



2023/2024

# Electrical Distribution

Our energy at your service

Catalogue  
Low Voltage Energy

**MICHAUD**



# 60 YEARS EXPERTISE

**M**ICHAUD is a French industrial group specialised in energy distribution networks for more than 60 years.

MICHAUD Export, subsidiary dedicated to international markets, develops and sells solutions according to applicable standards thanks to its know-how as well as its relationships with local users.



100 Million €



+ 70 countries



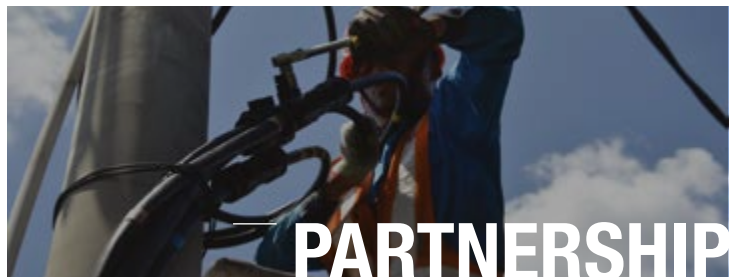
100 protected innovations yearly



+ 300 employees

## PRESCRIPTION & DIAGNOSIS

A strong market understanding and a recognised technical knowledge to serve your projects in order to propose suitable solutions.



## PARTNERSHIP

## INNOVATION & QUALITY

10% of the work force is dedicated to R&D. We develop tomorrow's solutions and guarantee quality and reliability of products thanks to a COFRAC accredited and independent test laboratory (accreditation n°1-0579).



## FITTERS TRAINING

As preferred technical partner, we encourage learning and knowledge transmission together with product commercialisation.



## SUPPORT

According to the international standards, MICHAUD designs and develops energy distribution solutions. The product range is focused on two fields of expertise:

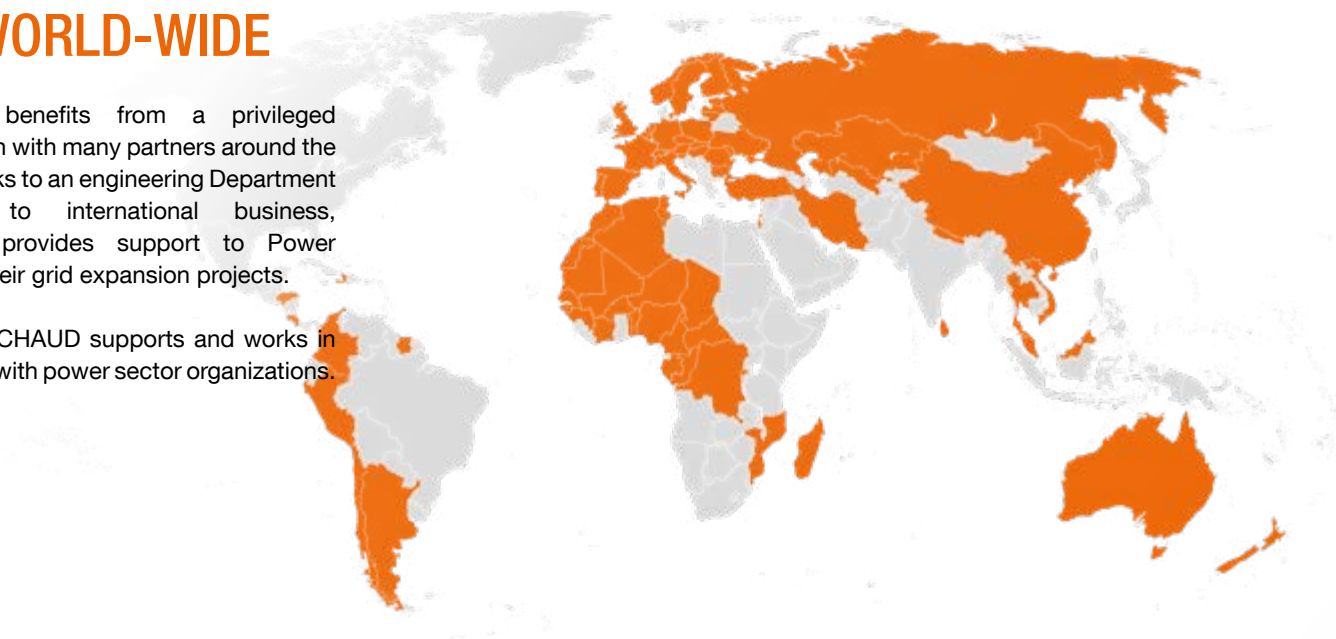
- **Low Voltage Network:** to connect and protect the overhead and underground electrical lines ;
- **Energy Controlling:** to manage and offer easy access to electricity.



## +70 PARTNERS IN THE WORLD-WIDE

MICHAUD benefits from a privileged collaboration with many partners around the world. Thanks to an engineering Department dedicated to international business, MICHAUD provides support to Power Utilities in their grid expansion projects.

Besides, MICHAUD supports and works in partnership with power sector organizations.



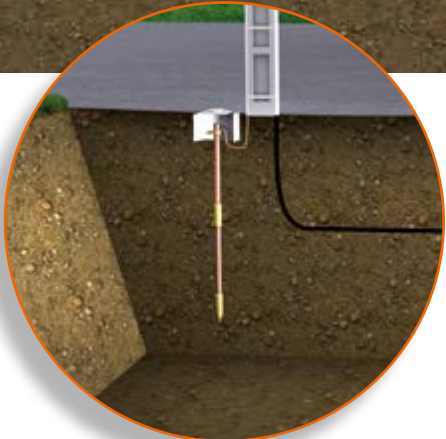
## PRODUCTS BRANDS

**MICHAUD**  
HOUSING AND ELECTRICAL NETWORK

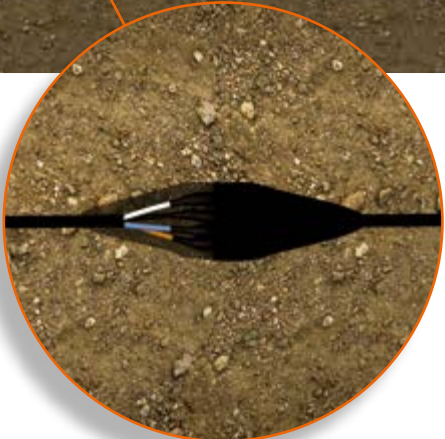




**MICHAUD**



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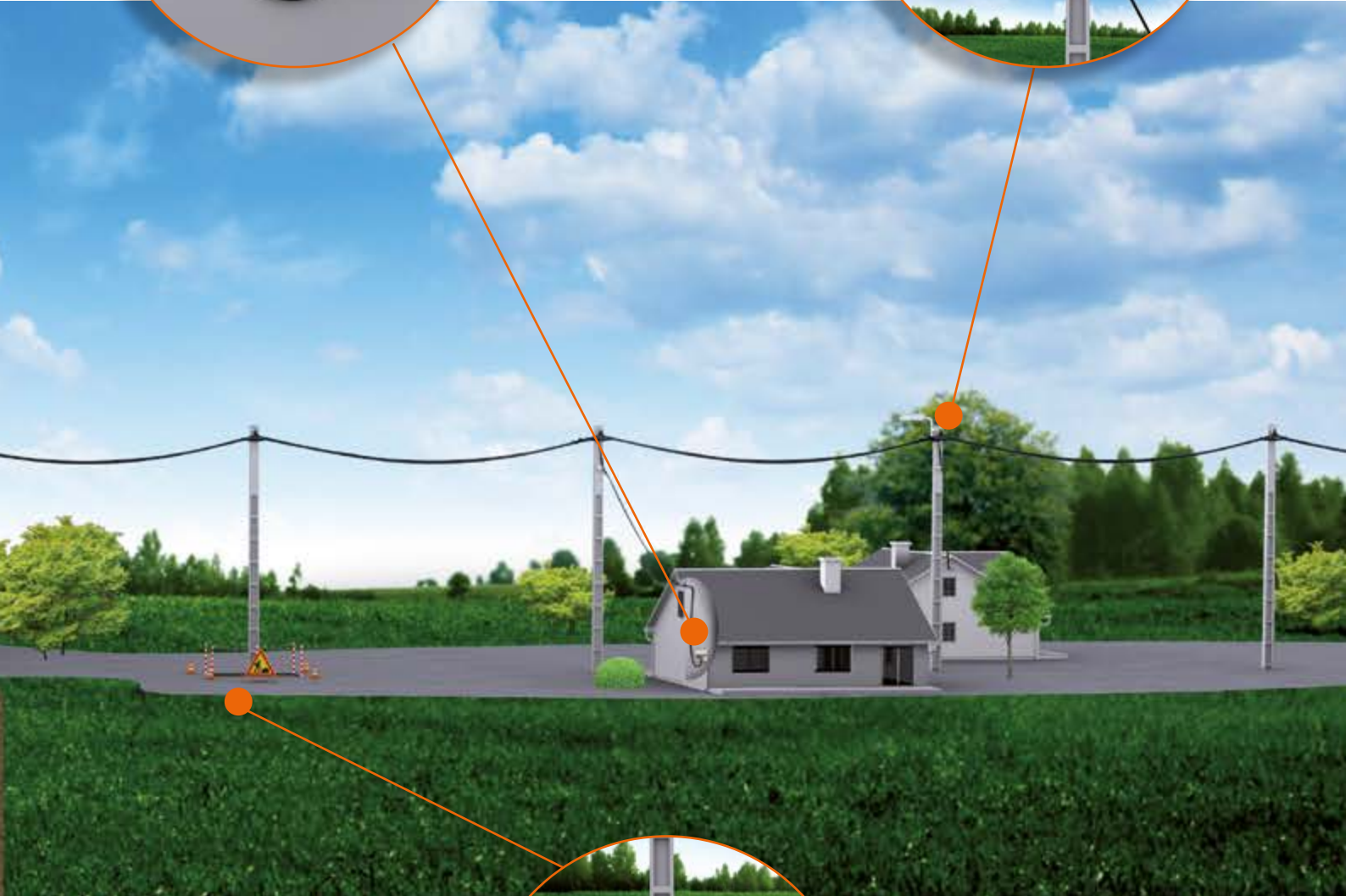


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# OVERHEAD

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## LV junction

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## MV accessories

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The **low voltage overhead connectors range** is the historical core business of MICHAUD. The company has been able to integrate the issues of worldwide power utilities into the design of its products.



## — EXPERTISE

MICHAUD developed its **technical skills** with the transition of overhead bare lines into Aerial Bundled Conductors (A.B.C).

Thanks to large **innovation ability**, the company has been a pioneer for a long time in the adaptation to this new environment.



## — LONGEVITY

MICHAUD acquired a **solid experience in electrical connections** and more specifically in the fields of insulation piercing, bimetal connections and crimping guaranteeing the power lines durability.



## COMPETITIVENESS

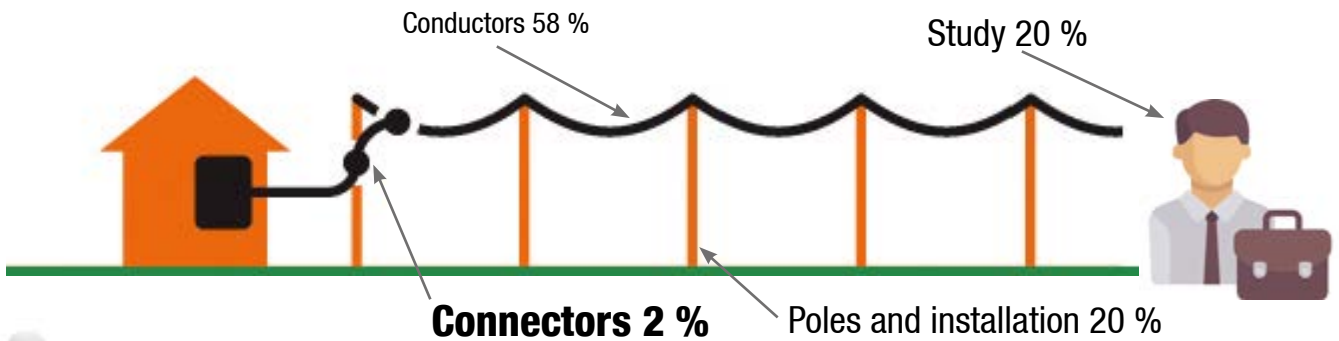
By taking into account the **overall cost** of the products over years (purchasing, maintenance, energy performance), MICHAUD offers a long terms **competitive range** of low voltage line accessories (with service life higher than 40 years).

## The overhead networks

Realizing a **tap connection** is the main expected function on low voltage lines in order to distribute electricity to consumers. The connection to the network is mostly performed by means of a service connector. .



### Analysis of the line cost



### ZOOM

Cost allocated to connectors is only about **2%**. However this item is at the origin of **80%** of network incidents.

They are the result of a failure of the connection, an installation error or even a too slight formation.

Indeed, the insulation piercing connector is a major accessory for which the connection quality is the most important.

MICHAUD solutions aim to facilitate the installation and therefore avoid fitters mistake thanks to technologies enabling to ensure a correct and effective installation.



Test probe access



Yellow shear head break indicator



Fixed end cap

### Distribution and network junctions

With the rise of consumers to connect to the network, it is needed to rely on solutions which enable a readability of the network, balanced charges and to guarantee easy fitters' operations.



The multiple connection box enables to create a **distribution point** towards several service connections.

Thanks to one network inlet and one outlet, the box can be installed on the line and this way it offers **an alternative solution to the use of connectors** to perform network tapping. It also gives possibilities to connect future consumers.

# SOLUTIONS FOR OVERHEAD NETWORK

## A diversity and flexibility with the offer

An adaptation to projects and local requirements is possible thanks to MICHAUD human scale and its wide range enabling **reactivity** and **flexibility** when facing specific applications.

### Options

- ✓ Bare or insulated  **cable**
- ✓ From 1.5 up to 240mm<sup>2</sup>
- ✓ Compatible with RIB

Synthetical or metallic  **hexagonal shear head**

- ✓ Removable / unremovable
- ✓ Thrust washer
- ✓ Breaking torque controller (with coloured indicator)

Overmoulded or assembled  **sealing**

Glued or movable  **sealing end cap**

- ✓ Test probe access
- ✓ Rigid (Class II)

**Simultaneous or independent tightening**  
1,2 or 4 conductors

**Contact bridges** copper, brass, aluminium with a choice of surface treatments (tinning)

- ✓ Stripping
- ✓ Piercing

**Engraved marking**

OF 153911 MIC

Batch number: YYWWXX  
Y: Year / W: Week / X: Number

- ✓ Systematic traceability
- ✓ Special series with own marking

**Steel fastener** with different treatments (zinc, galvanised, ...) or stainless steel fastener

- ✓ Captive components

### MICHAUD expertise

Development and certification of products in compliance with every worldwide standards:



IEC

EN

DIN

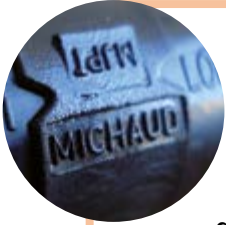
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NZ

# Preinsulated technologies to ensure watertightness

To guarantee the connections waterproofness on Aerial Bundled Conductors is significant challenge. A connection that is not set-up the right way can lead to a risk of water penetration and endanger the security and durability of the equipment.



## MICHAUD experience

In the 1980's, MICHAUD was first producer in the world to develop the preinsulated compression sleeve MJPB for the Power French Company ErDF. This sleeve designed to offer a dielectric strength of 6kV into water was really appreciated. This technology has been expanded today to other products of the range showing reliability and efficiency on the field.

Since 40 years

MICHAUD offers a range of preinsulated sleeves adapted to various field applications enabling to perform the junction between two conductors of exact same type or with different characteristics (nature, material, size...).

### Compression sleeve



**MJP**  
Preinsulated sleeve

### Service sleeve with mechanical tightening



**MDB**  
Dismountable service sleeve

### Network sleeve with mechanical tightening



**MJS**  
Underground sleeve

Service (**MJPB**)  
A.B.C. network (**MJPT**)  
Service aerial sub-surface (**MJPBAS**)



## Zoom on the accessories' installation

### Mechanical tightening

- Flexible technology on the field (wide range of conductor's section)
- Disconnection / reconnection ( if the terminal uses stripping technology)
- It must be performed without mechanical load



### Crimping

- It can be performed under mechanical load
- Good durability
- Mono-section



## Service insulation piercing connector



**K322**



**K441**  
with yellow shear head indicator

### Application

This connector is designed to connect the insulated service conductors to the low voltage A.B.C. (Aerial Bundled Conductors).

### Description

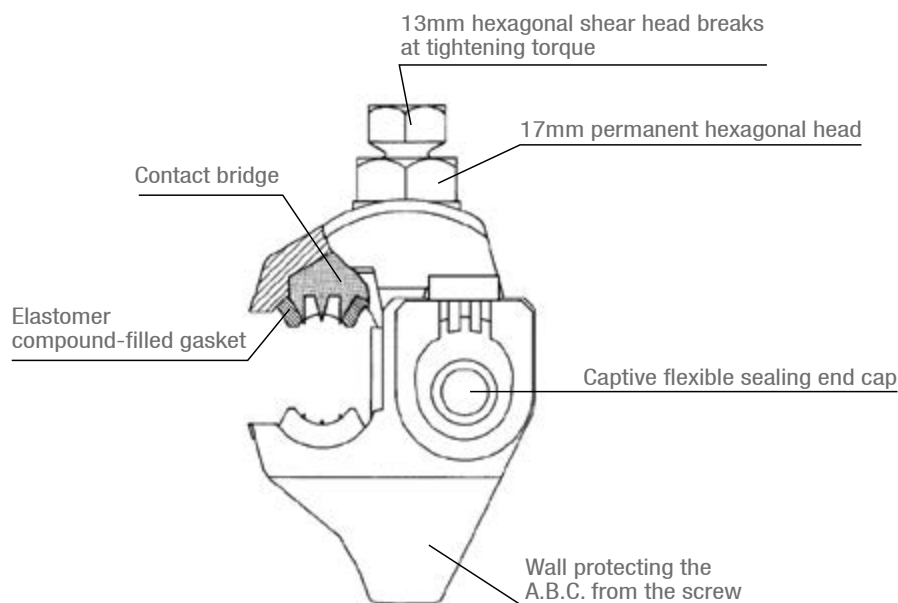
#### Connector general features:

- Insulation piercing is carried out on the main and tap conductors simultaneously in a single tightening operation.
- The dielectric strength in water is greater than 6kV.
- The tightening strength is potential free.
- Tightening efficiency is ensured by a shear head screw.
- Connectors K441, K442 and K443 are fitted with a yellow shear head indicator that disappears when head is sheared-off, being a clear visual confirmation of good tightening from ground level. It increases head height by 10 mm.

This connector meets the criteria of the **NF C 33-020** and **EN 50-483** standards.

#### Connector end cap:

- The connector end cap is flexible so that to feel good tap conductor insertion simply by hand.
- It is carrying membranes instead of grease, granting watertightness around tap conductor end on long term basis.
- It is glued on connector body so that to avoid eventual loss during handling, installation and environment (wind, bad weather...).
- It can be equipped with a hard end cap, gripping and covering so, in case rigid cover is required. (Part Number K246 : please enquire for further information).





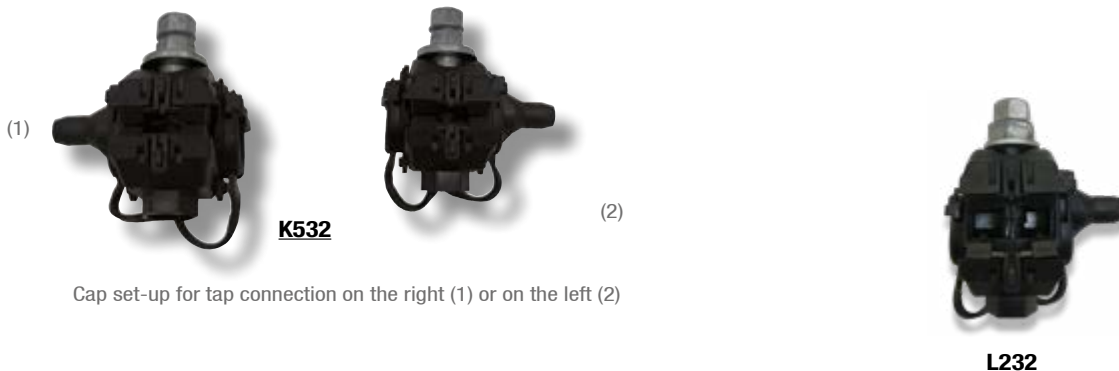
Installation video available on [www.michaud-export.com](http://www.michaud-export.com)

Code	Designation	Contact bridge	Capacities Main insulated Al-Cu (mm <sup>2</sup> )	Capacities Tap insulated Al-Cu (mm <sup>2</sup> )	Weight (kg)	Sales unit
<b>ZINC-PLATED STEEL FASTENERS (ZF)</b>						
K322	CONNECTOR CBS/CT 25 ZF - ERDF	Aluminium alloy	16-25	6-25 6M-35M	0.120	12
K323	CONNECTOR CBS/CT 70 ZF - ERDF	Aluminium alloy	16-70	6-25 6M-35M	0.120	12
K324	CONNECTOR CBS/CT 150 ZF - ERDF	Aluminium alloy	16-150	6-25 6M-35M	0.130	12
<b>ZINC-PLATED STEEL FASTENERS (ZF)</b>						
K331	CONNECTOR CBS/CT 70 ZF	Tinned brass	16-70	4-25	0.130	30
K332	CONNECTOR CBS/CT 95 ZF	Tinned brass	16-95	2.5-35	0.130	30
K330	CONNECTOR CBS/CT 150 ZF	Tinned brass	35-150	6-35	0.140	30
<b>STAINLESS STEEL FASTENERS (SF) + YELLOW SHEAR HEAD INDICATOR</b>						
K441	CONNECTOR CBS/CT 95 SF	Tinned brass	25-95	6-35	0.135	20
K442	CONNECTOR CBS/CT 150/1.5-25 SF	Tinned brass	35-150	1.5-25	0.140	20
K443	CONNECTOR CBS/CT 150/6-35 SF	Tinned brass	35-150	6-35	0.140	20

M means that the core of the conductor is solid.

### Option: Service connector with movable seal cap

This connector is used for connecting the insulated service conductors to the low voltage A.B.C (Aerial Bundled Conductors). The movable sealing end cap enables a tap connection on the right or on the left. The main conductor connection and the tap ones use the insulation piercing technology.



Cap set-up for tap connection on the right (1) or on the left (2)

Code	Designation	Contact bridge	Capacities Main insulated Al-Cu (mm <sup>2</sup> )	Capacities Tap insulated Al-Cu (mm <sup>2</sup> )	Weight (kg)	Sales unit
K532	CONNECTOR CBS/CT 95 ZF A	Tinned brass	16-95	6-35	0.115	20
L232	CONNECTOR CBS/CT 95 ZF	Aluminium	16-95	2.5-35	0.117	20



**SEE SHEET**

INSTALLATION / LV insulated toolings

## Service insulation piercing connector with Test Probe



**K336**



**K338**

with yellow shear head indicator



Michaud Exclusivity  
Test probe

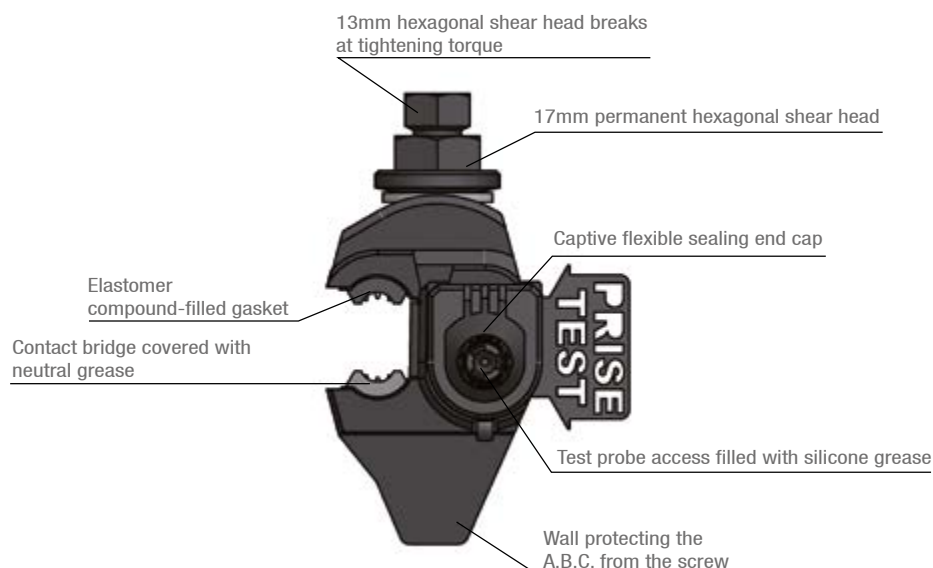
### Application

This connector is designed to connect the insulated service conductors to the low voltage A.B.C. (Aerial Bundled Conductors). It is equipped with a Test probe on the flexible sealing end cap. This enables the potential to be checked between 2 connectors installed on neutral and phase conductors and thus ensures good connection.

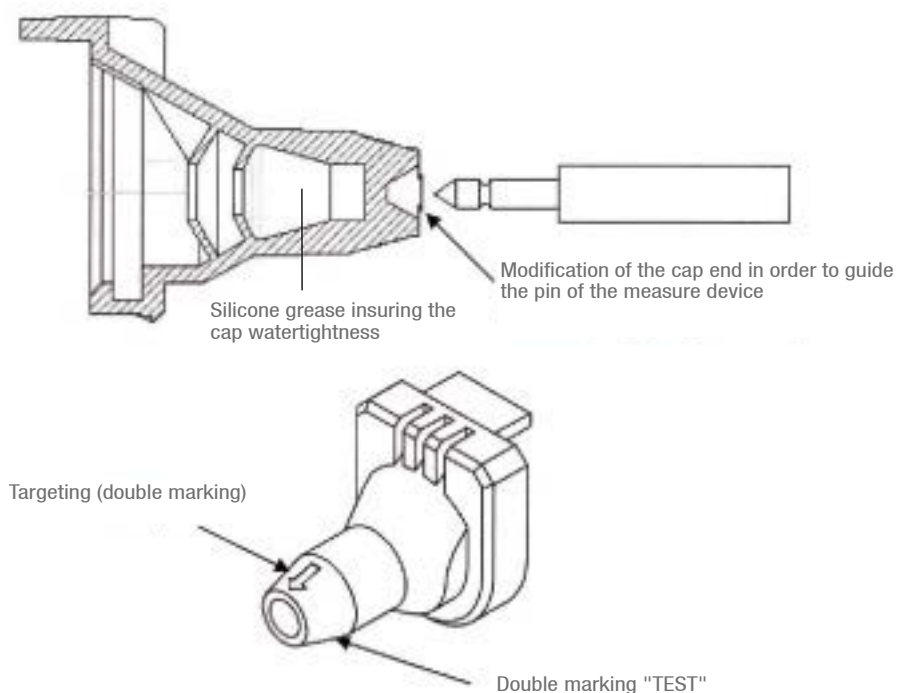
### Description

- Insulation piercing is carried out on the main conductor and on the tap conductor simultaneously in a single tightening operation.
- The dielectric strength in water is greater than 6kV even after several piercings of the flexible end cap Test Probe using a standardised pin of a measuring device (3 to 5 times maximum).
- The tightening screw is potential free.
- Tightening efficiency is ensured by a shear head screw (nominal torque of 10Nm).
- The connector K338 is fitted with a yellow shear head indicator that disappears when head is sheared-off, being a clear visual confirmation of good tightening from ground level. It increases head height by 10 mm.
- The connector end cap is flexible so that to feel good tap conductor insertion simply by hand. It is glued on connector body so that to avoid eventual loss during handling, installation and environment (wind, bad weather...).

This connector meets the criteria of the **NF C 33-020** and **EN 50-483** standards.





**Modified sealing end cap for test probe access :****Installation**

- Insert the insulated tap conductor into the connector so that its end seats in the flexible end cap.
- Use a 13mm spanner and tighten the connector on the insulated main conductor of the bundle until the shear head breaks.
- The 17mm permanent screw head is only provided for possible dismantling, and must not be used to re-tighten the screw after the 13mm head has broken.
- Installation can be carried out on a live line but with no load on the tap conductor.

Code	Designation	Contact bridge	Capacities Main insulated Al-Cu (mm <sup>2</sup> )	Capacities Tap insulated Al-Cu (mm <sup>2</sup> )	Weight (kg)	Sales unit
<b>ZINC-PLATED STEEL FASTENERS (ZF)</b>						
K336	CONNECTOR CBS/CT 95 TEST PROBE ZF	Tinned brass	16-95	4-35	0.135	10
K337	CONNECTOR CBS/CT 150 TEST PROBE ZF	Tinned brass	35-150	6-35	0.145	10
<b>STAINLESS STEEL FASTENERS (SF) + YELLOW SHEAR HEAD INDICATOR</b>						
K338	CONNECTOR CBS/CT 95 TEST PROBE SF	Tinned brass	16-95	4-35	0.135	10

**SEE SHEET**

INSTALLATION / LV insulated toolings

## Service insulation piercing connector for bare conductor



**K258**



**K470**  
with yellow shear head indicator

### Application

This connector is designed to connect the insulated service conductors to the low voltage overhead copper or aluminium alloy bare conductor network.

Two versions are available according to the type of conductor to be connected (Al or Cu):

- CNA (with aluminium alloy contact bridges),
- CNU (with rough brass contact bridges).

### Description

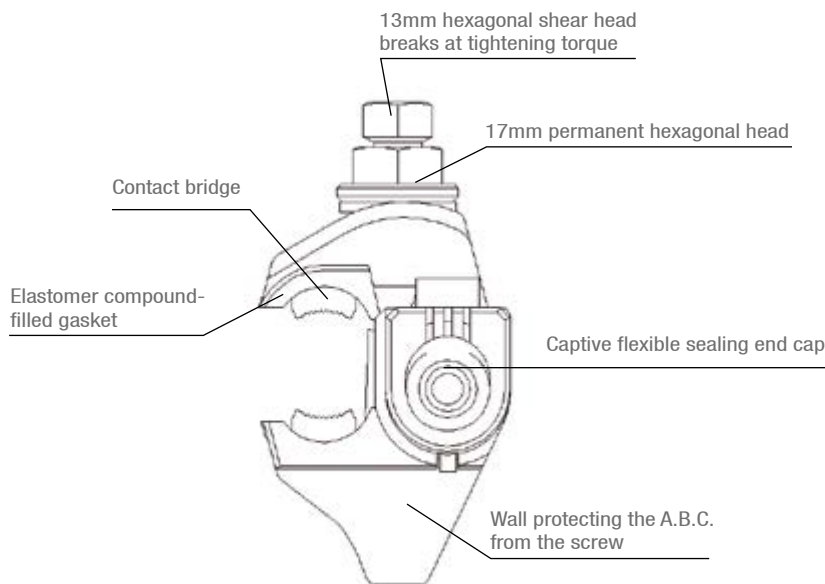
#### **Connector general features:**

- Tightening of the bare main conductor and piercing of the tap conductor are carried out simultaneously in a single tightening operation.
- The tightening screw is potential free.
- Tightening efficiency is ensured by a shear head screw.
- Connectors K470 and K471 are fitted with a yellow shear head indicator that disappears when head is sheared-off, being a clear visual confirmation of good tightening from ground level. It increases head height by 10 mm.

This connector meets the criteria of the **NF C 33-020** and **EN 50-483** standards.

#### **Connector end cap:**

- The connector end cap is flexible so that to feel good tap conductor insertion simply by hand.
- It is carrying membranes instead of grease, granting watertightness around tap conductor end on long term basis.
- It is glued on connector body so that to avoid eventual loss during handling, installation and environment (wind, bad weather...).
- It can be equipped with a hard end cap, gripping and covering so, in case rigid cover is required. (Part Number K246 : please enquire for further information).



## Installation

- Insert the insulated tap conductor into the connector so that its end seats in the flexible end cap.
- Use a 13mm spanner and tighten the connector on the bare main conductor until the shear head breaks.
- The 17mm permanent screw head is only provided for possible dismantling, and must not be used to re-tighten the screw after the 13mm head has broken.
- Installation can be carried out on a live line but with no load on the tap conductor.

Code	Designation	Contact bridge	Capacities Main bare (mm)	Capacities Tap insulated Al-Cu (mm)	Weight (kg)	Sales unit
<b>ZINC-PLATED STEEL FASTENERS (ZF)</b>						
K258	CONNECTOR RDP/CNU 95 ZF	Brass	Cu 7-95	6-35	0.150	20
K259	CONNECTOR RDP/CNA 95 ZF	Aluminium Alloy	Al 7-95	6-35	0.130	20
<b>STAINLESS STEEL FASTENERS (SF) + YELLOW SHEAR HEAD INDICATOR</b>						
K470	CONNECTOR RDP/CNU 95 SF	Brass	Cu 7-95	6-35	0.150	20
K471	CONNECTOR RDP/CNA 95 SF	Aluminium Alloy	Al 7-95	6-35	0.130	20

**SEE SHEET**  
INSTALLATION / LV insulated toolings

## Two stages bare conductor service connector



**Michaud Exclusivity**  
Two stages connection



**K235**  
with yellow shear head indicator

### The benefit:

- + Connection under load

### Application

This connector designed to connect the insulated service conductors to the low voltage overhead aluminium alloy or copper bare conductor network.

Two versions are available according to the type of conductor to be connected (Al or Cu).

The tap and main cables are connected separately step by step to improve the electrical connection:

- 1. First the tap line is connected by piercing the insulation,**
  - 2. Then the main line is connected.**
- Installation can be carried out under a maximum load of 100A.

### Description

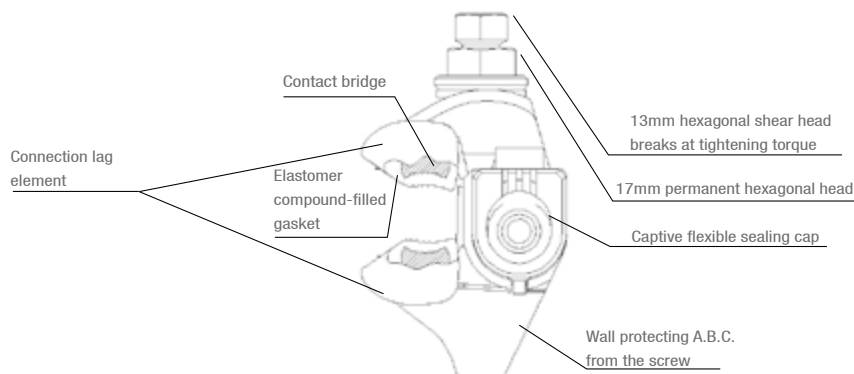
#### Connector general features:

- Piercing of the tap line and tightening of the main conductor are carried out step by step in a single tightening operation.
- The tightening screw is potential free.
- Tightening efficiency is ensured by a shear head screw.
- This connector is fitted with a yellow shear head indicator that disappears when head is sheared-off, being a clear visual confirmation of good tightening from ground level. It increases head height by 10 mm.

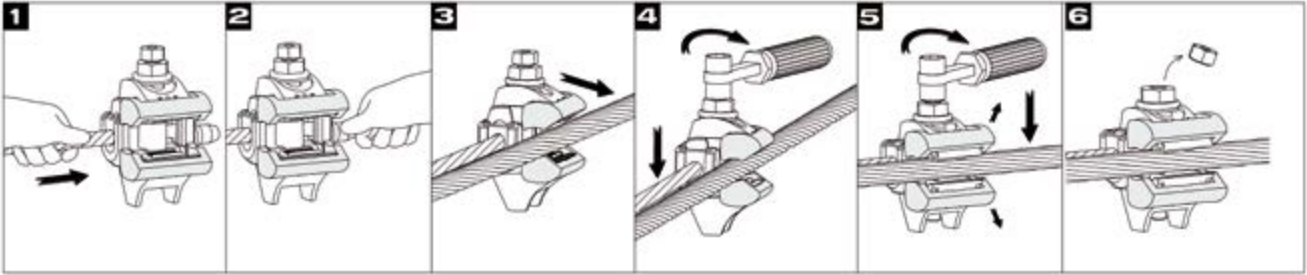
This connector meets the criteria of the **NF C 33-020** and **EN 50-483** standards.

#### Connector end cap:

- The connector end cap is flexible so that to feel good tap conductor insertion simply by hand.
- It is carrying membranes instead of grease, granting watertightness around tap conductor end on long term basis.
- It is glued on connector body so that to avoid eventual loss during handling, installation and environment (wind, bad weather...).
- It can be equipped with a hard end cap, gripping and covering so, in case rigid cover is required. (Part Number K246 : please enquire for further information).



## Installation



Insert the insulated service conductor into the connector so that its end seats in the flexible end cap. **1 2**

Install the connector correctly on the bare line. The conductor stays on the lag elements made of synthetic material. **3**

Note: The contact bridges remain away from the bare conductor.

Use a 13mm spanner and follow the two stage connection principle hereafter:

**(a) Connection of the insulated tap cable:**

- The insulated tap conductor is connected by insulating piercing. **4**

**(b) Connection of the bare main cable:**

- Tighten the connector on the bare conductor,
- The lag elements are automatically pushed away and the bare main conductor is connected, **5**
- Tighten the connector fully on to the bare conductor until the shear head breaks. **6**

The 17mm permanent screw head is only provided for possible dismantling. It must not be used to re-tighten the screw after the 13mm head has broken.

Installation can be carried out on a live line but with a maximum load of 100A on the tap conductor.

### STAINLESS STEEL FASTENERS (SF) + YELLOW SHEAR HEAD INDICATOR

Code	Designation	Contact bridge	Capacities Main bare (mm <sup>2</sup> )	Capacities Tap insulated Al-Cu (mm <sup>2</sup> )	Weight (kg)	Sales unit
K235	2 STAGES CONNECTOR RDP/CNU 95 SF	Brass	Cu 7-95	6-35	0.170	4
K236	2 STAGES CONNECTOR RDP/CNA 95 SF	Aluminium Alloy	Al 7-95	6-35	0.170	4

**SEE SHEET**  
INSTALLATION / LV insulated toolings

## Service connector with independent tightening

### Dismountable tap contact single service connector



**K397**

#### Application

This connector designed to connect independently the insulated service conductors to the low voltage A.B.C. (Aerial Bundled Conductors). While connection of the main line conductor uses insulation piercing technology, that of the tap line uses stripping technology.

#### Description

- The dielectric strength in water is greater than 6kV.
- The tightening screws are potential free.
- Tightening efficiency is ensured by shear head screws.
- The independent tightening tap line can accommodate solid or stranded core aluminium or copper insulated conductors with sections between 2.5 and 35mm<sup>2</sup>.

This connector meets the criteria of the **NF C 33-020** and **EN 50483** standards.

#### Installation

- Install the connector on the main conductor using a 13mm spanner until the shear head breaks.
- The 17mm permanent screw head is only provided for possible dismantling. It must not be used to re-tighten the screw after the 13mm head has broken.
- Strip the tap conductor over the recommended length and brush with neutral grease.
- Insert the conductor fully into the connector by piercing the seal wall.
- Tighten using a 13mm spanner until the shear head breaks.
- If dismantling and reassembling the tap, tighten the screw to the torque indicated on the head.
- It can be installed live. The load on the tap conductor must not exceed 90A.
- It can be disconnected live, but with no load.

Code	Designation	Contact bridge	Capacities Main insulated Al-Cu (mm <sup>2</sup> )	Capacities Tap insulated Al-Cu (mm <sup>2</sup> )	Weight (kg)	Sales unit
<b>ZINC-PLATED STEEL FASTENERS (VZ)</b>						
<b>K397</b>	<b>PIERCING CONNECTOR CB 1d/CT 95</b>	Tinned brass	16-95	2.5-35	0.175	6

## Bare conductor service connector with independent tightening



**K396**

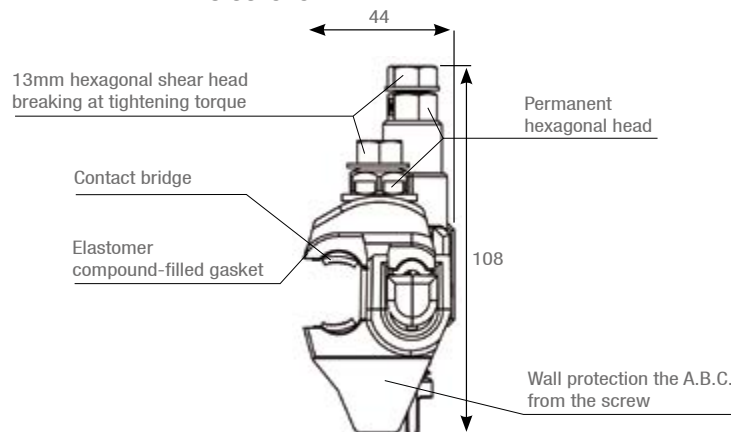
### Application

This connector is used for connecting independently the insulated service conductors to the low voltage overhead copper bare conductor network.

### Description

- The tightening screws are potential free.
- Tightening efficiency is ensured by shear head screws.
- The independent tightening can accommodate solid or stranded core aluminium or copper insulated conductors with sections between 2.5 and 35mm<sup>2</sup>.

This connector meets the criteria of **NF C 33-020**.



Dimensions in mm

### Installation

- Strip the tap conductor over the recommended length and brush with neutral grease.
- Insert the tap line fully, piercing the seal wall.
- Tighten using a 13mm spanner until the shear head breaks holding the tap line in your hand.
- Use a 13mm spanner and tighten the connector on the bare main conductor until the shear head breaks.
- The 17mm permanent screw head is only provided for possible dismantling. It must not be used to re-tighten the screw after the 13mm head has broken.
- Installation can be carried out on a live line but with no load on the tap conductor.
- If dismantling and reassembling the tap, tighten the screw to the torque indicated on the head.
- It can be disconnected live, but with no load.

Code	Designation	Contact bridge	Capacities Main bare (mm <sup>2</sup> )	Capacities Tap insulated Al-Cu (mm <sup>2</sup> )	Weight (kg)	Sales unit
<b>ZINC-PLATED STEEL FASTENERS (VZ)</b>						
<b>K396</b>	<b>STRIPPING CONNECTOR RDP 1d/CNU 95</b>	Brass	Cu 16-95	2.5-35	0.210	6



**SEE SHEET**  
INSTALLATION / LV insulated toolings

## Multitap service connector

2 tap conductors



**K390**



**K389**

with yellow shear head indicator

### Application

This connector is designed to connect from 2 to 4 insulated service conductors to the low voltage A.B.C. (Aerial Bundled Conductors).

4 tap conductors



**K348**



**K349**

### Description

#### Connector general features:

- The dielectric strength in water is greater than 6kV.
- The tightening screws are potential free.
- Tightening efficiency is ensured by shear head screws.
- The tap conductor of K391 and K393 versions uses the stripping technology. It uses the insulation piercing technology for the other versions.
- This independent tightening tap conductor can accommodate solid or stranded core aluminium or copper insulated conductors with sections between 6 and 35mm<sup>2</sup>.
- The K389 connector features a yellow indicator which disappears when the fuse head is correctly broken, making it easy to check from the ground that it is correctly tightened. It increases the height of the head by 10mm.

These connectors comply with **NF C 33-020** and **EN 50-483** standards.

#### Sealing cap for connectors K390, K391, K392, K393, K394 and K389 (2 starts) :

- The connector end cap is flexible so that to feel good tap conductor insertion simply by hand.
- It is carrying membranes instead of grease, granting watertightness around tap conductor end on long term basis.
- It is glued on connector body so that to avoid eventual loss during handling, installation and environment (wind, bad weather...).
- It can be equipped with a hard end cap, gripping and covering so, in case rigid cover is required. (Part Number K246: please enquire for further information).



Code	Designation	Contact bridge	Capacities Main insulated Al-Cu (mm <sup>2</sup> )	Capacities Tap insulated Al-Cu (mm <sup>2</sup> )	Weight (kg)	Sales unit
<b>ZINC-PLATED STEEL FASTENERS (ZF)</b>						
K390	PIERCING CONNECTOR CB 2p/CT 150 ZF	Tinned copper	35-150	2 x 6-35	0.260	10
K391	STRIPPING CONNECTOR CB 2d/CT 150 ZF	Tinned copper	35-150	2 x 6-35	0.260	10
K392	PIERCING CONNECTOR CB 2p/CT 70 ZF	Tinned copper	16-70	2 x 6-35	0.260	10
K393	STRIPPING CONNECTOR CB 2d/CT 70 ZF	Tinned copper	16-70	2 x 6-35	0.260	10
K394	PIERCING CONNECTOR CB 2p/CT 95 ZF	Tinned copper	16-95	2 x 6-35	0.260	10
K348	PIERCING CONNECTOR CB 4P/CT 95 ZF	Aluminum	25-95	4 x 6-35	0.420	12
K349	PIERCING CONNECTOR CB 4p/ CT 185 ZF	Aluminum	70-185	4 x 6-35	0.670	12
<b>STAINLESS STEEL FASTENERS (SF) + YELLOW SHEAR HEAD INDICATOR</b>						
K389	PIERCING CONNECTOR CB 2p/CT 150 SF	Tinned copper	35-150	2 x 6-35	0.260	10

### ***Option: Service connector with movable seal cap***

This connector is used for connecting 2 insulated service conductors to the low voltage A.B.C (Aerial Bundled Conductors). The movable seal cap enables a tap connection on the right or on the left.

The main conductor connection and the tap ones use the insulation piercing technology.



Code	Designation	Contact bridge	Capacities Main insulated Al-Cu (mm <sup>2</sup> )	Capacities Tap insulated Al-Cu (mm <sup>2</sup> )	Weight (kg)	Sales unit
K594	PIERCING CONNECTOR CB 2p/CT 95 ZF A	Tinned brass	16-95	2 x 6-35	0.250	10

 **SEE SHEET**  
INSTALLATION / LV insulated toolings

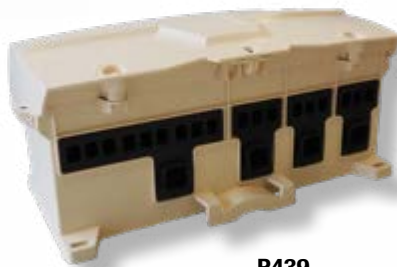
## Aerial connection box



**P436**  
6 outlets  
4 connection blocks



**MICHAUD Exclusivity**



**P439**  
9 outlets  
4 connection blocks

### Application

These boxes are designed to establish up to 6 (**P436**) or 9 (**P439**) single phase connections or up to 3 three phases connections at one point of the low voltage aerial bundled network. These boxes can be installed on a facade or a pole. They can also be used at the network end.

**+ Both models are available with insulation piercing or stripping technology**

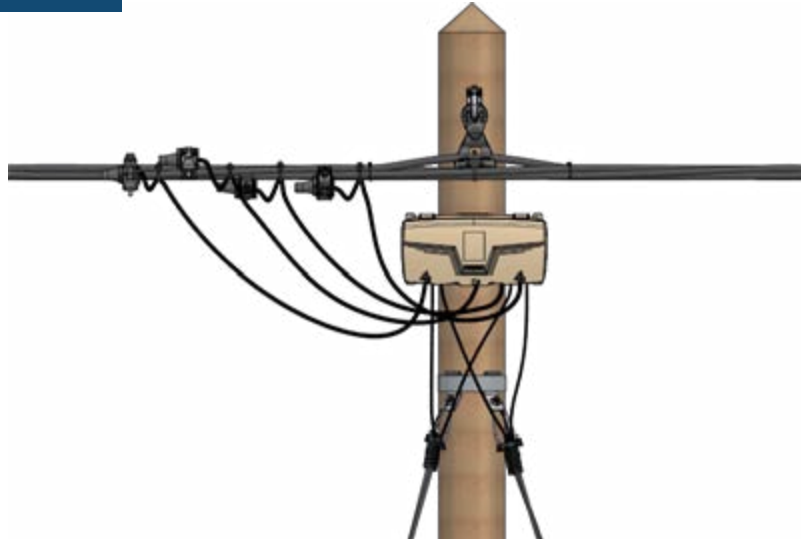
### The benefits :

- + Perform single phase or three phases connections**
- + Better spread charges on the network, thanks to the connections visibility**
- + Guarantee the network durability** (better resistance to corrosion and humidity)
- + Reduce the number of connectors** (safer network organisation, strengthened fraud-prevention)
- + Disconnect subscribers easily** (network cable unimpacted, possibility to re-use connectors)
- + Check the potential at the connection terminals** (with a test probe)
- + Guarantee a better fitters safety** (electricians shock risk limited)

### Description

- The box is equipped with 4 connections blocks (1 neutral + 3 phases). The "neutral block" consists of one inlet and 6 outlets (**P436**) or 9 outlets (**P439**) ; each "phase block" consists of one inlet and 3 outlets.
- Each box is available in 2 versions : insulation piercing or stripping technology.
- Each connection block is accessible with the contact pin of a test probe.
- The inlet and outlet of the conductors in the lower part are performed by elastomer seal sockets.
- The cover is closed using 2 plastic screws with a captive triangle recess.
- An integrated device allows the assembly to be sealed and possibly padlocked.
- The terminal separators inside the box enable the conductors to be connected in any order.
- The degree of protection of the enclosure is IP43. When the cover is opened, the degree of protection of the live parts is IP2X .
- The box offers fixing solution to the pole with strap or to the façade with screws.

This boxes meet the criteria of the **HN 62-S-33** standard.



		INLET	OUTLET	
		Network	Service	Flow power
P436-P	Capacities	35-150mm <sup>2</sup> Al/Cu	10-35mm <sup>2</sup> Al/Cu 16M - 50M Al	110 kVA
	Technology	Insulation piercing	Insulation piercing	
P436-D	Capacities	35-150mm <sup>2</sup> Al/Cu	6-35mm <sup>2</sup> Al/Cu 16M - 50M Al	
	Technology	Stripping	Stripping	
P439-P	Capacities	35-150mm <sup>2</sup> Al/Cu	10-35mm <sup>2</sup> Al/Cu 16M - 50M Al	
	Technology	Insulation piercing	Insulation piercing	
P439-D	Capacities	35-150mm <sup>2</sup> Al/Cu	6-35mm <sup>2</sup> Al/Cu 16M - 50M Al	
	Technology	Stripping	Stripping	

Code	Designation	Weight (Wt)	Sales Unit
P436-P	AERIAL CONNECTIONS BOX (x6) PIERCING	3,2	1
P436-D	AERIAL CONNECTIONS BOX (x6) STRIPPING	3,2	1
P439-P	AERIAL CONNECTIONS BOX (x9) PIERCING	3,2	1
P439-D	AERIAL CONNECTIONS BOX (x9) STRIPPING	3,2	1

## Aerial fuse connections box RAMEX



**MICHAUD Exclusivity**



### Application

The RAMEX box can be used to group up to 6 (P336) or 9 (P339) single-phase connections or 2 (P336) or 3 (P339) three-phase connections at the top of the pole.

It offers fused connection protection up to 60A.

The box can be fixed to a facade or pole.

**+ The box is available in an insulation-piercing version or in a stripping version for the network inlet.**

### Advantages :

- + Making protected single-phase and three-phase connections**
- + Better distribution of loads** on the network due to visibility of connections
- + Modular system** (common base, then add modules as needed, adaptable over time)
- + Box assembly can be carried out on site**
- + Fraud prevention** (pole top, IK08 mechanical resistance, power limitation by mini-switch, compatible with concentric anti-fraud cables)
- + Customer can be disconnected and reconnected**

### Description

- Boxes are equipped with 4 vertical bars (1 neutral + 3 phases)
- The enclosures are available in two versions: with insulation perforation or with stripping for the network inlet.
- The connections are stripped
- The network capacity of the boxes is 35-95mm<sup>2</sup> Al/Cu and the connection capacity is 6-25mm<sup>2</sup> Al/Cu
- Maximum power rating is 45kVA
- The boxes are compatible with single-phase 13 and 16mm<sup>2</sup> and three-phase 21 and 25mm<sup>2</sup> concentric connection cables
- The boxes are compatible with 14x51 (P339) and 22x58 (P336) fuses.
- 14x51 and 22x58 mini-switches can be used
- The enclosure has IK08 mechanical resistance and IP33 protection
- The enclosures feature a complete opening with a captive door, a ventilated enclosure with the possibility of installing an insect-proof grille making it IP43
- The boxes have two strap holes for pole mounting and screw holes for mounting on facades or wooden poles

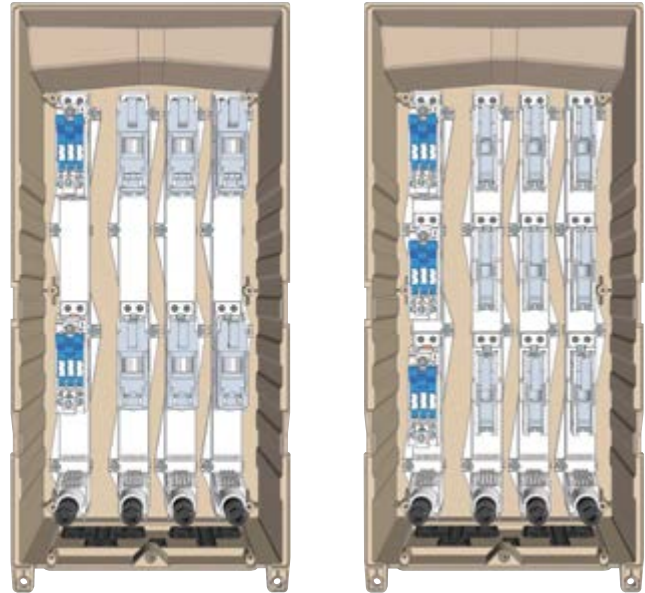
These enclosures meet the applicable criteria of **HN 62-S-33**.

## Installation

4 vertical bars



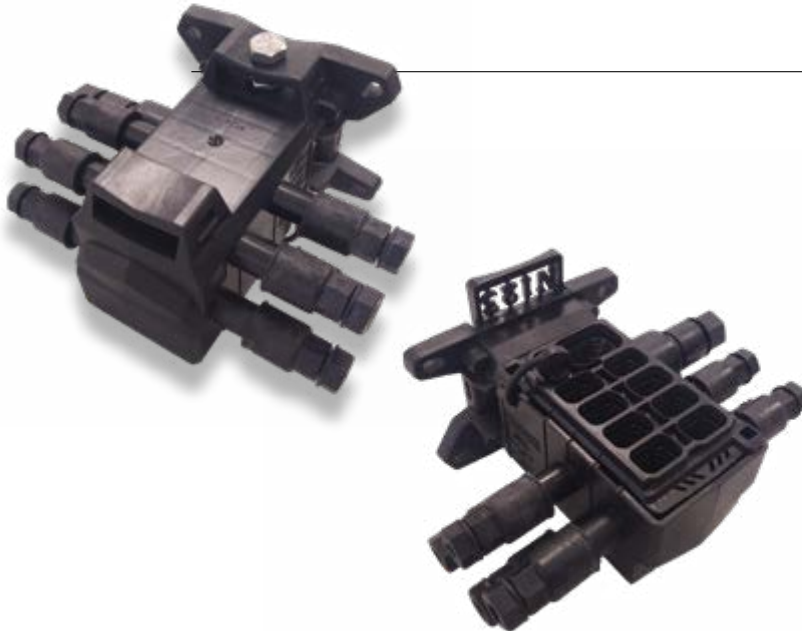
6 or 9 connections



Code	Designation	Weight (kg)	Sales Unit
P336-D	AERIAL 22x58 FUSE CONNECTIONS BOX (x6) STRIPPING	6,1	1
P336-P	AERIAL 22x58 FUSE CONNECTIONS BOX (x6) PIERCING	6,1	1
P339-D	AERIAL 14x51 FUSE CONNECTIONS BOX (x9) STRIPPING	6,1	1
P339-P	AERIAL 14x51 FUSE CONNECTIONS BOX (x9) PIERCING	6,1	1

Note: for an enclosure suitable for concentric cable connections, add "-C" to the product designation of your choice.

## Single pole connection block



**L436**



### Application

This overhead single pole block allows to star one conductor into 8 outlets. The use of the 2 blocks enables to realize up to 8 single phase connections. To better distinguish the connected conductor, the block possesses an identification plate. It can be installed on a facade or a pole.



**MICHAUD Exclusivity**  
Patented system

### The benefits :

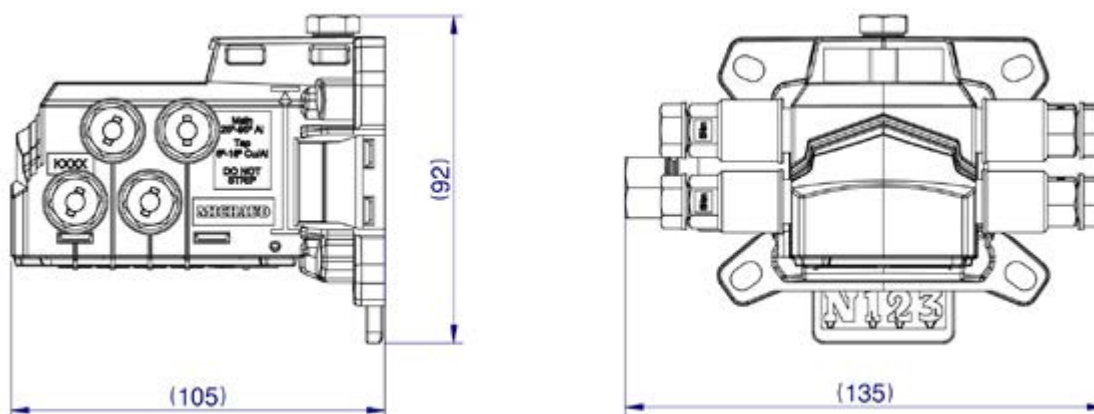
- + Perform several single phase connections
- + Reduce the number of connectors (safer network organization, strengthened fraud-prevention)
- + Clean the network (remove the "spiderweb" effect)
- + Help to identify the phases (thanks to the number plate)
- + Check the potential at the connection terminals (with a test probe)
- + Guarantee the network durability (better resistance to corrosion and humidity)
- + Make the operation easier (thanks to the piercing technology on tap and main conductors)
- + Guarantee a better fitters' safety (electric shock risk limited)
- + Personalize the number of the connections (thanks to the set modularity)

### Description

- The 8 outlets connection block is equipped with a single connection block.
- Each terminal is accessible with the contact pin of a test probe.
- The terminal block is made of tinned aluminium, which enable to connect copper or aluminium conductors.
- Each terminal uses insulation piercing technology facilitation the installation.
- The inlets are performed by elastomer seal sockets.
- Part **L436** includes one connection block. Part **L437** includes 2 connection blocks **L436**.
- Network tightening screw is made of aluminium and its shear head (size H17) is made of plastic.
- Service tightening screws are made of tinned steel and their shear heads (size H10) are made of plastic.
- Each block has a number plate enabling to easily identify the phases and the neutral (N/1/2/3).
- The product has a nut and M8 screw for mounting on console
- The blocks can be delivered with a metal fixing plate, which is resistant to corrosion\*. The plate's rigidity allows the fixing under a non-flate area.
- The degree of protection of the enclosure is IP33.
- Installation can be carried out on a live line but with no load on the tap conductor.

