



Low-Medium Power



CATALOGUE 08/09



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LOW POWER

EB
EASYBAR

25 - 40A



page 1

LB
LIGHTING BUSWAY

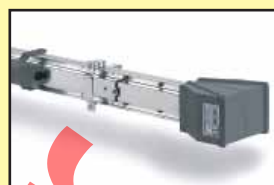
25 - 40A



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HL
HIGH LIGHTING

25 - 40A



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SL
SERIE LUCE

40 - 63A



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MEDIUM POWER

MS
MINI SBARRA

63 - 100 - 160A



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MR
MEDIUM RATING

160 - 1000A



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TS
TROLLEY SYSTEM

63 - 250A



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HIGH POWER

SCP
SUPER COMPACT

630 - 5000A



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CRT
CAST RESIN
TRANSFORMERS

100 - 16.000kVA



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TECHNICAL
INFORMATION

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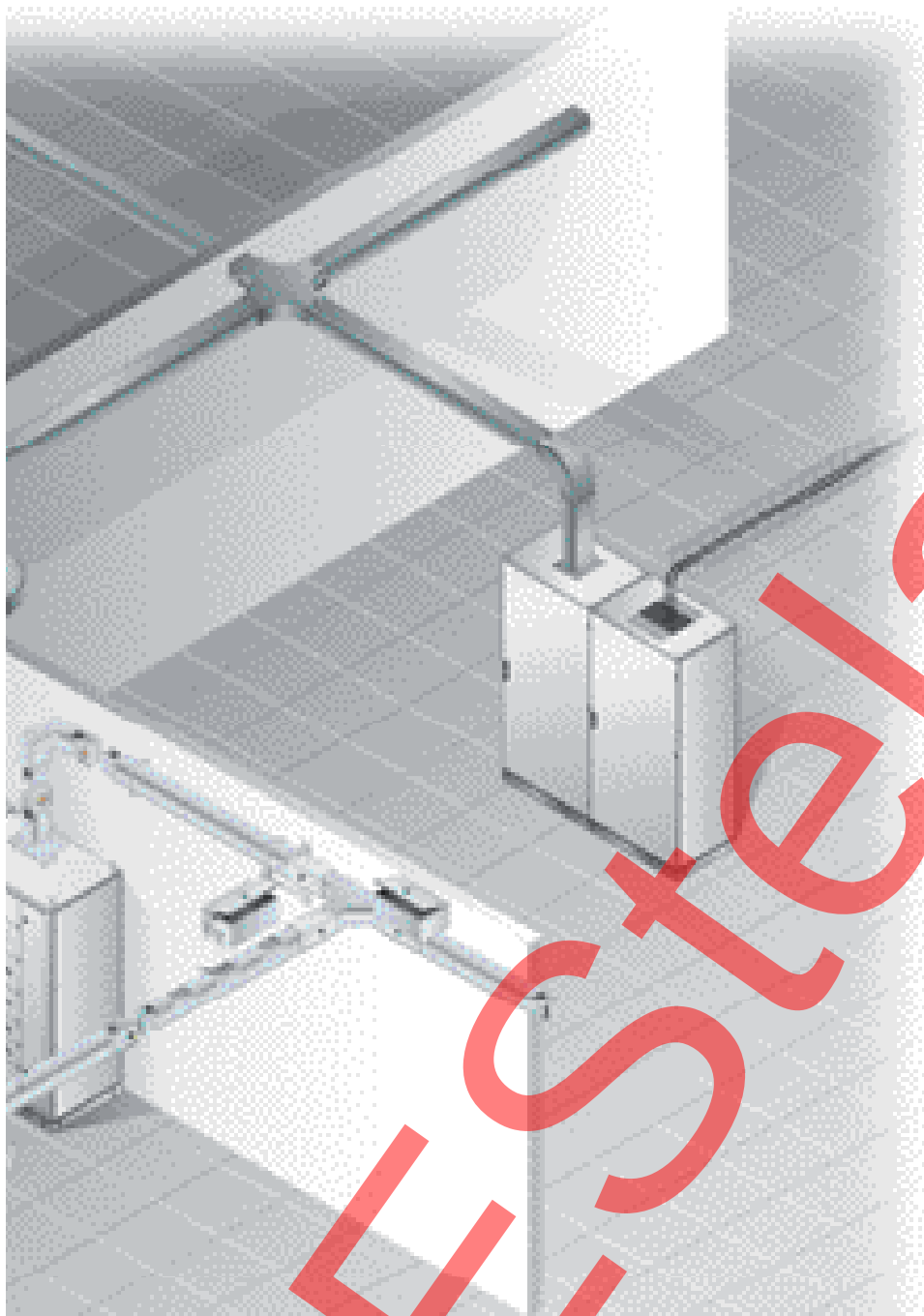


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In a context of accelerated globalization and increasingly complex projects, the support of a reliable and competent partner is absolutely essential, a real key to the success of your company. Choosing the Legrand Group means the assurance of benefiting 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

em



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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.

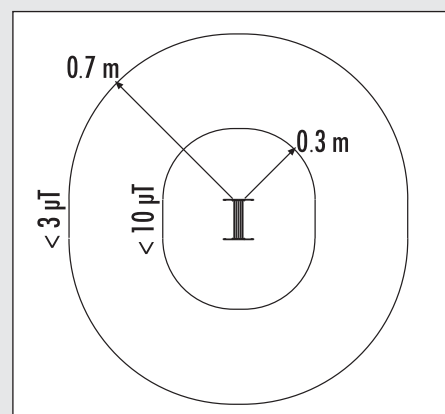
Rated current (A)	Rated voltage (V)	Short-circuit current (kA)	Short-circuit time (s)	Short-circuit energy (MJ)	Short-circuit force (kN)
25	25	25	25	25	25
31.4	31.4	31.4	31.4	31.4	31.4
8.72	8.72	8.72	8.72	8.72	8.72
400	400	400	400	400	400
500	500	500	500	500	500
50/60	50/60	50/60	50/60	50/60	50/60
2.2	2.2	2.2	2.2	2.2	2.2
10	10	10	10	10	10
0.48	0.48	0.48	0.48	0.48	0.48
5.803	5.803	5.803	5.803	5.803	5.803
1.279	1.279	1.279	1.279	1.279	1.279
5.942	5.942	5.942	5.942	5.942	5.942
3.067	3.067	3.067	3.067	3.067	3.067
1.45	1.45	1.45	1.45	1.45	1.45

Example of an electric 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 μ T and the "quality level" limit to 3 μ T. 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



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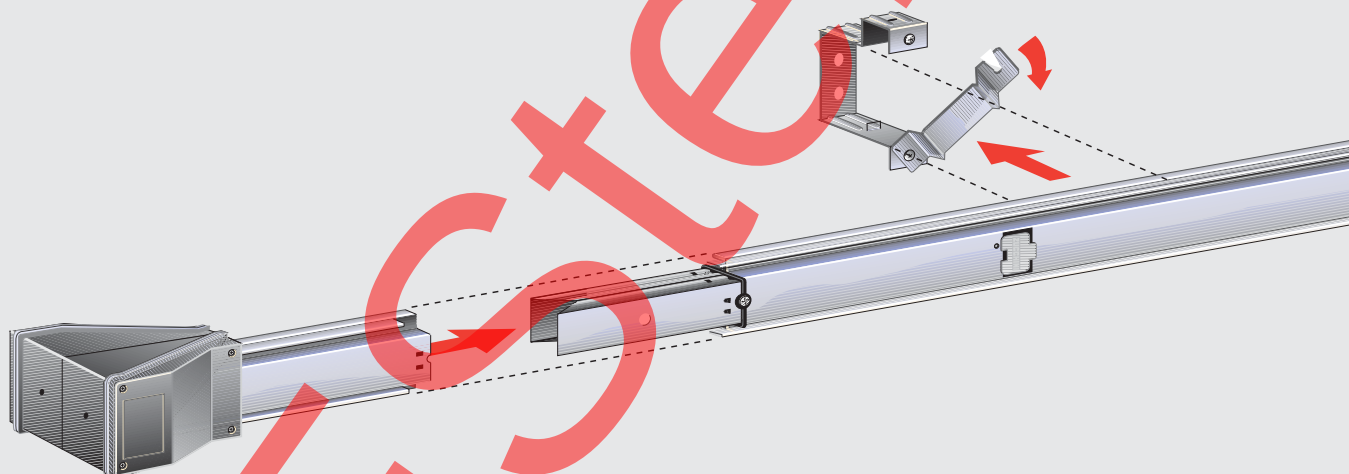
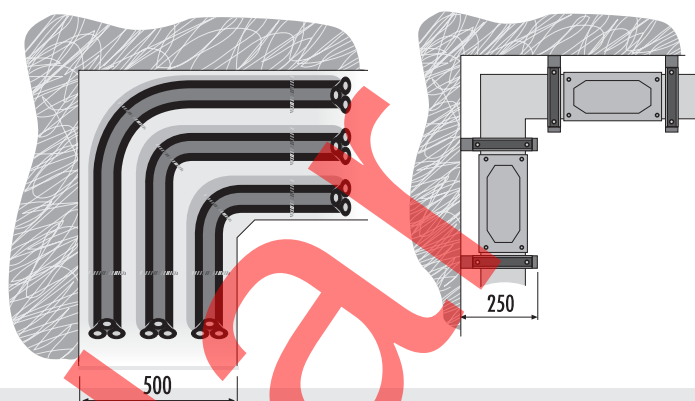


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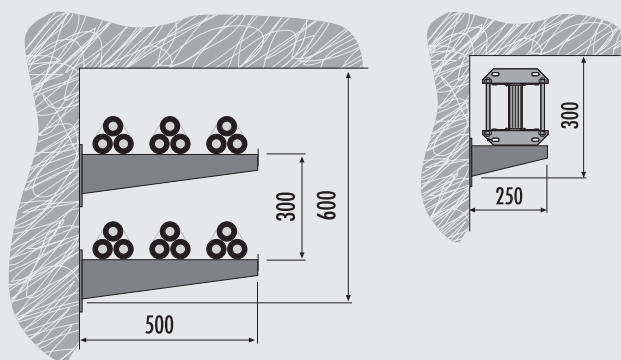
■ QUICK INSTALLATION

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.



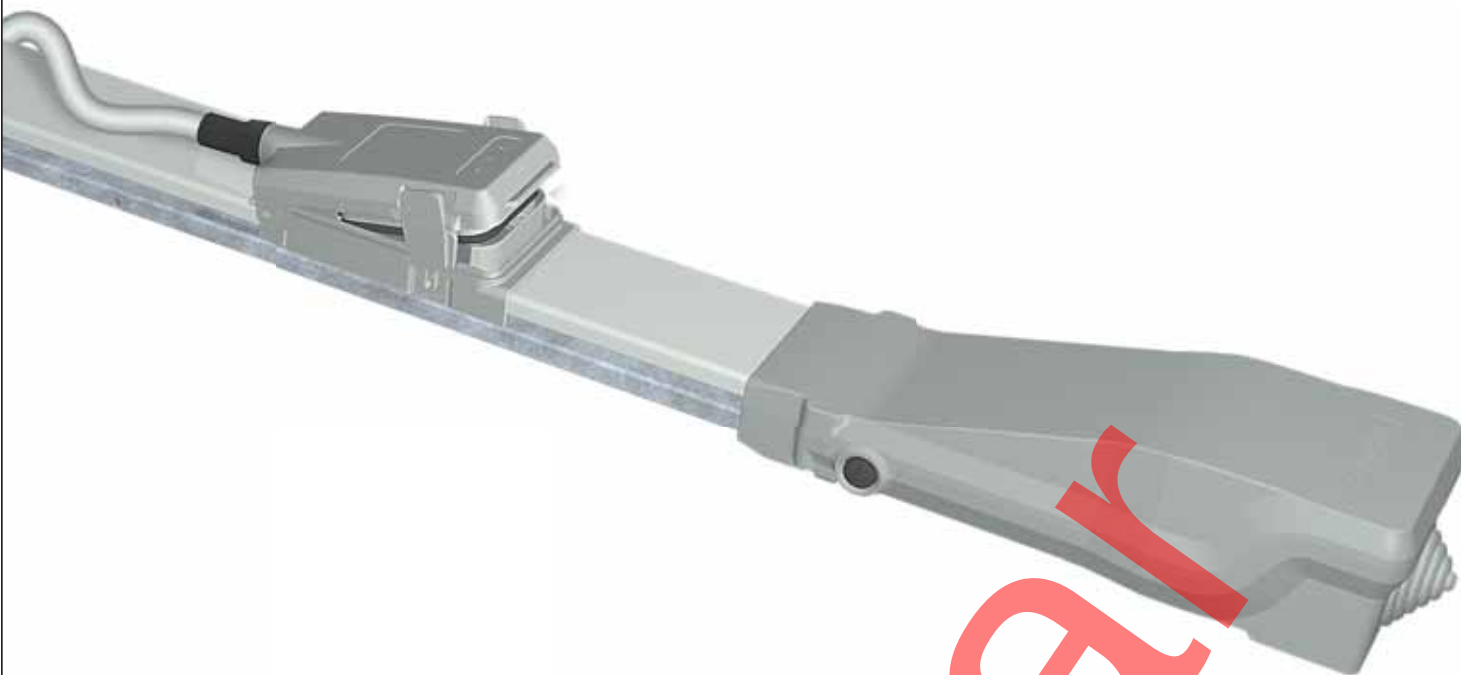


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- 8 The EASYBAR range
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■ FLOOR INSTALLATION

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.



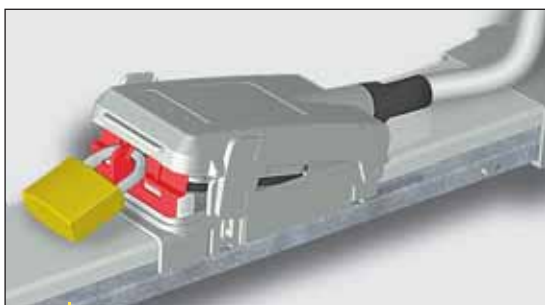


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■ UP TO 7 TAP-OFFS PER METRE

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.



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■ **TRADITIONAL SOLUTION**

- complex
- little flexibility
- long installation time requirements

■ **EASYBAR SOLUTION**

- neat
- fast
- flexible and integrated

Integration with the Cablofil wire cable tray





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■ 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

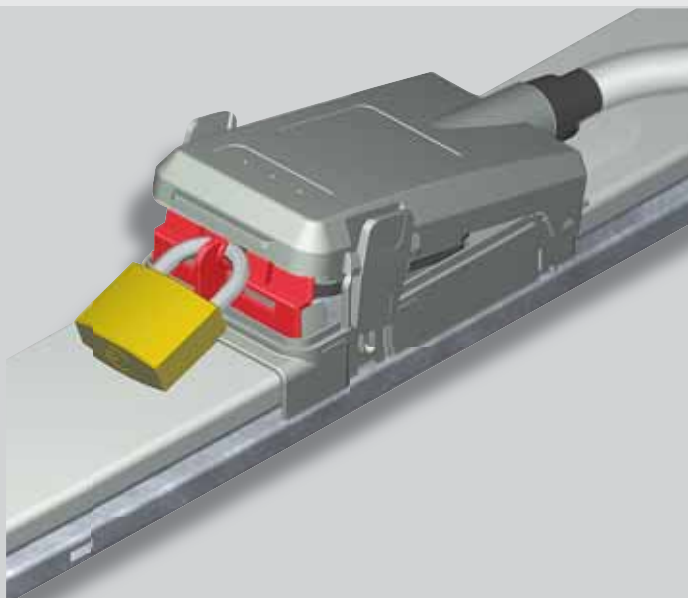
The end cover ensures the IP55 protection degree at the end of the line.



■ 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.





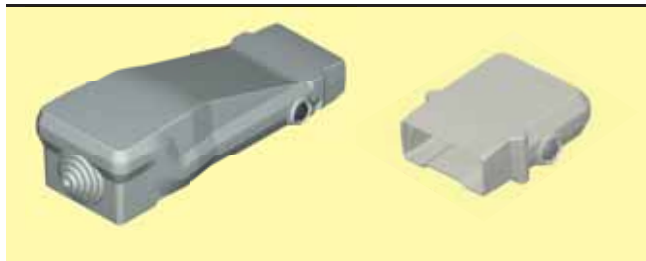
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Installation accessories



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.

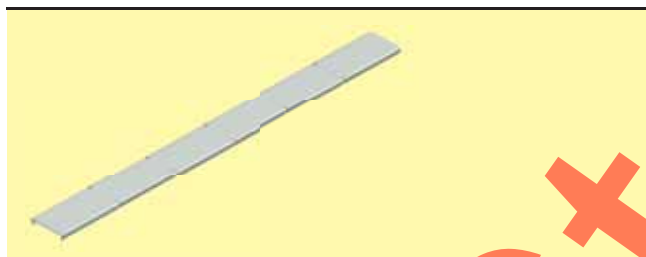
IP55

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

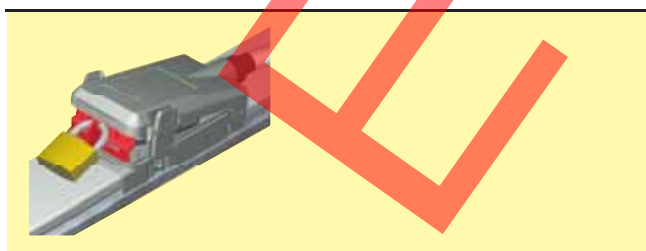
Item	Description
74104001	box with five 0.6 m covers and 10 individual blanking plates. - The 0.6 metre covers have pre-cut modules which allow you to install plugs at any place without removing the whole cover. Snap-on installation - the 10 individual blanking plates allow to recreate the IP55 protection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



CLAMPING BRACKETS

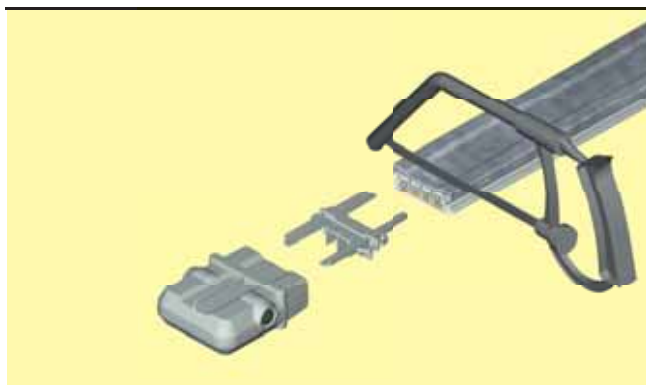
Brackets for fastening the straight elements in raised floors or in false ceilings. Can also be used to attach other material to the busbar

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.



