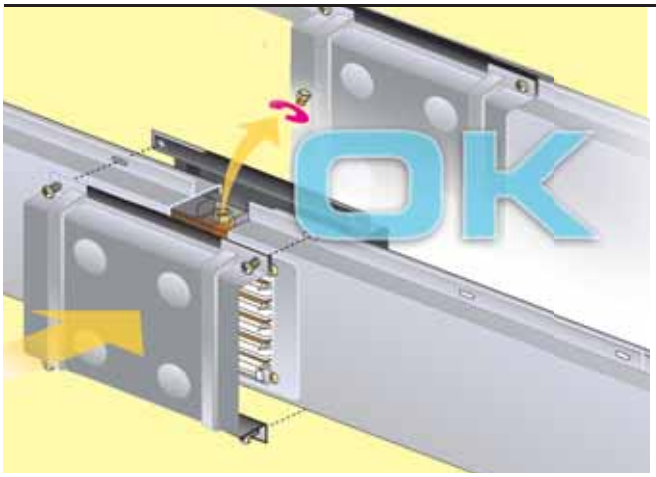
EXTREMELY FAST INSTALLATION

The monobloc and the "dynamometric" bolt allow a very fast installation of the whole line.



DYNAMOMETRIC MONOBLOC

Tighten the "dynamometric" bolt on the monobloc until the head breaks to electrically connect the elements. The breakage of the bolt head guarantees long-lasting reliability and safety.
The connection is maintenance free.
In case of a future intervention on the line, the monobloc must be retightened using the second bolt head with a torque wrench at the correct settings: 34 Nm (up to 315A Al / 400A Cu) or 55 Nm (up to 800A Al / 1000A Cu)



CONNECTION FLANGES

If the monobloc has been tightened improperly, the head of the dynamometric bolt will prevent the mechanical coupling from closing. The connection flanges and the seals serve as a protection for the element during transportation and ensure their degree of protection as well as their mechanical rigidity when being installed.

IP OF PROTECTION

The MR line on "edgewise" position has a standard IP52 protection degree; by simply adding the plug-outlet covers to the tap-off outlets, the line can reach an IP55 degree of protection.

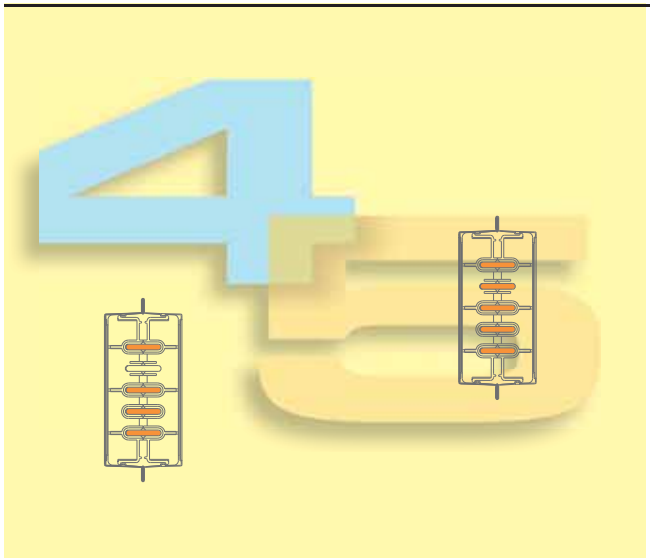
EXCELLENT FIRE RESISTANCE

The MR line has elements provided with a flame barrier (S120 according to DIN 4102-9 ISO 834) and structures which guarantee that the bus-line continues to function in case of fire (E120 according to DIN 4102-12).
The fire load of the MR line is extremely low compared to the quantity of plastic materials needed to insulate cables with the same capacity.

Advantages

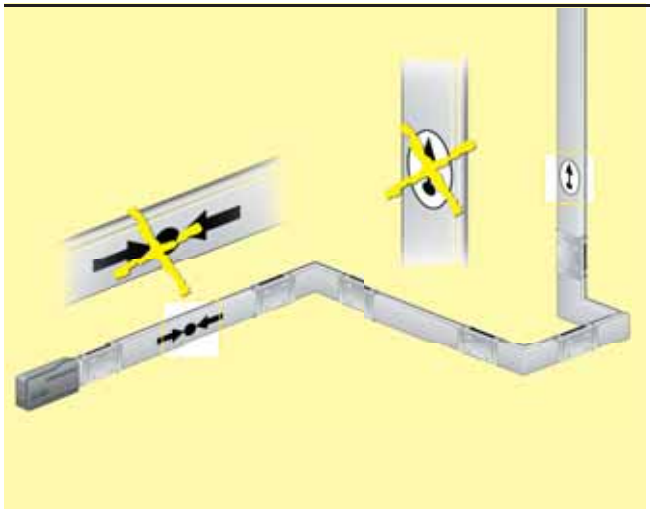
GLOW-WIRE TEST

All plastic materials are resistant and in compliance with the "glow-wire" test (IEC EN60439-2).



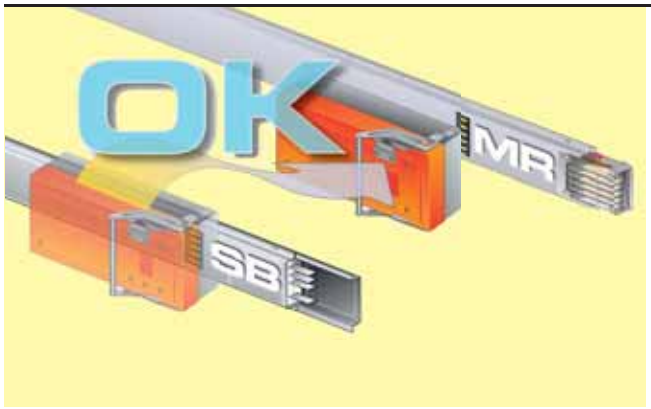
VERSIONS

The MR symbol indicates a busbar with 4 conductors with an equal cross section (3L+N), and the casing acts as the protective earth conductor (PE); the MRf (full) line has 5 conductors with an equal cross section (3L+N+PE). The MR and MRf lines are also available on request in a painted version (RAL to be defined by the customer).



SIMPLE AND RELIABLE

The "monobloc" connection of the MR line is able to compensate for any heat expansion affecting the conductors, thus avoiding the need to insert special expansion elements even in considerably long systems.
If the MR line is installed vertically (riser main) there is no need to install busbar thrust units because the monobloc prevents the conductors from sliding.



COMPATIBLE WITH THE SB RANGE

The tap-off boxes of the SB range can be installed without any modifications on the MR range. This allows existing systems to be extended.

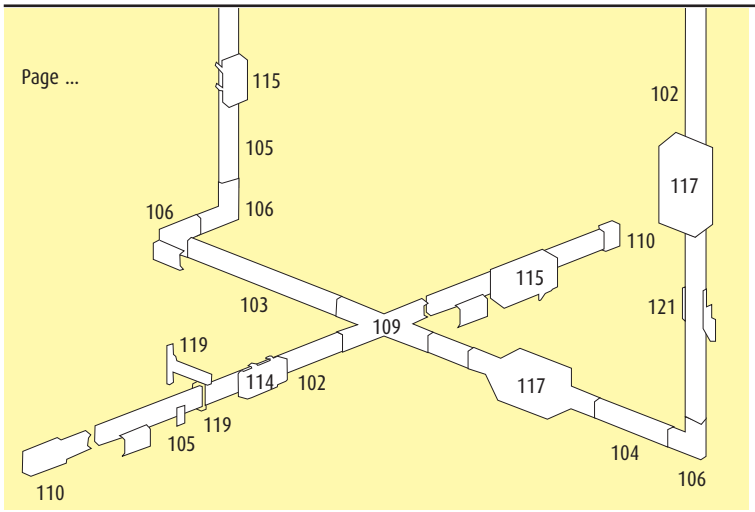
MAXIMUM STRENGTH

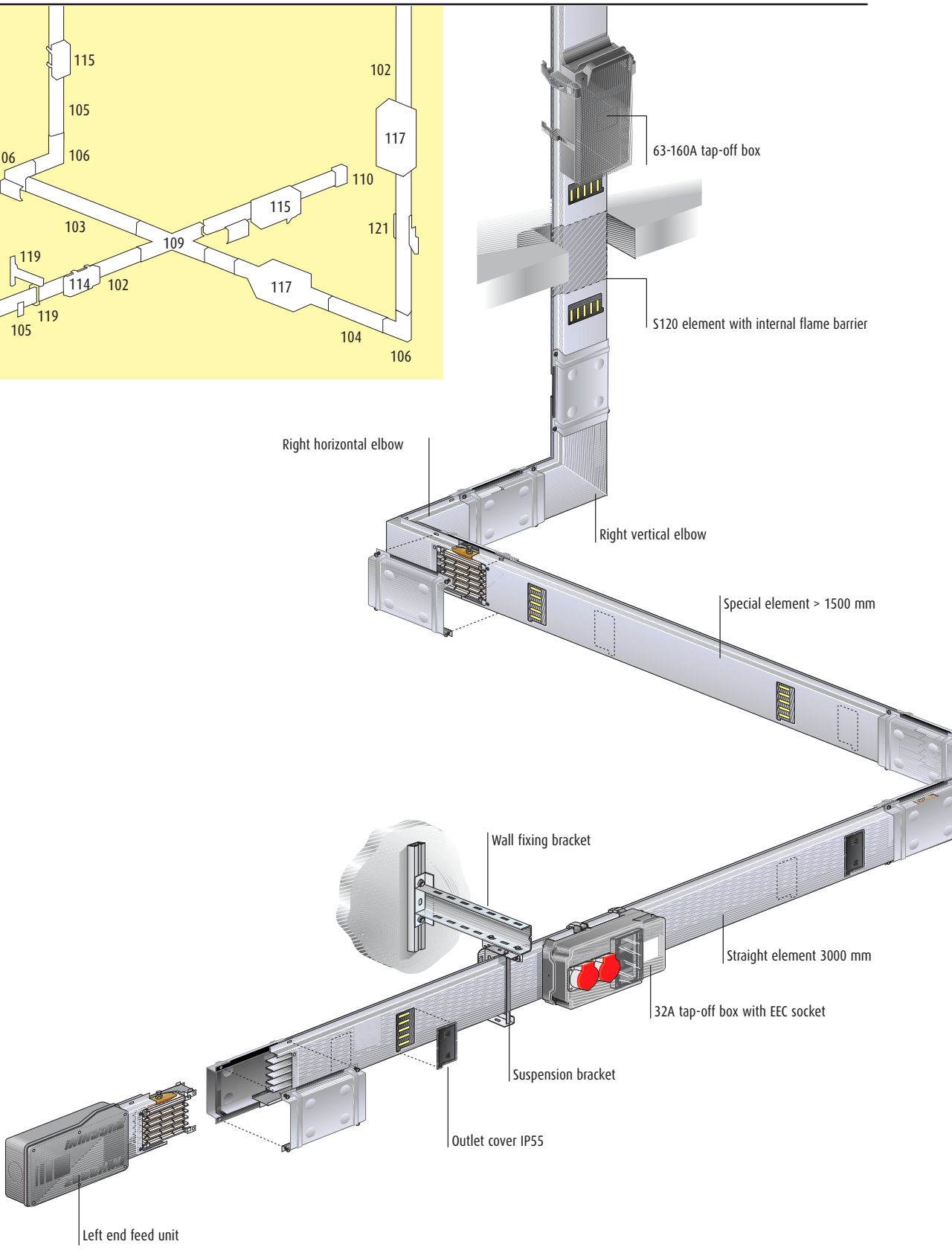
The MR range has been designed and manufactured for heavy industrial environments. The degree of impact-resistance of the casing which houses this line is the maximum stated in IEC EN60068-2-62: IK10.

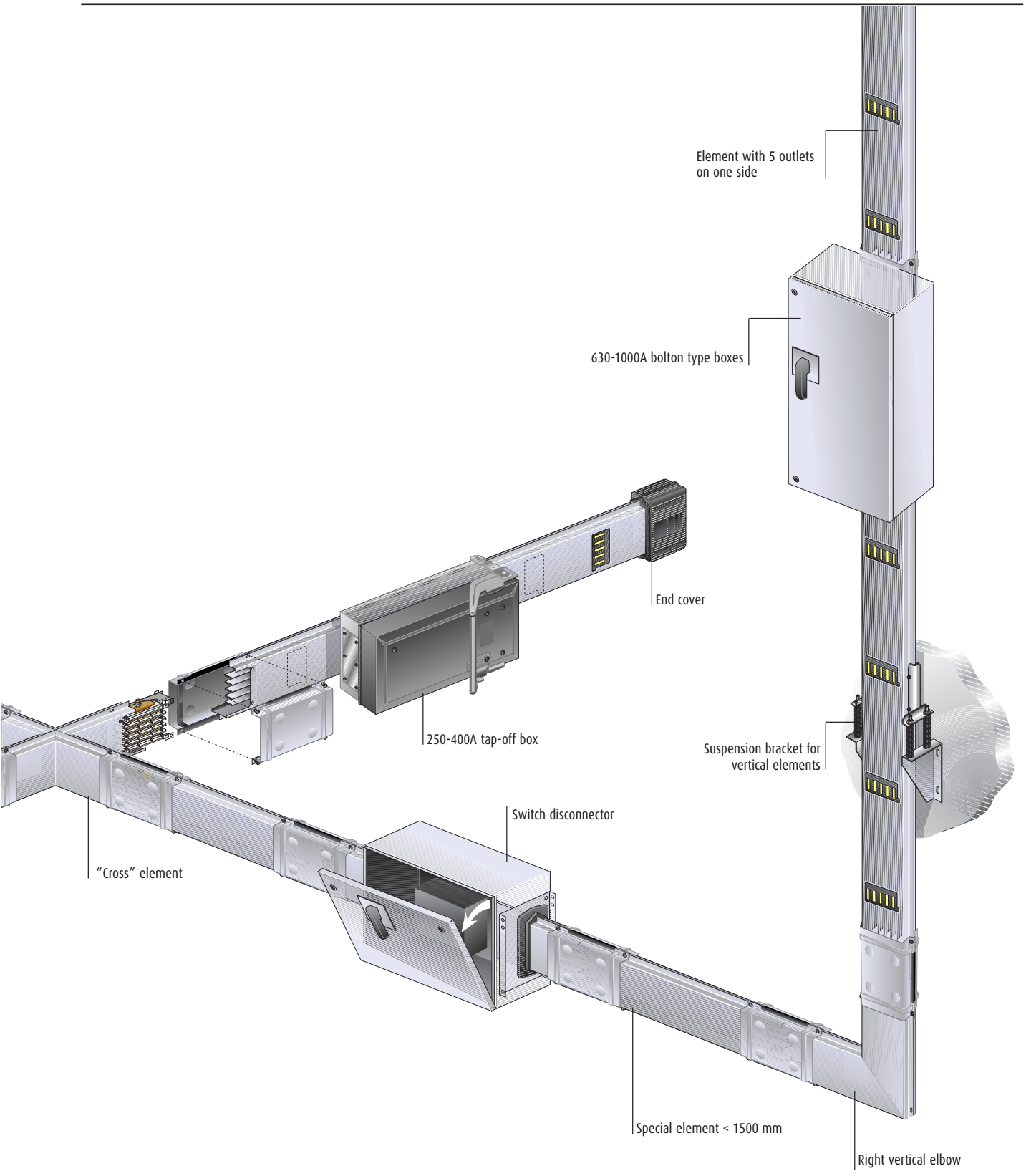
ALUMINIUM AND COPPER RATING

Aluminium	160	250	315	400	500	630	800	-
Copper	-	250	315	400	-	630	800	1000

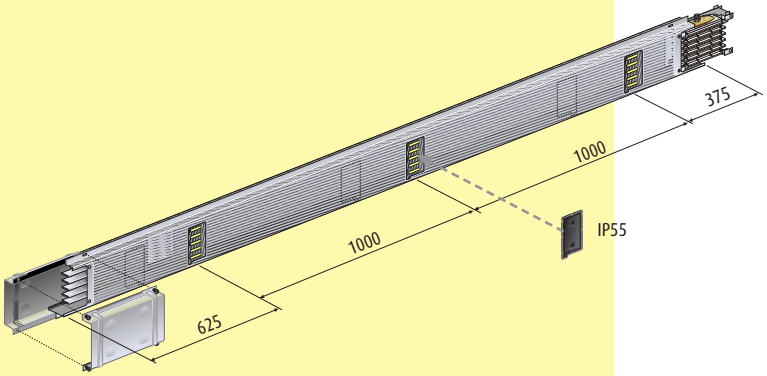
Line route

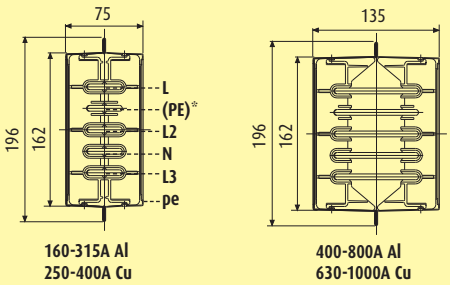

Page ...
115
105
106
106
103
109
115
110
117
121
102
119
114
102
117
119
105
104
110
106


63-160A tap-off box
S120 element with internal flame barrier
Right horizontal elbow
Right vertical elbow
Special element > 1500 mm
Wall fixing bracket
Straight element 3000 mm
32A tap-off box with EEC socket
Suspension bracket
Outlet cover IP55
Left end feed unit


Element with 5 outlets
on one side
630-1000A bolton type boxes
End cover
250-400A tap-off box
Suspension bracket for
vertical elements
Switch disconnector
"Cross" element
Special element < 1500 mm
Right vertical elbow

Trunking components





160-315A Al
250-400A Cu

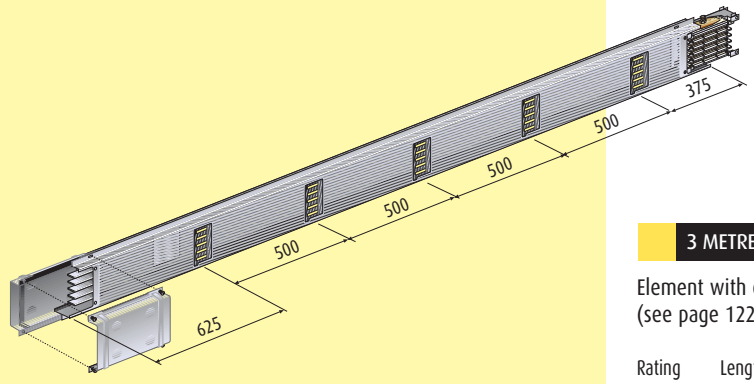
400-800A Al
630-1000A Cu

* only on MRf

3 METRE STRAIGHT ELEMENTS WITH 3+3 OUTLETS

Straight element with tap-off outlets in fixed position.

Rating (A)	Length (m)	No. outlets	Item	Weight (kg)	Item	Weight (kg)
			Aluminium		**Copper**	
160	3000	3 + 3	**5040 01 01**	19.9	-	-
250	3000	3 + 3	**5040 01 02**	20.9	**5540 01 02**	25.7
315	3000	3 + 3	**5040 01 03**	22.8	**5540 01 03**	28.1
400	3000	3 + 3	**5040 01 04**	33.8	**5540 01 04**	36.9
500	3000	3 + 3	**5040 01 08**	37.5		
630	3000	3 + 3	**5040 01 05**	41.7	**5540 01 05**	56.0
800	3000	3 + 3	**5040 01 06**	44.3	**5540 01 06**	72.1
1000	3000	3 + 3			**5540 01 07**	83.7



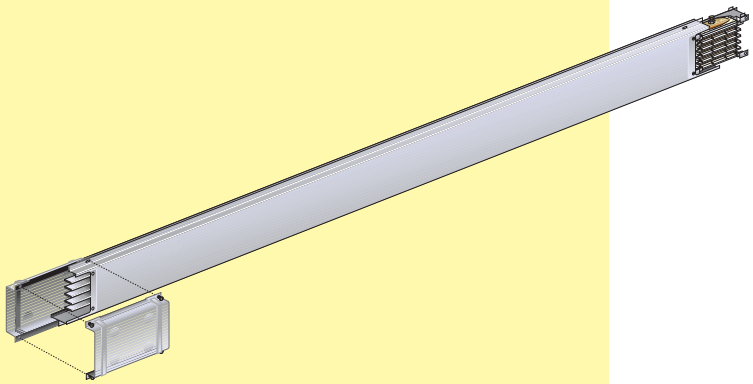
3 METRE STRAIGHT ELEMENTS WITH 5 OUTLETS ON ONE SIDE

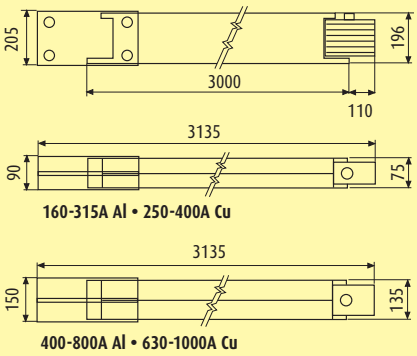
Element with outlets on one side which can be used for riser mains (see page 122).

Rating (A)	Length (m)	No. outlets	Item	Weight (kg)	Item	Weight (kg)
			Aluminium		**Copper**	
160	3000	5 + 0	**5040 02 51**	19.9		
250	3000	5 + 0	**5040 02 52**	20.9	**5540 02 52**	25.7
315	3000	5 + 0	**5040 02 53**	22.8	**5540 02 53**	28.1
400	3000	5 + 0	**5040 02 54**	33.8	**5540 02 54**	36.9
500	3000	5 + 0	**5040 02 58**	37.5		
630	3000	5 + 0	**5040 02 55**	41.7	**5540 02 55**	56.0
800	3000	5 + 0	**5040 02 56**	44.3	**5540 02 56**	72.1
1000	3000	5 + 0			**5540 02 57**	83.7

Table Conversion Code

	Conductors	Casing	Code
MR	4	**Galvanized**	---**0**---
MRf	5	**Galvanized**	---**1**---
MR-P	4	**Painted**	---**2**---
MRf-P	5	**Painted**	---**3**---

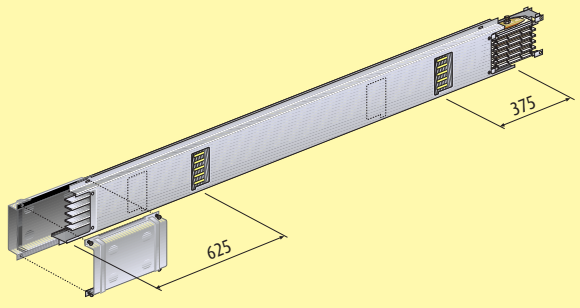




3 METRE STRAIGHT ELEMENTS WITHOUT OUTLETS

Element used for transport/feeder purposes with the possibility of a derivation between two elements (see bolt-on tap-off boxes).

Rating (A)	Length (m)	No. outlets	Item	Weight (kg)	Item	Weight (kg)
			Aluminium		**Copper**	
160	3000	0	**5040 02 41**	19.9		
250	3000	0	**5040 02 42**	20.9	**5540 02 42**	25.7
315	3000	0	**5040 02 43**	22.8	**5540 02 43**	28.1
400	3000	0	**5040 02 44**	33.8	**5540 02 44**	36.9
500	3000	0	**5040 02 48**	37.5		
630	3000	0	**5040 02 45**	41.7	**5540 02 45**	56.0
800	3000	0	**5040 02 46**	44.3	**5540 02 46**	72.1
1000	3000	0			**5540 02 47**	83.7



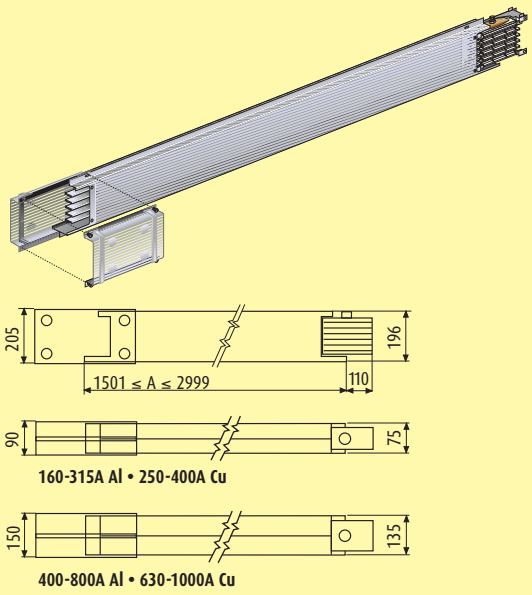
STRAIGHT ELEMENTS FROM 1501 TO 2999 mm WITH 2+2 OUTLETS

Straight element with tap-off outlets in fixed position.

Rating (A)	Length (m)	No. outlets	Item	Weight (kg)	Item	Weight (kg)
			Aluminium		**Copper**	
160	1501-2999	2 + 2	**5040 01 51**	13.6		
250	1501-2999	2 + 2	**5040 01 52**	14.1	**5540 01 52**	16.5
315	1501-2999	2 + 2	**5040 01 53**	14.9	**5540 01 53**	17.7
400	1501-2999	2 + 2	**5040 01 54**	23.3	**5540 01 54**	22.0
500	1501-2999	2 + 2	**5040 01 58**	25.2		
630	1501-2999	2 + 2	**5040 01 55**	26.9	**5540 01 55**	34.3
800	1501-2999	2 + 2	**5040 01 56**	28.0	**5540 01 56**	42.2
1000	1501-2999	2 + 2			**5540 01 57**	47.8

⚠ In your Purchase Order please specify the required length (see page 121: How to take measurements).

Trunking components

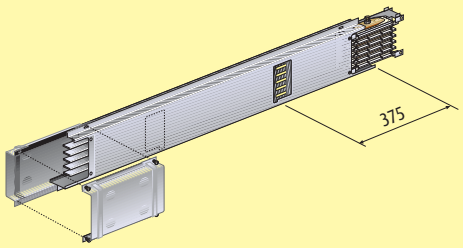


STRAIGHT ELEMENTS FROM 1501 TO 2999 mm WITHOUT OUTLETS

Element used for transport/feeder purposes. Tap-off point possible on the junction (see bolt-on tap-off boxes).

Rating (A)	Length (m)	No. outlets	Item	Weight (kg)	Item	Weight (kg)
			Aluminium		**Copper**	
160	1501-2999	0	**5040 01 21**	13.6		
250	1501-2999	0	**5040 01 22**	14.1	**5540 01 22**	16.5
315	1501-2999	0	**5040 01 23**	14.9	**5540 01 23**	17.7
400	1501-2999	0	**5040 01 24**	23.3	**5540 01 24**	22.0
500	1501-2999	0	**5040 01 28**	25.2		
630	1501-2999	0	**5040 01 25**	26.9	**5540 01 25**	34.3
800	1501-2999	0	**5040 01 26**	28.0	**5540 01 26**	42.2
1000	1501-2999	0			**5540 01 27**	47.8

In your Purchase Order please specify the required length (see page 121: How to take measurements).

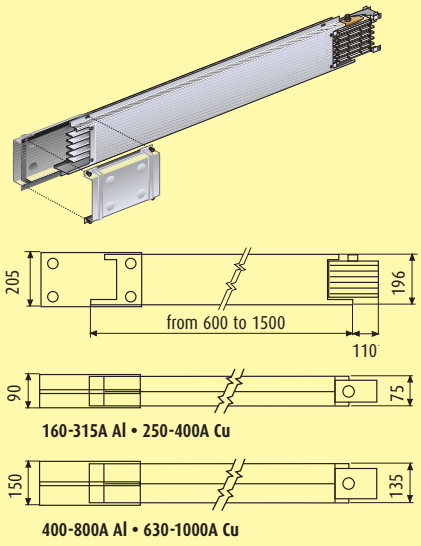


STRAIGHT ELEMENTS FROM 1000 TO 1500 mm WITH 1+1 OUTLETS

Straight element with tap-off outlets in fixed position.