This block meets the criteria of the **HN 62-S-33** and **EN 50483-5** standards.

\*Optional



## Installation



	INLET	OUTLET	
	Network	Service	Power flow
Capacities	25-95mm <sup>2</sup> Al / Cu	6-16mm <sup>2</sup> Al / Cu	110 kVA
Technology	Insulation piercing	Insulation piercing	

Code	Designation	Output number	Weight (kg)	Sales unit
L436	AERIAL SINGLE POLE STAR CONNECTION BLOCK 8 OUTLETS 95-16	8	0.580	8
L437	SET OF 2 AERIAL SINGLE POLE STAR CONNECTION BLOCKS 8 OUTLETS 95-16	2 x 8	1.160	4

## Aerial connection box and network junction



**P429**  
8 service outlets single phase  
1 inlet / 1 outlet network  
4 connection blocks



**MICHAUD Exclusivity**

### Application

This box enables the junction of 2 overhead networks and the connection of 8 single phase or 4 three phases connections maximum. This box can be fixed either on a facade or on a pole. It can also be used at the network end.

### The benefits:

- + Perform single phase or three phases connections
- + Better spread charges on the network, thanks to the connections visibility
- + Reduce the number of connectors (safer network organisation, strengthened fraud-prevention)
- + Improve network readability (removal of the "spider's web" effect)
- + Check potential at terminal block (with a test probe)
- + Guarantee the network durability (better resistance to corrosion and humidity)
- + Easier operation (sliding lid with stop in open mode)
- + Guarantee better fitter safety (electric shock risk limited)
- + Avoid junctions between cables (making false regular cuts)

### Description

- The box is equipped with 4 connection blocks. Both network and connection terminals use insulating piercing technology for the **P429** and stripping stripping for the **P426**.
- Tightening is secured thanks to insulated shear head screws (H17/HC8 for network ; H10/H10 for service).
- Each terminal block is accessible with the contact pin of a test probe.
- Conductors inlet and outlet are performed on both sides through an elastomer seal socket with downwards angle.
- The cover is closed using a stainless steel screw. When opened, the cover stands-up, facilitating wiring. An integrated device enables the box to be sealed and possibly padlocked.
- The terminal separators inside the box enable the conductors to be connected in any order.
- The envelope degree of protection is IP33. When the cover is opened, the degree of protection of the live parts is IP2X.
- The envelope can be delivered with a metallic mounting plate \*. The plate's rigidity allows the fixing under a non-flate area.
- Installation can be carried out on a live line but with no load on the tap conductor.

This box meets the criteria of the **HN 62-S-33** and **EN 50 483-5** standards.

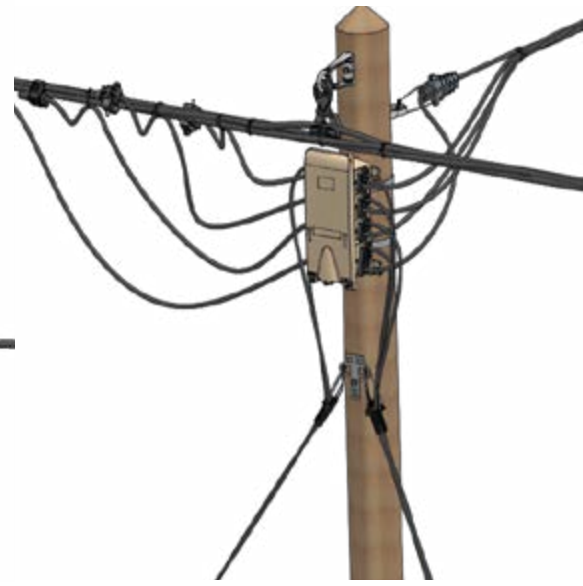
\* Optional



## Installation



Network junction + service connections



Network tapping + service connections

		INLET	OUTLET		Power flow
		Network	Network	Service	
P426	Capacities	25-95 mm <sup>2</sup> Al	25-95 mm <sup>2</sup> Al	6 Cu-25 mm <sup>2</sup> Al/Cu	
	Technology	Stripping	Stripping	Stripping	
P429	Capacities	25-95 mm <sup>2</sup> Al	25-95 mm <sup>2</sup> Al	6 Cu-25 mm <sup>2</sup> Al/Cu	
	Technology	Insulation piercing	Insulation piercing	Insulation piercing	

Code	Designation	Weight (kg)	Sales unit
P426	AERIAL CONNECTIONS BOX (x8) STRIPPING + NETWORK JUNCTION	2.85	2
P429	AERIAL CONNECTIONS BOX (x8) PIERCING + 1 NETWORK JUNCTION	2.85	1

## Network insulation piercing connector



**K355**



**K356**



**K381**



**K247**



**K366**



**K365**



**K445**

with yellow shear head indicator



**K354**

with yellow shear head indicator



**K446**

with yellow shear head indicator

### Application

This connector is designed to connect a low voltage A.B.C. (Aerial Bundled Conductors) network to another network of the same type.

### Description

#### Connector general features:

- Insulation piercing is carried out on the main and tap conductors simultaneously.
- The dielectric strength in water is greater than 6kV.
- The tightening screws are potential free.
- Tightening efficiency is ensured by shear head screws.
- Connectors K445, K354 and K446 are fitted with a yellow shear head indicator that disappears when head is sheared-off, being a clear visual confirmation of good tightening from ground level. It increases head height by 10 mm.

This connector meets the criteria of the **NF C 33-020** and **EN 50-483** standards.

#### Connector end cap:

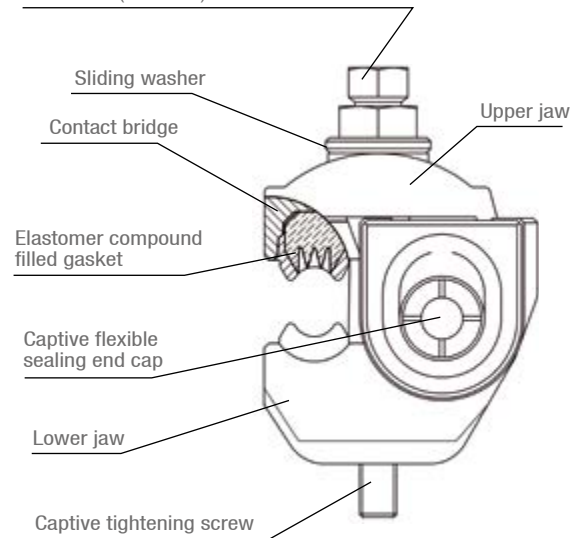
- The connector end cap is flexible so that to feel good tap conductor insertion simply by hand.
  - It is carrying membranes instead of grease, granting watertightness around tap conductor end on long term basis.
  - It is glued on connector body so that to avoid eventual loss during handling, installation and environment (wind, bad weather...).
  - It can be equipped with a hard end cap, gripping and covering so, in case rigid cover is required.
- (Part Number K245: please enquire for further information).

## Installation

- Insert the insulated tap conductor into the connector so that its end seats in the flexible end cap. (Note: connector K 381 is delivered without a cap).
- Use a 17mm spanner (13mm for connectors K354, K355 and K356) and tighten the connector on the insulated conductor of the bundle until the shear head breaks.
- The 17mm permanent screw head (21mm for connector K381) is only provided for possible dismantling, and must not be used to re-tighten the screw after the first head has broken.
- Installation can be carried out on a live line but with no load on the tap conductor.

Hexagonal shear head breaks at tightening torque:

- H13/H17 (for K354 - K355 - K356),
- H17/H17 (for K365 - K366 - K445 - K446),
- H17/H21 (for K381)



Code	Designation	Contact bridge	Capacities Main insulated Al-Cu (mm <sup>2</sup> )	Capacities Tap insulated Al-Cu (mm <sup>2</sup> )	Weight (kg)	Sales unit
<b>ZINC-PLATED STEEL FASTENERS (ZF)</b>						
K365	CONNECTOR CDRS/CT 95-95 ZF	Aluminium	25-95	25-95	0.235	20
K355	CONNECTOR CDRS/CT 150-95 ZF	Tinned brass	25-150	25-95	0.200	20
K366	CONNECTOR CDRS/CT AL 150-150 ZF	Aluminium	50-150	50-150	0.580	8
K356	CONNECTOR CDRS/CT 150-150 ZF	Tinned brass	35-150	35-150	0.400	10
K381	CONNECTOR CDRS/CT 240-240 ZF (without cap)	Tinned copper	50-240	50-240	0.820	1
K247	BLACK FLEXIBLE END CAP 95-240 - FOR CONNECTOR K381				0.027	6
<b>STAINLESS STEEL FASTENERS (SF) + YELLOW SHEAR HEAD INDICATOR</b>						
K445	CONNECTOR CDRS/CT 95-95 SF	Aluminium	25-95	25-95	0.230	20
K354	CONNECTOR CDRS/CT 150-95 SF	Aluminium	50-150	35-95	0.200	20
K446	CONNECTOR CDRS/CT 150-150 SF	Aluminium	50-150	50-150	0.560	8

Connector K356 is manufactured on order: please contact us.

### Option: Connector with movable end cap

This connector is used for connecting the insulated service conductors to the low voltage A.B.C (Aerial Bundled Conductors). The movable sealing end cap enables a tap connection on the right or on the left.

The main conductor connection and the tap ones use the insulation piercing technology.



Code	Designation	Contact bridge	Capacities Main insulated Al-Cu (mm <sup>2</sup> )	Capacities Tap insulated Al-Cu (mm <sup>2</sup> )	Weight (kg)	Sales unit
<b>ZINC-PLATED STEEL FASTENERS (ZF)</b>						
K555	CONNECTOR CDRS/CT 150-95 ZF	Tinned brass	25-150	25-95	0.174	20

 **SEE SHEET**  
OVERHEAD / LV end fitting / End cap

 **SEE SHEET**  
INSTALLATION / LV insulated toolings

## Network insulation piercing connector for bare conductor



**K254**



**K257**



**K472 - K473**  
with yellow shear head indicator



**K474 - K475**  
with yellow shear head indicator

### Application

This connector is designed to connect a low voltage A.B.C. (Aerial Bundled Conductors) network to another low voltage aluminium alloy or copper bare conductors network.

The section of the bare conductors is from 7 to 240mm<sup>2</sup> depending on the model.

The section of the insulated cables is from 25 to 150mm<sup>2</sup> depending on the model.

### Description

#### Connector general features:

- The tightening screws are potential free.
- Tightening efficiency is ensured by a shear head screw.
- Connection on the tap conductors is established using insulation piercing technology.
- Connectors K472, K473, K474 and K475 are fitted with a yellow shear head indicator that disappears when head is sheared-off, being a clear visual confirmation of good tightening from ground level. It increases head height by 10 mm.

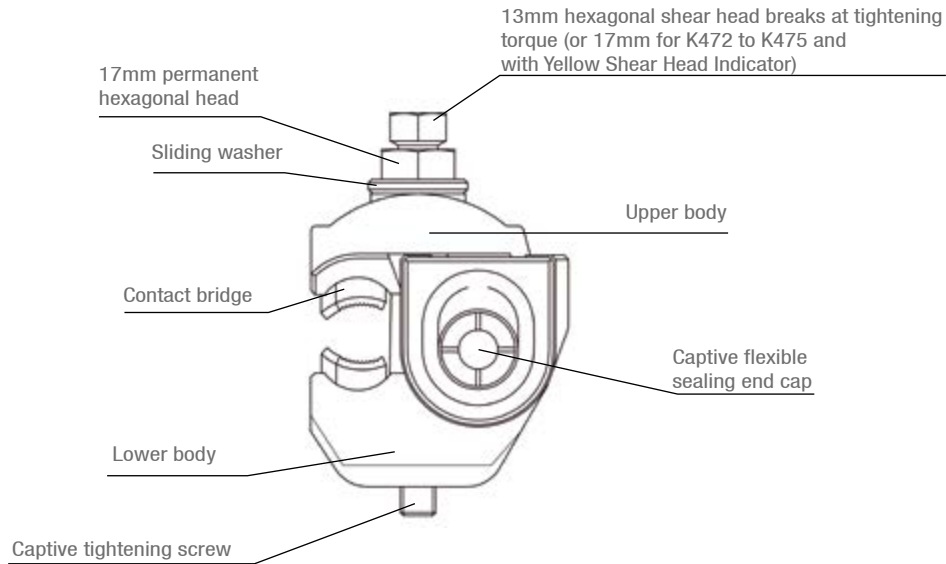
This connector meets the criteria of the **NF C 33-020** and **EN 50-483** standards.

#### Connector end cap:

- The connector end cap is flexible so that to feel good tap conductor insertion simply by hand.
- It is carrying membranes instead of grease, granting watertightness around tap conductor end on long term basis.
- It is glued on connector body so that to avoid eventual loss during handling, installation and environment (wind, bad weather...).
- It can be equipped with a hard end cap, gripping and covering so, in case rigid cover is required.  
(Part Number K245: please enquire for further information).

## Installation

- Insert the insulated tap conductor into the connector so that its end seats in the flexible end cap.
- Use a 13mm spanner for K254 - K257 or 17mm for K472 to K475. Tighten the connector on to the bare conductor until the shear head breaks.
- The 17mm hexagonal screw head is only provided for possible dismantling, and must not be used to re-tighten the screw after the first head has broken.
- Installation can be carried out on a live line but with no load on the tap conductor.



Code	Designation	Contact bridge	Capacities Main bare (mm <sup>2</sup> )	Capacities Tap insulated Al-Cu (mm <sup>2</sup> )	Weight (kg)	Sales unit
<b>ZINC-PLATED STEEL FASTENERS (ZF)</b>						
K254	CONNECTOR CDRSp/CN 120-70 ZF	Tinned brass	Al-Cu 7-120	25-70	0.210	20
K257	CONNECTOR CDRSp/CN 120-150 ZF	Tinned brass	Al-Cu 7-120	25-150	0.410	10
<b>STAINLESS STEEL FASTENERS (SF) + YELLOW SHEAR HEAD INDICATOR</b>						
K472	CONNECTOR RDP/CNU 120-95 SF	Copper Alloy	Cu 7-120	25-95	0.270	20
K473	CONNECTOR RDP/CNA 120-95 SF	Aluminium Alloy	Al 7-120	25-95	0.230	20
K474	CONNECTOR RDP/CNU 240-150 SF	Copper Alloy	Cu 50-240	35-150	0.640	8
K475	CONNECTOR RDP/CNA 240-150 SF	Aluminium Alloy	Al 50-240	35-150	0.550	8

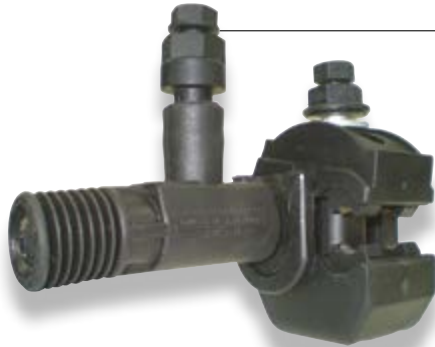
These connectors can be connected to copper or aluminium alloy bare conductors.



**SEE SHEET**  
INSTALLATION / LV insulated toolings

## Network insulation piercing connector with dismantlable tap contact

On A.B.C

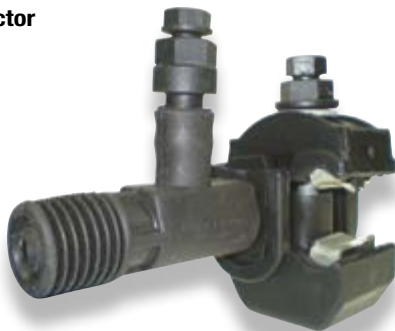


**K342**

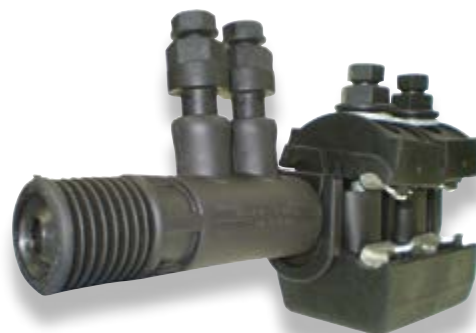


**K343**

One bare conductor



**K376 - K378**



**K377 - K379**

### Application

This connector is designed to connect a low voltage A.B.C. (Aerial Bundled Conductors) to another network of the same type or to a low voltage aluminium alloy or copper bare conductors network.

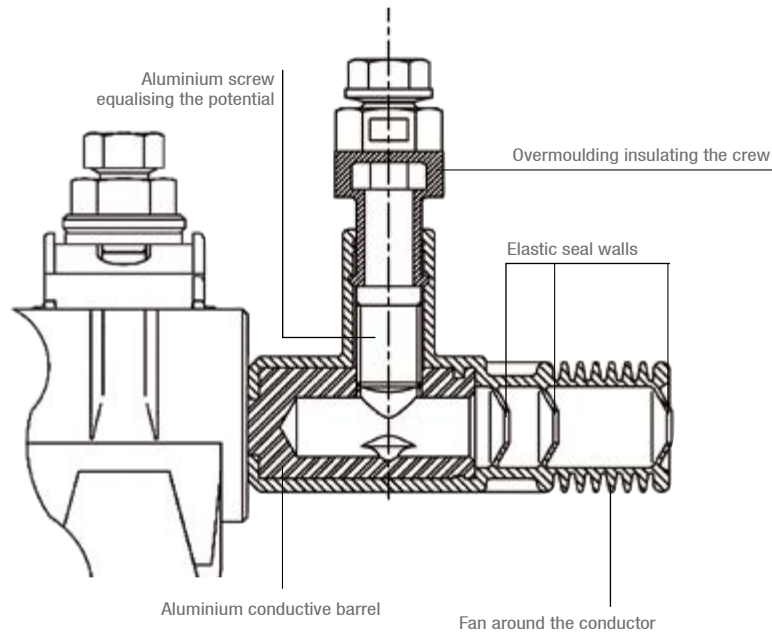
In main line, the section of the insulated conductors is from 25 to 150mm<sup>2</sup> depending on the model, and is from 7 to 120mm<sup>2</sup> on bare conductors.

In tap line, the section of the insulated conductors is from 25 to 70mm<sup>2</sup> and from 35 to 150mm<sup>2</sup> depending on the model.

### Description

- For the connection of the tap and for the connectors for insulated conductors, the dielectric strength in water is greater than 6kV.
- All of the tightening screws are potential free.
- Tightening efficiency is ensured by shear head screws.
- Connection on the main conductor is established with 1 or 2 shear head screws, depending on the model. This connection can be dismantled but not reused.
- Connection on the tap conductor is established after stripping its end with 1 or 2 shear head screw(s), depending on the model. It can be dismantled and reused.

This connector meets the criteria of the **NF C 33-020** and **EN 50-483** standards.

**Details of the tap contact :****Installation**

- Place the connector on the main conductor and tighten using a 13mm spanner until the shear head breaks.
- The 17mm permanent screw head is only provided for possible dismantling, and must not be used to re-tighten the screw after the first head has broken.
- Strip the tap conductor over the recommended length, insert it fully into the bore after brushing it with neutral grease.
- Tighten using a 13mm spanner until the shear head breaks (double screw on K377, K379 and K343).
- If dismantling and reassembling the tap, tighten the screw(s) using a 17mm spanner to the torque indicated on the head: 15Nm.
- Installation can be carried out on a live line but the load on the tap conductor must not exceed 60A.

Code	Designation	Contact bridge	Capacities Al-Cu (mm <sup>2</sup> )		Weight (kg)	Sales unit
			Main	Tap		
<b>ON A.B.C. INSULATED ZINC-PLATED STEEL FASTENERS (ZF)</b>						
K342	CONNECTOR CDR/CT 2S 150-70 ZF	Tinned brass	25-150	25-70	0.260	10
K343	CONNECTOR CDR/CT 2S 150-150 ZF	Tinned brass	35-150	35-150	0.520	10
<b>ON BARE CONDUCTOR ZINC-PLATED STEEL FASTENERS (ZF)</b>						
K376	CONNECTOR CDR/CNA 2S 70 ZF	Tinned brass	7-120	25-70	0.280	10
K377	CONNECTOR CDR/CNA 2S 150 ZF	Tinned brass	7-120	35-150	0.530	10
K378	CONNECTOR CDR/CNU 2S 70 ZF	Tinned brass	7-120	25-70	0.280	10
K379	CONNECTOR CDR/CNU 2S 150 ZF	Copper alloy	7-120	35-150	0.530	10

 **SEE SHEET**  
INSTALLATION / LV insulated toolings

## Parallel groove clamp



**U558**

### Application

These parallel groove clamps are designed to connect a bare aluminium or copper line from another bare aluminium line. They are adapted to outside use.

### Description

- These parallel-slotted jaws consist of an upper and a lower aluminum body. The two parts are held together by 2 corrosion-resistant clamping screws.
- The 2 clamping screws ensure optimum connection.
- The jaws have been designed to match the shape of the cables.
- The U559 series jaws are tin-plated, enabling the aluminum/copper lines to be derived.

Code	Designation	Capacities (mm <sup>2</sup> )		Weight (kg)	Sales unit
		Main	Tap		
<b>BARE ALUMINIUM</b>					
U558-50	PARALLEL GROOVE CLAMP BARE AI 50	6-50	6-50	0.100	100
U558-90	PARALLEL GROOVE CLAMP BARE AI 95	10-95	10-95	0.130	100
U558-150	PARALLEL GROOVE CLAMP BARE AI 150	25-150	25-150	0.210	50
U558-240	PARALLEL GROOVE CLAMP BARE AI 240	35-240	35-240	0.300	25
<b>BARE ALUMINIUM / COPPER</b>					
U559-70/50	PARALLEL GROOVE CLAMP BARE AI/Cu 70/50	AI 16-70	Cu 6-50	0.114	20
U558-150/50	PARALLEL GROOVE CLAMP BARE AI/Cu 150/50	AI 25-150	Cu 10-50	0.200	1
U558-240/185	PARALLEL GROOVE CLAMP BARE AI/Cu 240/185	AI 35-240	Cu 16-185	0.130	50

Nota : Shear head available on request, please require.



# To discover in this video: a range of connectors for overhead networks



## In this video:

- + Installation steps
- + Tools required
- + Technical characteristics

[www.michaud-export.com](http://www.michaud-export.com)



## Street light insulation piercing connector



**K440**

with yellow shear head indicator



**K326**

### Application

This connector is designed to connect the street light insulated conductors to the low voltage A.B.C. (Aerial Bundled Conductors).

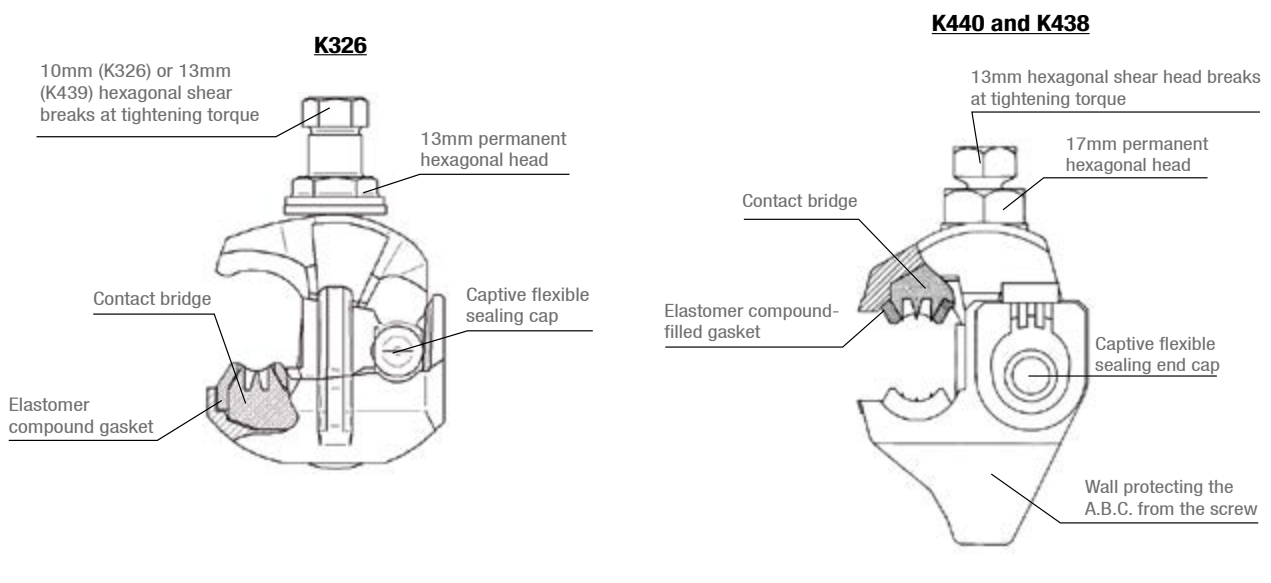


**K439**

### Description

- Insulation piercing is carried out on the main and tap conductors simultaneously in a single tightening operation.
- The dielectric strength in water is greater than 6kV.
- The tightening screw is potential free.
- Tightening efficiency is ensured by a shear head screw.
- The connector end cap is flexible so that to feel good tap conductor insertion simply by hand. It is glued on connector body or interdependent on watertightness, so that to avoid eventual loss during handling, installation and environment (wind, bad weather...).
- The connector K440 is fitted with a yellow shear head indicator that disappears when head is sheared-off, being a clear visual confirmation of good tightening from ground level. It increases head height by 10 mm.

This connector meets the criteria of the **NF C 33-020** and **EN 50-483** standards.



## Installation

- Insert the insulated service conductor into the connector such that its end seats in the flexible end cap.
- Use a 10mm spanner (for the K326) or a 13mm spanner (for the K439 and K440) and tighten the connector on the insulated main conductor of the bundle until the shear head breaks.
- The 13mm (for the K326 and K439) or 17mm (for the K440) permanent screw head is only provided for possible dismantling, and must not be used to re-tighten the screw after the shear head has broken.
- Installation can be carried out on a live line but with no load on the tap conductor.



Code	Designation	Contact bridge	Capacities Main insulated Al-Cu (mm <sup>2</sup> )	Capacities Tap insulated Al-Cu (mm <sup>2</sup> )	Weight (kg)	Sales unit
<b>ZINC-PLATED STEEL FASTENERS (ZF)</b>						
K326	CONNECTOR CES/CT 70 ZF	Tinned brass	16-70	1.5-6	0.070	12
K439	CONNECTOR CES/CT 95 ZF	Tinned brass	10-95	1.5-6	0.060	50
<b>STAINLESS STEEL FASTENERS (SF) + YELLOW SHEAR HEAD INDICATOR</b>						
K440	CONNECTOR CES/CT 95 SF	Tinned brass	10-95	1.5-6	0.110	20


**SEE SHEET**  
 INSTALLATION / LV insulated toolings


**SEE SHEET**  
 PROTECTION / Service protection / Fuse switch connector 20A

## Street light set



**K416**

### Application

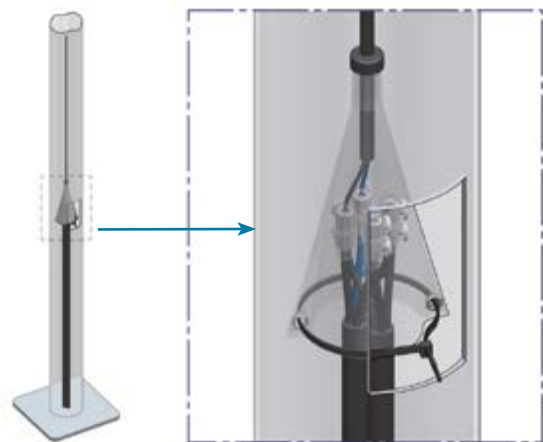
This street light set is designed to interconnect a network with a street light installation inside a lighting column.

### Description

- This set comprises:
  - 4 mechanical sleeves,
  - 1 protective cover.
- The mechanical sleeves are made of brass and accept up to 3 conductors of 10mm<sup>2</sup>. The conductor(s) must be stripped over 17mm before installation. Tightening is ensured by two 4mm hollow hexagonal screws. Each sleeve is covered with a hard transparent synthetic material enclosure providing good protection during and after installation. The sleeves have an IP2X protection degree.
- The protective cover is made of impermeable synthetic materials. It is equipped with a watertight inlet seal on the upper part avoiding water penetration on the connector, and a cable tie on the lower part enabling the enclosure to perfectly fit network cables.

### Installation

- 1 Insert the cable from the lighting column through the seal entrance.
- 2 Slide the enclosure upwards.
- 3 Implement the connectors.
- 4 Slide the enclosure down over the connectors.
- 5 Tighten the cable tie around the network cables.



**Lighting column**

Code	Designation	Weight (kg)	Sales unit
K416	STREET LIGHT SET	0.350	10

# Cold shrink end cap



**P414**

## Application

This end cap is designed to ensure street light conductor insulation when fitted at its end.

It is mainly used on the bottom of lighting column.

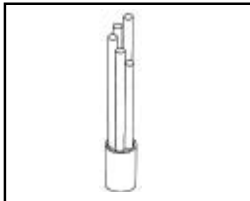
## Description

- The end cap is implemented without flame thanks to cold shrink technology.
- Depending on the model, it is made of an end cap with 4 or 5 movable guides enabling for correct conductors insertion.
- The material used is designed to ensure good UV resistance.
- Conductor capacity is 6-16mm<sup>2</sup> according to the **NF C 32-321** standard.

This product meets the criteria of the **HN 68-S-24** standard.

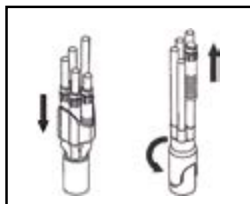
## End installation

1/



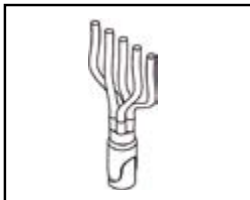
- Remove the sheath of the cable over the required length.
- Cut the conductors in a stair shape to facilitate assembly.

2/



- Place the conductors from the longest to the shortest in the open guides.
- Fully insert the end cap.
- Turn over the end cap using the tabs.
- Remove the guides.

3/



- Shape and cut the conductors to the required length.

Code	Designation	Weight (kg)	Sales unit
BC001	STREET LIGHT END CAP EE2TF 6-16	0.012	10
P415	STREET LIGHT END CAP EE3TF 6-16	0.012	10
P414	STREET LIGHT END CAP EE4TF 6-16	0.012	10
P419	STREET LIGHT END CAP EE5TF 6-16	0.012	10

# Service cable dismantlable sleeve and connection box

## Service cable dismantlable sleeve



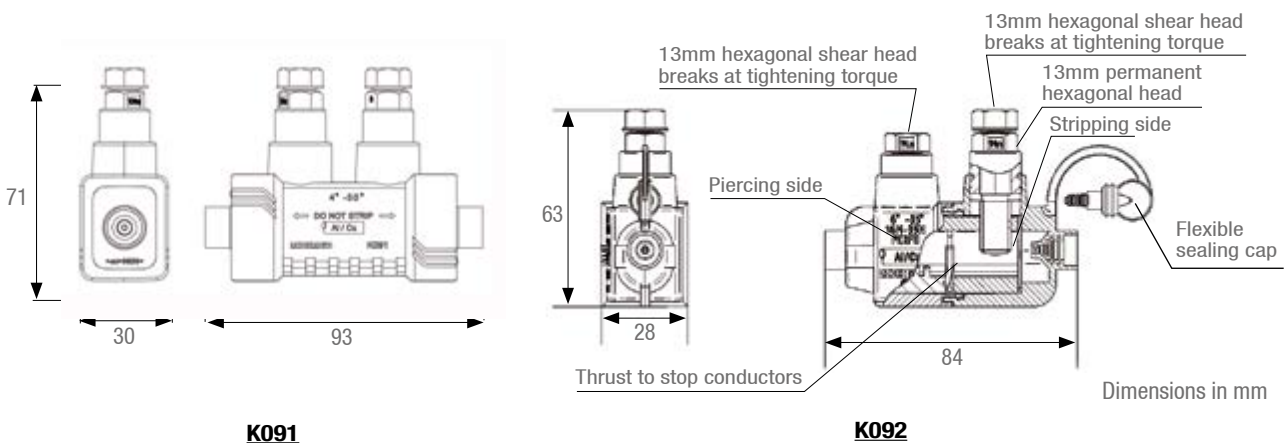
### Application

This service cable dismantlable sleeve is designed to establish the connection between the aerial service cable to the customer cable with Al or Cu conductors. This sleeve is used in no mechanical load situation.

### Description

- The sleeves K092 and K096 use the insulation piercing technology on the leading-in side (SUPPLY) and the stripping technology on the leading-out side (CUSTOMER).
- The sleeve K091 uses the insulation piercing technology on both sides.
- The dielectric strength in water is greater than 6kV.
- A flexible seal cap maintains the watertightness and insulation level on the stripping terminal in "disconnected" position for K092 and K096.
- The capacity of the terminals is 6-35mm<sup>2</sup>/16M-50M on the leading-in side (SUPPLY) and 4-35mm<sup>2</sup>/16M-50M on the leading-out side (CUSTOMER) depending on the models for K092 and K096.
- The capacity of terminals is 4-50mm<sup>2</sup> on both sides for K091.
- Installation of stripping terminals can be performed under a maximum load of 90A. Disconnection can be performed on a live line but with no load.
- The sleeves K092 and K096 can be assembled in a MCB (Mains Connection Box).
- The permanent hexagonal screw head on the "leading-in" side (SUPPLY), for the K096, allows possible dismantling. The permanent hexagonal screw head on the "leading-out" side (CUSTOMER) allows possible reuse.

This preinsulated sleeve meets the criteria of the **HN 33-S-83** standard.





Installation video available on [www.michaud-export.com](http://www.michaud-export.com)

Code	Designation	Capacities		Weight (kg)	Sales unit
		Leading-in	Leading-out		
K091	DISMOUNTABLE SLEEVE PIERCING 4-50 / PIERCING 4-50	4-50	4-50	0.090	10
K092	DISMOUNTABLE SLEEVE PIERCING 6-50M / STRIPPING 6-50M	6-35mm <sup>2</sup> 16M-50M	6-35mm <sup>2</sup> 16M-50M	0.100	10
K096	DISMOUNTABLE SLEEVE PIERCING 6-35 / STRIPPING 4-35	6-35	4-35	0.090	10

M means that the core of the conductor is solid.

## Mains Connection Box for dismantables sleeves (MCB for HSC)



**K451**



**K455**

### Application

This Mains Connection Box (MCB) is installed on the façade of the customer building. It includes service cable dismantable sleeves (HSCs / House Service Connectors) to connect the aerial service cable to the customer premise.

### Description

- The boxes equipped with service cable dismantable sleeves are available in single phase or three phase versions.
- The service cable dismantable sleeves accept cable sections between 6 and 35mm<sup>2</sup> on the "leading-in" side (SUPPLY) and between 4 and 35mm<sup>2</sup> on the "leading-out" side (CUSTOMER).

Code	Designation	Weight (kg)	Sales unit
K451	SINGLE PHASE MCB + 2 K096	0.380	1
K455	THREE PHASE MCB + 4 K096	0.650	1

### Variant: House service connector 4 bolts

This House Service Connector (HSC) with 4 bolts is designed to connect the overhead service line to the electrical installation of the premise.

It receives aluminium/copper leading-in and copper leading-out cables, running through two separated chambers.

It is installed outside or can be fitted in a no mechanical load situation into a MCB (Main Connection Box).



Customer side

**K099**

with yellow shear head indicator

### + Safe neutral connection

Code	Designation	Network side (mm <sup>2</sup> )	Customer side (mm <sup>2</sup> )	Weight (kg)	Sales unit
K099	HSC PIERCING 6-35 / STRIPPING 4-35 / 4 BOLTS	6-35	4-35	0.235	5
L307	WHITE SHEAR HEAD SCREW FOR K099			0.016	10

## Network preinsulated sleeve with mechanical tightening



Type 300  
K569



Type 240  
K191, K192, K193



Type 185  
K573



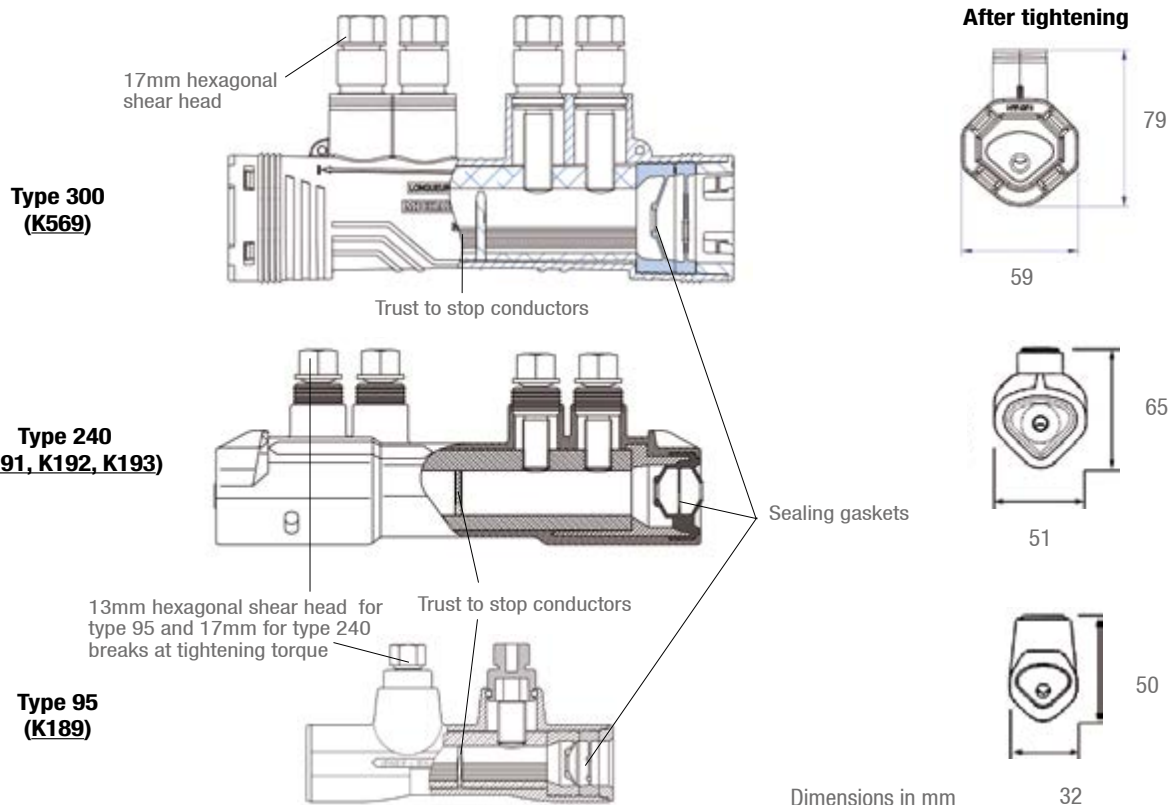
Type 95  
K189

### Application

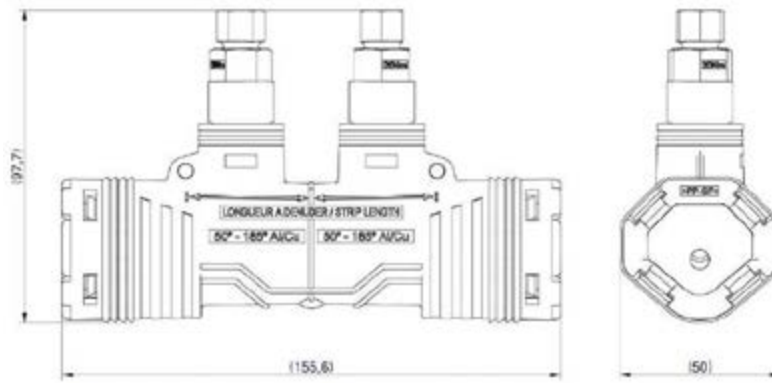
This sleeve is designed to connect aluminium or copper conductors. It does not need the sectoral cores to be rounded before. It is implemented using a 13 or 17mm spanner. The electrical capacity is respectively 240mm<sup>2</sup> aluminium conductors (K191, K192), 150mm<sup>2</sup> aluminium or copper conductors (K193) and 95mm<sup>2</sup> aluminium or copper conductors (K189).

### Description

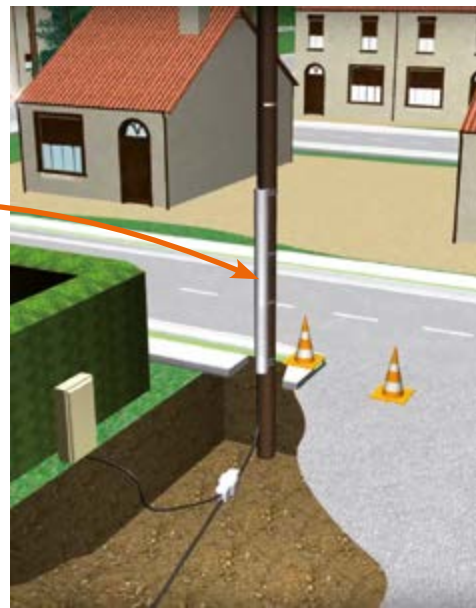
- The dielectric strength in water is greater than 6kV.
- The materials are protected against UV and can be used outside.
- The 95 and 300 types accept round and sectoral sections in a single model.





Type 185  
(K573)

Dimensions in mm

Installation video available on [www.michaud-export.com](http://www.michaud-export.com)

Code	Designation	Cable insulated Al-Cu (mm <sup>2</sup> ) *		Weight (kg)	Sales unit
		Leading-in	Leading-out		
K573	MECHANICAL SUBSURFACE PREINSULATED SLEEVE 50-185	Round/Sectoral 50-185	Round/Sectoral 50-185	0.235	4
K569	MECHANICAL SUBSURFACE PREINSULATED SLEEVE 150-300	Round/Sectoral 150 - 300	Round/Sectoral 150 - 300	0.545	4
K191	MECHANICAL SUBSURFACE PREINSULATED SLEEVE SECTORAL 95-240	Sectoral 95 - 240	Sectoral 95 - 240	0.520	4
K192	MECHANICAL SUBSURFACE PREINSULATED SLEEVE ROUND 150 / SECTORAL 240	Round 50 - 150	Sectoral 95 - 240	0.520	4
K193	MECHANICAL PREINSULATED SLEEVE ROUND 50-150	Round 50 - 150	Round 50 - 150	0.520	4
K189	MECHANICAL PREINSULATED SLEEVE 25-95	Round/Sectoral 25 - 95	Round/Sectoral 25 - 95	0.160	3

\* Others cross sections are available : please contact us.

SEE SHEET  
INSTALLATION / LV insulated toolings

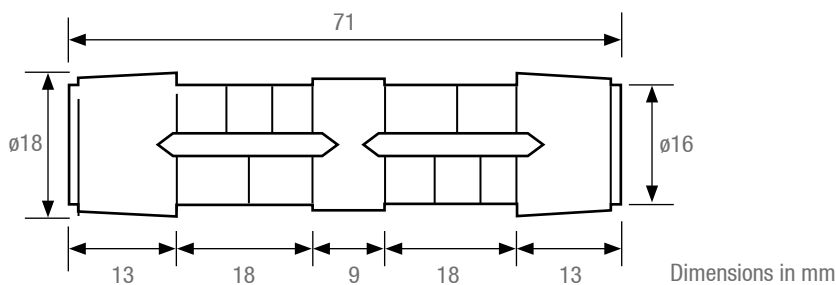
## Preinsulated sleeve E140



Stranded core

Stranded core

**K039**



### Application

This preinsulated sleeve is designed for the connection of copper or aluminium stranded core overhead insulated conductors with traction or with no mechanical load.

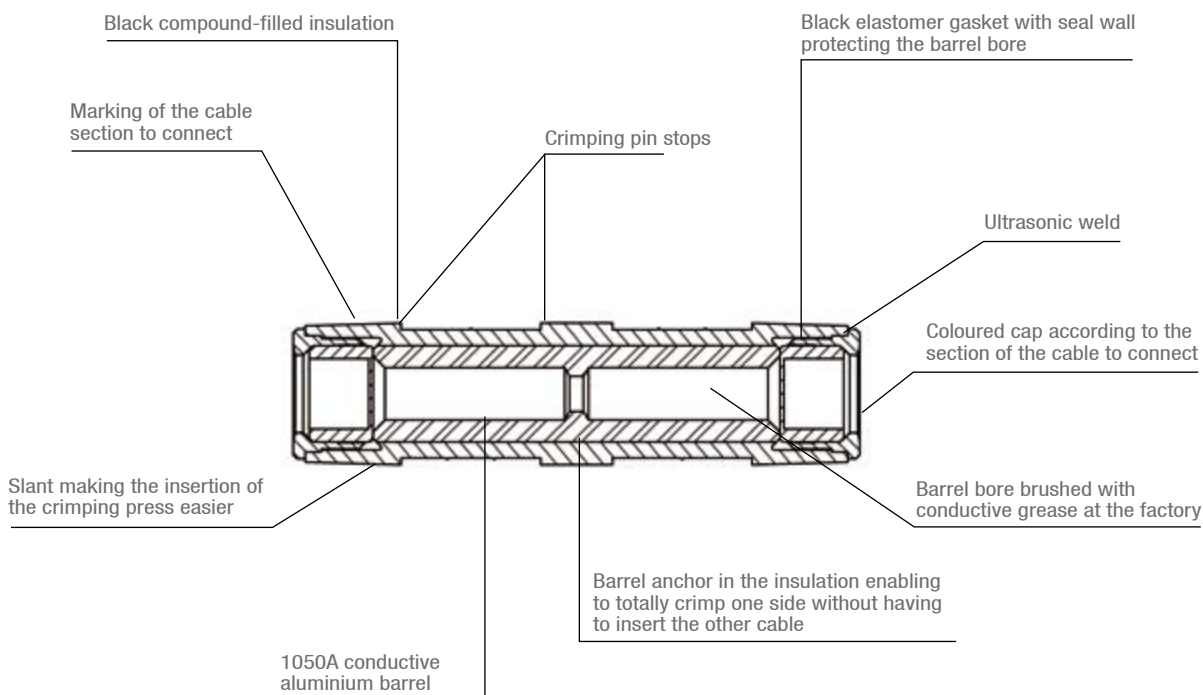
It is used for the installation, repair or modification of low voltage service lines. The junction can be established between two conductors of equal or unequal sections. All combinations of sections are possible.

The section of the cables ranges goes from 6 up to 35mm<sup>2</sup>.

### Description

- The sleeve can be used in mechanical traction.
- The sleeve has got an excellent dielectric strength, greater than 6kV.
- The materials are protected against UV.

This preinsulated sleeve meets the requirements of the **NF C 33-021** and **EN 50-483** standards.



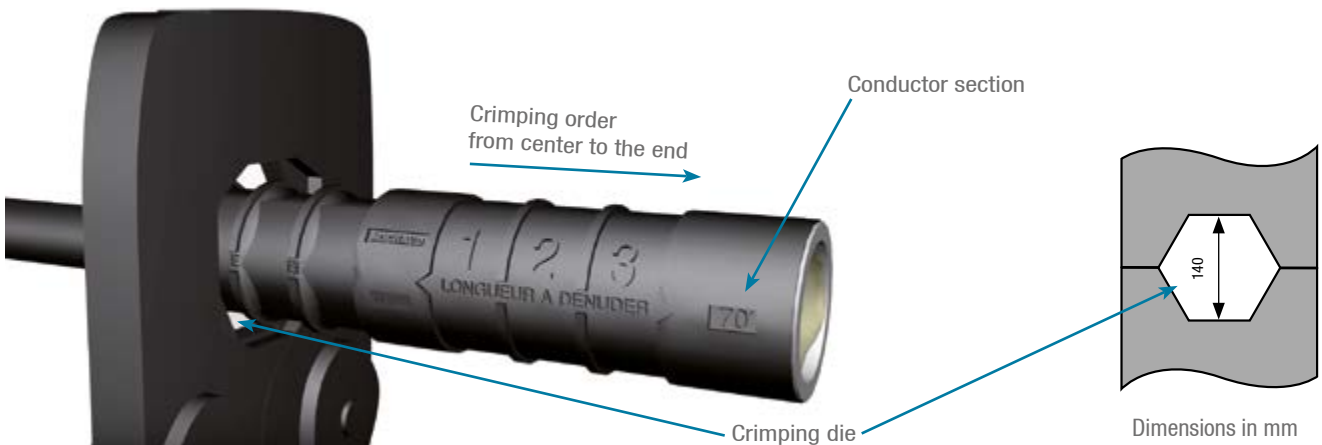
## Installation

### Preparation of the conductors to be connected:

- Cut the cables using a device that does not scratch the core.
- Strip the conductors over a length of 23mm.
- Brush the conductors to be connected using neutral grease to remove the oxide film. Do not wipe the conductors cleaned in this way.
- Insert the conductors fully into the sleeve bores.

### Crimping:

- Both conductors do not need to be inserted before crimping.  
You can insert one, crimp it, insert the second one and crimp it.



Installation video available on [www.michaud-export.com](http://www.michaud-export.com)

Code	Designation	Leading-in cable section (mm <sup>2</sup> )	Leading-in colour	Leading-out cable section (mm <sup>2</sup> )	Leading-out colour	Weight (kg)	Sales unit
K030	PREINSULATED SLEEVE (E140) MJPB 6	6	BROWN	6	BROWN	0.030	10
K031	PREINSULATED SLEEVE (E140) MJPB 10-6	10	GREEN	6	BROWN	0.030	10
K032	PREINSULATED SLEEVE (E140) MJPB 16-6	16	BLUE	6	BROWN	0.030	10
K033	PREINSULATED SLEEVE (E140) MJPB 25-6	25	ORANGE	6	BROWN	0.030	10
K035	PREINSULATED SLEEVE (E140) MJPB 10	10	GREEN	10	GREEN	0.030	10
K036	PREINSULATED SLEEVE (E140) MJPB 16-10	16	BLUE	10	GREEN	0.030	10
K037	PREINSULATED SLEEVE (E140) MJPB 25-10	25	ORANGE	10	GREEN	0.030	10
K039	PREINSULATED SLEEVE (E140) MJPB 16	16	BLUE	16	BLUE	0.030	10
K040	PREINSULATED SLEEVE (E140) MJPB 25-16	25	ORANGE	16	BLUE	0.030	10
K053	PREINSULATED SLEEVE (E140) MJPB 35-16	35	RED	16	BLUE	0.020	10
K042	PREINSULATED SLEEVE (E140) MJPB 25	25	ORANGE	25	ORANGE	0.020	10
K054	PREINSULATED SLEEVE (E140) MJPB 35-25	35	RED	25	ORANGE	0.020	10
K055	PREINSULATED SLEEVE (E140) MJPB 35	35	RED	35	RED	0.020	10



SEE SHEET  
INSTALLATION / Hydraulic crimping tool

## Preinsulated sleeve E173



**Phase MJPT sleeve - K110**



**Neutral MJPT sleeve - K116**

### Application

This preinsulated sleeve is designed for the connection of insulated conductors of a low voltage overhead network to other ones.

The junction can be established between two conductors of equal or unequal sections. All combinations of sections are possible.

The neutral conductor is dimensioned to withstand tensile strength greater than 1 600daN for the 54mm<sup>2</sup> section and greater than 2 000daN for the 70mm<sup>2</sup> section.

The section of the cables ranges from 16mm<sup>2</sup> to 95mm<sup>2</sup>.

### Description

- The sleeve can be used in mechanical traction.
- The sleeve has got an excellent dielectric strength, greater than 6kV.
- The materials are protected against UV.

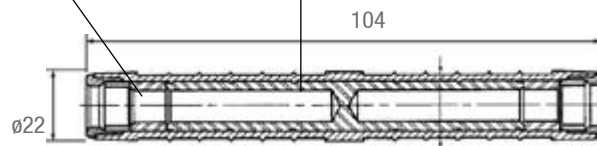
This preinsulated sleeve meets the requirements of the **NF C 33-021** and **EN 50-483** standards.

#### Phase sleeve

Elastomer gasket with seal wall protecting the barrel bore

1050A conductive aluminium barrel

Coloured cap locating the conductor section to connect



Black compound-filled insulation

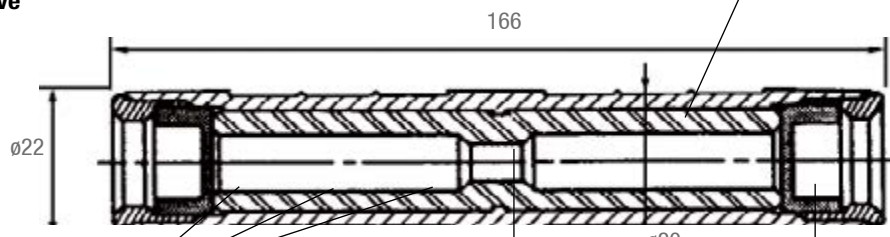
Barrel anchor in the insulation permitting to totally crimp one side without having to insert the other cable

ø20

Barrel bore brushed with conductive grease at the factory

#### Neutral sleeve

Conductive barrel in aluminium alloy



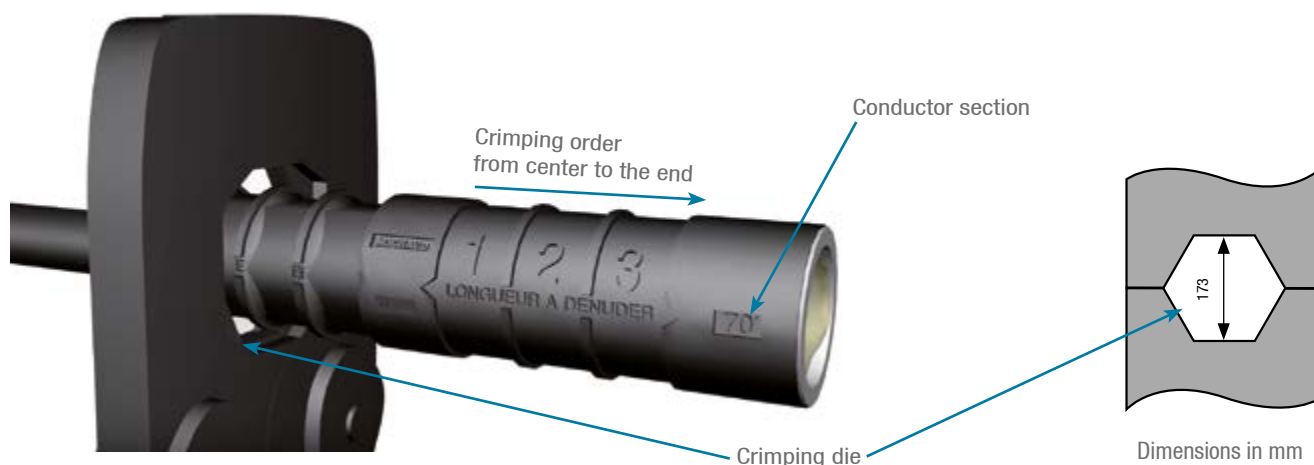
Insulation-barrel jointing anchorages

Discontinuity pin stop

ø20

Stuffing box collar in soft aluminium

Dimensions in mm



Installation video available on [www.michaud-export.com](http://www.michaud-export.com)

Code	Designation	Leading-in cable section insulated Al-Cu (mm <sup>2</sup> )	Leading-in colour	Leading-out cable section insulated Al-Cu (mm <sup>2</sup> )	Leading-out colour	Weight (kg)	Sales unit
<b>PHASE SLEEVES</b>							
K101	PREINSULATED SLEEVE (E173) MJPT 16	16	BLUE	16	BLUE	0.060	10
K103	PREINSULATED SLEEVE (E173) MJPT 25	25	ORANGE	25	ORANGE	0.060	10
K106	PREINSULATED SLEEVE (E173) MJPT 35	35	RED	35	RED	0.060	10
K108	PREINSULATED SLEEVE (E173) MJPT 50-25	50	YELLOW	25	ORANGE	0.060	10
K109	PREINSULATED SLEEVE (E173) MJPT 50-35	50	YELLOW	35	RED	0.060	10
K110	PREINSULATED SLEEVE (E173) MJPT 50	50	YELLOW	50	YELLOW	0.055	10
K114	PREINSULATED SLEEVE (E173) MJPT 54-50	54	BLACK	50	YELLOW	0.040	10
K118	PREINSULATED SLEEVE (E173) MJPT 70-35	70	WHITE	35	RED	0.050	10
K119	PREINSULATED SLEEVE (E173) MJPT 70-50	70	WHITE	50	YELLOW	0.050	10
K121	PREINSULATED SLEEVE (E173) MJPT 70	70	WHITE	70	WHITE	0.050	10
K122	PREINSULATED SLEEVE (E173) MJPT 95-70	95	GREY	70	WHITE	0.050	10
K123	PREINSULATED SLEEVE (E173) MJPT 95	95	GREY	95	GREY	0.050	10
<b>NEUTRAL SLEEVES (FULL TRACTION)</b>							
K115	PREINSULATED SLEEVE (E173) NEUTRAL MJPT 54	54.6N	BLACK	54.6N	BLACK	0.080	10
K117	PREINSULATED SLEEVE (E173) NEUTRAL MJPT 70-54	70N	WHITE	54.6N	BLACK	0.080	10
K116	PREINSULATED SLEEVE (E173) NEUTRAL MJPT 70	70N	WHITE	70N	WHITE	0.080	10

### Variant: Sleeves set

Set comprising 3 phase sleeves and 1 neutral sleeve.