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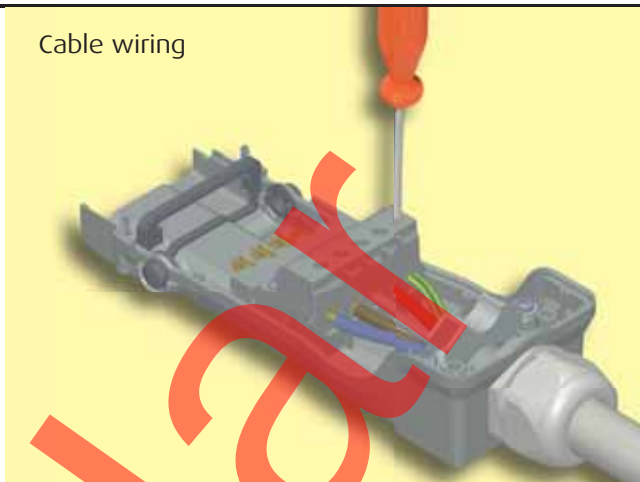


FEED UNIT

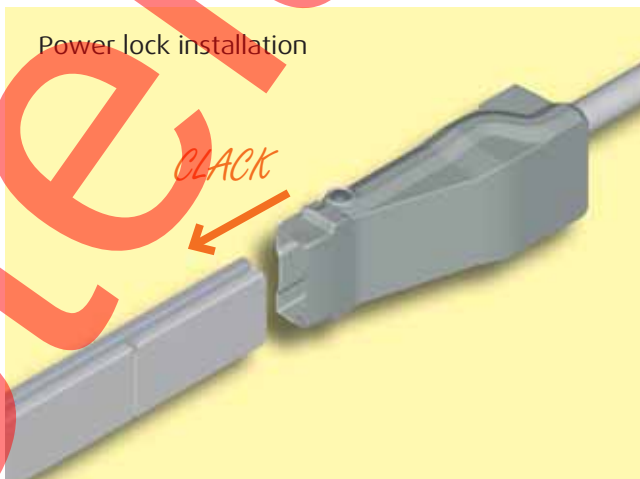
The feed units item 74181001 and item 74181002 can be wired in a few steps:

1. open the feed unit and wire the cables coming from the main line to the busbar by making use of the front
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



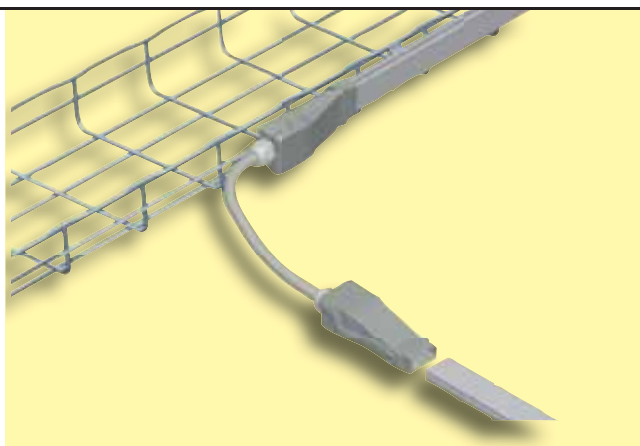
Power lock installation



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





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SYSTEM INTEGRATION

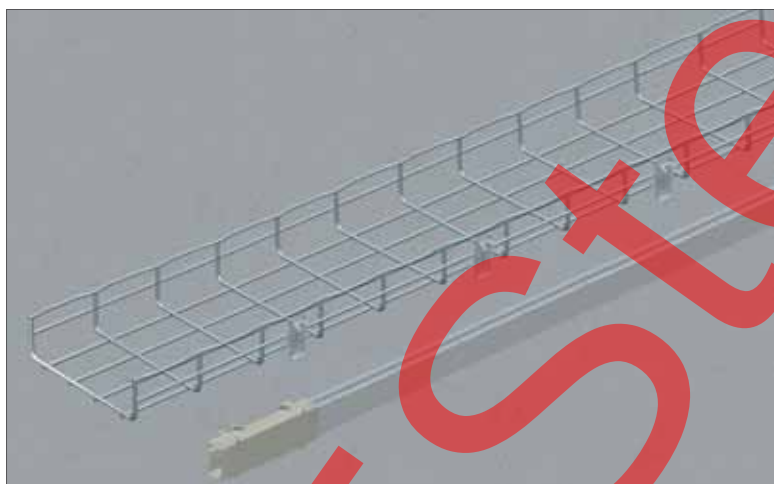
EASYBAR can be combined easily and quickly with the Legrand group cable management systems. Thanks to this integration it is possible to create a complete energy distribution system alongside the VDI structured cabling system with only one installation solution. The integration between the systems occurs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



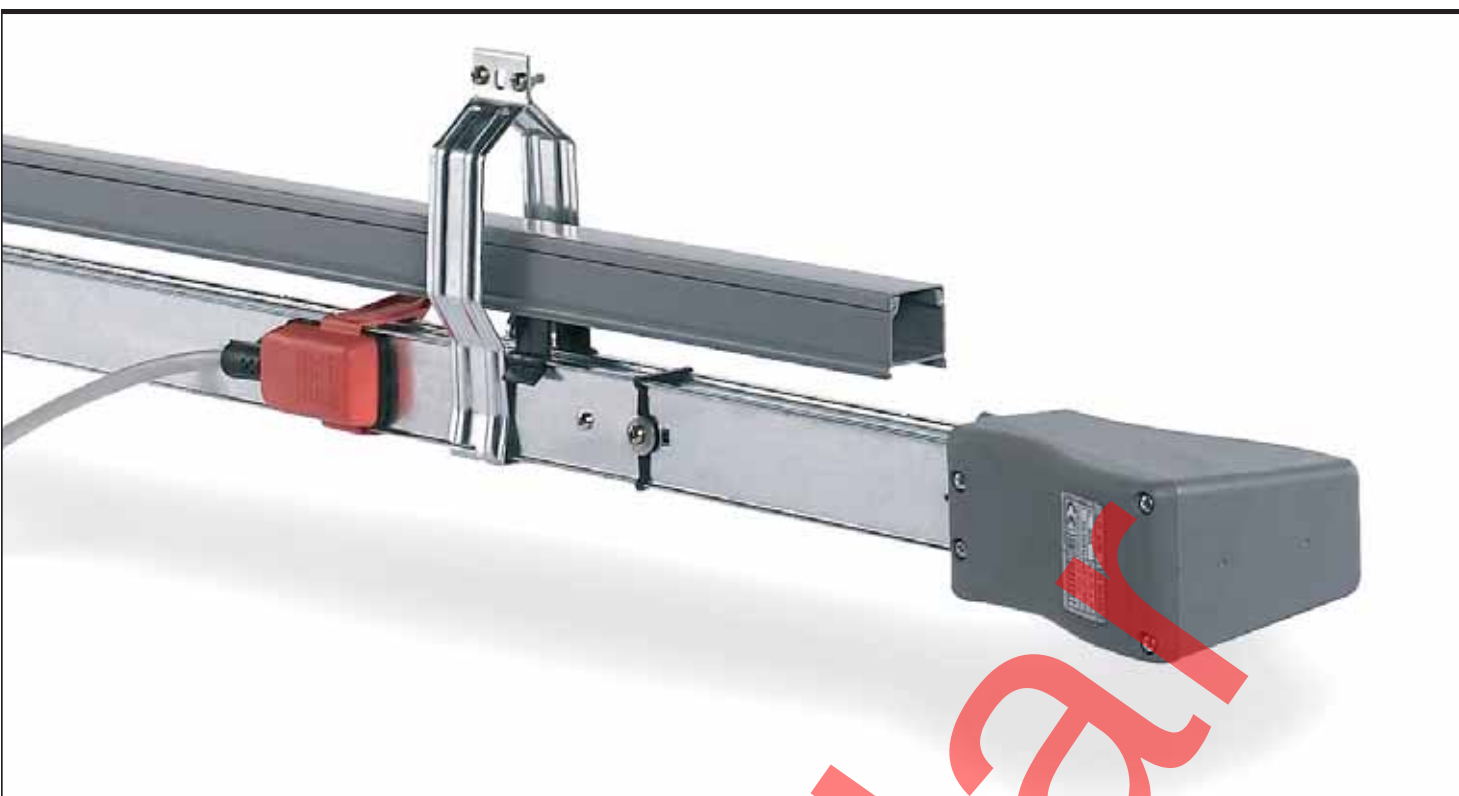


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■ STRAIGHT ELEMENTS

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 mm² for 25A and 6.15 mm² 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



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■ 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 fixture 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:

- 10A pre-wired, pre-positioned phase tap-off plugs with 1m, 3m or 5m of 3x1.5mm² cable;
- 16A phase selection tap-off plugs, with terminals for connecting L+N+PE cable;
- 16A phase selection tap-off plugs, with ø5x20mm cylindrical ceramic fuse and with terminals for connecting L+N+PE cable;
- 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



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Snap-on stainless steel hook, ring and bracket



Simple suspension bracket



Bracket for coupling elements and floor fixing



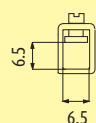
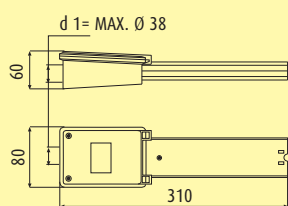
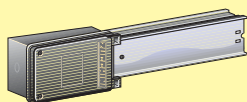


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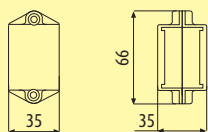
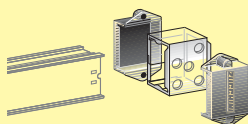
Max. cable
section 25 mm²

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

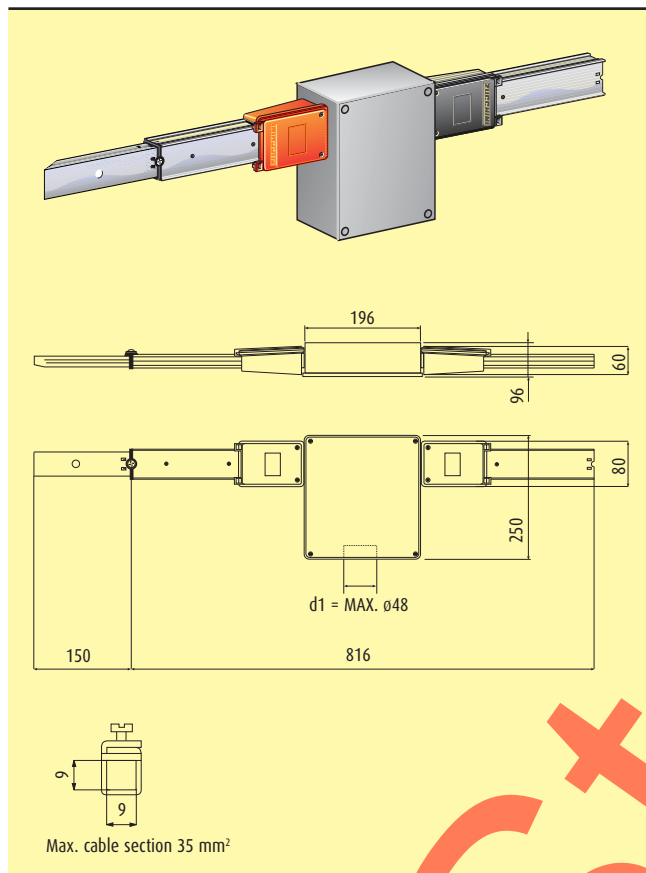


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CENTRE FEED UNIT 25/40A

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

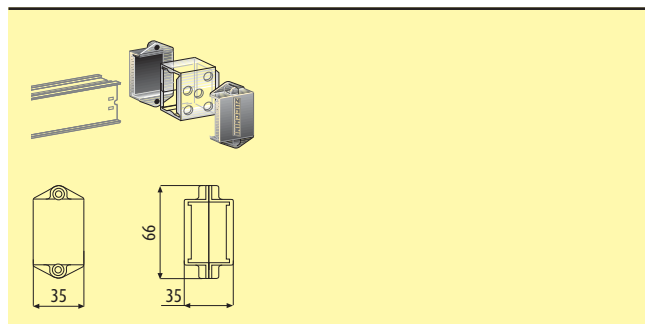


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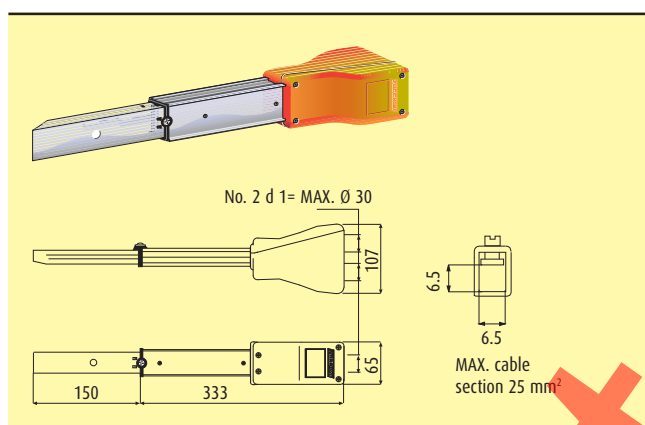




STANDARD END COVER

To be used with standard feed units.

Model	Item	Weight (kg)
All	70101351	0.080

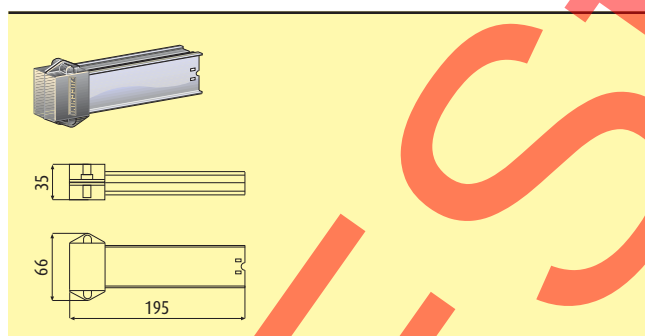


END-LINE FEED UNIT

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

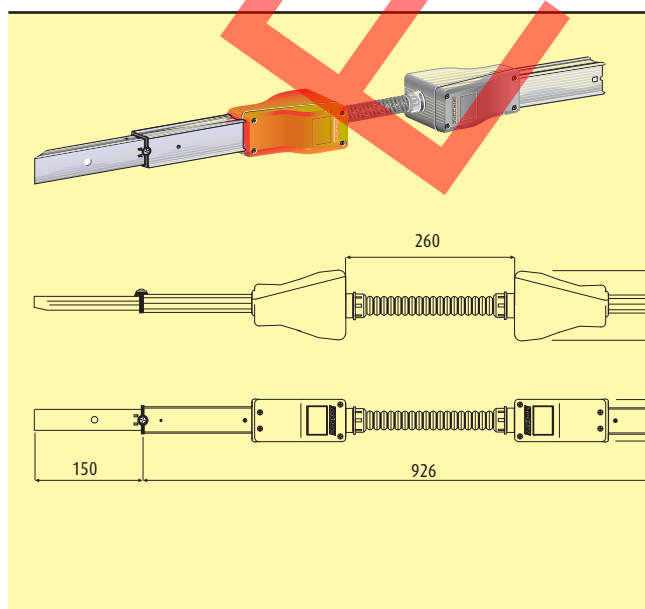
For cable glands see page 175



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



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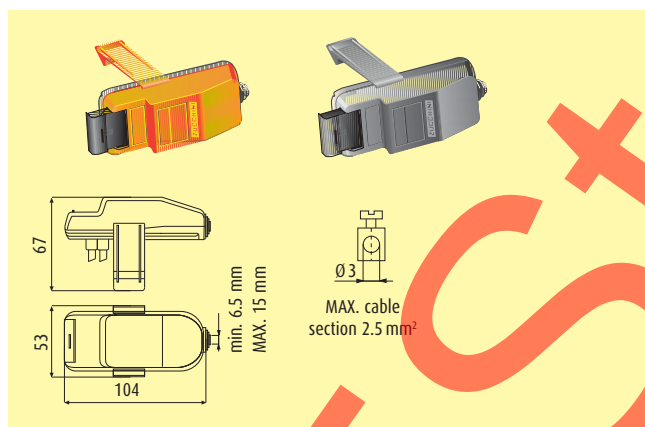
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SAFETY PLUGS

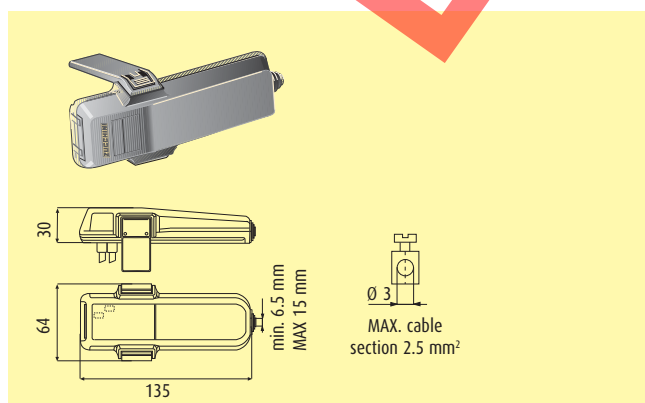
LB Model			Item	Capacity	Fuse	Phase	Cable length	Cable type	Colour	
252	254	256								
402	404	406								
			4 conductors side	Phase selection single-phase plug						
=>	•	•	•	70105030	16A	Ø5x20 6.3A	selectable	-	-	grey
=>	•	•	•	70105031	16A	-	selectable	-	-	grey
	•	•	•	70105130	16A	Ø5x20 6.3A	selectable	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	254	256							
402	404	406							
4 conductors side									
•	•	•	70105071	16A	Ø8.5x31.5	selectable	-	-	grey





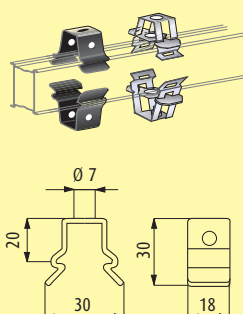
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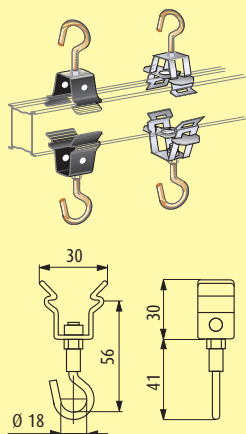
Fixing supports



SNAP-ON BRACKET (MAX. 15 kg)

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

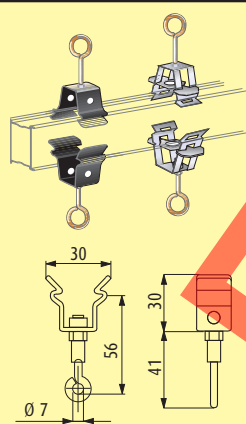
Model	Item	Weight (kg)
Burnished Steel	71003003	0.021
STAINLESS STEEL	71203701	0.021



SUSPENSION HOOK (MAX. 15 kg)

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

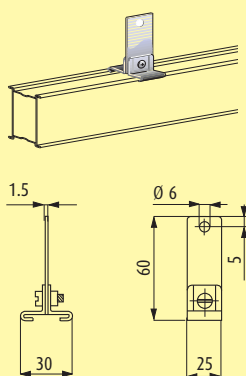
Model	Item	Weight (kg)
Burnished Steel	71005002	0.025
STAINLESS STEEL	71203702	0.025



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



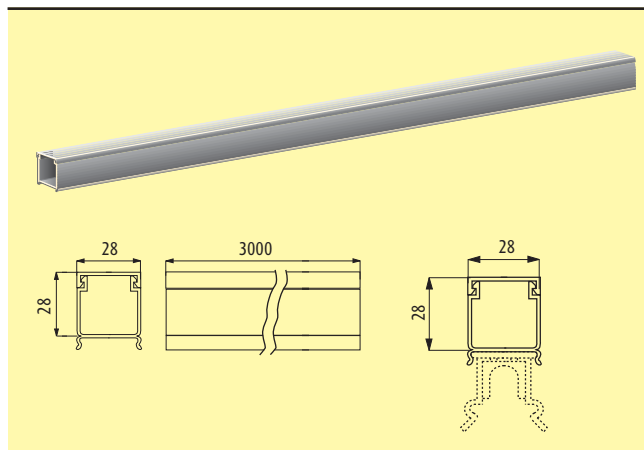
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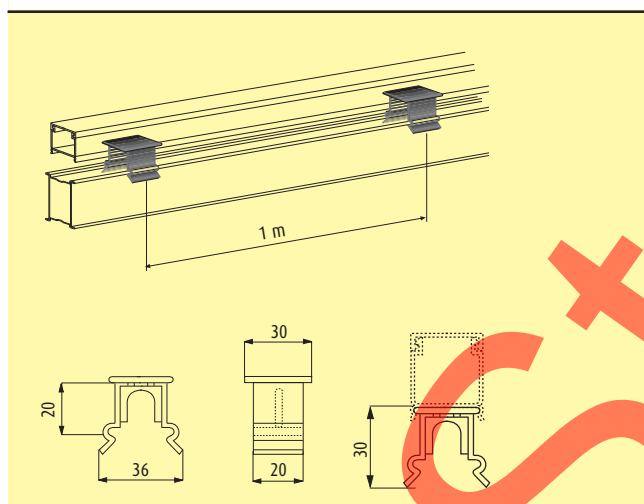


Cable channel and accessories



CABLE CHANNEL WITH COVER (RIGID PVC)

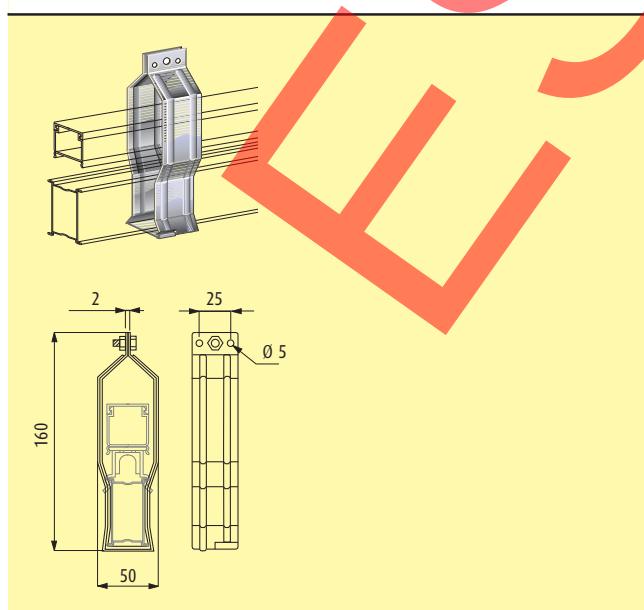
Item	Length [m]	Weight (kg)
71000104	3	0.884



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



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SECTION CONTENTS

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■ 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 mm² for 25A and 6.15 mm² 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 25 or 40A incoming divided into two circuits.