Rating (A)	Length (m)	No. outlets	Item	Weight (kg)	Item	Weight (kg)
			Aluminium		**Copper**	
160	1000-1500	1 + 1	**5040 01 41**	13.6		
250	1000-1500	1 + 1	**5040 01 42**	14.1	**5540 01 42**	16.5
315	1000-1500	1 + 1	**5040 01 43**	14.9	**5540 01 43**	17.7
400	1000-1500	1 + 1	**5040 01 44**	23.3	**5540 01 44**	22.0
500	1000-1500	1 + 1	**5040 01 48**	25.2		
630	1000-1500	1 + 1	**5040 01 45**	26.9	**5540 01 45**	34.3
800	1000-1500	1 + 1	**5040 01 46**	28.0	**5540 01 46**	42.2
1000	1000-1500	1 + 1			**5540 01 47**	47.8

In your Purchase Order please specify the required length (see page 121: How to take measurements).

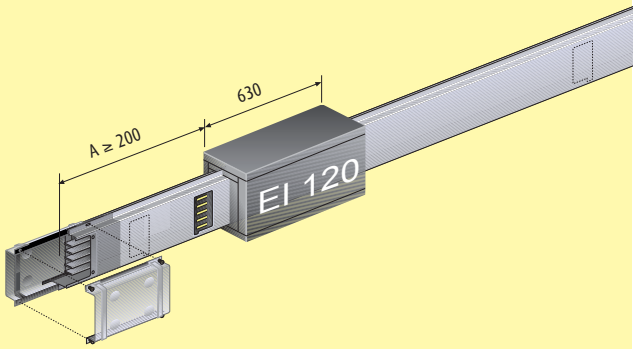


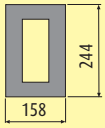
STRAIGHT ELEMENTS FROM 600 TO 1500 mm WITHOUT OUTLETS

Element used for transport/feeder purposes. Tap-off point possible on the junction (see bolt-on tap-off boxes).

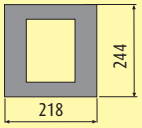
Rating (A)	Length (m)	No. outlets	Item	Weight (kg)	Item	Weight (kg)
			Aluminium		**Copper**	
160	600-1500	0	**5040 01 11**	13.6		
250	600-1500	0	**5040 01 12**	14.1	**5540 01 12**	16.5
315	600-1500	0	**5040 01 13**	14.9	**5540 01 13**	17.7
400	600-1500	0	**5040 01 14**	23.3	**5540 01 14**	22.0
500	600-1500	0	**5040 01 18**	25.2		
630	600-1500	0	**5040 01 15**	26.9	**5540 01 15**	34.3
800	600-1500	0	**5040 01 16**	28.0	**5540 01 16**	42.2
1000	600-1500	0			**5540 01 17**	47.8

In your Purchase Order please specify the required length (see page 121: How to take measurements).





554EFB01
160 - 315A Al
250 - 400A Cu



554EFB01
400 - 800A Al
630 - 1000A Cu

FIRE BARRIER EI120

When ordering, specify the dimension A = ... mm of the element that will be equipped with the fire barrier.

	Alluminium		**Copper**	
	external	internal	external	internal
160	**554EFB01**	**554IFB01**		
250	**554EFB01**	**554IFB02**	**554EFB01**	**554IFB01**
315	**554EFB01**	**554IFB03**	**554EFB01**	**554IFB02**
400	**554EFB02**	**554IFB04**	**554EFB01**	**554IFB05**
500	**554EFB02**	**554IFB06**		
630	**554EFB02**	**554IFB07**	**554EFB02**	**554IFB04**
800	**554EFB02**	**554IFB08**	**554EFB02**	**554IFB06**
1000			**554EFB02**	**554IFB07**

	Conductors	Code
MR	4	------**0**-
MRf	5	------**1**-

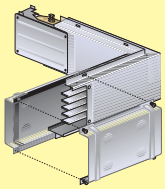
In your Purchase Order please specify the required position of the internal fire barrier. Take the measurement as shown in the Figure. The internal fire barrier is 630mm long.

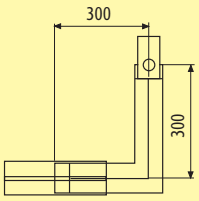
IP55 OUTLET COVER

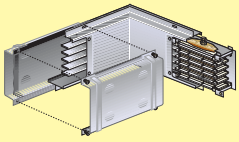
Suitable for all MR versions.

Item	Weight (kg)
50403601	0.10

Elbow trunking components





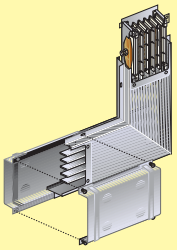


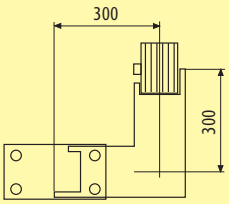
HORIZONTAL ELBOW (300 + 300 mm) - RIGHT

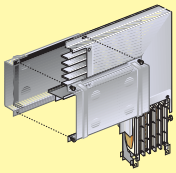
Rating (A)	Item	Weight (kg)	Item	Weight (kg)
	Aluminium		**Copper**	
160	**5040 03 01**	8.1		
250	**5040 03 02**	8.2	**5540 03 02**	16.5
315	**5040 03 03**	8.4	**5540 03 03**	17.7
400	**5040 03 04**	14.5	**5540 03 04**	22.0
500	**5040 03 08**	14.9		
630	**5040 03 05**	15.4	**5540 03 05**	34.3
800	**5040 03 06**	15.7	**5540 03 06**	42.2
1000			**5540 03 07**	47.8

HORIZONTAL ELBOW (300 + 300 mm) - LEFT

Rating (A)	Item	Weight (kg)	Item	Weight (kg)
	Aluminium		**Copper**	
160	**5040 03 11**	8.1		
250	**5040 03 12**	8.2	**5540 03 12**	9.2
315	**5040 03 13**	8.4	**5540 03 13**	9.6
400	**5040 03 14**	14.5	**5540 03 14**	11.0
500	**5040 03 18**	14.9		
630	**5040 03 15**	15.4	**5540 03 15**	18.7
800	**5040 03 16**	15.7	**5540 03 16**	21.4
1000			**5540 03 17**	23.3







VERTICAL ELBOW (300 + 300 mm) - RIGHT

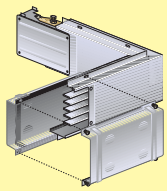
Rating (A)	Item	Weight (kg)	Item	Weight (kg)
	Aluminium		**Copper**	
160	**5040 04 01**	8.1		
250	**5040 04 02**	8.2	**5540 04 02**	9.2
315	**5040 04 03**	8.4	**5540 04 03**	9.6
400	**5040 04 04**	14.5	**5540 04 04**	11.0
500	**5040 04 08**	14.9		
630	**5040 04 05**	15.4	**5540 04 05**	18.7
800	**5040 04 06**	15.7	**5540 04 06**	21.4
1000			**5540 04 07**	23.3

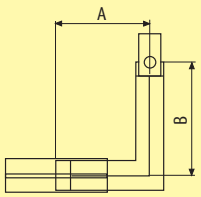
VERTICAL ELBOW (300 + 300 mm) – LEFT

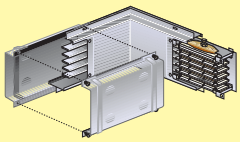
Rating (A)	Item	Weight (kg)	Item	Weight (kg)
	Aluminium		**Copper**	
160	**5040 04 11**	8.1		
250	**5040 04 12**	8.2	**5540 04 12**	9.2
315	**5040 04 13**	8.4	**5540 04 13**	9.6
400	**5040 04 14**	14.5	**5540 04 14**	11.0
160	**5040 04 18**	14.9		
630	**5040 04 15**	15.4	**5540 04 15**	18.7
800	**5040 04 16**	15.7	**5540 04 16**	21.4
1000			**5540 04 17**	23.3

Table Conversion Code

	Conductors	Casing	Item
MR	4	**Galvanized**	---**0**---
MRf	5	**Galvanized**	---**1**---
MR-P	4	**Painted**	---**2**---
MRf-P	5	**Painted**	---**3**---







SPECIAL HORIZONTAL ELBOW - RIGHT

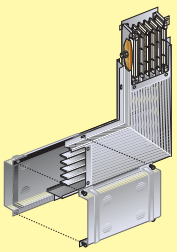
Rating (A)	Item	Item
	Aluminium	**Copper**
160	**5040 03 21**	
250	**5040 03 22**	**5540 03 22**
315	**5040 03 23**	**5540 03 23**
400	**5040 03 24**	**5540 03 24**
500	**5040 03 28**	
630	**5040 03 25**	**5540 03 25**
800	**5040 03 26**	**5540 03 26**
1000		**5540 03 27**

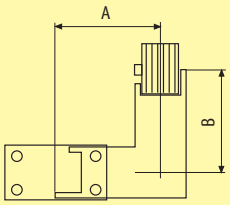
SPECIAL HORIZONTAL ELBOW - LEFT

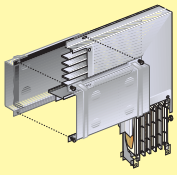
Rating (A)	Item	Item
	Aluminium	**Copper**
160	**5040 03 31**	
250	**5040 03 32**	**5540 03 32**
315	**5040 03 33**	**5540 03 33**
400	**5040 03 34**	**5540 03 34**
500	**5040 03 38**	
630	**5040 03 35**	**5540 03 35**
800	**5040 03 36**	**5540 03 36**
1000		**5540 03 37**

Dimensions [mm]	
min	MAX
250 ≤ A ≤ 900	
250 ≤ B ≤ 900	

In your Purchase Order please specify the required length (see page 121: How to take measurements).







SPECIAL VERTICAL ELBOW - RIGHT

Rating (A)	Item	Item
	Aluminium	**Copper**
160	**5040 04 21**	
250	**5040 04 22**	**5540 04 22**
315	**5040 04 23**	**5540 04 23**
400	**5040 04 24**	**5540 04 24**
500	**5040 04 28**	
630	**5040 04 25**	**5540 04 25**
800	**5040 04 26**	**5540 04 26**
1000		**5540 04 27**

SPECIAL VERTICAL ELBOW - LEFT

Rating (A)	Item	Item
	Aluminium	**Copper**
160	**5040 04 31**	
250	**5040 04 32**	**5540 04 32**
315	**5040 04 33**	**5540 04 33**
400	**5040 04 34**	**5540 04 34**
500	**5040 04 38**	
630	**5040 04 35**	**5540 04 35**
800	**5040 04 36**	**5540 04 36**
1000		**5540 04 37**

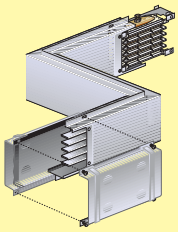
Dimensions [mm]	
min	MAX
300 ≤ A ≤ 900	
300 ≤ B ≤ 900	

In your Purchase Order please specify the required length (see page 121: How to take measurements).

Trunking components
Double elbows

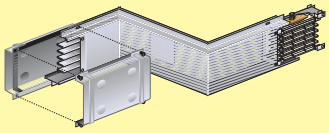
DOUBLE HORIZONTAL ELBOW

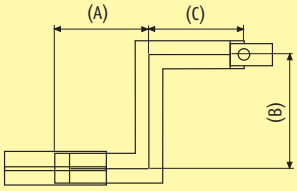
Right + Left



Rating (A)	Weight (kg)	Weight (kg)
160	10.29	
250	10.55	12.23
315	11.06	12.97
400	18.37	15.72
500	19.50	
630	20.55	25.77
800	21.20	30.88
1000		34.55

Left + Right



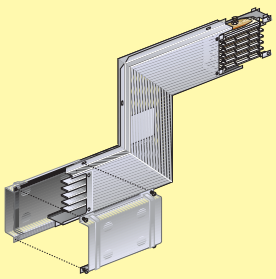


Rating (A)	Weight (kg)	Weight (kg)
160	10.29	
250	10.55	12.23
315	11.06	12.97
400	18.37	15.72
500	19.50	
630	20.55	25.77
800	21.20	30.88
1000		34.55

Dimensions [mm]	
min.	MAX.
250 ≤ A, B,C ≤ 900	

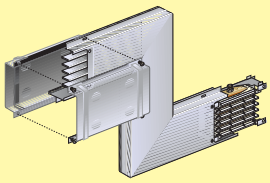
DOUBLE VERTICAL ELBOW

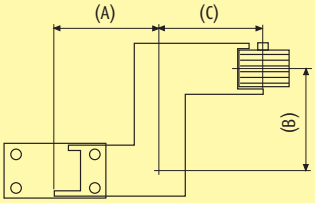
Right + Left



Rating (A)	Weight (kg)	Weight (kg)
160	10.29	
250	10.55	12.23
315	11.06	12.97
400	18.37	15.72
500	19.50	
630	20.55	25.77
800	21.20	30.88
1000		34.55

Left + Right

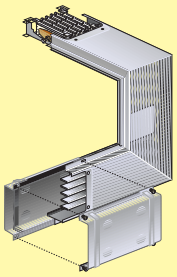




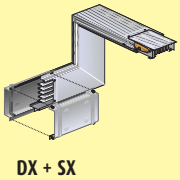
Rating (A)	Weight (kg)	Weight (kg)
160	10.29	
250	10.55	12.23
315	11.06	12.97
400	18.37	15.72
500	19.50	
630	20.55	25.77
800	21.20	30.88
1000		34.55

Dimensions [mm]	
min.	MAX.
300 ≤ A, B,C ≤ 900	

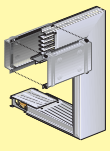
DOUBLE VERTICAL ELBOW + HORIZONTAL ELBOW



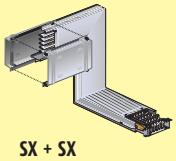
DX + DX



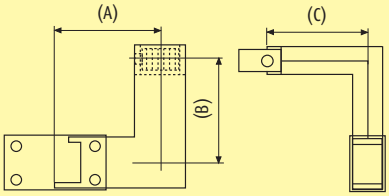
DX + SX



SX + DX



SX + SX

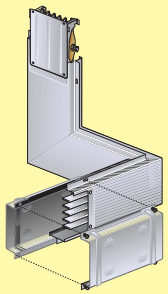


Aluminium	
Rating (A)	Weight (kg)
160	10.29
250	10.55
315	11.06
400	18.37
500	19.50
630	20.55
800	21.20
1000	34.55

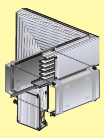
Copper	
Rating (A)	Weight (kg)
250	12.23
315	12.97
400	15.72
630	25.77
800	30.88
1000	34.55

Dimensions [mm]	
min.	MAX.
300 ≤ A, B,C ≤ 900	

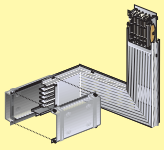
DOUBLE HORIZONTAL ELBOW + VERTICAL ELBOW



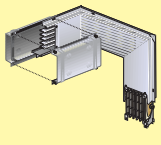
DX + DX



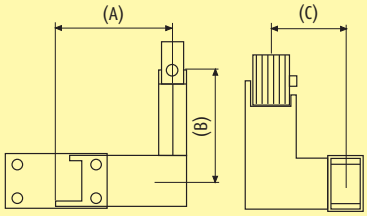
DX + SX



SX + DX



SX + SX

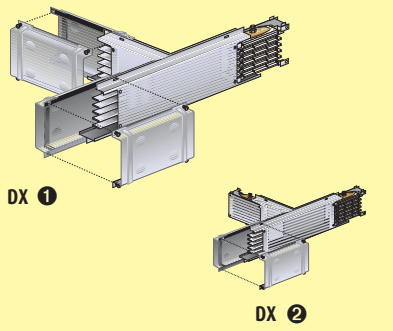


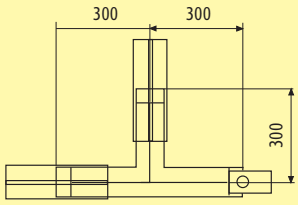
Aluminium	
Rating (A)	Weight (kg)
160	10.29
250	10.55
315	11.06
400	18.37
500	19.50
630	20.55
800	21.20
1000	34.55

Copper	
Rating (A)	Weight (kg)
250	12.23
315	12.97
400	15.72
630	25.77
800	30.88
1000	34.55

Dimensions [mm]	
min.	MAX.
300 ≤ A, B,C ≤ 900	

Table Conversion Code		Conductors	Casing	Item
	MR	4	**Galvanized**	---**0**---
	MRf	5	**Galvanized**	---**1**---
	MR-P	4	**Painted**	---**2**---
	MRf-P	5	**Painted**	---**3**---



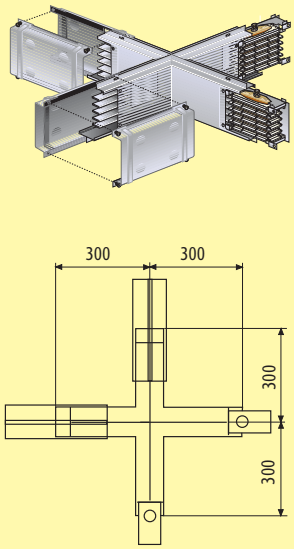


HORIZONTAL "TEE" ELEMENT (300 + 300 + 300 mm)

Rating (A)	DX **1**	DX **2**	SX **1**	SX **2**	Weight (kg)
Aluminium					
160	**5040 07 01**	**5040 07 11**	**5040 07 21**	**5040 07 31**	11.2
250	**5040 07 02**	**5040 07 12**	**5040 07 22**	**5040 07 32**	11.4
315	**5040 07 03**	**5040 07 13**	**5040 07 23**	**5040 07 33**	11.8
400	**5040 07 04**	**5040 07 14**	**5040 07 24**	**5040 07 34**	18.4
500	**5040 07 08**	**5040 07 18**	**5040 07 28**	**5040 07 38**	19.5
630	**5040 07 05**	**5040 07 15**	**5040 07 25**	**5040 07 35**	20.0
800	**5040 07 06**	**5040 07 16**	**5040 07 26**	**5040 07 36**	20.5

Rating (A)	DX **1**	DX **2**	SX **1**	SX **2**	Weight (kg)
Copper					
250	**5540 07 02**	**5540 07 12**	**5540 07 22**	**5540 07 32**	12.8
315	**5540 07 03**	**5540 07 13**	**5540 07 23**	**5540 07 33**	13.4
400	**5540 07 04**	**5540 07 14**	**5540 07 24**	**5540 07 34**	15.7
630	**5540 07 05**	**5540 07 15**	**5540 07 25**	**5540 07 35**	24.4
800	**5540 07 06**	**5540 07 16**	**5540 07 26**	**5540 07 36**	28.5
1000	**5540 07 07**	**5540 07 17**	**5540 07 27**	**5540 07 37**	31.3

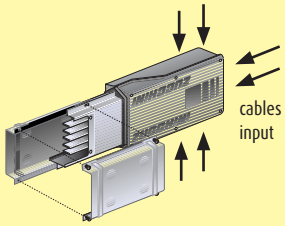
The various versions allow any type of path and are different from the monoblocs position and branch point.
Special dimensions are available on request.

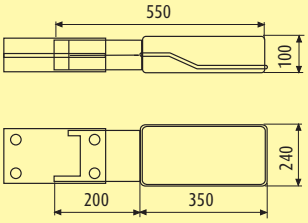


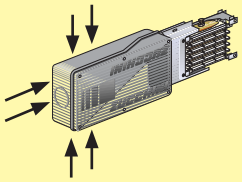
CROSS ELEMENT (300 + 300 + 300 + 300 mm)

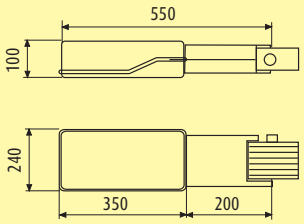
Rating (A)	Item	Weight (kg)	Item	Weight (kg)
	Aluminium		**Copper**	
160	**5040 30 01**	15.5		
250	**5040 30 02**	15.7	**5540 30 02**	17.6
315	**5040 30 03**	16.1	**5540 30 03**	18.4
400	**5040 30 04**	27.5	**5540 30 04**	21.1
500	**5040 30 08**	29.3		
630	**5040 30 05**	29.1	**5540 30 05**	35.2
800	**5040 30 06**	29.5	**5540 30 06**	40.2
1000			**5540 30 07**	43.7

Feed units and end covers









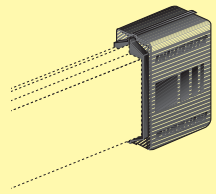
RIGHT FEED UNIT

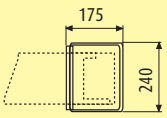
Rating (A)	Item	Weight (kg)	Item	Weight (kg)
	Aluminium		**Copper**	
160	**5040 11 01**	5.70		
250	**5040 11 02**	5.85	**5540 11 02**	6.10

LEFT FEED UNIT

Rating (A)	Item	Weight (kg)	Item	Weight (kg)
	Aluminium		**Copper**	
160	**5040 11 11**	6.80		
250	**5040 11 12**	6.85	**5540 11 12**	7.20

Cable connection: max. sect. (3x120mm² + 1x70mm²) or (3x150mm²) max PG 48





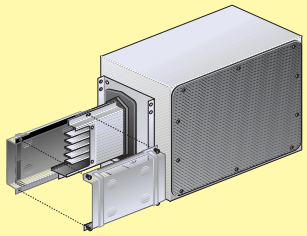
END COVER

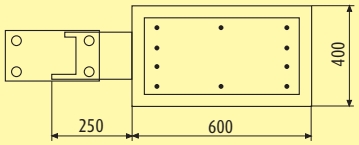
Rating (A)	Capacity (A)	Item	Weight (kg)
Aluminium	**Copper**		
160 - 250 - 315 Al	**250 - 315 - 400 Cu**	**5040 31 01**	
400 - 630 - 800 Al	**630 - 800 - 1000 Cu**	**5040 31 02**	

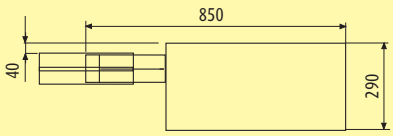
Suitable for all MR versions.
Ensures the closure and the IP55 degree of protection (EN 60529).

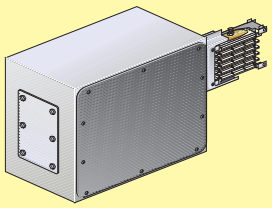
Table Conversion Code

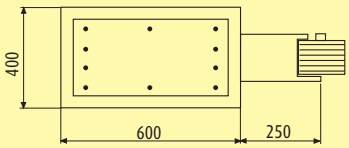
	Conductors	Casing	Item
MR	4	**Galvanized**	---**0**---
MRf	5	**Galvanized**	---**1**---
MR-P	4	**Painted**	---**2**---
MRf-P	5	**Painted**	---**3**---

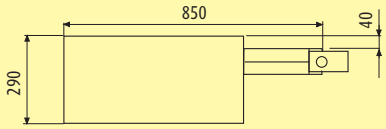












METAL FEED UNITS - RIGHT

Upon request, the feed units are available with AC23 switch disconnector installed.

Rating (A)	Item	Weight (kg)	Item	Weight (kg)
	Aluminium		**Copper**	
160	**5040 11 21**	16.64		
250	**5040 11 22**	16.76	**5540 11 22**	17.37
315	**5040 11 23**	17.03	**5540 11 23**	17.70
400	**5040 11 24**	18.32	**5540 11 24**	18.88
500	**5040 11 28**	20.00		
630	**5040 11 25**	19.43	**5540 11 25**	21.17
800	**5040 11 26**	19.80	**5540 11 26**	23.30
1000			**5540 11 27**	24.83

The box is shipped with its body part positioned on the inside to reduce its overall dimensions. Take it out and screw it into the position shown here.

Back side cable entry hole: 180x290 mm. The dimensions of the bars and holes are described in the corresponding rating of the Board/Transf on page 112.

METAL FEED UNITS - LEFT

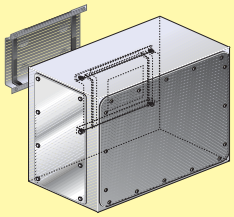
The box is shipped with its body part positioned on the inside to reduce its overall dimensions. Take it out and screw it into the position shown here.

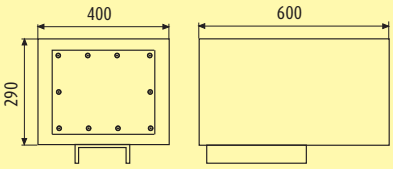
Rating (A)	Item	Weight (kg)	Item	Weight (kg)
	Aluminium		**Copper**	
160	**5040 11 31**	17.74		
250	**5040 11 32**	17.76	**5540 11 32**	18.47
315	**5040 11 33**	17.83	**5540 11 33**	18.70
400	**5040 11 34**	23.22	**5540 11 34**	19.58
500	**5040 11 38**	23.20		
630	**5040 11 35**	23.63	**5540 11 35**	26.07
800	**5040 11 36**	23.70	**5540 11 36**	27.80
1000			**5540 11 37**	29.03

Back side cable entry hole: 180x290 mm. The dimensions of the bars and holes are described in the corresponding rating of the Board/Transf on page 112.

Feed units

Table Conversion Code		Conductors	Casing	Item
	MR	4	**Galvanized**	**---0---**
	MRf	5	**Galvanized**	**---1---**
	MR-P	4	**Painted**	**---2---**
	MRf-P	5	**Painted**	**---3---**



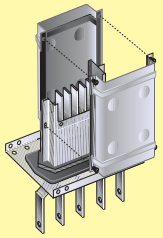


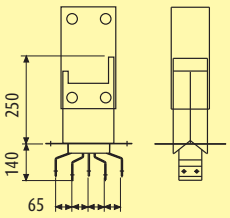
INTERMEDIATE FEED UNIT

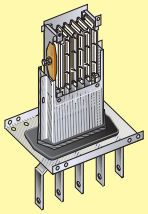
Used to power a busbar from any intermediate point on the connection between two elements. The intermediate end feed unit is also used for reducing the voltage drop of the line. (see pag. 174).

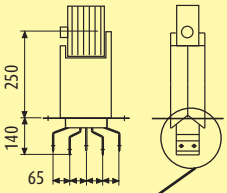
Rating (A)	Item	Weight (kg)	Item	Weight (kg)
	Aluminium		**Copper**	
160	**5040 12 01**	17.27		
250	**5040 12 02**	17.13	**5540 12 02**	
315	**5040 12 03**	16.88	**5540 12 03**	
400	**5040 12 04**	22.06	**5540 12 04**	
500	**5040 12 08**	22.65		
630	**5040 12 05**	23.24	**5540 12 05**	
800	**5040 12 06**	23.02	**5540 12 06**	
1000			**5540 12 07**	

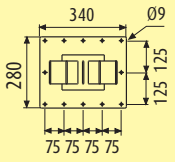
NOTE: Back side cable entry hole: 180 x 290 mm

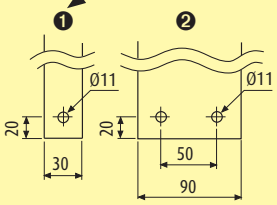












	Al	Cu
MR	160A	250A
❶	250A	315A
	315A	400A
MR	400A	630A
❷	500A	800A
	630A	1000A
	800A	

BOARD/TRANSFORMER FEED UNIT - RIGHT

Feed unit for direct connection of the busbar to an electric board or to the LV terminals of a distribution transformer.