Code	Designation	A.B.C. to connect	Weight (kg)	Sales unit
K503	SET OF SLEEVES (E173) EJPT 35-54.6	3x35 + 54.6N on 3x35 + 54.6N	0.265	1
K504	SET OF SLEEVES (E173) EJPT 50-54.6	3x50 + 54.6N on 3x50 + 54.6N	0.260	1
K506	SET OF SLEEVES (E173) EJPT 70-35-54.6	3x70 + 54.6N on 3x35 + 54.6N	0.250	1
K505	SET OF SLEEVES (E173) EJPT 70-54.6	3x70 + 54.6N on 3x70 + 54.6N	0.240	1
K507	SET OF SLEEVES (E173) EJPT 70-50/54.6	3x70 + 54.6N on 3x50 + 54.6N	0.250	1
K700	SET OF SLEEVES (E173) EJPT 70/70-54.6	3x70 + 70N on 3x70 + 54.6N	0.240	1
K701	SET OF SLEEVES (E173) EJPT 70-70	3x70 + 70N on 3x70 + 70N	0.240	1
K699	SET OF SLEEVES (E173) EJPT 70-50/70-54.6	3x70 + 70N on 3x50+ 54.6N	0.255	1



**SEE SHEET**  
INSTALLATION / Hydraulic crimping tool

## Preinsulated sleeve E215



Phase MJPT sleeve - **K175**



Neutral MJPT sleeve - **K185**

### Application

This preinsulated sleeve is designed for the connection of low voltage overhead insulated conductors to other ones.

The junction can be established between two conductors of equal or unequal sections. All combinations of sections are possible.

The section of the cables ranges from 95mm<sup>2</sup> to 150mm<sup>2</sup>.

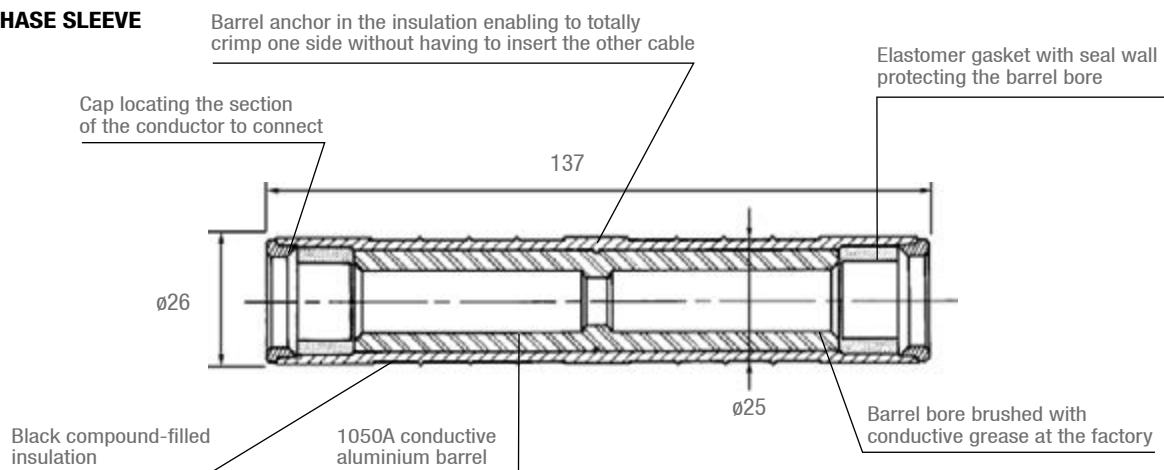
The neutral conductor is dimensioned to withstand tensile strength greater than 1 530daN for the 95mm<sup>2</sup> and greater than 2 500daN for the 150mm<sup>2</sup> section.

### Description

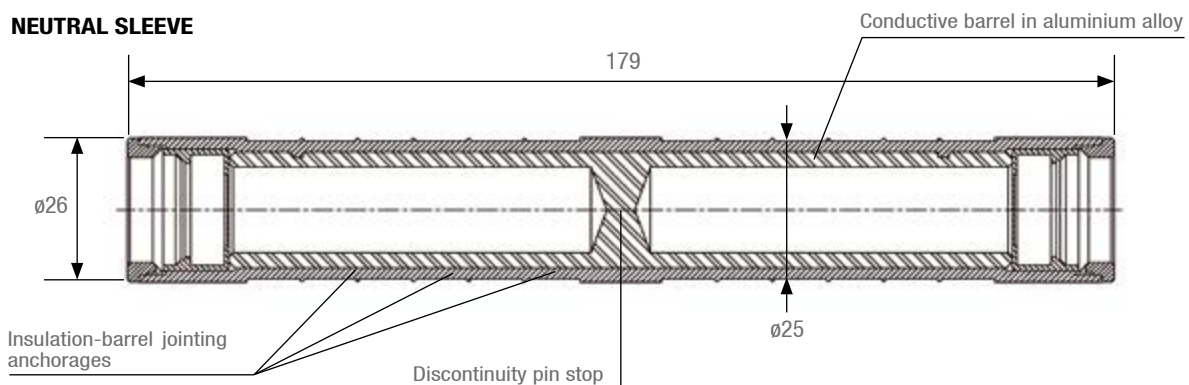
- The sleeve can be used in mechanical traction.
- The sleeve has got an excellent dielectric strength, greater than 6kV.
- The materials are protected against UV.

This preinsulated sleeve meets the requirements of the **NF C 33-021** and **EN 50-483** standards.

#### PHASE SLEEVE



#### NEUTRAL SLEEVE



Dimensions en mm

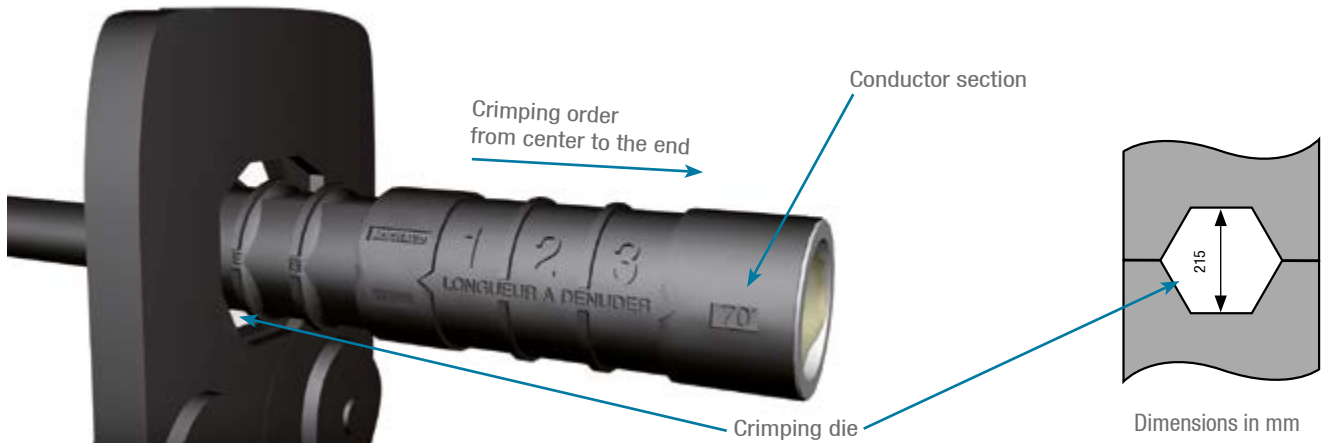
## Installation

### Preparation of the conductor to be connected:

- Cut the cable using a device that does not scratch the core.
- Strip the conductor over the length indicated on the sleeve.
- Brush the conductor to be connected using neutral grease to remove the oxide film. Do not wipe the conductor cleaned this way.
- Insert the conductor fully into the sleeve bore.

### Crimping:

- Both conductors do not need to be inserted into the sleeve before the crimping operation. You can insert one, crimp it, insert the second one and crimp it.



Installation video available on [www.michaud-export.com](http://www.michaud-export.com)

Code	Designation	Leading-in cable section insulated Al-Cu (mm <sup>2</sup> )	Leading-in colour	Leading-out cable section insulated Al-Cu (mm <sup>2</sup> )	Leading-out colour	Weight (kg)	Sales unit
<b>PHASE SLEEVES</b>							
K170	PREINSULATED SLEEVE (E215) MJPT 95	95	GREY	95	GREY	0.100	10
K188	PREINSULATED SLEEVE (E215) MJPT 120	120	PINK	120	PINK	0.090	10
K174	PREINSULATED SLEEVE (E215) MJPT 150-70	150	PURPLE	70	IVORY	0.100	10
K175	PREINSULATED SLEEVE (E215) MJPT 150	150	PURPLE	150	PURPLE	0.085	10
K176	PREINSULATED SLEEVE (E215) MJPT 150-95	150	PURPLE	95	GREY	0.090	10
<b>NEUTRAL SLEEVES (FULL TRACTION)</b>							
K185	PREINSULATED SLEEVE (E215) NEUTRAL MJPT 150 FT	150	PURPLE	150	PURPLE	0.100	10

### Variant: Sleeves set

Set comprising 3 phase sleeves (E215 crimped) and 1 neutral sleeve (E173 crimped).

Code	Designation	A.B.C. to connect	Weight (kg)	Sales unit
K509	SET OF SLEEVES (E215) EJPT 150-70/70-54.6	3x150 + 70N on 3x70 + 54.6N	0.380	1
K702	SET OF SLEEVES (E215) EJPT 150-70/70-70	3x150 + 70N on 3x70 + 70N	0.380	1
K510	SET OF SLEEVES (E215) EJPT 150-70/150-70	3x150 + 70N on 3x150 + 70N	0.350	1



**SEE SHEET**

INSTALLATION / Hydraulic crimping tool

## Preinsulated sleeve for aerial sub-surface connection E140



### Application

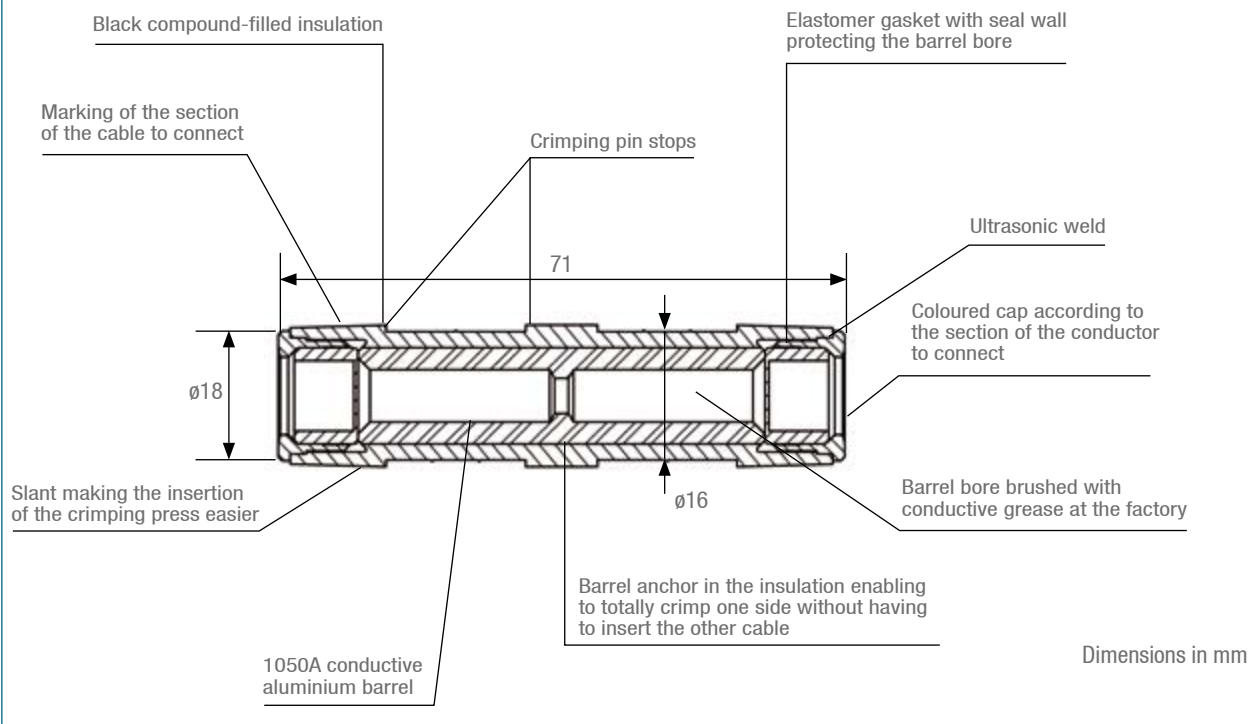
This preinsulated sleeve is designed for the connection of stranded core aerial service cables (aluminium or copper) to aluminium solid core sub-surface service cables.

It is also used to connect aluminium solid core service cables to one another. Cable sections up to 25mm<sup>2</sup> can be connected on the stranded core side and up to 35mm<sup>2</sup> on the solid core side.

### Description

- The sleeve can be used in mechanical traction.
- The sleeve has got an excellent dielectric strength, greater than 6kV.
- The materials are protected against UV.

This preinsulated sleeve meets the requirements of the **NF C 33-021** and **EN 50-483** standards.



Installation video available on [www.michaud-export.com](http://www.michaud-export.com)



Code	Designation	Aerial cable insulated Al-Cu section (mm <sup>2</sup> )	Aerial colour	Subsurface cable insulated Al (mm <sup>2</sup> )	Subsurface colour		Weight (kg)	Sales unit
					Cap	Gasket		
<b>AERIAL SUB-SURFACE SLEEVES (CONNECTION OF A STRANDED CORE CABLE WITH A SOLID CORE CABLE)</b>								
K068	PREINSULATED SLEEVE (E140) MJPBAS 10-25M	10	GREEN	25 M	GREY	ORANGE	0.030	10
K069	PREINSULATED SLEEVE (E140) MJPBAS 10-35M	10	GREEN	35 M	GREY	RED	0.030	10
K064	PREINSULATED SLEEVE (E140) MJPBAS 16-4M	16	BLUE	4 M	GREY	BLACK	0.030	10
K065	PREINSULATED SLEEVE (E140) MJPBAS 16-6M	16	BLUE	6 M	GREY	BLACK	0.030	10
K070	PREINSULATED SLEEVE (E140) MJPBAS 16-16M	16	BLUE	16 M	GREY	BLUE	0.030	10
K078	PREINSULATED SLEEVE (E140) MJPBAS 16-25M	16	BLUE	25 M	GREY	ORANGE	0.030	10
K079	PREINSULATED SLEEVE (E140) MJPBAS 16-35M	16	BLUE	35 M	GREY	RED	0.030	10
K072	PREINSULATED SLEEVE (E140) MJPBAS 25-16M	25	ORANGE	16 M	GREY	BLUE	0.030	10
K074	PREINSULATED SLEEVE (E140) MJPBAS 25-25M	25	ORANGE	25 M	GREY	ORANGE	0.030	10
K076	PREINSULATED SLEEVE (E140) MJPBAS 25-35M	25	ORANGE	35 M	GREY	RED	0.030	10

M means that the core of the conductor is solid.

Code	Designation	Leading-in cable section insulated Al (mm <sup>2</sup> )		Leading-out cable section insulated Al (mm <sup>2</sup> )		Subsurface colour		Weight (kg)	Sales unit
						Cap	Gasket		
<b>SUB-SURFACE SLEEVES (CONNECTION OF TWO SOLID CORE CABLES TO ONE ANOTHER)</b>									
K085	PREINSULATED SLEEVE (E140) MJPBS 16M-35M	16 M		35 M		GREY	BLUE/ RED	0.030	10
K073	PREINSULATED SLEEVE (E140) MJPBS 25M-25M	25 M		25 M		GREY	ORANGE/ ORANGE	0.030	10
K086	PREINSULATED SLEEVE (E140) MJPBS 25M-35M	25 M		35 M		GREY	ORANGE/ RED	0.030	10
K075	PREINSULATED SLEEVE (E140) MJPBS 35M-35M	35 M		35 M		GREY	RED/ RED	0.030	10

M means that the core of the conductor is solid.

## Variant:

Sleeves for neutral screen underground service cables (HM-27/03/139). They have a purple coloured cap on the copper side (21mm<sup>2</sup>).

Code	Designation	Poids (kg)	Unité vente
<b>AERIAL/SUB-SURFACE SLEEVES</b>			
K081	PREINSULATED SLEEVE (E140) MJPBAS 25-21Cu	0.030	10
<b>SUB-SURFACE SLEEVES</b>			
K083	PREINSULATED SLEEVE (E140) MJPBS 25M-21Cu	0.030	10

M means that the core of the conductor is solid.

 **SEE SHEET**  
INSTALLATION / Hydraulic crimping tool

## Preinsulated lug with mechanical tightening



**K575**



**K576**



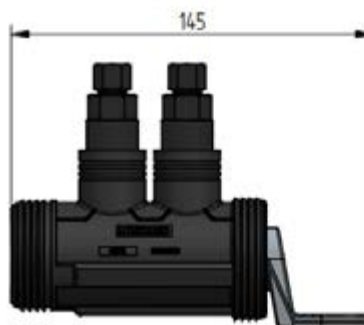
Michaud Exclusivity

### Application

These preinsulated lugs with mechanical tightening are used to connect aerial aluminum or copper conductors, solid or stranded round core, to copper equipment terminals. They are made to be used without mechanical load. They are made of tinned copper which allows compatibility to copper and aluminium. The connection of the conductor is ensured by one or two shear head screws, for optimal tightening.

### Description

- This lug is made of tinned copper covered with insulation materials.
- The palm is made of tinned copper with a M12 drilled hole at the end.
- The plot for the aerial conductor has got grooves to ensure a direct contact with the core.
- There are joints at the end of the lug and around the screw(s). They enable optimal sealing.
- There is neutral grease under the screw(s).
- The **K575** lug has got one shear head screw. The **K576** lug has got two shear head screws.
- The tightening screws have got H13 head for mounting and H17 head for dismantling.
- These lugs can be implemented after removing insulation of the conductor (stripped length advised on body side).
- These lugs allow medium voltage cables type BLL / BLX.
- A version without dismantling head is available on request

**K575****K576**

Dimensions in mm

Code	Designation	Capacities BLL/BLX (mm <sup>2</sup> )	Capacities Al-Cu (mm <sup>2</sup> )	Weight (kg)	Sales unit
<b>K575</b>	<b>PREINSULATED BIMETAL LUG WITH MECHANICAL TIGHTENING 25-95mm<sup>2</sup></b>	62-99	Round 25-95	0.22	12
<b>K576</b>	<b>PREINSULATED BIMETAL LUG WITH MECHANICAL TIGHTENING 95-240mm<sup>2</sup></b>	99-157	Round 95-240*	0.450	4

\*The sectorial 240mm<sup>2</sup> needs to be rounded before connection

## Preinsulated CPTAU lug



**Spin-welded terminal lug**



**Crimped terminal lug**

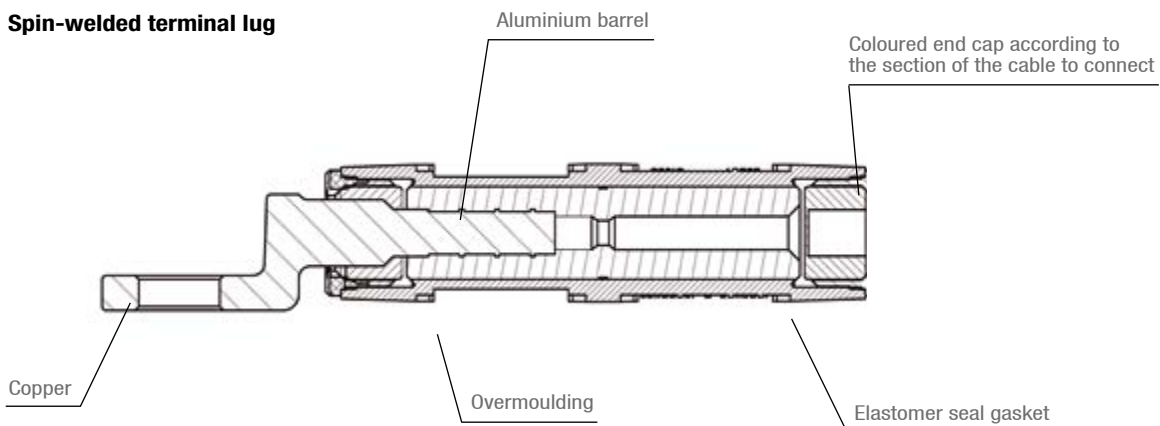
### Application

This preinsulated lug is designed to connect low voltage overhead insulated conductors to copper equipment terminals.

The cable sections range from 16 to 150mm<sup>2</sup> for the spin-welded terminal lug and 16 to 150mm<sup>2</sup> for the crimped lug.

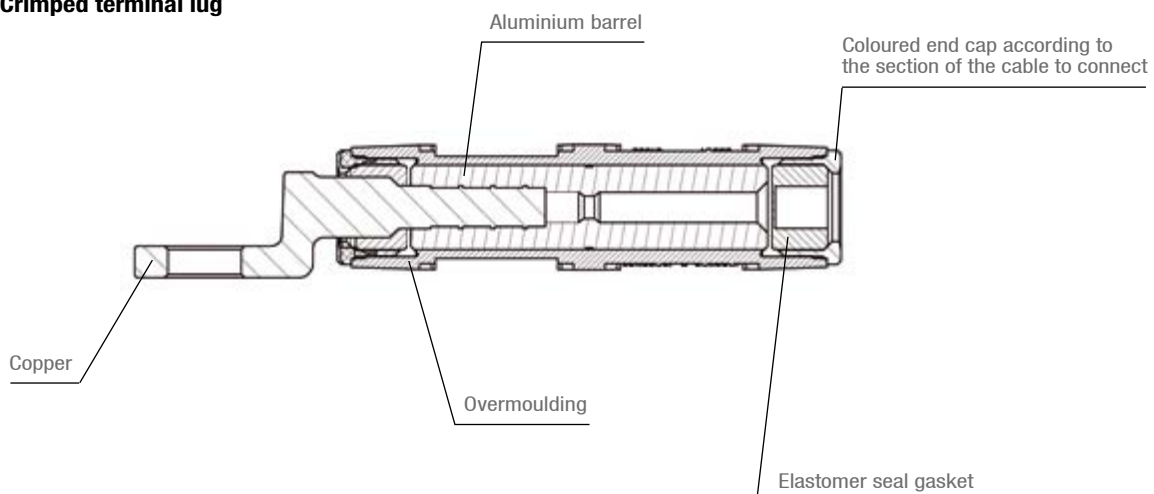
### Description

#### Spin-welded terminal lug



This preinsulated lug meets the requirements of the **NF C 33-021** and **EN 50-483** standards.

#### Crimped terminal lug

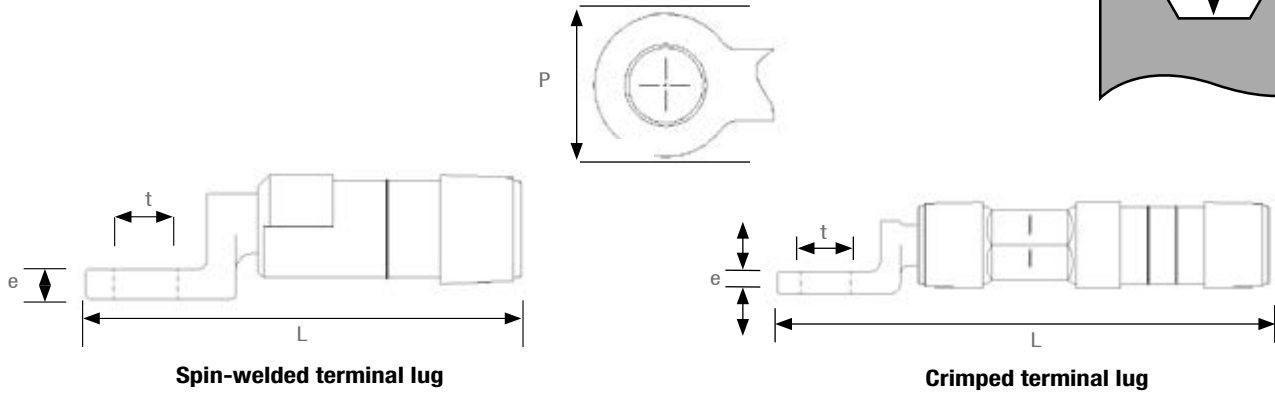
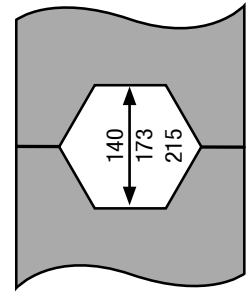


This preinsulated lug meets the requirements of the **NF C 33-021** and **EN 50-483** standards.

## Installation

### Crimping:

- Use a tool equipped with a suitable hexagonal die: E140 (14mm), E173 (17.3mm) or E215 (21.5mm).
- Crimp in the indicated area starting from the centre and going towards the end of the lug.



Code	Designation	Insulated Al-Cu cable (mm <sup>2</sup> )	Dimensions in mm				Weight (kg)	Sales unit
			P	e	t	L		
<b>SPIN-WELDED PREINSULATED LUG REQUIRING A E140 CRIMPING DIE</b>								
K159	Cu TERMINAL LUG (E140) CPTAU 16	16	20	5	10.3	72	0.040	10
K160	Cu TERMINAL LUG (E140) CPTAU 25	25	20	5	10.3	72	0.040	10
<b>SPIN-WELDED PREINSULATED LUG REQUIRING A E173 CRIMPING DIE</b>								
K163	Cu TERMINAL LUG (E173) CPTAU 35	35	25	5	12.8	92	0.070	10
K164	Cu TERMINAL LUG (E173) CPTAU 50	50	25	5	12.8	92	0.070	10
K165	Cu TERMINAL LUG (E173) CPTAU 54	54	25	5	12.8	92	0.070	10
K166	Cu TERMINAL LUG (E173) CPTAU 70	70	25	5	12.8	92	0.070	10
K167	Cu TERMINAL LUG (E173) CPTAU 95	95	25	5	12.8	92	0.070	10
<b>SPIN-WELDED PREINSULATED LUG REQUIRING A E215 CRIMPING DIE</b>								
K024	Cu TERMINAL LUG (E215) CPTAU 150	150	30	6	12.8	118	0.120	20
<b>CRIMPED PREINSULATED LUG REQUIRING A E140 CRIMPING DIE</b>								
K013	Cu CRIMPED TERMINAL LUG (E140) CPTAU 25	25	20	4.5	10.5	102	0.055	10
<b>CRIMPED PREINSULATED LUG REQUIRING A E173 CRIMPING DIE</b>								
K017	Cu CRIMPED TERMINAL LUG (E173) CPTAU 54	54	25	5	13	142	0.120	10
K018	Cu CRIMPED TERMINAL LUG (E173) CPTAU 70	70	25	5	13	142	0.110	10
<b>CRIMPED PREINSULATED LUG REQUIRING A E215 CRIMPING DIE</b>								
K023	Cu CRIMPED TERMINAL LUG (E215) CPTAU 150	150	30	6	13	186	0,220	10



**SEE SHEET**  
INSTALLATION / Hydraulic crimping tool

## Bare lug

### Tubular lug



#### Application

This tubular lug is designed to connect cable. It is made of tinned copper (by electrolysis). It is manufactured with an inspection hole and socketing.

This lug is implemented with hexagonal compressed connection. It allows copper and aluminium conductors.

This lug meets the requirement of the **NF C 20-130** standard.

Code	Designation	Section (mm <sup>2</sup> )	Bore	Weight (kg)	Sales unit
U740	TUBULAR LUG 1,5 <sup>2</sup>	1.5	M2	0.0008	100
U741	TUBULAR LUG 2.5 <sup>2</sup>	2.5	M3, M4	0.001	100
U742	TUBULAR LUG 4 <sup>2</sup>	4	M4, M6, M8	0.002	100
U743	TUBULAR LUG 6 <sup>2</sup>	6	M4, M5, M6, M8	0.004	100
U744	TUBULAR LUG 10 <sup>2</sup>	10	M4, M6, M8, M10	0.007	100
U745	TUBULAR LUG 16 <sup>2</sup>	16	M5, M6, M8, M10, M12	0.008	100
U746	TUBULAR LUG 25 <sup>2</sup>	25	M6, M8, M10, M12, M14	0.014	100
U747	TUBULAR LUG 35 <sup>2</sup>	35	M6, M8, M10, M12	0.016	100
U748	TUBULAR LUG 50 <sup>2</sup>	50	M6, M8, M10, M12, M16	0.025	100
U749	TUBULAR LUG 70 <sup>2</sup>	70	M8, M10, M12, M16	0.039	100
U750	TUBULAR LUG 95 <sup>2</sup>	95	M8, M10, M12, M14, M16	0.059	50
U751	TUBULAR LUG 120 <sup>2</sup>	120	M8, M10, M12, M14, M16	0.066	50
U752	TUBULAR LUG 150 <sup>2</sup>	150	M10, M12, M14, M16	0.083	50
U753	TUBULAR LUG 185 <sup>2</sup>	185	M10, M12, M14, M16	0.109	50
U754	TUBULAR LUG 240 <sup>2</sup>	240	M10, M12, M14, M16	0.146	20
U755	TUBULAR LUG 300 <sup>2</sup>	300	M10, M12, M14, M16	0.170	25
U756	TUBULAR LUG 400 <sup>2</sup>	400	M12, M14, M16	0.256	20

\*Weight may vary from bore to bore.

For other bores, please contact us.

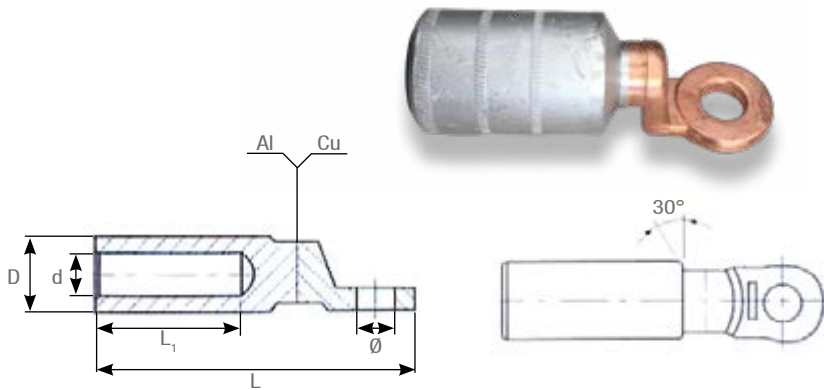
#### Desired bore:

Add the desired bore to the reference.

Example with tube lug model 35<sup>2</sup>, in bore 8: **U747-8**

 **SEE SHEET**  
INSTALLATION / Hydraulic crimping tool

## Spin-welded terminal lug for copper terminal



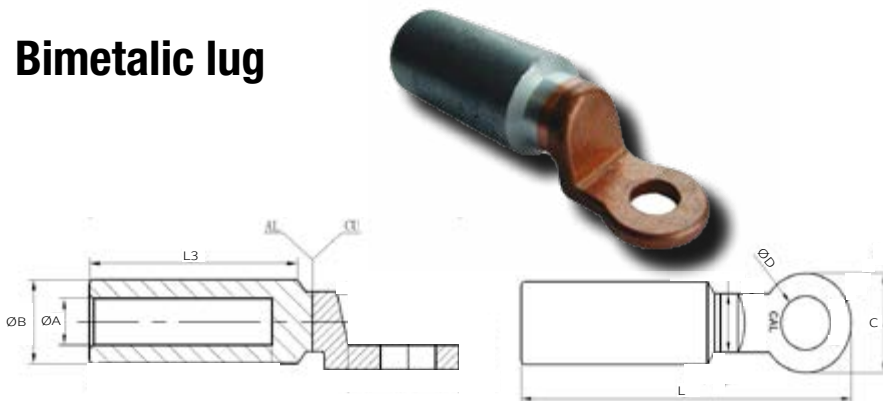
### Application

This friction welded lug is used to connect aluminium bare conductors to copper equipment terminals. It is used for industrial or indoor applications. This lug is implemented by crimping and out of traction.

This lug meets the requirement of the **NF C 63-061** standard.

Code	Designation	Dimensions (mm)					Weight (kg)	Sales unit
		Ø	D	d	L <sub>1</sub>	L		
F150	35mm <sup>2</sup> BIMETAL SPIN-WELDED BARE TERMINAL LUG	10.5	16	8	30	69	0.050	3
F151	50mm <sup>2</sup> BIMETAL SPIN-WELDED BARE TERMINAL LUG	10.5	16	9	30	69	0.070	3
F153	70mm <sup>2</sup> BIMETAL SPIN-WELDED BARE TERMINAL LUG	10.5	20	11	30	69	0.080	3
F156	95mm <sup>2</sup> BIMETAL SPIN-WELDED BARE TERMINAL LUG	10.5	20	12.5	30	69	0.090	3
F154	150mm <sup>2</sup> BIMETAL SPIN-WELDED BARE TERMINAL LUG	12.8	27	15.5	36	81	0.110	3
F155	240mm <sup>2</sup> BIMETAL SPIN-WELDED BARE TERMINAL LUG	12.8	27	19.5	36	90	0.150	3

## Bimetallic lug



### Application

This Al/Cu lug is used to connect aluminium bare conductors to copper equipment terminals. It is applied with a deep crimping.

Code	Designation	Dimensions (mm)						Weight (kg)	Sales unit
		ØA	ØB	ØC	ØD	L	L <sub>3</sub>		
U553_16-10	BIMETAL LUG CAL 16mm <sup>2</sup> - DIAM 10 C0AU16	5.8			10.5			0.050	10
U553_25-10	BIMETAL LUG CAL 25mm <sup>2</sup> - DIAM 10 C0AU25	6.7	16	20	10.5	79	45.5	0.050	10
U553_35-13	BIMETAL LUG CAL 35mm <sup>2</sup> - DIAM 13 C0AU35	8.2			13			0.060	10
U553_50-13	BIMETAL LUG CAL 50mm <sup>2</sup> - DIAM 13 C1AU50	9.2			13			0.050	5
U553_70-13*	BIMETAL LUG CAL 70mm <sup>2</sup> - DIAM 13 C1AU70	11.2	20	24	13	83.2	44.5	0.080	5
U553_95-13	BIMETAL LUG CAL 95mm <sup>2</sup> - DIAM 13 C1AU95	12.7			13			0.100	5
U553_120-13	BIMETAL LUG CAL 120mm <sup>2</sup> - DIAM 13 C2AU120	13.9			13			0.080	5
U553_150-13	BIMETAL LUG CAL 150mm <sup>2</sup> - DIAM 13 C2AU150	15.7	25	30	13	107.6	60.8	0.155	5
U553_185-13	BIMETAL LUG CAL 185mm <sup>2</sup> - DIAM 13 C4AU185	17.5			13			0.155	5
U553_240-13	BIMETAL LUG CAL 240mm <sup>2</sup> - DIAM 13 C4AU240	19.7	32	35	13	116.1	59.7	0.250	5
U553_300-17	BIMETAL LUG CAL 300mm <sup>2</sup> - DIAM 17 C5AU300	23.5			17			0.350	4
U553_400-17	BIMETAL LUG CAL 400mm <sup>2</sup> - DIAM 17 C5AU400	26.5	40	36	17	154.3	94	0.420	4

\*Compatible with 54.6mm<sup>2</sup> conductors according to **NF C 33-209**

# Sealing end cap and cover

## Sealing end cap



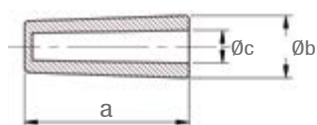
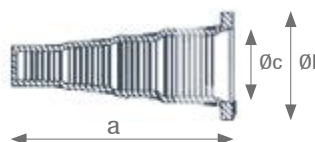
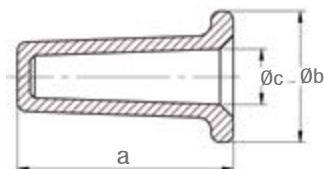
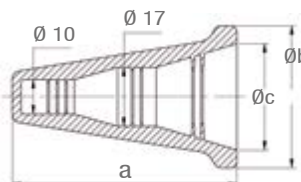
### Application

This flexible end cap is designed to ensure insulation of the end of a conductor.

It can be used inside and outside.

### Description

- The dielectric strength in water is greater than 6kV.
- The body is made of UV resistant black flexible synthetic material.

**K001****U528****K002 - K003****K247**

Dimensions in mm



Code	Designation	Dimensions (mm)			Capacities (mm <sup>2</sup> )	Weight (kg)	Sales unit
		a	b	c			
K001	BLACK FLEXIBLE END CAP 10-50M	32	12	7	10-50M	0.003	20
U528	BLACK FLEXIBLE END CAP 16-95 (50 PIECES)	53.4	26.3	18	16-95	0.005	1
K002	BLACK FLEXIBLE END CAP 35-95	40	16	10.5	35-95	0.008	20
K003	BLACK FLEXIBLE END CAP 95-150	50	19	13	95-150	0.012	20
K247	BLACK FLEXIBLE END CAP 95-240	67.2	45	31	Round: 50-240 Sectoral: 95-240	0.027	6

## Installation

Sealing end cap and cover implementation on cable



**In our videos:**

- + Installation steps
- + Tools required
- + Technical characteristics



All of our installation videos are on our Michaud Export Youtube channel.

## Heat-shrinkable material

### End cap



#### Application

This heat-shrinkable material is designed for low voltage applications in order to protect conductors and make them watertight. It is characterised by its insulating performances and its high resistivity to pollution and UV. It is retracted by blow torch heating.

#### Description

- CRB and CRR caps are designed for conductors only.
- CRC caps are designed for cables with many conductors.

Code	Designation	Section (mm <sup>2</sup> )	Use diameter (mm)	Weight (kg)	Sales unit
<b>FOR CONDUCTORS ONLY</b>					
F110	HEAT-SHRINKABLE END CAP CRB 10-25	10 to 25	6 to 9	0.004	50
F111	HEAT-SHRINKABLE END CAP CRR 16-70	16 to 70	9 to 12	0.008	50
F112	HEAT-SHRINKABLE END CAP CRR 150	150	18 to 23	0.023	10
F116	HEAT-SHRINKABLE END CAP CRR 240	240	23 to 28	0.038	10
<b>FOR CABLES</b>					
F113	HEAT-SHRINKABLE END CAP CRC 16-27		15 to 30	0.024	10
F114	HEAT-SHRINKABLE END CAP CRC 26-48		25 to 45	0.045	10
F115	HEAT-SHRINKABLE END CAP CRC 46-80		32 to 65	0.065	10

## End

### Description

This heat-shrinkable end is fitted at the end of a single phase or multi-phase junction.



Code	Designation	Section (mm)	Number of conductors	Weight (kg)	Sales unit
F100	HEAT-SHRINKABLE END E2R 10-35	10 to 35	2	0.015	1
F101	HEAT-SHRINKABLE END E4R 10-35	10 to 35	4	0.035	20
F102	HEAT-SHRINKABLE END E4R 50-150	50 to 150	4	0.047	20
F103	HEAT-SHRINKABLE END E4R 240	240	4	0.095	20

\* Compatible with underground cables 240mm<sup>2</sup> standard NF C 33 210 in version 2014 .

## Sheath

### Description

This heat-shrinkable sheath is used when neutral and phases have to be insulated. It is delivered in 10m rolls.



Code	Designation	Diameter application (mm)	Section (mm <sup>2</sup> )*	Weight (kg)	Sales unit
<b>FOR CONDUCTORS</b>					
F124	HEAT THERMORETRACTABLE GR 1,5-10 (10m)	2-6	1,5-10	0,190	20
F120	HEAT SHRINKABLE SHEATH GR 10-35 (10m)	5-11	10-35	0.230	50
F119	HEAT-SHRINKABLE SHEATH GR 35-95 (10m)	6-16	16-95	0.591	1
F121	HEAT-SHRINKABLE SHEATH GR 50-150 (10m)	9-26.5	25-150	0.800	1
F122	HEAT-SHRINKABLE SHEATH GR 240 (10m)	14.5-32	70-240	1.183	1

\*The sections indicated correspond to NF standards. For other standards, please refer to the diameter of application.

\*\* The sections indicated correspond to HD standards. For other standards, please refer to the diameter of application.

## Sleeve

### Description

This heat-shrinkable sleeve is used when a bare sleeve has to be insulated.



Code	Designation	Use diameter (mm)	Section (mm <sup>2</sup> )*	Length (mm)	Weight (kg)	Sales unit
F130	HEAT-SHRINKABLE SLEEVE FRM 16-100	7.5-17	25-120	100	0.100	10
F131	HEAT-SHRINKABLE SLEEVE FRM 25-100	10-25	35-150	100	0.100	10
F132	HEAT-SHRINKABLE SLEEVE FRM 25-200	10-25	35-150	200	0.200	10
F129	HEAT-SHRINKABLE SLEEVE FRM 30-150	10-25	35-150	150	0.250	10
F133	HEAT-SHRINKABLE SLEEVE FRM 30-250	10-25	35-150	200	0.300	10
F134	HEAT-SHRINKABLE SLEEVE FRM 30-200	10-26.5	35-185	250	0.350	10
F135	HEAT-SHRINKABLE SLEEVE FRM 35-150	15-30	95-240	150	0.250	10
F136	HEAT-SHRINKABLE SLEEVE FRM 35-250	15-30	95-240	250	0.400	10

\*The sections indicated correspond to NF standards. For other standards, please refer to the diameter of application.

## Stainless steel strap



Synthetic material winder  
20mm



Synthetic material winder  
10mm

### Application

This stainless steel strap and this range of installation tools is designed to fix the suspension or anchoring clamp brackets on all types of poles (wooden, metal or concrete).

### Description

- The strap is made of stainless steel AISI 201, AISI 304 or AISI 430.
- The strap is delivered in a roll inside an easy to handle synthetic material winder.
- The strap edges are deburred.
- The elastomer protection tape for the strap prevents any cable injury if the cable fixed on poles with a strap falls.

This strap meets the requirements of the **NF EN 10088-2**.

Dimensions	Length	WINDER STAINLESS STEEL STRAP		
		ECO AISI 430	STANDARD AISI 201	PREMIUM AISI 304
10x0.4 - 3/8"	50m	K945	K930	K930-304
	25m	K944		
10x0.7 - 3/8"	30.5m (100ft)		L946	L946-304
	50m	K946	K931	K931-304
12.7x0.4 - 3/8"	50m		K938	K938-304
12.7x0.7 - 1/2"	30.5m (100ft)		L948	L948-304
16x0.4 - 5/8"	50m		K937	K937-304
16x0.7 - 5/8"	30.5m (100ft)		L947	L947-304
19x0.7 - 3/4"	30.5m (100ft)		L949	L949-304
20x0.4 - 3/4"	50m	K947	K932	K932-304
20x0.7 - 3/4"	25m	K935-430	K935	K935-304
	50m	K948	K933	K933-304

Code	Designation	Winder length (m)	AISI	Weight (kg)	Sales unit
<b>DIMENSIONS 10x0.4 - 3/8"</b>					
K930	50m WINDER STAINLESS STEEL STRAP 10x0.4mm - 3/8" - AISI 201	50	201	1.850	4
K930-304	50m WINDER STAINLESS STEEL STRAP 10x0.4mm - 3/8" - AISI 304	50	304	1.850	4
K945	50m WINDER STAINLESS STEEL STRAP EC 10x0.4mm - 3/8" - AISI 430	50	430	1.850	4
<b>DIMENSIONS 10x0.7 - 3/8"</b>					
K931	50m WINDER STAINLESS STEEL STRAP 10x0.7mm - 3/8" - AISI 201	50	201	2.950	4
K946	50m WINDER STAINLESS STEEL STRAP EC 10x0.7mm - 3/8" - AISI 430	50	430	2.950	4
L946-304	30.5m WINDER STAINLESS STEEL STRAP 10x0.7mm - 3/8" - AISI 304	30.5	304	2.100	4
K931-304	50m WINDER STAINLESS STEEL STRAP 10x0.7mm - 3/8" - AISI 304	50	304	2.950	4
K944	25m WINDER STAINLESS STEEL STRAP EC 10x0.7mm - 3/8" - AISI 430	25	430	1.630	4
L946	30.5m WINDER STAINLESS STEEL STRAP 10x0.7mm - 3/8" - AISI 201	30.5	201	2.100	4
<b>DIMENSIONS 12.7x0.4 - 1/2"</b>					
K938	50m WINDER STAINLESS STEEL STRAP 13x0.4mm - 1/2" - AISI 201	50	201	2.600	4
K938-304	50m WINDER STAINLESS STEEL STRAP 13x0.4mm - 1/2" - AISI 304	50	304	2.600	4
<b>DIMENSIONS 12.7x0.7 - 1/2"</b>					
L948	30.5m WINDER STAINLESS STEEL STRAP 12.7x0.7mm - 1/2" - AISI 201	30.5	201	2.600	4
L948-304	30.5m WINDER STAINLESS STEEL STRAP 12.7x0.7mm - 1/2" - AISI 304	30.5	304	2.600	4
<b>DIMENSIONS 16x0.4 - 5/8"</b>					
K937	50m WINDER STAINLESS STEEL STRAP 16x0.4mm - 5/8" - AISI 201	50	201	2.760	4
K937-304	50m WINDER STAINLESS STEEL STRAP 16x0.4mm - 5/8" - AISI 304	50	304	2.760	4
<b>DIMENSIONS 16x0.7 - 5/8"</b>					
L947	30.5m WINDER STAINLESS STEEL STRAP 16x0.7mm - 5/8" - AISI 201	30.5	201	3.400	4
L947-304	30.5m WINDER STAINLESS STEEL STRAP 16x0.7mm - 5/8" - AISI 304	30.5	304	3.400	4
<b>DIMENSIONS 19x0.7 - 3/4"</b>					
L949	30.5m WINDER STAINLESS STEEL STRAP EC 19x0.7mm - 3/4" - AISI 201	30.5	201	4.000	4
L949-304	30.5m WINDER STAINLESS STEEL STRAP EC 19x0.7mm - 3/4" - AISI 304	30.5	304	4.000	4
<b>DIMENSIONS 20x0.4 - 3/4"</b>					
K932	50m WINDER STAINLESS STEEL STRAP 20x0.4mm - 3/4" - AISI 201	50	201	3.450	4
K932-304	50m WINDER STAINLESS STEEL STRAP 20x0.4mm - 3/4" - AISI 304	50	304	3.450	4
K947	50m WINDER STAINLESS STEEL STRAP 20x0.4mm - 3/4" - AISI 430	50	430	3.450	4
<b>DIMENSIONS 20x0.7 - 3/4"</b>					
K935	25m WINDER STAINLESS STEEL STRAP 20x0.7mm - 3/4" - AISI 201	25	201	3.030	4
K933	50m WINDER STAINLESS STEEL STRAP 20x0.7mm - 3/4" - AISI 201	50	201	6.000	4
K935-304	25m WINDER STAINLESS STEEL STRAP 20x0.7mm - 3/4" - AISI 304	25	304	3.030	4
K933-304	50m WINDER STAINLESS STEEL STRAP 20x0.7mm - 3/4" - AISI 304	50	304	6.000	4
K935-430	25m WINDER STAINLESS STEEL STRAP 20x0.7mm - 3/4" - AISI 430	25	430	3.030	4
K948	50m WINDER STAINLESS STEEL STRAP 20x0.7mm - 3/4" - AISI 430	50	430	6.000	4

### Variant: Cardboard winder

For further information, consult us.



**K92X**

**+** Other lengths and dimensions are available for stainless steel strap

## Stainless steel strap accessories

### SMART buckles



**Michaud Exclusivity**  
Patented system



- + The SMART buckle is made of stainless steel
- + This product can be used with a pair of pliers and a hammer
- + Available in two sizes.

#### Application

This stainless steel buckle can be used without any special tools: a pair of pliers and a hammer are sufficient. Installation is quick and easy. It can be used to fix accessories without tensile strength such as ducts, signage, etc. on all types of poles.

Code	Designation	Compatibility with	Weight (kg)	Sales unit
L952 - HT	SMART BUCKLES 10 AND 13 mm - 3/8" and 1/2" (x100) - WT	10mm (3/8") and 13mm (1/2")	0.600	1
L953 - HT	SMART BUCKLES 16 AND 20 mm - 5/8" and 3/4" (x100) - WT	16mm (5/8") and 20mm (3/4")	0.800	1

### Yokes and buckles



Yoke



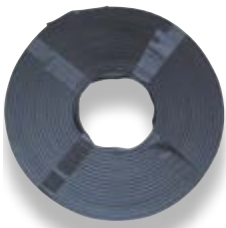
Reinforced buckle

#### Application

These buckles are used to close the strap once it is strapped around the post.

Code	Designation	Compatibility with	Weight (kg)	Sales unit
K950	YOKES FOR 10mm STRAP - 3/8" (x100)	10mm (3/8") and 13mm (1/2")	0.360	1
K951	YOKES FOR 20mm STRAP - 3/4" (x100)	16mm (5/8") and 20mm (3/4")	0.600	1
L950	YOKES EC FOR 10mm - 3/8" STRAP (x100)	10mm (3/8") and 13mm (1/2")	0.360	1
L951	YOKES EC FOR 20mm - 3/4" STRAP (x100)	16mm (5/8") and 20mm (3/4")	0.610	1
U955-10	REINFORCED BUCKLES FOR 10mm STRAP - 3/8" (x100)	10mm (3/8")	1.000	1
U955-13	REINFORCED BUCKLES FOR 13mm STRAP - 1/2" (x100)	13mm (1/2")	1.200	1
U955-16	REINFORCED BUCKLES FOR 16mm STRAP - 5/8" (x100)	16mm (5/8")	1.300	1
U955-20	REINFORCED BUCKLES FOR 20mm STRAP - 3/4" (x100)	20mm (3/4")	1.500	1

## Protection tape and eyes



Protection  
tape



Eyes



Anti-climbing buckles

### Application

This protection tape and eyes can be used for the stainless steel strap implementation.

These stainless steel buckles are fixed onto the strap to prevent climbing on the pole and the fraud attempt.

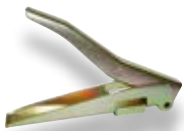
Code	Designation	Weight (kg)	Sales unit
K957	PROTECTION TAPE FOR 10mm STRAP - 3/8" (10m length)	0.500	1
K964	PROTECTION TAPE FOR 13mm STRAP - 1/2" (10m length)	0.580	1
K965	PROTECTION TAPE FOR 16mm STRAP - 5/8" (10m length)	0.610	1
K958	PROTECTION TAPE FOR 20mm STRAP - 3/4" (10m length)	0.770	1
K654	EYES 25x25 (x100)	1.700	1
K655	EYES 25x40 (x100)	2.160	1
K656	EYES 25x60 (x100)	2.820	1
K956	ANTI-CLIMBING STAINLESS STEEL BUCKLES (x25)	0.580	1

### Tools

- The tools are made of non-corrosive steel.
- The carrying case with ergonomic inside trim is made of synthetic material. It includes a cutting tool, binding tool and buckles (to be ordered separately).



Binding tool  
ratchet type



Folding plier



Binding tool  
wheel type



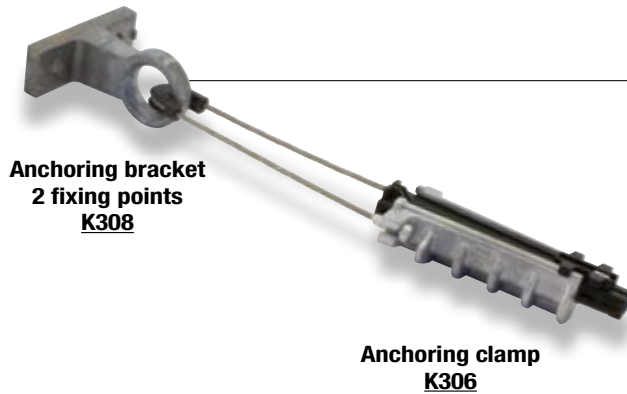
Cutting tool



Code	Designation	Weight (kg)	Sales unit
K959	BINDING TOOL WHEEL TYPE FOR STRAP	2.500	1
K960	BINDING TOOL RATCHET TYPE FOR STRAP	1.950	1
K961	CUTTING TOOL FOR STRAP	0.550	1
K963	CARRYING CASE FOR STRAP TOOLS	0.550	1
K968	STRAP FOLDING PLIER	0.510	1

# Neutral messenger network suspension and anchoring

## Anchoring assembly



### Application

This anchoring assembly is designed for the 1500daN single or double anchoring of A.B.C. (Aerial Bundled Conductors) with insulated neutral messenger of 54.6 and 70mm<sup>2</sup> sections. It comprises a bracket supporting one or two anchoring clamps.

### Description

#### **Anchoring clamp:**

- The body is made of aluminium alloy.
- The cleats are made of UV resistant synthetic material. They are captive.
- The stainless steel flexible linking cable is captive. It is equipped with a resistant, insulated and movable saddle.
- Fixing the insulated neutral messenger is ensured by cleats without damaging the insulation.

#### **Anchoring bracket**

- The bracket is made of aluminium alloy and permits single or double anchoring.
- Fixing on poles is ensured by one or two 14 or 16mm diameter bolts with suitable washers or using two 20x0.7mm stainless steel straps.

This anchoring assembly meets the criteria of the **NF C 33-041** and **EN 50-483-3** standards.

### Installation

- Fix the bracket on the pole using one or two 14 or 16mm diameter bolts with suitable washers or using two 20x0.7mm stainless steel straps.
- Open the A.B.C. where the installation has to be done.
- Slide the cleats backward.
- Insert the neutral messenger between the cleats.
- Push the cleats in the clamp while keeping the neutral messenger in place.
- Anchor the clamp on the bracket.
- Additional tightening is achieved automatically by the cleats.

Code	Designation	Weight (kg)	Sales unit
K306	ANCHORING CLAMP - PA 1500	0.410	20
K308	ANCHORING BRACKET - CA 1500 - 2FP	0.281	30



## Suspension assembly



**Suspension assembly  
ES 1500 (50 - 95mm²): K277**



**Fuse suspension assembly ESF 715  
(50 - 70mm²): K283**

### Application

This suspension assembly is designed for suspending the low voltage A.B.C. (Aerial Bundled Conductors) with insulated neutral messenger of 50 - 95mm<sup>2</sup> sections for code **K277** and 50 - 70mm<sup>2</sup> sections for code **K283**.

It comprises a movable link system, a suspension clamp and a bracket.

2 standard suspension assemblies are available:

- ES 1500,
- ESF 715 equipped with a fuse element (breaking 715 ± 65daN).

The fuse element can be factory calibrated between 500 and 1 200daN. It is designed to break when an abnormal effort is applied on the A.B.C. The cable drops without causing the pole to break (i.e.: tree falling on to a power line). The cable can be quickly put back in position thanks to the installation of a new clamp on the bracket still in place.

### Description

The movable link system and the bracket are delivered in a full set.

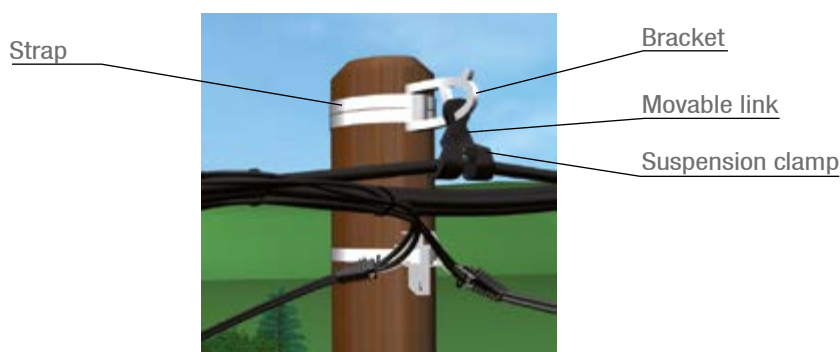
#### Movable link system:

- The body is made of UV resistant, glass fibre reinforced synthetic material and adds insulation between the pole and the cables.
- The design facilitates longitudinal and transversal movement of the suspension clamp body.
- The ESF 715 incorporates the fuse element.

#### Bracket:

- The bracket is made of aluminium alloy.
- Fixing on poles is ensured by a 14 or 16mm diameter bolt with a suitable washer or using two 20x0.7mm stainless steel straps.

This suspension assembly meets the criteria of **NF C 33-040** and **EN 50-483**.



Code	Designation	Weight (kg)	Sales unit
K277	SUSPENSION ASSEMBLY [50-95] - ES 1500	0.456	20
K283	FUSE SUSPENSION ASSEMBLY [50-70] - ESF 715	0.438	20
K280	SPARE PART - PS + LM 715	0.210	1

- Notes:
- Contact us for any other breaking values for the fuse element.
  - Fixing with bolts and washers or stainless steel straps must be ordered separately.
  - The insulated tie must be ordered separately.

 **SEE SHEET**  
OVERHEAD / Mechanical fixing / Stainless steel strap

# Fully supported network suspension and anchoring

## Anchoring clamp



**K288**

### Application

This clamp is designed to anchor the low voltage fully supported A.B.C. (Aerial Bundled Conductors).

### Description

- The arms are made of hot-dip galvanised steel. A bolt enables the clamp to be easily dismantled manually and anchored on a bracket fixed to a pole or façade.
- The cleats are made of UV resistant, glass fibre reinforced synthetic material.
- The conductors are attached using a combination of bolts and cleats. Two 17mm sheat head screw allow the control of head break.
- Each conductor runs through a separate channel. The conductors are anchored by distributing the loads, protecting the insulation.
- A large opening facilitates the passage of the conductors between the clamp arms.

This clamp meets the criteria of the **DIN VDE 0211** standard.

### Installation

- Unscrew the nuts.
- Open the A.B.C and insert each conductor into one of the channels.
- Screw the nuts alternately using a 17mm spanner until the shear head breaks. The 17mm head is only provided for possible dismantling.
- Anchor the clamp on a hook.
- Additional tightening is achieved automatically by the cleats.

Code	Designation	Weight (kg)	Sales unit
K288	FULLY SUPPORTED ANCHORING CLAMP 4x50-120 *	1.240	12

\* Products manufactured on request only. Please contact us.

 **SEE SHEET**  
INSTALLATION / LV insulated toolings

## Movable suspension clamp



**U519**

### Application

This clamp is designed to suspend the low voltage fully supported A.B.C. (Aerial Bundled Conductors). It is suitable for angles on poles up to 30°.

### Description

- The body is made of aluminium, the screws are made of galvanised steel.
- The shear head nut enables to control the tightening of the A.B.C.
- The fastener is captive during installation of the A.B.C. in the body.
- The insert made of UV resistant synthetic material ensures secure holding of the A.B.C.
- The fixing hole on the body is reinforced. It enables the assembly to be installed on a pole or on a façade equipped with a hook.

This clamp meets the criteria of the **DIN VDE 0211** standard.