Small/medium industries



Gyms



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■ 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 fixture 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 3x1.5mm² 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

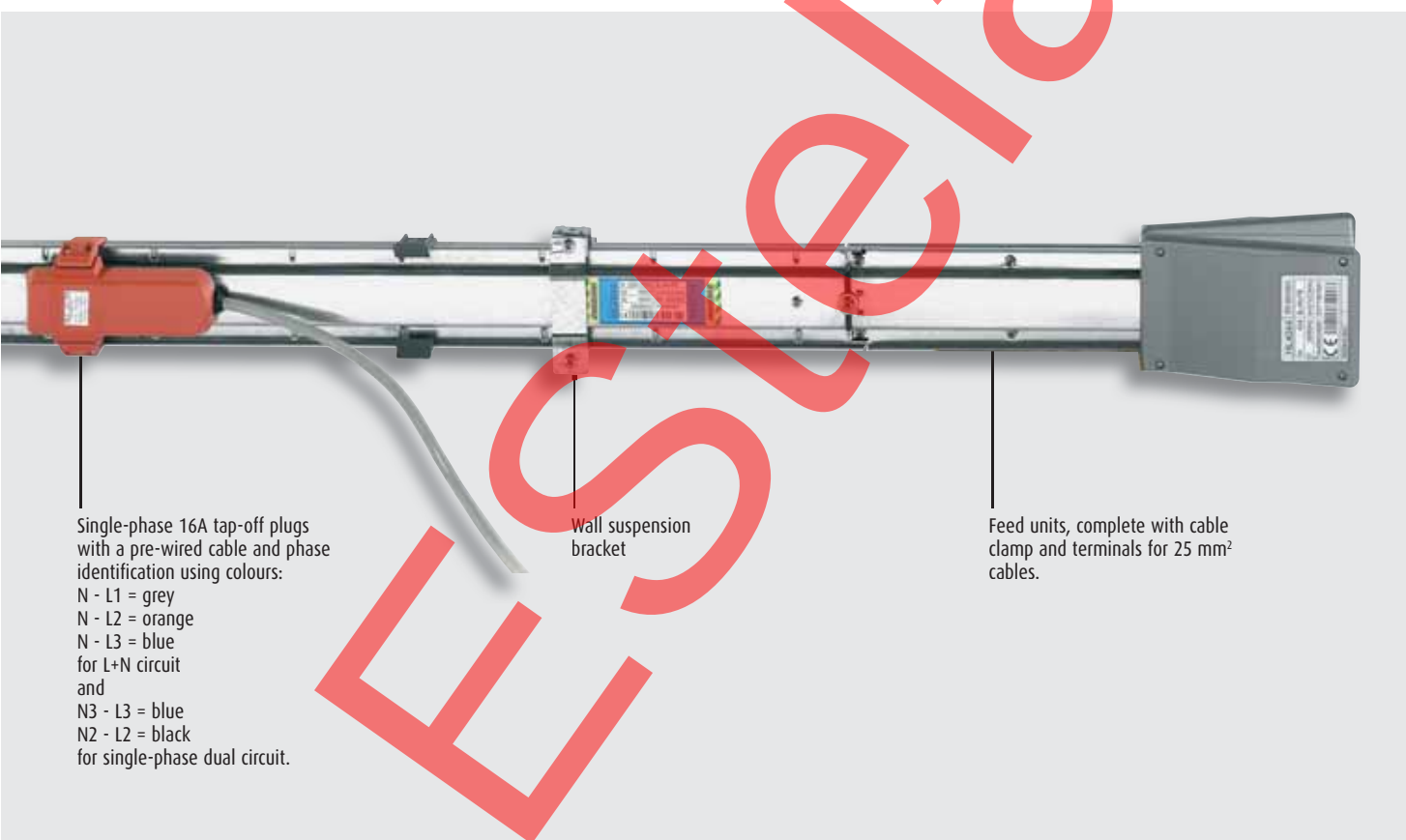


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Wall mounting bracket



Simple suspension bracket



Snap-on stainless steel hook, ring and bracket



Outlet cover (spare)

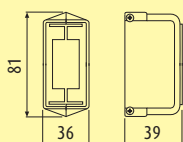


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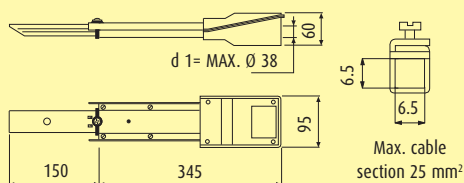
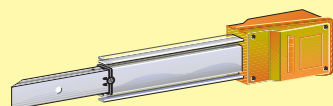
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**STANDARD END COVER**

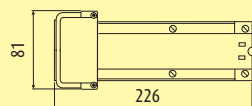
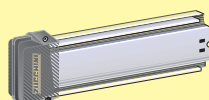
To be used with standard feed units

Model	Item	Weight (kg)
All	71041301	0.050

**END-LINE FEED UNIT**

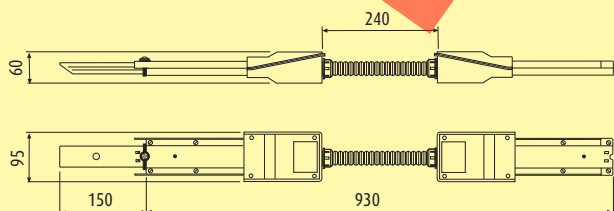
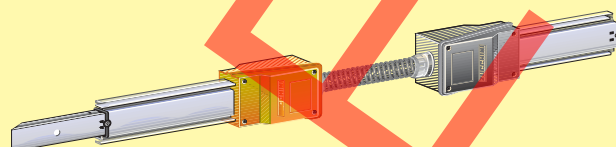
Supplied with an electric and mechanical bayonet connection. It must be installed on the extremity of the element without the bayonet. Can be used when power feed is needed at both ends of a run (less voltage drop) or cabled in association with a standard feed unit to create a flexible element to bypass 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	71041002	0.360

**FLEXIBLE JOINT**

Used to make changes of direction.

Model	Item	Weight (kg)
All	71041261	2.500



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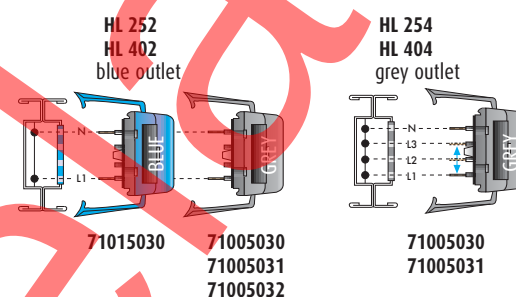
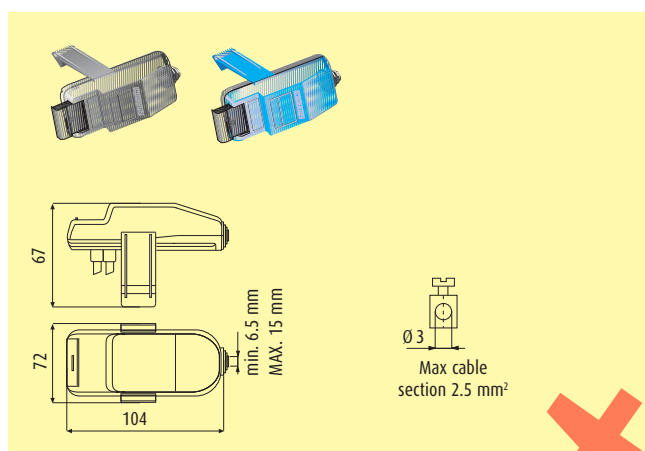
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HLs plugs

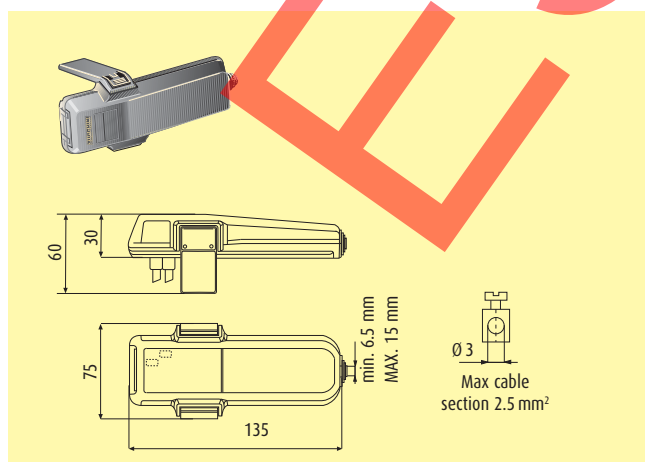
PHASE SELECTION SAFETY PLUGS

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



SINGLE-PHASE PLUGS WITH FUSE CARRIER

Model		Item	Rating	Fuse	Phase	Cable length	Cable type	Colour
252	254							
402	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





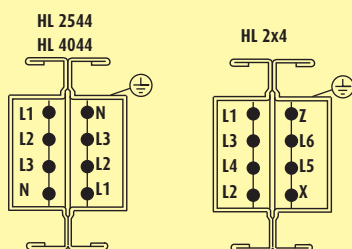
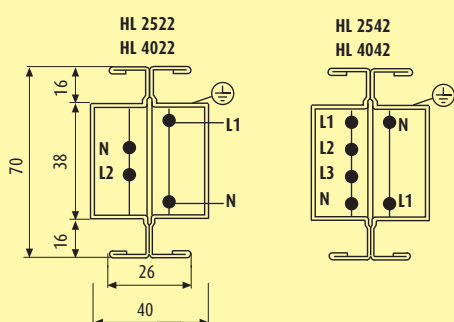
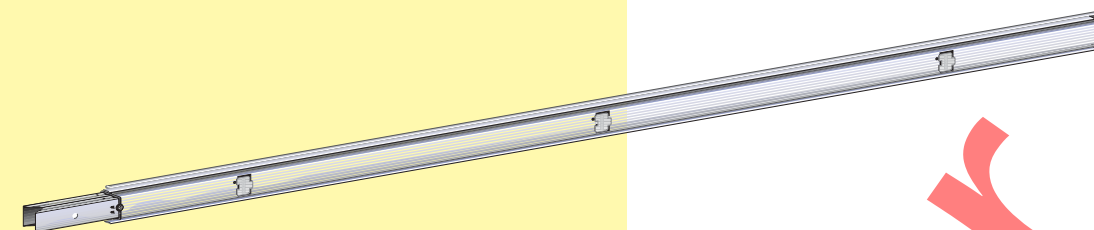
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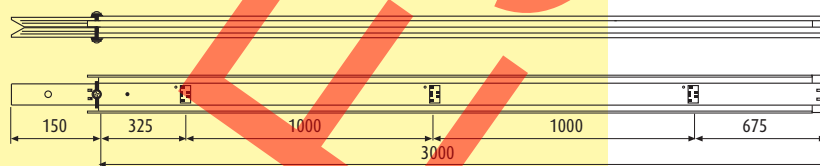
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HLd Trunking components



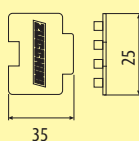
HL 2x4 to create
4 interlocked single-phase circuits



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

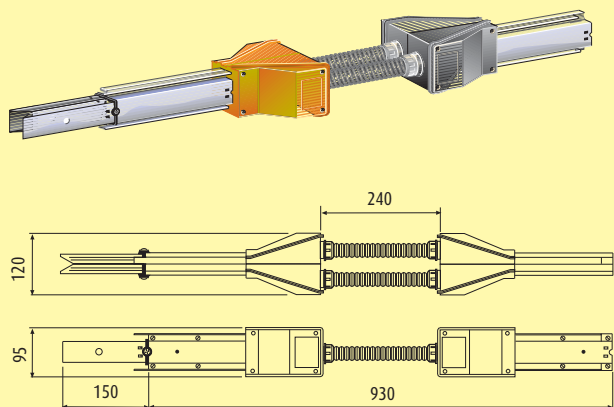


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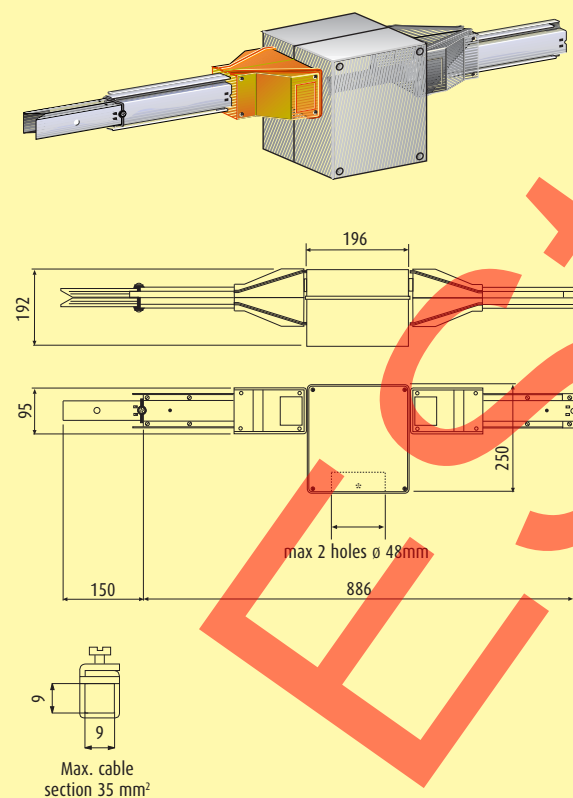
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**FLEXIBLE JOINT 25/40A**

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



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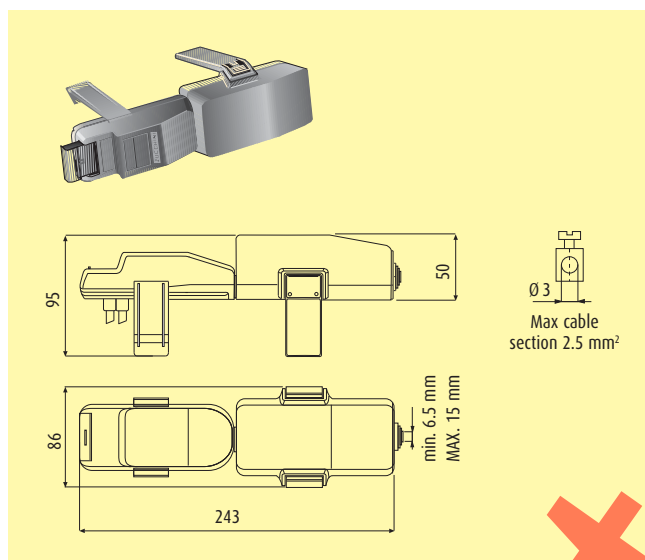


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THREE-PHASE PLUGS WITH FUSE CARRIER

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

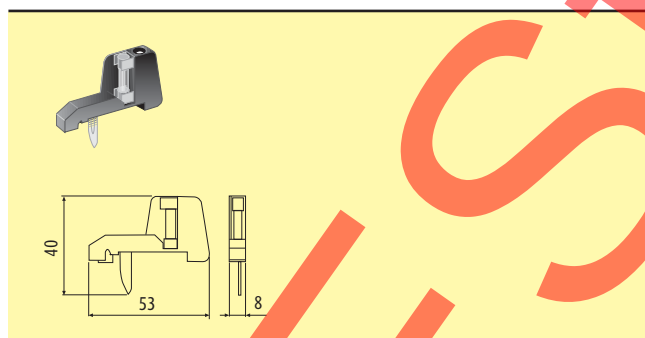


MOVABLE CONTACT

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





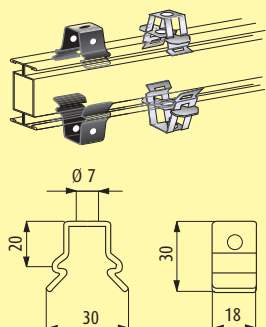
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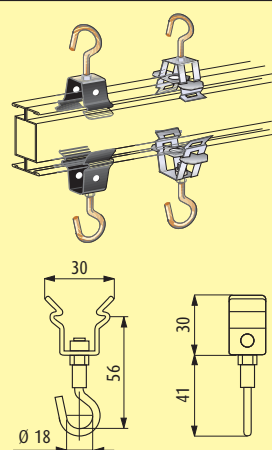


Fixing supports



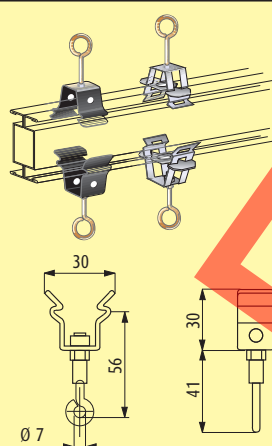
SNAP-ON BRACKET (MAX. 15 kg)

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



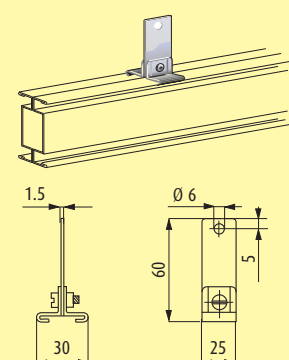
SUSPENSION HOOK (MAX. 15 kg)

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



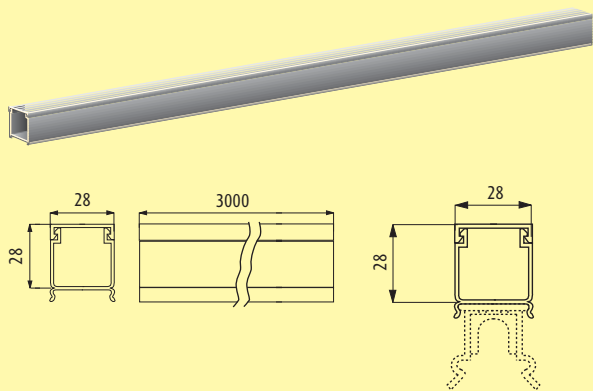
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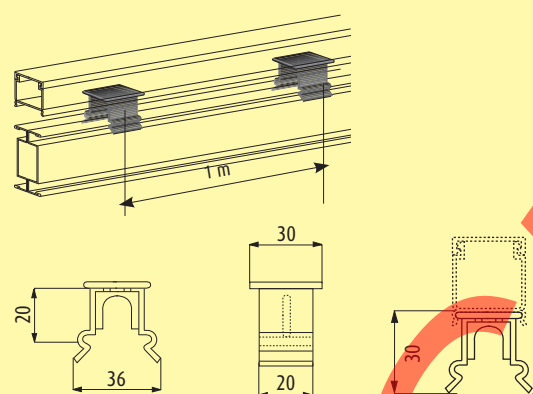