Rating (A)	Item	Weight (kg)	Item	Weight (kg)
	Aluminium		**Copper**	
160	**5040 10 01**	4.9		
250	**5040 10 02**	5.1	**5540 10 02**	5.7
315	**5040 10 03**	5.3	**5540 10 03**	6.0
400	**5040 10 04**	6.4	**5540 10 04**	9.2
500	**5040 10 08**	6.9		
630	**5040 10 05**	7.5	**5540 10 05**	9.3
800	**5040 10 06**	7.9	**5540 10 06**	11.4
1000			**5540 10 07**	12.9

BOARD/TRANSFORMER FEED UNIT - LEFT

Feed unit for direct connection of the busbar to an electric board or to the LV terminals of a distribution transformer.

Rating (A)	Item	Weight (kg)	Item	Weight (kg)
	Aluminium		**Copper**	
160	**5040 10 11**	6.0		
250	**5040 10 12**	6.1	**5540 10 12**	6.7
315	**5040 10 13**	6.2	**5540 10 13**	7.0
400	**5040 10 14**	11.3	**5540 10 14**	7.8
500	**5040 10 18**	11.4		
630	**5040 10 15**	11.7	**5540 10 15**	14.2
800	**5040 10 16**	11.8	**5540 10 16**	15.9
1000			**5540 10 17**	17.1

Tap-off boxes without disconnecting device

1

1

1

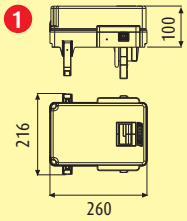
1

1
Fuses not supplied
Cable gland included

1
Fuses not supplied
Cable gland included

2

2



STANDARD VERSIONS

Rating	Protective component and setup	Item	Weight (kg)
32A	DIN Rail (8 modules)	**5041 40 61**	1.60
32A	3x10.3 x 38mm - Fuse carrier	**5041 40 62**	1.75
32A	Transparent door and DIN Rail (4 modules)	**5041 40 63**	1.70
32A	Transparent door and DIN Rail (8 modules)	**5041 40 64**	1.70
16A	3xD01 - Fuse carrier and DIN Rail (8 modules)	**5041 40 68**	2.07
32A	3xD02 - Fuse carrier and DIN Rail (8 modules)	**5041 40 69**	2.15
32A	DIN Rail (12 modules)	**5041 40 71**	1.90
32A	Transparent door and DIN Rail (12 modules)	**5041 40 75**	2.05

1
Fuses not supplied

2
Fuses not supplied

2
Fuses not supplied

2
Fuses not supplied

Bearable energy
400 ·10³ A²s

Max. power losses
Version 1 16W
2 20W

Modules 17.5 mm.

WITH INTERNAL WIRING

Rating	Protective component and setup	Item	Weight (kg)
16A	3xD01 - Fuse carrier, transparent door, 3 16A standard Schuko sockets	**5041 41 11**	2.29
16A	3xD01 - Fuse carrier, transparent door, 1 CEE 3P+N+T 16A socket	**5041 41 62**	2.60
32A	3xD02 - Fuse carrier, transparent door, 1 CEE 3P+N+T 32A socket	**5041 41 71**	2.79
16A	3xD01 - Fuse carrier, transparent door, and DIN Rail. 2 CEE 3P+N+T 16A sockets	**5041 41 61**	2.96

Tap-off boxes without disconnecting device


1


1


1


1


1


2

Fuses not supplied


2


2

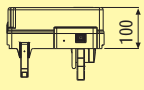

1


1

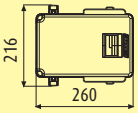

2

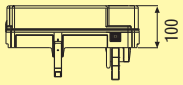

2


2

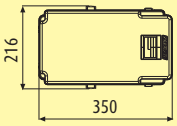


1





2



Bearable energy
400 ·10³ A²s

Max. power losses
Version 1 16W
2 20W

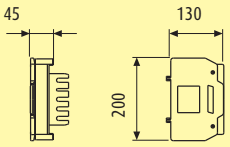
Modules 17.5 mm

WITH INTERNAL WIRING

Rating	Protective component and setup	Item	Weight (kg)
16A	4P 16A MCB curve B, transparent door and DIN Rail (4 modules)	**5041 41 30**	2.29
16A	4P 16A MCB curve C, transparent door and DIN Rail (4 modules)	**5041 41 28**	2.29
32A	4P 32A MCB curve C, transparent door and DIN Rail (4 modules)	**5041 41 44**	2.36
16A	(1P 16A MCB curve B) transparent door and DIN Rail (4 modules) 3 16A Schuko sockets	**5041 41 22**	2.13
16A	(1P+N 16A MCB curve B) transparent door and DIN Rail (4 modules) 3 16A Schuko sockets	**5041 41 21**	2.10
16A	(4P 16A MCB curve C) transp. door (8 modules), 2 EEC 3P+N+T 16A sockets	**5041 41 85**	3.23
16A	3x (1P+N 16A MCB curve C) transp. door (8 modules), 3 EEC 2P+T 16A sockets	**5041 41 81**	3.05
32A	(4P 32A MCB curve C) transp. door (8 modules), 1 EEC 3P+N+T 32A sockets	**5041 41 92**	3.06
16A	Transparent door (4 modules), 3 16A Schuko sockets	**5041 42 21**	1.83
16A	Set up for MCB (8 modules) 3 16A Schuko sockets	**5041 42 51**	1.94
16A	Set up for MCB (8 modules) 3 EEC 2P+T 16A sockets	**5041 42 81**	2.55
16A	Set up for MCB (8 modules) 2 EEC 3P+N+T 16A sockets	**5041 42 82**	2.49
32A	Set up for MCB (8 modules) 2 EEC 3P+N+T 32A sockets	**5041 42 91**	2.59

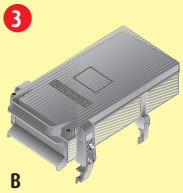
A

3



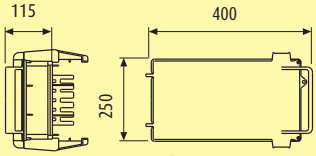
32A

3



B

4



63-160A

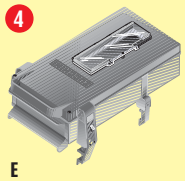
4

C

4

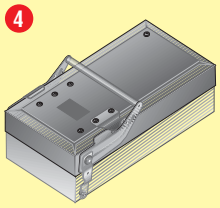
D

4



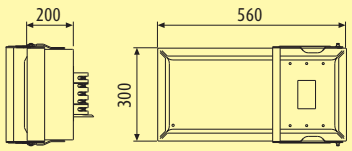
E

4



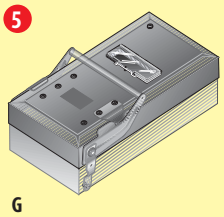
F

5



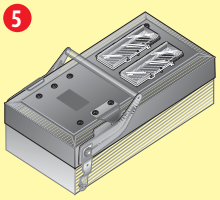
250-400A

5



G

5



H

5

WITH FUSE CARRIER

These tap-off boxes are made from thermoplastic material strengthened with fibreglass. They fit all MR versions and are provided with a set of three fuse carriers.

Rating (A)	Fuse carrier	Figure	5 conductors code	Weight (kg)
			MR - MRf	
32	ø10.3x38	A	**5565 50 51**	0.85
63	ø22x58	B	**5505 50 52**	3.20
125	NH 0	B	**5505 50 53**	3.35
125	NH 00	B	**5505 50 57**	3.35
160	NH 0	B	**5040 40 04**	3.60
250	NH 1	F	**5565 50 57**	14.90
400	NH 2	F	**5565 50 58***	15.80

* Neutral section 50%.

FOR MCBS WITH TRANSPARENT DOOR

All tap-off boxes with a transparent door are equipped with a DIN 50022 rail for modular devices. The transparent door of the box lets you access the equipment without opening the cover, thus isolating the load connected.

Rating (A)	DIN modules	Figure	5 conductors item	Weight (kg)
			MR - MRf	
63	8	D	**5505 50 86**	3.20
63	11	E	**5505 50 88**	3.60
125	8	D	**5505 50 56**	3.20
125	11	E	**5505 50 68**	3.60
125	4	C	**5505 50 66**	3.00
160	4	C	**5040 40 24**	3.60
400	7	G	**5505 50 70***	13.40
400	11+11	H	**5505 50 71***	15.30

* Neutral section 50%.

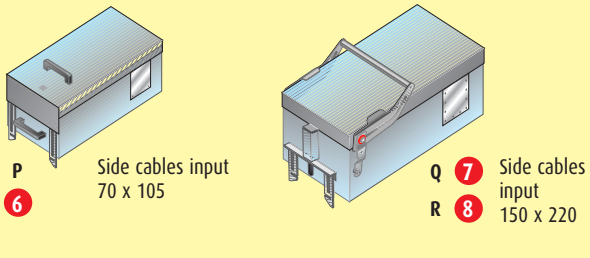
EMPTY READY FOR MCBS

These boxes can be installed on the tap-off outlets of the MR. They can be plugged in and unplugged from the busbar only when the cover of the box is open i.e. when the tap-off is isolated. Boxes can be installed and disconnected from the energized busbar. The same box can be installed both on Aluminium and Copper conductors.

Rating (A)	Info	Figure	5 conductors item	Weight (kg)
			MR - MRf	
125	empty	B	**5505 50 55**	2.90
400	empty	F	**5565 50 59***	14.30

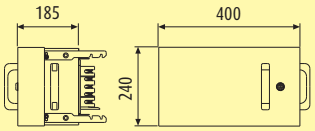
* Neutral section 50%.

Tap-off boxes with disconnecting device on the cover

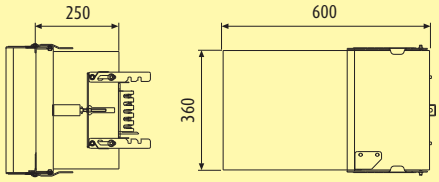


P
6
Side cables input
70 x 105

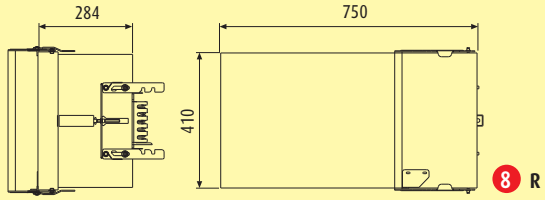
Q 7
R 8
Side cables input
150 x 220



6 P



7 Q



8 R

WITH FUSE CARRIER

Tap-off box with galvanized and painted steel sheet structure. Metal boxes are suitable for heavy loads and are used to shield electric fields caused by flows of current.

Rating (A)	Fuse	Figure	5 conductors item	Weight (kg)
			PE + FE **	
63	CH 22 (ø22x58)	P	**5041 40 21**	8.75
125	NH 00	P	**5041 40 22**	8.90
160	NH 00	P	**5041 40 23**	9.10
250	NH 2	Q	**5041 40 24**	
400	NH 2	Q	**5041 40 26**	
630	NH 3	R	**5041 40 25**	

WITH SWITCH DISCONNECTOR (AC23)

Tap-off box with galvanized and painted steel sheet structure. Metal boxes are suitable for heavy loads and are used to shield electric fields caused by flows of current.

Rating (A)	Fuse	Figure	5 conductors item
			PE + FE **
63	NH00	P	**5041 16 01**
125	NH00	P	**5041 16 22**
160	NH0	P	**5041 16 23**
250	NH1	Q	**5041 16 24**
400	NH2	R	**5041 16 25**
630	NH3	R	**5041 16 46**

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.
Note: It is not possible to open, close, install or pull out the tap-off box if the switch is in "ON" position.

EMPTY VERSION

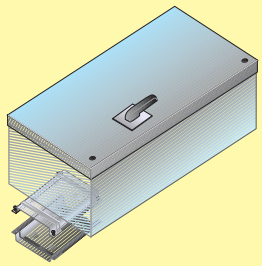
These boxes can be installed on the tap-off outlets of the MR. They can be plugged in and unplugged from the busbar only when the cover of the box is open i.e. when the tap-off is isolated. Boxes can be installed and disconnected from the energized busbar. The same box can be installed both on Aluminium and Copper conductors.

Rating (A)	Figure	5 conductors item
	PE + FE **	
63	P	**5041 40 01**
125	P	**5041 40 02**
160	P	**5041 40 03**
250	Q	**5041 40 04**
630	R	**5041 40 05**

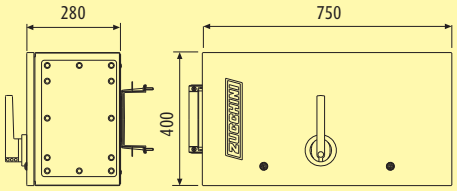
"PE+FE" tap-off boxes have separate terminals for the two earths whereas the "PE" boxes have parallel earths (casing and conductor). They can be customized with MCBs by various manufacturers. Boxes available with factory installed circuit breakers.

* PE Protective earthing
** FE Functional earthing

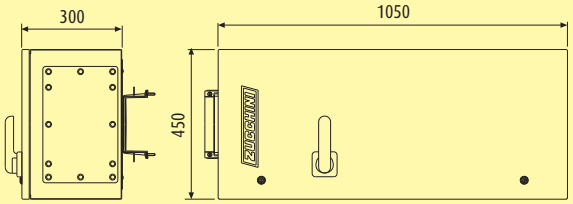
Tap-off boxes bolt-on type



9 10



9 **630A**



10 **800-1000A**

WITH SWITCH DISCONNECTOR AND FUSE CARRIER

"Bolt-on" tap-off boxes. They make use of the joint between straight elements as a connection for the junction. As this connection affects live conductors, it can NOT be carried out when the line is energized - the line has to be isolated.

Rating (A)	Dimension	Circ. breaker	Fuse	Item	Item
Aluminium				**630**	**800**
630	9	AC23	NH3	**5040 18 01**	**5040 18 02**
800	10	AC23	NH4	-	**5040 18 04**
1000	10	AC23		-	-

Rating (A)	Dimension	Circ. breaker	Fuse	Item	Item	Item
Copper				**630**	**800**	**1000**
630	9	AC23	NH3	**5540 18 01**	**5540 18 02**	**5540 18 03**
800	10	AC23	NH4	-	**5540 18 04**	**5540 18 05**
1000	10	AC23	NH4	-	-	**5540 18 06**

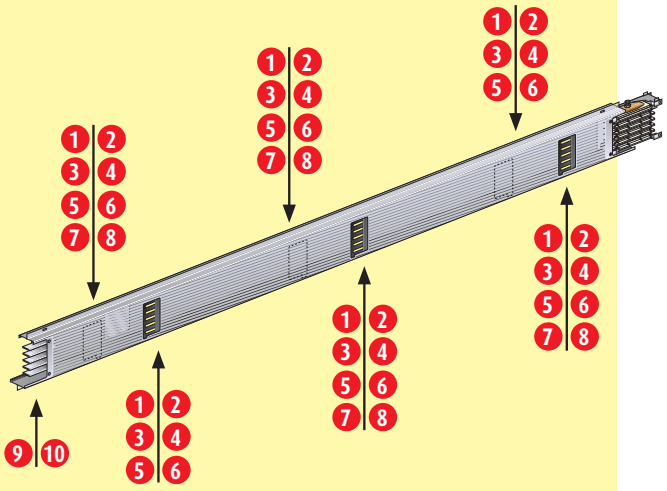
Cable entry plate (mm)		
Type	9	180 x 290
	10	210 x 380

Tap-off box installation

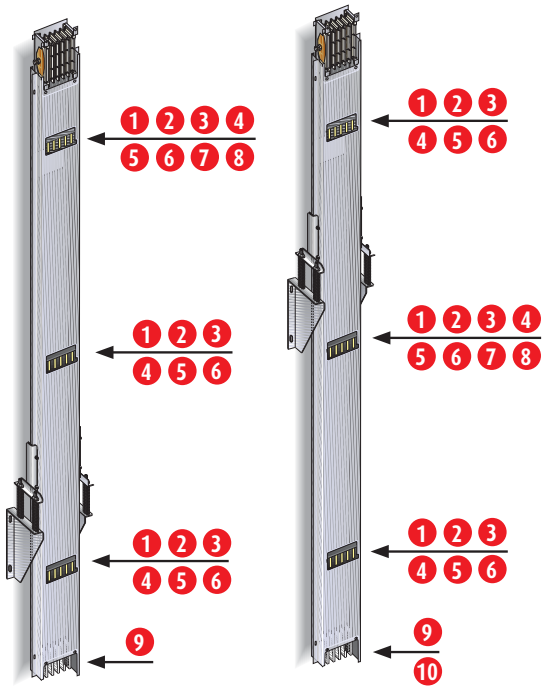
STRAIGHT ELEMENT WITH 3 OUTLETS

Edgewise

The numbers in the squares refer to the dimensions of the tap-off boxes. (see previous pages)



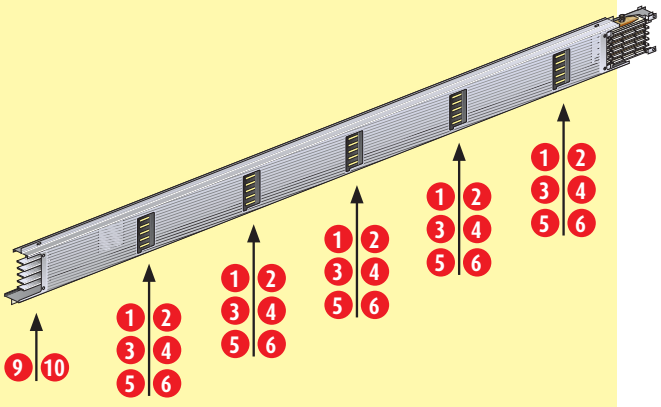
Riser mains



STRAIGHT ELEMENT WITH 3 OUTLETS

Edgewise

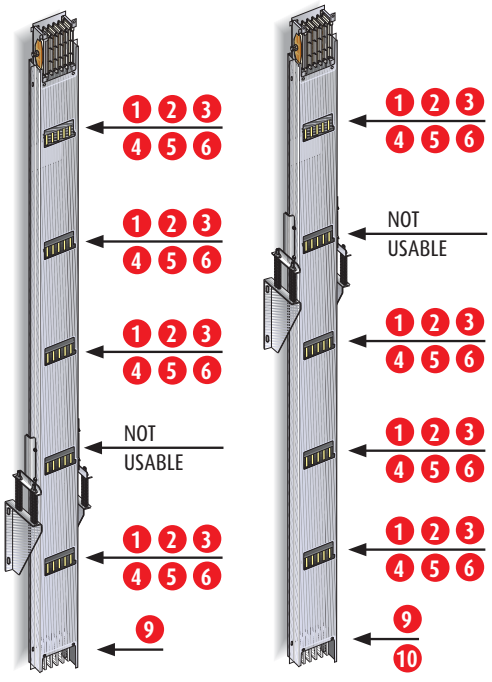
The numbers in the squares refer to the dimensions of the tap-off boxes. (see previous pages)



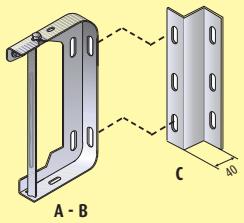
⚠

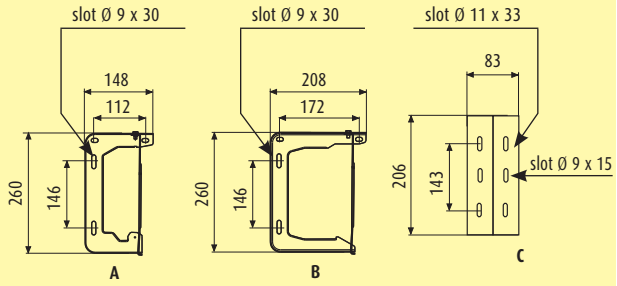
In elements with 5 outlets, tap-off boxes with dimension 5 do not allow the possibility of installing other boxes on the next outlet

Riser mains



Fixing elements



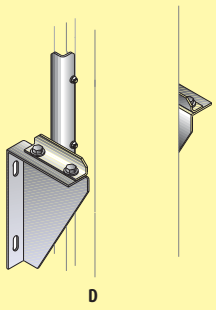


SUSPENSION BRACKETS

Rating Al	Rating Cu	Installation	Figure	Item	Weight (kg)
160	**250**				
250	**315**	1 bracket every 2 metres of line	A	**5063 20 01**	0.55
315	**400**				
400	**630**				
500					
630	**800**	1 bracket every 2 metres of line	B	**5063 20 03**	0.60
800	**1000**				

Wall spacer. Required when the bracket needs to be fixed directly to the wall.

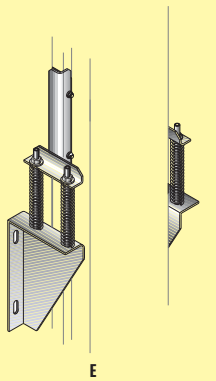
	40 mm wall spacer	C	**5063 22 05**	0.05



SUSPENSION BRACKETS FOR VERTICAL ELEMENTS

Suspension bracket for vertical elements. Suitable for riser mains up to 4 m and for weights up to 300 kg. It is to be used together with 50632001/3.

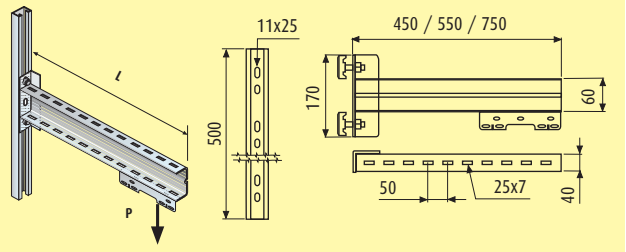
Installation	Usage	Figure	Item	Weight (kg)
1 bracket at the base of the riser mains	max 4 m.	D	**5040 37 11**	1.05



SUSPENSION BRACKETS WITH SPRINGS FOR VERTICAL ELEMENTS

Suspension bracket with tie-rods for riser mains. This bracket is used in vertical applications. Use one bracket every 300 Kg (see weight table).

Installation	Usage	Figure	Item	Weight (kg)
1 bracket every 300 kg.	Section longer than 4 m.	E	**5040 37 12**	1.20

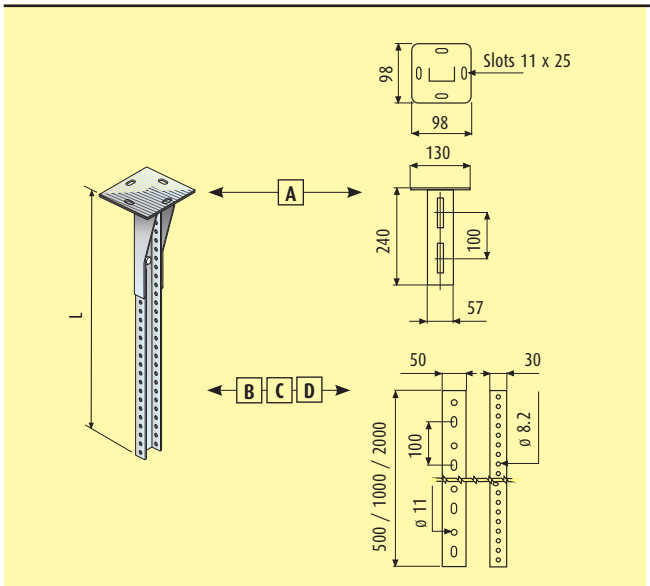


WALL BRACKET HOLDER

Adjustable arm both in height and in depth. The bracket holder can be combined with the MR - MS - TS brackets.

Arm length	Load on end	Item	Weight (kg)
L= 0.45 m	p max= 80 kg	**5063 22 12**	2.80
L= 0.55 m	p max= 68 kg	**5063 22 13**	3.00
L= 0.75 m	p max= 50 kg	**5063 22 14**	3.50

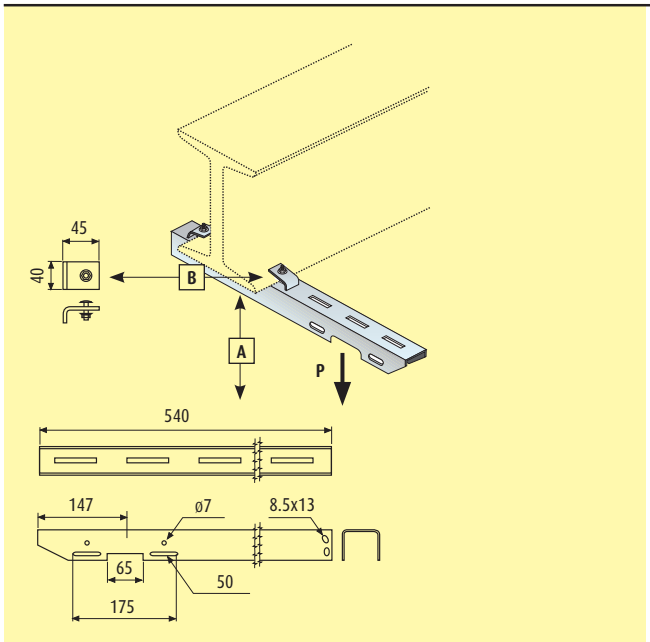
Fixing elements



CEILING BRACKET HOLDER WITH:

Ceiling bracket holder with a base to be fixed to the ceiling and a drilled U-shaped section bar available in various lengths. The section bar holes are suitable for being installed with the MR brackets.

Components	Fuse carrier	Figure	Item	Weight (kg)
Ceiling flange		A	**5063 22 01**	2.80
U-shaped bar	**L= 0.50**	B	**5063 22 02**	3.00
U-shaped bar	**L= 1**	C	**5063 22 03**	3.50
U-shaped bar	**L= 2**	D	**5063 22 04**	3.50



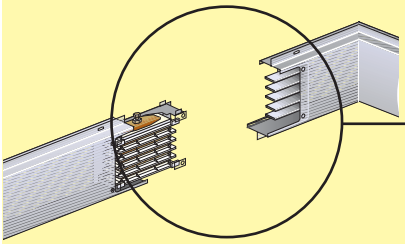
BEAM BRACKET HOLDER:

Bracket holder for beam fixing. This bracket holder has a bracket and two clamps that are hooked to the wings of the beam.

Components		Figure	Item	Weight (kg)
Beam bracket base	p max= 65 kg	A	**5063 22 10**	0.90
Beam clamp		B	**5063 22 11**	0.90

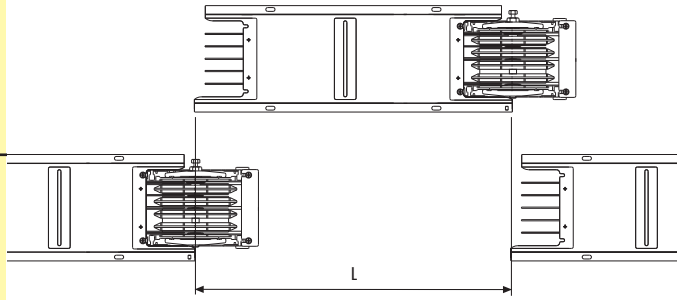
Determination of the measurements for special elements

STRAIGHT ELEMENTS

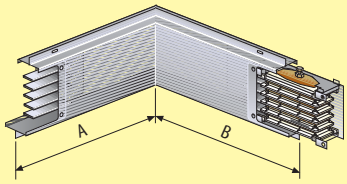


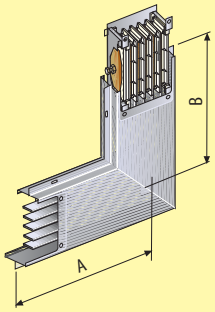
Always take measurements on the long side on the metal casing as shown in the figure. For simplicity's sake, it will be referred to as "long casing"

The length of the straight elements can range from 600 mm to 3000 mm.