### Installation

- Unscrew the two tightening screws.
- Take out the insert to open the upper body.
- Place the body of the suspension clamp on a hook.
- Put the A.B.C. in the insert.
- Put the insert back in the body of the suspension clamp and screw to hold the A.B.C.
- Screw the nut using a 13mm spanner until the shear head breaks (10Nm).

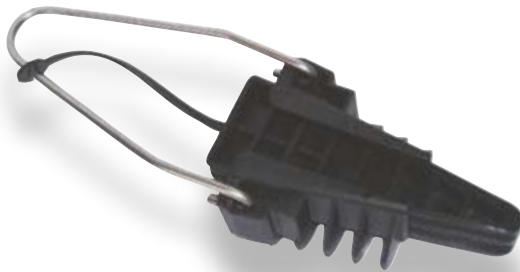
Code	Designation	Weight (kg)	Sales unit
U519	FULLY SUPPORTED SUSPENSION CLAMP 2/4 (25-120) 30°	0.26	1

## Service cable anchoring

### Service anchoring assembly EA 25



**K309**



**K307 -U500 4x25**

#### Application

This anchoring assembly is designed for fixing low voltage service A.B.C. (Aerial Bundled Conductors) with capacity of 2x16 to 4x25mm<sup>2</sup>. The anchoring clamp is also available in an adjustable hook version.

#### Description

##### Anchoring clamp:

- The body is made of UV resistant, glass fibre reinforced synthetic material.
- The wedge is made of UV resistant synthetic material. 4 channels ensure the clamping of 2 or 4 conductors by distributing the loads, protecting the insulation. It is connected to the handle via its integrated link.
- The handle and the hook have good corrosion resistance: stainless steel for K307 and galvanized steel for K309 and U500\_4x25.
- The hook can be adjusted once positioned (toothed rack with 10cm stroke).
- All of the elements are captive.
- The tensile strength is 200daN.

Code	Designation	Weight (kg)	Sales unit
K307	ANCHORING CLAMP WITH HANDLE - PA 25	0.105	50
U500_4x25	SERVICE ANCHORING CLAMP GS - PA 25	0.105	80
K309	ANCHORING CLAMP WITH ADJUSTABLE HOOK - PACR 25	0.230	1

**F305****L304**

## Description

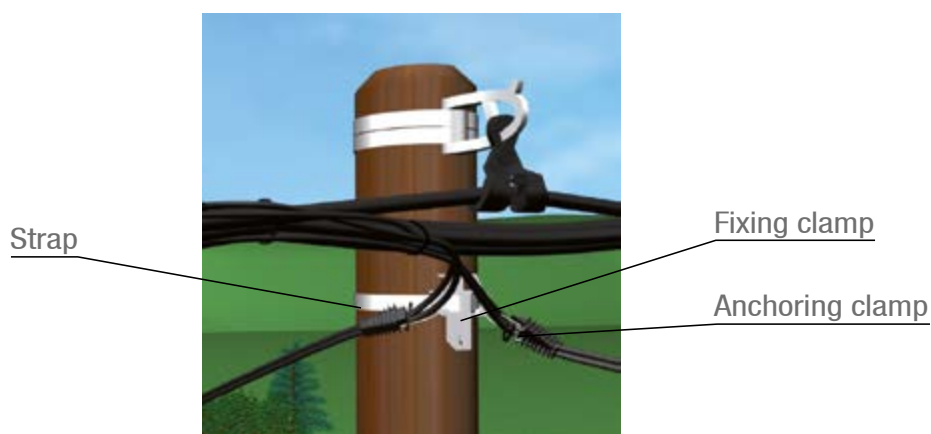
### **Fixing clamp and bracket:**

- These elements are made of aluminium alloy.
- The fixing clamp is designed for single anchoring whereas the bracket offers up to 4 fixing points.
- Their specific design allows fixing on wooden, metal or concrete poles.
- The fixing clamp is implemented using a 10mm diameter bolt or using a 20x0.7mm stainless steel strap (tensile strength: 200daN).
- The fixing bracket is implemented using a 14 or 16mm diameter bolt or using two 20x0.7mm stainless steel straps (tensile strength: 200daN/anchoring point).

This anchoring assembly meets the criteria of the **NF C 33-042** and **EN 50-483** standards.

Nota : Bolt or stainless steel strap fastening must be ordered separately.

Code	Designation	Weight (kg)	Sales unit
L304	FIXING CLAMP - PF 25	0.010	100
L306	SCREW - M10	0.050	50
F305-9	MULTIPLE ANCHORING BRACKET (x9) - CAM 25	0.500	50



## Low voltage line accessory

### Anchoring and suspension clamp



**U513**



**U510**



**U516**



**U515 - U514**



**U518**

#### Application

These anchoring and suspension clamps are designed to anchor and to hold the A.B.C. (Aerial Bundled Conductors) network.

This range is rather designed to self-supporting cable.

#### Description

- These clamps can be used to fix and hold from 2 up to 4 insulated conductors between a pole and a wall or between two poles.
- Admitted conductors capacities go from 16 up to 120mm<sup>2</sup>.
- Clamps body is made of polymer and the metallic parts are made of hot dip galvanised steel.

Code	Designation	Mechanical resistance (daN)	Section (mm <sup>2</sup> )	Weight (kg)	Sales unit
<b>ANCHORING CLAMP</b>					
U510	ANCHORING CLAMP WITH MOVABLE HANDLE (NUT) 2x10-25	500	2 x 10-25	0.100	100
U511	ANCHORING CLAMP WITH MOVABLE HANDLE (NUT) 4x10-25	700	4 x 10-25	0.105	100
U512	ANCHORING CLAMP WITH CLOSED HANDLE 2x16-35	500	2 x 16-35	0.100	50
U513	ANCHORING CLAMP WITH CLOSED HANDLE 4x16-35	500	4 x 16-35	0.140	50
U514	FULLY SUPPORTED ANCHORING CLAMP OPENED HANDLE 4x25-50 EC	940	4 x 25-50	0.490	5
U515	FULLY SUPPORTED ANCHORING CLAMP OPENED HANDLE 4x50-95 EC	1 750	4 x 50-95	0.880	5
U516	FULLY SUPPORTED ANCHORING CLAMP CLOSED HANDLE 4x35-70 EC	1 500	4 x 35-70	0.850	5
U517	FULLY SUPPORTED ANCHORING CLAMP CLOSED HANDLE 4x70-120 EC	1 800	4 x 70-120	1.215	5
<b>SUSPENSION CLAMP</b>					
U518	FULLY SUPPORTED SUSPENSION CLAMP 4x10-120	2 500	4 x 10-120	0.343	20

## Suspension bracket



U520



U521



U526



U527

### Application

The hook is designed to fix clamps on a pole or a wall. The bracket fixing is performed by straps or screws.

Code	Designation	Mechanical resistance (daN)	Section (mm <sup>2</sup> )	Weight (kg)	Sales unit
U520	BRACKET WITH HOOK DIAM 16 6 POLE TYPE	1 800	16	0.380	10
U521	BRACKET WITH HOOK DIAM 16 6 UNIVERSAL	1 800	16	0.330	10
U526	BRACKET WITH SUSPENSION HOOK DIAM 16 -1800 daN	1 800	16	0.570	10
U527	ANCHORING HOOK BRACKET DIAM 16	2 000	16	0.440	10

## Hook



U522



U524

### Application

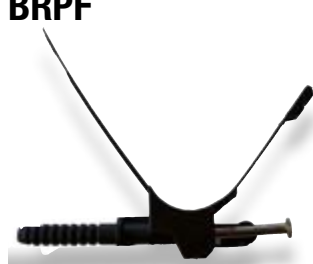
The hook is used to fix an anchoring clamp on a pole or a wall. It is implemented once holes are drilled.

Code	Designation	Length (mm)	Section (mm <sup>2</sup> )	Weight (kg)	Sales unit
U522	HOOK BOLT DIAM 16 -250	250	16	1.080	10
U523	HOOK BOLT DIAM 20 -250	250	20	1.175	10
U524	HOOK NUT DIAM 16	200	16	0.350	10
U525	HOOK NUT DIAM 20	200	20	0.360	10

# Cable saddle

## Facade fixing

### BRPF

**K272****K273****K281****K282**

### BRPV

**F033****F035**

### BRTV

**F036****F038**

### Application

This cable saddle is designed for fixing the low voltage A.B.C. (Aerial Bundled Conductors) on façades using neutral messenger or fully supported technology.

A cable saddle is implemented every 30cm to ensure excellent fixing of the A.B.C.

The wall mounting is quick and easy to implement. It is discreet and aesthetic.

### CPBF

**F032**



## Description

**Cable saddles:** Three types of cable saddles are available.

- **BRPF:** cable saddle to be fixed on façades by a nail (12mm Ø hole).
  - **BRPV:** cable saddle to be fixed on façades by a screw and dowel pin (12mm Ø hole).
  - **BRTV:** cable saddle to be fixed on façades by a reinforced screw and dowel pin assembly (16mm Ø hole).
- The body and cable tie are made of UV resistant synthetic material.
  - The opening under the saddle allows the use of an extra tie (not provided) to install a second conductor.
  - The cable tie has outside teeth for:
    - Excellent protection of conductor insulation,
    - Excellent fixing of service and network conductors.

This cable saddle meets the criteria of the **NF C 33-040** and **EN 50-483** standards.

**Plastic cable tie :**

- **CPBF :** plastic service cable tie to be fixed on façades by a screw and dowel pin assembly (M6).
- The body and cable tie are made of UV resistant synthetic material.
  - The cable tie enables:
    - Excellent protection of conductor insulation,
    - Excellent fixing of service conductors,
    - Easy installation without tools.

Code	Designation	A.B.C. capacity (mm <sup>2</sup> )	Wall clearance (mm)	Weight (kg)	Sales unit
K272	CABLE SADDLE - BRPF1	2x16 to 3x150 + 95N+16	10	0.040	100
K273	CABLE SADDLE - BRPF6		60	0.060	100
F033	CABLE SADDLE - BRPV1	3x25 + 54.6N + 16 to 3x150 + 95N + 16	10	0.070	50
F035	CABLE SADDLE - BRPV6		60	0.080	50
F036	CABLE SADDLE - BRTV10		100	0.175	50
F038	CABLE SADDLE - BRTV17		170	0.240	20
K281	CABLE SADDLE - BRPF4	3x25 + 54.6N to	40	0.050	30
K282	CABLE SADDLE - BRPF9	3x150 + 95N + 16	90	0.065	25
F032	BAC CABLE TIE - CPBF (batch of 100)	2x6 to 4x25	20	1.900	1

## Pole fixing



**N73x**



**F016**

### Application

This saddle is used to fix cable trunking on poles.

It is fixed using a strap.

It is made of UV protected thermoplastic material.

The N733 is sealed with a cable tie for 15 to 30mm diameter cables, the N734 for 30 to 50mm diameter cables, and the N735 for 50 to 90mm cables.

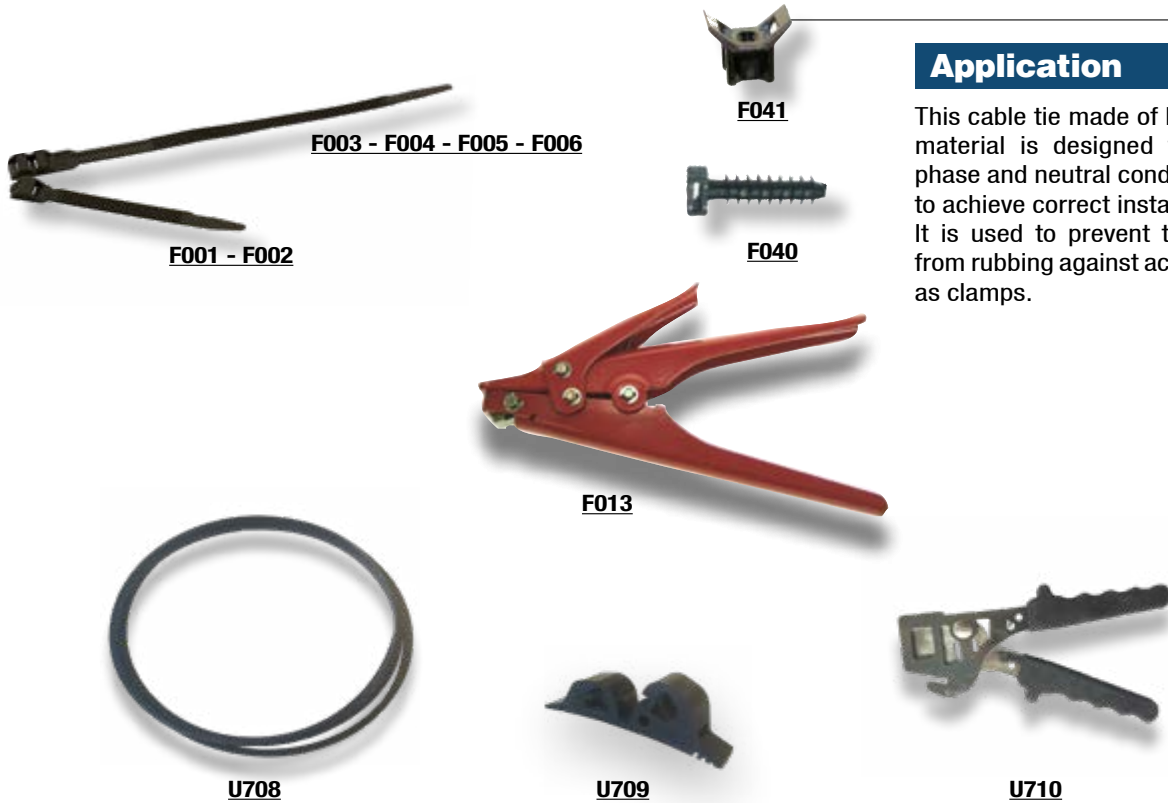
Code	Designation	Weight (kg)	Sales unit
<b>CABLE SADDLE</b>			
N733	CABLE SADDLE BIC 15/30	0.015	10
N734	CABLE SADDLE BIC 30/50	0.070	10
N735	CABLE SADDLE BIC 50/90	0.110	10
<b>PLASTIC JUMPER CLAMP</b>			
F016	PLASTIC JUMPER CLAMP - MOUNTING BRACKET (x100) - 9mm	0.110	1

## Cable tie

### Synthetic material

#### Application

This cable tie made of black synthetic material is designed to tighten the phase and neutral conductors in order to achieve correct installation. It is used to prevent the conductors from rubbing against accessories such as clamps.



#### Description

- The cable tie is made of black UV resistant synthetic material.
- The strap has outside teeth for a 9mm width to secure fixing.
- The black UV resistant synthetic material cable tie mounts strap support are suitable for 9mm wide cable ties.
- The knock in wall cable tie mount has a drill hole diameter of 8mm.

Code	Designation	Diameter grip capacity		Weight (kg)	Sales unit
		MAX (mm)	MIN (mm)		
F001	CABLE TIE 9x123mm (bag of 100)	40	7	0.220	1
F002	CABLE TIE 9x180mm (bag of 100)	44	10	0.330	1
F003	CABLE TIE 9x265mm (bag of 100)	62	20	0.530	1
F004	CABLE TIE 9x360mm (bag of 100)	92	20	0.770	1
F005	CABLE TIE 9x500mm (bag of 100)	140	74	1.070	1
F006	CABLE TIE 9x750mm (bag of 100)	220	74	1.480	1
F013	IMPLEMENTATION TOOL FOR TIE			0.330	1
F040	WALL TYPE STRAP SUPPORT WITH BRACKET TO STRIKE (x100)			0.400	1
F041	WALL TYPE STRAP SUPPORT ATTACHED BY SCREW (x100)			0.300	1
U708	PLASTIC CABLE TIE ROLL 30 m			1.000	1
U709	PLASTIC BUCKLE FOR PLASTIC CABLE TIE (x100)			1.300	1
U710	TOOL FOR PLASTIC CABLE TIE			-	1

Other dimensions are available. Please contact us.

## Stainless steel



**U705-350**

### Application

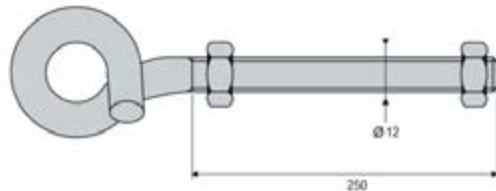
This cable tie provides a self locking system enabling easy installation. It is made of stainless steel type 304. It is designed to allow installation in every type of environment.

Code	Designation	Width (mm)	Length (mm)	Max-bundle-diameter (mm)	Tensile strength (N)	Weight for 100 pieces (kg)	Sales unit
U704-150	STAINLESS STEEL TIE 4.6x150 (batch of 100)	4.6	150	37	600	0.260	1
U704-200	STAINLESS STEEL TIE 4.6x200 (batch of 100)		200	50		0.300	1
U704-250	STAINLESS STEEL TIE 4.6x250 (batch of 100)		250	63		0.340	1
U704-300	STAINLESS STEEL TIE 4.6x300 (batch of 100)		300	76		0.390	1
U704-350	STAINLESS STEEL TIE 4.6x350 (batch of 100)		350	89		0.440	1
U704-400	STAINLESS STEEL TIE 4.6x400 (batch of 100)		400	102		0.490	1
U704-450	STAINLESS STEEL TIE 4.6x450 (batch of 100)		450	115		0.540	1
U704-500	STAINLESS STEEL TIE 4.6x500 (batch of 100)		500	122		0.590	1
U704-550	STAINLESS STEEL TIE 4.6x550 (batch of 100)		550	141		0.640	1
U704-600	STAINLESS STEEL TIE 4.6x600 (batch of 100)		600	154		0.690	1
U705-150	STAINLESS STEEL TIE 7.9x150 (batch of 100)		7.9	150		37	800
U705-200	STAINLESS STEEL TIE 7.9x200 (batch of 100)	200		50	0.500	1	
U705-250	STAINLESS STEEL TIE 7.9x250 (batch of 100)	250		63	0.560	1	
U705-300	STAINLESS STEEL TIE 7.9x300 (batch of 100)	300		76	0.630	1	
U705-350	STAINLESS STEEL TIE 7.9x350 (batch of 100)	350		89	0.700	1	
U705-400	STAINLESS STEEL TIE 7.9x400 (batch of 100)	400		102	0.780	1	
U705-450	STAINLESS STEEL TIE 7.9x450 (batch of 100)	450		115	0.860	1	
U705-500	STAINLESS STEEL TIE 7.9x500 (batch of 100)	500		128	0.920	1	
U705-550	STAINLESS STEEL TIE 7.9x550 (batch of 100)	550		141	1.000	1	
U705-600	STAINLESS STEEL TIE 7.9x600 (batch of 100)	600		154	1.080	1	
U705-650	STAINLESS STEEL TIE 7.9x650 (batch of 100)	650		167	1.170	1	
U705-700	STAINLESS STEEL TIE 7.9x700 (batch of 100)	700		180	1.260	1	
U705-750	STAINLESS STEEL TIE 7.9x750 (batch of 100)	750		191	1.350	1	
U705-800	STAINLESS STEEL TIE 7.9x800 (batch of 100)	800		193	1.440	1	

## Pigtail bolt



Pigtail bolt (BQC)

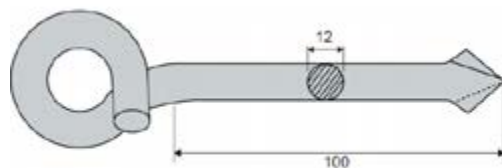


### Application

This material made of hot dip galvanised steel is designed to fix anchoring and suspension clamps.

Code	Designation	Weight (kg)	Sales unit
<b>WITH 1 SCREW</b>			
U480_12-35	PIGTAIL BOLT BQC 12x35 WITH 1 SCREW	0.180	10
U480_12-55	PIGTAIL BOLT BQC 12x55 WITH 1 SCREW	0.300	10
<b>WITH 2 SCREWS</b>			
U480_12-110	PIGTAIL BOLT BQC 12x110 WITH 2 SCREWS	0.290	10
U480_12-200	PIGTAIL BOLT BQC 12x200 WITH 2 SCREWS	0.380	10
U480_12-250	PIGTAIL BOLT BQC 12x250 WITH 2 SCREWS	0.420	10
U480_12-300	PIGTAIL BOLT BQC 12x300 WITH 2 SCREWS	0.480	10
U480_12-350	PIGTAIL BOLT BQC 12x350 WITH 2 SCREWS	0.520	10
U480_14-250	PIGTAIL BOLT BQC 14x250 WITH 2 SCREWS	0.580	10
U480_14-300	PIGTAIL BOLT BQC 14x300 WITH 2 SCREWS	0.650	10
U480_14-350	PIGTAIL BOLT BQC 14x350 WITH 2 SCREWS	0.710	10
<b>WITH DOWEL</b>			
U480_12-110-CH	PIGTAIL BOLT BQC 12x110 WITH 1 DOWEL	0.250	10

## Pigtail stem

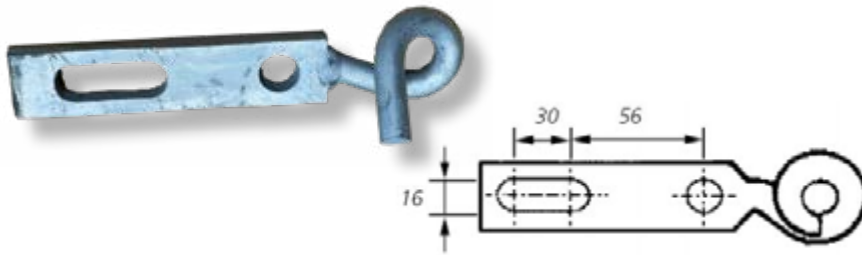


### Application

This hot-dip galvanized steel material is used to fix the anchoring and suspension clamps.

Code	Designation	Weight (kg)	Sales unit
F344	TQC 12x150	0.290	10
F345	TQC 12x200	0.310	10
F346	TQC 12x250	0.340	10

## Pigtail plate



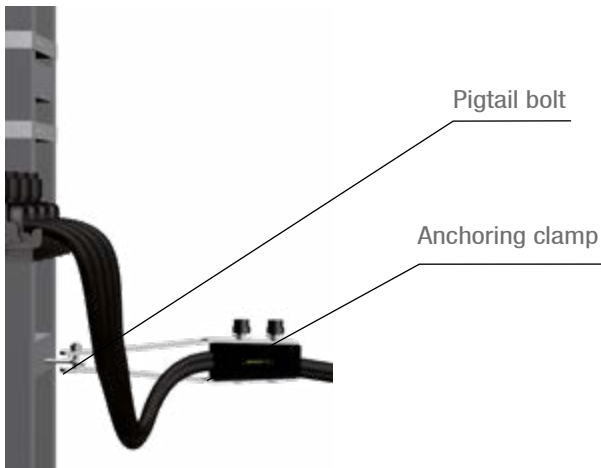
### Application

This hot-dip galvanized steel material is used to fix the anchoring and suspension clamps.

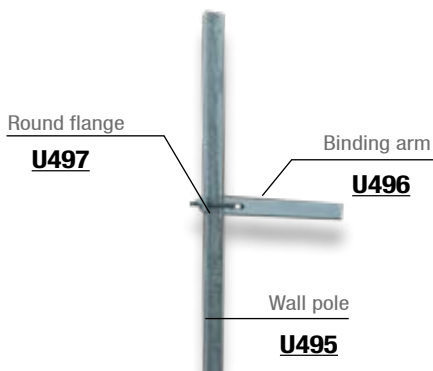
Code	Designation	Weight (kg)	Sales unit
F340	PIGTAIL PLATE PQC	0.370	10

### Installation

The anchoring clamp is fixed on the pole thanks to the pigtail bolt.



## Wall pole and accessories



Binding arm



U499-45

### Application

This equipment comprises a wall pole, binding arms and flanges.

Code	Designation	Length (mm)	Weight (kg)	Sales unit
U495_45-45-4000	WALL POLE 45×45×4000	4000	17.5	1
U495-1500	WALL POLE 50×50×1500	1500	7.2	1
U495-2000	WALL POLE 50×50×2000	2000	9.5	1
U495-2500	WALL POLE 50×50×2500	2500	11.9	1
U495-3000	WALL POLE 50×50×3000	3000	14.3	1
U496-350	SEALING TYPE BRACKET 350	350	2.48	1
U496-500	SEALING TYPE BRACKET 500	500	3.54	1
U496-1100	SEALING TYPE BRACKET 1100	1100	7.78	1
U497-50	ROUND FLANGE 50		0.3	20
U499-45	U-BOLT FOR SEALING - 45		0.185	1

# Mechanical galvanized bolt and nut

## Bolt and nut



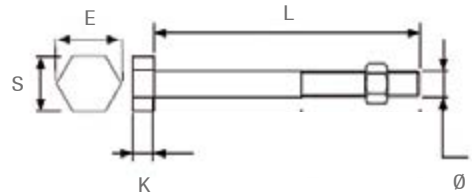
**U435**

### Application

These bolts and nuts are designed to fix MV/LV accessories.

### Description

- This bolt and nut is made of hot dip galvanized steel class 8.8 for widths lower than 100mm and class 6.8 above.
- These bolts and nuts meet the criteria of the standards hereafter:
  - ISO 4016 / DIN 931
  - Nut ISO 4032 / DIN 934

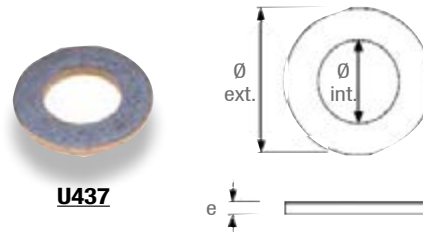


Dimensions in mm

Code	Designation	Ø	L	S	E	K	Weight (kg)	Sales unit
U435_8-30	BOLTS BH* 8x30 (100 pieces)	8	30	12.73	14.38	5.15	4.5	1
U435_10-20	BOLTS BH 10x20 (100 pieces)	10	20	15.73	17.77	6.22	3.3	1
U435_10-30	BOLTS BH 10x30 (100 pieces)	10	30	15.73	17.77	6.22	3.6	1
U435_12-30	BOLTS BH 12x30 (100 pieces)	12	30	17.73	20.03	7.32	7.5	1
U435_12-50	BOLTS BH 12x50 (100 pieces)	12	50	17.73	20.03	7.32	5.5	1
U435_12-100	BOLTS BH 12x100 (100 pieces)	12	100	17.73	20.03	7.32	11	1
U435_12-150	BOLTS BH 12x150 (50 pieces)	12	150	17.73	20.03	7.32	14.2	2
U435_12-200	BOLTS BH 12x200 (50 pieces)	12	200	17.73	20.03	7.32	17.7	2
U435_12-250	BOLTS BH 12x250 (50 pieces)	12	250	17.73	20.03	7.32	21.2	2
U435_12-300	BOLTS BH 12x300 (20 pieces)	12	300	17.73	20.03	7.32	24.8	5
U435_14-30	BOLTS BH 14x30 (100 pieces)	14	30	20.67	23.36	8.62	5.4	1
U435_14-40	BOLTS BH 14x40 (100 pieces)	14	40	20.67	23.36	8.62	6.6	1
U435_14-50	BOLTS BH 14x50 (100 pieces)	14	50	20.67	23.36	8.62	7.8	1
U435_14-100	BOLTS BH 14x100 (50 pieces)	14	100	20.67	23.36	8.62	7.8	2
U435_14-150	BOLTS BH 14x150 (50 pieces)	14	150	20.67	23.36	8.62	21.6	2
U435_14-200	BOLTS BH 14x200 (20 pieces)	14	200	20.67	23.36	8.62	27.5	5
U435_14-250	BOLTS BH 14x250 (20 pieces)	14	250	20.67	23.36	8.62	30	5
U435_14-300	BOLTS BH 14x300 (20 pieces)	14	300	20.67	23.36	8.62	30	5
U435_14-350	BOLTS BH 14x350 (20 pieces)	14	350	20.67	23.36	8.62	39	5
U435_14-400	BOLTS BH 14x400 (20 pieces)	14	400	20.67	23.36	8.62	45	5
U435_14-450	BOLTS BH 14x450 (20 pieces)	14	450	20.67	23.36	8.62	50	5
U435_14-500	BOLTS BH 14x500 (20 pieces)	14	500	20.67	23.36	8.62	55	5
U435_14-600	BOLTS BH 14x600 (20 pieces)	14	600	20.67	23.36	8.62	75	5
U435_16-30	BOLTS BH 16x30 (100 pieces)	16	30	23,1	26,17	9,71	12	1
U435_16-50	BOLTS BH 16x30 (100 pieces)	16	50	23,1	26,17	9,71	12,5	1
U435_16-200	BOLTS BH 16x200 (20 pieces)	16	200	23.10	26.17	9.71	36	5
U435_16-250	BOLTS BH 16x250 (20 pieces)	16	250	23.10	26.17	9.71	43.4	5
U435_16-300	BOLTS BH 16x300 (20 pieces)	16	300	23.10	26.17	9.71	51	5
U435_16-350	BOLTS BH 16x350 (20 pieces)	16	350	23.10	26.17	9.71	58.5	5
U435_16-400	BOLTS BH 16x400 (20 pieces)	16	400	23.10	26.17	9.71	66	5
U435_20-100	BOLTS BH 20x100 (20 pieces)	20	100	29.16	32.95	12.15	36.5	5
U435_20-140	BOLTS BH 20x140 (20 pieces)	20	140	29.16	32.95	12.15	45.7	5
U435_20-160	BOLTS BH 20x160 (20 pieces)	20	160	29.16	32.95	12.15	50.6	5

\*BH: Bake Hardening

## Flat washer



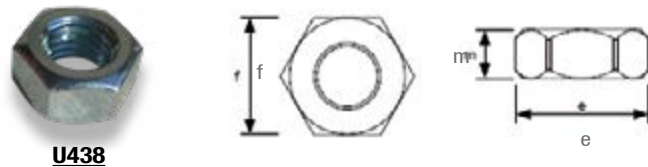
U437

The reference standard is **NF E 25513**.

Code	Designation	Ø external (mm)	Ø internal (mm)	e	Weight (kg)	Sales unit
U437_M8	WASHERS M8 (100 pieces)	18	8	1.50	0.22	1
U437_M10	WASHERS M10 (100 pieces)	22	11	2.00	0.44	1
U437_L10	WASHERS L10 (100 pieces)	26	11	1.50	0.8	1
U437_M12	WASHERS M12 (100 pieces)	27	14	2.50	0.82	1
U437_L12	WASHERS L12 (100 pieces)	32	14	2.50	1.3	1
U437_M14	WASHERS M14 (100 pieces)	30	16	2.50	1	1
U437_L14	WASHERS L14 (100 pieces)	36	16	2.50	1.6	1
U437_M16	WASHERS M16 (100 pieces)	32	18	3.00	1.5	1
U437_L16	WASHERS L16 (100 pieces)	40	18	3.00	2.3	1
U437_M20	WASHERS M20 (100 pieces)	40	22	3.00	2.4	1

M and L designations are series standards.

## Nut

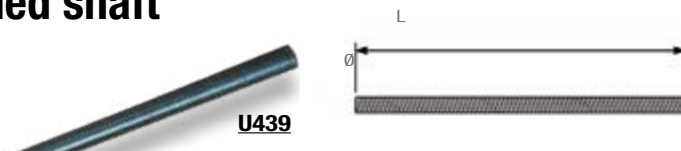


U438

The reference standard is **ISO 4032**.

Code	Designation	f (mm)	m (mm)	e (mm)	Weight (kg)	Sales unit
U438_HM8	NUTS HM8 (100 pieces)	13	6.80	14.38	1.1	1
U438_HM10	NUTS HM10 (100 pieces)	16	8.40	17.77	1.4	1
U438_HM12	NUTS HM12 (100 pieces)	18	10.80	20.03	1.7	1
U438_HM14	NUTS HM14 (100 pieces)	21	12.80	23.35	2	1
U438_HM16	NUTS HM16 (100 pieces)	24	14.80	26.75	3.4	1
U438_HM20	NUTS HM20 (100 pieces)	30	18.00	32.95	6.4	1

## Threaded shaft



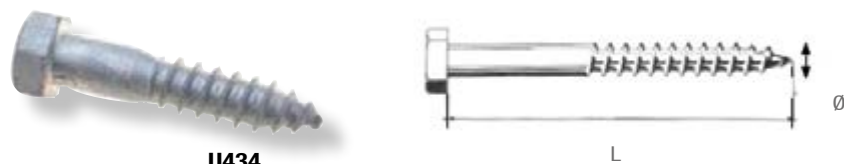
U439

### Utilisation

Threaded shaft are made of galvanized steel. They meet the criteria of the standard **DIN 13-1**.

Code	Designation	L (mm)	Ø (mm)	Weight (kg)	Sales unit
U439_8-1000	THREADED SHAFTS TF 8x1000 (20 pieces)	1000	8	8	5
U439_12-1000	THREADED SHAFTS TF 12x1000 (10 pieces)	1000	12	8,8	10
U439_14-1000	THREADED SHAFTS TF 14x1000 (10 pieces)	1000	14	12	10
U439_16-1000	THREADED SHAFTS TF 16x1000 (10 pieces)	1000	16	16	10
U439_20-1000	THREADED SHAFTS TF 20x1000 (5 pieces)	1000	20	12,4	20
U439_16-2000	THREADED SHAFTS TF 16x2000 (5 pieces)	2000	16	16	20

## Screw



U434

The reference standard is **Din 571**.

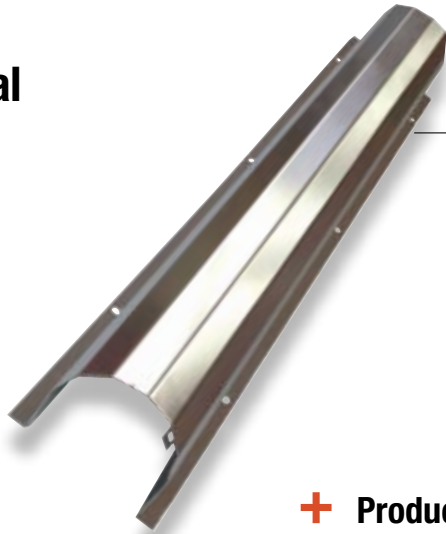
Code	Designation	Ø (mm)	L (mm)	Weight (kg)	Sales unit
U434	GALVANISED LAG SCREW DIN 571 DIAMETER x LENGTH	6 up to 14	40 up to 200	Contact us	*

\*Variable batch according to the sizes, consult us.

To discover the complete range, contact us. The code will take the next form U434-DIAM-L.

## Protective duct

### Metal

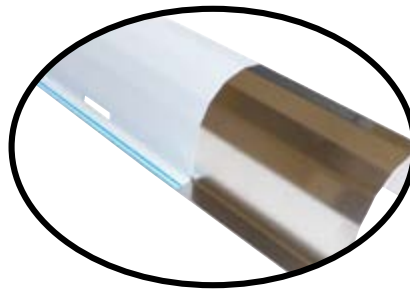






#### Application

This protective duct is designed to protect aerial-subsurface connections on poles or façades. It is fixed on pole using straps or on facade using screws.

It offers an IK10 degree of protection. It is made of metal (aluminium).

**+ Product supplied with a protection film to be removed after installation**



	Code	Designation	Length (m)	Weight (kg)	Sales unit
	N297	METAL PROTECTIVE DUCT GPC 35.35mm	2.75	1.100	5
	N298	METAL PROTECTIVE DUCT GPC 60.60mm	2.75	1.700	5
	N299	METAL PROTECTIVE DUCT GPC 90.90mm	2.75	2.350	1
	N300	METAL PROTECTIVE DUCT GPC 120.120mm	2.75	2.950	1


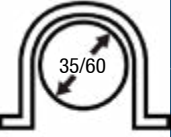

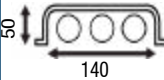


## Synthetic material



### Application

This PVC duct is designed to protect aerial-subsurface connections on poles or façades. It is fixed on pole using straps or on façade using screws.

	Code	Désignation	Use	Length (m)	Weight (kg)	Sales unit
	N273	PROTECTIVE DUCT GPT 30.30 GREY	Earth wire	2.60	0.550	10
	N274	PROTECTIVE DUCT GPC 35.35 GREY	LV 4x50 maxi	2.75	1.010	10
	N275	PROTECTIVE DUCT GPC 60.60 GREY	LV 3x240 + 95 maxi	2.75	1.960	10
	N276	PROTECTIVE DUCT GPC 90.90 GREY	MV 3x150 + 50 maxi	2.75	2.780	5
	N277	PROTECTIVE DUCT GPC 120.120 GREY	MV 3x150 + 50 maxi	2.75	4.260	5
	N278	PROTECTIVE DUCT GPC 140.50 GREY	MV 3x240 maxi	2.75	3.060	5

Other ducts are available, in color or in aluminium. Please enquire.

## IPC for MV conductor

### BLL/BLX conductor



**K251**



**K250**

#### Application

This I.P.C. (Insulation Piercing Connector) is designed to establish a tap connection on a medium voltage conductor type BLL/BLX (covered overhead MV conductor) to another BLL/BLX conductor. From 50mm<sup>2</sup> to 241mm<sup>2</sup> capacity this connectors **K250** and **K251** meet the criteria **EN 50397-1** standard.

#### Description

- K250 and K251 are MV-compatible: voltage between 1kV and 36kV.
- In the case of MV use, installation must be carried out off-load.
- Insulation piercing of the main line and the tap line is carried out simultaneously.
- Contact bridges are studied to pierce an insulation thickness up to 3mm maximum.
- Tightening efficiency is ensured by shear head screws.
- Connectors **K250** and **K251** can receive respectively main and tap conductors as follows:
  - 50-157/50-157mm<sup>2</sup>
  - 50-241 mm<sup>2</sup>/50-241mm<sup>2</sup>
- IPC are delivered with a sealing end cap.

This connector meets the criteria of the **EN 50397-2** standard.

Code	Designation	Contact bridge	Main line insulated Al-Cu (mm <sup>2</sup> )	Tap line insulated Al-Cu (mm <sup>2</sup> )	Weight (kg)	Sales unit
<b>ZINC PLATED STEEL FASTENERS</b>						
<b>K250</b>	<b>IPC 50-157 BLL/BLX</b>	Tinned copper	50-157	50-157	0.640	18
<b>K251</b>	<b>IPC 50-241 BLL/BLX</b>	Tinned copper	50-241	50-241	0.810	18

## Accessories

These two horns are used as a tap conductor to realise a tap connection, a re-supply, a short-circuit or an earthing on BLL/BLX network.



**K252**



**K253**

Code	Designation	Weight (kg)	Sales unit
K252	HORN TYPE OPEN FOR BLL/BLX IPC	0.390	10
K253	HORN TYPE CLOSED FOR BLL/BLX IPC	0.518	20



## Ring connector for MV conductor

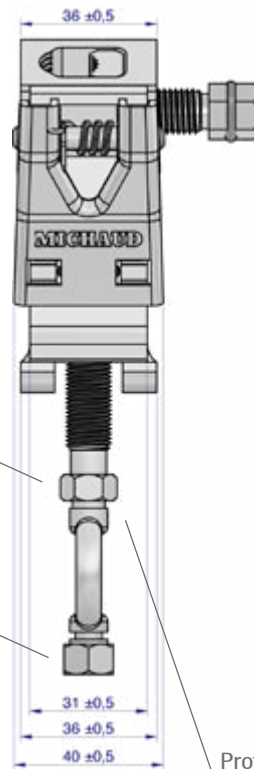
### Bare conductor



U400

Relief head 13mm

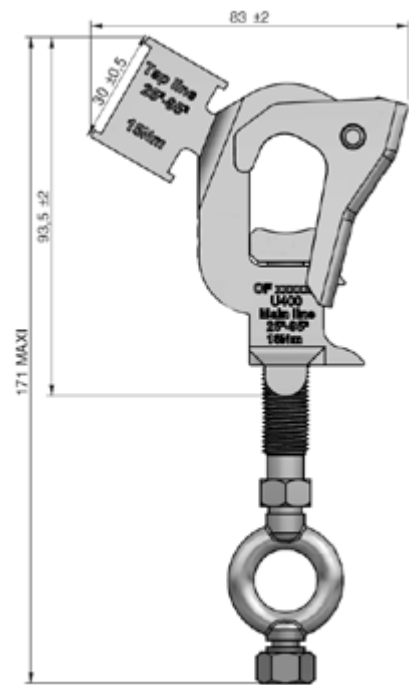
Shear head nut 13mm



Protection fuse area

### Application

This connector is used to connect a bare medium-voltage aluminum line with another conductor of the same type. For live implementation, use an insulated stick.



Dimensions in en mm

### Description

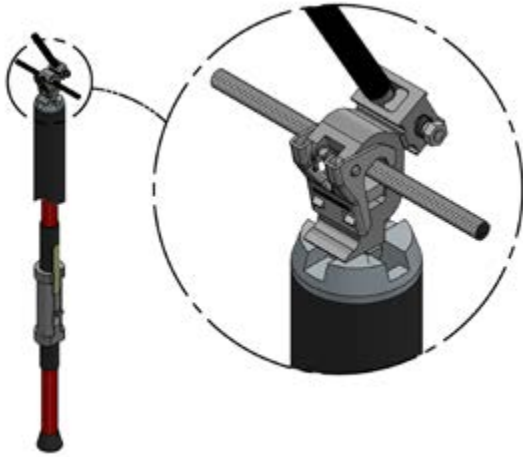
- This aluminum connector is highly resistant to corrosion.
- The metal flap ensures the connector's mechanical strength during installation. The flap is held opened thanks to a stainless steel spring during implementation. Once the connector has been correctly positioned on the main cable, the flap moves to closed position.
- Implementation of the connector on the main line is performed :
  - Under voltage from ground level thanks to the ring (insulated stick tightening). The ring is equipped with a fuse safety element in order to protect the main conductor (breaking in case of abnormal tightening).
  - Without voltage for top pole installation thanks to a 13mm hexagonal shear head (hand spanner tightening).
- The connector can be removed :
  - Under voltage from ground level, unscrewing the ring, thanks to the insulated stick.
  - Without voltage, missing the ring, unscrewing the 13mm hexagonal relief head, thanks to a hand spanner.
- The tap conductor can be installed from above or below the terminal block.
- Capacities\* are :
  - Main line : 25-95mm<sup>2</sup> Al
  - Tap line : 25-95mm<sup>2</sup> Al
- MV application range: 1kV up to 50kV.
- This connector meets the criteria of the technical specification **HN 66-S-43**.

Code	Designation	Main line Al (mm <sup>2</sup> )	Tap line Al (mm <sup>2</sup> )	Weight (kg)	Sales unit
U400	RING CONNECTOR 25-95 / 25-95	25-95	25-95	0.250	10

\* For other cable capacities, please contact us.

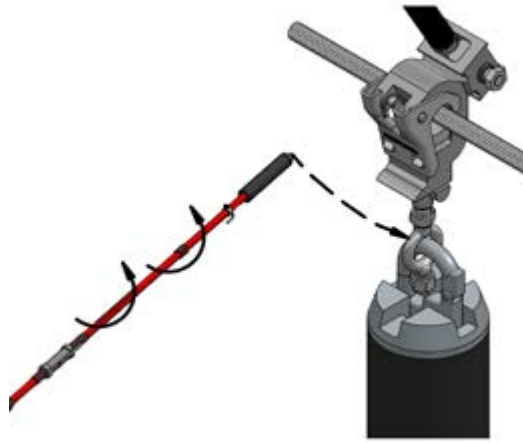
## Installation

Implementing the U400 connector: an insulated stick is required for a distance installation under voltage.



The U400 connector can be installed using an insulated stick. The stick's hook grab the connector's ring. Then, the connector is put on the main line and tightened thanks to the ring.

The flap is then closed and the connector is locked onto the cable.

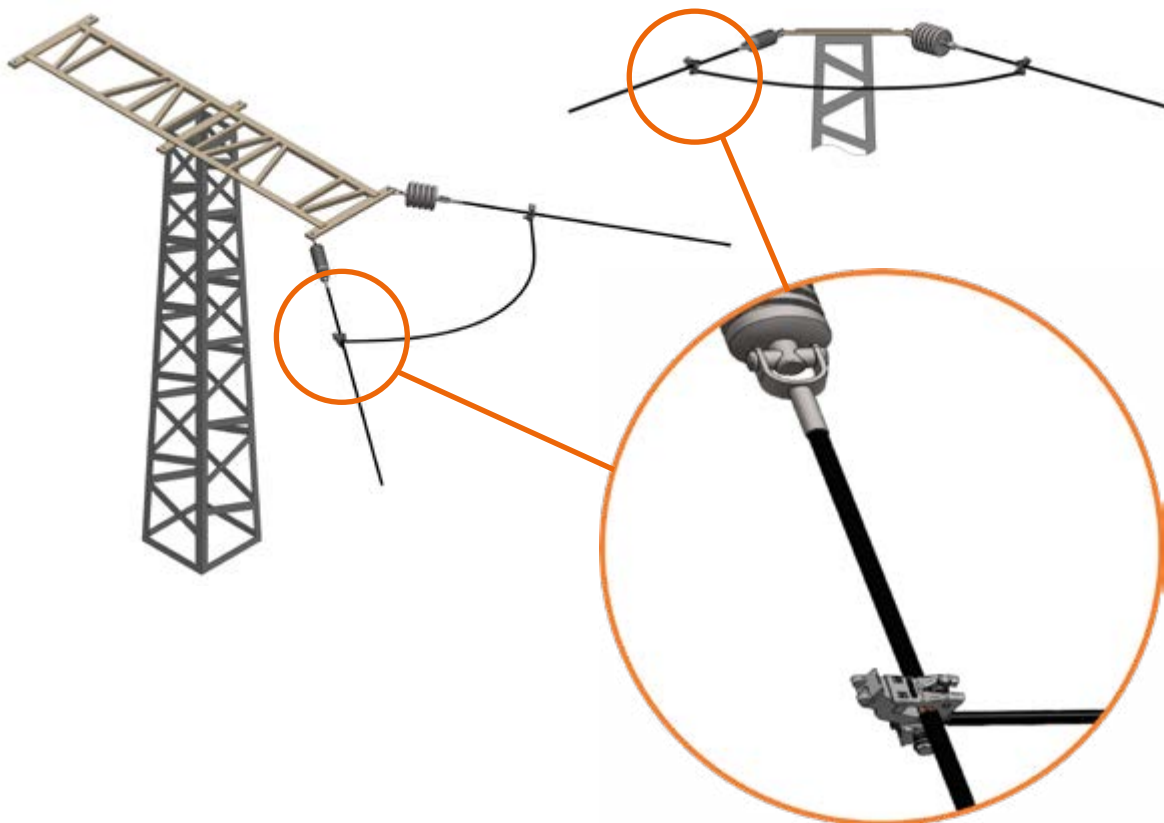


Simply disconnect the stick by opening the hook to release the connector.

### Re-use :

Please refer to detailed instructions in the installation sheet.

## Two U400 connectors in situation







# PROTECTION

## Service protection

Fuse switch disconnecter 100A, 22x58, 35 <sup>2</sup> .....	p.100
Fuse switch disconnecter 100A, 22x58, 95 <sup>2</sup> .....	p.102
Fuse switch disconnecter 160A, NH 00, 95 <sup>2</sup> + 120 <sup>2</sup> .....	p.104
Fuse switch connector 20A, 10.3x38, 95 <sup>2</sup> .....	p.106
Fuse switch connector 100A, 22x58, 150 <sup>2</sup> .....	p.108
Fuse cutout sleeve 100A, 22x58, 35 <sup>2</sup> .....	p.110
Fuse insulation piercing pit connector 100A, 22x58, 50 <sup>2</sup> .....	p.112

## Network protection

Fuse switch disconnecter double pole 160A, NH 00, 95 <sup>2</sup> + 120 <sup>2</sup> .....	p.114
Fuse switch disconnecter triple pole 160A, NH 00, 95 <sup>2</sup> + 120 <sup>2</sup> .....	p.116
Fuse switch disconnecter quadruple pole 160A, NH 00, 95 <sup>2</sup> + 120 <sup>2</sup> .....	p.118
Operating stick .....	p.120

## Fuses

Fuse cartridge gG .....	p.122
Fuse cartridge AD .....	p.124
Fuse cartridge NH1 and NH2 .....	p.126

# SOLUTIONS FOR NETWORK PROTECTION

For a safe and effective electrical line, MICHAUD offers solutions for the **protection of individual premises** as well as **low voltage network**.



## — LASTING INSTALLATIONS

As a specialist in low voltage distribution, MICHAUD gets involved in the networks **performance optimisation** and the guarantee of long-lasting electrical lines.



## — PROTECTED NETWORKS

Thanks to protections installed in **strategic points** on the network or on service level, the power company takes advantage of a better control of faults propagation and an easier maintenance.



## — CUSTOMIZED PRODUCTS

The technical skills and the right understanding of problematics on the field enable to propose **suitable solutions** for specific demands (customer identification on the product, easy handling, fuse blown indicator...).



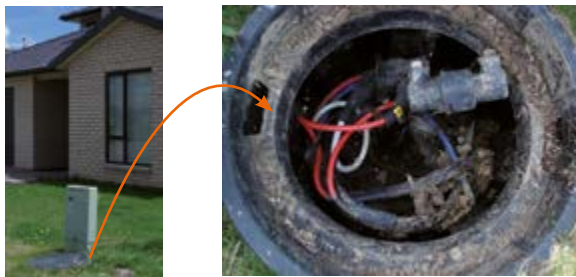
# Service protection

Two solutions can be used for individual houses protection: the **fuse switch disconnector** or the **cutout sleeve**. These devices enable a possible cutting point facilitating every interventions for the network manager.

Comparison between	Fuse switch disconnector	and	Cutout sleeve
Manipulation ease	++		+
	From ground level with a stick		On top pole
Economical solution	+		++

## A solution for the protection in underground environment

In order to adapt to various specifications met on the field, a partially and temporarily submersible solution, has been designed to ensure the protection of the underground network connection.

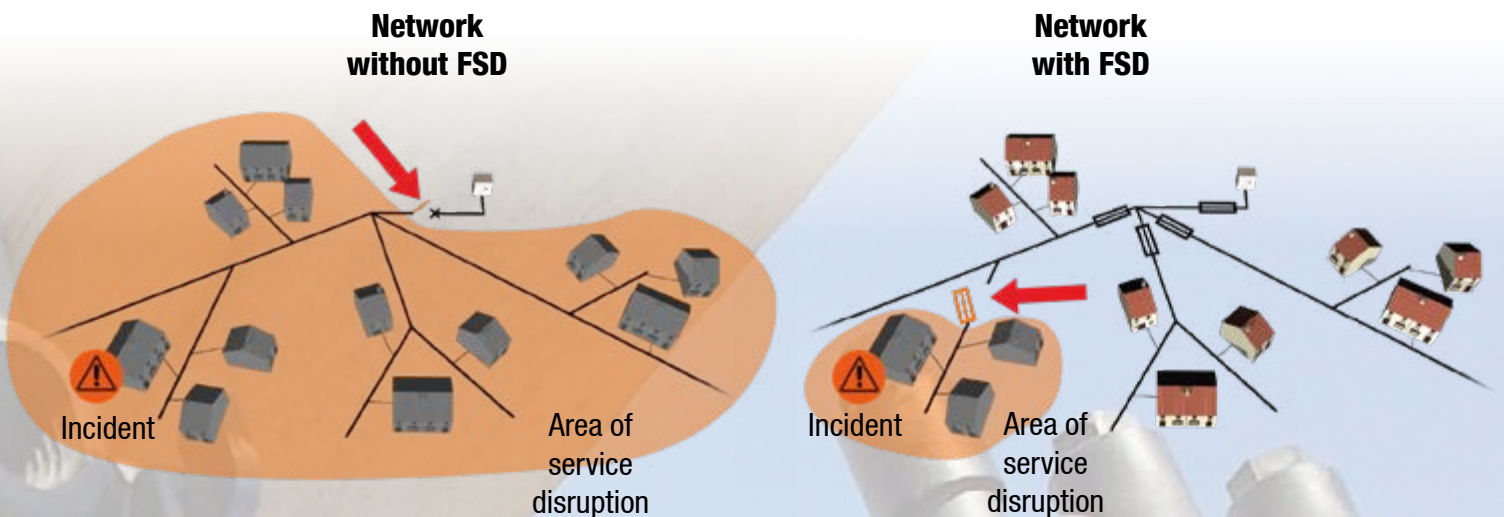


- ✓ Installation in a pit
- ✓ Working temporarily into water
- ✓ Full waterproof connection

# Network protection

Low voltage networks are usually **structured in a star shape** from the LV/MV transformer and are not looped. A single short-circuit could therefore make an entire network fail, creating customer service disruptions.

## MICHAUD solution: protection on strategic points



- ✓ Control of faults propagation
- ✓ Reduction of customers discontents

+ A suitable earth system device enables the temporary fuse switch protection for work.

**SEE SHEET**  
Earth system / Switch earthing and short circuiting device fort gang FSD



# SOLUTIONS FOR NETWORK PROTECTION

## Fuse switch disconnecter: many options for all configurations

Two types of protections

### Service protection

Rating 100A or 160A

Fuse size 22x58 or NH 00

Conductors section max 35mm<sup>2</sup>, 95mm<sup>2</sup> or 120mm<sup>2</sup>

✓ Single phase FSD

P

Fuse presence indicator

L

Blown fuse LED light

H

Shear head indicator

Many options



Check the fuse presence

Be aware of a blown fuse

Check from ground level the good sheared-off of the head



Installation video available on [www.michaud-export.com](http://www.michaud-export.com)

### The benefits:

- + 50 up to 80% more economical than a circuit breaker
- + Strong solution, very little sensitive to charge imbalances
- + Solution available in single and three phases



### Network protection

Rating 160A

Fuse size NH 00

Conductors section max 95mm<sup>2</sup> or 120mm<sup>2</sup>

- ✓ Multi-phase FSD
- ✓ Available in 2, 3, 4, 6 poles



**Customer identification number**



**Neutral simultaneous cut**



**Color of the fuse carrier**



+ Many possible combinations

Identify the line or customer number



Enable the simultaneous cut of phases and neutral



Distinguish phases and neutral

## Fuse switch disconnecter 100A



**K291**

**Rating** 100A

**Fuse size** 22x58

**Conductors section** 6-95mm<sup>2</sup>

### Application

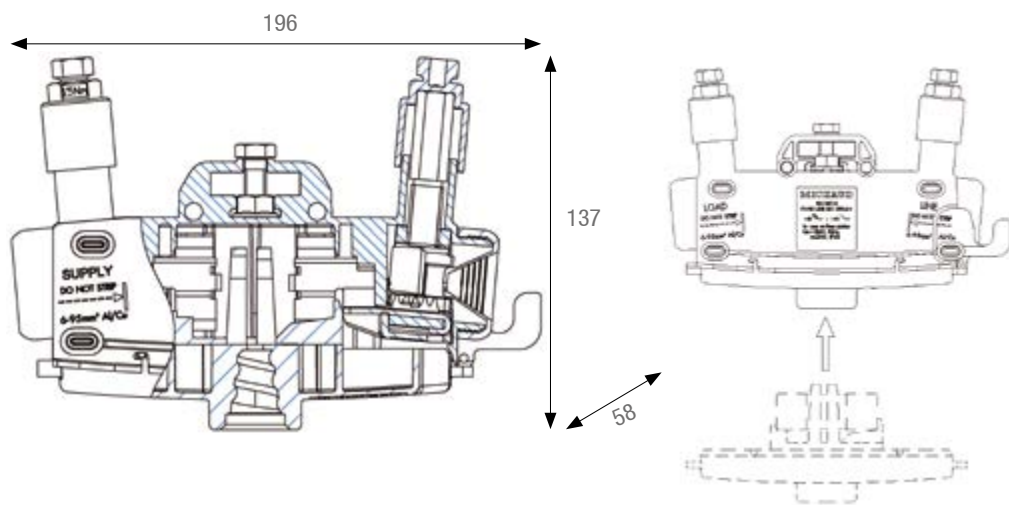
This Fuse Switch Disconnecter (FSD) is a single phase device. It is installed at the top of pole or on façade. It protects the overhead connection supplying an individual customer and the low voltage network.

It is designed to receive a neutral tube or a 100A maximum, size 22x58 fuse cartridge (according to the **IEC 269-2.1** standard).

### Description

- The FSD ratings are:
    - Rated voltage, Ue : 500V
    - Rated frequency : 50 up to 60Hz
    - Rated insulation voltage, Ui : 1 000V
    - Rated current, Ie : 100A
  - The terminals are completely insulated. Connection is established using insulation piercing technology.
  - The insulated conductor section ranges from 6 up to 95mm<sup>2</sup> Al/Cu.
  - The tightening efficiency of the conductors is ensured by two shear head screws on top body.
  - The fuse holder is opened, removed and closed using a pigtail stick.
- Note: the fuse holder can be installed without fuse.
- The polarity test points are accessible on each terminal without removing the fuse holder.
  - The fuse holder can be sealed if necessary. The protection degree is IP33.

This fuse switch disconnecter meets the criteria of the **IEC 60 947-3** and **IEC 60 269-2** standards.



**K291**

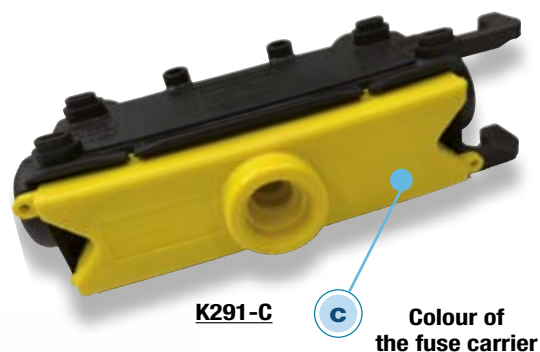
Dimensions in mm

Code	Designation	Weight (kg)	Sales unit
K291	SINGLE PHASE FSD 100A (22x58) PIERCING 6-95	0.510	1

### Customised solution:

Several options available:

- For the fuse presence indicator, add **P** to the reference.
- For the blown fuse LED indicator, add **L** to the reference.
- For the shear head indicator, add **H** to the reference.
- For the customer identification number, add **N** to the reference.
- For the colour of the fuse carrier, add **C** to the reference and specify the colour (black is standard colour).



**K291-C**

Colour of the fuse carrier



**K291-P-L-N**

### Accessories

The bracket is made of galvanised steel highly resistant to corrosion. Fixing on a pole or façade is achieved by two 10mm diameter galvanised steel screws and two holes on the bracket (top hole having a key shape to make it easier to position the FSD).

The adaptor made of synthetic materials is designed to fix a fuse switch disconnector on a "swan neck" type bracket. It can also be fixed using a strap or 2 screws.