Cable channel and accessories



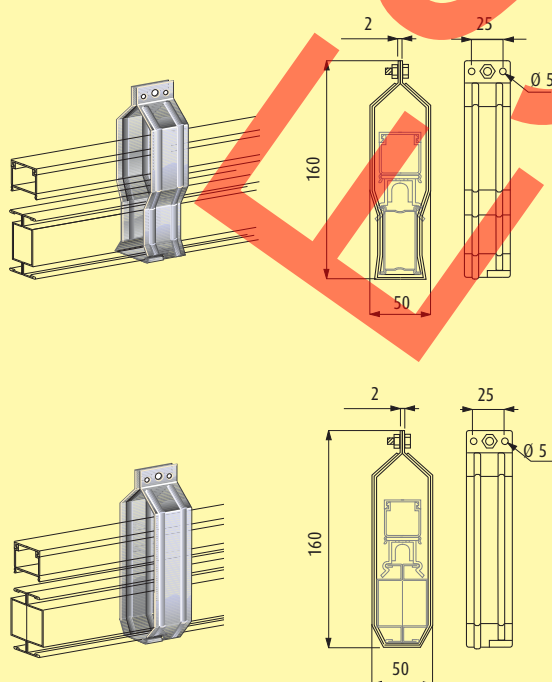
CABLE CHANNEL WITH COVER (RIGID PVC)

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



SPACER FOR CABLE CHANNEL

Item	Weight (kg)
71003007	0.006



HL5 - 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

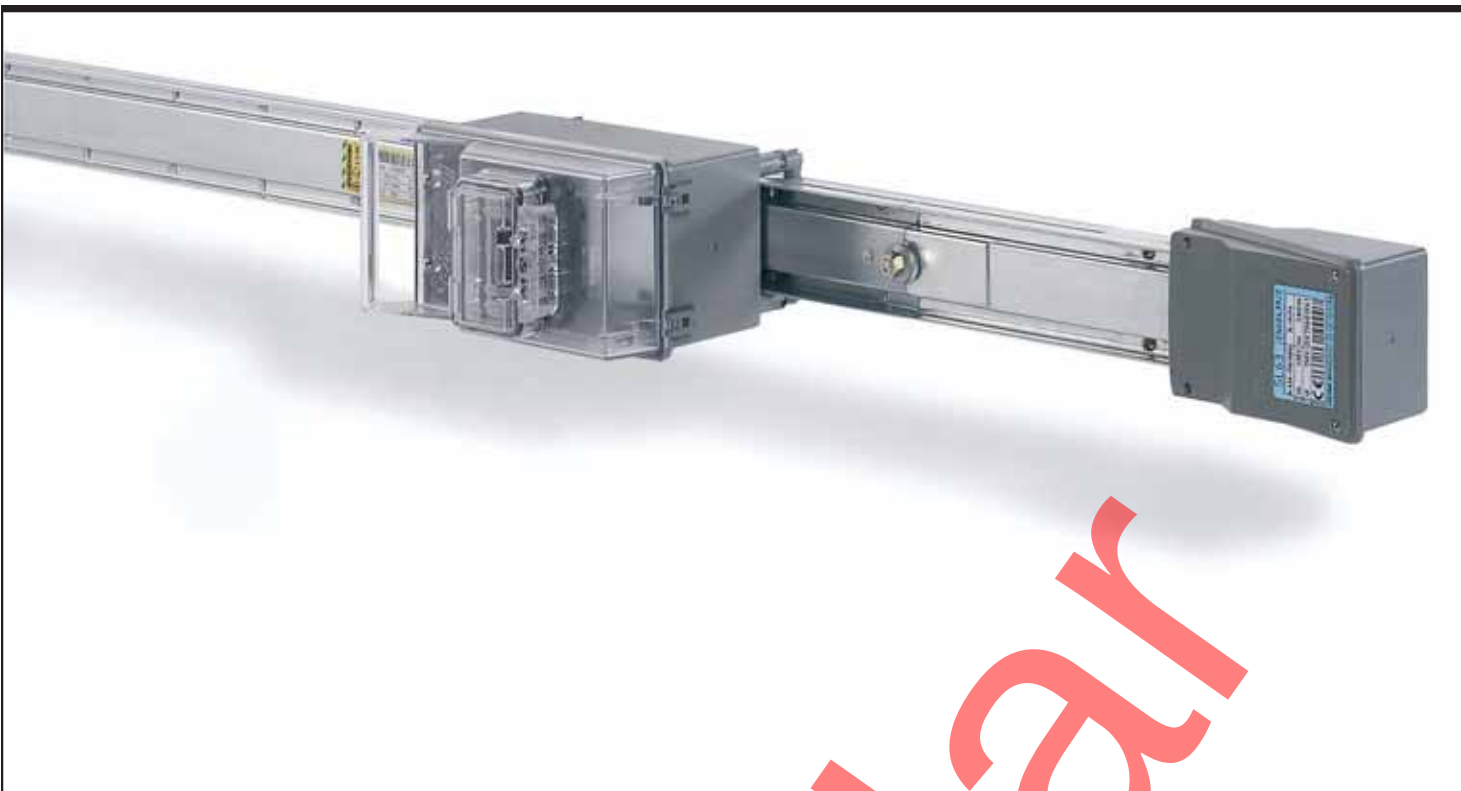


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**SECTION CONTENTS**

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174	Determination of the operating current of a busbar



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■ 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 mm² per In 40A and 12.3 mm² 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



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■ PLUGS AND TAP-OFF BOXES

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

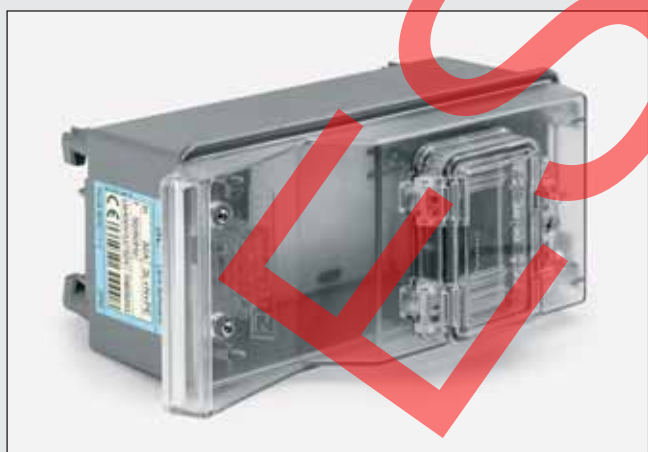
- manoeuvrability when energized;
- the PE contact (protective earth) is the first to make an electrical connection when inserting the plug into the outlet and it is the last to disconnect when pulling it out;
- all insulating plastic components are in compliance with the glow-wire test (IEC 60695-2-10) 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



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Wall mounting bracket



Simple suspension bracket



Snap-on stainless steel brackets



Outlet cover

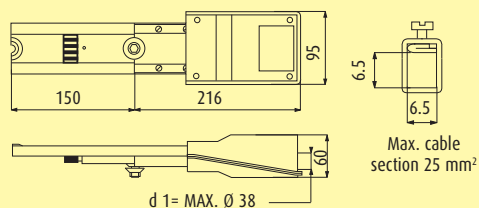
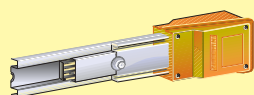


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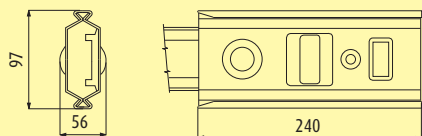
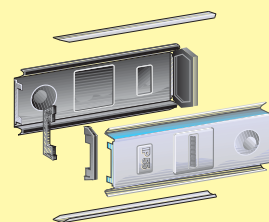
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**END-LINE FEED UNIT**

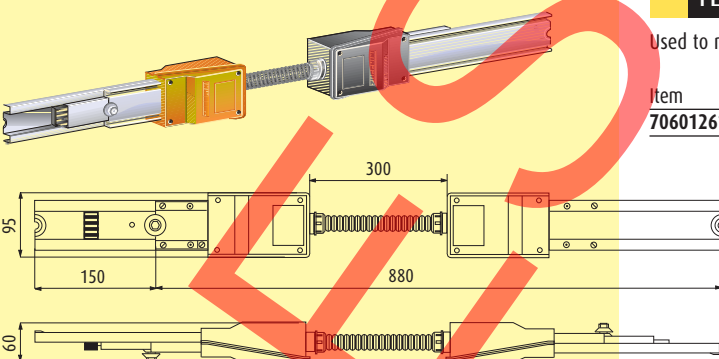
Model	Item	Weight (kg)
IP 55	70601062	0.826

Cable gland selection page 175

**IP55 END COVER**

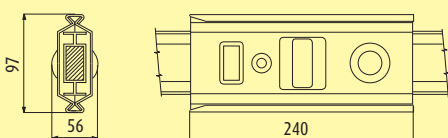
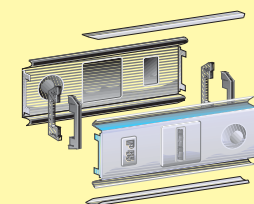
Ensures the IP55 at the end of the line. Used with standard and end-line feed unit.

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



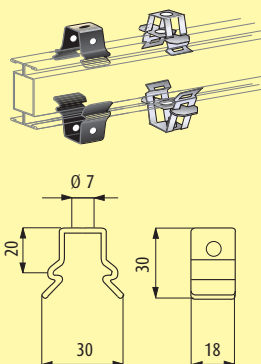
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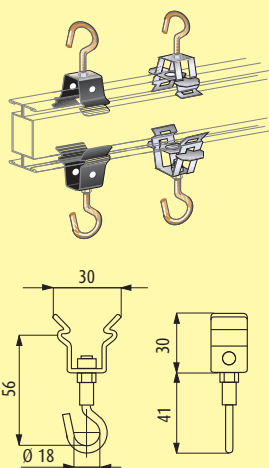
Fixing supports



SNAP-ON BRACKET (MAX 15 KG)

Suspension support to be fixed on the element edges.

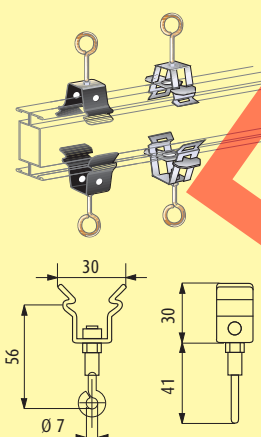
Model	Item	Weight (kg)
Burnished Steel	71003003	0.021
Stainless steel	71203701	0.021



SUSPENSION HOOK (MAX 15 KG)

Suspension support to be fixed on the element edges.

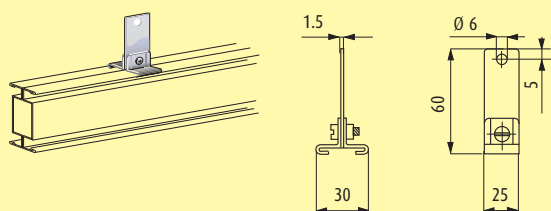
Model	Item	Weight (kg)
Burnished Steel	71005002	0.025
Stainless steel	71203702	0.025



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



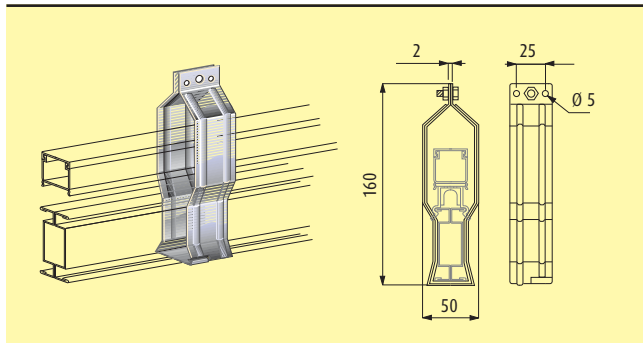
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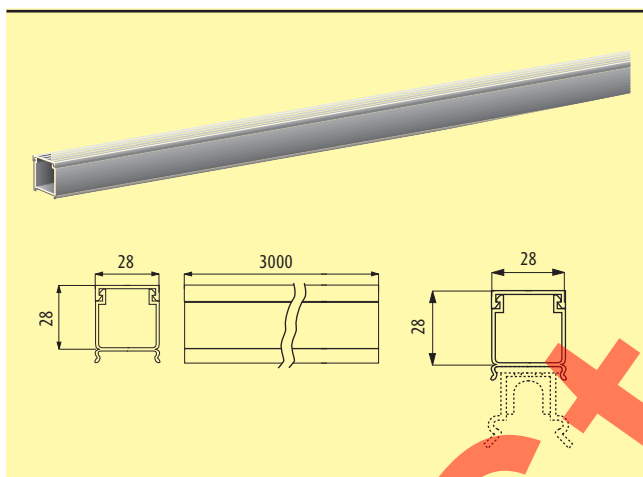
Cable trunking and accessories



SUSPENSION BRACKET FOR CABLE CHANNEL

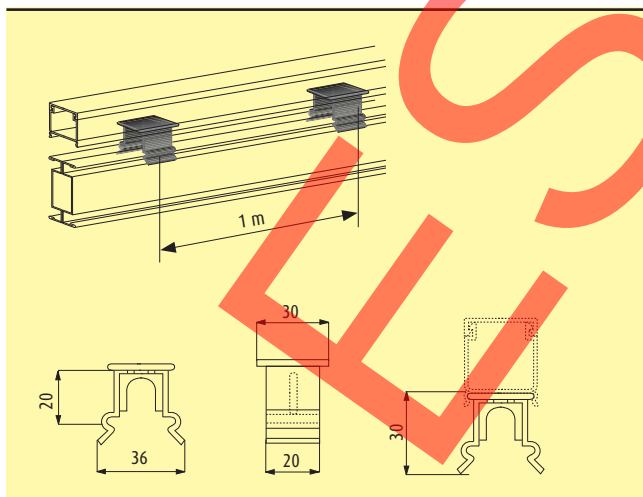
Overhead bracket to be used when the cable trunking is used.

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



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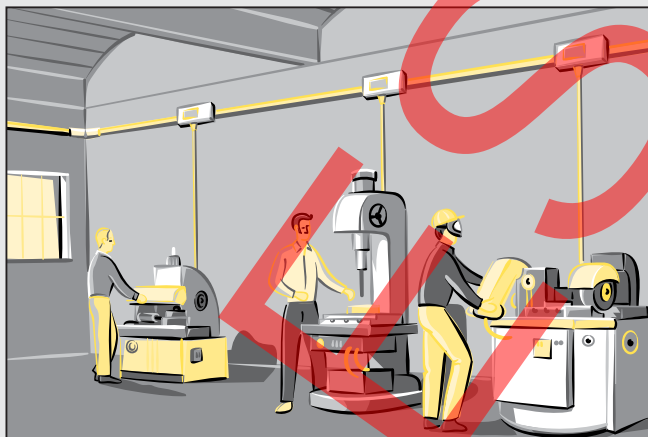
■ STRAIGHT ELEMENTS

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

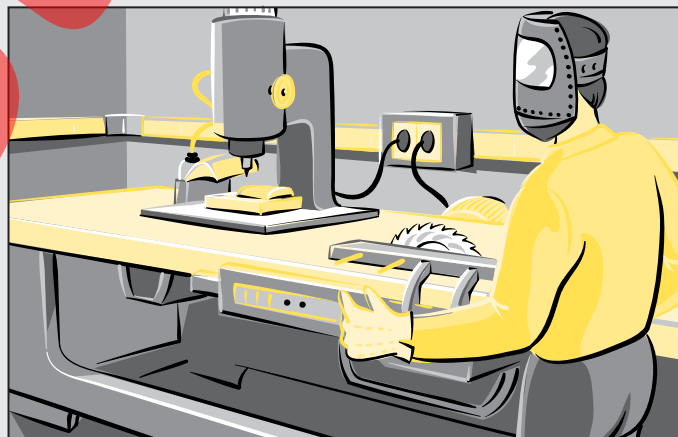
- a casing made of Senzimir quality galvanized steel, with a sheet-metal thickness that allows its use as the protective earth (PE) and ensures the electrical continuity during mounting with no added accessories;
- section bar dimensions: 39x97mm;
- number of conductors: 4 with the same section 3P+N 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



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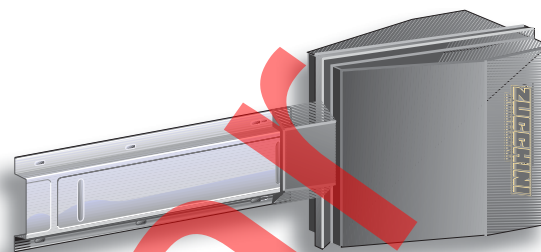
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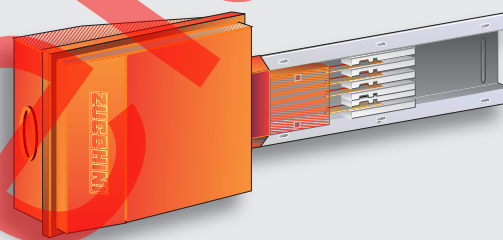
■ FEED UNIT

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 mm² for the 63/100A feed unit and 70 mm² 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.



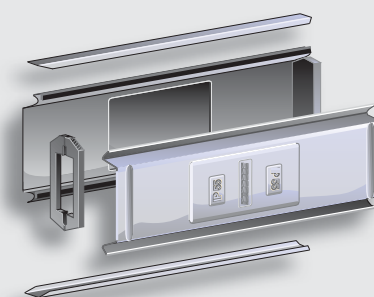
Standard feed unit



End-line feed unit

■ END COVER

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



End cover



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Tap-off boxes



Tap-off box complete with terminals for cables of up to 25 mm². 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.