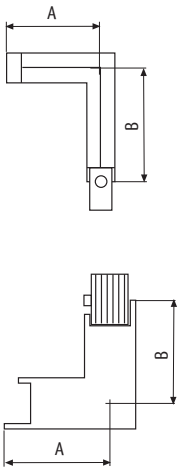


ELBOWS

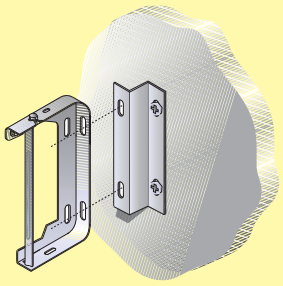




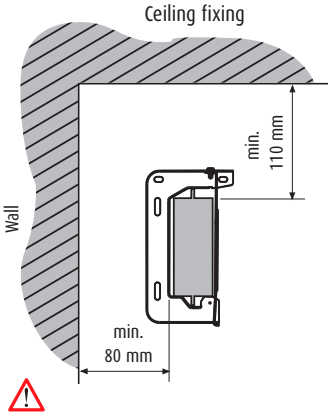
When using elbows, the dimension should be measured from the long casing to the axis of the element.



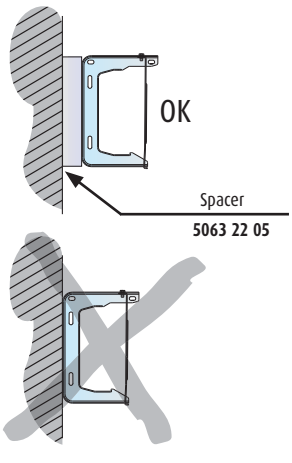
MINIMUM FIXING DISTANCES



Minimum fixing distances

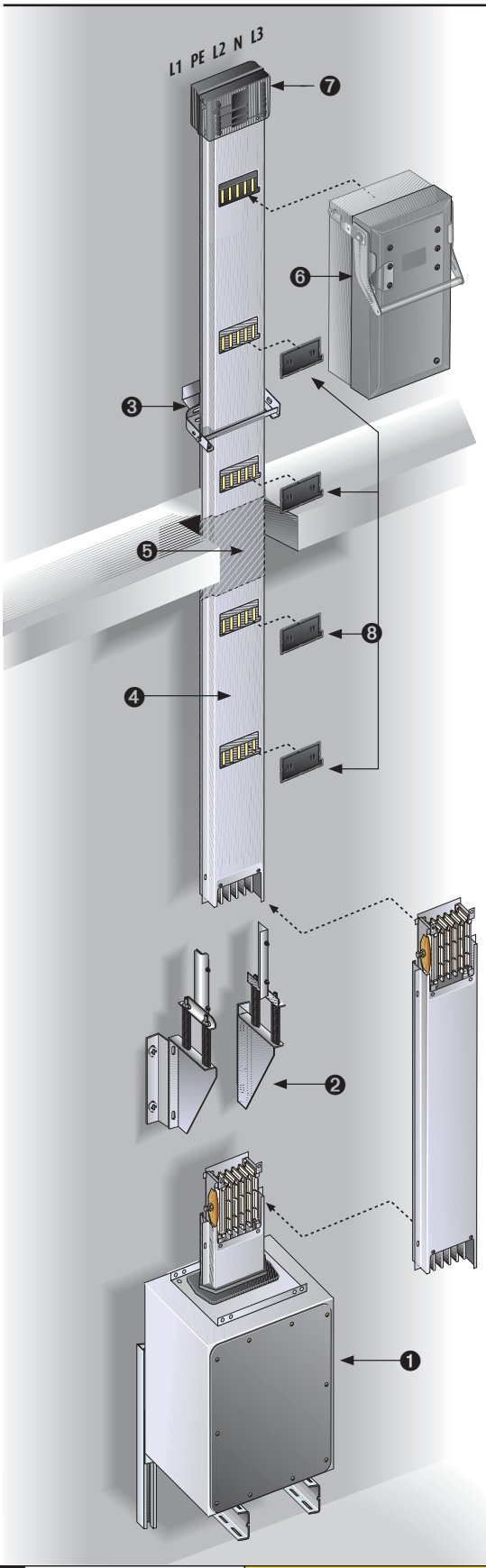


Wall fixing



Do not fix the bracket directly on the wall. Use the special spacer 5063 22 05.

Rising mains



How to design the system

1. **Use a LH end feed unit.**
   This allows the neutral bar to be positioned on the right side of the busbar, hence the cable exit of the tap-off boxes is located downwards.

2. **Use one or more suspension brackets for the vertical elements, according to the weight of the whole rising mains.**
   For risers that are shorter than 4 metres, fix to the base with code 50403711; when longer, use a suspension bracket code 50403712 every 300 kg of rising main.

3. **Use a standard suspension bracket with a 40mm spacer every 2 metres of rising mains.**

4. **Use straight elements with 5 outlets on one side.**

5. **Use a straight element with fire barrier for each compartment floor.**
   It is necessary to specify the position of the internal fire barrier before placing an order (see page 75).

6. **The tap-off boxes can be installed in the tap-off outlets and near the connection between the elements.**

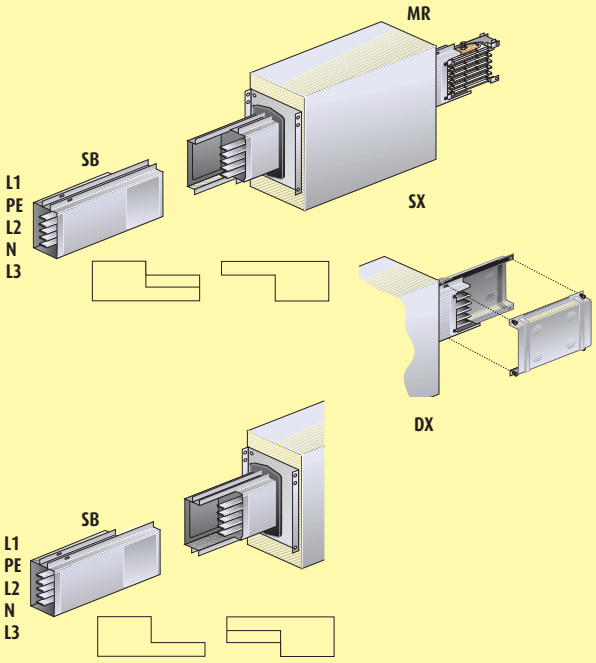
7. **At the end of the riser mains, position the IP55 end cover.**
   Before installing the end cover remove the monobloc located on the last element.

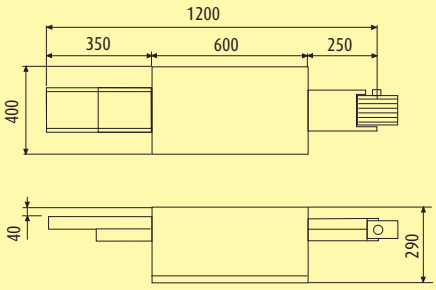
8. **Put the outlet covers into the tap-off outlets in order to guarantee the IP55 degree of protection.**

SB/MR ADAPTER ELEMENT
SB → MR

The old SB line has now been replaced by the MR range, hence it is no longer possible to find elements and accessories for it. If it is necessary to replace or add some trunking components to the SB line, there is an adapter that can make it compatible with the MR line. Tap-off boxes and fixing accessories are compatible between the two lines.

How to arrange the item





5 0 4 0 0 2 2 1

Conductors

0 Aluminium
5 Copper

Casing / No. of conductor

0 Galvanized
1 Full Galvanized
2 Painted
3 Full Painted

Type

2 Right
3 Left

Rating

1 160A
2 250A
3 315A
4 400A
5 630A
6 800A
7 1000A
8 500A

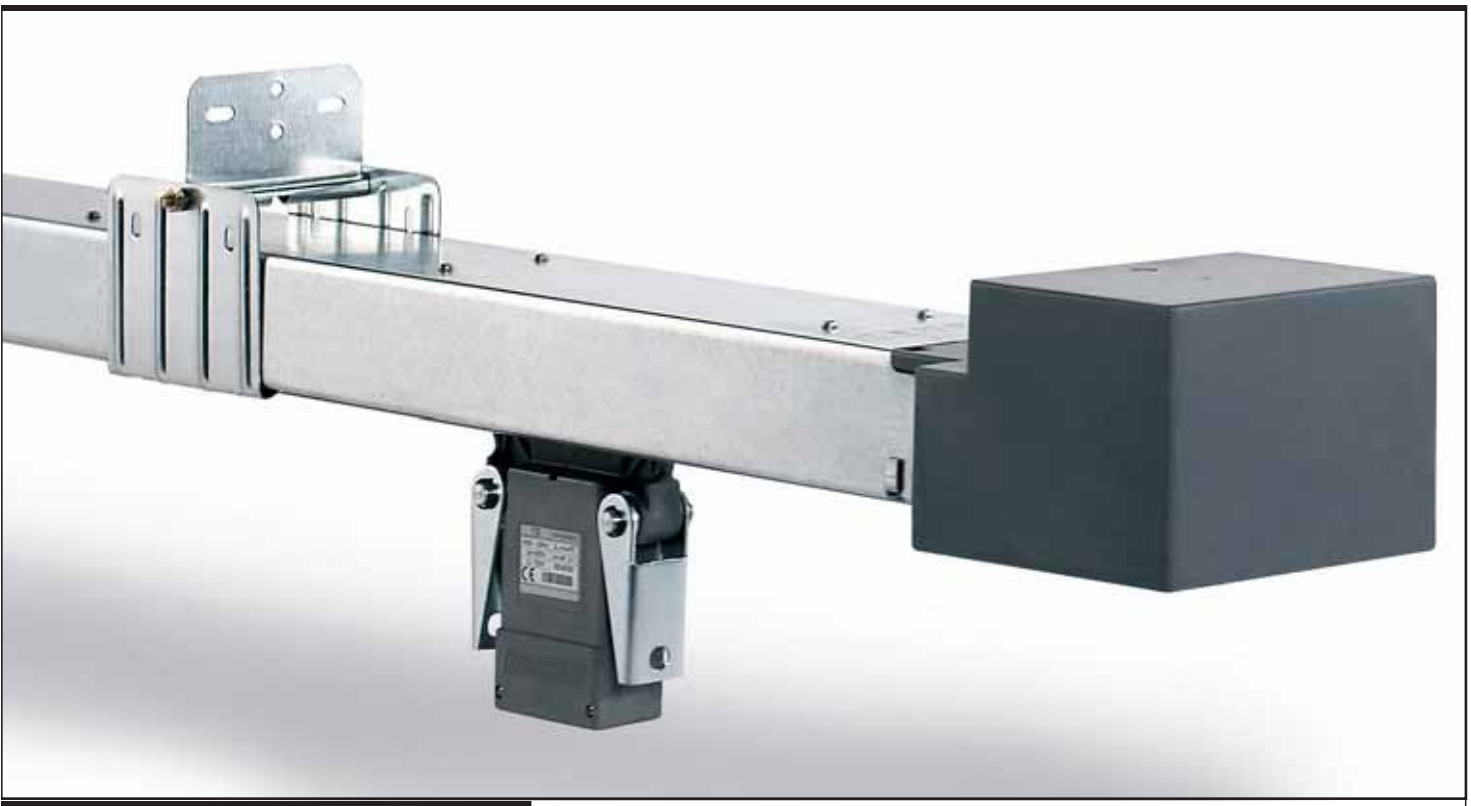
Item example

50400226 → means
Aluminium
Galvanized
R type
800A

55420235 → means
Copper
Full Galvanized

L type
630A

TS - TROLLEY SYSTEM
63 - 250A



SECTION CONTENTS

TS
Technical description

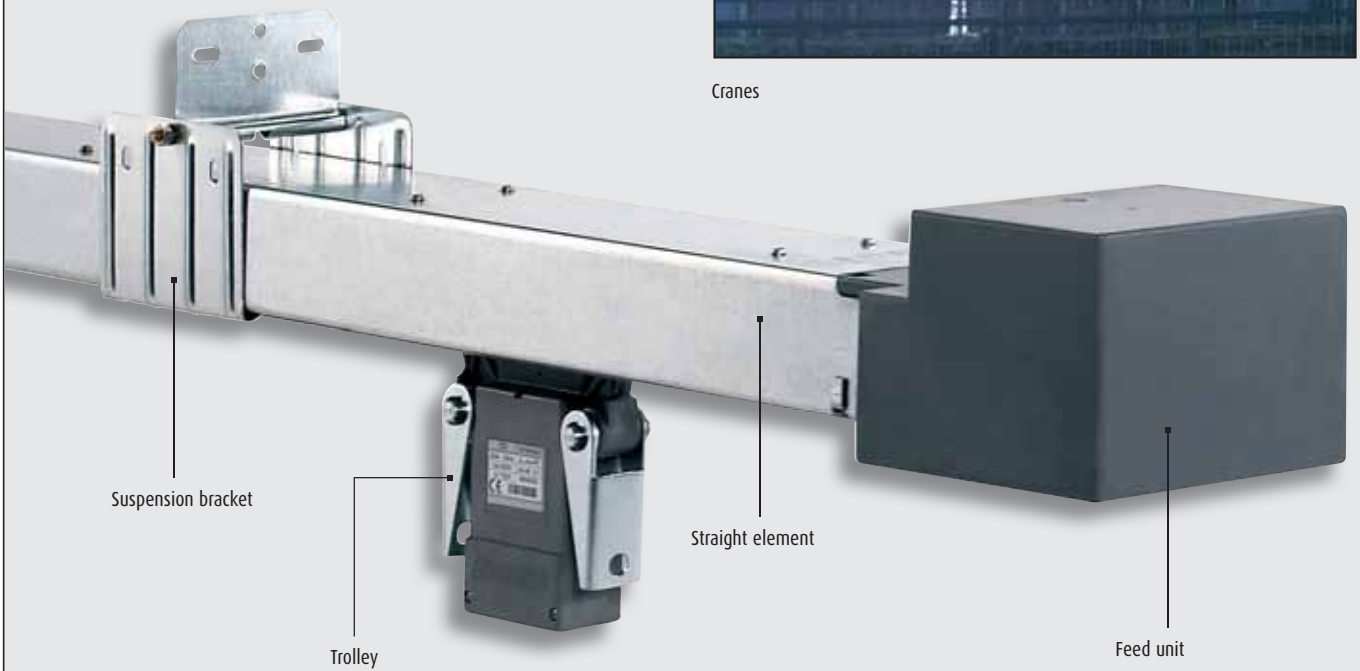
GENERAL FEATURES

The TS (Trolley System) is part of the Zucchini range used for supplying power to moving devices such as: overhead cranes, traversing motors, assembly lines, etc.
The main features of the TS range are:

- quick installation thanks to the electric terminal junction;
- wide range of fixing accessories;
- suitable for straight and curved sections (only for horizontal changes of direction);
- compliance with Standard IEC 60439-1 and 2;
- rated at average room temperature of 40°C for a higher performance level compared to the 35°C rating required by the standard.
- available in the following versions: 3L+N+PE (5 conductors) for ratings from 63-70-110-150A and 3L+PE (4 conductors), for 250A rating in which the loads connected are normally three-phase motors.

Automated warehouses

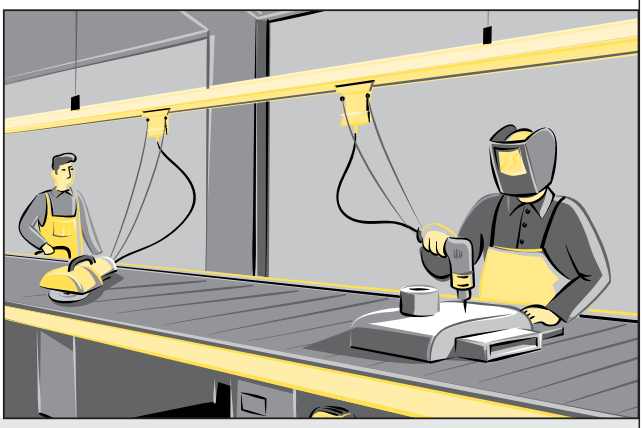
Cranes



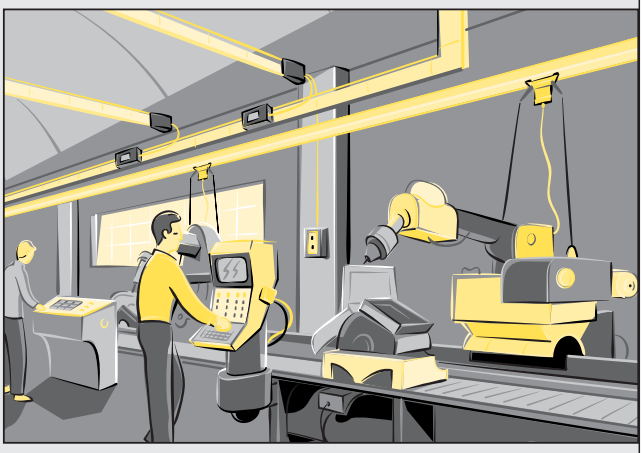
STRAIGHT ELEMENTS

The components and the features of the TS straight elements are:

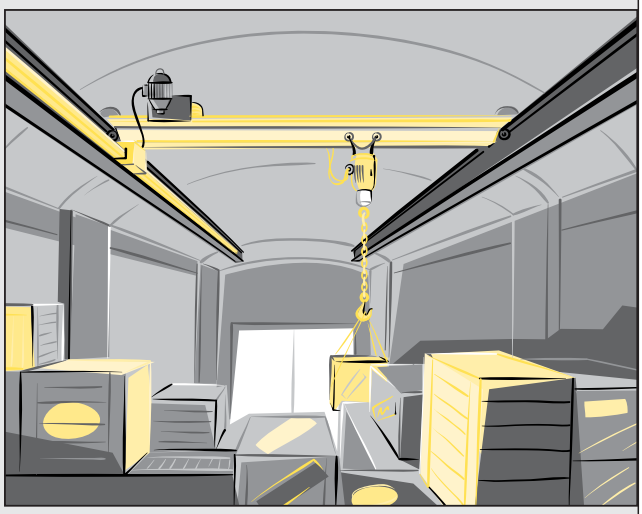
- casing made with a hot galvanized steel (Senzimir);
- sheet metal thickness: 1.2 mm (1.5 mm for 250A); As for the 63A (MTS63) rating, the casing is made of extruded aluminium with a minimum thickness of 1.4 mm; it has good mechanical rigidity and preserves its linearity over time.
- number of conductors: 5 conductors with the same section 3L+N+PE (4 for the TS 250A), shaped to guarantee excellent mechanical strength. The conductors are made of 99.9% pure electrolytic copper;
- separation between the conductors using fibreglass reinforced plastic material ensuring a V1 self-extinguishing degree (according to UL94) and in compliance with the glow-wire test according to IEC 60695-2-10;
- the slot along the underside of the busbar allows a current trolley to slide in it. The size of the slot ensures an IP20 degree of protection;
- an independent electrical junction terminal system (made of bronze plates) for fast and reliable connection of the live conductors and the PE. The terminals make an electric connection between the conductors, with a smooth flat lower part in order to make the trolleys slide more easily. The whole busbar is "fire retardant" in compliance with the standard IEC 60332-3.



Work station installation



Installation for mobile machinery

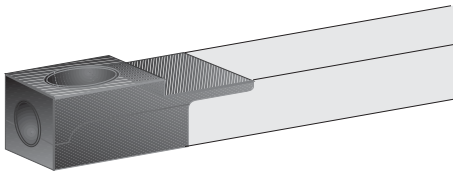


Crane installation

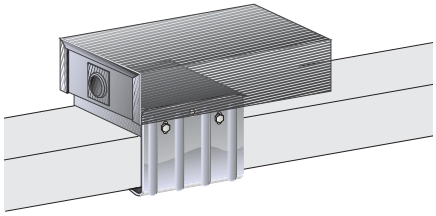
TS
Technical description

FEED UNITS

Allows you to electrically power the TS busbar through a cable line; the installation is carried out with a quick terminal connection as with the straight elements. The entrance point of the cables is generally positioned on the back side of the feed unit. The TS range has centre feed units which can be installed wherever there is a junction between the straight elements.



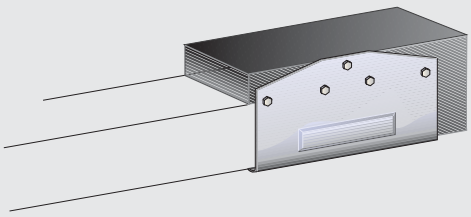
Feed unit



Intermediate feed unit

END COVER

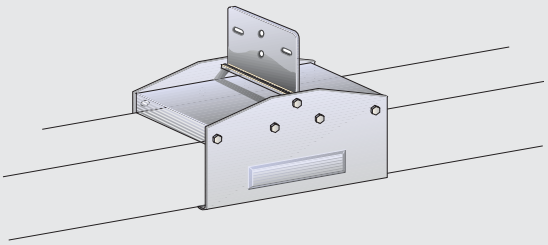
The end cover ensures the IP55 protection degree at the end of the line.



End cover

FIXING SUPPORTS

In order to fix the line to the structure of the building, directly or with wall / ceiling / beam supports, it is necessary to use a bracket which serves as a collar around the busbar. An electrical junction, which can also serve for suspending the busbar, is available on the TS line. The bracket has holes so it can be easily paired with the supports available in the Zucchini catalogue.



Coupling clamp with suspension bracket

TROLLEYS

These are used for connecting and supplying power for 25A – 40A – 80A or 160A three-phase loads (in the coupled version); their features include:

- The trolleys are equipped with 5 graphite brushes (3L+N+PE) which, due to the spring action, keep the correct pressure on the conductors enabling them to pick up current from the line while the trolley is moving (travelling) inside the TS busbar.
- The trolleys can be coupled with a mechanical joint so as to pickup twice the rated current of a single trolley.
- The trolley is coupled to the motor with a "drive arm" which receives the movement from the same electric motor supplying power to it.
- The drive arms are connected to the trolleys with special springs which reduce the acceleration (so-called "sudden pulls") when starting up and when braking;
- Maximum travelling speed of the trolleys is 90 m/min (150 m/min for the MTS 63A).
- Availability, on request, of a box with a set of three fuse carriers, used as an accessory, to protect the cable from overcurrents.
- compliance with all insulating plastic components according to the glow-wire test (IEC 60695-2-10) with V1 self-extinguishing degree (UL94).
- Standard IP20 degree of protection without using additional accessories.

40A trolley

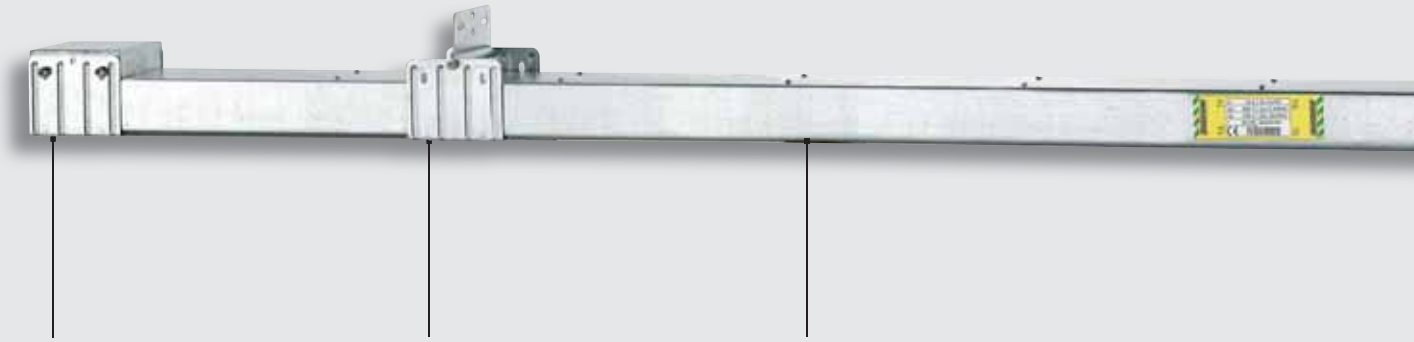
Trunking components and additional elements

Depending on the different installation requirements Zucchini can provide various technical solutions:

a) curved elements: available for making changes of direction (only horizontally) up to a minimum radius of curvature of 1.5m. There is a quick connection, as with the straight elements. Standard trolleys slide efficiently even within the curved sections of the line. The standard degree of protection is IP20;

b) straight elements with trolley introduction device: these elements are provided with an access door on the underside. With this door open, it is possible to insert or remove a trolley from the line. Trolleys can generally be put into the line near the end covers. However, when there are lines with several operating trolleys or when using very long lines, it is recommended to use an inserting centre element to make maintenance operations on the trolleys easier. The standard degree of protection is IP20;

c) straight lengths with thermal expansion device. These elements are necessary in lines exceeding 35-40 m in length. Expansion elements absorb and compensate the thermal expansion of the conductors preventing them from losing their linearity, avoiding the reduction of the air insulation distances and obstructing the sliding action of the trolleys.



The end cover completes the installation of the lines and guarantees the IP20 degree of protection of the line.

The suspension bracket can be positioned anywhere along the busbar.

Straight elements.

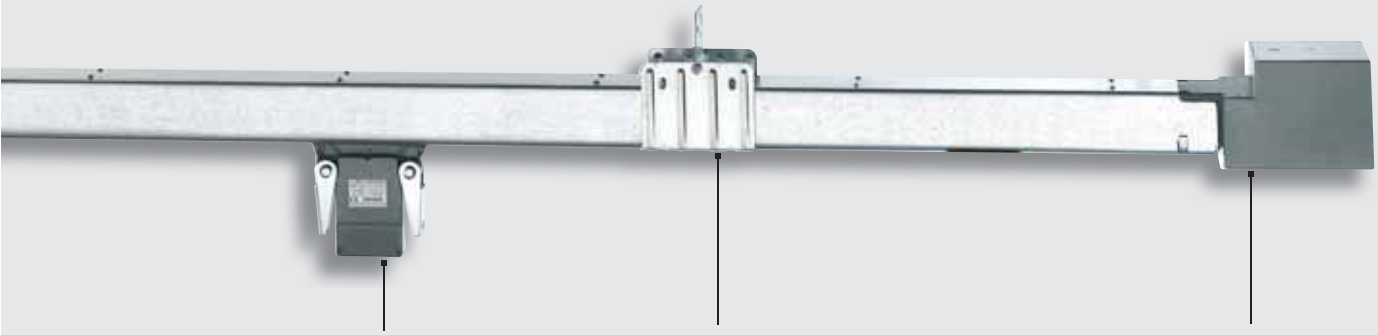
PARTS OF THE LINE

End feed unit

End cover

Electrical and mechanical joint

Suspension and joint bracket



Trolley. It slides on the element, ensuring contact with the conductors.

Suspension and joint bracket.

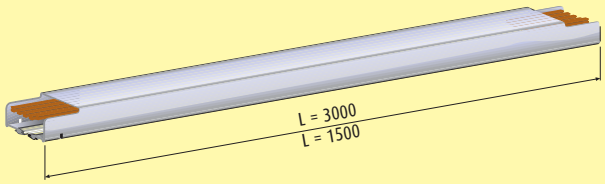
End feed units.

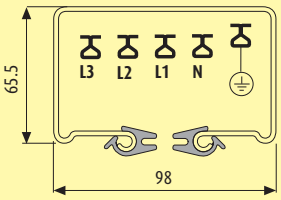
Suspension bracket

40A trolley

Trunking components
TS5 - IP20

Three-pole + Neutral + copper earthing conductor:
Rating 70-110-150A

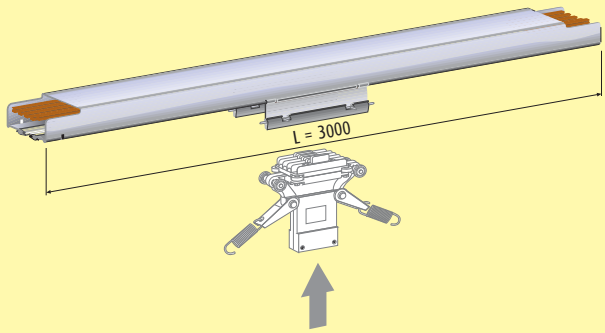




STRAIGHT ELEMENT

Rating (A)	Item L=3000	Item L=1500	Weight (kg)
70	**80520101**		12
110	**80530101**		12.5
150	**80540101**		13
70		**80530102**	6
110		**80530102**	6
150		**80540102**	6.5

The element includes the following:
- a galvanized metal plate shaped to provide good mechanical strength and rigid PVC section bars.
- Polyamide resin busbar holder supports reinforced with fibreglass with a high degree of insulation.
- Electrolytic copper busbars ETP 99.9 which allow the trolley to slide easily.