**K297**



**K295**

Code	Designation	Weight (kg)	Sales unit
K297	METAL BRACKET FOR SINGLE PHASE FSD	0.490	30
K295	PLASTIC ADAPTOR FOR SINGLE PHASE FSD BRACKET	0.070	5

**SEE SHEET**  
PROTECTION / Operating stick

**SEE SHEET**  
PROTECTION / Fuses



Installation video available on [www.michaud-export.com](http://www.michaud-export.com)

## Fuse switch disconnecter 100A



**K491**

**Rating 100A**

**Fuse size 22x58**

**Conductors section 6-35mm<sup>2</sup>**

### Application

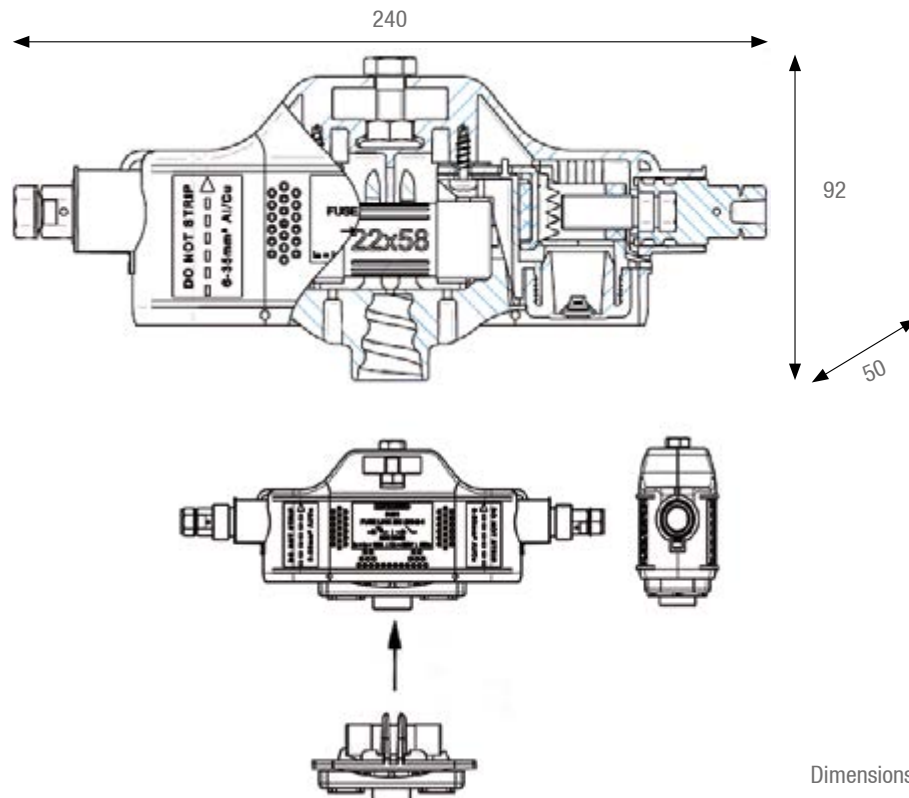
This Fuse Switch Disconnecter (FSD) is a single phase device. It is installed at the top of pole or on façade. It protects the overhead connection supplying an individual customer and the low voltage network.

It is designed to receive a neutral tube or 100A maximum, size 22x58 fuse cartridge (according to the IEC 269-2.1 standard).

### Description

- The FSD ratings are:
  - Rated voltage,  $U_e$  : 500V
  - Rated frequency : 50 up to 60Hz
  - Rated insulation voltage,  $U_i$  : 1 000V
  - Rated current,  $I_e$  : 100A
- The terminals are completely insulated. Connection is established using insulation piercing technology.
- The insulated conductor section ranges from 6 up to 35mm<sup>2</sup> Al/Cu.
- The tightening efficiency of the conductors is ensured by two shear head screws located on side body.
- The conductors inserting is performed from below.
- The fuse holder is opened, removed and closed using a pigtail stick.
- Note: the fuse holder can be installed without fuse.
- Screw heads and the fuse carrier can be sealed if necessary. The protection degree is IP33.

This fuse switch disconnecter meets the criteria of the IEC 60 947-3 and IEC 60 269-2 standard.



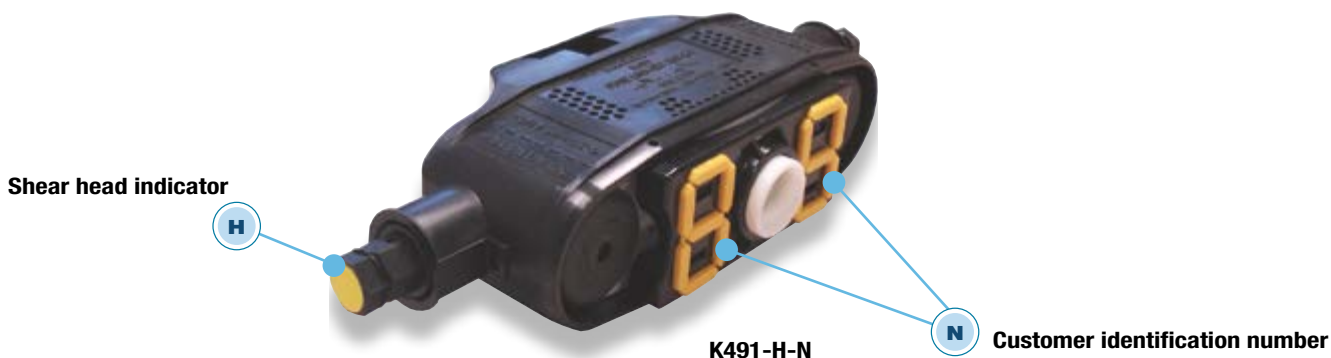
Dimensions in mm

Code	Designation	Weight (kg)	Sales unit
K491	SINGLE PHASE FSD 100A (22x58) PIERCING 6-35	0.385	20

### Costumised solution:

Several options available:

- For the shear head indicator, add **H** to the reference.
- For the customer identification number, add **N** to the reference.
- For the colour of the fuse carrier, add **C** to the reference and specify the colour (white is standard colour).



### Option: Number plate alone

Code	Designation	Weight (kg)	Sales unit
K492	NUMBER PLATE FOR FSD K491 / CABLE	0.025	100



### Accessories

The bracket is made of galvanised steel highly resistant to corrosion. Fixing on a pole or façade is achieved by two 10mm diameter galvanised steel screws and two holes on the bracket (top hole having a key shape to make it easier to position the FSD).

The adaptor made of synthetic materials is designed to fix a fuse switch disconnecter on a "swan neck" type bracket. It can also be fixed using a strap or 2 screws.



**K297**



**K295**

Code	Designation	Weight (kg)	Sales unit
K297	METAL BRACKET FOR SINGLE PHASE FSD	0.490	30
K295	PLASTIC ADAPTOR FOR SINGLE PHASE FSD BRACKET	0.070	5

**SEE SHEET**  
PROTECTION / Operating stick

**SEE SHEET**  
PROTECTION / Fuses



Installation video available on [www.michaud-export.com](http://www.michaud-export.com)

## Fuse switch disconnecter 160A



**K292**  
Insulation piercing



**L277**  
Stripping

**Rating** 160A

**Fuse size** NH 00

**Conductors section**  
6-95mm<sup>2</sup> (K292), 6-120mm<sup>2</sup> (L277)

### Application

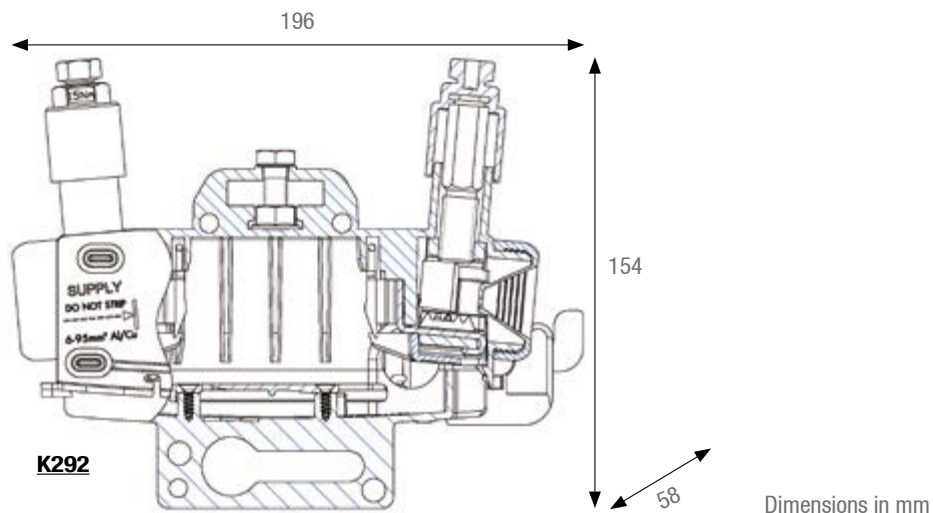
This Fuse Switch Disconnecter (FSD) is a single phase device. It is installed at the top of pole or on façade. It protects the overhead connection supplying an individual customer and the low voltage network.

It is designated to receive a 160A fuse cartridge or 240A maximum solid connecting link size 00 (according to the IEC 269-2.1 standard).

### Description

- The FSD ratings are:
  - Rated voltage, U<sub>e</sub> : 500V
  - Rated frequency : 50 up to 60Hz
  - Rated insulation voltage, U<sub>i</sub> : 1 000V
  - Rated current, I<sub>e</sub> : 160A
- The terminals are completely insulated.
- The FSD K292 uses the insulation piercing technology and receives insulated conductors from 6 up to 95mm<sup>2</sup> Al-Cu (entry seals are of black colour).
- The FSD L277 uses the stripping technology and receives insulated conductors from 6 up to 120mm<sup>2</sup> Al-Cu (entry seals are of grey colour).
- The tightening efficiency of the conductors is ensured by two shear head screws on top body.
- The fuse holder is opened, removed and closed using a hook stick.
- Note: the fuse holder can be installed without fuse.
- The polarity test points are accessible on each terminal without removing the fuse holder.
- The fuse carrier can be sealed if necessary. The protection degree is IP33.

This fuse switch disconnecter meets the criteria of the IEC 60 947-3 and IEC 60 269-2 standards.



Dimensions in mm



Code	Designation	Weight (kg)	Sales unit
K292	SINGLE PHASE FSD 160A (NH 00) PIERCING 6-95	0.470	1
L277	SINGLE PHASE FSD 160A (NH 00) STRIPPING 6-120	0.470	1

### Customised solution:

Several options available:

- For the presence indicator, add **P** to the reference.
- For the blown fuse LED indicator, add **L** to the reference.  
(Use a NH 00 fuse carrying metal fixing bracket linked to the blade)
- For the shear head indicator, add **H** to the reference.
- For the colour of the fuse carrier, add **C** to the reference and specify the colour (black is standard colour).



**K292-P-L**

### Option: Fuse carrier alone

Fuse carriers L297 and L298 can be used with existing MICHAUD fuse switch disconnectors size 00 on the field for retrofit operations, adding indicators.

Code	Designation	Weight (kg)	Sales unit
L297	FUSE CARRIER (Size 00) WITH BLOWN FUSE INDICATOR	0.091	1
L298	FUSE CARRIER (Size 00) WITH DISPLAY & BLOWN FUSE INDICATORS	0.091	1

### Accessories

The bracket is made of galvanised steel highly resistant to corrosion. Fixing on a pole or façade is achieved by two 10mm diameter galvanised steel screws and two holes on the bracket (top hole having a key shape to make it easier to position the FSD).

The adaptor made of synthetic materials is designed to fix a fuse switch disconnector on a "swan neck" type bracket. It can also be fixed using a strap or 2 screws.



**K297**



**K295**

Code	Designation	Weight (kg)	Sales unit
K297	METAL BRACKET FOR SINGLE PHASE FSD	0.490	30
K295	PLASTIC ADAPTOR FOR SINGLE PHASE FSD BRACKET	0.070	5

 **SEE SHEET**  
PROTECTION / Operating stick

 **SEE SHEET**  
PROTECTION / Fuses



Installation video available on [www.michaud-export.com](http://www.michaud-export.com)

## Fuse switch connector 20A



### Application

This fuse switch connector is designed to receive a 10.3x38mm fuse cartridge or neutral tube.

It is used to protect street light or insulated service conductors connected to the low voltage A.B.C. (Aerial Bundled Conductors) or bare line conductors. It is designed for 20A maximum fuse cartridge. It is used in no mechanical load situations.

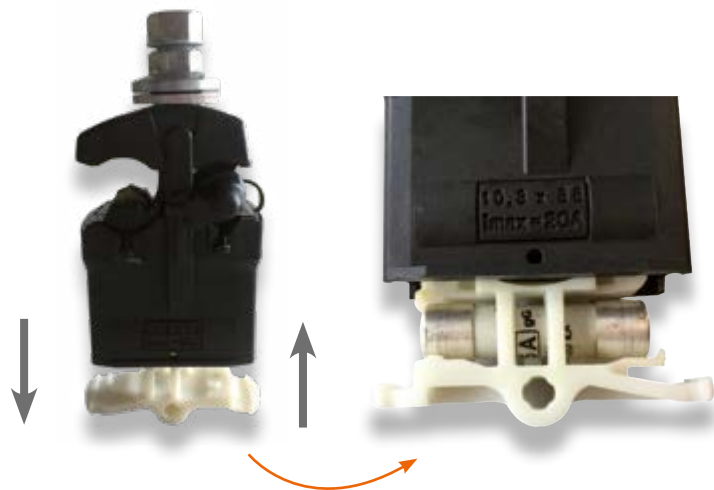
**Rating** 20A

**Fuse size** 10.3x38

**Conductors section** 16-95mm<sup>2</sup>/  
1.5-16mm<sup>2</sup> depending on the versions

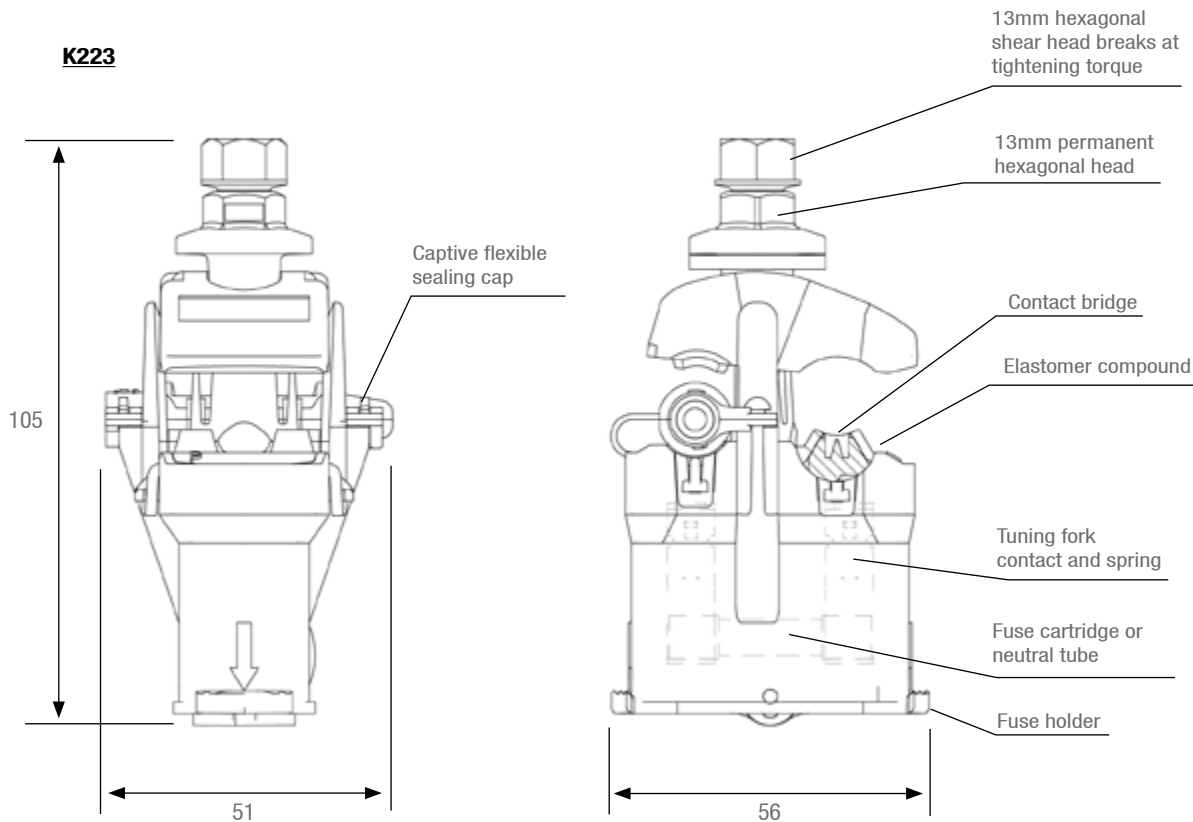
### The benefits :

- + Small size
- + Unlosable fuse carrier
- + Can be installed in a candelabra (K223-2)
- + Simultaneous tightening main/tap



### Description

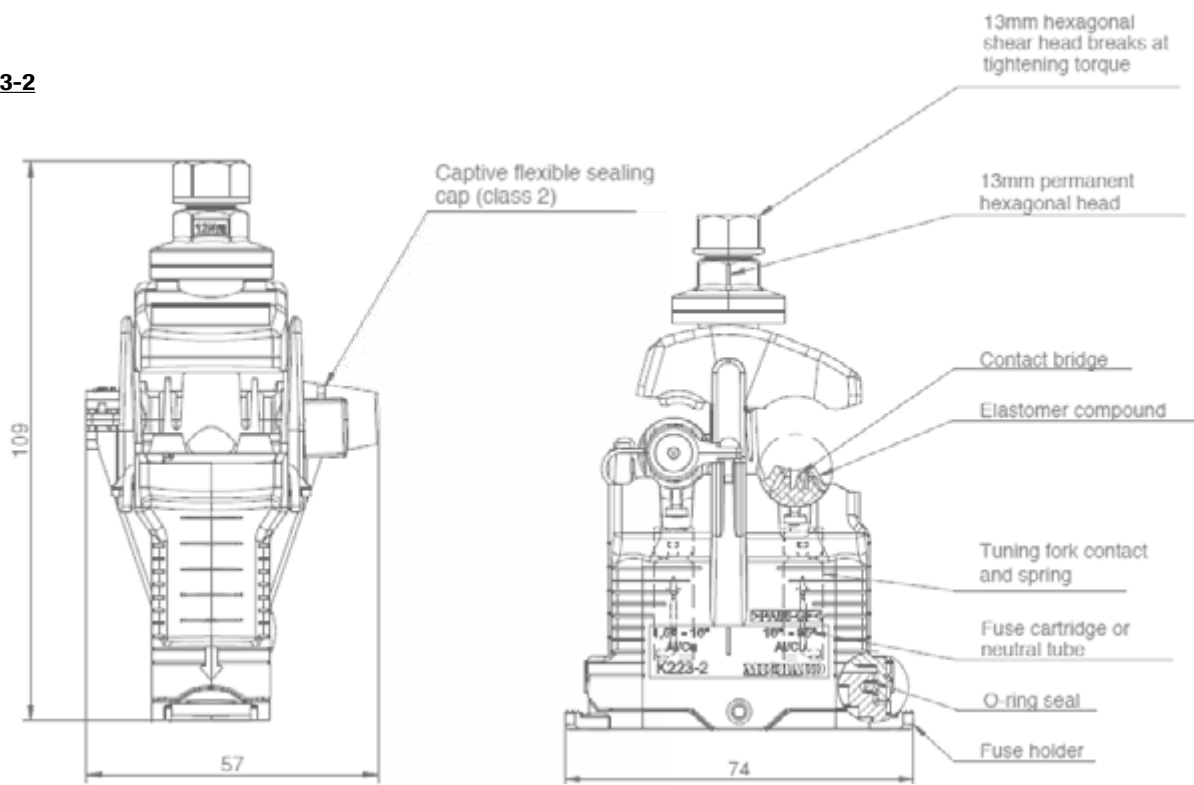
- Tightening of the bare or insulated main line conductor and piercing on the tap line conductor are carried out simultaneously in a single operation.
- The sealing end cap is flexible in order to check good tap conductor insertion. It can be installed with service cable outlet on left or right side.
- Tightening efficiency is ensured by a shear head screw.
- An elastomer compound ensures insulation during piercing of the conductors to be connected.
- Connection of the fuse cartridge on the tuning fork contacts is ensured using springs.
- The sealable fuse holder is operated easily by hand. Two arrows engraved on the side of the box indicate the opening and closing direction to be followed.
- For all connectors, the degree of protection is IP2X when installed. The K223 becomes IP33 after installation on the insulated conductor.
- The K223-2 becomes IP67 after installation on the insulated conductor (dielectric strenght in water 6kV/1 minute).



Dimensions in mm

Code	Designation	Capacities Main (mm <sup>2</sup> )	Capacities Tap insulated Al-Cu (mm <sup>2</sup> )	Weight (kg)	Sales unit
K223	FUSE CONNECTOR 20A (10.3x38) PIERCING 95/16	Al / Cu Insulated 16-95	1.5-16	0.130	10
K223-2	FUSE CONNECTOR PIERCING 95/16 - CLASS 2	Al / Cu Insulated 16-95	1.5-16	0.150	20
K228	FUSE CONNECTOR 20A (10.3x38) BARE Cu 95/10	Cu bare 16-95	1.5-10	0.130	10
K229	FUSE CONNECTOR 20A (10.3x38) BARE Al 95/100	Al bare 16-95	1.5-10	0.130	10

**K223-2**



Dimensions in mm

## Fuse switch connector 100A

**Rating** 100A

**Fuse size** 22x58

**Conductors section**  
35-150mm<sup>2</sup> / 6-35mm<sup>2</sup>



**K210**

### Application

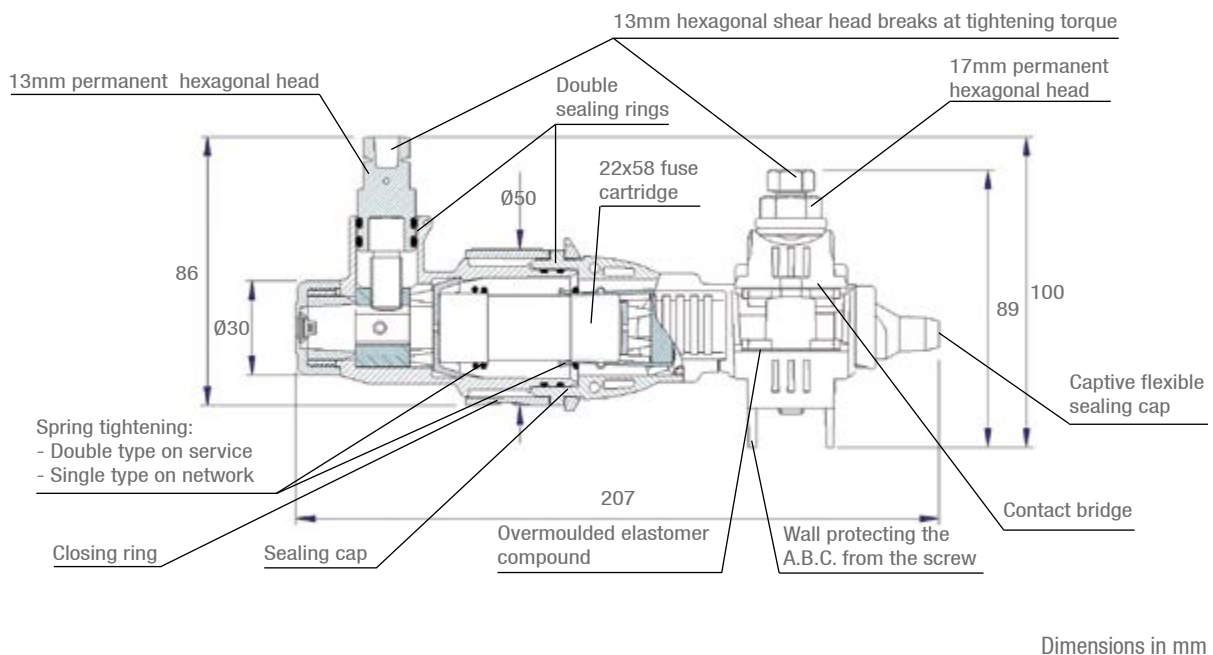
This fuse switch connector is designed to receive a 22x58mm fuse cartridge or neutral tube.

It is used to protect the insulated service conductors connected to a low voltage A.B.C. (Aerial Bundled Conductors). It is used in no mechanical load situations.

Opening and closing of the cutout can be performed under a load of 63A maximum.

### Description

- Insulation piercing on the main and tap conductors is carried out independently.
- Tightening efficiency is ensured by shear head screws. The dielectric strength in water is greater than 6kV.
- An elastomer compound ensures insulation during piercing of the conductors to be connected.
- The spring tightening on the cartridge is calibrated so that when the cutout is opened, the cartridge remains on the customer side (therefore without voltage).
- Once the cartridge has been installed, the cutout is locked using the closing ring.
- The closing ring and the 13mm permanent head can be sealed.





Code	Designation	Capacities Main insulated Al-Cu (mm <sup>2</sup> )	Capacities Tap insulated Al-Cu (mm <sup>2</sup> )	Weight (kg)	Sales unit
K210	FUSE SWITCH CONNECTOR 63A (22x58) PIERCING 150/35	35-150	6-35	0.310	10


**SEE SHEET**  
 INSTALLATION / LV insulated toolings

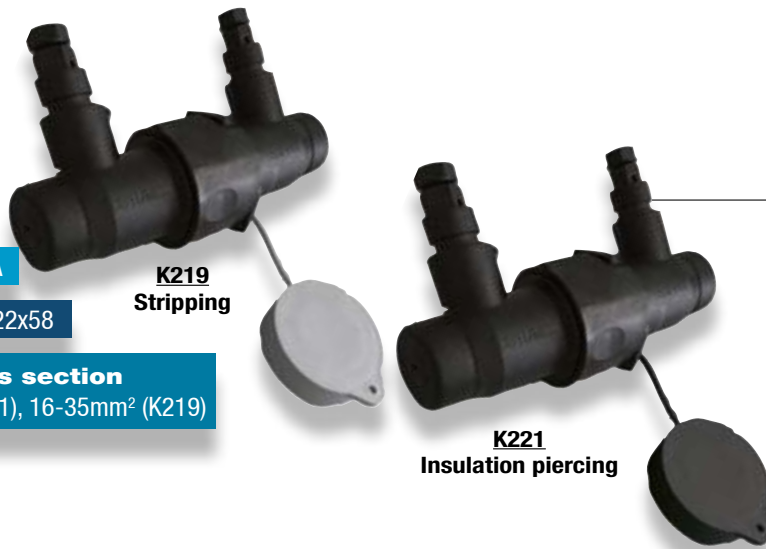

**SEE SHEET**  
 PROTECTION / Fuses

## Fuse cutout sleeve 100A

**Rating** 100A

**Fuse size** 22x58

**Conductors section**  
6-35mm<sup>2</sup> (K221), 16-35mm<sup>2</sup> (K219)



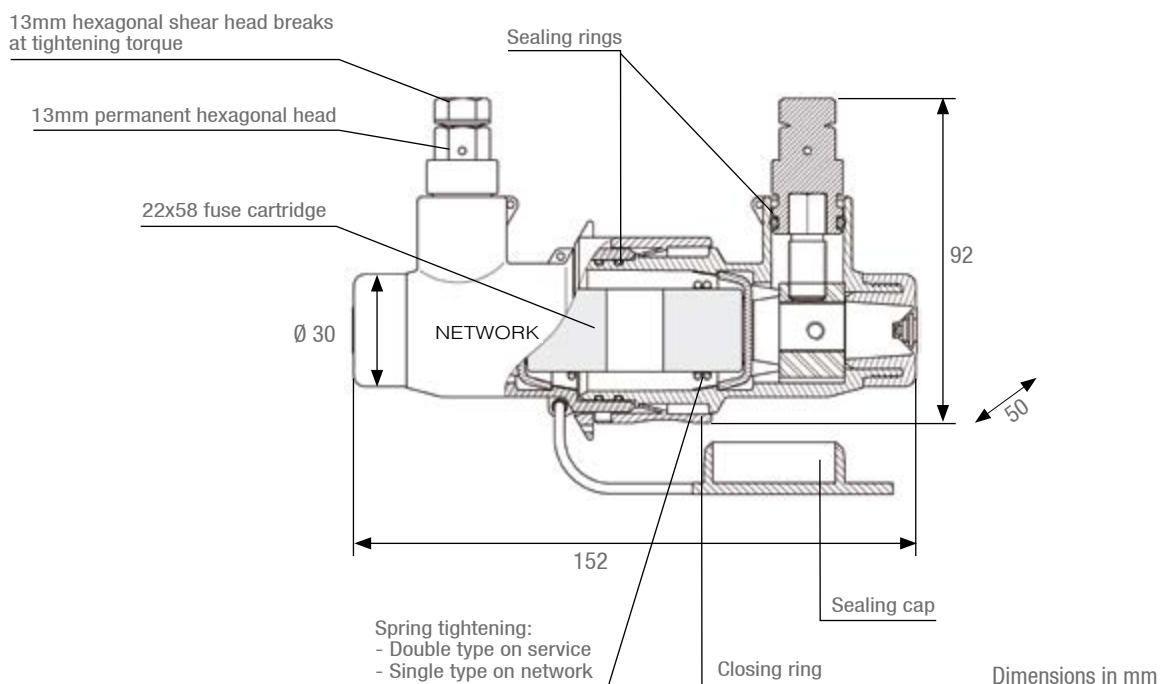
### Application

This cutout sleeve is designed to receive a 22x58 fuse cartridge, a neutral tube or a mini-switch. It is used in no mechanical load situations. It is equipped with mechanical tightening terminals allowing its installation using a simple spanner. Opening and closing of the cutout can be performed under a load of 63A maximum.

### Description

- Connection is established using insulation piercing technology for the K221 and stripping technology for the K219. The tightening screws are equipped with shear heads.
- The terminals offer the following capacities:
  - 6-35mm<sup>2</sup> Al/Cu or 16M-50M Al for the K221,
  - 16-35mm<sup>2</sup> Al/Cu or 16M-50M Al for the K219.
- The product has a dielectric strength in water greater than 6kV.
- The spring tightening on the cartridge is calibrated so that when the cutout is opened, the cartridge remains on the customer side (therefore without voltage).
- A sealing cap temporarily protects the access on the network side (black on K221 ; grey on K219).
- Once the cartridge has been installed, the product is locked using the closing ring.
- The closing ring and the 13mm screw can be sealed.
- The sleeve accepts 63A fuses. The 100A fuse is only accepted with 35mm<sup>2</sup> copper wiring.

This sleeve meets the criteria of the **ErDF 69 40 070** French specification.





Code	Designation	Weight (kg)	Sales unit
K221	CUTOUT SLEEVE 63A (22x58) PIERCING 6-35	0.235	50
K219	CUTOUT SLEEVE 63A (22x58) STRIPPING 16-35	0.235	70

### Alternative: Cutout sleeve with 50A

The cutout sleeve is also available in 14x51. It accepts fuses up to 50A and Al/Cu conductors from 2.5 to 16mm<sup>2</sup>. Connection is established by stripping the conductor. Connection is ensured by a shear head screw that cannot be dismantled.

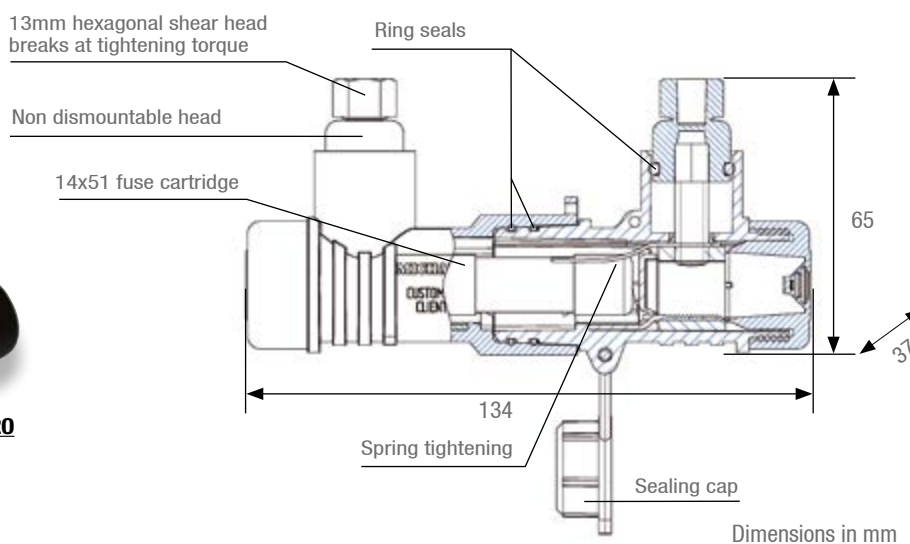
**Rating** 50A

**Fuse size** 14x51

**Conductors section**  
2.5-16mm<sup>2</sup>



**K220**



Code	Designation	Weight (kg)	Sales unit
K220	CUTOUT SLEEVE 50A (14x51) 2.5-16	0.195	20

**SEE SHEET**  
INSTALLATION / LV insulated toolings

**SEE SHEET**  
PROTECTION / Fuses

## Fuse insulation piercing pit connector 100A

Rating 100A

Fuse size 22x58

Conductors section 6-50mm<sup>2</sup>



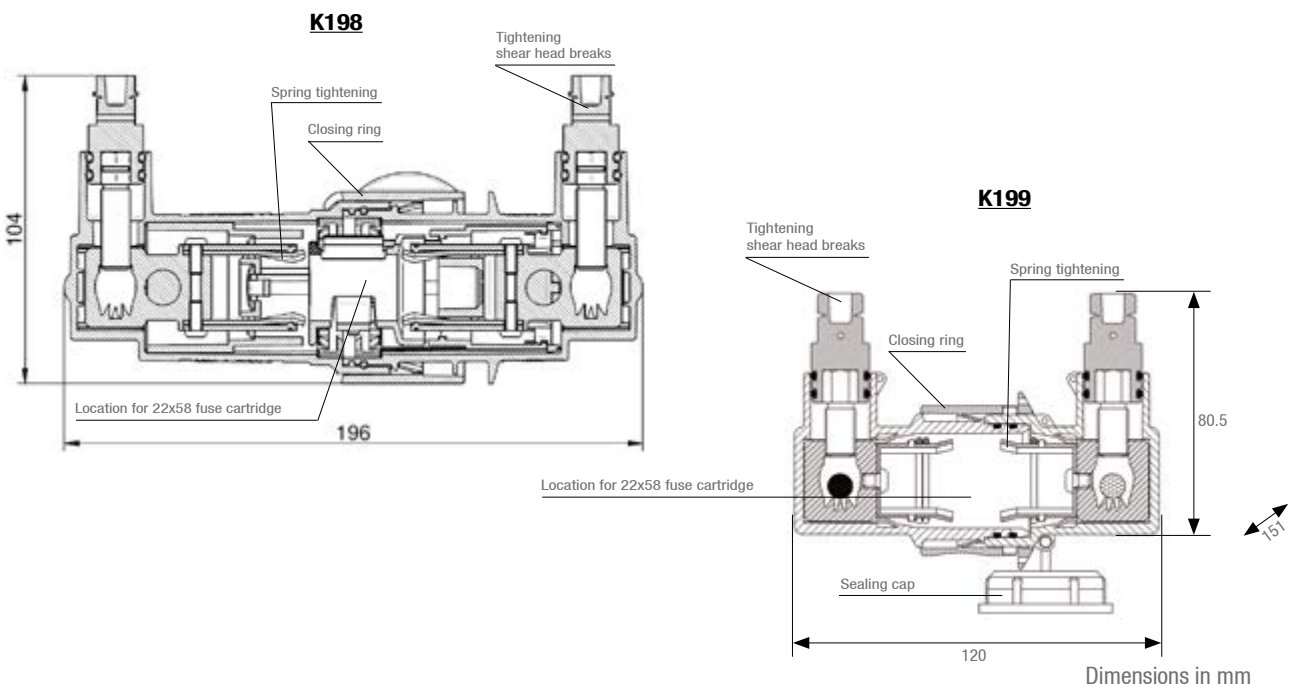
### Application

This Fuse Insulation Piercing Pit Connector (IPPC) is designed to receive a neutral tube, a mini-switch or a 100A maximum, size 22x58 fuse cartridge. It is used to connect a customer service line to an underground conductor. It is installed in a pit and can operate partially and temporary immersed in water.

It is equipped with mechanical tightening terminals allowing its installation on a conductor using a simple spanner.

### Description

- Terminals use insulation piercing technology.
- Tightening efficiency is ensured by shear head screws.
- The connection is totally watertight.
- The terminals offer a capacity from 6 up to 50mm<sup>2</sup> Al/Cu.
- On the K199, the elastic tightening of the cartridge is calibrated so that when the connector is opened, the cartridge remains on the customer side (therefore without voltage).
- A sealing cap temporarily protects the access on the network side.
- On the K198, the elastic tightening of the cartridge is calibrated so that when the connector is opened, the cartridge is not in contact with both side. This product is specially design for housing power plant and allows a safe operating. It is IP2X when opening. When it closes, this fuse IPPC is IP67.
- Once the cartridge is installed, the connectors are locked using the closing ring.





Code	Designation	Weight (kg)	Sales unit
K198	FUSE INSULATION PIERCING PIT CONNECTOR 100A (22x58) PERFO 6-50 IP2X	0.440	10
K199	FUSE INSULATION PIERCING PIT CONNECTOR 100A (22x58) PERFO 6-50	0.302	10



**K198 - Opened**



**K199 - Installation in a pit**


**SEE SHEET**  
 INSTALLATION / LV insulated toolings


**SEE SHEET**  
 PROTECTION / Fuses

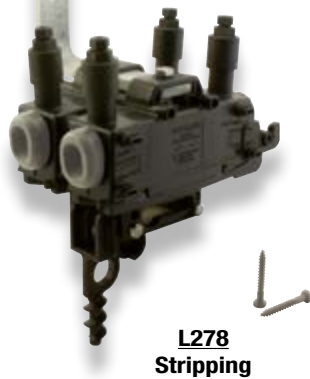
## Fuse switch disconnecter double pole 160A

**Rating** 160A

**Fuse size** NH 00

**Conductors section**

6-95mm<sup>2</sup> (K298), 6-120mm<sup>2</sup> (L278)



### Application

This Gang Fuse Switch Disconnecter (Gang FSD) is a multi-phase device. It is installed at the top of a pole or on façade. It protects the overhead connection supplying one or several multi-phase customers or the low voltage circuit of a pole mounted transformer. It is designed to receive 160A fuse cartridges or 240A solid connecting links, size 00 (according to the IEC 269-2.1 standard).

### Description

#### Fuse Switch Disconnecter

- The FSD ratings are:
  - Rated voltage, U<sub>e</sub> : 500V
  - Rated frequency : 50 up to 60Hz
  - Rated insulation voltage, U<sub>i</sub> : 1 000V
  - Rated current, I<sub>e</sub> : 160A
- The FSD K298 uses the insulation piercing technology and receives insulated conductors from 6 up to 95mm<sup>2</sup> Al-Cu (entry seals are of black colour).
- The FSD L278 uses the stripping technology and receives insulated conductors from 6 up to 120mm<sup>2</sup> Al-Cu (entry seals are of grey colour).
- The fuse holders are opened, removed and closed simultaneously using a hook stick or a stick to be screwed on the adaptor.  
Note: the fuse holder can be installed without fuse.
- The polarity test points are accessible on each terminal without removing the fuse holder.
- The protection degree is IP33.

#### Bracket

- The bracket is available in 2 holes type. It is made of galvanised steel highly resistant to corrosion.
- Fixing on a pole or façade is achieved by two 10mm diameter galvanised steel screws and two holes on the bracket (top hole having a key shape to make it easier to position the Gang FSD).

This fuse switch disconnecter meets the criteria of the IEC 60 947-3 and IEC 60 269-2 standards.

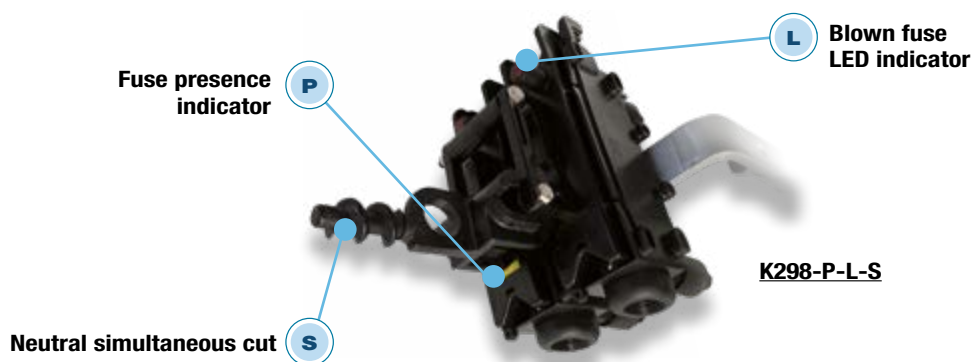
Code	Designation	Weight (kg)	Sales unit
K298	DOUBLE POLE FSD 160A (NH 00) PIERCING 6-95	1.850	2
L278	DOUBLE POLE FSD 160A (NH 00) STRIPPING 6-120	1.850	1

Note: Fixing with two 10mm diameter galvanised steel screws is provided with the disconnecter.

### Customised solution:

Several options available:

- For the fuse presence indicator, add **P** to the reference.
- For the blown fuse LED indicator, add **L** to the reference.  
(Use a NH 00 fuse carrying metal fixing bracket linked to the blade)
- For the shear head indicator, add **H** to the reference.
- For the neutral simultaneous cut, add **S** to the reference.
- For the colour of the fuse carrier, add **C** to the reference and specify the colour (black is standard colour).



### Option: Double tap

A double tap is available by adding an end connector with two insulation piercing taps. The conductor section goes from 6 up to 35mm<sup>2</sup> Al/Cu.

Code	Designation	Weight (kg)	Sales unit
K098	DOUBLE TAP END CONNECTOR (6-35mm <sup>2</sup> )	0.140	10

 **SEE SHEET**  
PROTECTION / Operating stick

 **SEE SHEET**  
PROTECTION / Fuses



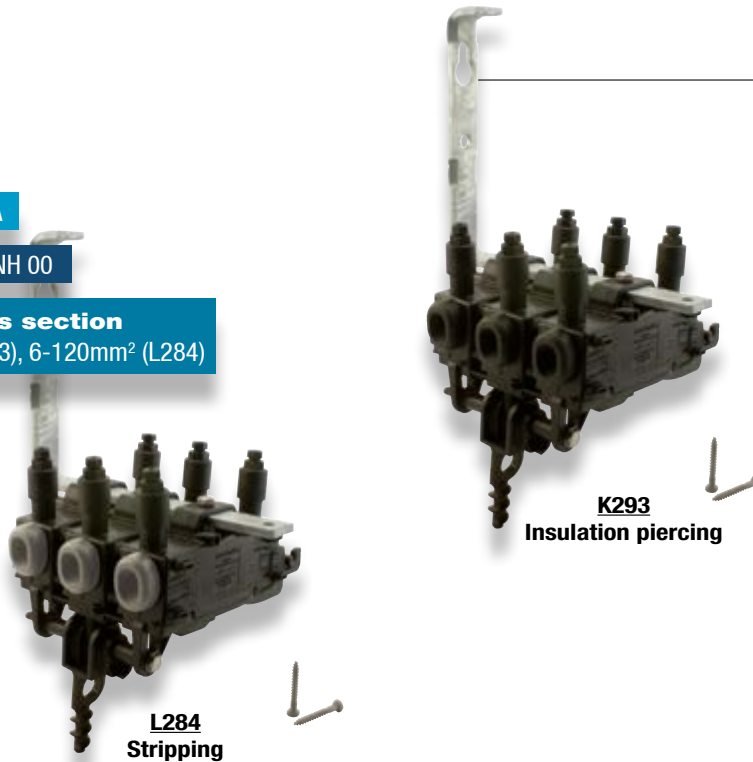
Installation video available on [www.michaud-export.com](http://www.michaud-export.com)

## Fuse switch disconnecter triple pole 160A

**Rating** 160A

**Fuse size** NH 00

**Conductors section**  
6-95mm<sup>2</sup> (K293), 6-120mm<sup>2</sup> (L284)



### Application

This Gang Fuse Switch Disconnecter (FSD) is a multi-phase device. It is installed at the top of a pole or on façade. It protects the overhead connection supplying one or more multi-phase customers or the low voltage circuit of a pole mounted transformer. It is designed to receive 160A fuse cartridge or 240A solid connecting links, size 00 (according to the IEC 269-2.1 standard).

### Description

#### Fuse Switch Disconnecter

- The FSD ratings are:
  - Rated voltage, Ue : 500V
  - Rated frequency : 50 up to 60Hz
  - Rated insulation voltage, Ui : 1 000V
  - Rated current, Ie : 160A
- The FSD K293 uses the insulation piercing technology and receives insulated conductors from 6 up to 95mm<sup>2</sup> Al-Cu (entry seals are of black colour).
- The FSD L284 uses the stripping technology and receives insulated conductors from 6 up to 120mm<sup>2</sup> Al-Cu (entry seals are of grey colour).
- The fuse holders are opened, removed and closed simultaneously using a hook stick or a stick to be screwed on the adaptor.  
Note: the fuse holder can be installed without fuse.
- The polarity test points are accessible on each terminal without removing the fuse holder.
- The protection degree is IP33.

#### Bracket

- The bracket is available in 4 holes type. It is made of galvanised steel highly resistant to corrosion. A hook at its end is used to fix a service cable anchoring clamp.
- Fixing on a pole or façade is achieved by two 10mm diameter galvanised steel screws and two holes on the bracket (top hole having a key shape to make it easier to position the Gang FSD). Fixing on poles can also be carried out using two stainless steel straps thanks to spurs on the bracket.

This fuse switch disconnecter meets the criteria of the IEC 60 947-3 and IEC 60 269-2 standards.

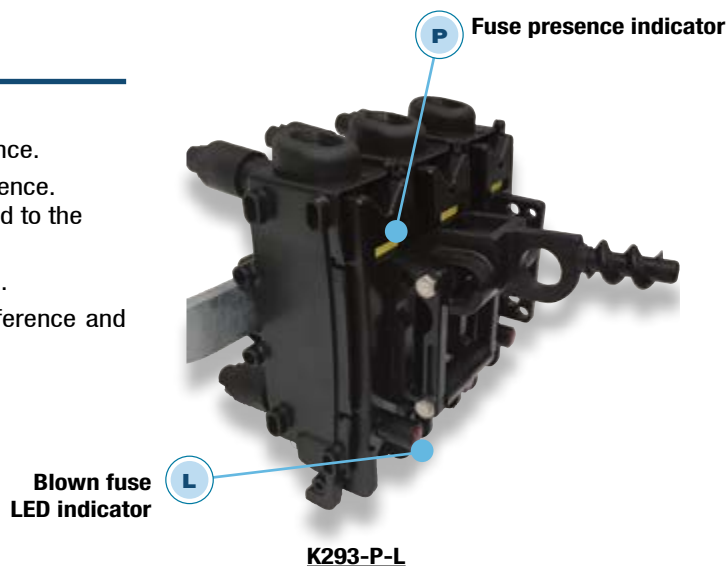
Code	Designation	Weight (kg)	Sales unit
K293	TRIPLE POLE FSD 160A (NH 00) PIERCING 6-95	2.710	2
L284	TRIPLE POLE FSD 160A (NH 00) STRIPPING 6-120	2.710	2

Note: Fixing with two 10mm diameter galvanised steel screws is provided with the disconnecter.

### Customised solution:

Several options available:

- For the fuse presence indicator, add **P** to the reference.
- For the blown fuse LED indicator, add **L** to the reference.  
(Use a NH 00 fuse carrying metal fixing bracket linked to the blade)
- For the shear head indicator, add **H** to the reference.
- For the colour of the fuse carrier, add **C** to the reference and specify the colour (black is standard colour).



### Option: Double tap

A double tap is available by adding an end connector with two insulation piercing taps. The conductor section goes from 6 to 35mm<sup>2</sup> Al/Cu.



Code	Designation	Weight (kg)	Sales unit
K098	DOUBLE TAP END CONNECTOR (6-35mm <sup>2</sup> )	0.140	10



### Alternative: Fuse switch disconnecter double triple pole 160A (size 00)

Code	Designation	Weight (kg)	Sales unit
K296	DOUBLE TRIPLE POLE FSD 160A (NH 00) PIERCING 6-95	3.800	1

Note: Fixing with two 10mm diameter galvanised steel screws is provided with the disconnecter.

 **SEE SHEET**  
PROTECTION / Operating stick

 **SEE SHEET**  
PROTECTION / Fuses



Installation video available on [www.michaud-export.com](http://www.michaud-export.com)

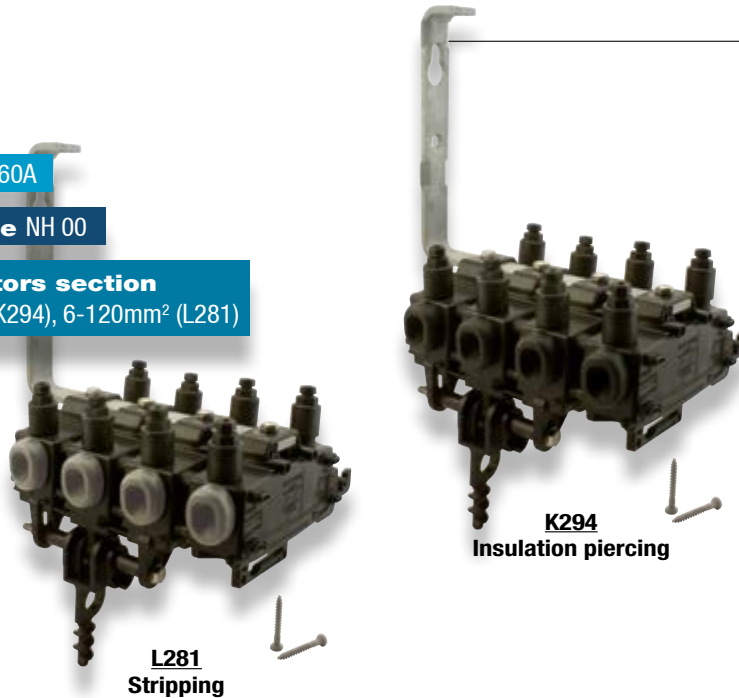
## Fuse switch disconnecter quadruple pole 160A

Rating 160A

Fuse size NH 00

Conductors section

6-95mm<sup>2</sup> (K294), 6-120mm<sup>2</sup> (L281)



### Application

This Gang Fuse Switch Disconnecter (FSD) is a multi-phase device. It is installed at the top of a pole or on façade. It protects the overhead connection supplying one or more multi-phase customers or the low voltage circuit of a pole mounted transformer. It is designed to receive 160A fuse cartridge or 240A solid connecting links, size 00 (according to the IEC 269-2.1 standard).

### Description

#### Fuse Switch Disconnecter

- The FSD ratings are:
  - Rated voltage, Ue : 500V
  - Rated frequency : 50 up to 60Hz
  - Rated insulation voltage, Ui : 1 000V
  - Rated current, Ie : 160A
- The FSD K294 uses the insulation piercing technology and receives insulated conductors from 6 up to 95mm<sup>2</sup> Al-Cu (entry seals are of black colour).
- The FSD L281 uses the stripping technology and receives insulated conductors from 6 up to 120mm<sup>2</sup> Al-Cu (entry seals are of grey colour).
- The fuse holders are opened, removed and closed simultaneously using a hook stick or a stick to be screwed on the adaptor (neutral cut-off is performed independantly).  
Note: the fuse holder can be installed without fuse.
- The polarity test points are accessible on each terminal without removing the fuse holder.
- The quadruple pole FSD is equipped with a neutral blade contact size 00 integral with the fuse holder, on the neutral side (independent opening reaches to neutral cut).
- The protection degree is IP33.

#### Bracket

- The bracket is available in 4 holes type. It is made of galvanised steel highly resistant to corrosion. A hook at its end is used to fix a service cable anchoring clamp.
- Fixing on a pole or façade is achieved by two 10mm diameter galvanised steel screws and two holes on the bracket (top hole having a key shape to make it easier to position the Gang FSD). Fixing on poles can also be carried out using two stainless steel straps thanks to spurs on the bracket.

This fuse switch disconnecter meets the criteria of the IEC 60 947-3 and IEC 60 269-2 standards.

Code	Designation	Weight (kg)	Sales unit
K294	QUADRUPLE POLE FSD 160A (NH 00) PIERCING 6-95	3.240	1
L281	QUADRUPLE POLE FSD 160A (NH 00) STRIPPING 6-120	3.240	1

Note: Fixing with two 10mm diameter galvanised steel screws is provided with the disconnecter.

### Customised solution:

Several options available:

- For the fuse presence indicator, add **P** to the reference.
- For the blown fuse LED indicator, add **L** to the reference.  
(Use a NH 00 fuse carrying metal fixing bracket linked to the blade)
- For the shear head indicator, add **H** to the reference.
- For the neutral simultaneous cut, add **S** to the reference.
- For the colour of the fuse carrier, add **C** to the reference and specify the colour (black is standard colour).



### Option: Double tap

A double tap is available by adding an end connector with two insulation piercing taps. The conductor section goes from 6 to 35mm<sup>2</sup> Al/Cu.



Code	Designation	Weight (kg)	Sales unit
K098	DOUBLE TAP END CONNECTOR (6-35mm <sup>2</sup> )	0.140	10

 **SEE SHEET**  
PROTECTION / Operating stick

 **SEE SHEET**  
PROTECTION / Fuses



Installation video available on [www.michaud-export.com](http://www.michaud-export.com)

## Operating stick



Stick

Extension

F208

### Application

This telescopic operating stick is used to operate a fuse switch disconnecter, remotely from the ground level, but also to check that there is no voltage or for the earthing operations thanks to accessories sold apart. Each model is equipped with a notched universal U-shaped terminal end.

### Description

- The stick and the extension comprise 1, 2 or 3 elements.
- Each element is made of glass fibre composite and has a high mechanical strength.
- The upper tube is filled with yellow foam to ensure the dielectric strength in the upper part.
- The hollowed lower tube receives the upper tube, in retracted position. It is entirely treated against humidity through siliconisation (the retracted or deployed position is locked using a push button).
- The work must be operated, with limited load at the top, with no mechanical stresses (twisting).
- The assembly can be used for low voltage applications at any time when the stick is deployed.
- The stick is equipped with the following elements:
  - A U-shaped notched universal end for fixing a suitable terminal end (wing nut equipped),
  - A second end with a mount equipped with a protected connection for the optional extension,
  - A hand grip for secure holding.
- The stick diameter is 42mm.
- The stick and the extension can be delivered in a protective cover in order to facilitate handling and storage.

This operating stick meets the criteria of the **IEC 60855-1**, **IEC 1235** and **EN 61235** standards.

Code	Designation	Elements number	Extension bar application	Length when closed (m)	Length when opened (m)	Weight (kg)	Sales unit
F200	OPERATING STICK 2E - 1.5M (TERMINAL END U)	2	No	0.85	1.50	1.050	1
F201	OPERATING STICK 2E - 2M (TERMINAL END U)	2	Yes	1.10	2.00	1.200	1
F202	OPERATING STICK 2E - 3.2M (TERMINAL END U)	2	Yes	1.75	3.20	1.500	1
F203	OPERATING STICK 2E - 5M (TERMINAL END U)	2	Yes	2.65	5.00	3.000	1
F204	OPERATING STICK 3E - 4.5M (TERMINAL END U)	3	No	1.65	4.50	3.000	1
F205	OPERATING STICK 3E - 5M (TERMINAL END U)	3	No	1.85	5.00	4.000	1
F206	OPERATING STICK 3E - 6M (TERMINAL END U)	3	No	2.50	6.00	5.000	1
F207	OPERATING STICK 1E - 1M	1	No	1.00	1.00	0.800	1
F208	PROTECTIVE COVER FOR OPERATING STICK					0.600	1



## Terminal end



## Application

To operate a Fuse Switch Disconnecter (FSD) remotely from the ground level, the notched universal U-shaped threaded terminal end is fixed to the operating stick.

The F210 end can be used to operate a Fuse Switch Disconnecter manually, without loss of handling thanks to its handle shape.

Code	Designation	Weight (kg)	Sales unit
F209	BORED TERMINAL END DISCONNECTOR / STICK	0.105	1
F210	THREAD TERMINAL END DISCONNECTOR / STICK	0.035	10
F213	TERMINAL END TYPE L DISCONNECTOR / STICK	0.180	1



Installation video available on [www.michaud-export.com](http://www.michaud-export.com)

## Installation



Terminal end F210 compatible with the Fuse Switch Disconnecter type K491.

Terminal end F210 compatible with Fuse Switch Disconnecter type K291.

Terminal end F213 compatible with the Fuse Switch Disconnecter type K292.

Terminal end F209 compatible with Fuse Switch Disconnecters type K298, K293 and K294.

# Fuse cartridge gG



**U64x - U65x**  
Type 22x58



**U660**  
Type 14x51



**U661**  
Type 10.3x38

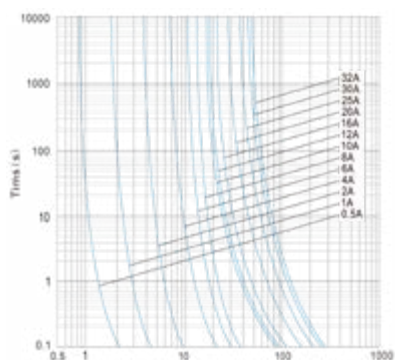
## Application

These gG fuse cartridges are designed to protect goods. They are implemented in a cutout sheltered from outside weather conditions..

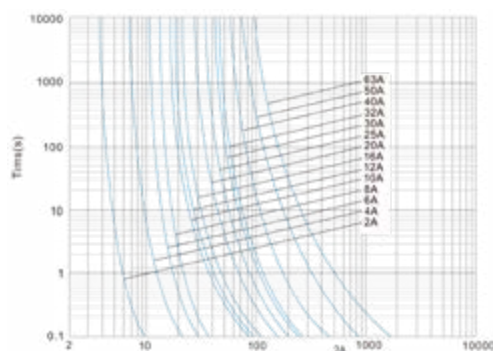
## Description

- It is type gG HPC (High Breaking Capacity).
- It is not equipped with light indicator.