IP55 gasket and joint cover



End cover

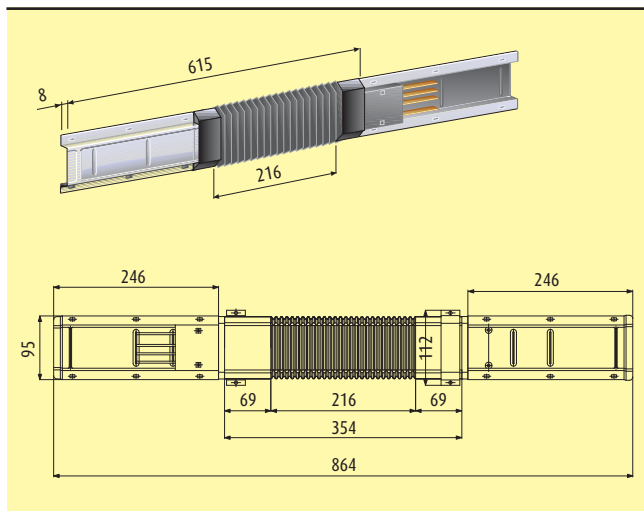


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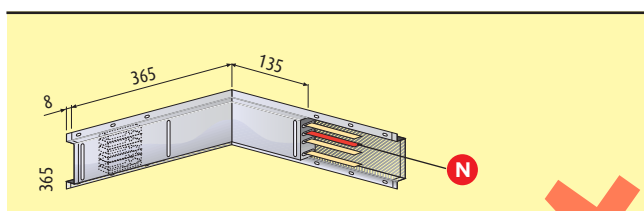
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**FLEXIBLE JOINT**

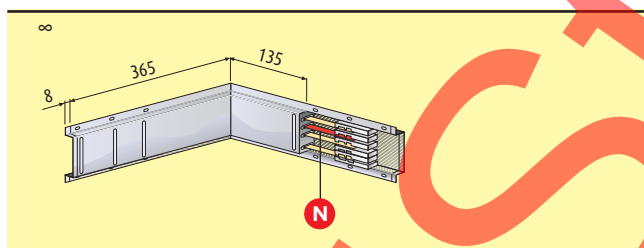
Enables you to make horizontal and vertical changes of direction

Model	Item
MS63	51511261
MS100	51511261
MS160	51521261

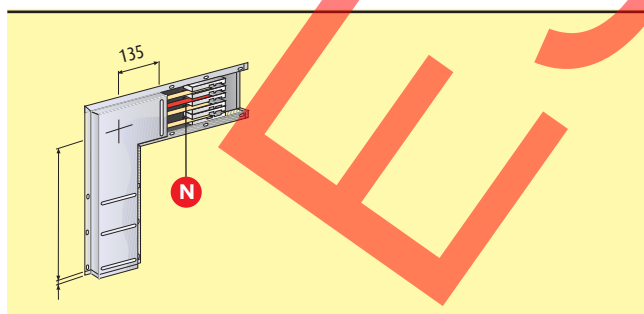
**RIGHT HORIZONTAL ELBOW**

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

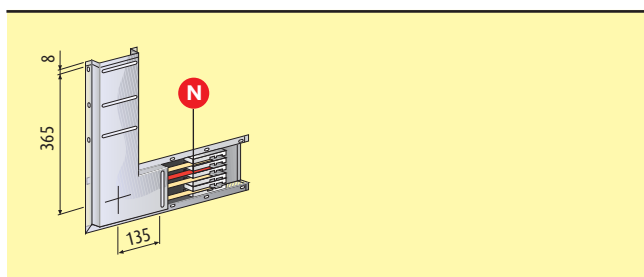
The R and L elbows are different due to the position of the linking block.

**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



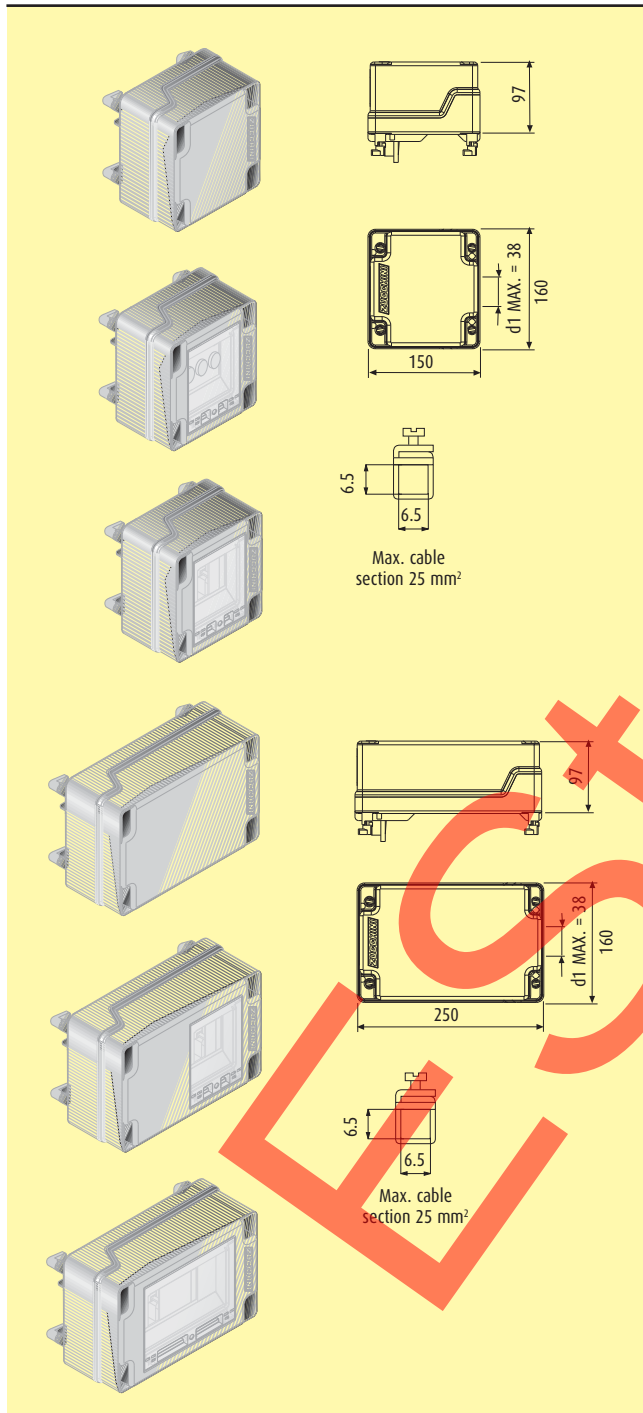
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Tap-off boxes



TAP-OFF BOXES

Energy withstand 400.000 A²s
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

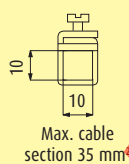
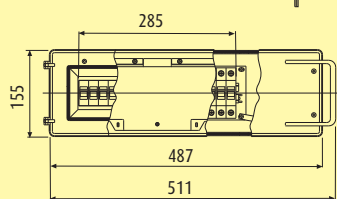
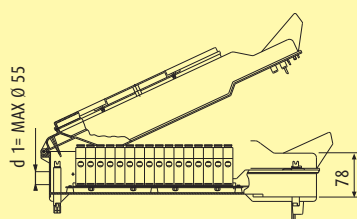
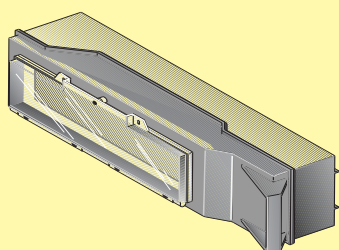


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**WITH DOOR FOR 16 DIN MODULES**

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

Energy withstand 400.000 A²s

MAX power loss 20W

Cable gland selection page 175

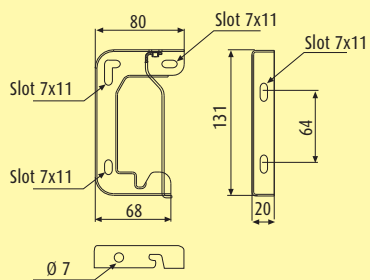
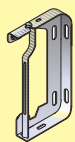


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**SUSPENSION BRACKET**

Model	Item	Weight (kg)
All	51002002	0.100

1 bracket every 2 metres



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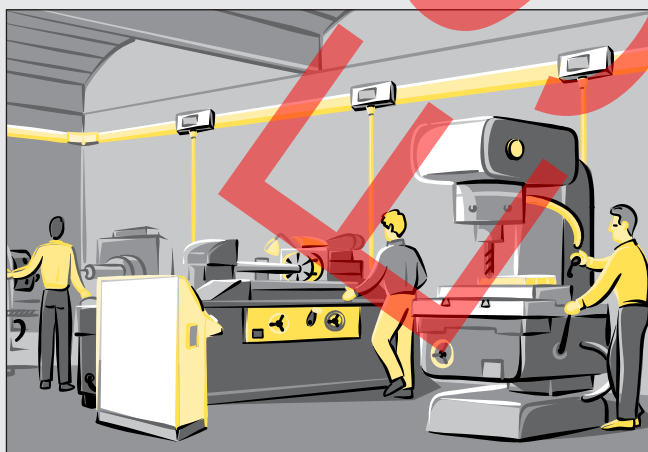
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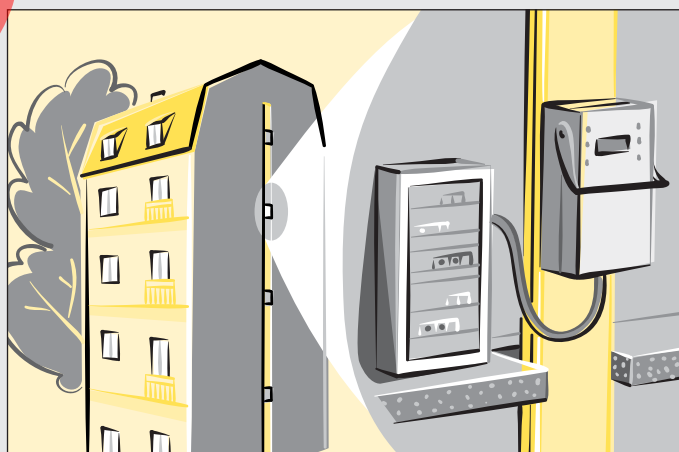
■ STRAIGHT ELEMENTS

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



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■ 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 disconnecter 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 disconnecter and fuse carrier
 - with MCCBs



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



Tap-off box with integrated disconnecting device



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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 disconnect

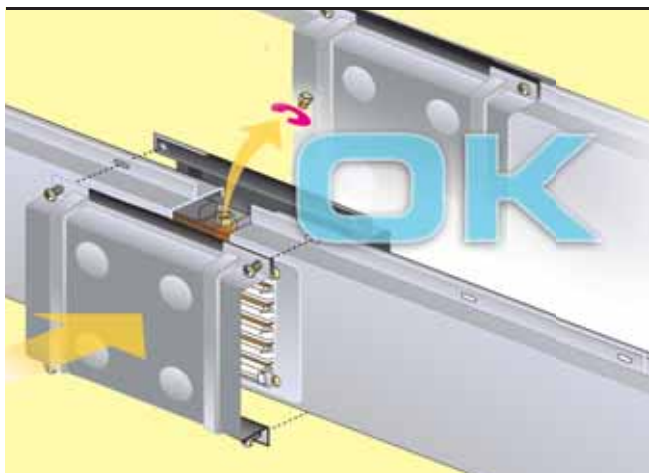


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CONNECTION FLANGES

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.



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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

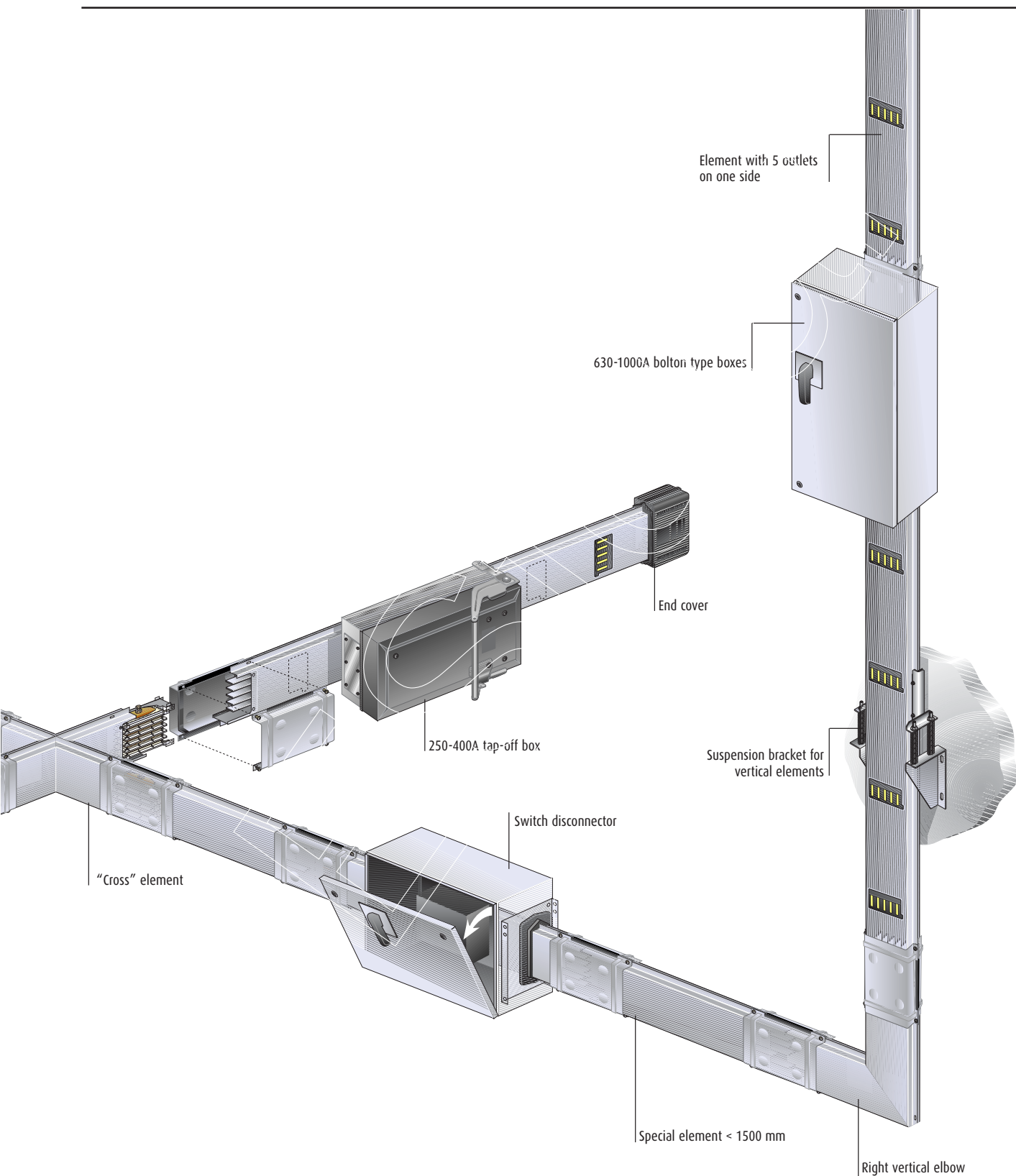


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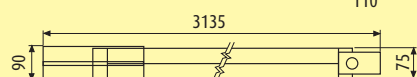
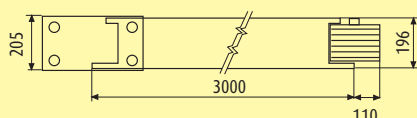
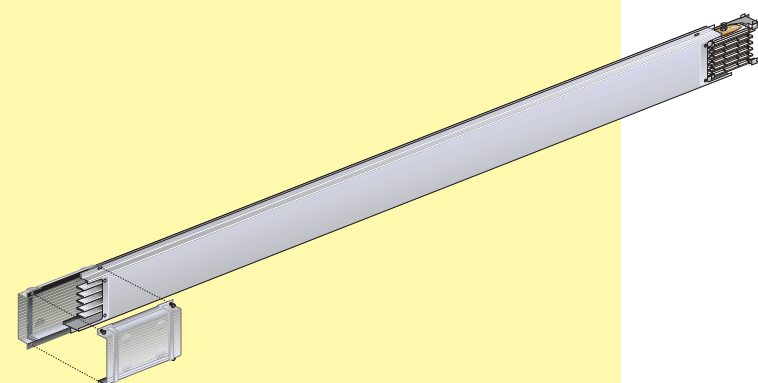
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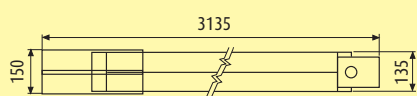
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Table	Conductors	Casing	Code
MR	 4	Galvanized	---0---
MRf	 5	Galvanized	---1---
MR-P	 4	Painted	---2---
MRf-P	 5	Painted	---3---



160-315A Al • 250-400A Cu



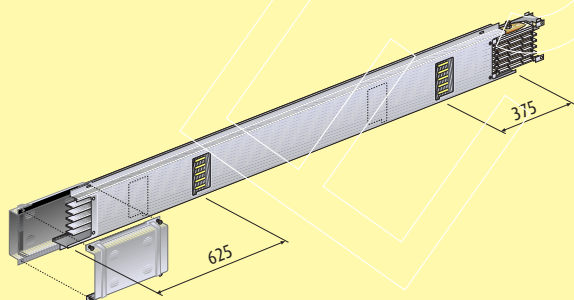
400-800A Al • 630-1000A Cu

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

MR
MEDIUM RATING



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).

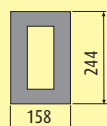
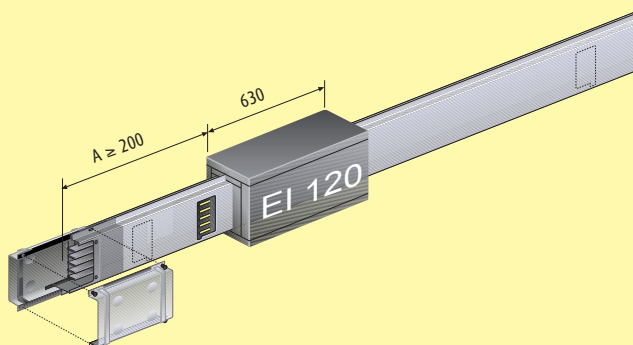


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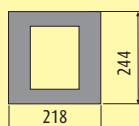


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554EFB01
160 - 315A Al
250 - 400A Cu



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.

	Aluminium		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



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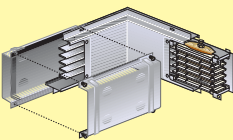
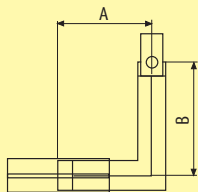
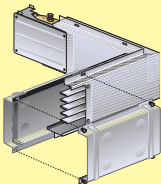


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**Table
Conversion
Code**

	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]

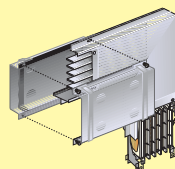
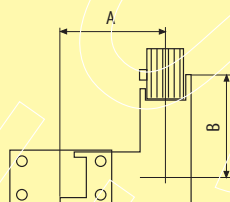
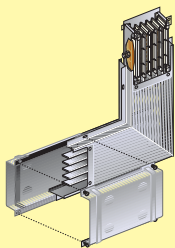
min MAX

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).



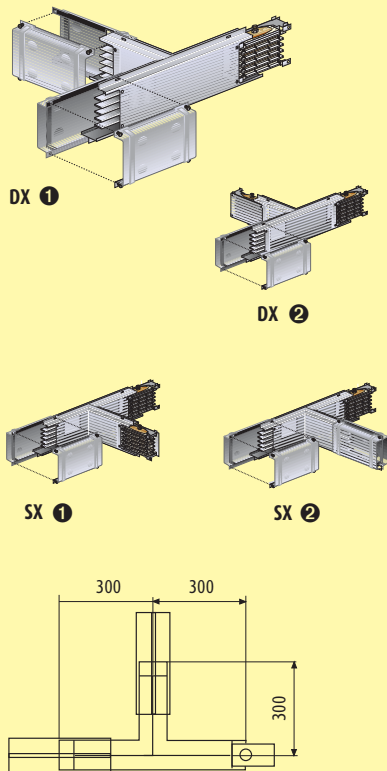
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Table Conversion Code	Conductors	Casing	Item
MR	 4	Galvanized	---0---
MRf	 5	Galvanized	---1---
MR-P	 4	Painted	---2---
MRf-P	 5	Painted	---3---

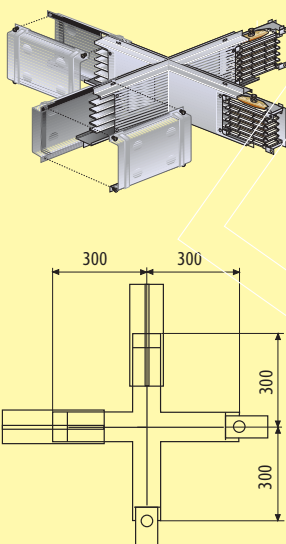


HORIZONTAL "TEE" ELEMENT (300 + 300 + 300 mm)

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



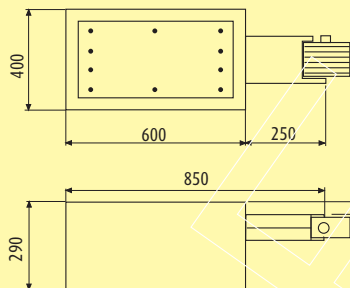
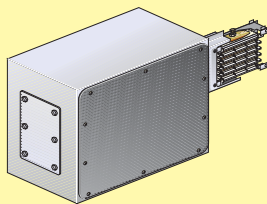
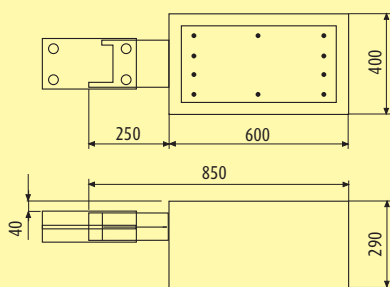
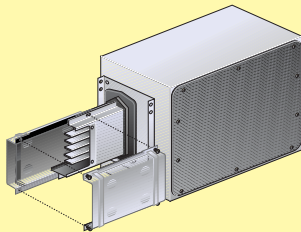
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Table Conversion Code	Conductors	Casing	Item
MR	 4	Galvanized	---0---
MRf	 5	Galvanized	---1---
MR-P	 4	Painted	---2---
MRf-P	 5	Painted	---3---



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.