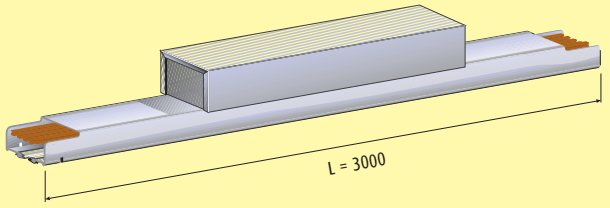


3 m STRAIGHT ELEMENT

With trolley introduction device

Rating (A)	Item L=3000	Weight (kg)
70	**80530201**	13
110	**80530201**	13
150	**80540201**	13.5

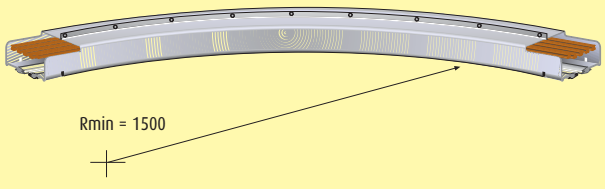
The trolley can be easily inserted with this device, and a perfect running plane is ensured after the closure.



3 m STRAIGHT ELEMENT WITH EXPANSION JOINT

Rating (A)	Item L=3000	Weight (kg)
70	**80530301**	14
110	**80530301**	14
150	**80540301**	14.5

It compensates the expansion effects of the busbar conductors resulting from the temperature variations of the conductors. It is recommended to use it every 35-40m of line.

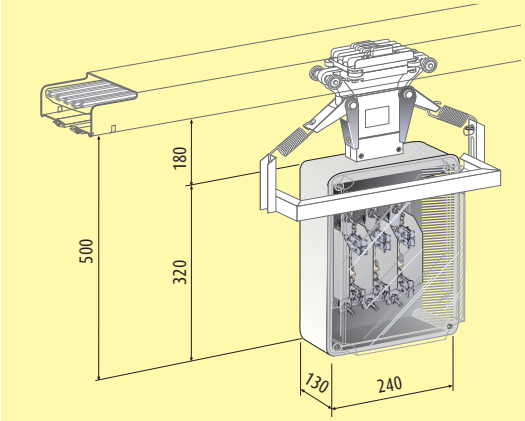


CURVED ELEMENT

Rating (A)	Item L=3000
70	**80530401**
110	**80530401**
150	**80540401**

Curved elements can be ordered with any radius of curvature, to a minimum of 1500 mm. Lines with curved elements can be used with our standard trolleys.

Accessories
TS5 - IP20

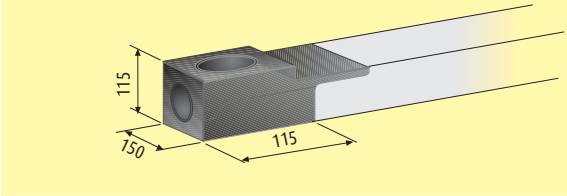


FUSE CARRIER BOX FOR LINES RANGING FROM 70A TO 250A

Rating (A)	Item L=3000
max 160	**80045504**

Set of three NH 00 fuse carriers.

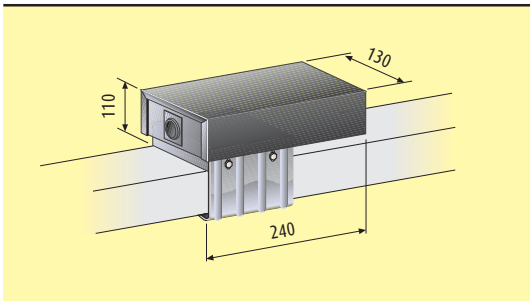
Fuses not included



END FEED UNIT

Rating (A)	Item
70	**80541001**
110	**80541001**
150	**80541001**

The end feed unit can be installed at either end of a busbar.

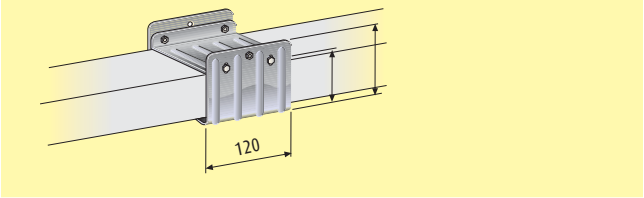


INTERMEDIATE FEED UNIT

Rating (A)	Item
70	**80541101**
110	**80541101**
150	**80541101**

Used to power a busbar from any intermediate point. The intermediate feed unit is also used for reducing the voltage drop of the line.

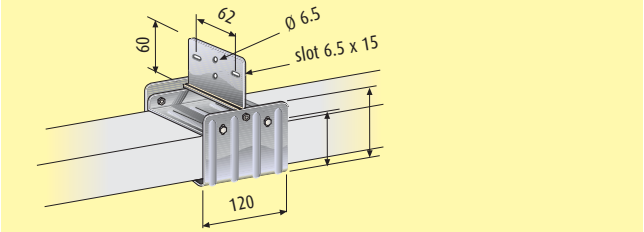
Accessories
TS5 - IP20



COUPLING CLAMP

Rating (A)	Item
70	**80542001**
110	**80542001**
150	**80542001**

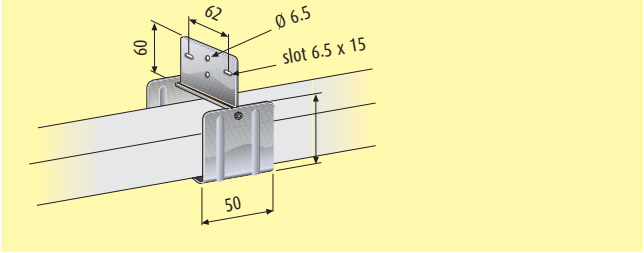
Use one piece for each element.
Provides the mechanical and electrical connection between two elements.



SUSPENSION COUPLING CLAMP

Rating (A)	Item
70	**80542002**
110	**80542002**
150	**80542002**

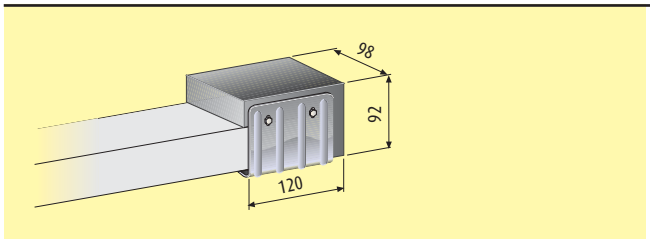
Provides the mechanical and electrical connection between two elements as well as a fixing support point



INTERMEDIATE SUSPENSION BRACKET

Rating (A)	Item
70	**80042101**
110	**80042101**
150	**80042101**

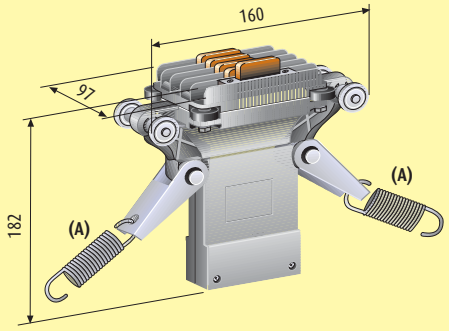
It allows the possibility to hang the busbar anywhere along the line. Use one every 2 metres



END COVER

Rating (A)	Item
70	**80531301**
110	**80531301**
150	**80541301**

The end cover can be installed at either end of the busbar.

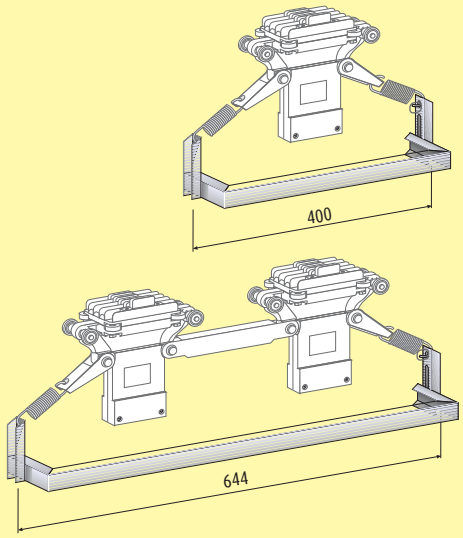


40A 3P + N + PE TROLLEY

Item
80545002

The 40A trolley has graphite contacts which ensure electrical continuity. An 80A rating can be achieved by connecting two trolleys in parallel using the coupling bracket (code 80045203). It works properly up to a sliding speed of 90m/min and withstands weights up to 30 kg.

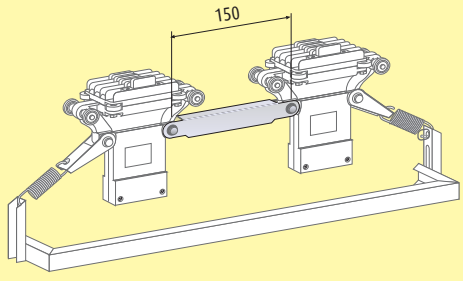
Always pull the trolley by means of its springs.



DRIVE ARMS

Item	Model
80045201	standard
80045202	dual

In order to have a perfect alignment and an excellent sliding action, a driving arm is essential. It adjusts the trolley both horizontally and vertically.



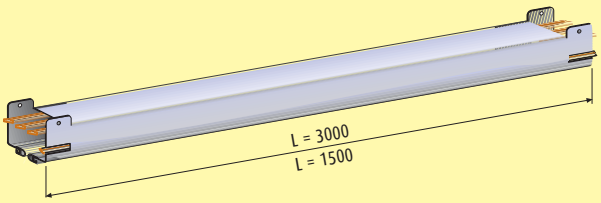
BRACKET FOR COUPLING TROLLEYS

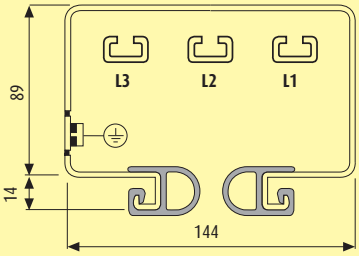
Item
80045203

The coupling bracket can connect two trolleys together, thus allowing you to obtain 80A.

Trunking components
TS250 - IP20

Trolley System - Three-pole + copper earthing conductor: Rating 250A

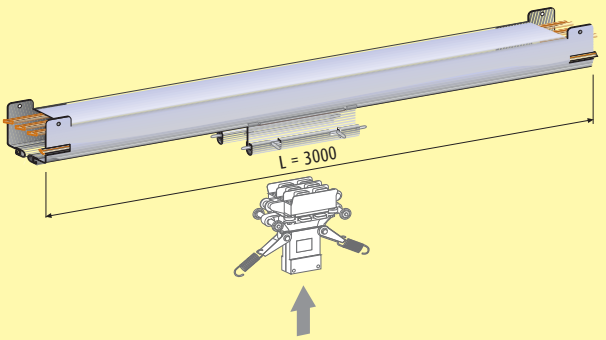




STRAIGHT ELEMENT

Rating (A)	Item L=3000	Item L=1500	Weight (kg)
250	**82200101**		29.2
250		**82200102**	15

The element includes the following:
- A galvanized metal plate shaped to provide good mechanical features.
- Polyamide resin busbar holder supports reinforced with fibreglass with a high degree of insulation.
- Electrolytic copper phase conductors - ETP 99.9%
- Two rigid PVC edges ensure an IP20 protection degree against direct contacts.

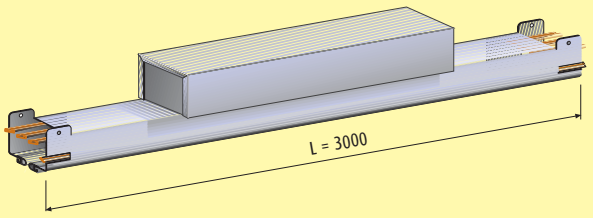


3 m STRAIGHT ELEMENT

With trolley introduction device

Rating (A)	Item L=3000	Weight (kg)
250	**82200201**	29.2

The trolley can be easily inserted with this device, thus making it possible to line it up so as to achieve a perfect running action after the closure. The element with the trolley introduction shall be used for very long lines (> 20m).



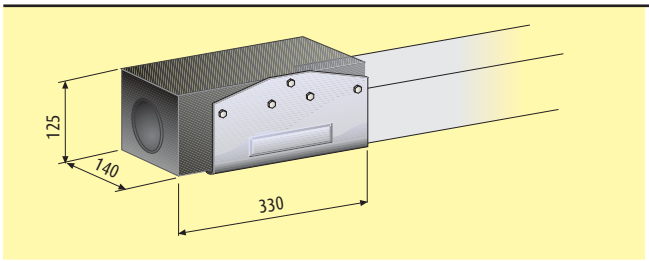
3 m STRAIGHT ELEMENT

With expansion joint

Rating (A)	Item L=3000	Weight (kg)
250	**82200301**	32

It compensates the expansion effects of the busbar conductor thermal expansion when the temperature changes.
It is recommended to use them every 35-40m of line.

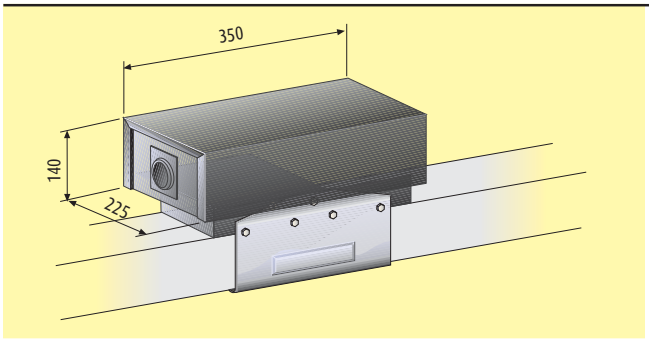
Accessories
TS250 - IP20



END FEED UNIT

Rating (A)	Item
250	**82001001**

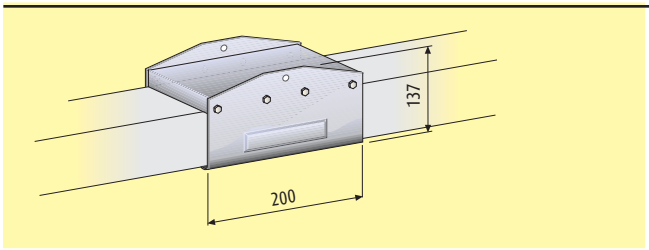
The end feed unit can be installed at either end of a busbar.



INTERMEDIATE FEED UNIT

Rating (A)	Item
250	**82001101**

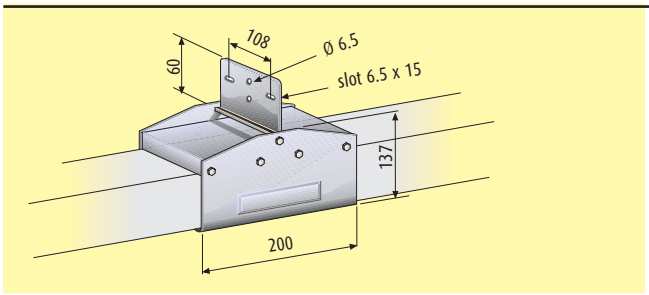
Used to power a busbar from any intermediate point. The intermediate feed unit is also used for reducing the voltage drop of the line.



COUPLING CLAMP

Rating (A)	Item
250	**82002001**

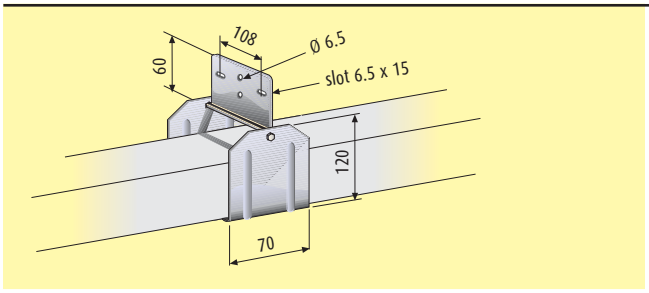
Use one piece for each element.
Provides the mechanical and electrical connection between two elements.



SUSPENSION COUPLING CLAMP

Rating (A)	Item
250	**82002101**

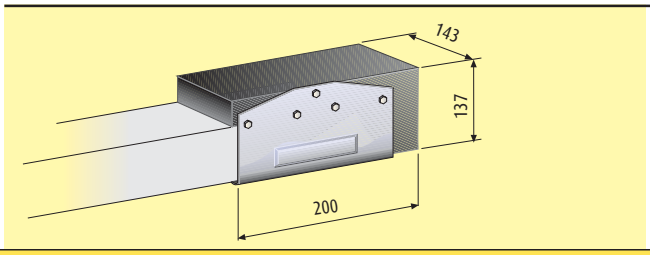
Provides the mechanical and electrical connection between two elements as well as a suspension point.



INTERMEDIATE SUSPENSION BRACKET

Rating (A)	Item
250	**82002101**

It allows the possibility to hang the busbar anywhere along the line.
Use one every 2 metres

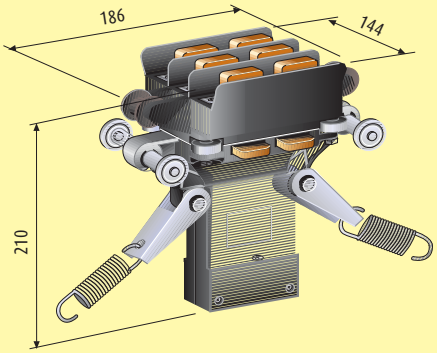


END COVER

Rating (A)	Item
250	**82001301**

The end cover can be installed at either end of a busbar.

Accessories
TS250 - IP20

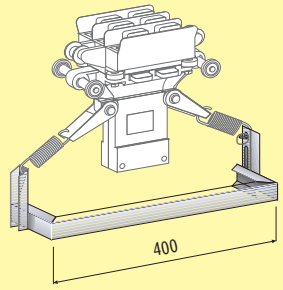


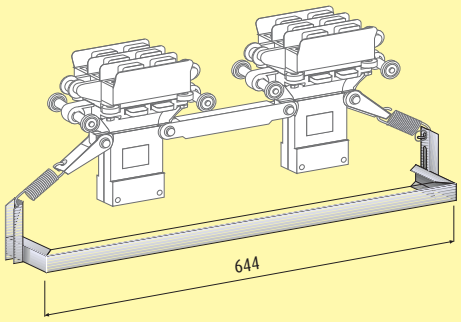
80A 3P + T TROLLEY

Item
82205001

The driving action of the trolleys shall always be carried out with its springs.

The trolley used for the 250A (3PH+T) Trolley line is available for an 80A rating. The contacts are of the sliding type, two for each phase. The earth contacts are located beside the trolley and ensure a constant and efficient contact. It works properly up to a sliding speed of 90m/min and withstands weights up to 30 kg.

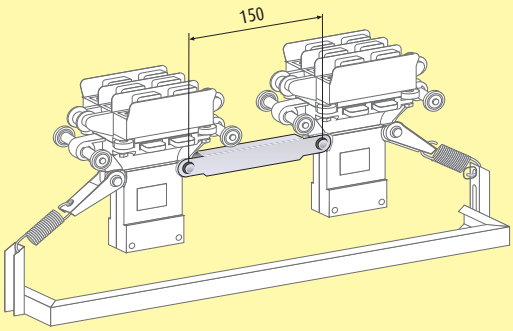




DRIVE ARMS

Item	Model
80045201	standard
80045202	dual

In order to have a perfect alignment and an excellent sliding action, a driving arm is essential. It adjusts the trolley both horizontally and vertically.

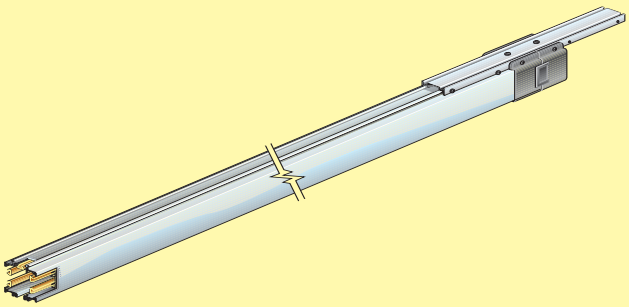


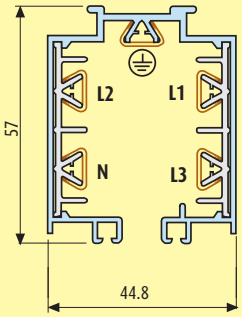
BRACKET FOR COUPLING TROLLEYS

Item	Description
80045203	The coupling bracket can connect two trolleys together, thus allowing you to obtain 160A.

Trunking components
MTS63-IP23

Three-pole + Neutral + copper earthing conductor:
Rating 63A
Suitable for manual drive





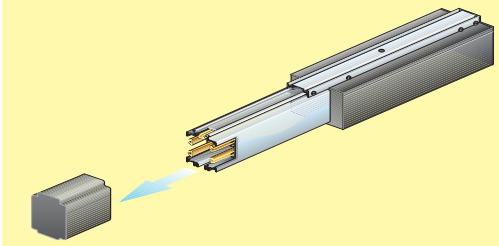
STRAIGHT ELEMENT

Rating (A)	Item L=3000	Item L=1500	Weight (kg)
63	**84500101**		5
63		**84500111**	2.5

The element includes the following:

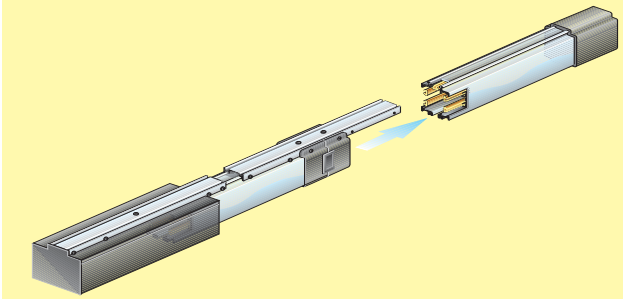
- An extruded anodised aluminium casing shaped to provide a section with strong mechanical features.
- Internal conductor holder sheath made of rigid PVC
- Electrolytic copper phase conductors - ETP 99.9%

Trunking components
MTS63-IP23



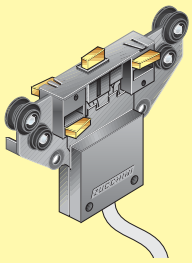
R END FEED UNIT + R COVER

Rating (A)	Item	Weight (kg)
63	**84501001**	1



L END FEED UNIT + L COVER

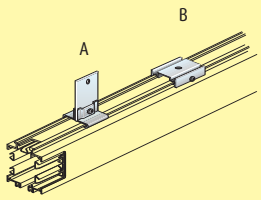
Rating (A)	Item	Weight (kg)
63	**84501002**	1.5



25A TROLLEY

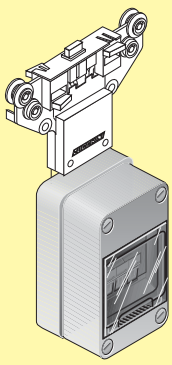
Item	Weight (kg)
84505001	0.32

The 25A trolley has graphite contacts which ensure electrical continuity. It works properly up to a sliding speed of 150 m/min and withstands weights up to 30 kg.



BRACKETS

Type	Item	Description	Weight (kg)
A	**71003001**	Standard suspension bracket	-
B	**84502101**	Ceiling suspension bracket	-

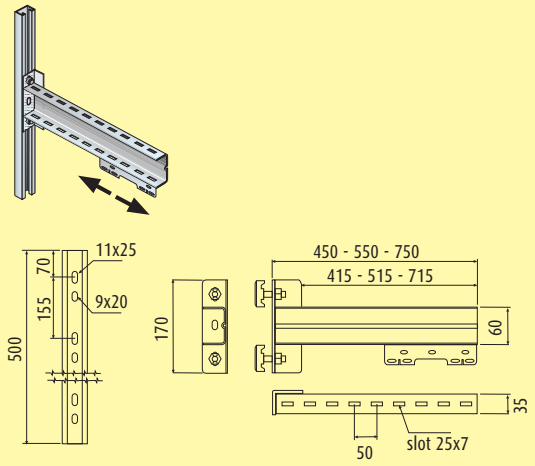


FUSE CARRIER BOX (FROM 10.3 TO 38)

Item	Weight (kg)
84505004	-

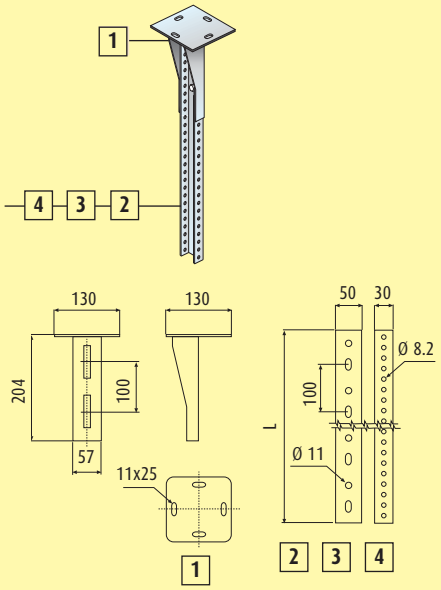
Used for local protection.

Bracket holder



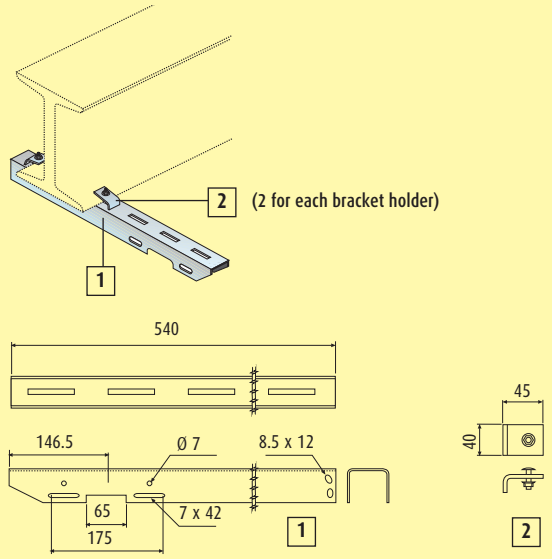
WALL FIXING BRACKET cm 45 - cm 55 - cm 75

Rating (A)	Item	Weight (kg)
450	**50632212**	2.800
550	**50632213**	3.000
750	**50632214**	3.500



CEILING BRACKET:

Ref.	Item	Description	Weight (kg)
1	**50632201**	Ceiling flange	0.900
2	**50632202**	U-shaped bar L = 500 mm	0.900
3	**50632203**	U-shaped bar L = 1000 mm	1.800
4	**50632204**	U-shaped bar L = 2000 mm	3.600



BEAM BRACKET:

Ref.	Item	Description	Weight (kg)
1	**50632210**	Beam bracket base	1.000
2	**50632211**	Beam clamp	0.100

SCP - SUPER COMPACT
630 - 5000A

SECTION CONTENTS

For detailed information on this product, please refer to the Zucchini HIGH POWER catalogue

SCP
Technical description

GENERAL FEATURES

The Zucchini SCP (SuperCompact) line is used for the distribution of power in large industries, for riser (trunking) end feed units and for commercial and service sector buildings (banks, insurance companies, trade and business centres, etc.). The main features of the SCP range are:

- speed, simplicity and flexibility when planning and installing the lines;
- standard range: from 630A up to 4000A with aluminum alloy conductors and from 800A up to 5000A with copper conductors;
- ultra-compact dimensions;
- excellent short-circuit stress resistance features;
- low impedance of the circuit;
- possibility of installing high power electrical systems even in extremely cramped spaces;
- availability of a wide selection of tap-off boxes from 63A up to 1250A in which it is possible to install protective devices such as fuses, motorised switches as well as MCCBs;
- compliance with standard IEC 60439-1 / 2;
- rated at average room temperature of 40°C for a higher performance level compared to the 35°C rating required by the standard.