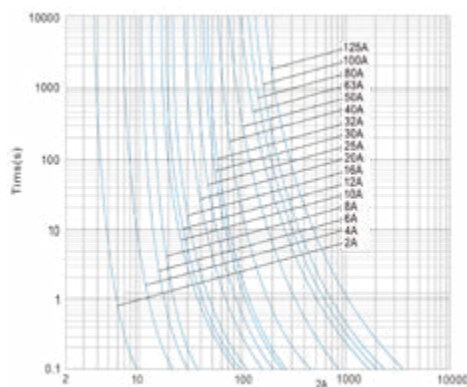
This fuse meets the criteria of the **NF/EN/IEC 60269-1**, **NF HD/IEC 60269-2**, **NF C 60200-1** and **NF C 60200-2** standards.



**Type 10.3x38**



**Type 14x51**



**Type 22x58**

Code	Designation	Voltage (V)	Breaking capacity (kA)	Weight (kg)	Sales unit
<b>FUSE CARTRIDGE 10.3x38 gG</b>					
U661-1	FUSE CARTRIDGE 10.3x38 1A	500	80	0.007	10
U661-2	FUSE CARTRIDGE 10.3x38 2A	500	80	0.007	10
U661-4	FUSE CARTRIDGE 10.3x38 4A	500	80	0.007	10
U661-6	FUSE CARTRIDGE 10.3x38 6A	500	80	0.007	10
U661-8	FUSE CARTRIDGE 10.3x38 8A	500	80	0.007	10
U661-10	FUSE CARTRIDGE 10.3x38 10A	500	80	0.007	10
U661-12	FUSE CARTRIDGE 10.3x38 12A	500	80	0.007	10
U661-16	FUSE CARTRIDGE 10.3x38 16A	500	80	0.007	10
U661-20	FUSE CARTRIDGE 10.3x38 20A	500	80	0.007	10
U661-25	FUSE CARTRIDGE 10.3x38 25A	500	80	0.007	10
U661-32	FUSE CARTRIDGE 10.3x38 32A	500	80	0.007	10
U620	NEUTRAL TUBE 10.3x38			0.007	10
<b>FUSE CARTRIDGE 14x51 gG</b>					
U660-1	FUSE CARTRIDGE 14x51 gG 1A	690	80	0.021	10
U660-2	FUSE CARTRIDGE 14x51 gG 2A	690	80	0.021	10
U660-4	FUSE CARTRIDGE 14x51 gG 4A	690	80	0.021	10
U660-6	FUSE CARTRIDGE 14x51 gG 6A	690	80	0.021	10
U660-8	FUSE CARTRIDGE 14x51 gG 8A	690	80	0.021	10
U660-10	FUSE CARTRIDGE 14x51 gG 10A	690	80	0.021	10
U660-12	FUSE CARTRIDGE 14x51 gG 12A	690	80	0.021	10
U660-16	FUSE CARTRIDGE 14x51 gG 16A	690	80	0.021	10
U660-20	FUSE CARTRIDGE 14x51 gG 20A	690	80	0.021	10
U660-25	FUSE CARTRIDGE 14x51 gG 25A	690	80	0.021	10
U660-32	FUSE CARTRIDGE 14x51 gG 32A	500	80	0.021	10
U660-40	FUSE CARTRIDGE 14x51 gG 40A	500	80	0.021	10
U660-50	FUSE CARTRIDGE 14x51 gG 50A	400	80	0.021	10
U621	NEUTRAL TUBE 14x51			0.021	10
<b>FUSE CARTRIDGE 22x58 gG</b>					
U640	FUSE CARTRIDGE 22x58 gG 2A	690	80	0.056	10
U641	FUSE CARTRIDGE 22x58 gG 4A	690	80	0.056	10
U642	FUSE CARTRIDGE 22x58 gG 6A	690	80	0.056	10
U643	FUSE CARTRIDGE 22x58 gG 8A	690	80	0.056	10
U644	FUSE CARTRIDGE 22x58 gG 10A	690	80	0.056	10
U645	FUSE CARTRIDGE 22x58 gG 12A	690	80	0.056	10
U646	FUSE CARTRIDGE 22x58 gG 16A	690	80	0.056	10
U647	FUSE CARTRIDGE 22x58 gG 20A	690	80	0.056	10
U648	FUSE CARTRIDGE 22x58 gG 25A	690	80	0.056	10
U649	FUSE CARTRIDGE 22x58 gG 32A	690	80	0.056	10
U650	FUSE CARTRIDGE 22x58 gG 40A	690	80	0.056	10
U651	FUSE CARTRIDGE 22x58 gG 50A	690	80	0.056	10
U652	FUSE CARTRIDGE 22x58 gG 63A	690	80	0.056	10
U653	FUSE CARTRIDGE 22x58 gG 80A	500	120	0.056	10
U654	FUSE CARTRIDGE 22x58 gG 100A	500	120	0.056	10
U655	FUSE CARTRIDGE 22x58 gG 125A	400	120	0.056	10
U622	NEUTRAL TUBE 22x58			0.056	10

For other fuses, contact us.

## Fuse cartridge AD



### Application

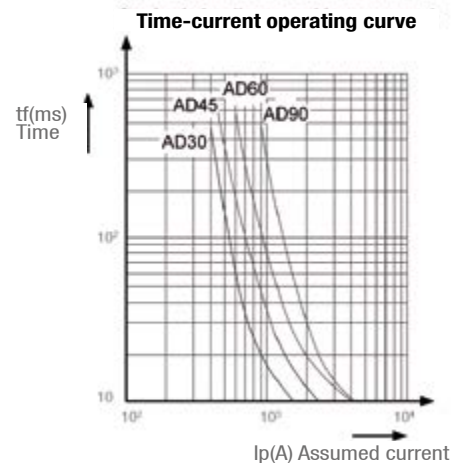
These AD fuse cartridges are used together with the circuit-breaker installed on the individual service tap connection. They perform the cutoff for high short-circuit currents and thereby extend the service life of the associated circuit-breaker, which is not overloaded up to the limit.

### Cylindrical cartridge

#### Description

- This fuse cartridge is available in several sizes: 10.3x38, 14x51 and 22x58mm.
- Many models are available according to the circuit breaker nominal current to which it must be connected: AD 15A, AD 30A, AD 45A, AD 60A and AD 90A.
- Low power loss limits heating of the device holding the fuse and extends its service life.
- It is specified for a nominal voltage of 440V in alternating current with nominal frequency of 50Hz.
- The nominal breaking capacity is 20kA.

This fuse meets the criteria of the **HN62-S-83**, **NF/EN/IEC 60269-1**, **NF HD/IEC 60269-2**, **NF C 60200-1** and **NF C 60200-2** standards.



Code	Designation	Weight (kg)	Sales unit
<b>FUSE CARTRIDGE 10.3x38mm</b>			
U618	FUSE CARTRIDGE 10.3X38 AD 5A	0.009	10
U619	FUSE CARTRIDGE 10.3X38 AD 10A	0.009	10
U623	FUSE CARTRIDGE 10.3x38 AD 15A	0.009	10
U620	NEUTRAL TUBE 10.3x38	0.012	10
<b>FUSE CARTRIDGE 14x51mm</b>			
U615	FUSE CARTRIDGE 14x51 AD 15A	0.021	10
U616	FUSE CARTRIDGE 14x51 AD 30A	0.021	10
U617	FUSE CARTRIDGE 14x51 AD 45A	0.021	10
U621	NEUTRAL TUBE 14x51	0.016	10
<b>FUSE CARTRIDGE 22x58mm</b>			
U610	FUSE CARTRIDGE 22x58 AD 15A	0.056	10
U611	FUSE CARTRIDGE 22x58 AD 30A	0.056	10
U612	FUSE CARTRIDGE 22x58 AD 45A	0.056	10
U613	FUSE CARTRIDGE 22x58 AD 60A	0.056	10
U614	FUSE CARTRIDGE 22x58 AD 90A	0.056	10
U622	NEUTRAL TUBE 22x58	0.028	10

Note: Other 10.3x38, 14x51, 22x58 fuses can be supplied upon request: please contact us.

## Fuse cartridge size 00

P240



P24x

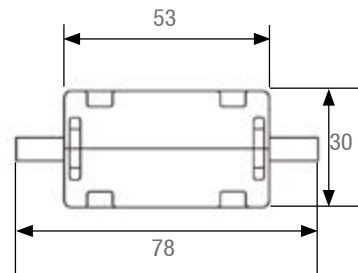
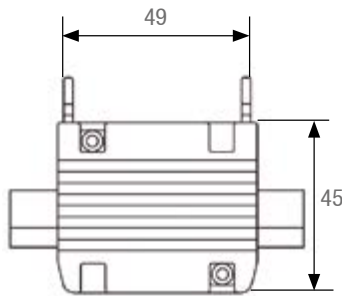


### Description

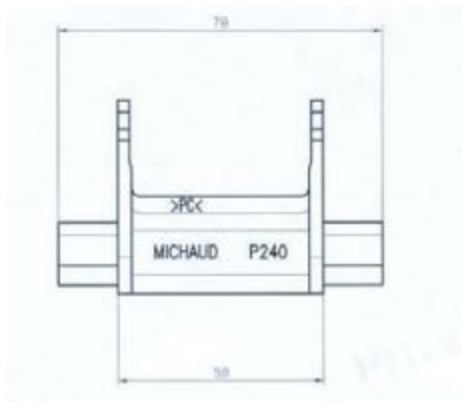
- The size of this blade fuse cartridge is 00 according to the **IEC 60269-2-1** standard.
- There are 4 models available according to the nominal current of the circuit-breaker to which it must be connected: AD 30A, AD 45A, AD 60A and AD 90A.
- The fixing brackets are made of insulating synthetic materials.
- The accessible metal parts (screws), with the exception of the blades, are potential free and also have the degree of protection IP2X according to the **NF EN 60529** standard.
- Low power loss limits heating of the device holding the fuse and extends its service life.
- It is specified for a nominal voltage of 440V in alternating current with nominal frequency of 50Hz.
- The nominal breaking capacity is 20kA.

This fuse meets the criteria of the **HN62-S-83** standard.

P24x



P240



Dimensions in mm

Code	Designation	Resistance to 20°C (μΩ)	Consumption (W)	Blade temperature rise (°K)	Weight (kg)	Sales unit
P241	FUSE CARTRIDGE SIZE 00 AD 30A	1150	1.4	9	0.150	10
P242	FUSE CARTRIDGE SIZE 00 AD 45A	740	2.1	16	0.150	10
P243	FUSE CARTRIDGE SIZE 00 AD 60A	650	3.3	20	0.150	10
P244	FUSE CARTRIDGE SIZE 00 AD 90A	430	5.1	34	0.150	10
P240	NEUTRAL BLADE CONTACT SIZE 00				0.060	10

# Fuse cartridge NH



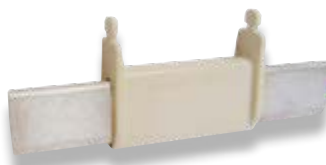
**NH00**



**NH2 115mm**



**NH1 115mm**



**NH1 115mm**



**NH2 160mm**



**NH2 160mm**

## Application

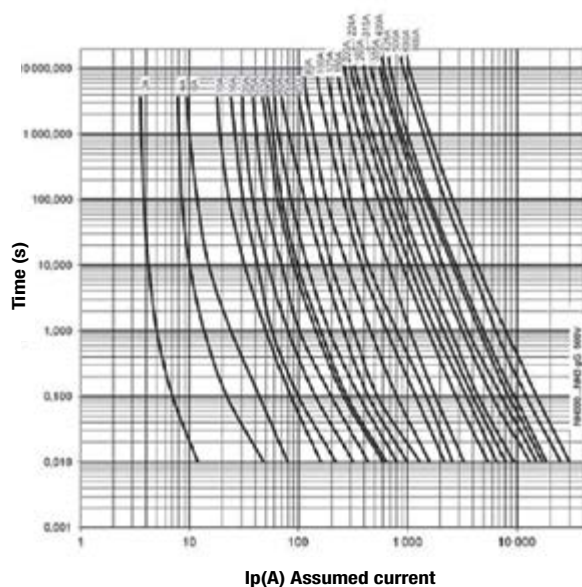
These low voltage fuses cartridges NH00, NH1 or NH2 are type gG. They are used as protection unit of the low voltage public electricity supply networks and works. It is installed in:

- Low voltage switchboards of the public electricity supply substations,
- Cutout boxes, inside or outside supply switches,
- Switch cabinets for subsurface networks,
- Metering boxes and cabinets for different uses.

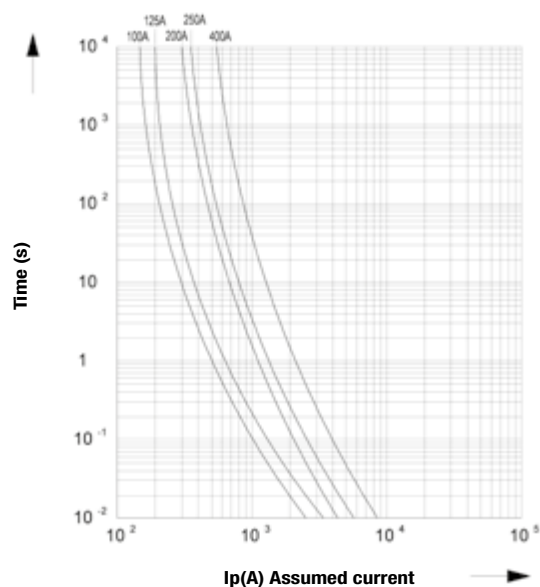
## Description

- The size of this blade fuse cartridge is NH00, NH1 or NH2 according to the **IEC 269-2-1** standard.
- It is type gG HPC (High Breaking Capacity).
- It is available in several ratings:
  - 2A, 4A, 6A, 10A, 16A, 20A, 25A, 32A, 35A, 40A, 50A, 63A, 80A, 100A, 125A ou 160A en NH00,
  - 63A, 80A, 100A, 125A, 160A, 200A and 250A for NH1 115mm,
  - 125A, 160A, 200A, 224A, 250A, 315A, 335A and 400A for NH2 115mm,
  - 125A, 200A, 250A and 400A for NH2 160mm.
- It is specified for a nominal voltage of 440V in alternating current with nominal frequency of 50Hz.
- The nominal breaking capacity is 50kA minimum.

Fuse cartridge NH00, NH1 and NH2 (115mm)



Fuse cartridge NH2 (160mm)



Code	Designation	Weight (kg)	Sales unit
<b>FUSE CARTRIDGE NH00</b>			
U664-2	FUSE CARTRIDGE NH00 gG 500V 2A	0.180	3
U664-4	FUSE CARTRIDGE NH00 gG 500V 4A	0.180	3
U664-6	FUSE CARTRIDGE NH00 gG 500V 6A	0.180	3
U664-10	FUSE CARTRIDGE NH00 gG 500V 10A	0.180	3
U664-16	FUSE CARTRIDGE NH00 gG 500V 16A	0.180	3
U664-20	FUSE CARTRIDGE NH00 gG 500V 20A	0.180	3
U664-25	FUSE CARTRIDGE NH00 gG 500V 25A	0.180	3
U664-32	FUSE CARTRIDGE NH00 gG 500V 32A	0.180	3
U664-35	FUSE CARTRIDGE NH00 gG 500V 35A	0.180	3
U664-40	FUSE CARTRIDGE NH00 gG 500V 40A	0.180	3
U664-50	FUSE CARTRIDGE NH00 gG 500V 50A	0.180	3
U664-63	FUSE CARTRIDGE NH00 gG 500V 63A	0.180	3
U664-80	FUSE CARTRIDGE NH00 gG 500V 80A	0.180	3
U664-100	FUSE CARTRIDGE NH00 gG 500V 100A	0.180	3
U664-125	FUSE CARTRIDGE NH00 gG 500V 125A	0.180	3
U664-160	FUSE CARTRIDGE NH00 gG 500V 160A	0.180	3
U665	NEUTRAL BLADE CONTACT NH00	0.100	1
<b>FUSE CARTRIDGE NH1 AND NH2 115mm</b>			
U250	FUSE CARTRIDGE NH1 63A 115mm	0.400	5
U251	FUSE CARTRIDGE NH1 80A 115mm	0.400	5
U252	FUSE CARTRIDGE NH1 100A 115mm	0.400	5
U253	FUSE CARTRIDGE NH1 125A 115mm	0.400	5
U254	FUSE CARTRIDGE NH1 160A 115mm	0.400	5
U255	FUSE CARTRIDGE NH1 200A 115mm	0.400	5
U256	FUSE CARTRIDGE NH1 250A 115mm	0.400	5
U257	FUSE CARTRIDGE NH2 125A 115mm	0.600	18
U262	FUSE CARTRIDGE NH2 160A 115 mm	0.600	3
U258	FUSE CARTRIDGE NH2 200A 115mm	0.600	18
U263	FUSE CARTRIDGE NH2 224A 115 mm	0.600	3
U259	FUSE CARTRIDGE NH2 250A 115mm	0.600	18
U260	FUSE CARTRIDGE NH2 315A 115mm	0.600	18
U264	FUSE CARTRIDGE NH2 335A 115 mm	0.600	3
U261	FUSE CARTRIDGE NH2 400A 115mm	0.600	18
P238	NEUTRAL BLADE CONTACT NH2 115mm	0.210	1
<b>FUSE CARTRIDGE NH2 160mm</b>			
P130	FUSE CARTRIDGE NH2 125A 160mm	0.780	3
P131	FUSE CARTRIDGE NH2 200A 160mm	0.780	3
P132	FUSE CARTRIDGE NH2 250A 160mm	0.780	3
P134	FUSE CARTRIDGE NH2 400A 160mm	0.780	3
P239	NEUTRAL BLADE CONTACT NH2 160mm	0.290	1

## Accessory




The operating handle is used to install and extract fuses from size 00 to size 2 in devices when these are not equipped with an integrated gripping system.

Code	Designation	Weight (kg)	Sales unit
P237	HANDLE FOR FUSES SIZE 00 - SIZE 2	0.260	1







# EARTH SYSTEM

## Earth electrodes

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## Earth connectors

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## Earth conductors

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# SOLUTIONS FOR EARTH SYSTEM

To meet electrical installations safety requirements, MICHAUD specialised in the earth system field.



## The earth system

The role of an electrical installation earth system is to enable the fault current runoff into the soil. When an installation is damaged owing to an insulation fault, the current cannot flow correctly anymore. An electric shock occurs, that is to say an element is charging in electricity. At this stage, the current is trying to come out thanks to a conductive environment. This is the aim of the earth system.

### Earth system main functions



#### PEOPLE PROTECTION AND SAFETY

The earth system enables to **protect from the electrocution risk**. It limits the potential difference in the close environment in order to avoid contact or step voltage.



#### HIGH FREQUENCY CURRENTS DISPERSAL

The earth system also has to **discharge direct or indirect currents** coming from lightning shocks.



#### GOODS AND EQUIPMENT PROTECTION

It **prevents goods and electrical installations from degradation**. The earth system ensures the electrical continuity and avoids too important voltage to installations terminals.

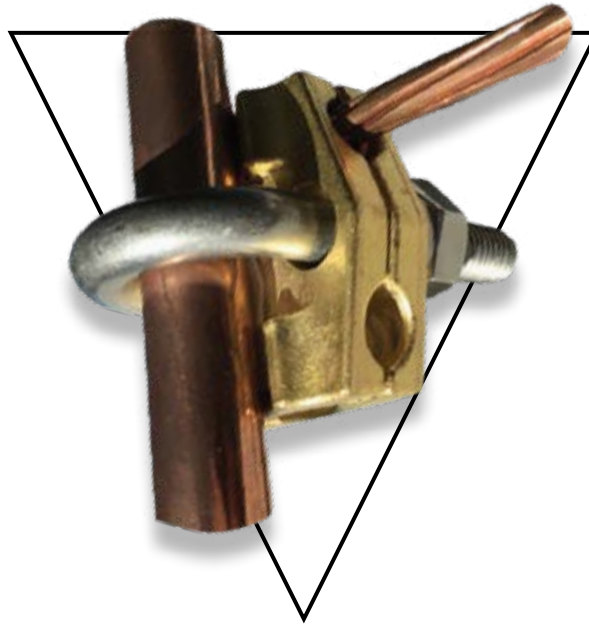
## Components of an earth terminal

The electrical installation earth system is made by an earth terminal or earth circuit. The earth terminal connects the installation and the soil in which the fault current will be able to flow.

The earth terminal consists of three main components:

### Connector

Enables connection



### Conductor

Discharges current

### Electrode

Establishes contact with the soil

The electrode establishes a contact with the soil. It is therefore essential to study the soil in order to better adapt the installation.

## Soil study

### Earth resistance

The current runoff into the soil will meet the earth terminal resistance. This one is partly the consequence of the soil's resistivity itself.

The soil's resistivity depends on several elements:

- Ground nature
- Water content (humidity)
- Soil heterogeneity
- Climatic variations

**A stable and wet ground will enable a better electrical conductivity and earth system effectiveness.**

### Soil resistivity

The soil electrical resistivity ( $\rho$ ) is its capacity to limit the electrical current passage, it is expressed in ohm meter ( $\Omega\text{m}$ ).

Ground nature	Resistivity $\rho$ ( $\Omega\text{m}$ ).
Marshy ground	10
Clay	8 to 50
Clay, sand and gravel	40 to 250
Sand and gravel	60 to 100
Slate, clay and sandstone	10 to 500
Rock	200 to 10 000

# SOLUTIONS FOR EARTH SYSTEM

## Earth electrode

The earth electrode has to establish a connection with the soil to allow the current runoff. It must guarantee a good conductivity and be adapted to the ground nature.

### Deep earth terminal

It is recommended to go deep to find the weakest and the more stable earth resistance. Top layers are submitted to climatic variations so using an electrode able to go deep guarantees to meet stable and homogeneous soil.



Earth rod

### Surface earth terminal

When it is not possible to go deep because of the soil nature or the risk of underground network degradation (gas, water, telecoms, etc...), an electrode on the surface turns out to be the best alternative.



Earth plate

The diversity of technics specifications used for earth systems gives the opportunity to find the best solution for every project.

Rod nature	Conductivity	Service life	Corrosion resistance	Competitiveness	Mechanical resistance
Copper bonded steel	+++	++	++	++	++
Stainless steel	+	+++	+++	+	++
Galvanised steel	++	+	+	+++	++

## Earth conductor

The conductor is designed to disseminate the fault current from the equipment or the electrical installation up to the electrode. Two kind of conductors are available: round or cabled conductors and flat conductors or tapes.

### Copper conductors

Cables remain the most common technology used in earth systems. For a specific installation or desired properties, tapes offer an alternative to cables (mechanical resistance).



### Flat conductors

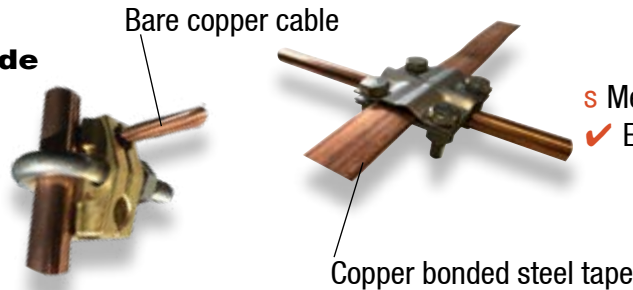
Copper conductors are generally recommended in earth circuits. Other metallic combinations can bring solutions to existing issues in the field.



## Connectors

Connectors must ensure a mechanical bonding between the different elements constituting the earth system to guarantee a good electrical continuity.

### Connection conductor/electrode



- ✓ Mechanical bonding
- ✓ Electrical continuity

### Connection conductor/conductor



- ✓ Guarantee the system equipotentiality
- ✓ Perform a tap connection
- ✓ Fix the installation up if the conductor has been severed
- ✓ Enable bonding opening to measure earth resistance

### Connection A.B.C. conductor/connector

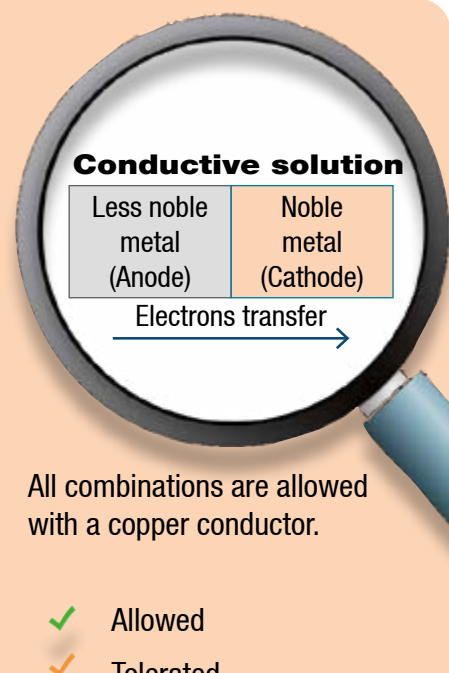


- ✓ Earth system on low voltage A.B.C. network.

## Galvanic corrosion phenomenon

A galvanic phenomenon can happen when two metals with different potential are in contact within a conductive solution (such as water). Electron transfer is run from an anode to a cathode leading to a quick degradation of the less noble metal (the anode).

Electrode/connector combinations allowed			
Connector (clamp)	Brass	Galvanised steel	Stainless steel
Electrode			
Copper bonded steel	✓	✗	✓
Stainless steel	✓	✗	✓
Galvanised steel	✗	✓	✓



All combinations are allowed with a copper conductor.

- ✓ Allowed
- ✓ Tolerated
- ✗ Not allowed

## Installation

### Tools and accessories

Some tools and accessories can be useful during the earth terminal installation.

#### Earth rod pushing

For a short rod installation into a wet soil, a hammer can enable pushing into ground.

For rods with more important dimensions, a drill hammer can be used.

#### Material protection

To protect the rod's copper coat during set up protection, accessories can be placed on both rod ends.

During the rod installation, abrasive elements in the soil can damage the copper coat. On the superior end, hammer blows can lead to copper and rod degradation. A driving spike and a driving head enable to prevent these aggressive effects.



### Diverse recommendations



For an effective and reliable earth system:

- ✓ Insulate connections
- ✓ Watch connections locating them in a pit
- ✓ Control regularly the installation and the possible metal corrosion
- ✓ Perform the installation far from buried walls, deep foundations and rivers
- ✓ Do not use water distribution pipes
- ✓ Opt for a substantial depth to reach a stable resistance in a ground not submitted to climatic variations
- ✓ Ensure the system equipotentiality

# Earth resistance measure

## Preparation and material

The earth resistance measure is performed by an earth tester. In order to allow measurements, the earth circuit can be opened at the cutting blades or at the earth system disconnection kit.



Earth tester

The resistance value to get varies according to normative standards and installations types. The measure should be repeated over some time as the value might change due to a season, measure conditions or soils evolution.



Earth disconnection kit to unbolt

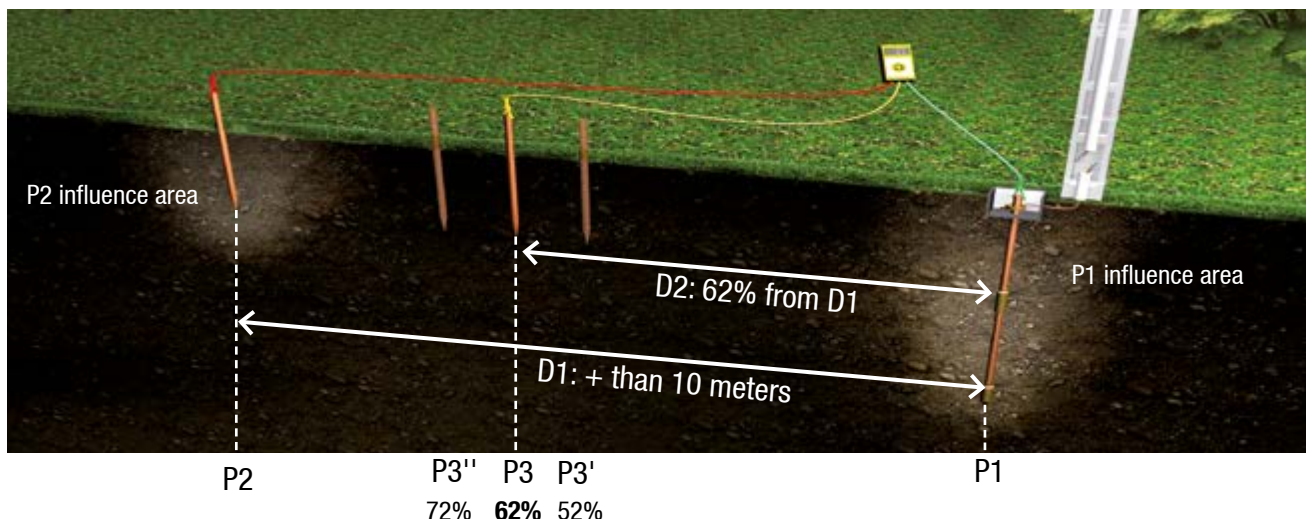
## The resistance measurement through the 3 rods method

### The measure

The 3 rods method also called 62% method is a way to measure the earth resistance. The measure consists of injecting a current between a first electrode and the earth rod to check. A third rod enables to measure voltage. Thanks to the ohm's law, it is possible to deduce the earth resistance.

### Principle

This method implies to use 3 earth rods. One of them (P1) is that staying in the ground after the installation test. The rod (P2) must be placed in more than 10 meters from (P1) and third rod (P3) 62% of the separation distance of (P1) and (P2) in order to be out of the (P1) and (P2) influence area.



### 1st case:

The measure is not conclusive, the earth resistance value is too high. The rod must be extended or earth terminals must be multiplied taking care of the system equipotentiality in order to decrease value.

### 2nd case:

The measure is conclusive and it has to be confirmed. (P3) is going to be moved to 52% then to 72% from D1 respectively in P3' and P3''. If the measure does not vary, the value got in the first place is confirmed otherwise please refer to first case.

# Copper bonded steel earth rod



F249

## Application

This earth rod is used for the power networks earth system.

The copper coating made by electrolytic process gives a resistance to corrosion as well as a good conductivity. The reference standard is **EN 62 561-2**.

Code	Designation	Nominal diameter (mm)	Real diameter (mm)	Length (m)	Weight (kg)	Sales unit
<b>50µm COPPER COATING</b>						
U203	EARTH ROD COPPER 50µm L = 1m DIAM 12.7	14	12.7	1	1.025	10
U204	EARTH ROD COPPER 50µm L = 1.5m DIAM 12.7	14	12.7	1.5	1.537	10
U205	EARTH ROD COPPER 50µm L = 2m DIAM 12.7	14	12.7	2	2.050	10
F226	EARTH ROD COPPER 50µm L = 1m DIAM 14	16	14	1	1.250	10
F244	EARTH ROD COPPER 50µm L = 1.5m DIAM 14	16	14	1.5	1.870	10
F245	EARTH ROD COPPER 50µm L = 2m DIAM 14	16	14	2	2.400	10
F250	EARTH ROD COPPER 50µm L = 1.5m DIAM 17	19	17.2	1.5	3	10
<b>100µm COPPER COATING</b>						
U230	EARTH ROD COPPER 100µm L = 1m DIAM 14	16	14	1	1.250	10
U231	EARTH ROD COPPER 100µm L = 1.5m DIAM 14	16	14	1.5	1.900	10
U232	EARTH ROD COPPER 100µm L = 2m DIAM 14	16	14	2	2.500	10
U233	EARTH ROD COPPER 100µm L = 1m DIAM 17.2	19	17.2	1	2.000	10
U234	EARTH ROD COPPER 100µm L = 1.5m DIAM 17.2	19	17.2	1.5	3.000	10
U235	EARTH ROD COPPER 100µm L = 2m DIAM 17.2	19	17.2	2	4.000	10
<b>254µm COPPER COATING</b>						
U206	EARTH ROD COPPER 254µm L = 1m DIAM 14	16	14	1	1.250	10
F249	EARTH ROD COPPER 254µm L = 1.5m DIAM 14	16	14	1.5	1.900	10
F227	EARTH ROD COPPER 254µm L = 2m DIAM 14	16	14	2	2.500	10
U207	EARTH ROD COPPER 254µm L = 3m DIAM 14	16	14	3	3.700	10
U208	EARTH ROD COPPER 254µm L = 1m DIAM 17.2	19	17.2	1	2.000	10
U209	EARTH ROD COPPER 254µm L = 1.5m DIAM 17.2	19	17.2	1.5	3.000	10
U210	EARTH ROD COPPER 254µm L = 2m DIAM 17.2	19	17.2	2	4.000	10
U211	EARTH ROD COPPER 254µm L = 3m DIAM 17.2	19	17.2	3	6.000	10
<b>350µm COPPER COATING</b>						
U212	EARTH ROD COPPER 350µm L = 1m DIAM 17.2	19	17.2	1	2.000	10
U213	EARTH ROD COPPER 350µm L = 1.5m DIAM 17.2	19	17.2	1.5	3.000	10
U214	EARTH ROD COPPER 350µm L = 2m DIAM 17.2	19	17.2	2	4.000	10

Nota: Other dimensions are available, please enquire.



# Clamp



F234



F224

## Application

This **round bronze clamp (F234, F246)** is designed to establish a connection between the stainless steel earth rod and the conductor.

The cable can be fixed radially or axially through the "U" bolt brass clamp with stainless steel bolts.

Code	Designation	Compatible with earth rod		Conductors sections (mm <sup>2</sup> )	Screw	Weight (kg)	Sales unit
		Nominal diameter (mm)	Real diameter (mm)				
<b>ROUND CONNECTION CLAMP</b>							
F234	CONNECTION CLAMP ROD DIAM 12.7 AND 14mm	14 - 16	12.7-14	16-35	M8	0,050	50
F246	CONNECTION CLAMP ROD DIAM 17.2mm	19	17.2	16-150	M8	0,050	50
<b>"U" BOLT CONNECTION CLAMP</b>							
F233	"U" BOLT CONNECTION CLAMP 50 <sup>2</sup> ROD DIAM 12.7 + 14 THREADED	14 - 16	12.7-14	16 - 50	-	0,095	10
F224	"U" BOLT CONNECTION CLAMP 150 <sup>2</sup> ROD DIAM 17.2	19	17.2	70-150 / 2x35-70	-	0.230	25

# Accessory



F229



F238



L268

## Application

These **brass driving spikes and heads** are designed to protect the earth rod during the installation. They enable to preserve the copper coating and its technical features. The **taper coupling is made of brass**. It allows the junction between two unthreaded earth rods with nominal diameter 16mm.

Code	Designation	Compatible with earth rod		Weight (kg)	Sales unit
		Nominal diameter (mm)	Real diameter (mm)		
F229	DRIVING SPIKE FOR ROD DIAM 12.7 + 14 UNTHREADED	14-16	12.7-14	0.115	10
F239	DRIVING SPIKE FOR ROD DIAM 14 THREADED + 17.2 UNTHREADED	19	12.7-14	0.075	100
U227	DRIVING HEAD FOR ROD DIAM 12.7	14	12.7	0.115	10
F238	DRIVING HEAD FOR ROD DIAM 14	16	14	0.142	100
F237	DRIVING HEAD FOR ROD DIAM 17.2	19	17.2	0.153	10
L268	TAPER COUPLING FOR ROD DIAM 5/8" - 50µm	16	14	0.135	10

# Threaded copper bonded steel earth rod



**F262**

## Application

This earth rod is used for the power networks earth system.

The thread on both ends makes possible to lengthen the earth rod.

The copper coating made by electrolytic process gives a resistance to corrosion as well as a good conductivity.

The reference standard is **EN 62 561-2**.

Code	Designation	Nominal diameter (mm)	Real diameter (mm)	Length (m)	Weight (kg)	Sales unit
<b>50µm COPPER COATING</b>						
U215	EARTH ROD COPPER 50µm L = 1m DIAM 12.7 - 2 THREADS 1/2"	14	12.7	1	1.025	10
F296	EARTH ROD COPPER 50µm L = 1.5m DIAM 12.7 - 2 THREADS 1/2"	14	12.7	1.5	1.537	10
U216	EARTH ROD COPPER 50µm L = 2m DIAM 12.7 - 2 THREADS 1/2"	14	12.7	2	2.050	10
U217	EARTH ROD COPPER 50µm L = 1m DIAM 14 - 2 THREADS 5/8"	16	14	1	1.250	10
F235	EARTH ROD COPPER 50µm L = 1.5m DIAM 14 - 2 THREADS 5/8"	16	14	1.5	1.870	10
F223	EARTH ROD COPPER 50µm L = 2m DIAM 14 - 2 THREADS 5/8"	16	14	2	2.500	10
<b>100µm COPPER COATING</b>						
U236	EARTH ROD COPPER 100µm L = 1m DIAM 14 - 2 THREADS 5/8"	16	14	1	1.250	10
F216	EARTH ROD COPPER 100µm L = 1.5m DIAM 14 - 2 THREADS 5/8"	16	14	1.5	1.900	10
F217	EARTH ROD COPPER 100µm L = 2m DIAM 14 - 2 THREADS 5/8"	16	14	2	2.500	10
U237	EARTH ROD COPPER 100µm L = 1m DIAM 17.2 - 2 THREADS 3/4"	19	17.2	1	2.000	10
U238	EARTH ROD COPPER 100µm L = 1.5m DIAM 17.2 - 2 THREADS 3/4"	19	17.2	1.5	3.000	10
U239	EARTH ROD COPPER 100µm L = 2m DIAM 17.2 - 2 THREADS 3/4"	19	17.2	2	4.000	10
<b>254µm COPPER COATING</b>						
U218	EARTH ROD COPPER 254µm L = 1m DIAM 14 - 2 THREADS 5/8"	16	14	1	1.250	10
F222	EARTH ROD COPPER 254µm L = 1.5m DIAM 14 - 2 THREADS 5/8"	16	14	1.5	1.900	10
F221	EARTH ROD COPPER 254µm L = 2m DIAM 14 - 2 THREADS 5/8"	16	14	2	2.500	10
U219	EARTH ROD COPPER 254µm L = 3m DIAM 14 - 2 THREADS 5/8"	16	14	3	3.700	10
U220	EARTH ROD COPPER 254µm L = 1m DIAM 17.2 - 2 THREADS 3/4"	19	17.2	1	2.000	10
F262	EARTH ROD COPPER 254µm L = 1.5m DIAM 17.2 - 2 THREADS 3/4"	19	17.2	1.5	3.000	10
U221	EARTH ROD COPPER 254µm L = 2m DIAM 17.2 - 2 THREADS 3/4"	19	17.2	2	4.000	10
U222	EARTH ROD COPPER 254µm L = 3m DIAM 17.2 - 2 THREADS 3/4"	19	17.2	3	6.000	10
<b>350µm COPPER COATING</b>						
U223	EARTH ROD COPPER 350µm L = 1m DIAM 17.2 - 2 THREADS 3/4"	19	17.2	1	2.000	10
U224	EARTH ROD COPPER 350µm L = 1.5m DIAM 17.2 - 2 THREADS 3/4"	19	17.2	1.5	3.000	10
U225	EARTH ROD COPPER 350µm L = 2m DIAM 17.2 - 2 THREADS 3/4"	19	17.2	2	4.000	10

Nota: Other dimensions are available, please enquire.

## Clamp



### Application

This **round bronze clamp (F234, F246)** is designed to establish a connection between the stainless steel earth rod and the conductor.

The cable can be fixed radially or axially through the "U" bolt brass clamp with stainless steel bolts.

Code	Designation	Compatible with earth rod		Conductors sections (mm <sup>2</sup> )	Screw	Weight (kg)	Sales unit
		Nominal diameter (mm)	Real diameter (mm)				
<b>ROUND CONNECTION CLAMP</b>							
F234	CONNECTION CLAMP ROD DIAM 12.7 AND 14mm	14 - 16	12.7-14	16-35	M8	0,050	50
F246	CONNECTION CLAMP ROD DIAM 17.2mm	19	17.2	16-150	M8	0,050	50
<b>"U" BOLT CONNECTION CLAMP</b>							
F233	"U" BOLT CONNECTION CLAMP 50° ROD DIAM 12.7 + 14 THREADED	14 - 16	12,7-14	16 - 50	-	0,095	10
F224	"U" BOLT CONNECTION CLAMP 150° ROD DIAM 17.2	19	17.2	70-150 / 2x35-70	-	0.230	25

## Accessory



### Application

These **brass driving spikes and heads** are designed to protect the earth rod during the installation. They enable to preserve the copper coating and its technical features.

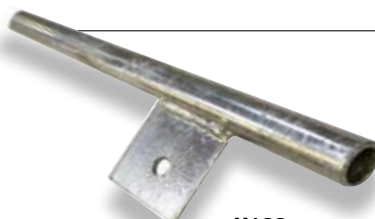
These **brass threaded couplings** enable to join two rods and get a deeper earth system.

Code	Designation	Nominal rod diameter (mm)		Weight (kg)	Sales unit
		Nominal diameter (mm)	Real diameter (mm)		
F229	DRIVING SPIKE FOR ROD DIAM 12.7 THREADED	14	12.7	0.115	10
F239	DRIVING SPIKE FOR ROD DIAM 14 THREADED + 17.2 UNTHREADED	16	14	0.075	100
U226	DRIVING SPIKE FOR ROD DIAM 17.2 THREADED	19	17.2	0.155	10
U227	DRIVING HEAD FOR ROD DIAM 12.7	14	12.7	0.115	10
F238	DRIVING HEAD FOR ROD DIAM 14	16	14	0.142	100
F237	DRIVING HEAD FOR ROD DIAM 17.2	19	17.2	0.153	10
F298	THREADED COUPLING FOR ROD DIAM 12.7 THREAD 1/2"	14	12.7	0.090	10
F236	THREADED COUPLING FOR ROD DIAM 14 THREAD 5/8"	16	14	0.115	100
F265	THREADED COUPLING FOR ROD DIAM 17.2 THREAD 3/4"	19	17.2	0.155	10
U228	SCREW FOR COUPLING FOR ROD DIAM 12.7 THREAD 1/2"	14	12.7	0.085	10
F228	SCREW FOR COUPLING FOR ROD DIAM 14 THREAD 5/8"	16	14	0.100	25
U229	SCREW FOR COUPLING FOR ROD DIAM 17.2 THREAD 3/4"	19	17.2	0.135	10

# Galvanised steel earth rod

**U195**

Solid profile

**U199**

Tubular profile

## Application

This galvanised steel earth rod is used for the power networks earth system. The corrosion protection is ensured thanks to a hot dip galvanisation surface treatment.

The reference Standard is **EN 50 164-2**.

Code	Designation	Diameter (mm)	Profile	Length (m)	Weight (kg)	Sales unit
U195	EARTH ROD GALVA L = 1m DIAM 16	16	Solid	1	1.70	10
U196	EARTH ROD GALVA L = 1.5m DIAM 16	16	Solid	1.5	2.55	10
U197	EARTH ROD GALVA L = 2m DIAM 16	16	Solid	2	3.40	10
U198	EARTH ROD GALVA L = 1.5m DIM 50x50x3	50x50x3	Cross-shaped	1.5	2.10	10
U199	EARTH ROD GALVA L = 1m DIAM 25	25	Tubular	1	1.60	10
U200	EARTH ROD GALVA L = 1.5m DIAM 25	25	Tubular	1.5	2.40	10
U201	EARTH ROD GALVA L = 2m DIAM 25	25	Tubular	2	3.20	10

Nota: Other dimensions are available, please enquire

## Clamp

**U193-U194****U192**


## Application

This clamp dedicated to galvanised earth rods is designed to establish a connection between the earth rod and the conductor.

Code	Designation	Metal	Conductors section (mm <sup>2</sup> )	Weight (kg)	Sales unit
U192	CONNECTION BOLT AND NUT ROD CROSS-SHAPED	Zamac / nickel	50mm <sup>2</sup>	0.072	100
U193	EARTHING ROD ROUND TERMINAL LUG M8 - 25 mm <sup>2</sup>	Zinc brass	25mm <sup>2</sup>	0.032	10
U194	EARTHING ROD ROUND TERMINAL LUG M8 - 50 mm <sup>2</sup>	Zinc brass	50mm <sup>2</sup>	0.077	10

The connection between the conductor and the tubular earth rod is made by the actual ear on the top end of the rod. It receives a bolt and nut as well as a tubular lug.

Bolt and nut, please enquire.

 **SEE SHEET**  
OVERHEAD / LV ending fitting / Bare lug

## Self-extendable earth rod



### Application

This earth rod is used for the power networks earth system.

The rod has a hammered end and a boring respectively to lower and upper ends, giving it the possibility to be self-extendable.

The reference Standard is **EN 50 164-2**.

Code	Designation	Diameter (mm)	Length (m)	Weight (kg)	Sales unit
<b>STAINLESS STEEL</b>					
F230	EARTH ROD STAINLESS STEEL SELF-EXTENDABLE L = 1m DIAM 16	16	1	1.50	10
F231	EARTH ROD STAINLESS STEEL SELF-EXTENDABLE L = 1,5m DIAM 16	16	1.5	2.30	10
F232	EARTH ROD STAINLESS STEEL SELF-EXTENDABLE L = 2m DIAM 16	16	2	3.20	10
<b>250µm COPPER COATING</b>					
U175	EARTH ROD COPPER AUTO-EXTENDABLE 250µm L = 1m DIAM 14	14	1	1.250	10
U176	EARTH ROD COPPER AUTO-EXTENDABLE 250µm L = 1,5m DIAM 14	14	1.5	1.900	10
U177	EARTH ROD COPPER AUTO-EXTENDABLE 250µm L = 2m DIAM 14	14	2	2.580	10
U178	EARTH ROD COPPER AUTO-EXTENDABLE 250µm L = 1m DIAM 17.2	14	3	1.900	10
U179	EARTH ROD COPPER AUTO-EXTENDABLE 250µm L = 1,5m DIAM 17.2	17.2	1	2.850	10
U180	EARTH ROD COPPER AUTO-EXTENDABLE 250µm L = 2m DIAM 17.2	17.2	1.5	3.800	10
<b>350µm COPPER COATING</b>					
U181	EARTH ROD COPPER AUTO-EXTENDABLE 350µm L = 1m DIAM 17.2	17,2	1	1,900	10
U182	EARTH ROD COPPER AUTO-EXTENDABLE 350µm L = 1,5m DIAM 17.2	17,2	1,5	2,850	10
U183	EARTH ROD COPPER AUTO-EXTENDABLE 350µm L = 2m DIAM 17.2	17,2	2	3,800	10

Nota: Other dimensions are available, please enquire.

## Clamp



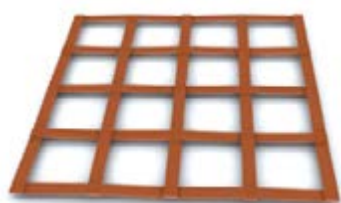
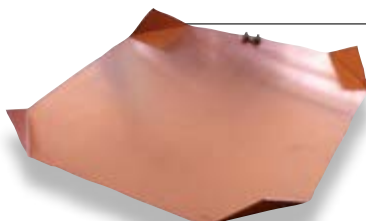
### Application

This **round bronze clamp (F234)** is designed to establish a connection between the stainless steel earth rod and the conductor.

The cable can be fixed radially or axially through the "U" bolt brass clamp with stainless steel bolts.

Code	Designation	Rod diameter (mm)	Conductors sections (mm <sup>2</sup> )	Screw	Weight (kg)	Sales unit
<b>ROUND CONNECTION CLAMP</b>						
F234	CONNECTION CLAMP ROD	14 - 16	16-35	M8	0.050	50
<b>"U" BOLT CONNECTION CLAMP</b>						
F233	"U" BOLT CONNECTION CLAMP 50 <sup>2</sup> ROD	14 - 16	16-50	-	0.095	10
F224	"U" BOLT CONNECTION CLAMP 150 <sup>2</sup> ROD DIAM 17,2	17.2	70-150 / 2x35 - 70	-	0.230	25

# Copper earth plate and grid

**U188****U184**

## Application

This copper earth electrode is used for the power networks earth system. When a deep installation is not possible, it gives an important contact area with the soil to discharge fault currents. The reference Standard is **EN 50 164-2**.


Code	Designation	Length (mm)	Width (mm)	Thickness (mm)	Weight (kg)	Sales unit
U184	COPPER EARTH PLATE 500x500x2	500	500	2	4.5	1
U185	COPPER EARTH PLATE 500x500x3	500	500	3	6.8	1
U186	COPPER EARTH PLATE 500x1000x2	500	1000	2	9.0	1
U187	COPPER EARTH PLATE 500x1000x3	500	1000	3	13.6	1
U188	EARTHING GRID COPPER 1000x1000x2	1000	1000	2	3.0	30
U189	EARTHING GRID COPPER 2000x1000x2	2000	1000	2	4.0	30
U190	EARTHING GRID COPPER 3000x1000x2	3000	1000	2	5.0	30

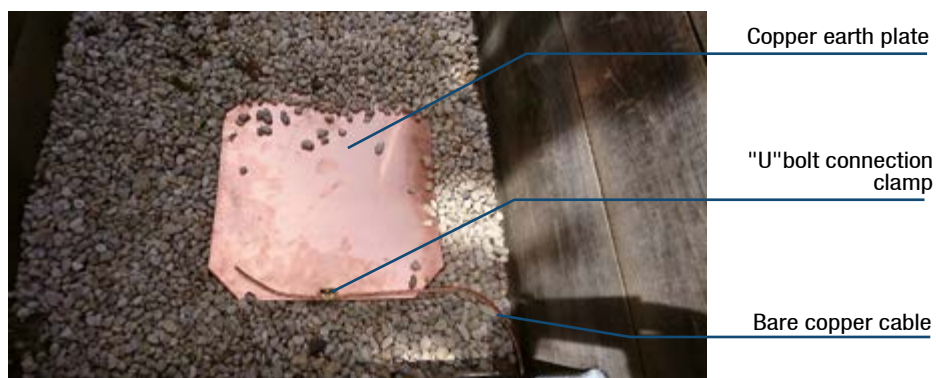
## Clamp

### Description

- Earth plates are delivered with a "U" bolt connection clamp enabling to perform the connection with the conductor.
- Earth grids can receive a "U" bolt connection clamp to perform the connection with the copper conductor.
- The earth grid connection can also be performed thanks to twin-saddle installed on the grid lateral tape.

If you need more informations, please contact us.

 **SEE SHEET**  
EARTH SYSTEM / Earth electrodes / Clamp



# Earth resistance measure - Earth tester

**F439**



## Application

This earth tester is used as part of the earth system installation. It enables to perform the earth resistance measurements to control the system effectiveness.

## Description

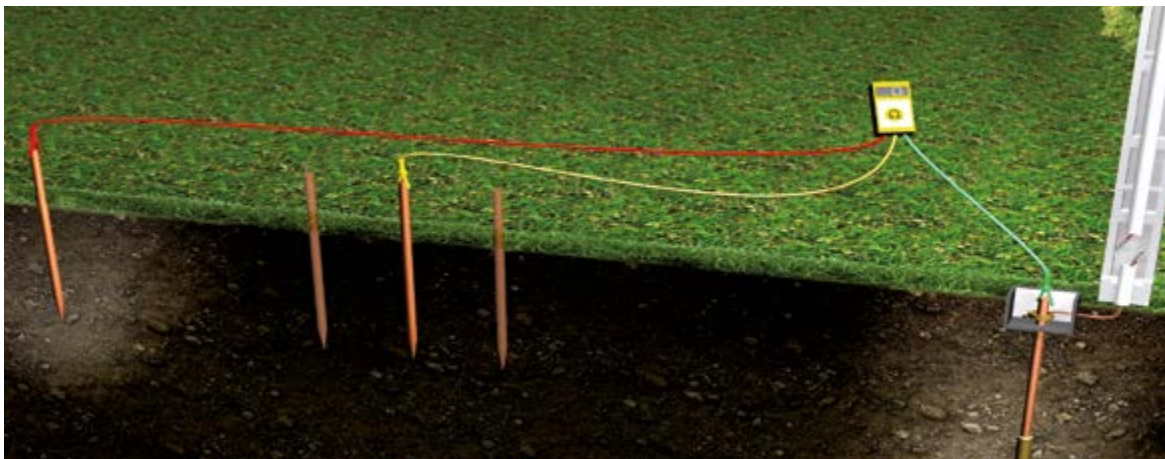
- This earth tester is installed in a anti-shock briefcase including three green, yellow and red cords respectively of 5m, 10m and 15m length.
- Cords are provided with a clamp to be placed on rod enabling the measure.
- The tester supply is possible thanks to batteries.
- The recommended surrounding temperature for use is between 0 and 40°C.
- The device is adapted to "2 rods" and "3 rods" measure methods. These methods require the use of backup rods. It is necessary to enable the current circulation between rods in order to perform an earth resistance measure thanks to the earth tester.
- The device keeps in memory the last measure.

The earth tester meets the criteria of **IEC 348** and **IEC 1010** standards.

Code	Designation	Measure range ( $\Omega$ )	Measure current	Dimensions (mm)	Weight (kg)	Sales unit
F439	EARTH TESTER	0 to 2k	Constant 2mA @ 820Hz	205x90x55	0.550	1

## Installation

Measure with the 3 rods method.



# Earth connector

## "C" tinned connector



**U001 X-x**

### Application

These tinned connectors are used to connect grounding conductors. The mechanical and electrical connection is ensured by crimping and allows an efficient aluminum/copper electrical connection.

Code	Designation	Main conductor (mm <sup>2</sup> )	Tap conductor (mm <sup>2</sup> )	Weight (kg)	Sales Unit
U001_25-10	C TINNED CONNECTOR 10-25 / 2.5-10	10-25	2.5-10	0,04	10
U001_25-25	C TINNED CONNECTOR 16-25 / 16-25	16-25	16-25	0,05	10
U001_40-40	C TINNED CONNECTOR 35-40 / 35-40	35-40	35-40	0,06	10
U001_70-35	C TINNED CONNECTOR 50-70 / 10-35	50-70	10-35	0,08	10
U001_70-70	C TINNED CONNECTOR 50-70 / 35-70	50-70	35-70	0,09	10
U001_100-35	C TINNED CONNECTOR 95-100 / 10-35	95-100	10-35	0,1	10
U001_100-70	C TINNED CONNECTOR 95-100 / 35-70	95-100	35-70	0,11	10
U001_100-100	C TINNED CONNECTOR 95-100 / 95-100	95-100	95-100	0,13	10

The connectors are also available in tinned copper on request.

## Jumper clamp



**U020**

### Application

These jumper clamps allow the mechanical connection by clamping thanks to removable screws granting then an electrical connection.

Code	Désignation	Main conductor (mm <sup>2</sup> )	Tap conductor (mm <sup>2</sup> )	Weight (kg)	Sales Unit
U020	JUMPER CLAMP 6-16mm <sup>2</sup>	6-16	6-16	0,028	100
U021	JUMPER CLAMP 16-50mm <sup>2</sup>	16-50	16-50	0,061	100
U022	JUMPER CLAMP 50-70mm <sup>2</sup>	50-70	50-70	0,166	50
U023	JUMPER CLAMP 75-95 mm <sup>2</sup>	75-95	75-95	0,300	50
U024	JUMPER CLAMP 95-150mm <sup>2</sup>	95-150	95-150	0,443	10
U025	JUMPER CLAMP 150-240mm <sup>2</sup>	150-240	150-240	0,750	10

## Copper connector



**L260**

### Application

This **copper connector** is designed to fix up an installation in case the conductor has been severed.

The **stainless steel fastening** allows the product to be buried. The connector L260 is equipped with a shear head.

Code	Designation	Main conductor (mm <sup>2</sup> )	Tap conductor (mm <sup>2</sup> )	Weight (kg)	Sales unit
L260	CONNECTOR Cu 10-70 (SF + SH)	10-70	10-70	0.120	50
L261	CONNECTOR Cu 10-70 (SF)	10-70	10-70	0.110	50



## Earth system disconnection kit



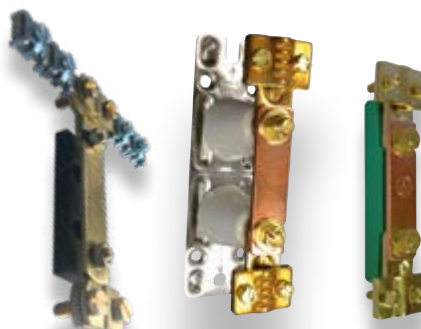
**U031**

### Application

This **stainless steel kit** comprises two tubular lugs (**U030**) as well as a nut and a bolt. It is designed to disconnect the earth system in order to perform earth resistance measurements.

Code	Designation	Conductor section min (mm <sup>2</sup> )	Conductor section max (mm <sup>2</sup> )	Weight (kg)	Sales unit
U030	TUBULAR LUG 25-29	25	29	0.020	50
U031	EARTH SYSTEM DISCONNECTION KIT 25-29	25	29	0.060	20

## Ground cutting blade



**U034**

**U035**

**U036**

### Application

This cutting blade is designed to open the earth system during earth resistance measurements. It is rather used inside for a residential installation.

Code	Designation	Conductor section min (mm <sup>2</sup> )	Conductor section max (mm <sup>2</sup> )	Weight (kg)	Sales unit
U034	"T" SHAPE GROUND CUTTING BLADE	10	35	0.180	10
U035	HIGH GROUND CUTTING BLADE	16	35	0.3300	3
U036	LOW GROUND CUTTING BLADE	16	35	0.160	3

## Round terminal lug



### Application

This copper round terminal lug is used to connect bare copper conductors to copper terminals.

Code	Designation	Cable compatibility (mm <sup>2</sup> )	Drill hole compatibility (mm)	Weight (kg)	Sales unit
U018	STRAIGHT CABLE AND ROUND TERMINAL LUGS 10-70	10 to 70	13	0.081	10
U019	STRAIGHT CABLE AND ROUND TERMINAL LUGS 25-120	25 to 120	13	0.207	10

## Surge protection device connector



### Application

The surge protection device connector (SPD IPC) is designed to protect low voltage overhead lines and electric equipment against over-voltages. It enables the current from the lightning to be led to the ground.

The surge protection device connector includes the following elements:

- An insulation piercing connector,
- A terminal outlet inserted in the end cap of the connector,
- A surge protection device (metal oxide overmoulded with silicone) screwed into the terminal outlet,
- An earth system tail welded to the surge protection device.

The surge protection device reacts:

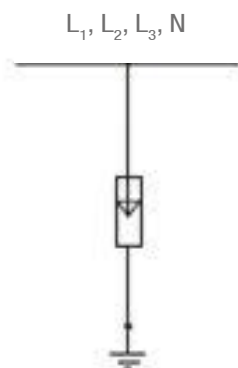
- After a certain number of over-voltages, when the current passing through the surge protection device increases by more than 1mA,
- In the case of atmospheric discharge (lightning strike), the current exceeding 65mA.