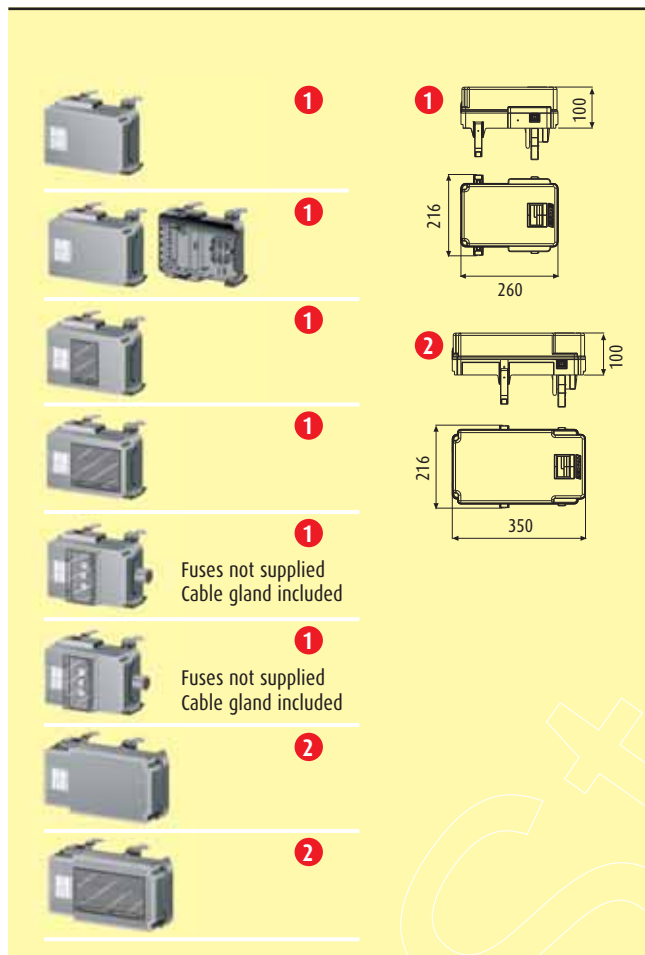
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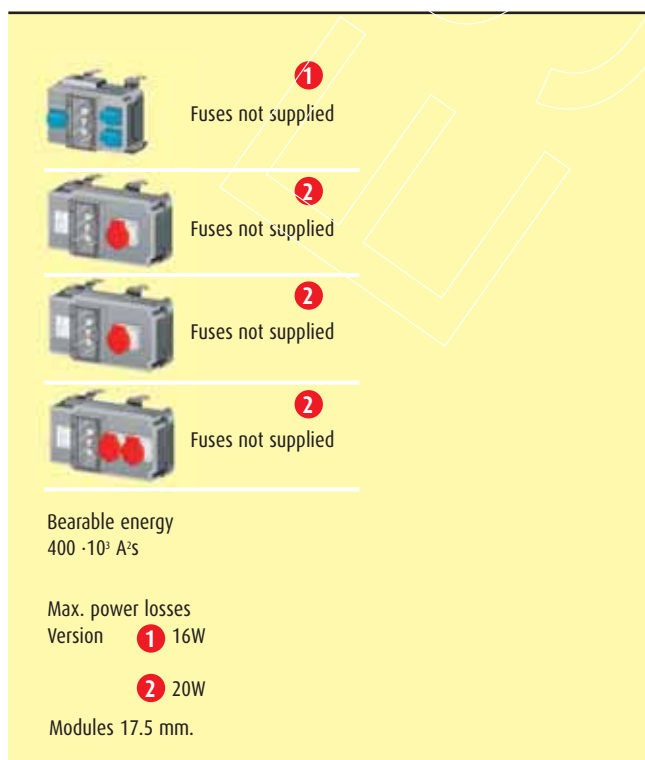


Tap-off boxes without disconnecting device



Fuses not supplied
Cable gland included

Fuses not supplied
Cable gland included



Fuses not supplied

Fuses not supplied

Fuses not supplied

Fuses not supplied

Bearable energy
400 · 10³ A²s

Max. power losses
Version 1 16W

2 20W

Modules 17.5 mm.

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

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

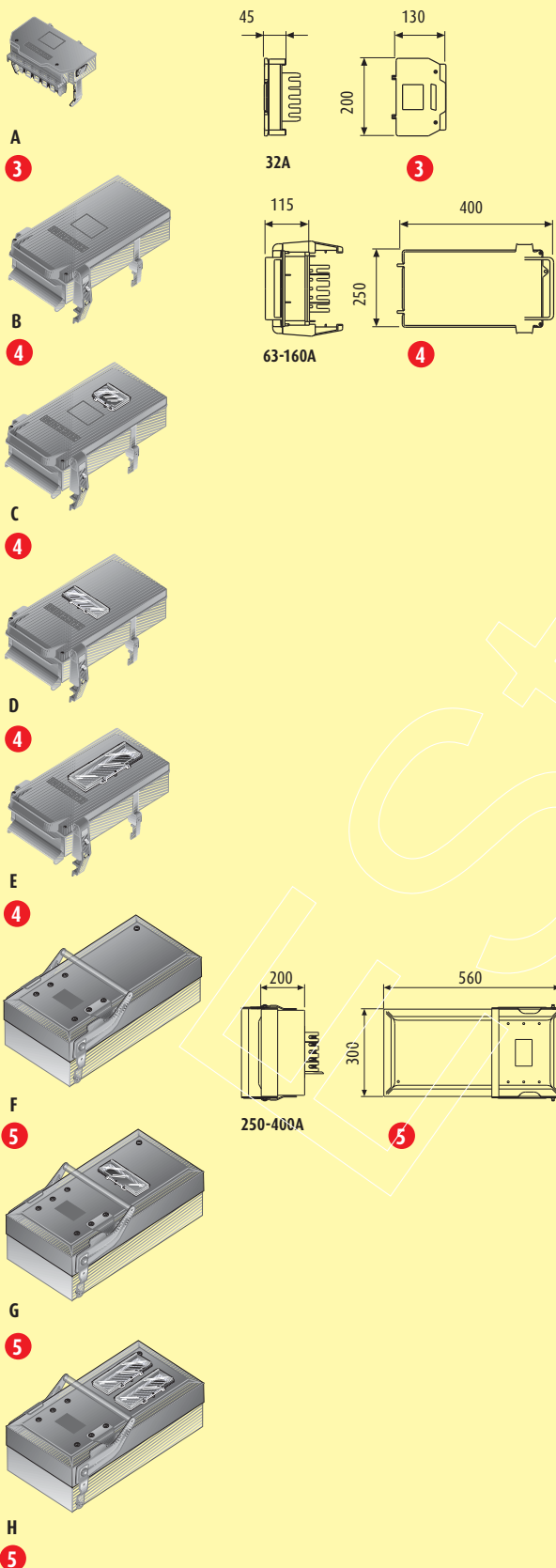


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WITH FUSE CARRIER

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%.



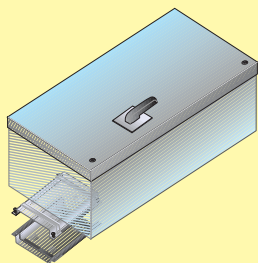
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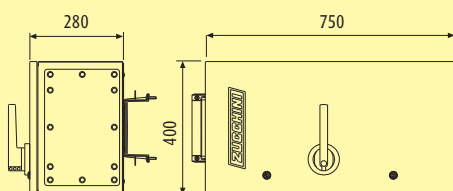
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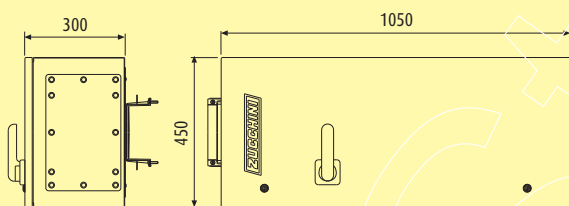
Tap-off boxes bolt-on type



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



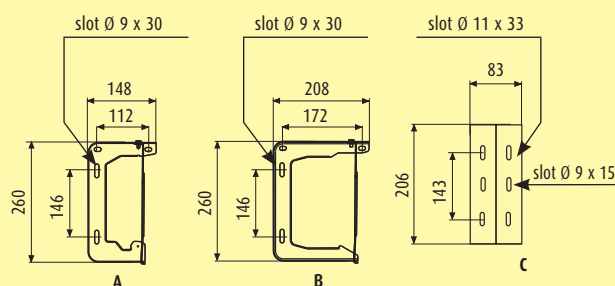
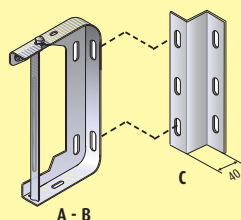
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Fixing elements

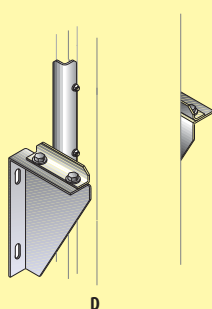


SUSPENSION BRACKETS

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

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

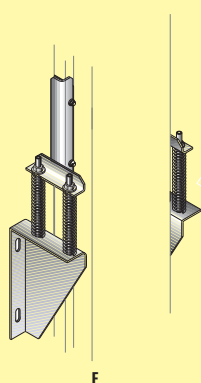
40 mm wall spacer	C	5063 22 05	0.05
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SUSPENSION BRACKETS FOR VERTICAL ELEMENTS

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.

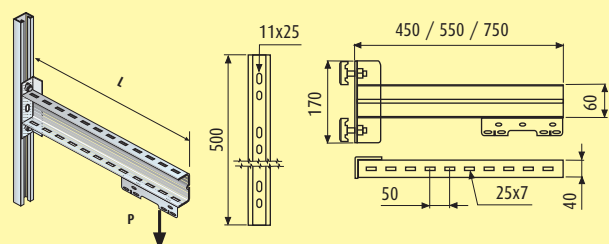
Installation	Usage	Figure	Item	Weight (kg)
1 bracket at the base of the riser mains	max 4 m.	D	5040 37 11	1.05



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



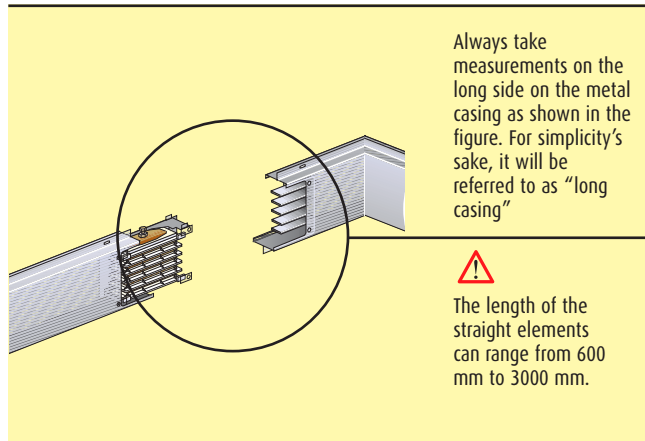
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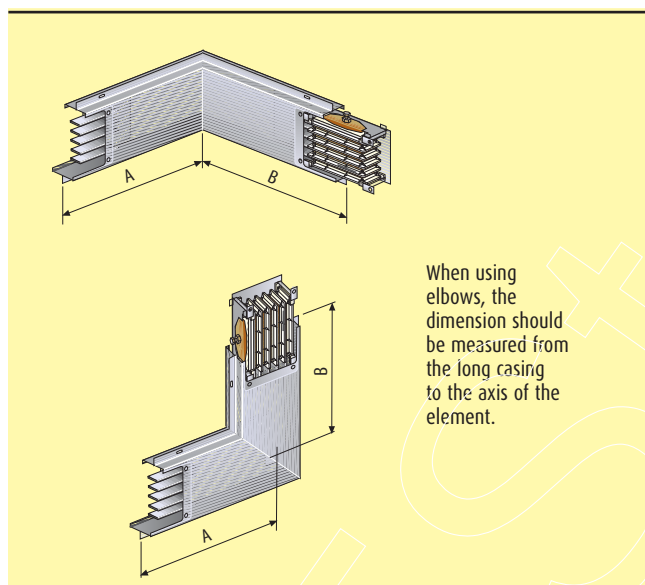
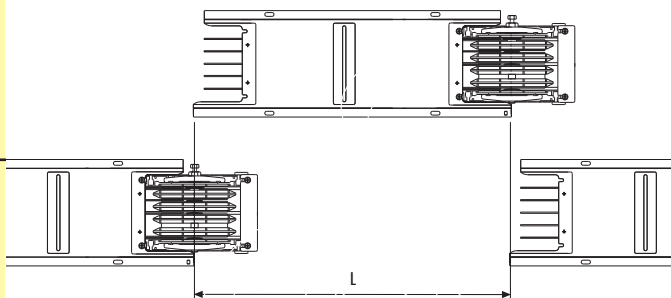
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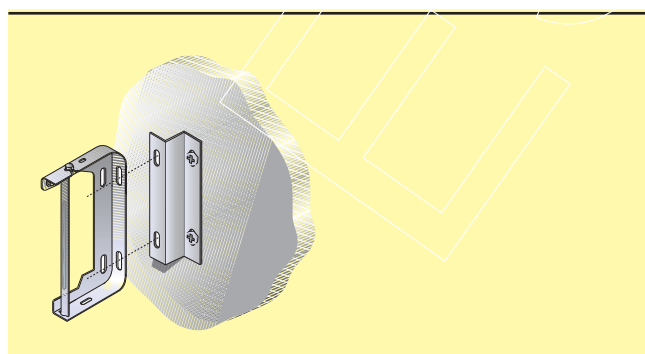
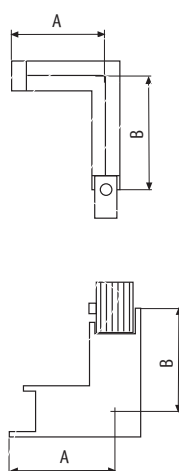
Determination of the measurements for special elements



STRAIGHT ELEMENTS

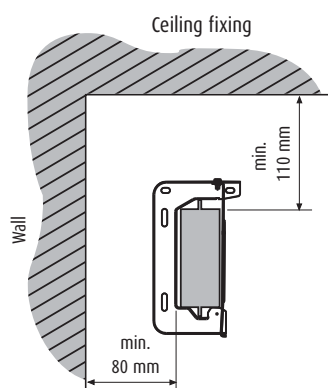


ELBOWS

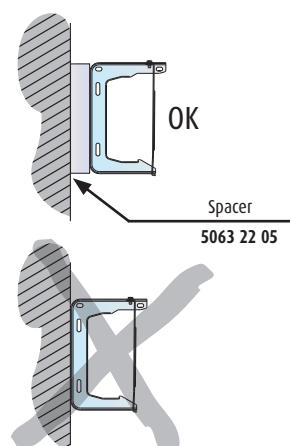


MINIMUM FIXING DISTANCES

Minimum fixing distances



Wall fixing



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



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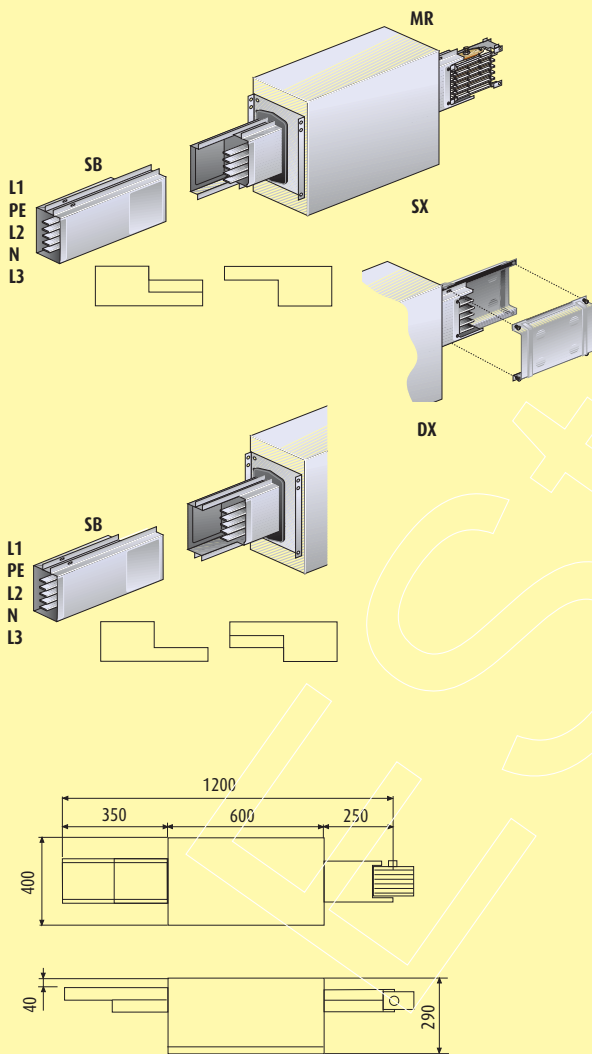


SB/MR ADAPTER ELEMENT

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



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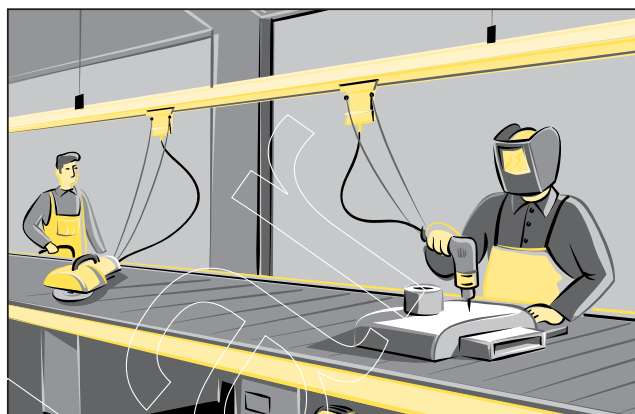
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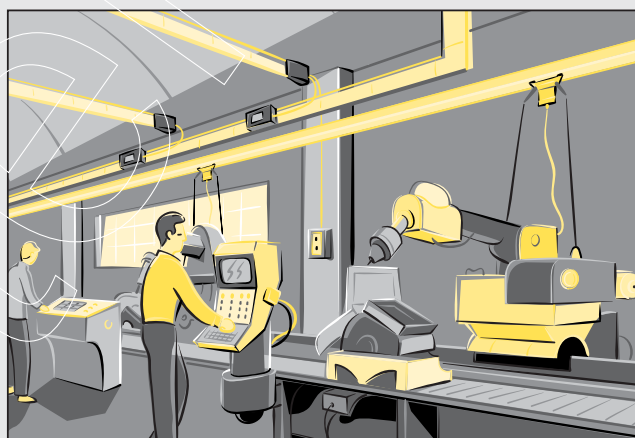
■ STRAIGHT ELEMENTS