Hospitals

Large factories

STRAIGHT ELEMENTS

The components and the features of the SCP straight elements are:

- a casing with four sheetmetal elements, bordered and riveted, painted and made with Senzimir hot galvanized steel (because of its section and electrical continuity of the casing, it can also serve as a protective conductor);
- sheetmetal thickness: 1.5 mm;
- overall busbar dimensions: 130x130-480 mm;
- paint application (standard RAL7035) with paint that can:
  - improve the resistance to chemical agents;
  - improve the resistance to hot galvanized sheet metal corrosion;
  - facilitate thermal disposal;
- number of conductors: 4 with the same section (3L+N) with PE made from the casing or 5 when using SCP5 (3L+N+PE) or SCP2N (3L+N 200%), available in the aluminum alloy or 99.9% pure electrolytic copper;
- the conductors are insulated and separated from each other by a double layer of polyester film (2x0.20mm), a V1 self-extinguishing insulating material, non-hygroscopic, with high dielectric strength and in compliance with the glow wire test as per IEC 60695-2-10;
- low impedance of the busbar thanks to the arrangement of the conductors (sandwiched against each other so as to minimise the distance between phases);
- standard connections between SCP and Legrand XL³ panelboards available.

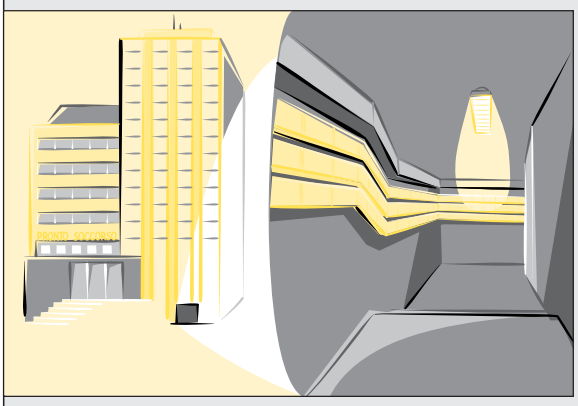
Example of a busbar installed in confined spaces

Example of an installation with the main panelboard

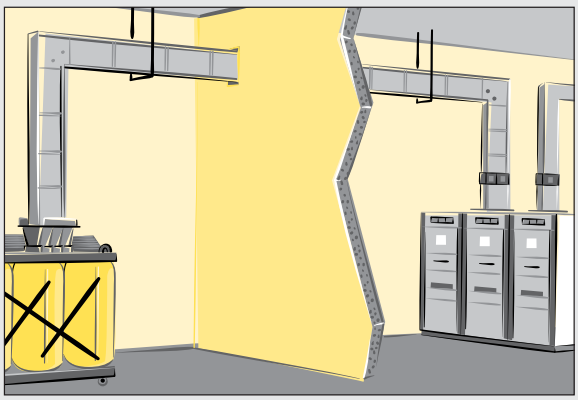
SCP
Technical description

- "Monobloc" electrical junction system made with a silver plated system to connect phases and PE's in a fast and reliable way. The monobloc has a bolt (2 bolts per bar h=160; 3 per bar h≥190/210) with a shearhead torque nut that will maintain optimum electrical continuity over time;
- A pair of washers for each bolt (Belleville washers) ensures the correct distribution of the contact pressures and keeps them constant even when exposed to temperature changes during the operation of a busbar trunking system;
- components of the SCP line with a monobloc pre-mounted at the factory for fast installation;
- each element of the line is checked at the factory with a 5 kV applied voltage test both between phases and to earth so as to guarantee proper insulation;
- the mechanical joint is completed with the IP flanges which are provided with anti-aging gaskets to guarantee an IP55 degree of protection;
- class F insulation available on reques;
- the monobloc making the junction between the elements can also be used for tapping off power by applying a tap-off box to it;
- the junction monobloc is also equipped with a positioning pin which ensures the correct polarity of the phase-neutral sequence, avoiding installation errors;
- availability of straight elements with a set of tap-off outlets (with a constant centre distance of 1 m on both sides of the busbar, set up for being connected to plug-in type tap-off boxes;
- outlet covers on the tap-off outlets in order to guarantee the IP55 degree of protection.

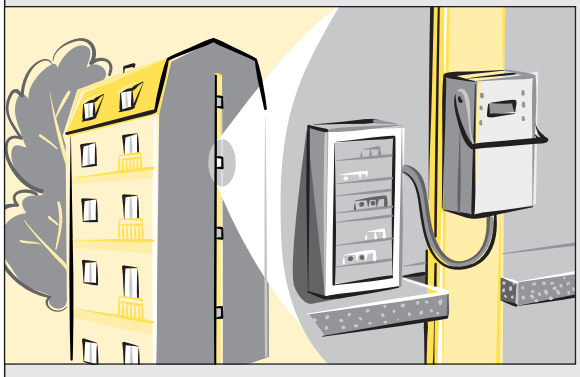
All components and accessories of the SCP line are available in the IP55 version, the same standard protection degree of the line.
The SCP line is "fire retardant" in compliance with the standard IEC 60332-3 and halogen-free.



Installation in hospitals or places where low electromagnetic emissions are required



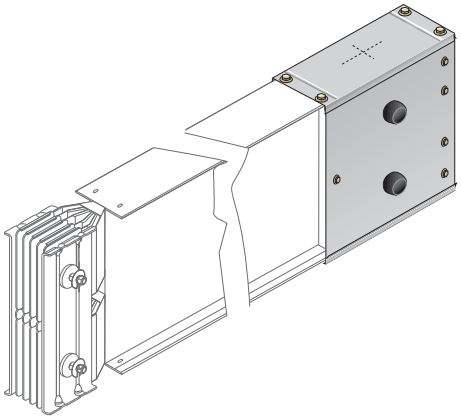
Installation in large factories



Riser mains installation

END COVER

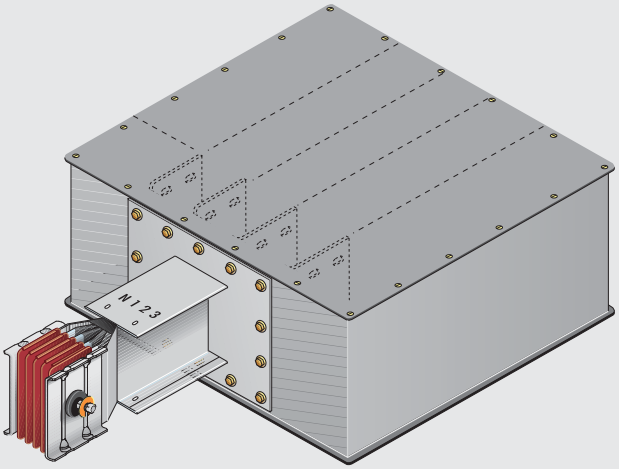
The end cover ensures the IP55 protection degree at the end of the line.



Double bar IP55 end cover

FEED UNITS

Allow to electrically power the SCP line through a cable line or directly connected to an electric distribution board. The installation is carried out with a quick monobloc connection as with the straight elements. End feed units are provided with extensions for the connection of cables equipped with compatible terminals with a 15x20 mm slotted hole. The cables entrance point generally is on the back side of the feed unit (in which there is a removable plate); it is also possible to insert the cables through the side flanges. The SCP line also offers central feed units and end feed units with a switch-disconnector which allows you to isolate the whole line for carrying out maintenance operations or layout changes, if required.

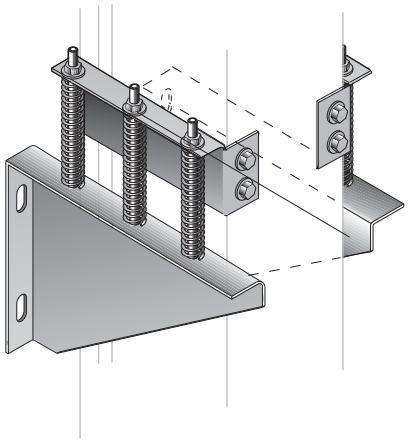


Feed unit

SCP
Super Compact

FIXING DEVICES

In order to fix the line to the structure of the building, directly or with wall / ceiling / beam supports, it is necessary to use a bracket which serves as a collar around the busbar. The bracket has holes so it can be easily paired with the supports available in the Zucchini catalogue. The SCP line is available with brackets for vertical installations (riser mains), type-approved brackets for ships and type-approved brackets for seismic environments.

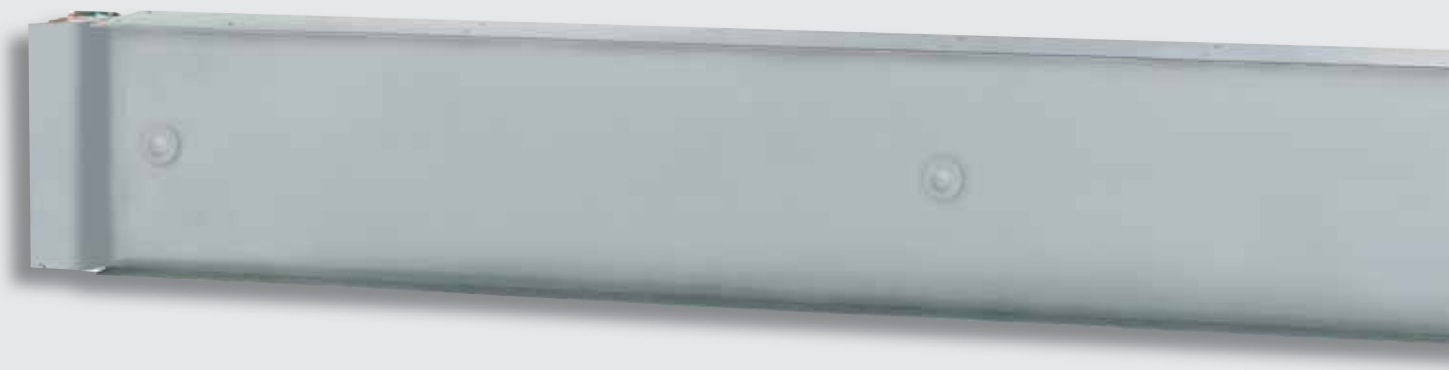


Bracket for vertical elements

TRUNKING COMPONENTS AND ADDITIONAL ELEMENTS

Depending on the different installation requirements Zucchini can provide various technical solutions:

a) 90° elbows: available for carrying out changes of direction both horizontally and vertically. The joint is of the monobloc type, as for the straight elements. The standard degree of protection is IP55;
b) T-type and X-type elements, Z-type double elbows. The standard degree of protection is IP55;
c) straight elements with S120 fire barrier (flameproof certification for 120 min.), used when it is necessary to move through fire-resistant walls (resistance up to REI120). These elements have been tested in laboratories (in compliance with DIN 4102-9- and EN 1366-3 standards) to confirm that, if correctly installed, they maintain the intrinsic fire-resistant properties of the wall or floor;
d) straight lengths with expansion unit. These elements should be inserted in long runs to compensate conductors or building the thermal expansions. The elements must be inserted every 35-40 m of line;
e) straight elements with phase transpositions or with a "neutral rotation". These elements are suitable for changing the position of the phase sequence or for reducing and balancing the mutual phase reactances and for balancing the impedance (currents) for lines exceeding 100-150 m;
f) Additional protective cover: an additional protecting metal cover can be provided for outdoor;
g) protective bellows and flexible braids to mechanically dissociate the busbar from vibrating equipment during normal operation (oil or cast-resin transformers, generators).



TAP-OFF BOXES

Used to connect and supply power to 63A – 1250A three-phase loads; they can be divided into two main categories:

1) Plug-in tap-off boxes (from 63A up to 630A) which include the following features:

- they can be inserted and removed under voltage but not under load;
- the boxes are equipped with an isolator integrated into the cover (when the tap-off box is installed on the busbar, the opening of the cover electrically disconnects its internal parts);
- possibility of padlocking the box cover in the open-disconnected position to carry out safely all maintenance operations of the connected loads;
- the supplied PE contact (protective earth conductor) is the first to make an electrical connection when inserting the box into the outlet and it is the last to disconnect when pulling it out;
- all insulating plastic components are in compliance to the glow-wire tests IEC 60695-2-10 and classified self extinguishing V1 according to UL94;
- standard IP55 degree of protection without any additional accessories;
- boxes available in the following versions:
  - with a set of three fuse carriers;
  - with switch disconnector and fuse carrier;
  - with MCCBs.

2) Boxes bolted onto the connection (from 125A to 1250A) which include the following features:

- very easy, fast and reliable installation;
- high rated current;
- rigid connection to the busbar through the use of a "monobloc" junction similar to the straight element system;
- possibility of removing the boxes only when the busbar is not undervoltage (isolated busbar);
- availability of boxes in the following versions:
  - with switch disconnector and fuse carrier;
  - with MCCBs.

COMPONENTS

Horizontal elbow

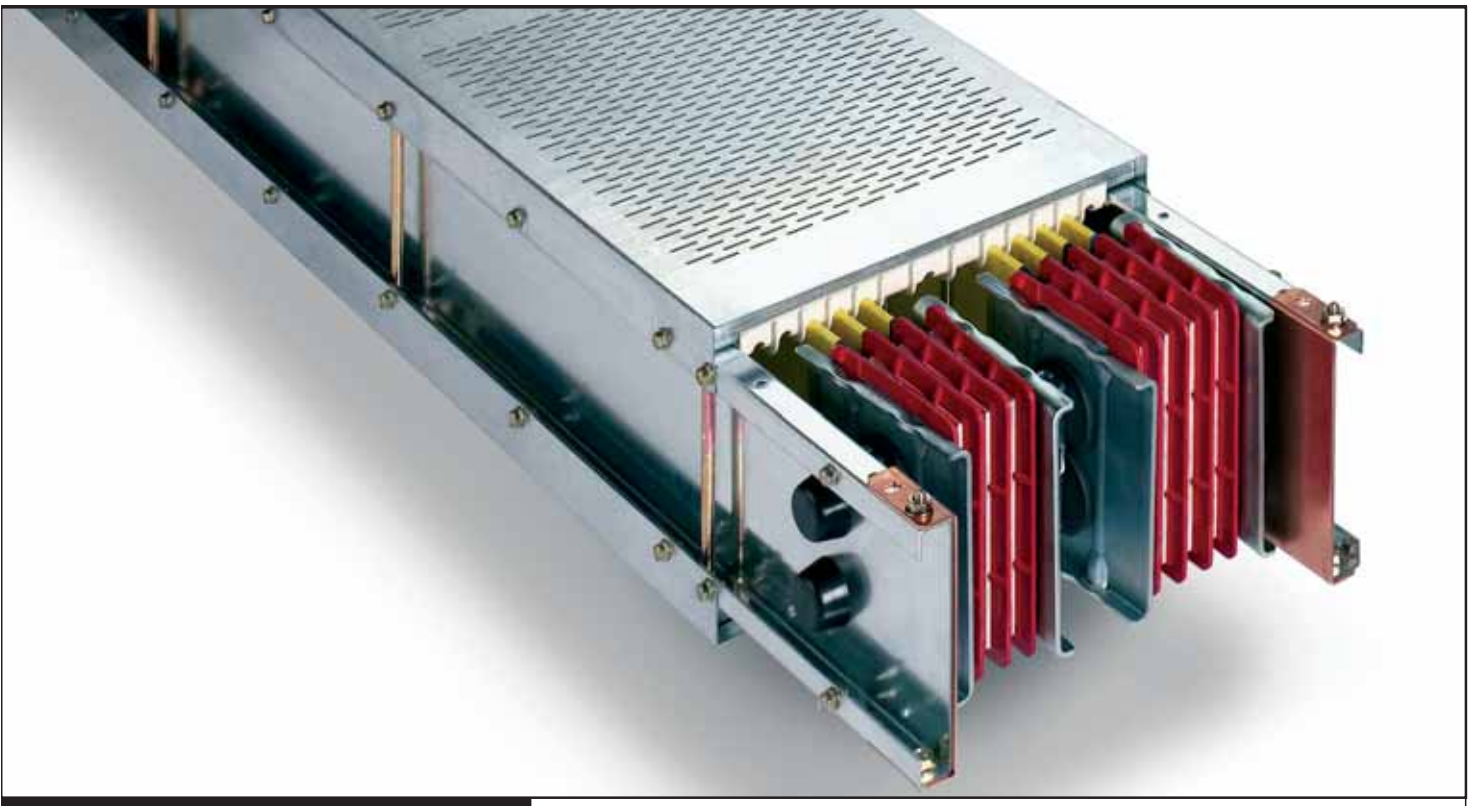
Vertical elbow

Panelboard feed unit

Joint

Single and double monobloc

HR - HIGH RATING
1000 - 5000A



SECTION CONTENTS

For detailed information on this product, please refer to the Zucchini HIGH POWER catalogue

HR
Technical description

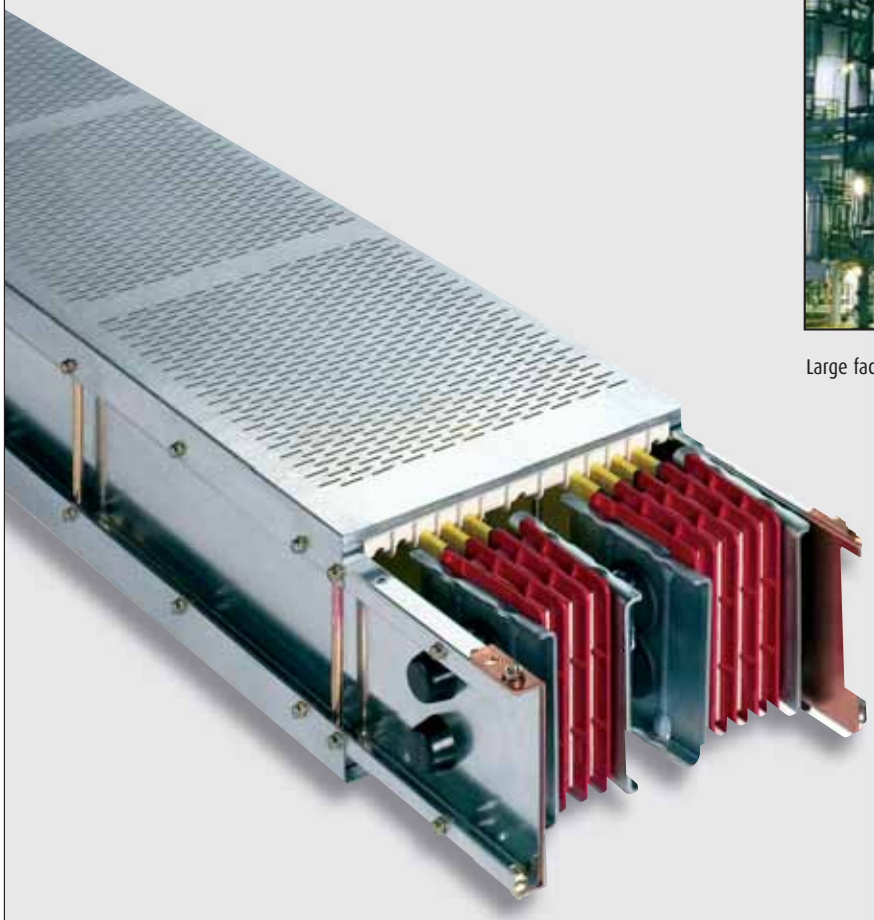
GENERAL FEATURES

The Zucchini HR (High Rating) line is frequently used for the connection between electric panels or for a panel-transformer connection. The main features of the HR range are:

- speed, simplicity and flexibility when planning and installing the lines;
- standard range: from 1000A up to 4500A with aluminum alloy conductors and from 1000A up to 5000A with copper conductors;
- compliance with harmonised standards IEC 60439 - 1 and 2;
- rated at average room temperature of 40°C for a higher performance level compared to the 35°C rating required by the standard.

Board connection

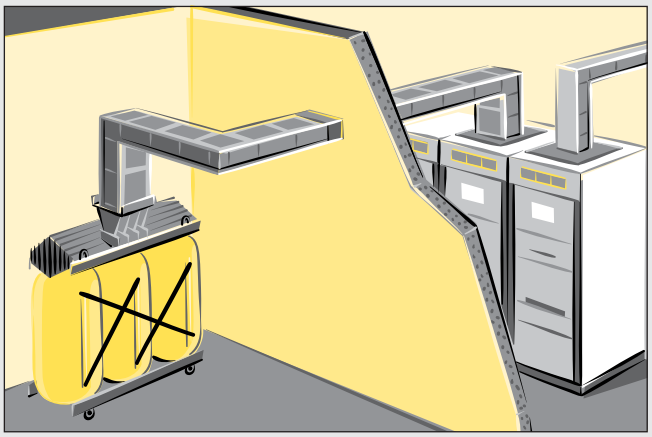
Large factories



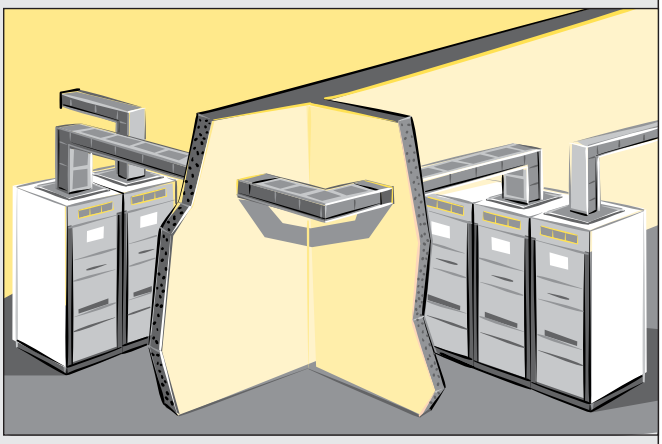
STRAIGHT ELEMENTS

The components and the features of the HR straight elements are:

- casing with four rib-shaped c-type section metal structural components, made with hot galvanized steel (Senzimir);
- sheetmetal thickness: 2.0 mm (because of the section and electrical continuity of the casing, it also serves as the PE protective conductor);
- if required, the line can be provided with a special PE conductor with same or double section than phases;
- top and bottom plates have ventilation holes to allow air to circulate through the busbar and to effectively dissipate the heat generated by the Joule effect;
- number of conductors: 4 conductors (3L+N) with PE made from the casing (versionson request: 3L, 3L+2N, 3L+N + functional earth FE);
- available with aluminium alloy or electrolytic copper conductors (purity ≥ 99.9%);
- conductors are separated from each other by an insulating, non-hygroscopic double-tape with high dielectric strength. The conductors are spaced with fibreglass reinforced plastic insulators;
- All plastic components have a V1 self-extinguishing degree (as per UL94) and comply with the glow-wire test according to IEC 60695-2-10;
- the electric insulation between conductors and towards casing is ensured by extensive air distances maintained by the insulators;



Example of a connection between a transformer and a XL³ panelboard



Example of a connection between distribution cabinets

- "monobloc" electric junction (made with a silver-plated copper system) for connecting elements in a fast and reliable way.
  The monobloc has a bolt (2 bolts per bar h=160; 3 per bar h≥190) with a shearhead torque nut that will maintain optimum electrical continuity over time;
- A pair of washers for each bolt (Belleville washers) ensures the correct distribution of the contact pressures and keeps them constant even when exposed to temperature changes during the operation of a busbar trunking system;
- each element of the line is checked at the factory with a 5 kV applied voltage test both between the phases and to earth so as to guarantee proper insulation;
- the mechanical joint is completed with the IP flanges which guarantee an IP30 degree of protection (IP31 with special flange);
- the monobloc junction between the elements can also be used for power derivation by applying a tap-off box to it;
- the whole busbar is "fire retardant" in compliance with the standard IEC 60332-3.

HR
High Rating

FIXING SUPPORTS

In order to fix the line to the structure of the building, directly or with wall / ceiling / beam supports, it is necessary to use a bracket which serves as a collar around the busbar.
The bracket has holes so it can be easily paired with the supports available in the Zucchini catalogue.

COVERS

The end cover is the component that ensures the nominal degree of protection at the end of the line.

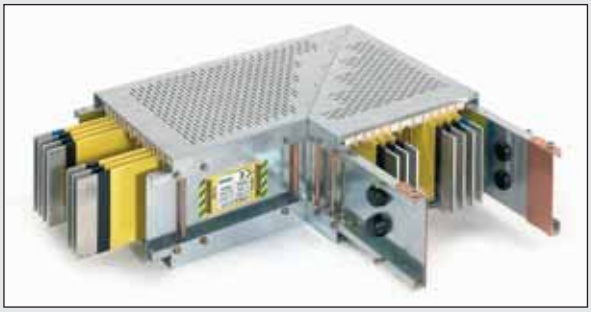
TRUNKING COMPONENTS AND ADDITIONAL ELEMENTS

Depending on the different installation requirements Zucchini can provide various technical solutions:

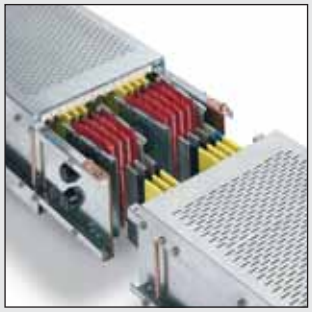
a) 90° elbows: available for carrying out changes of direction both horizontally and vertically. There is a monobloc connection, as with the straight elements;
b) T-type elements, Z-type double elbows;
c) straight elements with fire barrier (internal + external). These elements are used when it is necessary to move through fire-resistant walls;
d) straight lengths with expansion unit. These elements should be inserted in long runs to compensate conductors or building thermal expansion. The elements must be inserted every 35-40 m of line;
e) straight elements with phase transpositions or with a "neutral rotation". These elements are suitable for changing the position of the phase sequence or for reducing and balancing the mutual phase reactances and for balancing the currents when lines exceeding 100-150 m are used.