After the surge protection device has performed, the earth system tail physically separates from the connector. The surge protection device then should be replaced with an available spare part (comprising the surge protection device and the earth system tail).

### Description

- The connector is used outside only.
- The maximum use altitude is 2000m.
- The connector can be used at a temperature going from -40°C to +70°C.
- The use frequency is 48-62Hz.
- The connector, the terminal outlet, the surge protection device and the tail are made of UV and flame resistant materials.
- The connector is equipped with a 0.5m long, 6mm<sup>2</sup> insulated black multi-stranded tail.
- The connector protection degree is IP67.
- The connector has a response time <25ns.

The surge protection device is Class II as defined in the **IEC 61643-1** standard.



Drawing of the connector

## Installation

- The location of the surge protection device connection is decided according to the technical specifications and guidelines of the electrical regulatory authorities. These connectors must be installed on all overhead service and network line conductors, the phase(s) and neutral being linked by earth system tails.
- To protect long sections of overhead lines, it is recommended to use at least one surge protection device connector every 500 metres.
- Check that the terminal outlet is inserted into the connector fully and correctly.
- Position the connector on the conductor so that the surge protection device and its tail are directed towards the ground.
- Tighten the shear head until it breaks using a 13mm spanner. The 17mm head is only provided for an eventual dismantling. Do not use it to re-tighten.
- When the surge protection device connector has been used, protecting the power line against high voltages, the earth system tail is automatically disconnected from the base of the silicone cylinder. A new surge protection device, available as a spare part, must replace the old one. To do this, unscrew the old part of the silicone surge protection device from the terminal end and screw in a spare surge protection device, join all of the earth system tails together and link them to the earth.

## Characteristics:

Code	Designation	$I_{max}$ Maximal discharge current (kA)	$U_c$ Continuous operating voltage V(AC)	$I_n$ Nominal discharge current (kA)	$U_p$ Protection level at $I_n$
K241	SPD IPC 15kA/275VAC 0.5m	40	275	15	< 1.86
K243	SPD SPARE PART 15kA/275VAC 0.5m	40	275	15	< 1.86
K242	SPD IPC 15kA/440VAC 0.5m	40	440	15	< 2.24
K244	SPD SPARE PART 15kA/440VAC 0.5m	40	440	15	< 2.24

Code	Designation	Main line insulated Al-Cu (mm <sup>2</sup> )	Weight (kg)	Sales unit
K241	SPD IPC 15KA/275VAC 0.5m	16-95	0.300	10
K243	SPD SPARE PART 15KA/275VAC 0.5m		0.170	30
K242	SPD IPC 15KA/440VAC 0.5m	16-95	0.300	10
K244	SPD SPARE PART 15KA/440VAC 0.5m		0.170	30

Upon request, the earth system tails can be delivered in different colours and lengths, and can be assembled with a terminal lug at their end. Please contact us.

 **SEE SHEET**  
INSTALLATION / LV insulated toolings

# Insulation piercing connector for measure and short-circuiting



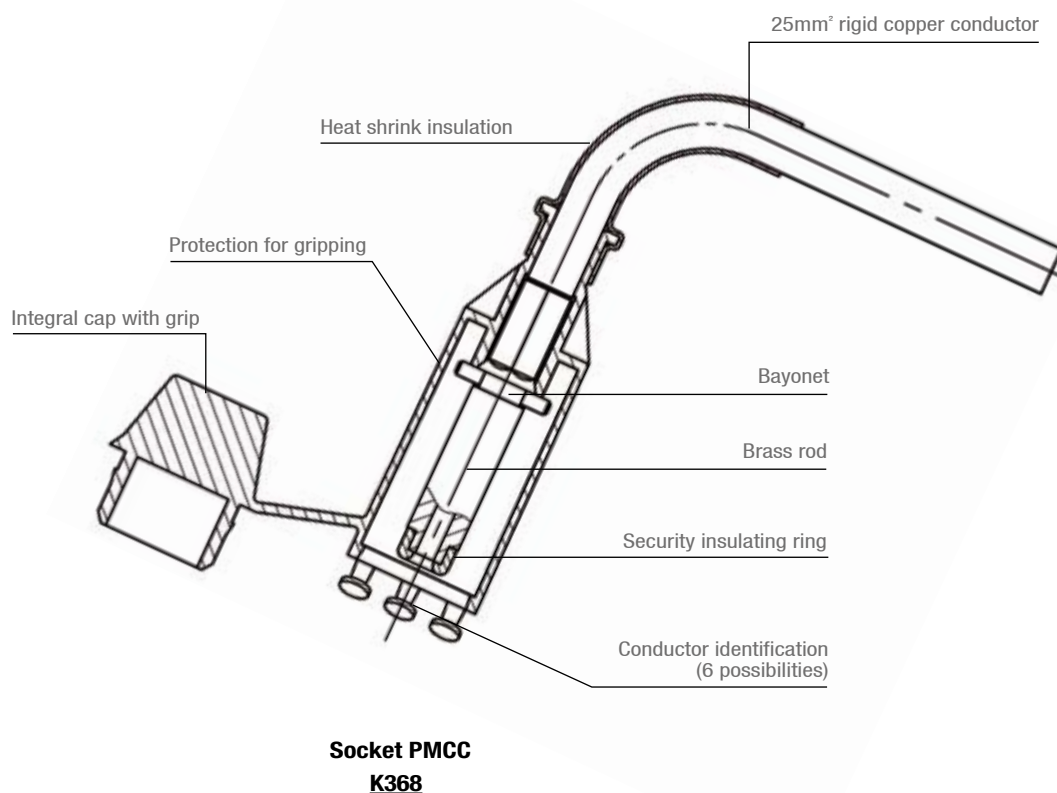
## Application

This I.P.C. (Insulation Piercing Connector) is designed for short-circuiting or earthing the low voltage A.B.C. (Aerial Bundled Conductors). It is also used to perform voltage measurements. It comprises the connector and the socket.

## Description

- Connection is established through the insulation piercing technology.
- Dielectric strength in water is greater than 6kV.
- Tightening screw is the only accessible metal part and is potential free.
- Tightening efficiency is ensured by shear head screw.
- The end socket is protected by an integral cap preventing the water penetration and corrosion.

This connector meets the criteria of the **NF C 33-020** and **EN 50-483** standards.



Code	Designation	Capacities Main insulated Al-Cu (mm <sup>2</sup> )	Weight (kg)	Sales unit
<b>ZINC-PLATED STEEL FASTENERS (ZF)</b>				
K362	CONNECTOR CMCC/CT 25 ZF	16-25	0.230	10
K363	CONNECTOR CMCC/CT 70 ZF	16-70	0.230	10
K361	CONNECTOR CMCC/CT 95 ZF	16-95	0.230	10
K364	CONNECTOR CMCC/CT 150 ZF	16-150	0.230	10

The connector K362 is adapted from a connector K322 (CBS/CT 25), the connector K363 from a connector K323 (CBS/CT 70) and the connector K364 from a connector K324 (CBS/CT 150). It comprises the connector and the socket.

### Option:

The short-circuiting and earth system socket (PMCC) can be sold separately. This tap socket can be used with the entire range of the 6kV CBS/CT and RDP/CN connectors of MICHAUD brand.

Code	Designation	Weight (kg)	Sales unit
K368	SHORT-CIRCUITING AND EARTH SYSTEM SOCKET (PMCC)	0.100	25

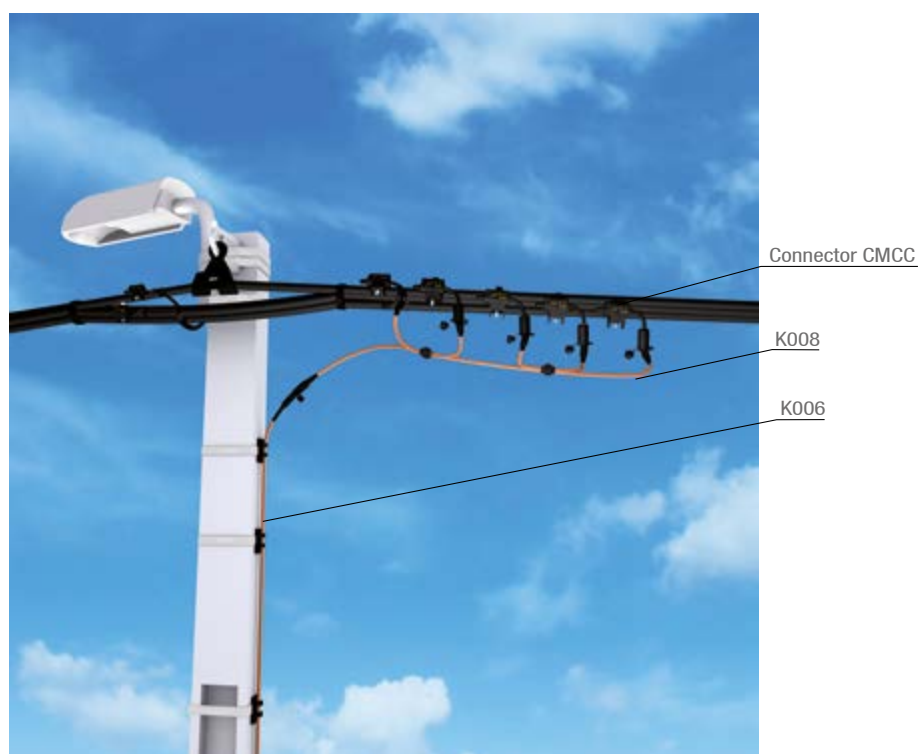
### Variant:

The earthing bracket allows a twist and a parallel groove jaw to be connected via a connector. It is compatible with an insulation-piercing connector on one side and a bare connector on the other.

Code	Designation	Diameter (mm)	Weight (kg)	Sales unit
U248	EARTHING BRACKET	9.65	0.100	25



**SEE SHEET**  
INSTALLATION / LV insulated toolings



# Earth system and short-circuiting device

## Short-circuiting devices



6 sockets  
**K008**

### Application

This device is designated for short-circuiting and earthing the low voltage A.B.C (Aerial Bundled Conductors). It is connected to a connector for measures and short-circuiting (type CMCC).

### Description

- This device comprises 6 or 7 insulated sockets closing with bayonet system on the CMCC connector tap socket.
- Connection between the sockets is established with a 25mm<sup>2</sup> flexible copper conductor for the K008 and K009 references and 16mm<sup>2</sup> for the K016.
- The electrical characteristics are:
  - Short-circuiting capacity: 4000A during 1 second.
  - Permanent current capacity: 200A.
- The device is packed in a carrying case.

Code	Designation	Weight (kg)	Sales unit
<b>16mm<sup>2</sup> EQUIPMENT</b>			
K016-5	SHORT-CIRCUITING EQUIPMENT 5 SOCKETS - 16mm <sup>2</sup>	2,490	1
K016-6	SHORT-CIRCUITING EQUIPMENT 6 SOCKETS - 16mm <sup>2</sup>	2,490	1
K016-7	SHORT-CIRCUITING EQUIPMENT 7 SOCKETS - 16mm <sup>2</sup>	2,490	1
<b>25mm<sup>2</sup> EQUIPMENT</b>			
K008	SHORT-CIRCUITING EQUIPMENT 6 SOCKETS	2,490	1
K009	SHORT-CIRCUITING EQUIPMENT 7 SOCKETS	3,000	1

Nota : The K009 (7 sockets) is used for street light.

# Earth system equipment



**K006**

## Application

This equipment is used to perform the earthing of a low voltage A.B.C (Aerial Bundled Conductor).

## Description

- This equipment comprises the following elements:

- Earth clamp
- 10m long 25mm<sup>2</sup> copper insulated flexible conductor
- Insulated socket closing with a beayonet system CMCC connector tap socket.

- The flexible copper conductor is available in lenth 10m for the sectionof 16mm<sup>2</sup> (K006-16\_10) or 25mm<sup>2</sup> (K006) and 15m for the section of 16mm<sup>2</sup> (K006-16\_15).

- The electrical characteristics are:

- Short-circuiting capacity: 4000A during 1 second.
- Permanent current capacity: 200A.

- The equipment is packed in a carrying case.

Code	Designation	Weight (Kg)	Sales unit
<b>16mm<sup>2</sup> EQUIPMENT</b>			
K006-16_10	EARTHING EQUIPMENT - 10m	4,0	1
K006-16_15	EARTHING EQUIPMENT - 15m	4,0	1
<b>25mm<sup>2</sup> EQUIPMENT</b>			
K006	EARTHING EQUIPMENT - 25mm <sup>2</sup> - 10m	4,0	1

Nota : The earth clamp has to be fixed on a rod. Contact us.



**SEE SHEET**

EARTH SYSTEM / Earth electrodes

# Switch earth system and short-circuiting device for Gang FSD

**K010**

## Application

This device is designed for short-circuiting and earthing the low voltage A.B.C. (Aerial Bundled Conductor). It is connected to the MICHAUD 3-poles type pole-mounted Gang Fuse Switch Disconnecter (Gang FSD).

## Description

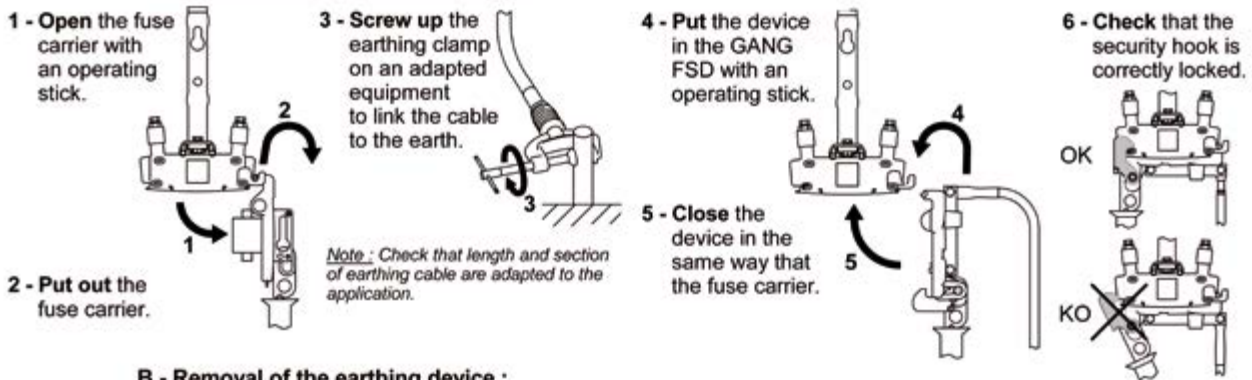
- The short-circuiting of the Gang Fuse Switch Disconnecter poles is carried out using a tinned metal comb bar. This bar can be seen from the bottom of the pole which constitutes a visual indicator of the short-circuiting of the poles.
- A safety hook made of synthetic material ensures correct closing of the bar holder on the body of the Gang fuse switch disconnecter. The load related to the weight of the copper cable is offset towards the bar rotational axis via the presence of a metal bar. This assembly prevents the device from being opened when the operator pulls on the cable.
- A 2.5m long 35mm<sup>2</sup> copper cable with transparent insulation is fixed to the metal bar using a terminal lug. The other end of the cable is linked to the earth system clamp.
- The short-circuiting capacity is 9kA maximum over 500V.
- The device is delivered in a case ensuring safe transport and storage.



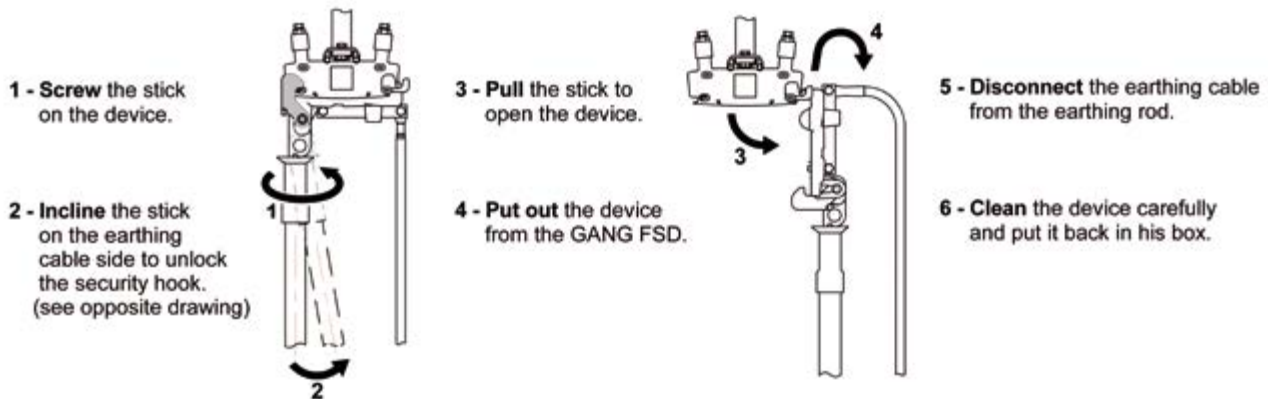
## Installation

### Fuse switch disconnecter earthing

#### A - Installation of the earthing device :



#### B - Removal of the earthing device :



### Replacement of the copper cable

The copper cable with transparent insulation and earth system clamp can be damaged during careless handling. Therefore, it should be replaced to ensure correct use of the device in complete safety. For this, dismantle the existing cable and replace it with a new MICHAUD model by screwing the terminal lug on the metal bar of the device.

Code	Designation	Weight (kg)	Sales unit
K010	GANG FSD EARTHING DEVICE 3 POLES	2.5	1
K011	GANG FSD EARTHING DEVICE 4 POLES	2.6	1
K012	GANG FSD EARTH SYSTEM DEVICE COPPER CABLE (2.5m / 35mm <sup>2</sup> )	1.4	1



**SEE SHEET**

PROTECTION / Network protection/ Fuse switch disconnecter triple pole 160A

# Cable

## Bare copper



U051

### Application

This cable is designed for the earth systems. It is resistant to a temperature range of  $-15^{\circ}\text{C}$  /  $+70^{\circ}\text{C}$  and its flame behaviour meets the criteria of **IEC 60332-1**.

### Description

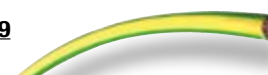
- Nominal voltage: 600/1000V
- Short-circuit temperature:  $+250^{\circ}\text{C}$
- Annealed Copper Cable
- Minimum bending radius:
  - From  $10\text{mm}^2$  up to  $25\text{mm}^2$  (3x external  $\emptyset$ )
  - From  $29\text{mm}^2$  up to  $300\text{mm}^2$  (6x external  $\emptyset$ )
- This cable meets the criteria of the **EN 60228** standard.

Code	Designation	Section (mm <sup>2</sup> )	Weight (kg/km)	Sales unit
U050	BARE COPPER CABLE 10mm <sup>2</sup> - 500m drum	10	89	1
U051	BARE COPPER CABLE 16mm <sup>2</sup> - 500m drum	16	144	1
U052	BARE COPPER CABLE 25mm <sup>2</sup> - 500m drum	25	217	1
U053	BARE COPPER CABLE 29mm <sup>2</sup> - 500m drum	29	267	1
U054	BARE COPPER CABLE 35mm <sup>2</sup> - 500m drum	35	305	1
U055	BARE COPPER CABLE 50mm <sup>2</sup> - 500m drum	50	421	1
U056	BARE COPPER CABLE 70mm <sup>2</sup> - 500m drum	70	613	1
U057	BARE COPPER CABLE 95mm <sup>2</sup> - 500m drum	95	829	1
U058	BARE COPPER CABLE 120mm <sup>2</sup> - 500m drum	120	1045	1
U059	BARE COPPER CABLE 150mm <sup>2</sup> - 500m drum	150	1275	1
U060	BARE COPPER CABLE 185mm <sup>2</sup> - 500m drum	185	1613	1
U061	BARE COPPER CABLE 240mm <sup>2</sup> - 500m drum	240	2075	1
U062	BARE COPPER CABLE 300mm <sup>2</sup> - 500m drum	300	2660	1

For other lengths, consult us.

## Insulated copper H07V-R

U069



### Description

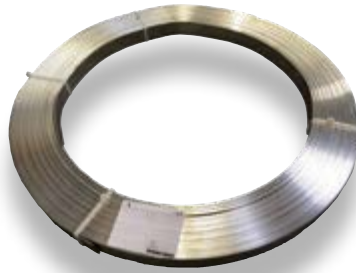
- Nominal voltage: 450/750V
- Test voltage: 2500V
- Short circuit temperature:  $+160^{\circ}\text{C}$
- Minimum bending radius: 5x external  $\emptyset$
- This copper cable is covered by a PVC insulation.
- This cable meets the criteria of the **EN 50525-2-31** standard.

Code	Designation	Section (mm <sup>2</sup> )	Weight (kg)	Sales unit
U162	INSULATED COPPER CABLE 4mm <sup>2</sup> - 100m coil	4	5	1
U063	CABLE INSULATED COPPER H07V-R 6mm <sup>2</sup> YELLOW/GREEN (drum 500m)	6	62	1
U064	INSULATED COPPER CABLE 10mm <sup>2</sup> - 500m drum	10	89	1
U065	CABLE INSULATED COPPER H07V-R 16mm <sup>2</sup> YELLOW/GREEN (drum 500m)	16	110	1
U066	CABLE INSULATED COPPER H07V-R 25mm <sup>2</sup> YELLOW/GREEN (drum 500m)	25	163	1
U068	INSULATED COPPER CABLE 35mm <sup>2</sup> - 500m drum	35	205	1
U069	CABLE INSULATED COPPER H07V-R 50mm <sup>2</sup> YELLOW/GREEN (drum 500m)	50	267	1
U070	INSULATED COPPER CABLE 70mm <sup>2</sup> - 500m drum	70	383	1
U071	INSULATED COPPER CABLE 95mm <sup>2</sup> - 500m drum	95	506	1
U072	INSULATED COPPER CABLE 120mm <sup>2</sup> - 500m drum	120	625	1
U073	INSULATED COPPER CABLE 150mm <sup>2</sup> - 500m drum	150	761	1
U074	INSULATED COPPER CABLE 185mm <sup>2</sup> - 500m drum	185	982	1
U075	INSULATED COPPER CABLE 240mm <sup>2</sup> - 500m drum	240	1250	1

# Tape



U088



U094

## Application

This tape is designed to conduct the electricity into the earth system and to guarantee the default current runoff. If the copper gives an important electrical and the tinned coating protects from theft thanks to the non visible copper coating conductivity. The copper bonded steel offers a good economical alternative to copper. Furthermore Galvanized steel is an economical solution to coppered tinned steel and protect from the theft too. It has a good conductivity.

Code	Designation	Section (mm <sup>2</sup> )	Width (mm)	Thickness (mm)	Length (m)
<b>COPPER</b>					
U077	COPPER TAPE 20x3 L=100m	60	20	3	100
U078	COPPER TAPE 25x3 *	75	25	3	Consult us
<b>TINNED COPPER</b>					
U094-50	TINNED COPPER TAPE 30x2 L = 50m	60	30	2	50
U094-100	TINNED COPPER TAPE 30x2 L = 100m	60	30	2	100
<b>COPPER BONDED STEEL</b>					
U080	COPPER BONDED STEEL TAPE 20x3 L=60m	60	20	3	60
U081	COPPER BONDED STEEL TAPE 25x3 L=40m	75	25	3	40
U082	COPPER BONDED STEEL TAPE 25x4 L=30m	100	25	4	30
U083	COPPER BONDED STEEL TAPE 30x3 L=40m	90	30	3	40
U084	COPPER BONDED STEEL TAPE 30x4 L=30m	120	30	4	30
U085	COPPER BONDED STEEL TAPE 40x4 L=20m	160	40	4	20
<b>TINNED COPPER BONDED STEEL</b>					
U086	TINNED COPPER BONDED STEEL TAPE 20x3 L=60m	60	20	3	60
U087	TINNED COPPER BONDED STEEL TAPE 25x3 L=40m	75	25	3	40
U088	TINNED COPPER BONDED STEEL TAPE 25x4 L=30m	100	25	4	30
U089	TINNED COPPER BONDED STEEL TAPE 30x3 L=40m	90	30	3	40
U090	TINNED COPPER BONDED STEEL TAPE 30x4 L=30m	120	30	4	30
U091	TINNED COPPER BONDED STEEL TAPE 40x4 L=30m	160	40	4	30
<b>GALVANIZED STEEL</b>					
U100-4	GALVANIZED STEEL TAPE 30x4 L=50m	120	30	4	50
U101-4	GALVANIZED STEEL TAPE 40x4 L=38m	160	40	4	38

\*Tape delivered in roll or drum. Consult us.

## Stainless steel cruciform clamp



U092

## Application

This cruciform clamp is designed to perform a connection between the earth rod and the conductor or between two conductors.

Code	Designation	Nominal rod diameter (mm)	Tape length (mm)	Cable section (mm <sup>2</sup> )	Screw	Weight (kg)	Sales unit
U092	STAINLESS STEEL CRUCIFORM CLAMP ROD DIAM 12.7 AND 14	14-16	≤ 40	28-78	M10	0.315	2
U093	STAINLESS STEEL CRUCIFORM CLAMP ROD DIAM 17.2	19	≤ 40	28-78	M10	0.400	2

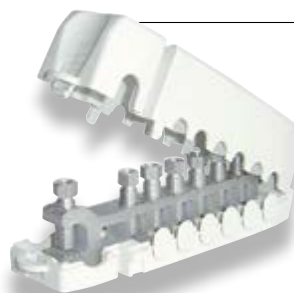
## Aluminium earth cable and accessory



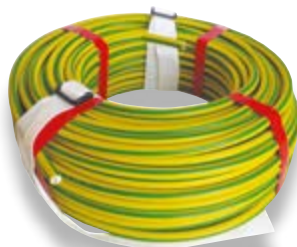
**MICHAUD Exclusivity**  
Antifraud solution



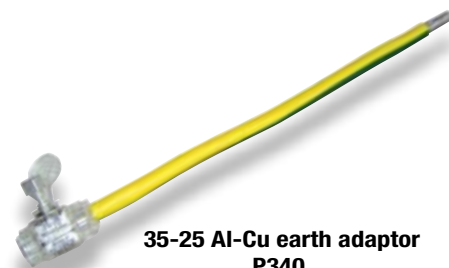
Ground cutting blade  
aluminium with box  
**N106**



Earth distributor 6 taps  
**Q979**



Aluminium earth cable  
**Q984 - Q985 - Q986**



35-25 Al-Cu earth adaptor  
**P340**

### Application

The earth distributor is used to connect floor earths between themselves. It is installed in a building pillar according to applicable specifications.

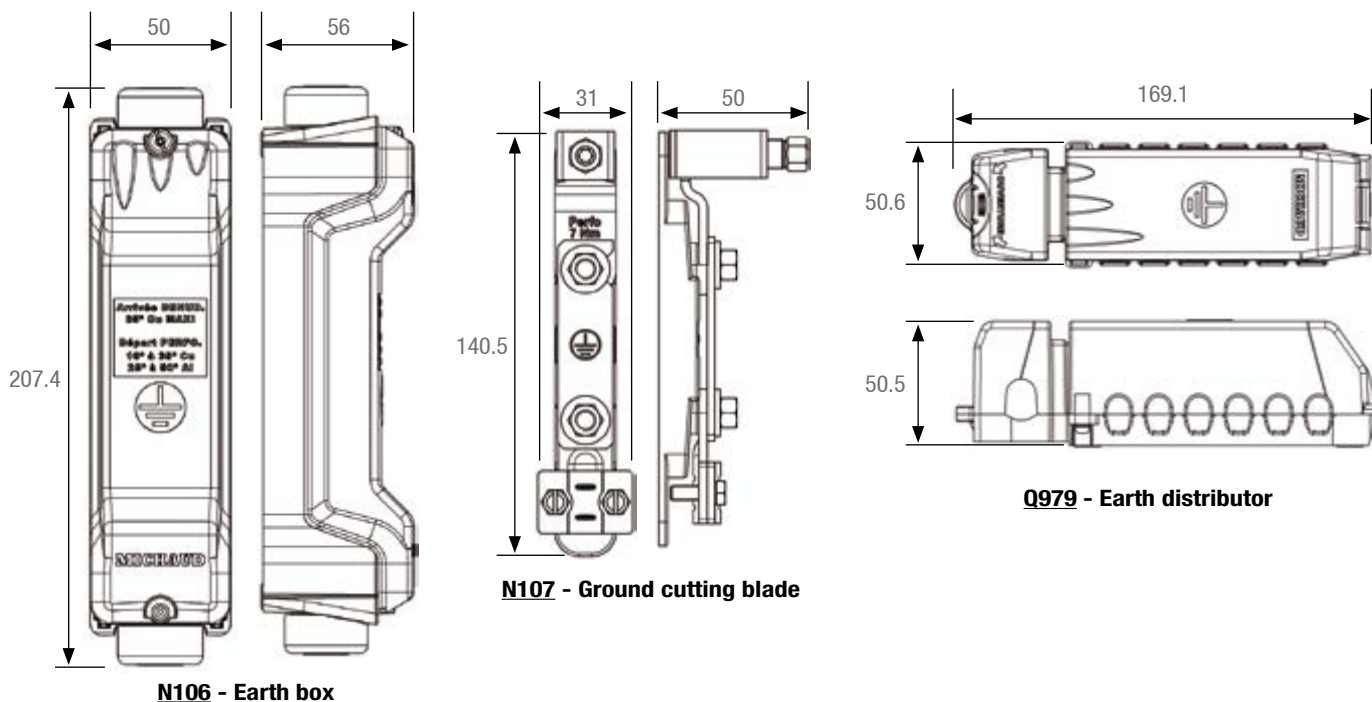
The ground cutting blade is installed at the bottom of the earth pillar. It enables the earth system opening during an earth resistance measurement.

### Benefits:

- + Aluminum terminals admitting copper or aluminium cable
- + Reversible box cover protecting the ground cutting blade
- + Earth distributor designed for an esthetic installation in 60x60mm conduit in case of renovation

### Description

- The earth distributor can receive:
    - 1 cable **50mm<sup>2</sup>** maximum without cutting (main line)
    - 6 possible taps **35mm<sup>2</sup>** maximum
  - It comprises an aluminium profile with shear head screws and insulation piercing and a box in synthetic materials giving it a protection degree type IPXXB.
  - It is equipped with a handle offering a possible sealing.
  - The ground cutting blade with box is equipped with:
    - An insulation piercing superior terminal block in tinned aluminium with shear head screws (no need of stripping)
    - A copper blade
    - An inferior terminal block in brass
    - A synthetic materials box with reversible opening and closing way, giving it a protection degree type IP44D
  - It can receive **aluminium cable section from 25 up to 50mm<sup>2</sup>** and **copper cable section from 16 up to 35mm<sup>2</sup>**.
  - The distribution board adaptor Al/Cu comprises:
    - A flexible tail **25mm<sup>2</sup>**, length **230mm**
    - A shear head screw
  - It can receive cable sections from **25 up to 35mm<sup>2</sup>**
  - Its use is requested for the connection of the individual protection connector and the earth terminal block of the distribution board, when this one cannot receive aluminium.
  - The earth cable FR-N-07V-AR is made of aluminium. It is delivered in ring with 2 straps making transportation easier and a box of 25 identification labels marked "Alu".
  - It is available in 3 sections: **25, 35, 50mm<sup>2</sup>**.
- It meets the requirements of **NF C32-208**.



**N106 - Earth box**

**N107 - Ground cutting blade**

**Q979 - Earth distributor**

Code	Designation	Sales unit
N106	GROUND CUTTING BLADE ALUMINIUM WITH BOX	1
N107	GROUND CUTTING BLADE BARE AL	1
Q979	EARTH DISTRIBUTOR AL 6 TAPS	1
Q984	ALUMINIUM EARTH CABLE 25 <sup>2</sup> 100M	1
Q985	ALUMINIUM EARTH CABLE 35 <sup>2</sup> 100M	1
Q986	ALUMINIUM EARTH CABLE 50 <sup>2</sup> 50M	1
P340	AL/CU EARTH ADAPTOR 35-25	10

### Variants: Stripping technology

These products using the stripping technology require a brushing with neutral grease during installation.



Code	Designation	Sales unit
ED001	EARTH DISTRIBUTOR STRIP AL 5 TAPS	1
ED002	EARTH DISTRIBUTOR STRIP AL 8 TAPS	1
ED003	GROUND CUTTING BLADE AL STRIP	1

### Accessories

Code	Designation	Sales unit
<b>BOX FOR CUTTING BLADE ALONE</b>		
The box can be sold alone to receive for example a ground cutting blade for copper, Ref U036		
N108	BOX FOR GROUND CUTTING BLADE	1
<b>LABELS AL CABLE</b>		
These labels enable to identify aluminium cable		
N109	BOX OF 25 LABELS AL CABLE	1







# UNDERGROUND

## Underground service

Multipole ring connector 150mm <sup>2</sup> .....	p.166
Multipole ring connector 240mm <sup>2</sup> .....	p.168
Multipole ring connector 300mm <sup>2</sup> .....	p.170
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## Underground network

Single pole network connector.....	p.176
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## Emerging connection

REMIC bare cabinet.....	p.184
REMIC set of bars.....	p.186
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REMIC disconnection and protection module RRCP.....	p.192
REMIC tool set.....	p.194

## Accessories

Protection and warning.....	p.196
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Cold shrinkable sheath.....	p.202
Mecanico-shrinkable service end.....	p.204

# SOLUTIONS FOR UNDERGROUND NETWORKS

With a solid experience acquired in insulated cables connections, MICHAUD expanded its skills to **the underground field**.



The company developed the underground field, based on its **skills acquired** in insulation piercing technology demonstrating **high innovation ability**.



The underground field requires a high level of reliability. Mistakes during installation can be expensive and MICHAUD reduces risks with **high technical equipment** and establishes itself as a leader of buried connections.



This field matches with **new applications** such as the three-phase supply, electrical cars load, air conditioners designing solutions suitable for higher power conductors.



# Underground networks

## Many assets

The use of underground technology is growing. Buried networks offer many benefits compared to overhead ones.



**Safety**

- + To reduce incidents risk
- + To reduce electrical contacts risk

**Optimization**

- + Preservation of ground for building
- + Limit fraudulent manipulation


**Quality**

- + To increase lines durability
- + To guarantee a service without disruptions in case of violent winds, storms...

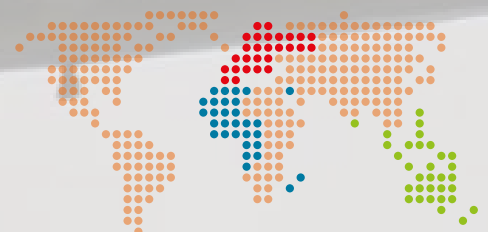
**Aestheticism**

- + No pollution landscape

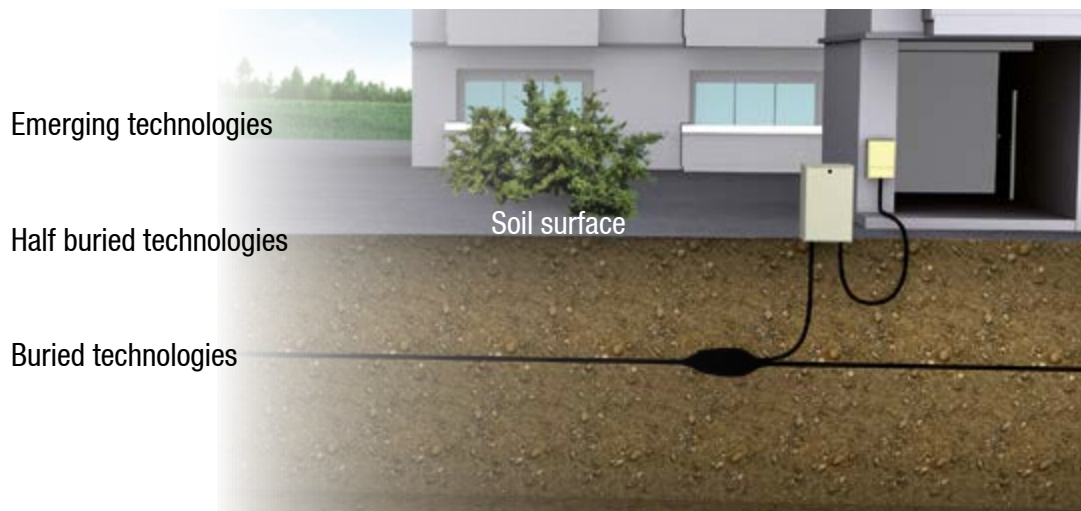
## A recognized experience in the sector



- For 20 years** Development of single phase connectors
- For 15 years** Co-operation with cable manufacturers
- For 10 years** Establishment of new generation of RING connectors
- Today** Distribution of solutions around the world



## Three levels of installations

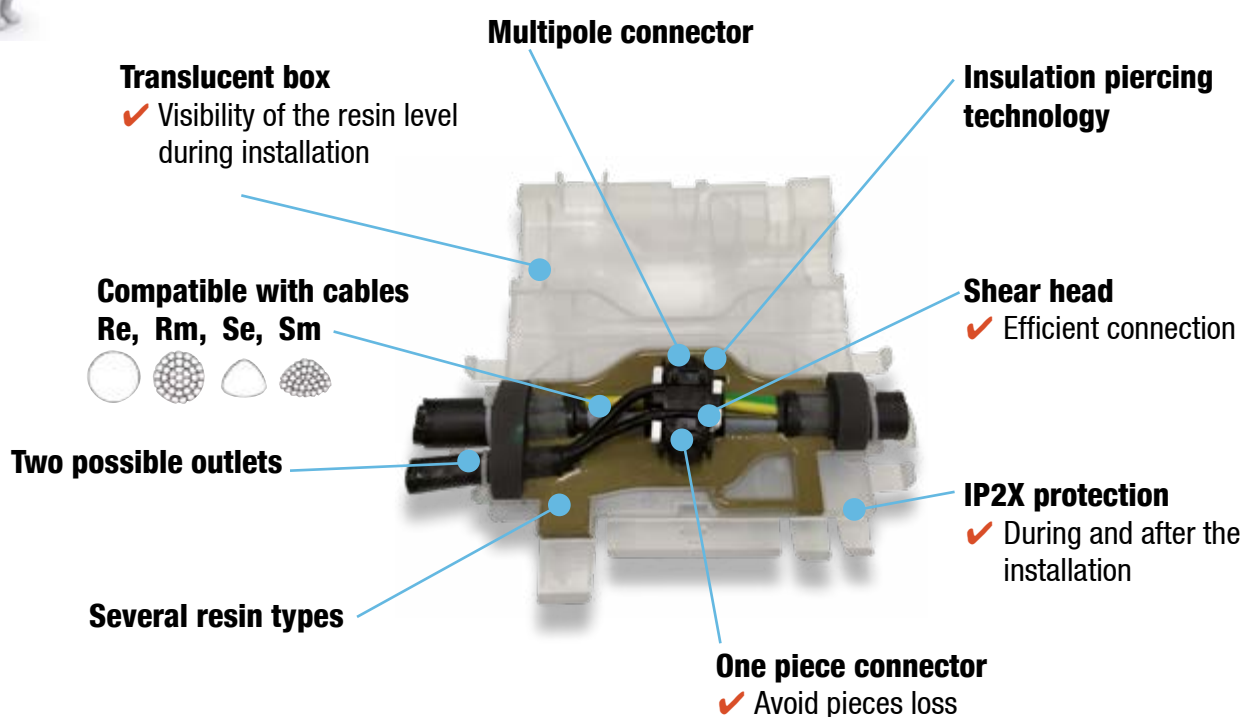


### 1 - Buried solutions

To enable the achievement of connections and tap-connections in underground environment, MICHAUD designed watertight systems avoiding water penetration being able to run over 30 years without maintenance.



#### Zoom on RING connector and the underground service box



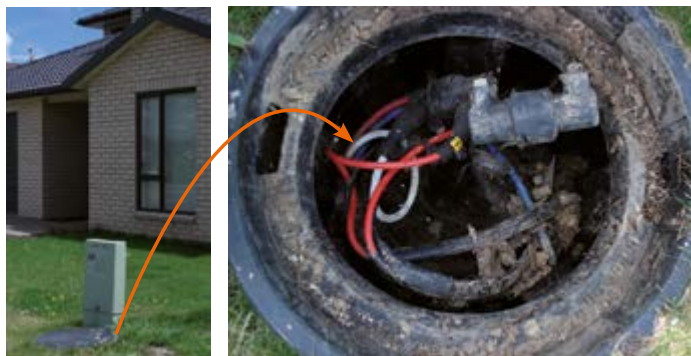
## 2 - Half-buried solutions

These solutions give the advantage to follow the requirements due to an operation in underground environment while being accessible from the soil surface.



### Zoom on the pit cutout sleeve

This sleeve enables the protection of the underground network connection.



- ✓ Installation in a pit
- ✓ Full waterproof connection
- ✓ Temporary working into water



## 3 - Emerging connection solutions

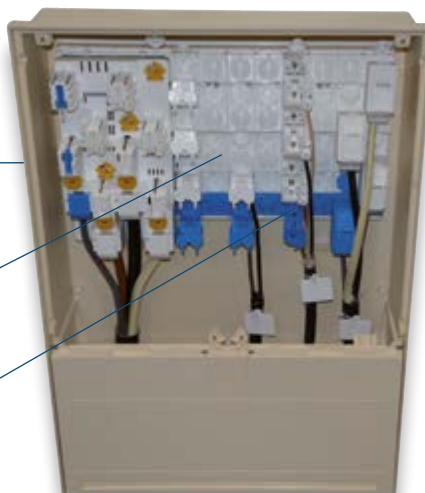
The modular range of emerging cabinets makes possible an adaptation to different searched configurations.

### 1 - Cabinet

### 2 - Set of bars

### 3 - Modules

- ✓ Service / Network
- ✓ Single phase / Three phases
- ✓ One outlet / Several outlets
- ✓ Fuse protection



Set of bars and modules are suitable to every type of cabinets in order to insert inside the environment, keeping the existing.




In order to better suit the market expectations,  
**MICHAUD** encourages co-development.

# SOLUTIONS FOR UNDERGROUND NETWORKS

## Many solutions adapted to conductors

**Service**

**Application field**



	150mm <sup>2</sup>	240mm <sup>2</sup>	300mm <sup>2</sup>
<b>Main section</b>	95-150mm <sup>2</sup>	50-240mm <sup>2</sup>	150-300mm <sup>2</sup>
<b>Tap section</b>	1x10-35mm <sup>2</sup>	2x10-35mm <sup>2</sup>	2x10-35mm <sup>2</sup>
<b>Volume</b>	2.1 liters	6 liters	6 liters
<b>Work space</b>	170 max	330 max	
<b>Connector diameter</b>	119mm	140mm	150mm

**Two technologies**

	<b>Cast technology</b>	<b>Injected technology</b>
<b>The +</b>	Easy installation	Easy adaptation to specific environments
<b>The -</b>	No possible flexibility in the installation configuration	Installation requiring fitters training

## Michaud guides you in your installations



- + Showroom
- + Video to explain the installation
- + Training by our team

## Network

**Realization of connection or tap-connection**

**Conductors capacity**  
✓ Up to 240mm<sup>2</sup>

**Unipolar technology**

- ✓ Three phases
- ✓ One neutral

**Round or sectoral conductor**

**Technology**

- ✓ Cast
- ✓ Injected



## The polyurethane resin

- ✓ Used injected or cast
- ✓ Polymerized at ambient temperature
- ✓ Perfectly suitable to MICHAUD underground boxes
- ✓ High mechanical strength
- ✓ Perfect adhesion on synthetic material as well as on modern accessories

+ Soft dismountable non hazardous resin is also available



## Multipole ring connector 150mm<sup>2</sup>



**MICHAUD Exclusivity**  
Patented system



**K449**

### Application

This RING connector is designed to establish a tap connection on low voltage underground networks. It is installed inside an underground box.

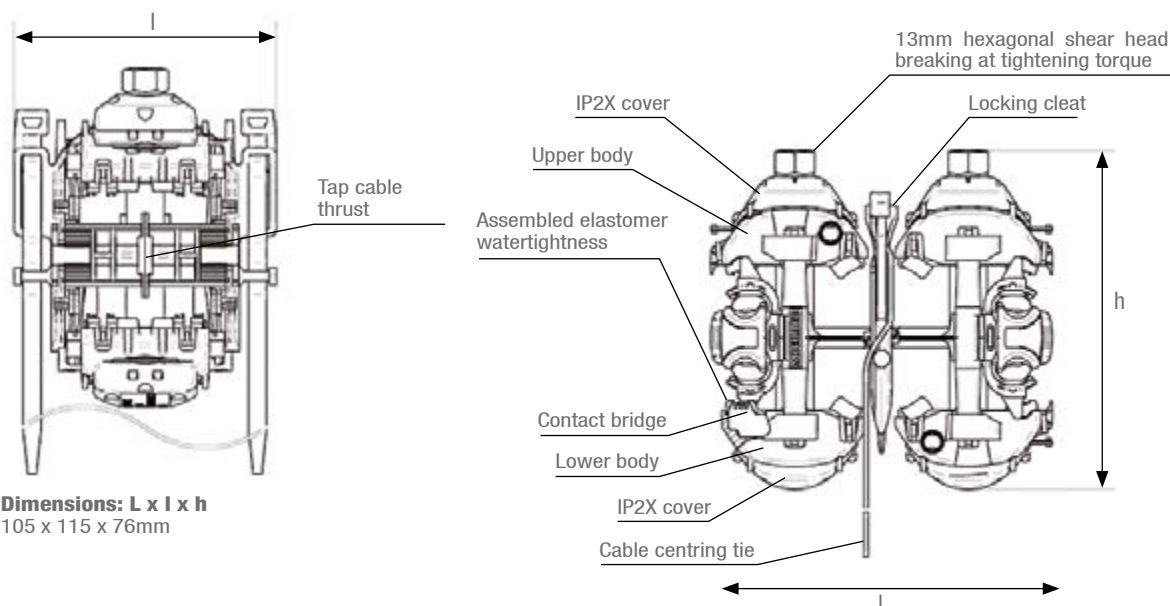
It is used on a main cable with synthetic insulation of type:

- Circular or sectoral,
- Copper or aluminium,
- Solid or stranded core.

### Description

- Connection is ensured through insulation piercing technology, simultaneously on main and tap lines.
- Connector capacities are 95 to 150mm<sup>2</sup> main and 1x10 to 35mm<sup>2</sup> tap.
- The connector accepts a reduced neutral.
- Adjustable clips are used to guide the cable and act as stops. The tap can be established on the right or left.
- The connector comprises:
  - 2 identical IP2X tightening modules enabling non-oriented mounting and simultaneous tightening from the top.
  - 1 cleat for locking the modules and for permanently securing the connector on the cable.
- The body is made of synthetic materials to make live-line work safe.
- The ergonomics has been designed to meet the specific constraints of underground work.
- Tightening efficiency is ensured by 2 shear heads, thereby reducing the assembly time.
- All connector components are captive to make the installation easier.
- The connector dimensions once implemented:  $\varnothing \leq 119\text{mm}$ .
- IP2X connector once implemented.

This connector is tested according to the **DIN VDE 0220** and **DIN EN 50393** standards.



Code	Designation	Main Capacities (mm <sup>2</sup> )	Tap Capacities (mm <sup>2</sup> )	Weight (kg)	Sales unit
K449	4 POLES SERVICE CONNECTOR 150 / 1x35	95-150	1 x 10-35	0.450	10

For compatibility with your conductors, please contact us (cable compatibility shall be tested before use).

## Accessory



The insulated wedge separator is used for installing the multitap connector. It is used to separate the conductors.

Code	Designation	Weight (kg)	Sales unit
K007	WEDGE SEPARATOR 200x15x9mm	0.050	10

## Underground box



### Utilisation

This underground box enables the tap connection from an underground network. It makes possible the tap connection of every conductors type (stranded, solid, multi-stranded, round or sectoral). It comprises the connector, the resin, the box and accessories according to the local standard.

### Description

- The box comprises a translucent shell made of thermoplastic material (PP).
- Box accessories required for the assembly are supplied: section reducer, strips of adhesive foam, foams, links, gloves, etc.
- The polyurethane resin, delivered in a dual-bag, is qualified according to the **NF C33-010** (MPF01/DC and MPF PM) and **HD631.1** (LMPW, LIN, MMPW, NIW) standards.
- Once implemented, the dimensions of the box are 380x180x150mm.
- The connector shapes are studied to perform a good display of the resin.

The underground box is tested according to the **DIN EN 50393** standard.

Code	Designation	Capacities (mm <sup>2</sup> )	Weight (kg)	Sales unit
K450	MULTIPOLE CONNECTOR 150 + UNDERGROUND BOX	95-150 / 1x10-35	4.300	1

For compatibility with your conductors, please contact us (cable compatibility shall be tested before use).

## Multipole ring connector 240mm<sup>2</sup>



**MICHAUD Exclusivity**  
Patented system



**K459**

### Application

This RING connector is designed to establish a tap connection on low voltage underground networks. It is installed inside an underground box.

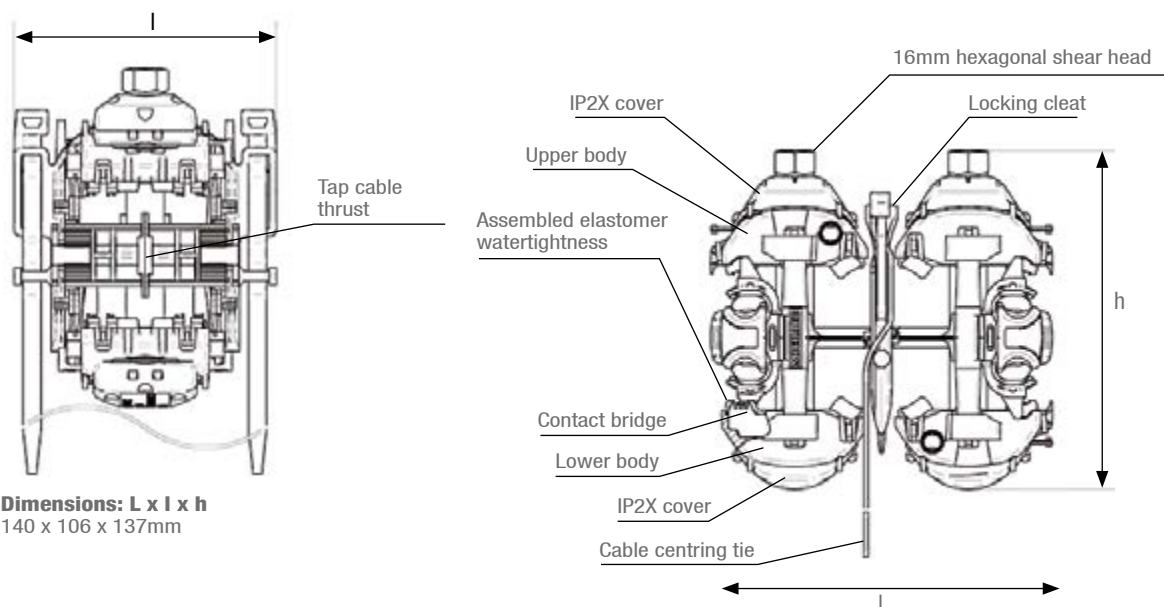
It is used on a main cable with synthetic insulation of type:

- Circular or sectoral,
- Copper or aluminium,
- Solid or stranded core.

### Description

- Connection is ensured through insulation piercing technology, simultaneously on main and tap lines.
- Connector capacities are: 50 to 240mm<sup>2</sup> main and 1 up to 2x10 to 35mm<sup>2</sup> tap.
- The connector accepts a reduced neutral.
- Adjustable clips are used to guide the cable and act as stops. The tap can be established on the right or left.
- The connector comprises:
  - 2 identical IP2X tightening modules enabling non-oriented mounting and simultaneous tightening from the top.
  - 1 cleat for locking the modules and for permanently securing the connector on the cable.
- The body is made of synthetic materials to make live-line work safe.
- The ergonomics has been designed to meet the specific constraints of underground work.
- Tightening efficiency is ensured by 2 shear heads, thereby reducing the assembly time.
- All connector components are captive to make the installation easier.
- IP2X connector once implemented.

This connector is tested according to 1 000 cycles electrical ageing according to the **EN 61 238-1** standard.

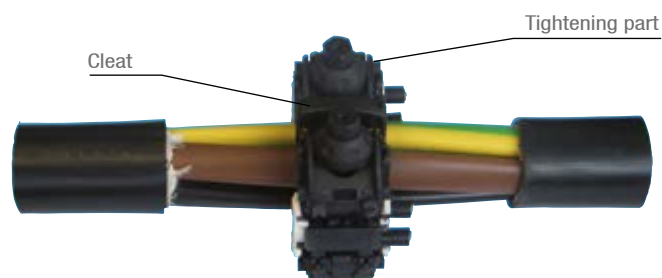


**Dimensions: L x l x h**  
140 x 106 x 137mm

Code	Designation	Main Capacities (mm <sup>2</sup> )	Tap Capacities (mm <sup>2</sup> )	Weight (kg)	Sales unit
K459	4 POLES SERVICE CONNECTOR 240 / 2x35	50-240	2 x 10-35	0.820	8

For compatibility with your conductors, please contact us (cable compatibility shall be tested before use).





## Accessory



This kit comprising a cable and a blue synthetic sheath is used as a complement to the K459 to ensure earth system of the multitap connector.

The insulated wedge separator is used for installing the multitap connector. It is used to separate the conductors.

Code	Designation	Weight (kg)	Sales unit
K007	WEDGE SEPARATOR 200x15x9mm	0.050	10

## Underground box



**K645**

## Application

This underground casted box enables the tap connection from an underground network. It makes possible the tap connection of every conductors type (stranded, solid, multi-stranded, round or sectoral). It comprises the connector, the resin, the box and accessories according to the local standard.

## Description

- The box comprises a translucent shell made of thermoplastic material (PP).
- Box accessories required for the assembly are supplied: section reducer, strips of adhesive foam, foams, links, gloves, etc.
- The polyurethane resin, delivered in a dual-bag, is qualified according to the **NF C33-010** (MPF01/DC and MPF PM) and **HD631.1** (LMPW, LIN, MMPW, NIW) standards.
- Once implemented, the dimensions of the box are 540x240x190mm.
- The connector shapes are studied to perform a good display of the resin.

Code	Designation	Main Capacities (mm <sup>2</sup> )	Tap Capacities (mm <sup>2</sup> )	Weight (kg)	Sales unit
K645	SERVICE BOX MULTI-CONNECTION CAST 240-35	50-240	2x10-35	15	10

For compatibility with your conductors, please contact us (cable compatibility shall be tested before use).

## Multipole ring connector 300mm<sup>2</sup>



**MICHAUD Exclusivity**  
Patented system



**K642**

### Application

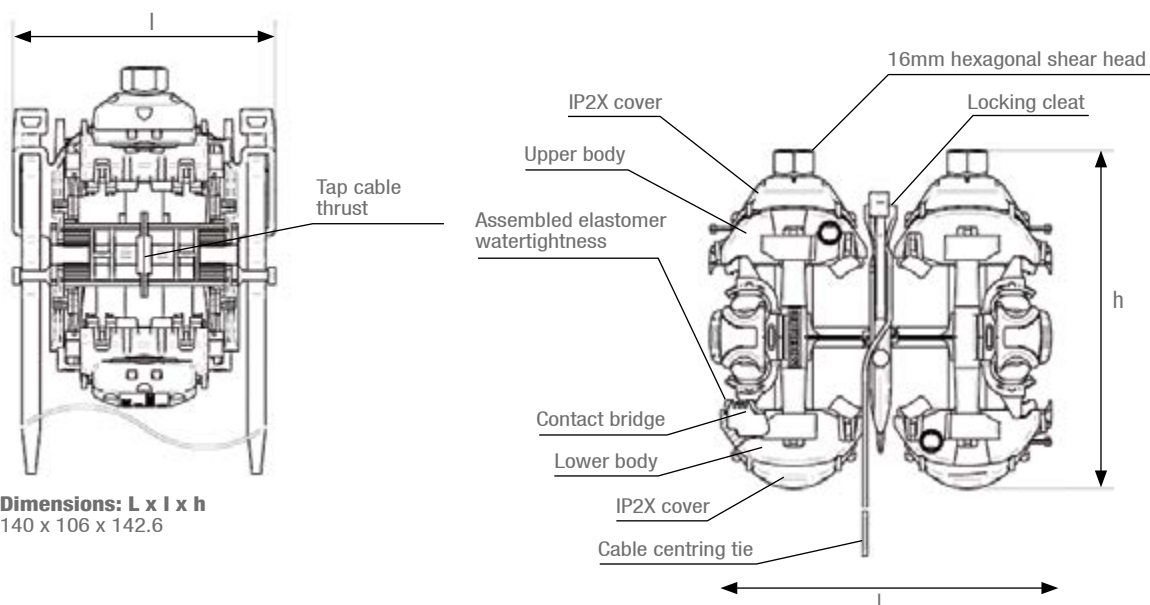
This RING connector is designed to establish a tap connection on low voltage underground networks. It is installed inside an underground box.

It is used on a main cable with synthetic insulation of type:

- Circular or sectoral,
- Copper or aluminium,
- Solid or stranded core.

### Description

- Connection is ensured through insulation piercing technology, simultaneously on main and tap lines.
- Connector capacities are 240 to 300mm<sup>2</sup> main and 1 up to 2x10 to 35mm<sup>2</sup> tap.
- The connector accepts a reduced neutral.
- Adjustable clips are used to guide the cable and act as stops. The tap can be established on the right or left.
- The connector comprises:
  - 2 identical IP2X tightening modules enabling non-oriented mounting and simultaneous tightening from the top.
  - 1 cleat for locking the modules and for permanently securing the connector on the cable.
- The body is made of synthetic materials to make live-line work safe.
- The ergonomics has been designed to meet the specific constraints of underground work.
- Tightening efficiency is ensured by 2 shear heads, thereby reducing the assembly time.
- All connector components are captive to make the installation easier.
- IP2X connector once implemented.



**Dimensions: L x l x h**  
140 x 106 x 142.6

Code	Designation	Capacities Main (mm <sup>2</sup> )	Capacities Tap (mm <sup>2</sup> )	Weight (kg)	Sales unit
K642	4 POLES SERVICE CONNECTOR 300 / 2x35	240-300	2x10 - 35	0.850	10

For compatibility with your conductors, please contact us (cable compatibility shall be tested before use).