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

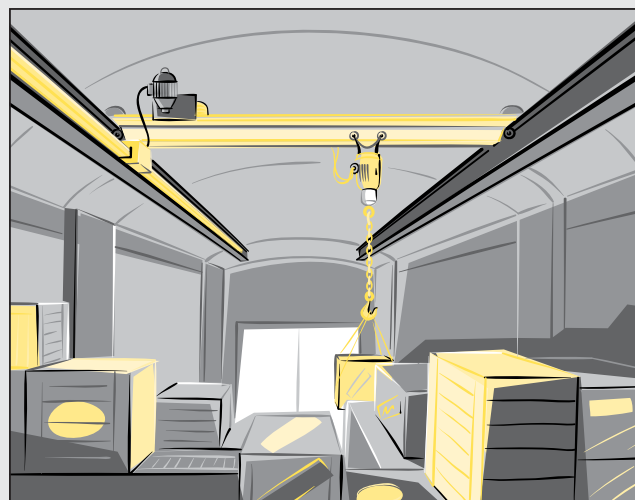
- casing made with a hot galvanized steel (Senzimir);
- sheet metal thickness: 1.2 mm (1.5 mm for 250A);
As for the 63A (MTS63) rating, the casing is made of extruded aluminium with a minimum thickness of 1.4 mm; it has good mechanical rigidity and preserves its linearity over time.
- number of conductors: 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



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■ 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

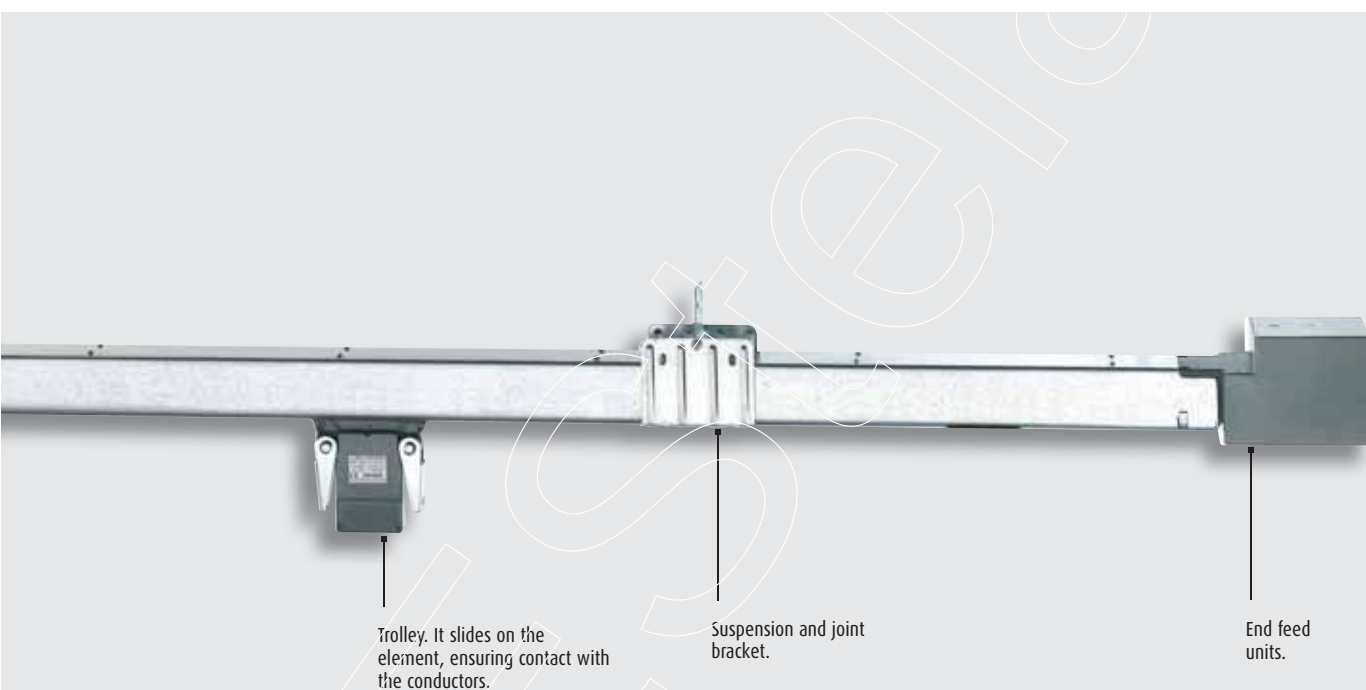


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Suspension bracket



40A trolley



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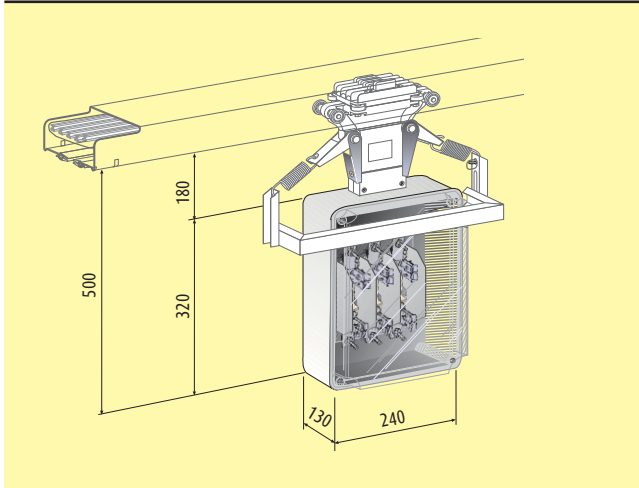


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Accessories

TS5 - IP20



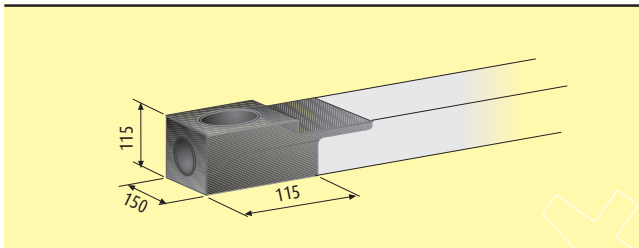
FUSE CARRIER BOX FOR LINES RANGING FROM 70A TO 250A

Rating (A) Item L=3000

max 160 80045504

Set of three NH 00 fuse carriers.

Fuses not included



END FEED UNIT

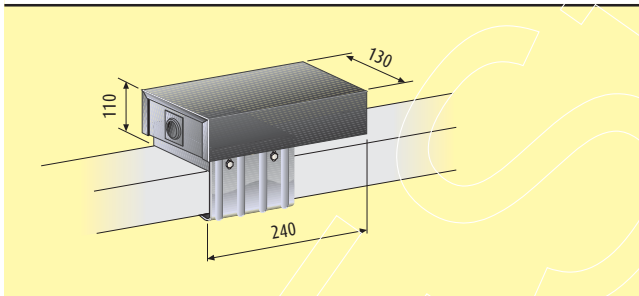
Rating (A) Item

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.

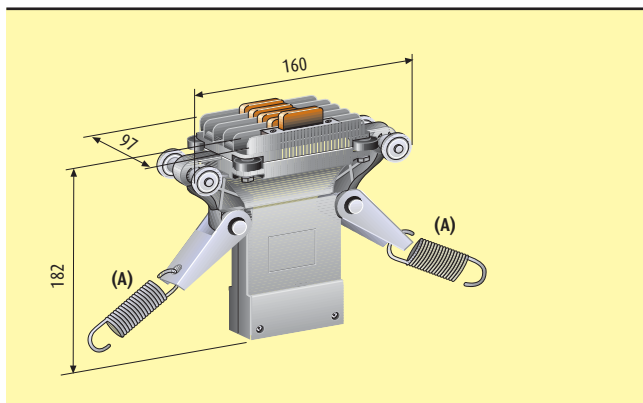


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40A 3P + N + PE TROLLEY

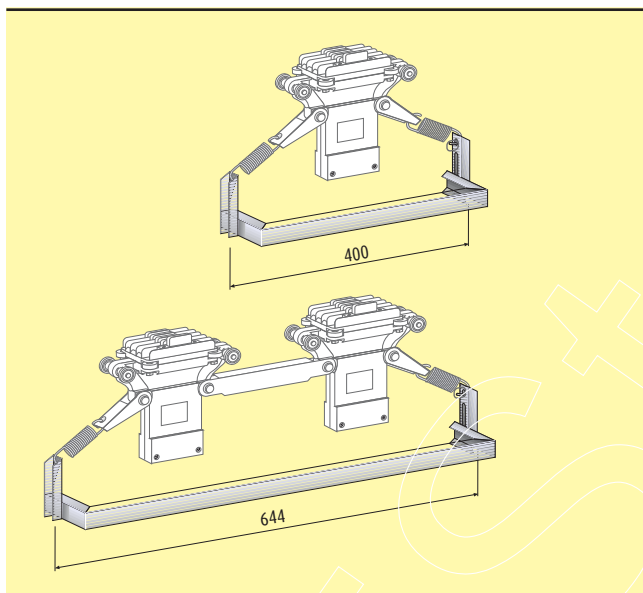
Item

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

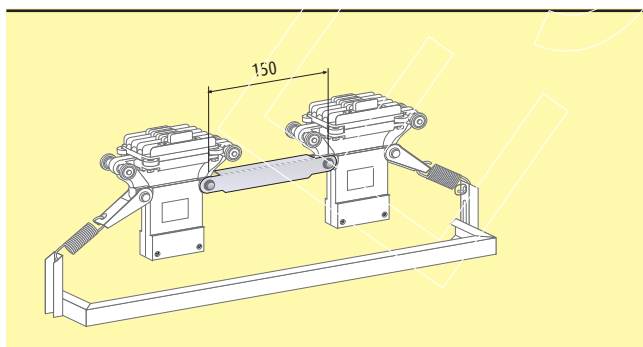
Item

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.



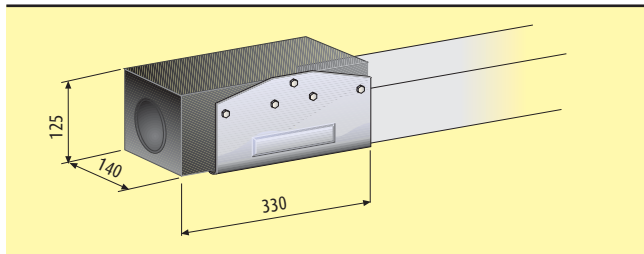
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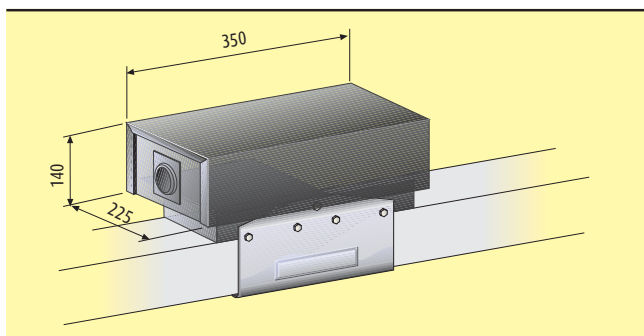
Accessories TS250 - IP20



END FEED UNIT

Rating (A)	Item
250	82001001

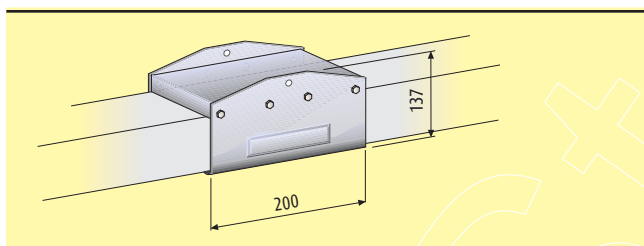
The end feed unit can be installed at either end of a busbar.



INTERMEDIATE FEED UNIT

Rating (A)	Item
250	82001101

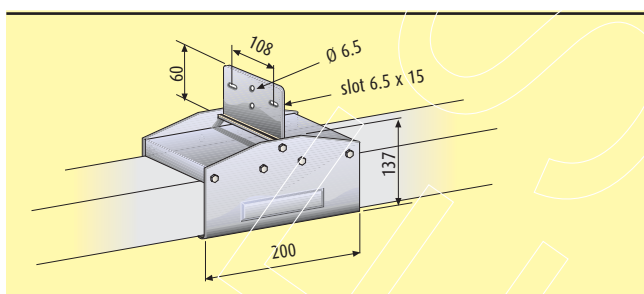
Used to power a busbar from any intermediate point. The intermediate feed unit is also used for reducing the voltage drop of the line.



COUPLING CLAMP

Rating (A)	Item
250	82002001

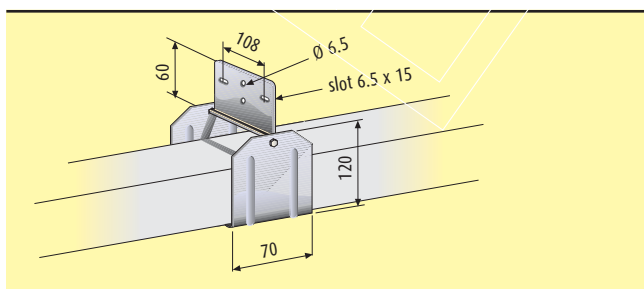
Use one piece for each element.
Provides the mechanical and electrical connection between two elements.



SUSPENSION COUPLING CLAMP

Rating (A)	Item
250	82002101

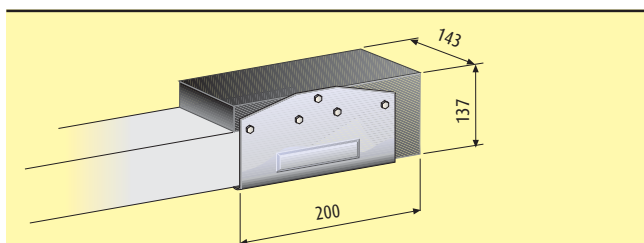
Provides the mechanical and electrical connection between two elements as well as a suspension point.



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.



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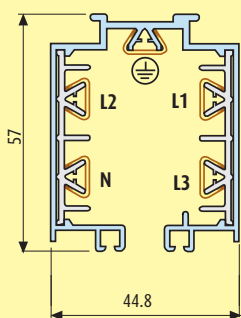
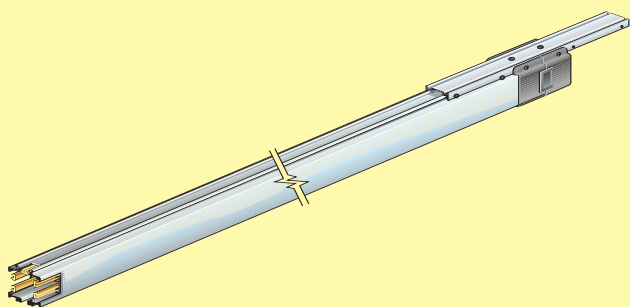
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Trunking components

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%



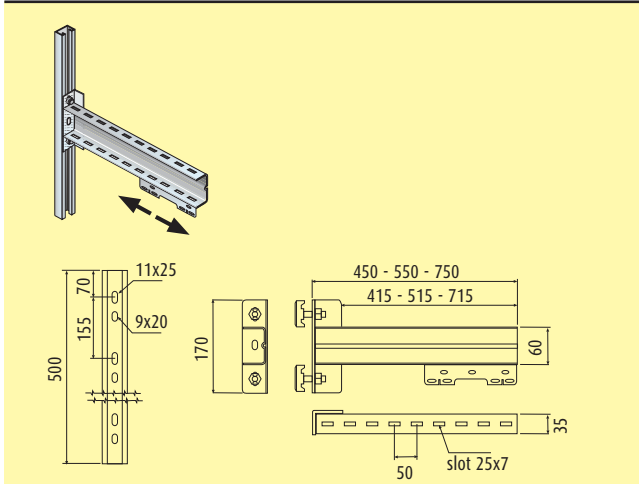
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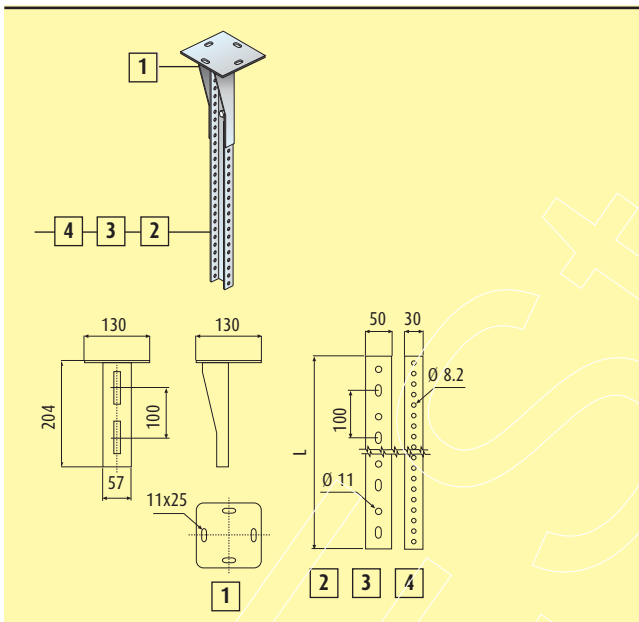


Bracket holder



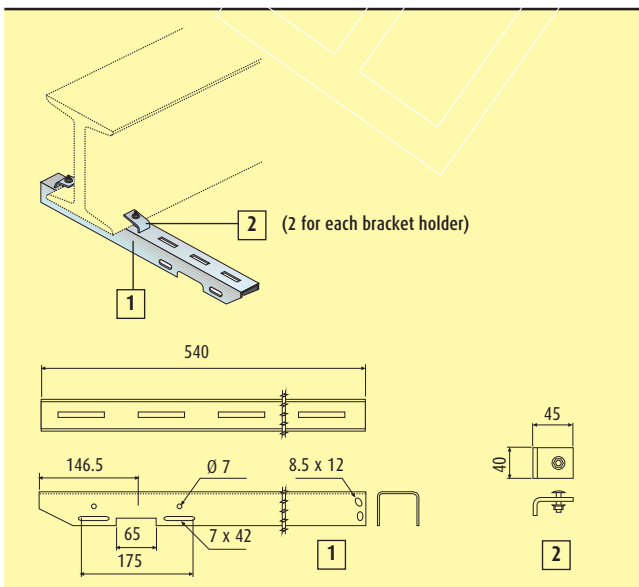
WALL FIXING BRACKET cm 45 - cm 55 - cm 75

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



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■ 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 Sensimir 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



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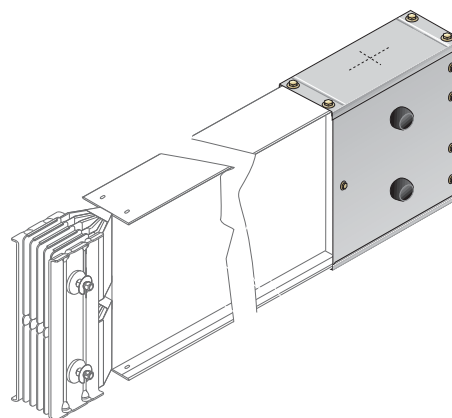


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■ END COVER

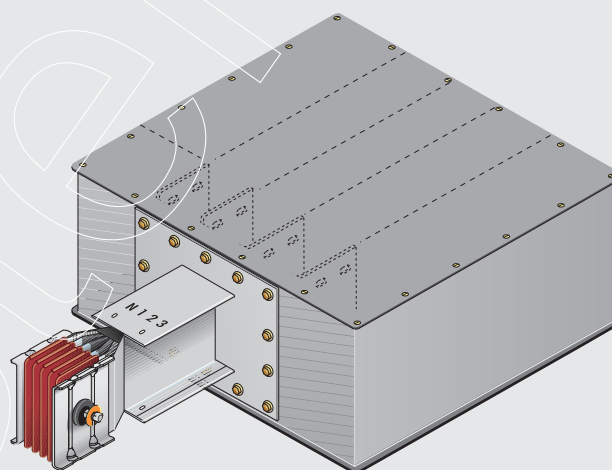
The end cover ensures the IP55 protection degree at the end of the line.