PARTS OF THE LINE

Vertical elbow to the board



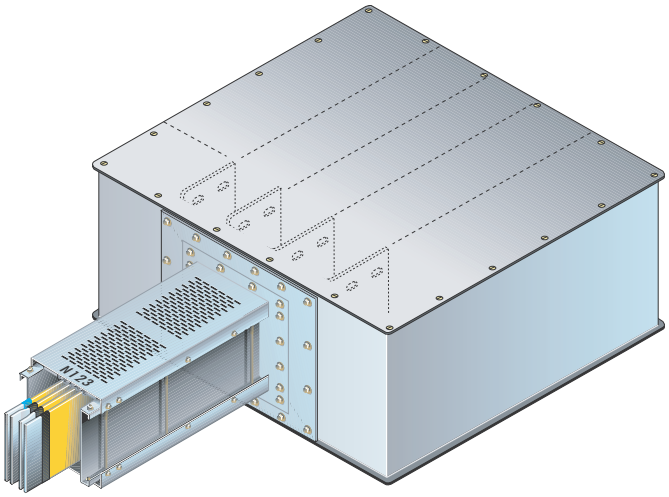
Horizontal elbow



Electrical joint

FEED UNITS

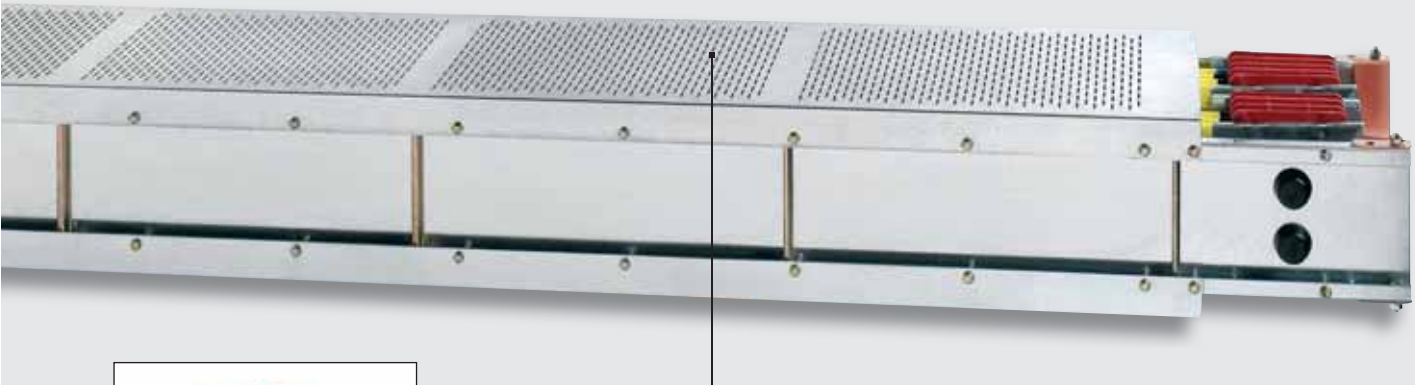
Allow to electrically power the HR line through a cable line or directly connected to an electrical distribution board.
The installation is carried out with a quick monobloc connection as with the straight elements. The end feed units are provided with spreaders for the cables connection equipped with cable lugs. The cables entrance point generally is on the back side of the feed unit (in which there is a removable plate); it is also possible to insert the cables through the side flanges. The HR line can also be provided with central feed unit or end feed unit with a switch-disconnector which allows you to isolate the whole line for carrying out maintenance operations or layout changes, if required.



TAP-OFF BOXES

The HR line is primarily used for energy transport; however, the range also offers bolt-on up to 1250A to be used on the junction between the elements. These boxes are bolted onto the connection and include the following features:

- very easy, fast and reliable installation;
- high rated current (from 125A to 1250A);
- connection to the busbar through a monobloc as between elements;
- possibility of installing and removing the boxes only when the busbar is not undervoltage (isolated busbar);
- availability of boxes in the following versions:
  - with AC23 switch disconnector and fuse carrier
  - with MCCBs.



Perforated sheet to allow heat dissipation.
Protection degree: IP31

Monobloc

CRT - CAST RESIN TRANSFORMERS 100 - 16000 KVA

SECTION CONTENTS

For detailed information on this product, please refer to the Zucchini HIGH POWER catalogue

CRT
Transformers Technical description

GENERAL FEATURES

EdM has been producing for over 50 years cast resin transformers from 100kVA up to 17000 KVA.
All machines are built according to the requirements specified in the main national and international standards:

- Standards IEC 60076 - 1 to 5
- Standards IEC 60076 – 11
- document CENELEC HD 538.1.S1ed. 1992

Industries

Naval applications

Wind power generation plants

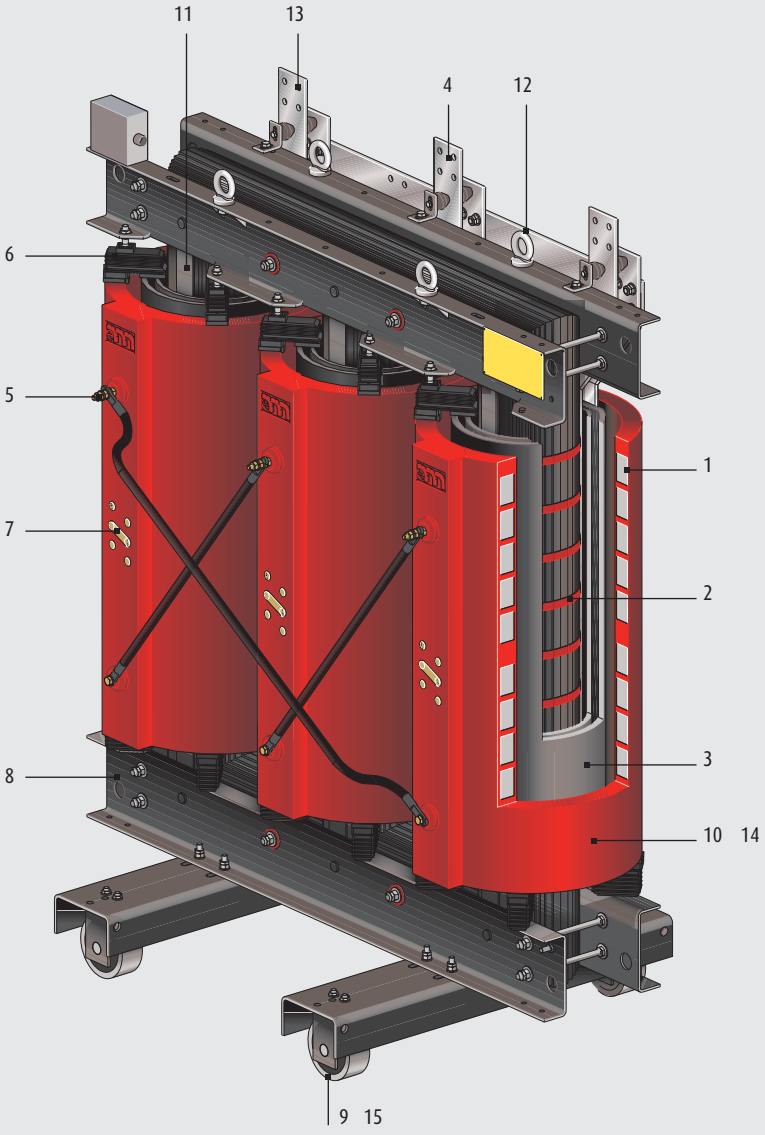
RESIN

Used for encapsulating medium-voltage windings: it is of the epoxy type filled with silica and trihydrate alumina. The resin is treated in high vacuum chambers to obtain optimum degassing to reduce the presence of air or other gases, to avoid partial earth discharges. The epoxy compound is characterised by optimum di-electric and mechanical properties, able to resist the various stresses to which the transformer may be exposed throughout its life. When using the special epoxy resin along with a targeted project, all EdM transformers are classified E2-C2-F1 (Certificate of conformity CESI No. 98/012355).

CORE

The magnetic core is made of sheets of laminated grain oriented magnetic steel with loss figures, depending on the actual design specifications.
The core, totally designed by EdM, is purchased at selected suppliers which guarantees optimum quality of the product as well as a no-load loss certification.

1 - MV windings in aluminium strip coils, cast in resin under vacuum.
2 - Core in three columns in magnetic lamination with high-permeability oriented crystals
3 - LV windings in aluminium plate/sheet and vacuum-cast impregnated insulation material.
4 - LV connections upwards
5 - MV connections upwards
6 - Rubber inserts attenuate the transmission of vibrations between core and windings and reduce to a minimum the operating noise generated by the transformer as well as absorbing the thermal expansion of the components.
7 - Sockets on the MV side to adapt the primary voltage to the mains, which can be set with transformer switched OFF.
8 - Structure, armatures and carriage, made in strong painted sheet steel.
9 - Carriage with bi-directional castors.
10 - The epoxy resin insulation has a high flashpoint and high self-extinguishing
11 - The operating temperature is checked by Pt100 sensor or PTC in the LV windings
12 - Lifting eyebolts conform to the DIN-580 UNI-2947 standars with safety hooking at 4 points.
13 - Optional pre-equipment for connection of the LV connection Zucchini busbar trunking system.
14 - Class F insulating material, at 155°C, allowing for a temperature rise of 100°K.
15 - The carriage allows safe movement and is pre-equipped for the mounting of an IP reinforced boxes.



CRT
Transformers Technical description

MEDIUM-VOLTAGE WINDING (MV)

Medium-Voltage windings are made on highly automated winding machines and are made with aluminium strip conducting material. The winding is continuously performed directly on the internal shape of the mold onto which there is a fiberglass net used as a static support for the winding. This net prevents the misalignment of the aluminium winding disks during the various stages prior to the insertion in the casting system. This type of process enables the EdM transformers to keep the thickness of the resin consistent both inside and outside. It also ensures constant mechanical resistance to di-electric stresses to which the transformer is exposed both during the testing phase and during its technical lifetime. Off load tap changers of the primary voltage +/-2 x 2.5% are used on the primary winding. The thermal class of the insulating materials used conforms to class F and the permitted temperature rises are those specified in the specific product Standards.

Electronically controlled winding machine

LOW-VOLTAGE WINDING (LV)

The Low-Voltage winding is made from an aluminium sheet whose height is the same as the coil. The winding is formed using special winding machines through a process which ensures a compactness able to form a single cylinder. Compactness is essential to withstand the axial and radial stresses resulting from short-circuit phenomena to which the transformer may be required to deliver. All the welds of the conducting sheet (plate) along with the connection taps are butt welded (inert gas) to prevent any welding remnants from affecting or damaging the insulation placed between the coil end and the next coil. The LV winding is suitably treated (vacuum epoxy resin dipping) to avoid the absorption of moisture throughout its life. This treatment is suitable for any environment in which the transformer is to be used, including those with a high humidity value (tropical or sea environments), thus allowing for the F1 classification of the system in compliance with the specific product Standards.

TIG welding in controlled atmosphere for LV connections.

Protection systems

All transformers are protected against possible temperature rise risks resulting from extended overcharge phenomena and improper ventilation of the rooms where the machine is installed. The protection is achieved through a PT 100 Ohm triad of platinum thermal resistances (one for each LV column) which communicate with a temperature viewing and monitoring apparatus (control unit). The unit is supplied as a separate part to be installed, if required, on the control panel. By following the operational instructions supplied with the EdM transformer, you can use the unit to programme the two temperature values corresponding to the "alarm level" and to the "disabling level" of the transformer. The two levels are based on the thermal class of the insulating materials used for making the MV and LV coils.

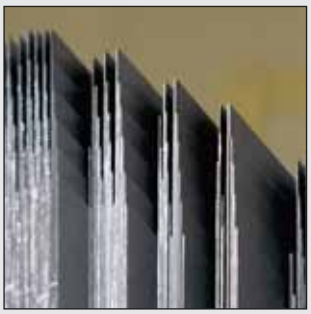
Environmental class E2
It confirms that the product is suitable for installation in environments with condensation and/or high pollution.

Climatic class C2
The transformer can be transported and stored down to -25° C.

Class F1
Fire Behaviour
It confirms that the product is suitable for installation in environments with high fire risk. The transformer is made from self-extinguishing materials.

Low voltage terminals

MV coils



Magnetic Core step - lap

Protection systems

ADDITIONAL ELEMENTS AND ACCESSORIES

Every machine can be equipped with the following accessories:

- medium voltage connections on fixed insulator integral with the MV column;
- Low voltage connections in aluminium bars with suitable holes for connecting cables or bars;
- connections for horizontal travel and lifting eye-bolts;
- voltage-change terminal board for adjusting the primary voltage by ±2x2.5%, to be carried out when the transformer is disconnected;
- 90° adjustable travel wheels;
- earthing connections;
- features and performance data plate;
- temperature control device (control unit);
- inside and outside containment box (IP21...IP43);
- MV quick connectors (Elastimold);
- LV connection adjustment to Zucchini's busbar trunking systems;
- special accessories and solutions, on request.

Shopping centre

Surgery

Underground

The epoxy resin insulation has a high flashpoint and a high self-extinguishing degree. The resin makes the transformer maintenance-free.

Sockets on the MV side to adjust the step-by-step voltage to the mains, which can be set with the transformer switched OFF.

MV connections are also available with Elastimold pins.

Structure, armatures and trolley, made with strong painted sheet steel.

Trolley with swivel wheels in two perpendicular directions.

Trolley and armatures set up for being integrally installed in a sheet metal enclosure. Box available with IP21, IP23 or IP31 degree of protection.

ZUCCHINI

TECHNICAL INFORMATION

SECTION CONTENTS

EB
technical information

Model			25	40
Number of live conductors	No.		4	4
Casing overall dimensions	A x B [mm]		51.4x18	51.4x18
Rated current	I_n [A]		25	40
Cross-section of protective conductor eq. Cu	S_{PE} [mm²]		6.1	6.1
Operating voltage	U_e [V]		400	400
Insulation voltage	U_i [V]		500	500
Rated frequency	f [Hz]		50-60	50-60
Rated short-time current (0.1 s)	I_{cw} [kA]rms		2.2	2.7
Allowable peak current	I_{pk} [kA]		10	10
Thermal limit	I^2t [$A^2s \times 10^6$]		0.48	0.73
Phase resistance	R_{20} [mΩ/m]		4.75	2.99
Phase reactance (50Hz)	X [mΩ/m]		1.279	0.77
Phase impedance	Z [mΩ/m]		4.919	3.088
Resistance of the protective conductor	R_{PE} [mΩ/m]		2.99	2.99
Reactance of the protective conductor (50Hz)	X_{PE} [mΩ/m]		1.07	1.07
Resistance of the fault loop	R_o [mΩ/m]		8.34	6.36
Reactance of the fault loop (50Hz)	X_o [mΩ/m]		2.349	1.84
Impedance of the fault loop	Z_o [mΩ/m]		8.66	6.62
$\Delta V_{1F} = \frac{1}{2}(2 R_{20} \cos\varphi + 2 X \operatorname{sen}\varphi)$	ΔV [V/m/A]10^{-3} cosφ =	0.70	4.24	2.64
	ΔV [V/m/A]10^{-3} cosφ =	0.75	4.21	2.62
	ΔV [V/m/A]10^{-3} cosφ =	0.80	5.73	4.26
Voltage drop with distributed load (k)	ΔV [V/m/A]10^{-3} cosφ =	0.85	3.11	3.11
$\Delta V_{3F} = \frac{\sqrt{3}}{2}(R_{20} \cos\varphi + X \operatorname{sen}\varphi)$	ΔV [V/m/A]10^{-3} cosφ =	0.90	4.60	3.73
	ΔV [V/m/A]10^{-3} cosφ =	0.95	8.66	6.61
	ΔV [V/m/A]10^{-3} cosφ =	1.00	2.35	1.84
Straight element weight	p [kg/m]		0.78	0.93
Fire load	[kWh/m]		0.82	0.82
Degree of protection	IP		55	55
Joule effect losses at rated current	P [W/m]		8.91	14.35
Ambient temperature min./MAX.	t [°C]		-5/+50	-5/+50

LB
technical information

Model		252	254	256	402	404	406
				side • side			side • side
Number of live conductors	No.	2	4	4 • 2	2	4	4 • 2
Casing overall dimensions	A x B [mm]	26 x 41	26 x 41	26 x 41	26 x 41	26 x 41	26 x 41
Rated current	I_n [A]	**25**	**25**	**25**	**40**	**40**	**40**
Cross-section of conductors (3P+N)	S [mm²]	3.14	3.14	3.14	6.15	6.15	6.15
Cross-section of protective conductor eq. Cu	S_{PE} [mm²]	8.72	8.72	8.72	8.72	8.72	8.72
Operating voltage	U_e [V]	400	400	400	400	400	400
Insulation voltage	U_i [V]	500	500	500	500	500	500
Rated frequency	f [Hz]	50/60	50/60	50/60	50/60	50/60	50/60
Rated short-time current (0.1 s)	I_{CW} [kA]rms	2.2	2.2	2.2	2.7	2.7	2.7
Allowable peak current	I_{pk} [kA]	10	10	10	10	10	10
Thermal limit	I^2t [A^2s x 10^6]	0.48	0.48	0.48	0.73	0.73	0.73
Phase resistance	R_{20} [mΩ/m]	5.803	5.803	5.803	2.963	2.963	2.963
Phase reactance (50Hz)	X [mΩ/m]	1.144	1.279	1.279 • 1.144	0.792	0.770	0.770 • 0.792
Phase impedance	Z [mΩ/m]	5.914	5.942	5.942 • 5.914	3.067	3.061	3.061 • 3.067
Resistance of the protective conductor	R_{PE} [mΩ/m]	1.45	1.45	1.45	1.45	1.45	1.45
Reactance of the protective conductor (50Hz)	X_{PE} [mΩ/m]	1.10	1.10	1.10	1.10	1.10	1.10
Resistance of the fault loop	R_o [mΩ/m]	7.25	7.25	7.25	4.41	4.41	4.41
Reactance of the fault loop (50Hz)	X_o [mΩ/m]	2.24	2.38	2.38 • 2.24	1.89	1.87	1.87 • 1.89
Impedance of the fault loop	Z_o [mΩ/m]	7.59	7.63	7.639 • 7.59	4.80	4.79	4.79 • 4.80
$\Delta V_{1F} = \frac{1}{2}(2 R_{20} \cos\varphi + 2 X \operatorname{sen}\varphi)$	ΔV [V/m/A]10^{-3} cosφ = 0.70	4.88	4.31	4.31 • 4.88	2.64	2.27	2.27 • 2.64
	ΔV [V/m/A]10^{-3} cosφ = 0.75	5.11	4.50	4.50 • 5.11	2.75	2.37	2.37 • 2.75
	ΔV [V/m/A]10^{-3} cosφ = 0.80	5.33	4.68	4.68 • 5.33	2.85	2.45	2.45 • 2.85
Voltage drop with distributed load (k)	ΔV [V/m/A]10^{-3} cosφ = 0.85	5.53	4.85	4.85 • 5.53	2.94	2.53	2.53 • 2.94
$\Delta V_{3F} = \frac{\sqrt{3}}{2}(R_{20} \cos\varphi + X \operatorname{sen}\varphi)$	ΔV [V/m/A]10^{-3} cosφ = 0.90	5.72	5.01	5.01 • 5.72	3.01	2.60	2.60 • 3.01
	ΔV [V/m/A]10^{-3} cosφ = 0.95	5.87	5.12	5.12 • 5.87	3.06	2.65	2.65 • 3.06
	ΔV [V/m/A]10^{-3} cosφ = 1.00	5.80	5.03	5.03 • 5.80	2.96	2.57	2.57 • 2.96
Straight element weight	p [kg/m]	0.95	1.0	1.10	1.0	1.1	1.20
Fire load	[kWh/m]	0.82	0.82	0.82	0.82	0.82	0.82
Degree of protection	IP	55	55	55	55	55	55
Joule effect losses at rated current	P [W/m]	7.3	10.9	10.9 • 7.3	9.5	14.2	14.2 • 9.5
Ambient temperature min./MAX.	t [°C]	-5/+50	-5/+50	-5/+50		-5/+50	-5/+50 • 5/+50

Short circuit protection for Zucchini's product ranges (In≤100A)
Zucchini busbar trunking systems with a rated current lower than or equal to 100A (LB-HL-SL-MS 63 and 100) are properly protected through an MCB (Modular Circuit Breaker) with a rated current lower than or equal to that of the busbar. This protection is guaranteed up to the MCB breaking capacity.

The busbar trunking systems are FIRE RETARDANT in compliance with IEC 20-22 (IEC 332-3: 1992).

Product fully in compliance with the following Standards: IEC 439-1 and 2, IEC 60439 part 1 and 2, DIN VDE 0660 part 500 and 502

Product suitable for these climates:
Constant humid climate (DIN IEC 68 / 2- 3)
Cyclical humid climate (DIN IEC 68 / 2- 30)

Temperature rating schedule according to the room temperature

Room temperature [°C]	15	20	25	30	35	40	45	50	55	60
K1 Factor	1.15	1.12	1.08	1.05	1.025	1	0.975	0.95	0.93	0.89

multiplier coefficient of rated current for room temperature values different from 40° C

Table for mechanical loads permitted (with busbar installed on edge)

When distributing loads, if any, the maximum weight (kg) that can be supported is given in the tables below:
For point loads, multiply the values in the table below by 0.5.

		fixing centres (distance) m.							
maximum deflection = 1/350 x distance	m	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0
	kg	17.2	15.8	14.6	13.4	12.5	11.6	11	10
maximum deflection = 1/500 x distance	m	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0
	kg	15.4	14	13	12	11.2	10.4	9.6	9

Technical information
HL

		HLs single						HLd double						
Model		**252**	**402**	**254**	**404**	**2522**	**4022**	**2542**	**4042**	**2544**	**4044**	**2x4**
								side side	side side			
Number of live conductors	No.	2	2	4	4	2+2	2+2	4 • 2	4 • 2	4+4	4+4	2+2+2+2
Casing overall dimensions	A x B [mm]	26x62	26x62	26x62	26x62	40.4x70	40.4x70	40.4x70	40.4x70	40.4x70	40.4x70	40.4x70
Rated current	I_n [A]	**25**	**40**	**25**	**40**	**25**	**40**	**25**	**40**	**25**	**40**	**25**
Cross-section of conductors (3P+N)	S [mm²]	3.14	6.15	3.14	6.15	3.14	6.15	3.14	6.15	3.14	6.15	3.14
Cross-section of protective conductor eq. Cu	S_{PE} [mm²]	17	17	17	17	20	20	20	20	20	20	20
Operating voltage	U_e [V]	400	400	400	400	400	400	400	400	400	400	400
Insulation voltage	U_i [V]	500	500	500	500	500	500	500	500	500	500	500
Rated frequency	f [Hz]	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/6050/60	50/60	50/60	
Rated short-time current (0.1 s)	I_{cw} [kA]rms	2.5	3.2	2.5	3.2	2.5	3.2	2.5	3.2	2.5	3.2	2.5
Allowable peak current	I_{pk} [kA]	10	10	10	10	10	10	10	10	10	10	10
Thermal limit	I^2t [A^2s x 10^6]	0.64	1.00	0.64	1.00	0.64	1.00	0.64	1.00 0.64	1.00	0.64	
Phase resistance	R_{20} [mΩ/m]	5.73	2.93	5.73	2.93	5.73	2.93	5.73 • 5.73	2.93 • 2.93	5.73	2.93	5.73
Phase reactance (50Hz)	X [mΩ/m]	1.40	1.58	1.27	0.77	1.40	1.58	1.27 • 1.40	0.77 • 1.58	1.27	0.77	1.27
Phase impedance	Z [mΩ/m]	5.90	3.33	5.87	3.03	5.90	3.33	5.87 • 5.90	3.03 • 3.33	5.87	3.03	5.87
Resistance of the protective conductor	R_{PE} [mΩ/m]	1.06	1.06	1.06	1.06	0.90	0.90	0.90 • 0.90	0.90 • 0.90	0.90	0.90	0.90
Reactance of the protective conductor (50Hz)	X_{PE} [mΩ/m]	1.10	1.10	1.10	1.10	1.00	1.00	1.00 • 1.00	1.00 • 1.00	1.00	1.00	1.00
Resistance of the fault loop	R_s [mΩ/m]	6.79	3.99	6.79	3.99	6.63	3.83	6.63 • 6.63	3.83 • 3.83	6.63	3.83	6.63
Reactance of the fault loop (50Hz)	X_s [mΩ/m]	2.50	2.68	2.37	1.87	2.40	2.58	2.27 • 2.40	1.77 • 2.58	2.27	1.77	2.27
Impedance of the fault loop	Z_s [mΩ/m]	7.24	4.80	7.19	4.40	7.05	4.62	7.01 • 7.05	4.22 • 4.62	7.01	4.22	7.01
ΔV [V/m/A]10^3 cosφ =	0.70	5.01	3.18	4.26	2.25	5.01	3.18	4.26 • 5.01	2.25 • 3.18	4.26	2.25	4.92
$\Delta V_{1F} = \frac{1}{2}(2 R_{20} \cos\varphi + 2 X \text{ sen } \varphi)$	= 0.75	5.23	3.24	4.45	2.34	5.23	3.24	4.45 • 5.23	2.34 • 3.24	4.45	2.34	5.14
	= 0.80	5.43	3.29	4.63	2.43	5.43	3.29	4.63 • 5.43	2.43 • 3.29	4.63	2.43	5.35
Voltage drop with distributed load (k)	= 0.85	5.61	3.32	4.80	2.51	5.61	3.32	4.80 • 5.61	2.51 • 3.32	4.80	2.51	5.54
	= 0.90	5.77	3.32	4.95	2.57	5.77	3.32	4.95 • 5.77	2.57 • 3.32	4.95	2.57	5.71
$\Delta V_{3F} = \frac{\sqrt{3}}{2}(R_{20} \cos\varphi + X \text{ sen } \varphi)$	= 0.95	5.88	3.27	5.06	2.62	5.88	3.27	5.06 • 5.88	2.62 • 3.27	5.06	2.62	5.84
	= 1.00	5.73	2.93	4.96	2.53	5.73	2.93	4.96 • 5.73	2.53 • 2.93	4.96	2.53	5.73
Straight element weight	p [kg/m]	1.5	1.6	1.6	1.7	2.8	2.9	2.9	3.1	2.9	3.2	2.9
Fire load	[kWh/m]	0.82	0.82	0.82	0.82	1.64	1.64	1.64	1.64 1.64	1.64	1.64	
Degree of protection	IP	55	55	55	55	55	55	55	55	55	55	55
Joule effect losses at rated current	P [W/m]	7.2	9.4	10.7	14.0	7.2	9.4	10.7 • 7.2	14.0 • 9.4	10.7	14.0	7.2
Ambient temperature min./MAX.	t [°C]	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50

Short circuit protection for Zucchini's product ranges (In≤100A)
Zucchini busbar trunking systems with a rated current lower than or equal to 100A (LB-HL-SL-MS 63 and 100) are properly protected through an MCB (Modular Circuit Breaker) with a nominal current lower than or equal to that of the busbar. This protection is guaranteed up to the MCB breaking capacity.

The busbar trunking systems are FIRE RETARDANT in compliance with IEC 20-22 (IEC 332-3: 1992).

Product fully in compliance with the following Standards: IEC 439-1 and 2, IEC 60439 part 1 and 2, DIN VDE 0660 part 500 and 502

Product suitable for these climates:
Constant humid climate (DIN IEC 68 / 2- 3)
Cyclical humid climate (DIN IEC 68 / 2- 30)

Temperature rating schedule according to the room temperature

Room temperature [°C]	15	20	25	30	35	40	45	50	55	60
K1 Factor	1.15	1.12	1.08	1.05	1.025	1	0.975	0.95	0.93	0.89

multiplier coefficient of rated current for room temperature values different from 40° C

Table for mechanical loads permitted (with busbar installed on edge)

When distributing loads, if any, the maximum weight (kg) that can be supported is given in the tables below:
For point loads, multiply the values in the table below by 0.6.

	fixing centres (distance) m.							
maximum deflection = 1/250 x distance m	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
kg	82.3	71.1	52.2	40.0	31.6	25.6	21.1	17.8

 (busbar installed on edge)

Technical information
SL

Model		40	63
Number of live conductors	No.	4	4
Casing overall dimensions	A x B [mm]	26 x 62	26 x 62
Rated current	In [A]	**40**	**63**
Cross-section of conductors (3P+N)	S [mm²]	9.5	12.3
Cross-section of protective conductor eq. Cu	S_{PE} [mm²]	17	17
Operating voltage	U_e [V]	400	400
Insulation voltage	U_i [V]	750	750
Rated frequency	f [Hz]	50/60	50/60
Rated short-time current (0.1 s)	I_{CW} [kA]rms	2.70	3.10
Allowable peak current	I_{pk} [kA]	10	10
Thermal limit	I^2t [A^2s x 10^6]	7.29	9.6
Phase resistance	R_{20} [mΩ/m]	1.811	1.373
Phase reactance (50Hz)	X [mΩ/m]	0.290	0.637
Phase impedance	Z [mΩ/m]	1.834	1.514
Resistance of the protective conductor	R_{PE} [mΩ/m]	0.870	0.870
Reactance of the protective conductor (50Hz)	X_{PE} [mΩ/m]	0.090	0.087
Resistance of the fault loop	R_o [mΩ/m]	2.68	2.24
Reactance of the fault loop (50Hz)	X_o [mΩ/m]	0.380	0.724
Impedance of the fault loop	Z_o [mΩ/m]	2.71	2.36
$\Delta V_{1F} = \frac{1}{2}(2 R_{20} \cos\varphi + 2 X \operatorname{sen}\varphi)$ Voltage drop with distributed load (k) $\Delta V_{3F} = \frac{\sqrt{3}}{2}(R_{20} \cos\varphi + X \operatorname{sen}\varphi)$	ΔV [V/m/A]10^{-3} cosφ = 0.70	1.28	1.23
	ΔV [V/m/A]10^{-3} cosφ = 0.75	1.34	1.26
	ΔV [V/m/A]10^{-3} cosφ = 0.80	1.41	1.28
	ΔV [V/m/A]10^{-3} cosφ = 0.85	1.47	1.30
	ΔV [V/m/A]10^{-3} cosφ = 0.90	1.52	1.31
	ΔV [V/m/A]10^{-3} cosφ = 0.95	1.57	1.30
	ΔV [V/m/A]10^{-3} cosφ = 1.00	1.57	1.19
Straight element weight	p [kg/m]	2.2	2.3
Fire load	[kWh/m]	0.80	0.80
Degree of protection	IP	40/55	40/55
Joule effect losses at rated current	P [W/m]	8.7	16.3
Ambient temperature min./MAX.	t [°C]	-5/+50	-5/+50

Short circuit protection for Zucchini's product ranges (In≤100A)
Zucchini busbar trunking systems with a rated current lower than or equal to 100A (LB-HL-SL-MS 63 and 100) are properly protected through an MCB (Modular Circuit Breaker) with a nominal current lower than or equal to that of the busbar. This protection is guaranteed up to the MCB breaking capacity.

The busbar trunking systems are FIRE RETARDANT in compliance with IEC 20-22 (IEC 332-3: 1992).

Product fully in compliance with the following Standards: IEC 439-1 and 2, IEC 60439 part 1 and 2, DIN VDE 0660 part 500 and 502

Product suitable for these climates:
Constant humid climate (DIN IEC 68 / 2- 3)
Cyclical humid climate (DIN IEC 68 / 2- 30)

Temperature rating schedule according to the room temperature

Room temperature [°C]	15	20	25	30	35	**40**	45	50	55	60
K1 Factor	1.15	1.12	1.08	1.05	1.025	**1**	0.975	0.95	0.93	0.89

multiplier coefficient of rated current for room temperature values different from 40° C

Coordination table with Legrand DPX at page 176

Technical information
MS

Model		63	100	160
Number of live conductors	No.	4	4	4
Casing overall dimensions	A x B [mm]	39 x 97	39 x 97	39 x 97
Rated current	I_n [A]	**63**	**100**	**160**
Cross-section of conductors (3P+N)	S [mm²]	26	39	39
Cross-section of protective conductor eq. Cu	S_{PE} [mm²]	21	21	21
Operating voltage	U_e [V]	400	400	400
Insulation voltage	U_i [V]	750	750	750
Rated frequency	f [Hz]	50/60	50/60	50/60
Rated short-time current (0.1 s)	I_{cw} [kA]rms	2.30	4.50	5.50
Allowable peak current	I_{pk} [kA]	10	10	10
Thermal limit	I^2t [$A^2s \times 10^6$]	5.29	20.25	30.25
Phase resistance	R_{20} [mΩ/m]	1.250	0.837	0.478
Phase reactance (50Hz)	X [mΩ/m]	0.366	0.247	0.247
Phase impedance	Z [mΩ/m]	1.302	0.873	0.538
Resistance of the protective conductor	R_{PE} [mΩ/m]	0.857	0.857	0.857
Reactance of the protective conductor (50Hz)	X_{PE} [mΩ/m]	0.090	0.102	0.102
Resistance of the fault loop	R_o [mΩ/m]	2.11	1.69	1.34
Reactance of the fault loop (50Hz)	X_o [mΩ/m]	0.456	0.349	0.349
Impedance of the fault loop	Z_o [mΩ/m]	2.16	1.73	1.38
$\Delta V_{1F} = \frac{1}{2}(2 R_{20} \cos\varphi + 2 X \operatorname{sen}\varphi)$ Voltage drop with distributed load (k) $\Delta V_{3F} = \frac{\sqrt{3}}{2}(R_{20} \cos\varphi + X \operatorname{sen}\varphi)$	ΔV [V/m/A]10^{-3} cosφ = 0.70	0.98	0.66	0.44
	ΔV [V/m/A]10^{-3} cosφ = 0.75	1.02	0.69	0.45
	ΔV [V/m/A]10^{-3} cosφ = 0.80	1.06	0.71	0.46
	ΔV [V/m/A]10^{-3} cosφ = 0.85	1.09	0.73	0.46
	ΔV [V/m/A]10^{-3} cosφ = 0.90	1.11	0.75	0.47
	ΔV [V/m/A]10^{-3} cosφ = 0.95	1.13	0.76	0.46
	ΔV [V/m/A]10^{-3} cosφ = 1.00	1.08	0.72	0.41
Straight element weight	p [kg/m]	2.0	2.5	2.8
Fire load	[kWh/m]	1.64	1.64	1.64
Degree of protection	IP	40/55	40/55	40/55
Joule effect losses at rated current	P [W/m]	14.9	25.1	36.7
Ambient temperature min./MAX.	t [°C]	-5/+50	-5/+50	-5/+50

Short circuit protection for Zucchini's product ranges (In≤100A)
Zucchini busbar trunking systems with a rated current lower than or equal to 100A (LB-HL-SL-MS 63 and 100) are properly protected through an MCB (Modular Circuit Breaker) with a nominal current lower than or equal to that of the busbar.

This protection is guaranteed up to the MCB breaking capacity. The busbar trunking systems are FIRE RETARDANT in compliance with IEC 20-22 (IEC 332-3: 1992).

Product fully in compliance with the following Standards: IEC 439-1 and 2, IEC 60439 part 1 and 2, DIN VDE 0660 part 500 and 502

Product suitable for these climates:
Constant humid climate (DIN IEC 68 / 2- 3)
Cyclical humid climate (DIN IEC 68 / 2- 30)

Temperature rating schedule according to the room temperature

Room temperature [°C]	15	20	25	30	35	**40**	45	50	55	60
K1 Factor	1.15	1.12	1.08	1.05	1.025	**1**	0.975	0.95	0.93	0.89

multiplier coefficient of rated current for room temperature values different from 40° C

Coordination table with Legrand DPX at page 176

Technical information
MR Aluminium

MR (3L+N+PE)

Rated current	I_n [A]	**160**	**250**	**315**	**400**	**500**	**630**	**800**
Operating voltage	U_e [V]	1000	1000	1000	1000	1000	1000	1000
Insulation voltage	U_i [V]	1000	1000	1000	1000	1000	1000	1000
Frequency	f [Hz]	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} $[kA]_{rms}$	15*	25*	25*	25	30	36	36
Allowable specific energy for three-phase fault	I^2t [M A^2s]	23	63	63	625	900	1296	1296
Allowable peak current for three-phase fault	I_{pk} [kA]	30	53	53	53	63	76	76
Rated short-time current for single-phase fault Ph-N (1 s)	I_{CW} $[kA]_{rms}$	9*	15*	15*	15	18	22	22
Allowable peak current for single-phase fault Ph-N	I_{pk} [kA]	15	30	30	30	36	45	45
Rated short-time current for single-phase fault Ph-PE (1 s)	I_{CW} $[kA]_{rms}$	9*	15*	15*	15	18	22	22
Rated peak current for single-phase fault Ph-PE	I_{pk} [kA]	15	30	30	30	36	45	45
Phase resistance at 20 °C	R_{20} [mΩ/m]	0.492	0.328	0.197	0.120	0.077	0.060	0.052
Phase resistance at thermal conditions (In; 40°C)	R_t [mΩ/m]	0.665	0.443	0.266	0.163	0.104	0.081	0.070
Phase reactance (50 Hz)	X [mΩ/m]	0.260	0.202	0.186	0.130	0.110	0.097	0.096
Neutral resistance at 20 °C	Rn_{20} [mΩ/m]	0.492	0.328	0.197	0.120	0.077	0.060	0.052
Neutral reactance (50 Hz)	X_n [mΩ/m]	0.260	0.202	0.186	0.130	0.110	0.097	0.096
Resistance of the protective conductor	R_{PE} [mΩ/m]	0.341	0.341	0.341	0.283	0.283	0.283	0.283
Reactance of the protective conductor (50 Hz)	X_{PE} [mΩ/m]	0.220	0.220	0.220	0.180	0.180	0.180	0.180
Resistance of the fault loop phase-PE	$R_{Ph\text{-}Pe\ fault\ loop}$ [mΩ/m]	1.006	0.784	0.607	0.445	0.387	0.364	0.353
Reactance of the fault loop phase-PE (50 Hz)	$X_{RPh\text{-}Pe\ fault\ loop}$ [mΩ/m]	0.480	0.414	0.396	0.333	0.333	0.283	0.275
Resistance of the fault loop phase-neutral	$R_{Ph\text{-}N\ fault\ loop}$ [mΩ/m]	1.157	0.771	0.463	0.283	0.181	0.141	0.121
Reactance of the fault loop phase-neutral (50 Hz)	$X_{RPh\text{-}N\ fault\ loop}$ [mΩ/m]	0.480	0.422	0.406	0.310	0.290	0.277	0.276
Voltage drop with distributed load (k)	Δv [V/m/A]10^{-3} cosφ = 0.70	0.564	0.394	0.276	0.179	0.131	0.109	0.102
	Δv [V/m/A]10^{-3} cosφ = 0.75	0.581	0.404	0.279	0.180	0.130	0.108	0.100
	Δv [V/m/A]10^{-3} cosφ = 0.80	0.596	0.412	0.281	0.180	0.129	0.107	0.098
	Δv [V/m/A]10^{-3} cosφ = 0.85	0.608	0.418	0.281	0.179	0.127	0.104	0.095
	Δv [V/m/A]10^{-3} cosφ = 0.90	0.616	0.422	0.277	0.176	0.122	0.100	0.091
	Δv [V/m/A]10^{-3} cosφ = 0.95	0.617	0.419	0.269	0.169	0.115	0.093	0.083
	Δv [V/m/A]10^{-3} cosφ = 1.00	0.576	0.384	0.230	0.141	0.090	0.070	0.060
Joule effect losses at rated current	P [W/m]	51	83	79	78	78	97	134
Fire load	[kWh/m]	1.3	1.3	1.3	1.8	1.8	1.8	1.8
Weight	p [kg/m]	7.4	7.7	8.4	10.7	12.3	13.8	14.7
Outside dimensions of the busbar	LxH [mm]	76x195	76x195	76x195	136x195	136x195	136x195	136x195
Degree of protection	IP	52-55	52-55	52-55	52-55	52-55	52-55	52-55
Mechanical resistance of the casings	IK	10	10	10	10	10	10	10

* Values referred to 0.1 s

Product fully in compliance with the following Standards: IEC 439-1 and 2, IEC 60439 part 1 and 2, DIN VDE 0660 part 500 and 502

Product suitable for these climates:
Constant humid climate (DIN IEC 68 / 2- 3)
Cyclical humid climate (DIN IEC 68 / 2- 30)

Temperature rating schedule according to the room temperature

Room temperature [°C]	15	20	25	30	35	**40**	45	50	55	60
K1 Factor	1.15	1.12	1.08	1.05	1.025	**1**	0.975	0.95	0.93	0.89

multiplier coefficient of rated current for room temperature values different from 40° C

Coordination table with Legrand DPX at page 176

Technical information
MR Copper

MR (3L+N 100% +PE)

Rated current	I_n [A]	**250**	**315**	**400**	**630**	**800**	**1000**
Operating voltage	U_e [V]	1000	1000	1000	1000	1000	1000
Insulation voltage	U_i [V]	1000	1000	1000	1000	1000	1000
Frequency	f [Hz]	50/60	50/60	50/60	50/60	50/60	50/60
Rated short-time current for three-phase fault (1 s)	I_{cw} $[kA]_{rms}$	25*	25*	30*	36	36	36
Allowable specific energy for three-phase fault	I^2t [M A^2s]	63	63	90	1296	1296	1296
Allowable peak current for three-phase fault	I_{pk} [kA]	53	53	63	76	76	76
Rated short-time current for single-phase fault Ph-N (1 s)	I_{cw} $[kA]_{rms}$	15*	15*	18*	22	22	22
Allowable peak current for single-phase fault Ph-N	I_{pk} [kA]	30	30	36	45	45	45
Rated short-time current for single-phase fault Ph-PE (1 s)	I_{cw} $[kA]_{rms}$	15*	15*	18*	22	22	22
Rated peak current for single-phase fault Ph-PE	I_{pk} [kA]	30	30	36	45	45	45
Phase resistance at 20 °C	R_{20} [mΩ/m]	0.237	0.180	0.096	0.061	0.040	0.032
Phase resistance at thermal conditions (In; 40°C)	R_t [mΩ/m]	0.320	0.243	0.129	0.082	0.053	0.043
Phase reactance (50 Hz)	X [mΩ/m]	0.205	0.188	0.129	0.122	0.122	0.120
Neutral resistance at 20 °C	Rn_{20} [mΩ/m]	0.237	0.180	0.096	0.061	0.040	0.032
Neutral reactance (50 Hz)	X_n [mΩ/m]	0.205	0.188	0.129	0.122	0.122	0.120
Resistance of the protective conductor	R_{PE} [mΩ/m]	0.336	0.336	0.336	0.279	0.279	0.279
Reactance of the protective conductor (50 Hz)	X_{PE} [mΩ/m]	0.220	0.220	0.220	0.180	0.180	0.180
Resistance of the fault loop Phase-PE	$R_{Ph\text{-}Pe\ fault\ loop}$ [mΩ/m]	0.657	0.579	0.466	0.361	0.332	0.322
Reactance of the fault loop Phase-PE (50 Hz)	$X_{RPh\text{-}Pe\ fault\ loop}$ [mΩ/m]	0.425	0.408	0.349	0.302	0.302	0.300
Resistance of the fault loop phase-neutral	$R_{Ph\text{-}N\ fault\ loop}$ [mΩ/m]	0.558	0.423	0.225	0.143	0.093	0.074
Reactance of the fault loop phase-neutral (50 Hz)	$X_{RPh\text{-}N\ fault\ loop}$ [mΩ/m]	0.425	0.408	0.349	0.302	0.302	0.300
Voltage drop with distributed load (k)	Δv [V/m/A]10^{-3} cosφ = 0.70	0.321	0.263	0.158	0.125	0.108	0.100
	Δv [V/m/A]10^{-3} cosφ = 0.75	0.326	0.265	0.158	0.123	0.105	0.096
	Δv [V/m/A]10^{-3} cosφ = 0.80	0.329	0.266	0.157	0.120	0.100	0.092
	Δv [V/m/A]10^{-3} cosφ = 0.85	0.329	0.264	0.154	0.116	0.095	0.086
	Δv [V/m/A]10^{-3} cosφ = 0.90	0.327	0.260	0.149	0.110	0.088	0.079
	Δv [V/m/A]10^{-3} cosφ = 0.95	0.319	0.251	0.141	0.101	0.077	0.068
	Δv [V/m/A]10^{-3} cosφ = 1.00	0.277	0.210	0.112	0.071	0.046	0.037
Joule effect losses at rated current	P [W/m]	60	72	62	98	103	128
Fire load	[kWh/m]	1.3	1.3	1.3	1.8	1.8	1.8
Weight	p [kg/m]	9.3	10.2	13.3	18.2	23.9	27.9
Outside dimensions of the busbar	LxH [mm]	76x195	76x195	76x195	136x195	136x195	136x195
Degree of protection	IP	52-55	52-55	52-55	52-55	52-55	52-55
Mechanical resistance of the casings	IK	10	10	10	10	10	10

* Values referred to 0.1 s

Product fully in compliance with the following Standards: IEC 439-1 and 2, IEC 60439 part 1 and 2, DIN VDE 0660 part 500 and 502

Product suitable for these climates:
Constant humid climate (DIN IEC 68 / 2- 3)
Cyclical humid climate (DIN IEC 68 / 2- 30)

Temperature rating schedule according to the room temperature

Room temperature [°C]	15	20	25	30	35	**40**	45	50	55	60
K1 Factor	1.15	1.12	1.08	1.05	1.025	**1**	0.975	0.95	0.93	0.89

multiplier coefficient of rated current for room temperature values different from 40° C

Coordination table with Legrand DPX at page 176

Technical information
TS

Model		MTS 63A	TS 5 70A	TS 5 110A	TS 150 A	TS 250A
Number of live conductors	No.	3P+N+T	3P+N+T	3P+N+T	3P+N+T	3P+T
Casing overall dimensions	A x B [mm]	44.8x57	98x65.5	98x65.5	98x65.5	144x89
Rated current	I_n [A]	63	70	110	150	250
Cross-section of conductors (3P+N)	S [mm²]	12	19	24	43	85
Cross-section of protective conductor eq. Cu	S_{PE} [mm²]	12	19	24	24	120
Operating voltage	U_e [V]	400	600	600	600	600
Insulation voltage	U_i [V]	750	750	750	750	750
Rated frequency	f [Hz]	50/60	50/60	50/60	50/60	50/60
Rated short-time current (0.1 s)	I_{CW} [kA]$_{rms}$	5	9	9	9	11
Allowable peak current	I_{pk} [kA]	7.5	15.3	15.3	15.3	18.7
Thermal limit	I^2t [A^2s x 10^6]	25	81	81	81	121
Phase resistance	R_{20} [mΩ/m]	1.500	0.947	0.785	0.515	0.255
Phase reactance (50Hz)	X [mΩ/m]	1.400	0.059	0.063	0.092	0.161
Phase impedance	Z [mΩ/m]	2.052	0.949	0.788	0.523	0.302
Resistance of the protective conductor	R_{PE} [mΩ/m]	1.500	0.947	0.785	0.515	0.150
Reactance of the protective conductor (50Hz)	X_{PE} [mΩ/m]	0.080	0.100	0.100	0.100	0.120
Resistance of the fault loop	R_o [mΩ/m]	3.000	1.895	1.570	1.030	0.405
Reactance of the fault loop (50Hz)	X_o [mΩ/m]	1.480	0.159	0.163	0.192	0.281
Impedance of the fault loop	Z_o [mΩ/m]	3.345	1.901	1.578	1.048	0.493
$\Delta V_{1F} = \frac{1}{2}(2 R_{20} \cos\varphi + 2 X \operatorname{sen}\varphi)$ Voltage drop with distributed load (k) $\Delta V_{3F} = \frac{\sqrt{3}}{2}(R_{20} \cos\varphi + X \operatorname{sen}\varphi)$	ΔV [V/m/A]10^{-3} cosφ = 0.70	1.775	0.611	0.515	0.369	0.254
	ΔV [V/m/A]10^{-3} cosφ = 0.75	1.776	0.649	0.546	0.387	0.258
	ΔV [V/m/A]10^{-3} cosφ = 0.80	1.767	0.687	0.577	0.405	0.260
	ΔV [V/m/A]10^{-3} cosφ = 0.85	1.743	0.724	0.607	0.421	0.261
	ΔV [V/m/A]10^{-3} cosφ = 0.90	1.698	0.761	0.636	0.436	0.260
	ΔV [V/m/A]10^{-3} cosφ = 0.95	1.613	0.795	0.663	0.449	0.253
	ΔV [V/m/A]10^{-3} cosφ = 1.00	1.299	0.820	0.680	0.446	0.221
Straight element weight	p [kg/m]	1.0	4.0	4.1	4.2	9.8
MAX travelling speed	[m/min]	150	90	90	90	90
Degree of protection	IP	23	20	20	20	20
Joule effect losses at rated current	P [W/m]	17.9	13.9	28.5	34.8	47.8
Ambient temperature min./MAX.	t [°C]	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50

Short circuit protection for Zucchini's product ranges (In≤100A)
Zucchini busbar trunking systems with a rated current lower than or equal to 100A (LB-HL-SL-MS 63 and 100) are properly protected through an MCB (Modular Circuit Breaker) with a nominal current lower than or equal to that of the busbar. This protection is guaranteed up to the MCB breaking capacity.

The busbar trunking systems are FIRE RETARDANT in compliance with CEI 20-22 (IEC 332-3: 1992).

Product fully in compliance with the following Standards: IEC 439-1 and 2, IEC 60439 part 1 and 2, DIN VDE 0660 part 500 and 502

Product suitable for these climates:
Constant humid climate (DIN IEC 68 et 2- 3)
Cyclical humid climate (DIN IEC 68 et 2- 30)

Temperature rating schedule according to the room temperature

Room temperature [°C]	15	20	25	30	35	**40**	45	50	55	60
K1 Factor	1.15	1.12	1.08	1.05	1.025	**1**	0.975	0.95	0.93	0.89

multiplier coefficient of rated current for room temperature values different from 40° C

Coordination table with Legrand DPX at page 176

Determination of the operating current of a busbar

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

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

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

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

where:

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

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

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

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

Room temperature [°C]	15	20	25	30	35	**40**	45	50	55	60
k_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:

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

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

JOULE EFFECT LOSSES

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

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

VOLTAGE DROP

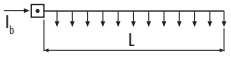
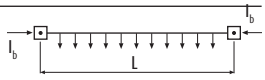
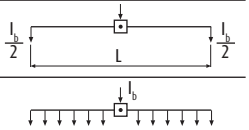
If the length of the line is particularly long (>100m) it is necessary to check the voltage drop (hereinafter specified as v.d.). If the installation is a three phase system and the power factor is not lower than cosφ = 0.7 the v.d. may be calculated with the coefficients of the voltage drop specified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

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

defined

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

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

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

ex: MR 160

I_b=	80A operating current	$\Delta v\% = b \frac{k \cdot I_b \cdot L}{Vn \cdot 10^3} \cdot 100 =$
b=1	supply from one end	
k=0.608	see technical data table	
Cosφ =	0.85	
L=	100m line length	$\frac{0.608 \cdot 80 \cdot 100}{400 \cdot 10^3} \cdot 100 = 1.22\%$
Vn=	400V operating voltage	

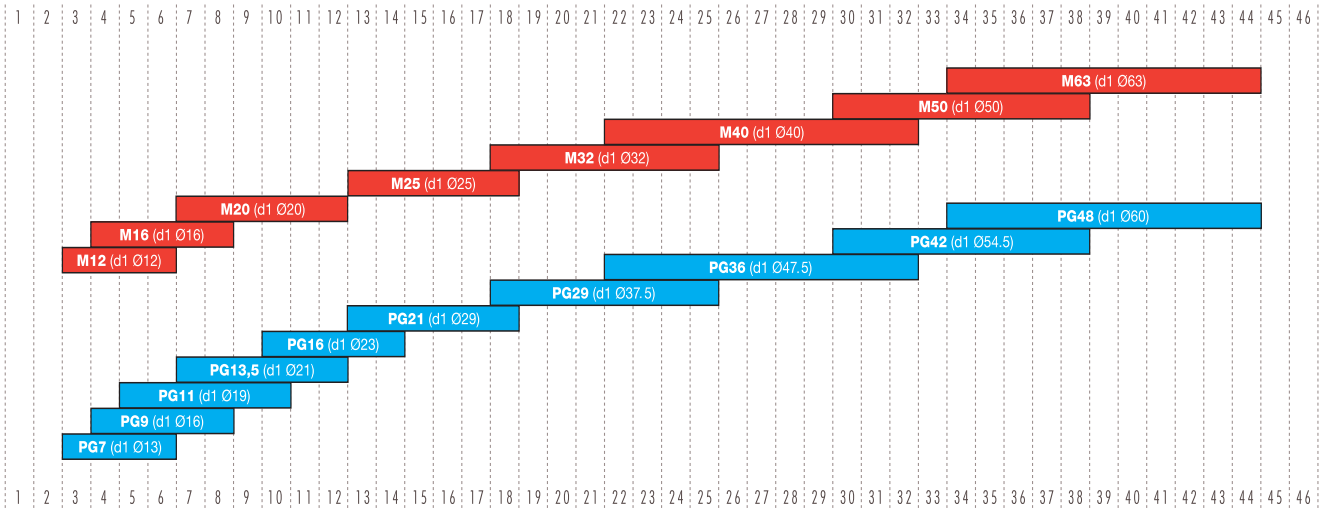
SHORT-CIRCUIT CURRENT

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

Cable glands table

When choosing the cable glands, please refer to the LEGRAND catalogue

Dimension d2 Ø cable [mm]

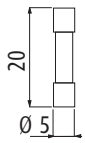


Dimension d2 Ø cable [mm]

Ceramic fuse 5 x 20

Operating features

In = 6.3	1.5 In	2.1 In	2.75 In	4 In	10 In
Operating time	> 1 h	< 30 min	10 ms - 3 s	3 ms - 30 ms	< 20 ms



QUICK FUSE

- I_n = 6.3A
- U_e 250V ceramic fuse IEC 127
- Breaking capacity H 1500A
- Voltage drop ΔV = 150 mV
- I^2t = 48A^2s

When choosing all fuses, please refer to the LEGRAND catalogue

Coordination table with Legrand DPX MCCBs

SL, MS, SB, MR Switch-Busbar coordination table.
Contingent short circuit kA eff. (50/60 Hz - 380/415 V)

	SL 40A	SL - MS 63A	MS 100A	MS MR 160A	MR 250A	MR 315A	MR 400A	MR 500A	MR 630A	MR 800A	MR 1000A
DPX 125 I_{cw}16kA - 40A	16	16									
DPX 125 I_{cw}25kA - 40A	25	25									
DPX 125 I_{cw}36kA - 40A	36	36									
DPX 125 I_{cw}16kA - 63A		16	16								
DPX 125 I_{cw}25kA - 63A		25	25								
DPX 125 I_{cw}36kA - 63A		36	36								
DPX 125 I_{cw}16kA - 100A			16								
DPX 125 I_{cw}25kA - 100A			25								
DPX 125 I_{cw}36kA - 100A			36								
DPX 160 I_{cw}25kA - 160A			25	25							
DPX 160 I_{cw}36kA - 160A			36	36							
DPX 160 I_{cw}50kA - 160A			50	50							
DPX 250ER I_{cw}25kA - 250A				25	25						
DPX 250ER I_{cw}36kA - 250A				36	36						
DPX 250ER I_{cw}50kA - 250A				50	50						
DPX 250 I_{cw}36kA - 250A				36	36						
DPX 250-H I_{cw}70kA - 250A				70	70						
DPX 250-L I_{cw}100kA - 250A				100	100						
DPX 630 I_{cw}36kA - 400A						36	36				
DPX 630-H I_{cw}70kA - 400A						70	70				
DPX 630-L I_{cw}100kA - 400A						100	100				
DPX 630 I_{cw}36kA - 630A								36	36		
DPX 630-H I_{cw}70kA - 630A								70	70		
DPX 630-L I_{cw}100kA - 630A								100	100		
DPX 1250 I_{cw}50kA - 800A									50	50	
DPX 1250-H I_{cw}70kA - 800A									70	70	
DPX 1250-L I_{cw}100kA - 800A									100	100	
DPX 1250 I_{cw}50kA - 1000A										50	50
DPX 1250-H I_{cw}70kA - 1000A										70	70
DPX 1250-L I_{cw}100kA - 1000A										100	100

Note for Lexic mini circuit breakers
The Zucchini Busbar Trunking Systems, specified herein, are protected by Lexic MCBs up to their breaking capacity

Zucchini SpA
Via Conicchio, 34
25136 Brescia - Italy
Tel. + 39 030 2017100
Fax + 39 030 2009726
info@zucchinispa.it
www.zucchinispa.it