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



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■ 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:

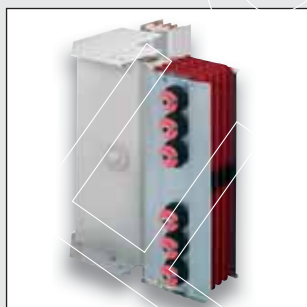
- they can be inserted and removed under voltage but not under load;
- the boxes are equipped with an isolator integrated into the cover (when the tap-off box is installed on the busbar, the opening of the cover electrically disconnects its internal parts);
- possibility of padlocking the box cover in 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 disconnecter and fuse carrier;
 - with MCCBs.

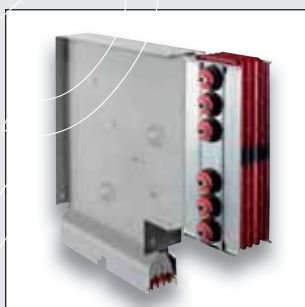
2) Boxes bolted onto the connection (from 125A to 1250A) which include the following features:

- 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 disconnecter and fuse carrier;
 - with MCCBs.

■ COMPONENTS



Horizontal elbow



Vertical elbow



Panelboard feed unit



Joint



Single and double monobloc

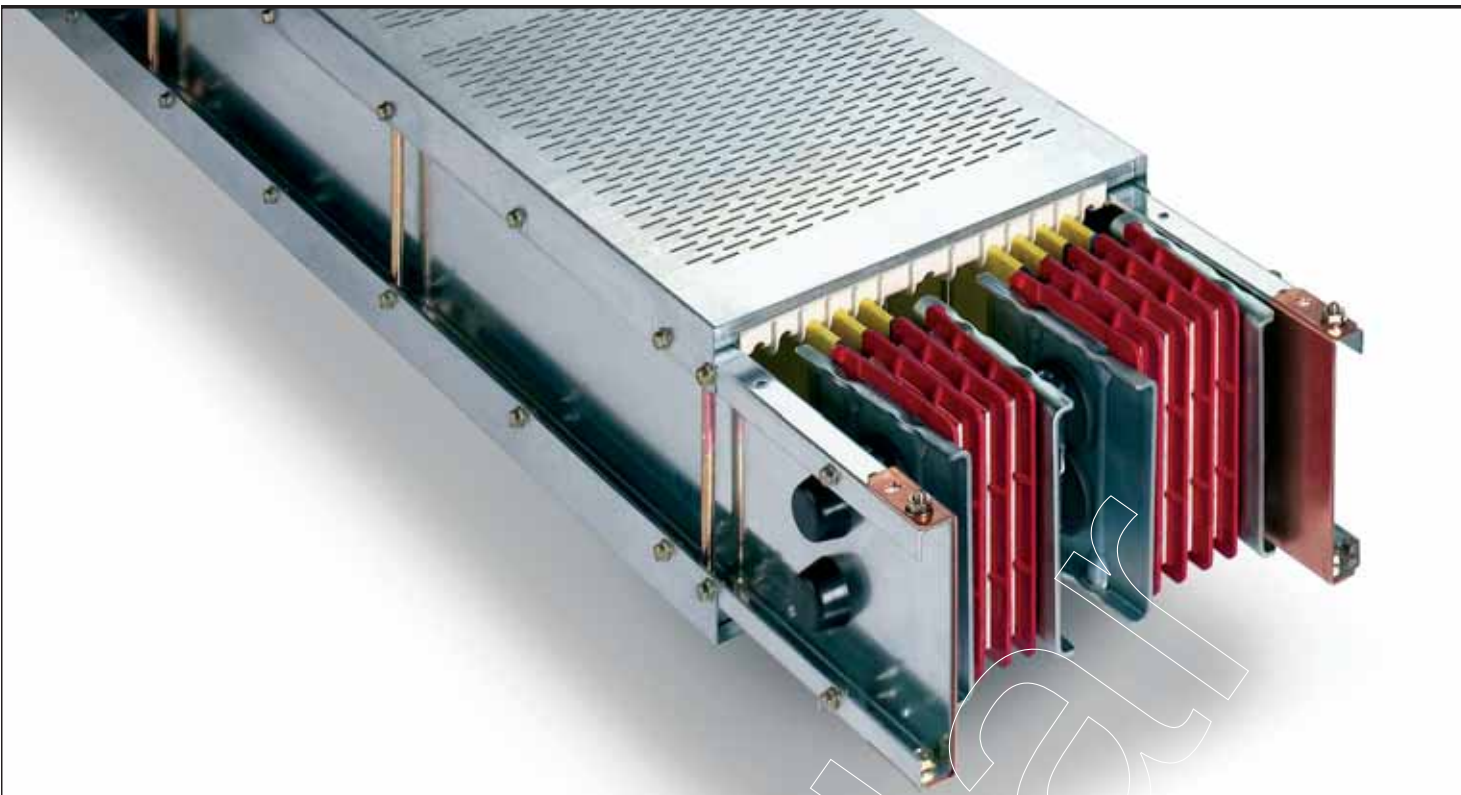


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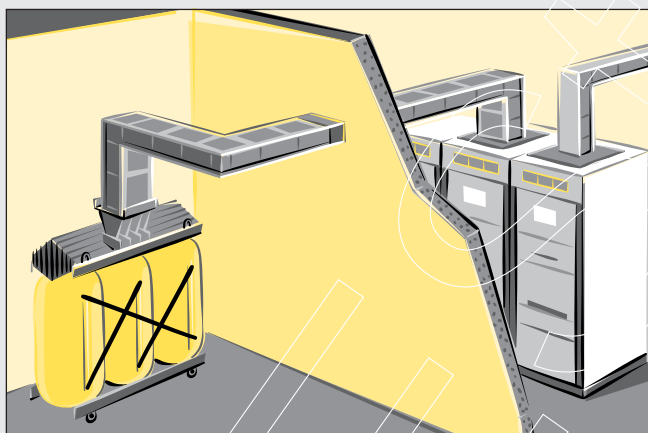
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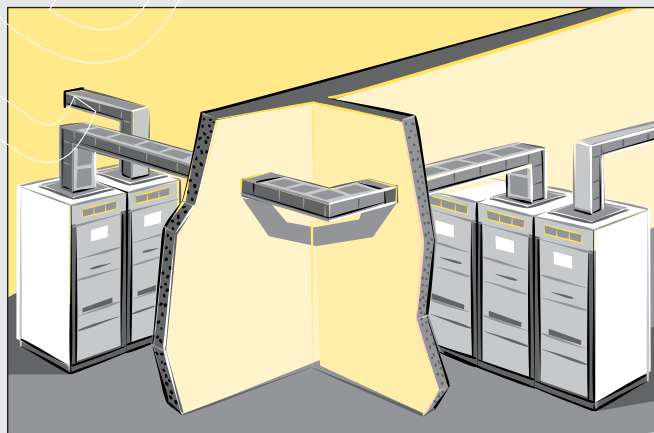
■ STRAIGHT ELEMENTS

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);
- sheet metal 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 (version on request: 3L, 3L+2N, 3L+N + functional earth FE);
- available with aluminium alloy or electrolytic copper conductors (purity $\geq 99.9\%$);
- 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 $h\geq 190$) 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.



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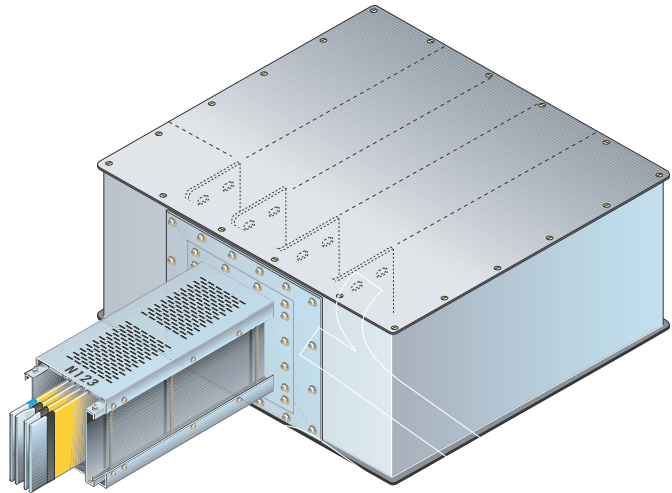
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■ FEED UNITS

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



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■ RESIN

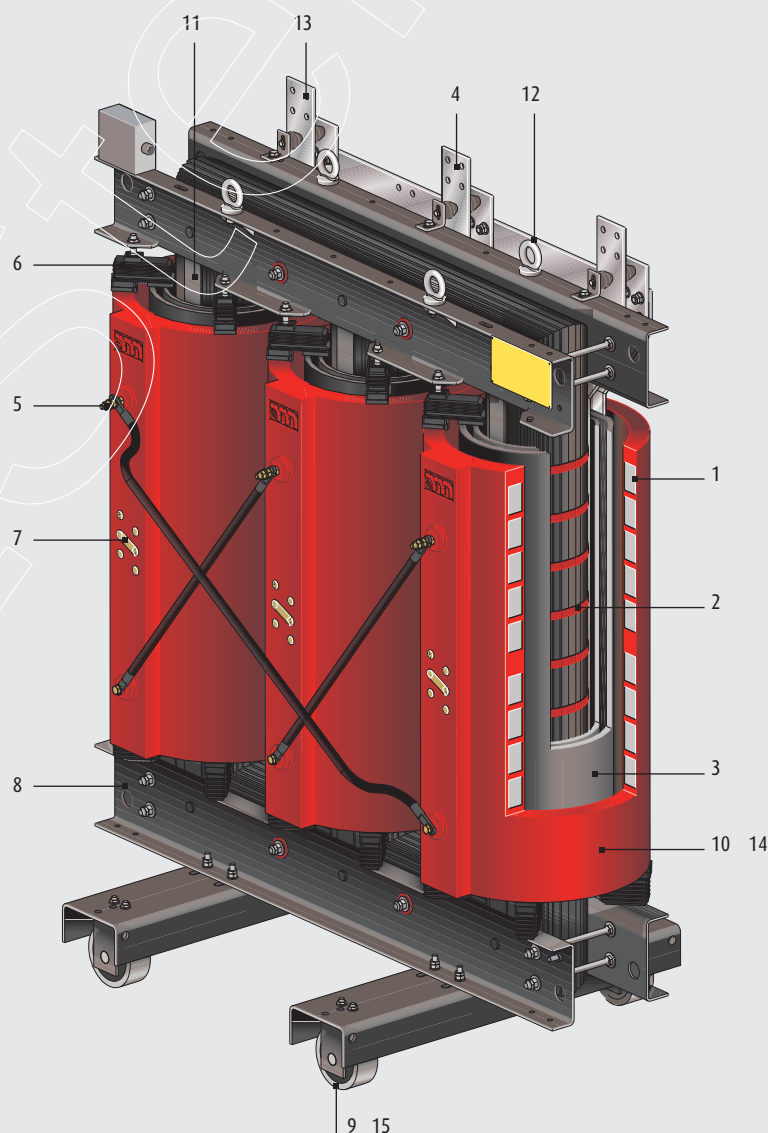
Used for encapsulating medium-voltage windings: it is of the epoxy type filled with silica and trihydrate alumina. The resin is treated in high vacuum chambers to obtain optimum degassing to reduce the presence of air or other gases, to avoid partial earth discharges. The epoxy compound is characterised 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 standards 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.





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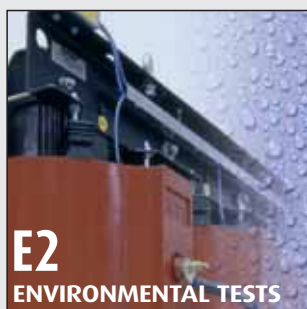
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Protection systems

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.



E2
ENVIRONMENTAL TESTS

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



C2
CLIMATIC TESTS

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



F1
FIRE RESISTANCE

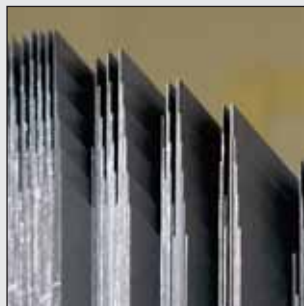
Class F1
Fire Behaviour
It confirms that the product is suitable for installation in environments with high fire risk. The transformer is made from self-extinguishing materials.



Low voltage terminals



MV coils



Magnetic Core step - lap



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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.



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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 [mm ²]	3.14	3.14	3.14	6.15	6.15	6.15	
Cross-section of protective conductor eq. Cu	S _{PE} [mm ²]	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 ² t [A ² s 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 _e [mΩ/m]	7.25	7.25	7.25	4.41	4.41	4.41	
Reactance of the fault loop (50Hz)	X _e [mΩ/m]	2.24	2.38	2.38 • 2.24	1.89	1.87	1.87 • 1.89	
Impedance of the fault loop	Z _e [mΩ/m]	7.59	7.63	7.639 • 7.59	4.80	4.79	4.79 • 4.80	
$\Delta V_{1F} = \frac{1}{2} (2 R_{20} \cos \varphi + 2 X \sin \varphi)$	$\Delta V [V/m/A] 10^{-3} \cos \varphi = 0.70$	4.88	4.31	4.31 • 4.88	2.64	2.27	2.27 • 2.64	
	$\Delta V [V/m/A] 10^{-3} \cos \varphi = 0.75$	5.11	4.50	4.50 • 5.11	2.75	2.37	2.37 • 2.75	
	$\Delta V [V/m/A] 10^{-3} \cos \varphi = 0.80$	5.33	4.68	4.68 • 5.33	2.85	2.45	2.45 • 2.85	
Voltage drop with distributed load (k)	$\Delta V [V/m/A] 10^{-3} \cos \varphi = 0.85$	5.53	4.85	4.85 • 5.53	2.94	2.53	2.53 • 2.94	
	$\Delta V [V/m/A] 10^{-3} \cos \varphi = 0.90$	5.72	5.01	5.01 • 5.72	3.01	2.60	2.60 • 3.01	
$\Delta V_{3F} = \frac{\sqrt{3}}{2} (R_{20} \cos \varphi + X \sin \varphi)$	$\Delta V [V/m/A] 10^{-3} \cos \varphi = 0.95$	5.87	5.12	5.12 • 5.87	3.06	2.65	2.65 • 3.06	
	$\Delta V [V/m/A] 10^{-3} \cos \varphi = 1.00$	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



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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	I _n [A]	40	63
Cross-section of conductors (3P+N)	S [mm ²]	9.5	12.3
Cross-section of protective conductor eq. Cu	S _{PE} [mm ²]	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 ² t [A ² s 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
$\Delta V_{1f} = \frac{1}{2} (2 R_{20} \cos \varphi + 2 X \sin \varphi)$ Voltage drop with distributed load (k)	$\Delta V [V/m/A] 10^{-3} \cos \varphi = 0.70$	1.28	1.23
	$\Delta V [V/m/A] 10^{-3} \cos \varphi = 0.75$	1.34	1.26
	$\Delta V [V/m/A] 10^{-3} \cos \varphi = 0.80$	1.41	1.28
	$\Delta V [V/m/A] 10^{-3} \cos \varphi = 0.85$	1.47	1.30
$\Delta V_{3f} = \frac{\sqrt{3}}{2} (R_{20} \cos \varphi + X \sin \varphi)$	$\Delta V [V/m/A] 10^{-3} \cos \varphi = 0.90$	1.52	1.31
	$\Delta V [V/m/A] 10^{-3} \cos \varphi = 0.95$	1.57	1.30
	$\Delta V [V/m/A] 10^{-3} \cos \varphi = 1.00$	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 (I_n ≤ 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



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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 ² s]	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 (I_n ; 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	$R_{n,20}$ [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-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-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-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-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 $\cos\varphi = 0.70$	0.564	0.394	0.276	0.179	0.131	0.109	0.102
	Δv [V/m/A]10 ⁻³ $\cos\varphi = 0.75$	0.581	0.404	0.279	0.180	0.130	0.108	0.100
	Δv [V/m/A]10 ⁻³ $\cos\varphi = 0.80$	0.596	0.412	0.281	0.180	0.129	0.107	0.098
	Δv [V/m/A]10 ⁻³ $\cos\varphi = 0.85$	0.608	0.418	0.281	0.179	0.127	0.104	0.095
	Δv [V/m/A]10 ⁻³ $\cos\varphi = 0.90$	0.616	0.422	0.277	0.176	0.122	0.100	0.091
	Δv [V/m/A]10 ⁻³ $\cos\varphi = 0.95$	0.617	0.419	0.269	0.169	0.115	0.093	0.083
	Δv [V/m/A]10 ⁻³ $\cos\varphi = 1.00$	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	$L \times H$ [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



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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 [mm ²]	12	19	24	43	85
Cross-section of protective conductor eq. Cu	S_{pe} [mm ²]	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 ² s 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
$\Delta V_{1f} = \frac{1}{2} (2 R_{20} \cos \varphi + 2 X \sin \varphi)$ Voltage drop with distributed load (k)	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
$\Delta V_{3f} = \frac{\sqrt{3}}{2} (R_{20} \cos \varphi + X \sin \varphi)$	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



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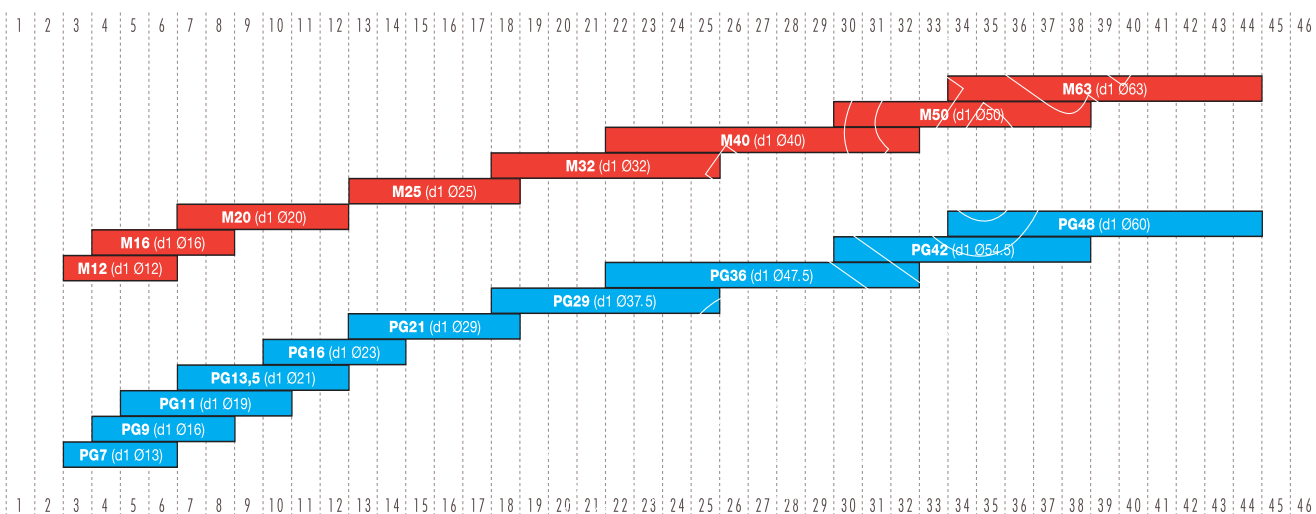


Cable glands table



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

Dimension d2 Ø cable [mm]

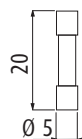


Dimension d2 Ø cable [mm]

Ceramic fuse 5 x 20

Operating features

$I_n = 6.3$	$1.5 I_n$	$2.1 I_n$	$2.75 I_n$	$4 I_n$	$10 I_n$
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 $\Delta V = 150 mV$
- $I^2t = 48A^2s$

When choosing all fuses, please refer to the LEGRAND catalogue



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