## Accessory



The insulated wedge separator is used for installing the multitap connector. It is used to separate the conductors.

Code	Designation	Weight (kg)	Sales unit
K007	WEDGE SEPARATOR 200x15x9mm	0.050	10

## Underground box



K646

### Application

This underground box enables the tap connection from an underground network. It makes possible the tap connection of every conductors type (stranded, solid, multi-stranded, round or sectoral). It comprises the connector, the resin, the box and accessories according to the local standard.

### Description

- The box comprises a translucent shell made of thermoplastic material (PP).
- The box is available in 2 versions: injected box or cast box.
- Box accessories required for the assembly are supplied: section reducer, strips of adhesive foam, foams, links, gloves, etc.
- The polyurethane resin, delivered in a dual-bag, is qualified according to the **NF C33-010** (MPF01/DC and MPF PM) and **HD631.1** (LMPW, LIN, MMPW, NIW) standards.
- Once implemented, the dimensions of the box are 540x240x190mm.
- The connector shapes are studied to perform a good display of the resin.

Code	Designation	Capacities Main (mm <sup>2</sup> )	Capacities Tap (mm <sup>2</sup> )	Weight (kg)	Sales unit
K646	SERVICE BOX MULTI-CONNECTIONS CAST + CONNECTOR 300 <sup>2</sup>	240-300	2x10-35	15.050	10

For compatibility with your conductors, please contact us (cable compatibility shall be tested before use).

# Single pole service connector

**Phase - K317****Neutral - K318****Phase - K419****Neutral - K420**

## Application

This connector is designed to establish a tap connection on low voltage underground networks.

It is located in underground cast or injected boxes.

It can be used on a main cable with paper or synthetic insulation of type:

- circular or sectoral
- aluminum
- stranded or solid core.

## Description

- Connection is ensured through insulation piercing technology simultaneously on main and tap lines.
- The K419 and K420 models can be used for connecting 2 taps with identical or different sections.
- The K420 model integrates an earth system conductor.
- Connectors are fully insulated (IP2X protection degree). Bodies are made of synthetic materials to make live-line work safe.
- The ergonomics has been designated to meet the specific constraints of underground work.
- Tightening efficiency is ensured by a shear head screw.

The components are tested for 200 cycles according to the NFC 63-061 and 1000 cycles electrical ageing according to the NF **EN 61238-1** standards.

Code	Designation	Main capacities (mm <sup>2</sup> )	Tap capacities (mm <sup>2</sup> )	Weight (kg)	Sales unit
K317	CONNECTOR CBS/CS 240	50-240	10-35	0,230	3
K318	CONNECTOR CBS NEUTRAL/CS	50-95	10-35	0,135	1
K419	CONNECTOR CB2p/CS 240	50-240	2x10-35	0,200	3
K420	CONNECTOR CB2p NEUTRAL/CS	50-95	2x10-35	0,310	1

## Accessory



**K001**

End cap is used in addition to the K317 and K318 connector in order to insulate the end of the tap cable.

Code	Designation	Weight (kg)	Sale unit
K001	BLACK FLEXIBLE END CAP 10-50m	0,003	20

# Service repairing junction kit - JRB

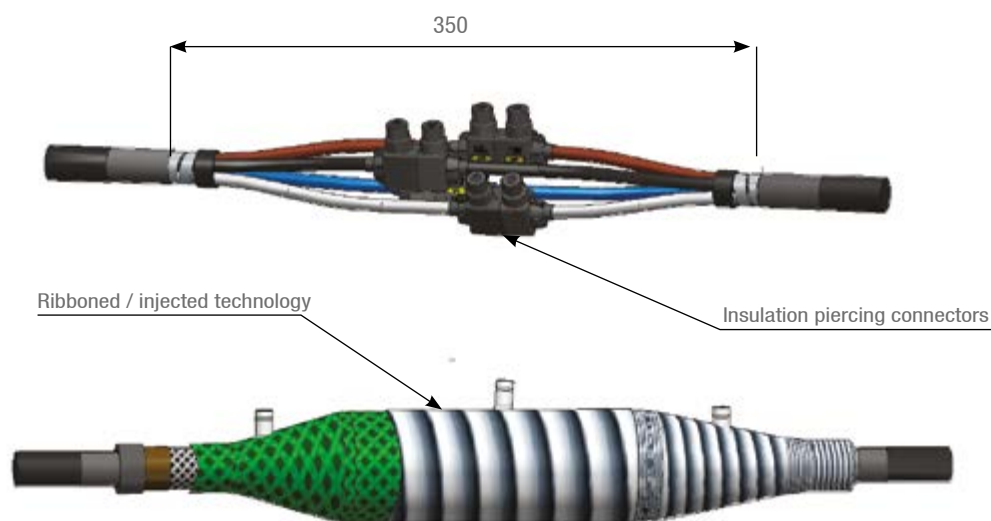
**BE004**

## Application

This accessory is designed to repair connection of service underground damaged cables.

## Description

- This kit comprises the following accessories:
  - 4 pre-insulated junction sleeves using insulation piercing technology,
  - 1 device enabling the reconstitution of the cable screen,
  - 1 hardening resin.
- The installation is of ribboning / injection type.



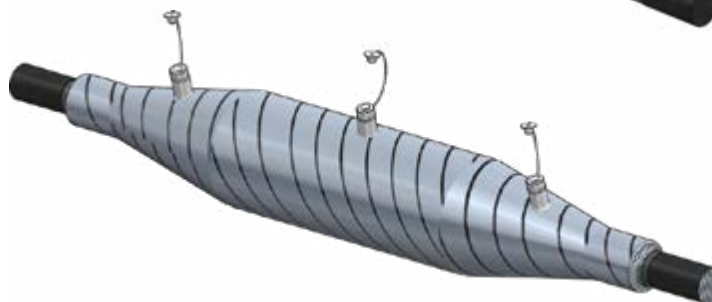
Dimensions in mm

## Installation

- Cables preparation

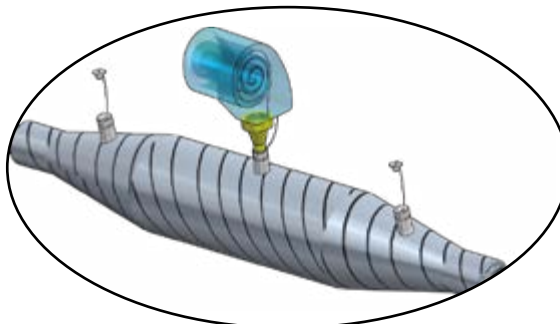


- Cables connection



- Ribboning

- Resin injection



Code	Designation	Cable section (mm <sup>2</sup> )		Weight (kg)	Sales unit
		Mini	Maxi		
BE004	SERVICE REPAIRING JUNCTION KIT JRB 10-50	4x10	4x35	2.97	1

## Single pole network connector



Phase 50-240 / 50-240  
**K383**



Phase 50-240 / 50-150  
**K384**



Phase 50-95 / 50-95  
**K313**



Neutral 50-150 / 50-95  
**K360**

### Application

This connector is designed to be used with underground low voltage network for tapping or junction applications. It is implemented in underground cast or injected boxes. It can be used on aluminium, circular or sectoral type cables with paper or synthetic insulation.

### Description

- Connection is established simultaneously using insulation piercing technology on the main and tap lines.
- The connectors are fully insulated (IP2X degree of protection). Their bodies are made of synthetic materials to make live-line work safe.
- They are tested for 1 000 cycles electrical ageing according to the **NF EN 61238-1** standard.
- The dielectric strength in air is greater than 4kV.
- The ergonomics has been designed to meet the specific constraints of underground work.
- Tightening efficiency is ensured by shear head screws.

These connectors meet the criteria of the technical specification **HN 68 S-12**.

Code	Designation	Main Capacities (mm <sup>2</sup> )	Tap Capacities (mm <sup>2</sup> )	Weight (kg)	Sales unit
K383	CONNECTOR CDR/CS 50-240	50-240	50-240	0.700	1
K384	CONNECTOR CDR/CS 50-240/50-150	50-240	50-150	0.400	1
K313	CONNECTOR CDR/CS 50-95	50-95	50-95	0.210	3
K360	CONNECTOR CDR NEUTRAL/CS 50-95	50-150	50-95	0.210	1



## Accessories



**K247**



**K002**

The end cap K247 and K002 are used in addition to K383 + K384 and K313 + K360 respectively for the insulation of the tap cable end.



**SEE SHEET**

OVERHEAD / LV Ending fitting / Seal and cap



**K314**

This connector is designed for earthing the neutral.  
For the supply of the earth system cable, please contact us.

Code	Designation	Weight (kg)	Sales unit
K314	EARTH SYSTEM CONNECTOR 50-95 / 25	0.140	1

## Mechanical tightening underground junction

### BD010



### Application

This sleeve is used to perform junctions of low voltage underground cables. Sleeves use mechanical tightening enabling to cover a wide range and to ensure an easier installation. To guarantee the junction sealing, two technologies are available: cold and heat-shrinkable sheaths.

### Description

- Junction sleeves are made of tinned aluminium enabling the compatibility with aluminium and copper cables.
- The shear head tightening ensures an optimized electrical contact and a sleeve shape suitable to the heat-shrinkable sheath covering.
- Sleeves offer a central stop and ensure a water barrier because of non-through piercing.
- The cable range sections are from 50 up to 240mm<sup>2</sup>.

Sleeves meet the criteria of the **EN 61 281-1** class A standard.

Code	Designation	Weight (kg)	Sales unit
BD030	MECHANICAL TIGHTENING SLEEVE 50-120 2 SCREWS	0,080	1
BD020	MECHANICAL TIGHTENING SLEEVE 95-150 2 SCREWS	0,100	1
BD010	MECHANICAL TIGHTENING SLEEVE 95-240 4 SCREWS	0.280	1

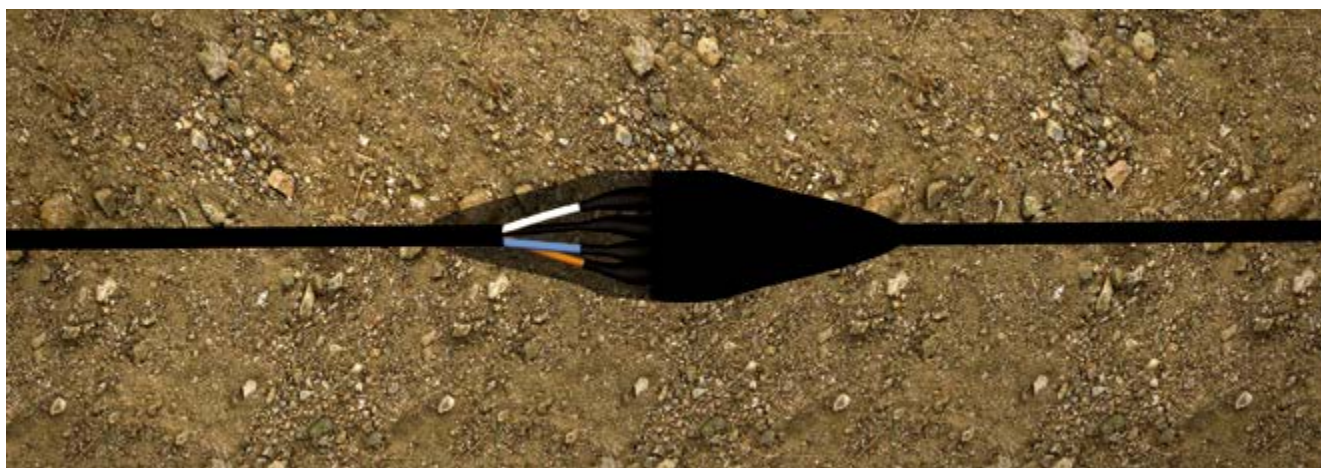
## Option: Sealing

Compose your custom-made solution by choosing the sleeves size and the technology to perform the underground junction sealing.

### *Heat-shrinkable*



### *Cold shrinkable*



## Short-circuiting lost end BPMCC



BE002

### Utilisation

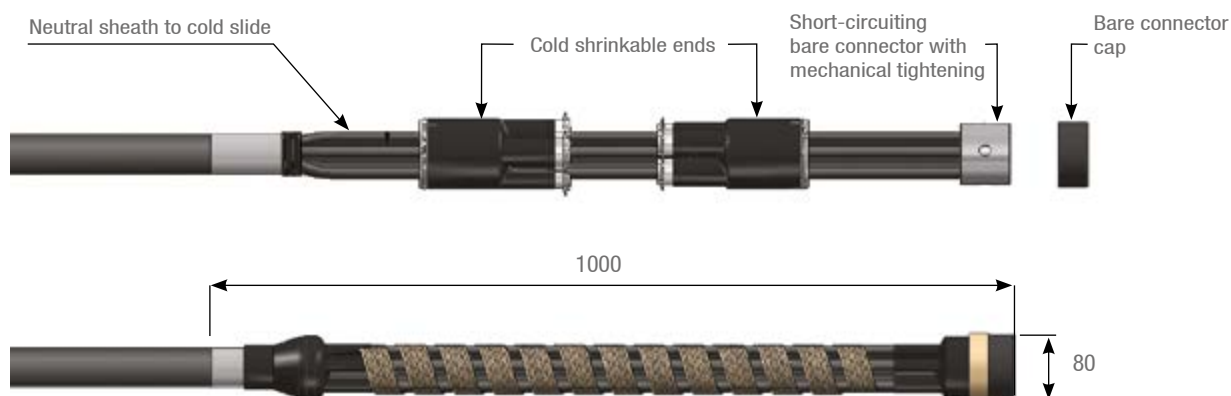
This accessory is designed to short-circuit waiting networks without power.  
It is used to warn accidental powering at one end.  
It ensures cables watertightness.

### The benefit:

- + Easy installation

### Description

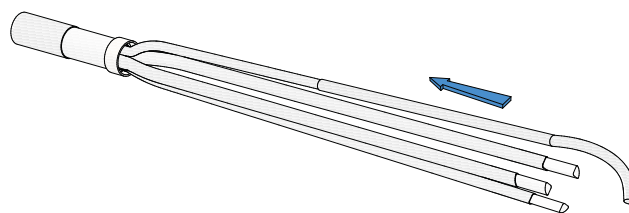
- This kit comprises the following accessories:
  - 1 short-circuiting bare connector with mechanical tightening,
  - 1 neutral sheath to cold slide,
  - 2 cold shrinkable ends.



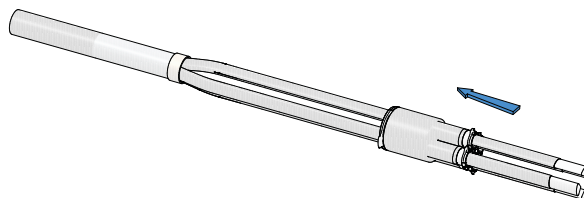
Dimensions in mm

## Installation

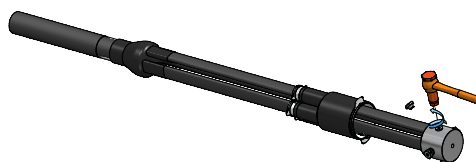
- Cables preparation.



- Cable re-insulation.



- Conductors short-circuiting.



- Accessory reinforcement.



Code	Désignation	Cable section (mm <sup>2</sup> )		Weight (kg)	Sales unit
		Mini	Maxi		
BE002	SHORT-CIRCUITING LOST END BPMCC 50-240	3x95+50	3x240+120M*	1.320	1

\* The letter M means that the core of the conductor is solid.

## Aerial sub-surface connection for LV network (NJAS)



### Utilisation

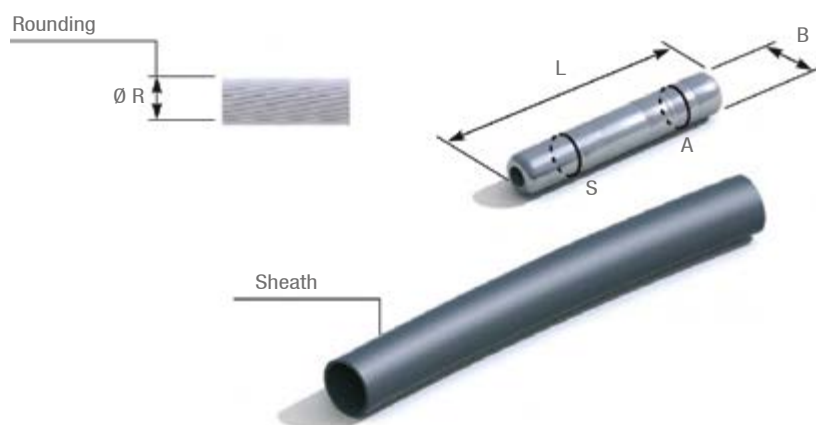
Aerial sub-surface junction is designed to establish the connection from an underground network to a low voltage overhead network.

They are implemented on overhead environment along a pole, under a mechanical protection as a conduit.

### Description

This kit comprises the following accessories:

- 3 phase sleeves made in aluminium and 1 neutral of type MJT,
- 4 heat-shrinkable sheaths for the sleeves insulation,
- 1 heat-shrinkable end with 4 outlets for the cable head of the underground conductor.



Cable		Sleeve + Sheath	Ø R (mm)	B (mm)	L (mm)	H	
S (mm <sup>2</sup> )	A (mm <sup>2</sup> )						
50	54.6	MJT 50 - 54	FRM 25 - 200	8.5	20	110	E173
50	70N	MJT 50 - 70N		10.5			
70	54.6	MJT 70 - 54		10.5			
70	70N	MJT 70 - 70N					
95	54.6	MJT 95 - 54		12			
95	70	MJT 95 - 70					
95	150	MJT 95 - 150					
150	70	MJT 150 - 70	FRM 30 - 200	15	25	120	E 215
150	95N	MJT 150 - 95N					
150	150	MJT 150 - 150					
240	70	MJT 240 - 70	FRM 35 - 200	18.5	32	142	E 280
240	150	MJT 240 - 150					

Code	Designation	Cable (mm <sup>2</sup> )		Weight (kg)	Sales unit
		Underground	Overhead		
U580	NJAS 95 - 50/70-54	3x95+50	3x70+54.6	0.520	1
U581	NJAS 95 - 50/70-70N	3x95+50	3x70+70N	0.510	1
U582	NJAS 95 - 50/150-70N	3x95+50	3x150+70N	0.680	1
U583	NJAS 95 - 70/70-54	3x95+70	3x70+54.6	0.640	1
U589	NJAS 150-70N / 70-54.6	3x150+70	3x70+54.6	0.660	1
U584	NJAS 150 - 70/70-70N	3x150+70	3x70+70N	0.670	1
U585	NJAS 150 - 70/150-70N	3x150+70	3x150+70N	0.720	1
U586	NJAS 240 - 95/70-54	3x240+95	3x70+54.6	0.810	1
U587	NJAS 240 - 95/70-70N	3x240+95	3x70+70N	0.840	1
U588	NJAS 240 - 95/150-70N	3x240+95	3x150+70N	0.920	1

# REMIC bare cabinet

**U703**

- + 180° opening door
- + Modular



## Application

DIN cabinets exist in 3 widths and are designed to receive a 300, 450 or 600mm REMIC set of bars support.

They use "common" equipment (direct connection network, service) and RRCP cutting / protection network connection modules.

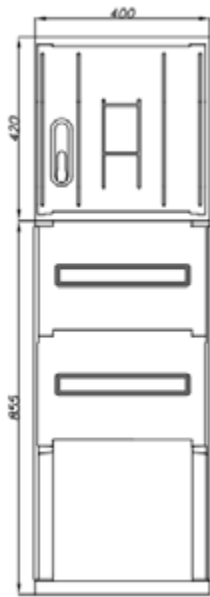
They are also designed for possible re-supply of the set of bars support without additional re-supply doors.

## Description

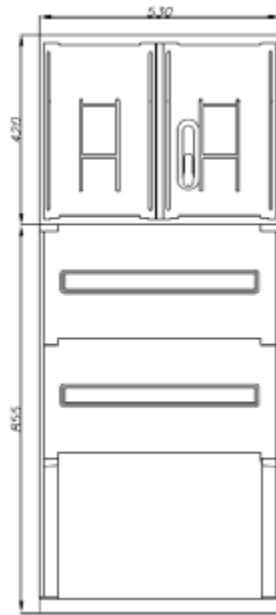
- These cabinets are made for outdoor use. They are IP44 and IK10.
- These DIN cabinets have a V0 flammability category.
- They are equipped with inserts for receiving the REMIC sets of bars supports.
- They are available in 3 versions, depending on the type of bars supports needed.
- Cabinet's doors can be open at 180° which facilitate implementation, operation and maintenance.
- The monobloc front face is completely removable to facilitate connection inside the cabinet.
- The plinth is used to adapt the above ground height of the cabinets.
- A re-supply trapdoor is included in the cabinet.
- The cabinets are delivered with their fixing foundations. However, these are not supplied with the sets of bars and their support.
- These cabinets meet the criteria of **EN 62208:2011**.



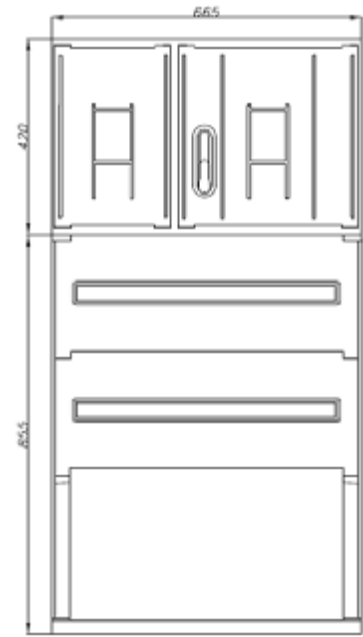
## Dimensions



**U701**



**U702**



**U703**

Dimensions in mm

Code	Designation	Weight (kg)	Sales unit
U701	DIN CABINET FOR REMIC SET OF BARS 6 STEPS	15.000	1
U702	DIN CABINET FOR REMIC SET OF BARS 9 STEPS	18.000	1
U703	DIN CABINET FOR REMIC SET OF BARS 12 STEPS	20.000	1

All of the references are available in remote meter reading system or with flash marking: please contact us.

## REMIC set of bars



Set of bars 300  
Q600



Set of bars 450  
Q601



Set of bars 600  
Q602

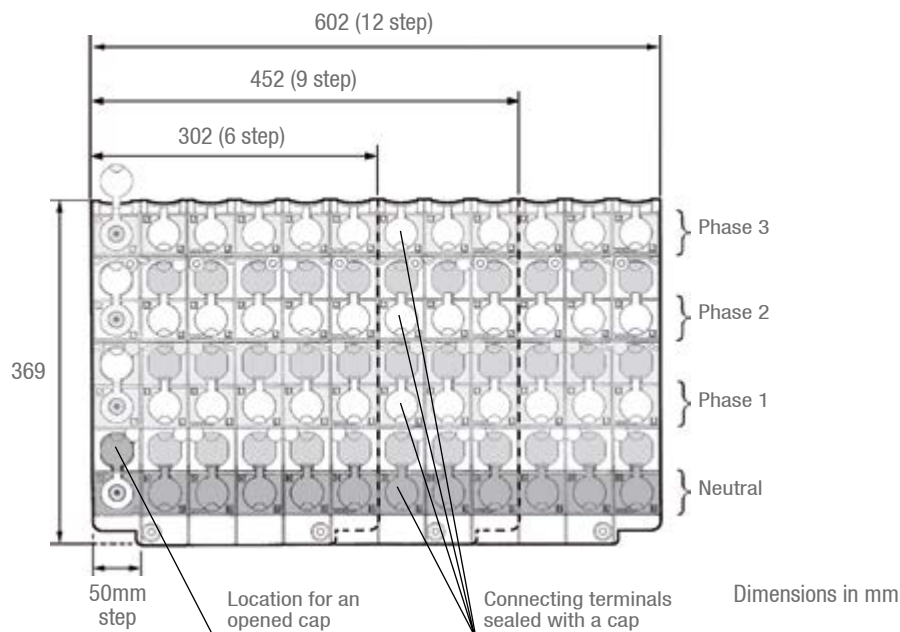
### Application

The sets of bars supports 300, 450 and 600 respectively offer 6, 9 and 12 connection terminals for each pole.

### Description

- The sets of bars supports 300, 450 and 600 are respectively made of 6, 9 and 12 steps of 50mm.
- The set of bars support is fixed to the bottom of all REMBT cabinets on standardised inserts.
- The inclination of the phase bars facilitates connection.
- The poles are identified (N, L1, L2, L3).
- The modules are fixed using standardised M12 threads.
- The product is IP2X before and after installation. The unused connection terminals are covered using a captive cap.
- A 400A re-supply device can be connected directly to the connection terminals. IP2X is maintained thanks to the 35mm diameter of the terminals.

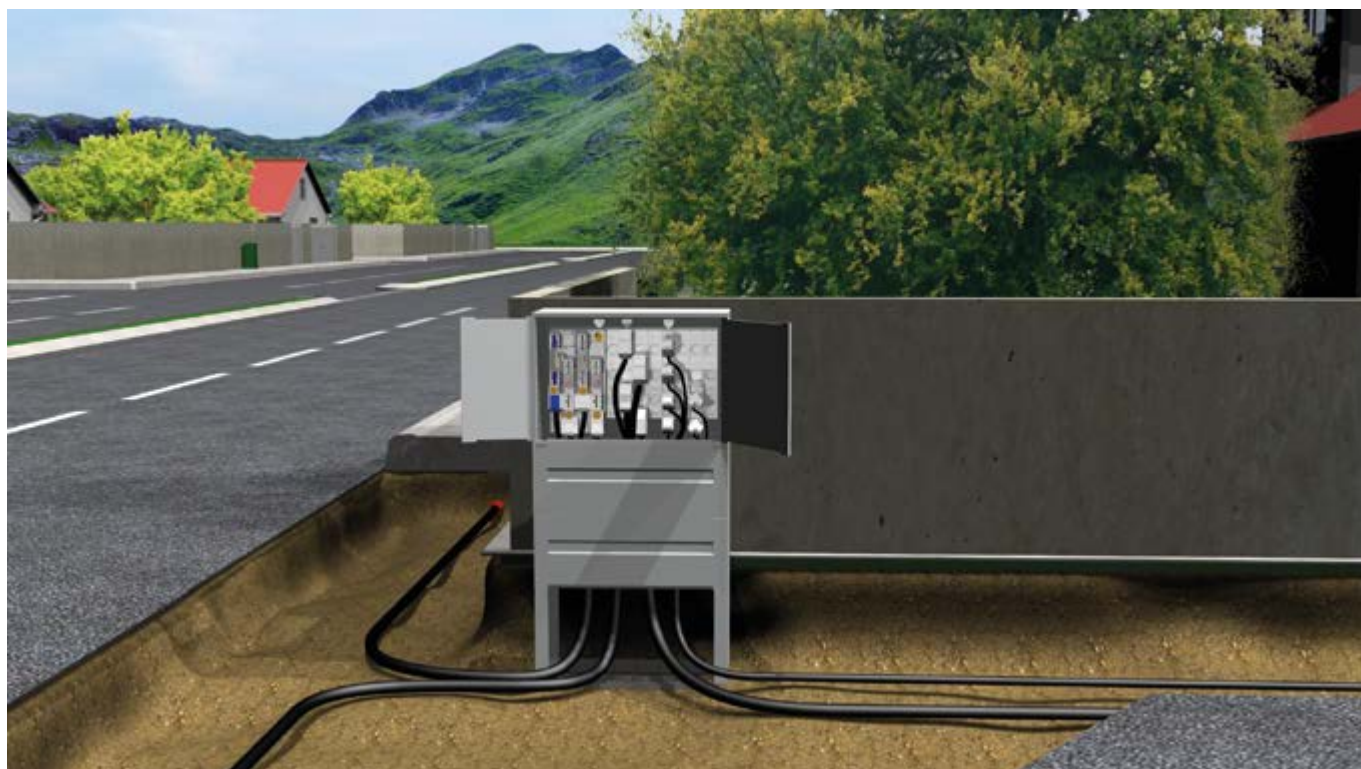
These sets of bars supports meet the criteria of the **HN 63-S-65** standard.



Code	Designation	Weight (kg)	Sales unit
Q600	REMIC SET OF BARS SUPPORT 300	2.630	1
Q601	REMIC SET OF BARS SUPPORT 450	3.760	1
Q602	REMIC SET OF BARS SUPPORT 600	4.870	1

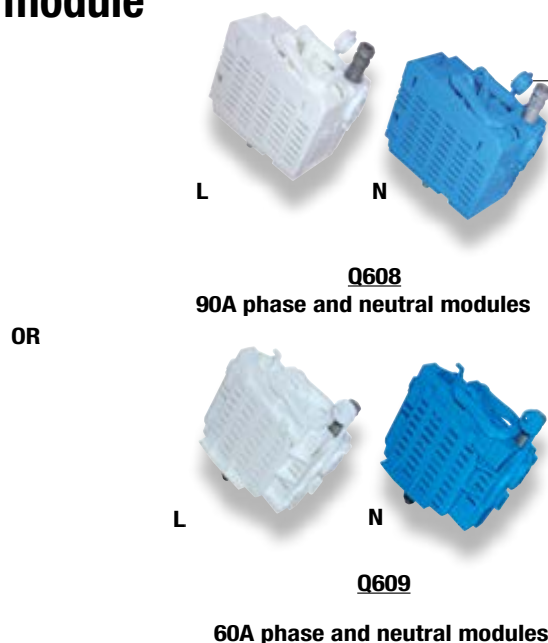
## Accessories

Code	Designation	Weight (kg)	Sales unit
<b>ADAPTORS FOR S15-S20 CABINETS</b>			
Q618	REMIC STANDARD S20 CABINET FRAME	1.030	1
Q619	REMIC STANDARD S15 CABINET FRAME	1.550	1



## REMIC service module

### Fuse module



### Application

The fuse service module exists in 60A and 90A available in single or three phase kits depending on the model. In variation of the fused neutral, a triple neutral is possible.

It is installed on the M12 standardized connection terminals of the set of bars support.

It is used to tap a single or three phase service connection ensuring protection through fuses size 00.

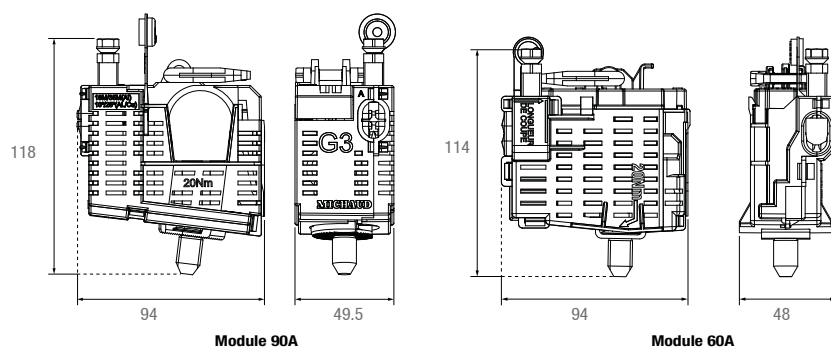
### The benefit:

- + In case of long service connections, the terminal can receive 50M solid core to avoid voltage drop.

### Description


- The fuse service module has a protection degree type IP2X before and after installation.
- The neutral is identified thanks to its blue colour.
- The connection terminals use insulation piercing technology and are equipped with shear head screws. Capacity is 10-25mm<sup>2</sup> Cu / 16M-50M Al (the letter M means that the core of the conductor is solid).

This module meets the criteria of the **H 63-S-65** standard.

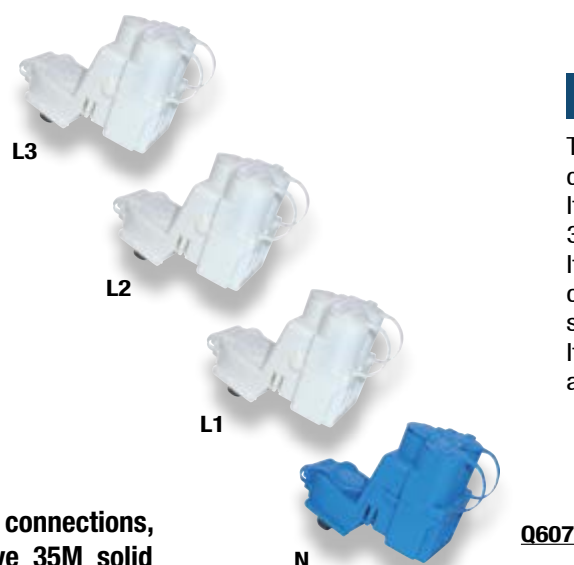


Dimensions in mm

Code	Designation	Number of phase modules	Neutral type module	ENEDIS capacity (A)	Real capacity (A)	Weight (kg)	Sales unit
Q608	REMIC MODULE TYPE FUSE SERVICE SINGLE PHASE 90A RBPM	1	Disconnection	90	108	0.590	1
Q606	REMIC MODULE TYPE FUSE SERVICE THREE PHASE 60A RBPT	3	Disconnection	60	72	0.850	1
Q609	REMIC MODULE TYPE FUSE SERVICE SINGLE PHASE 60A RBPM	1	Disconnection	60	72	0.430	1


**SEE SHEET**  
 PROTECTION / Fuses / Fuse cartridge AD

## Multitap module



### Application

The multitap connection module comprises 1 neutral and 3 phases. It allows a maximum of 3 single phase or 3 three phase services to be connected. It is installed on the M12 standardized connection terminals of the set of bars support.

It is mainly used when the AD fuses are installed in the customer premises.

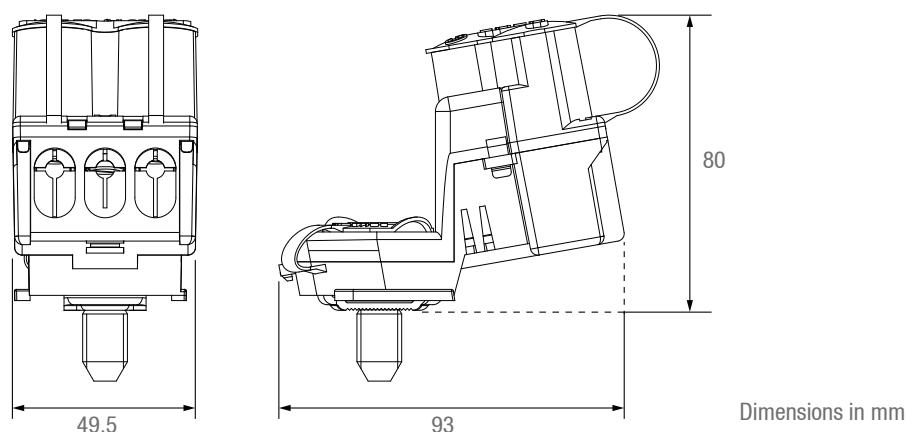
### The benefit:

- + In case of long service connections, the terminal can receive 35M solid core to avoid the voltage drop.

### Description

- The multitap connection module has a degree of protection type IP2X before and after installation.
- The neutral and phases have 3 insulation piercing connection terminals.
- The neutral is identified thanks to its blue colour.
- The terminals are equipped with shear head screws. Capacity is 16-25mm<sup>2</sup> Al-Cu / 16M-35M Al (the letter M means that the core of the conductor is solid).
- The product design allows the conductors to be wired on the top of the lower terminals.
- The small size of the IP2X caps provides access to the tightening screws of the terminals even when all of the conductors are connected.

This module meets the criteria of the **HN 63-S-65** standard.



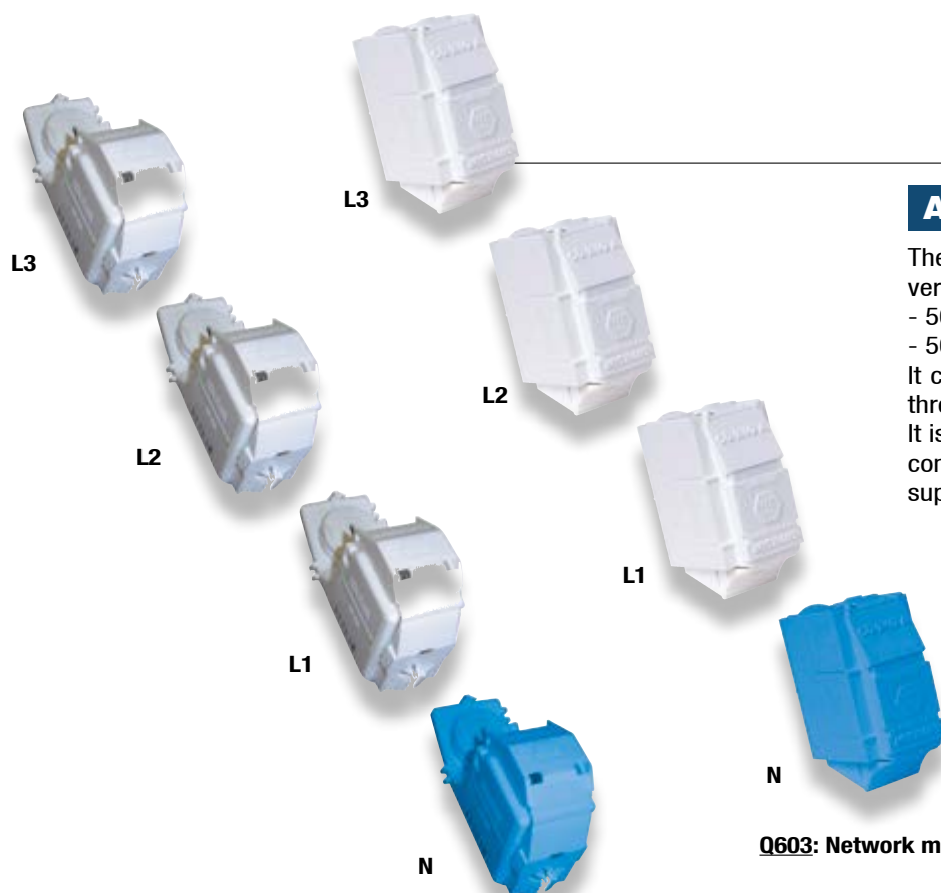
Code	Designation	Weight (kg)	Sales unit
Q607	REMIC MULTITAP CONNECTION MODULE RBD (1 NEUTRAL + 3 PHASES)	0.950	1

### Variant:

The multitap connection module is available in single phase version.

Code	Designation	Weight (kg)	Sales unit
Q610	REMIC MULTITAP CONNECTION MODULE SINGLE PHASE (1 NEUTRAL + 1 PHASE)	0.580	1

## REMIC network module



### Application

The network module is available in 2 versions:

- 50-240mm<sup>2</sup>,
- 50-150mm<sup>2</sup>.

It comprises one neutral terminal and three phase terminals.

It is installed on the M12 standardized connection terminals of the sets of bars supports.

**Q603: Network module 50-240**

**Q612: Network module 50-150**

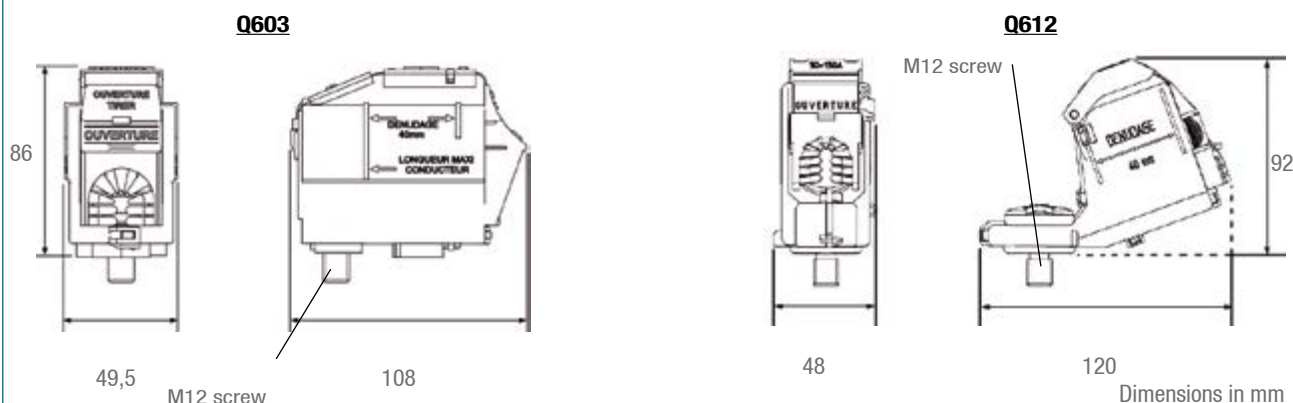
### The benefits:

- + Easy installation of the NETWORK module 50-240.
- + 50mm<sup>2</sup> or 95mm<sup>2</sup> connection on a terminal of the NETWORK module 50-150.

### Description

- The terminals are of Class A according to the **NF C 63-061** standard (Electrical ageing: 700 cycles).
- They are IP2X before and after installation regardless of the conductors section.
- The neutral is identified thanks to its blue colour.
- The terminals receive round or sectoral shape aluminium or copper conductors.
- The conductors are tightened using a hexagonal H14 shear head screw. A second H14 head is used for possible dismantling and reuse using a 40Nm torque wrench.

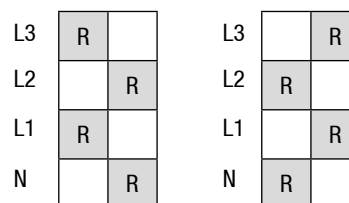
This module meets the criteria of the **HN 63-S-65** standard.



## Installation

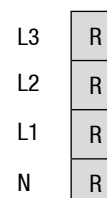
### PRINCIPLE

- For all cable sections  
Install the network module on two 50mm steps. The design of the set of bars supports allows one or the other of the configurations besides.



R = Network terminal

- For the cables with sections up to 95mm<sup>2</sup>  
The network module 50-150 can be installed on only one step.



### CHRONOLOGY OF THE OPERATIONS

- For the 50-240 module



1°) Fixing of the module to the set of bars support (tightening at 30Nm).

2°) Moving the **captive** slide of the module to the top so the conductor can be grasped from the front.

3°) Tightening of the conductor until the shear head breaks after bringing the upper part of the terminal back to the bottom.

- For the 50-150 module

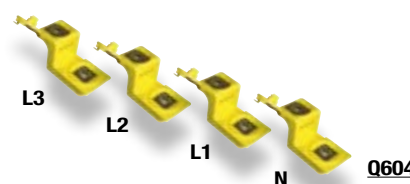
The principle is the same except the fact that the slide of the terminal does not have a retention system in the upper part (the slide is installed and removed from the front).

Code	Designation	Weight (kg)	Sales unit
Q603	REMIC MODULE TYPE NETWORK RRD 50-240 (1 NEUTRAL + 3 PHASES)	1.780	1
Q612	REMIC MODULE TYPE NETWORK RRD 50-150 (1 NEUTRAL + 3 PHASES)	1.670	1

## Accessory

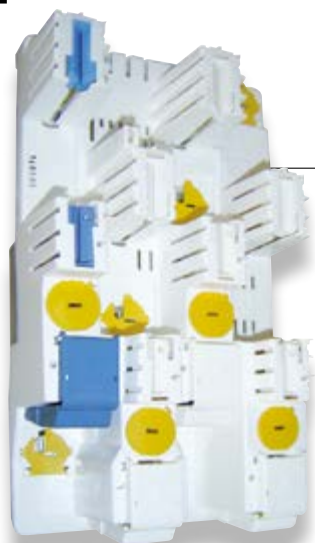
The insulation bloc module enables a network module to be temporarily separated from the set of bars support and possibly resupplied.

This module meets the criteria of the **HN 63-S-65** standard.



Code	Designation	Weight (kg)	Sales unit
Q604	REMIC 4-TYPE INSULATION BLOC MODULE	0.668	1

## REMIC disconnection and protection module RRCP



Q614

### Application

The REMIC module type RRCP offers a network outlet that can be cut (400 A function) or protected using maximum 200A fuses 115mm size 2 (200A function).

It is installed on the M12 standardised connection terminals of the sets of bars supports.

It is mainly used for supplying a collective or individual service with supervised power.

### The benefits:

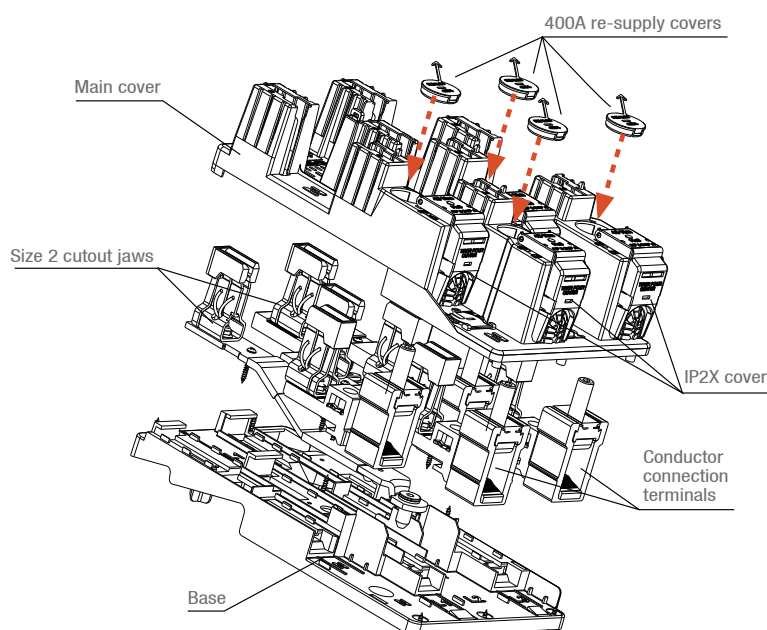
- + 1 single tool for installation
- + Compatibility with flat doors
- + Clear poles separation
- + Integrated IP2X protection on each pole

### Description

- The small thickness of the new generation of module type RRCP facilitates use in small depth cabinets (flat door).
- The neutral is identified thanks to its blue colour.
- The terminals allow the connection of round or sectoral shape, copper or aluminium conductors.
- The capacity of the terminals is 50 to 240mm<sup>2</sup> for the neutral and for the phases.

This module meets the criteria of the **HN 63-S-65** standard.

**Caution: the RRCP module is installed exclusively on REMIC sets of bars supports.**

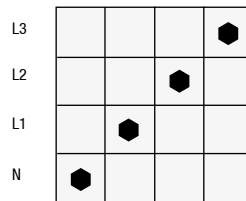




## Installation

### PRINCIPLE

A disconnection and protection module (RRCP) requires four 50mm steps.



◆ : Fixing points on the set of bars support

### CHRONOLOGY OF THE OPERATIONS

#### ASSEMBLY

- On the set of bars supports installed (450 or 600), open the 4 poles diagonally in the required place for installing the RRCP (the other captive caps above and below the diagonal must remain closed).
- Remove the IP2X captive caps then place and fix the RRCP on the set of bars support using 4 H16 screws.
- Replace all of the captive caps while waiting connection of the outlet.

#### LEADING-OUT WIRING

- Prepare end cable as usual.
- Remove the covers of the terminal blocks to connect.
- Cut the conductors to length, strip them over 45mm, brush them with neutral grease then insert them into the terminals.
- Replace the slides in U shape and tighten the screws until 40Nm.
- Replace the covers.

#### INSTALLATION OF THE BARS OR FUSES SIZE 2 (CENTRE-TO-CENTRE DISTANCE 115mm)

- Install the links or fuses using an insulated operating handle.

#### INSTALLATION OF THE RE-SUPPLY

- Remove the 4 re-supply covers.
- Perform necessary electrical measurements.
- Insert and screw the M12 re-supply socket.



Code	Designation	Weight (kg)	Sales unit
Q614	REMIC MODULE RRCP 400A / 200A	5.658	1

### Variation:

The ERDF technical specification also defines a product known as RRC exclusively dedicated to the 400A cutout. For Michaud this is exactly the same product.

Code	Designation	Weight (kg)	Sales unit
Q613	REMIC MODULE RRC 400A	5.658	1

# REMIC Tool set



## Application

The tool set **U804** provides various tools required for the connection of the underground incoming and outgoing cables to the REMIC emergency junction box.

## Description

The tool kit U804 contains the following accessories :

- Insulated handle for installing and removing fuses and neutral knives. (**P237**)
- Square flat triangle operating key to open/close the front part of the emerging junction box(**P091**)
- 3/8" Insulated torque wrench (**U814-4**)
- Insulated extension for torque wrench (**U801**)
- 3 sizes of insulated hexagon sockets for the torque wrench (**U803-1X**) :
  - 10mm (**U803-10**)
  - 13mm (**U803-13**)
  - 14mm (**U803-14**)
- 2 sizes of allen sockets for the torque wrench (U803-XA) :
  - 6mm (**U803-6A**)
  - 4mm (**U803-4A**)

Code	Designation	Sales unit
U804	REMIC'S INSULATED TOOLS KIT	1
<b>TOOLS</b>		
U814-4	ISULATED TORQUE WRENCH 3/8" - 50Nm	1
P237	HANDLE FOR FUSES SIZE 00 - SIZE 2	1
U801	EXTENSION FOR INSULATED RATCHET SPANNER	1
P091	14 SQUARE 11 TRIANGULAR 9x4 FLAT WRENCH	10
<b>HEXAGONAL SOCKET</b>		
U803-10	HEXAGONAL SOCKET FOR INSULATED RATCHET SPANNER - 10mm	20
U803-13	HEXAGONAL SOCKET FOR INSULATED RATCHET SPANNER - 13mm	20
U803-14	HEXAGONAL SOCKET FOR INSULATED RATCHET SPANNER - 14mm	20
<b>INSULATED SOCKET WRENCH</b>		
U803-6A	INSULATED SOCKET WRENCH - 6mm	20
U803-4A	INSULATED SOCKET WRENCH - 4mm	20

## Tool set

Other kits can be supplied according to your needs for tools. Please contact us.

# Protection and warning

## Protection plate roll (PPR)



### Application

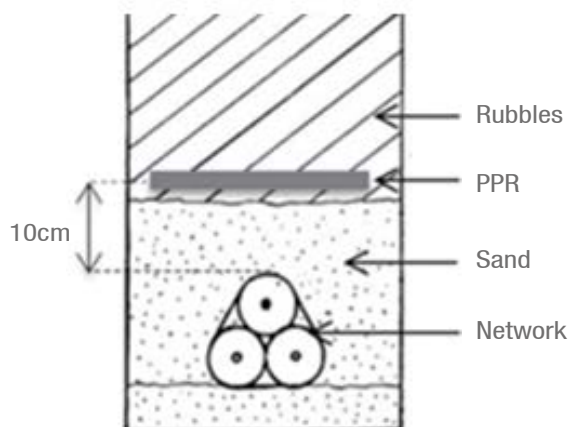
This protection plate roll (PPR) is designed to protect underground networks from extraction (pipes and/or cables).

It can be used for underground network under low load, engineering structure crossing, or in area of high density network.

### Description

- The plate roll offers permanent mechanical protection.
- It is rot-proof, corrosion and water resistant and shock absorbing.
- The plate is of red colour. Other colours are available upon request.

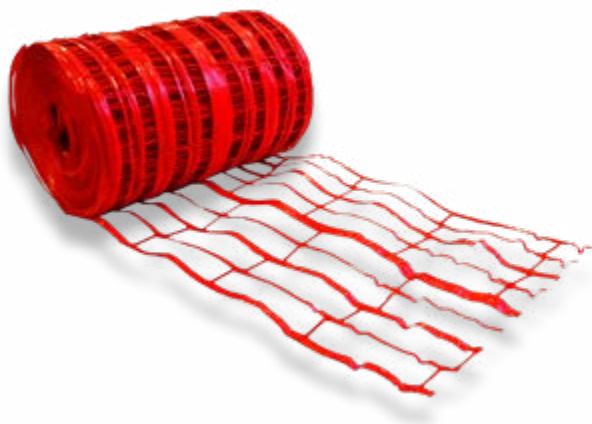
This protection plate roll meets the criteria of the **DIN 54841-5** standard.



Code	Designation	Dimensions LxHxD (mm)	Weight (kg)	Sales unit
U590	PROTECTION PLATE ROLL (width 120mm)	50 000 x 120 x 2	9.5	1
U591	PROTECTION PLATE ROLL (width 150mm)	50 000 x 150 x 2.5	17.5	1
U592	PROTECTION PLATE ROLL (width 200mm)	50 000 x 200 x 2.5	23.5	1
U593	PROTECTION PLATE ROLL (width 250mm)	40 000 x 250 x 2.5	23.5	1
U594	PROTECTION PLATE ROLL (width 300mm)	30 000 x 300 x 3	27	1

Other colours are available, please contact us.

## Underground warning netting



### Application

This warning grid is used to indicate the presence of buried underground services. The red one is used to indicate a buried electrical network.

### Description

- Available in 3 widths: 100mm, 200mm and 300mm.
- Material : Polyolefin
- Mechanical tensile strength, color fastness and resistance to micro-organisms.

This flexible mesh meets the specifications of the **NF EN 12613** standard.

Other colors exist (green, yellow etc.) to identify different types of networks (telecommunication, gas etc.) etc.): please contact us.

Code	Designation	Width (m)	Length (m)	Weight (kg)	Sales unit
F860	WARNING MESH 0.1m (300m roll)	0.1	300	1.500	1
F861	WARNING MESH 0.2m (100m roll)	0.2	100	1.100	1
F862	WARNING MESH 0.3m (100m roll)	0.3	100	2.210	60

# TPC sheath



**U345**

### Application

This sheath is used for protection of underground cables. It is available in ring (with draw needle) or in bar.

### Description

This sheath offers a compressive strength of 450 N (maximum deformation of 5%).

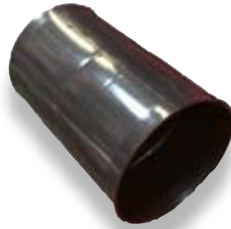
- This sheath offers an impact resistance in accordance of EN 61386-24 standard.
- This product is delivered in ring (bendable) or in bar (rigid).
- Installation and operating temperature is between -10°C et +90°C.
- The protection degree is IP44.
- The sheath is made with allogen free materials and without heavy metals.

This product meets the requirements of the **EN 61386-1** and **EN 61386-24** standards.

Code	Designation	Nominal diameter (mm)	Internal diameter (mm)	Tolerance	Sheath length (m)	Weight (kg)	Sales unit
<b>SHEATH DRUM</b>							
U345_40	TPC SHEATH DRUM 50M LENGTH DIAM 40	40	30	+0.8	50	6.000	10
U345_50	TPC SHEATH DRUM 50M LENGTH DIAM 50	50	37	+1	50	7.500	10
U345_63	TPC SHEATH DRUM 50M LENGTH DIAM 63	63	47	+1.2	50	9.375	10
U345_75	TPC SHEATH DRUM 50M LENGTH DIAM 75	75	58.5	+1.4	50	11.250	10
U345_90	TPC SHEATH DRUM 50M LENGTH DIAM 90	90	74	+1.7	50	14.000	10
U345_110	TPC SHEATH DRUM 50M LENGTH DIAM 110	110	90	+2	50	15.500	10
U345_125	TPC SHEATH DRUM 50M LENGTH DIAM 125	125	102	+2.3	50	15.750	10
U345_160	TPC SHEATH DRUM 50M LENGTH DIAM 160	160	135	+2.9	25	14.500	10
U345_200	TPC SHEATH DRUM 50M LENGTH DIAM 200	200	169	+3.6	25	15.000	10
<b>SHEATH TUBE</b>							
U346_90	TPC SHEATH TUBE 6M LENGTH DIAM 90	90	74	+1.7	1038*	1.680	173
U346_110	TPC SHEATH TUBE 6M LENGTH DIAM 110	110	90	+2	690*	1.860	115
U346_125	TPC SHEATH TUBE 6M LENGTH DIAM 125	125	102	+2.3	516*	1.870	86
U346_160	TPC SHEATH TUBE 6M LENGTH DIAM 160	160	135	+2.9	318*	3.000	53
U346_200	TPC SHEATH TUBE 6M LENGTH DIAM 200	200	169	+3.6	210*	3.600	35
U346_250	TPC SHEATH TUBE 6M LENGTH DIAM 250	250	212	+4.5	120*	4.500	20

Sheath lengths, delivered in 6m bars, are expressed per pallet.

## Junction sleeve



U347

### Application

This sleeve allows connection between two ends of sheaths.

Code	Designation	Nominal diameter (mm)	Tolerance	Weight (kg)	Sales unit
U347_40	TPC SHEATH JUNCTION SLEEVE DIAM 40	40	+0.8	0.010	30
U347_50	TPC SHEATH JUNCTION SLEEVE DIAM 50	50	+1	0.013	30
U347_63	TPC SHEATH JUNCTION SLEEVE DIAM 63	63	+1.2	0.017	30
U347_75	TPC SHEATH JUNCTION SLEEVE DIAM 75	75	+1.4	0.020	30
U347_90	TPC SHEATH JUNCTION SLEEVE DIAM 90	90	+1.7	0.022	30
U347_110	TPC SHEATH JUNCTION SLEEVE DIAM 110	110	+2	0.024	5
U347_125	TPC SHEATH JUNCTION SLEEVE DIAM 125	125	+2.3	0.028	5
U347_160	TPC SHEATH JUNCTION SLEEVE DIAM 160	160	+2.9	0.036	5
U347_200	TPC SHEATH JUNCTION SLEEVE DIAM 200	200	+3.6	0.045	1
U347_250	TPC SHEATH JUNCTION SLEEVE DIAM 250	250	+4.5	0.060	1

## Separator



U348

### Application

This separator allows to facilitate the installation of sheaths and to split each one.

Code	Designation	Sheath diameter (mm)	Number of tubes per separator	Weight (kg)	Sales unit
U348_63-4	TPC SHEATH SEPARATOR DIAM 63-4	63	4	0.010	50
U348_63-8	TPC SHEATH SEPARATOR DIAM 63-8	63	8	0.010	50
U348_75-4	TPC SHEATH SEPARATOR DIAM 75-4	75	4	0.010	50
U348_90-4	TPC SHEATH SEPARATOR DIAM 90-4	90	4	0.011	50
U348_110-4	TPC SHEATH SEPARATOR DIAM 110-4	110	4	0.011	50
U348_110-8	TPC SHEATH SEPARATOR DIAM 110-8	110	8	0.023	50
U348_125-4	TPC SHEATH SEPARATOR DIAM 125-4	125	4	0.015	50
U348_160-4	TPC SHEATH SEPARATOR DIAM 160-4	160	4	0.025	50
U348_200-4	TPC SHEATH SEPARATOR DIAM 200-4	200	4	0.035	50
U348_200-8	TPC SHEATH SEPARATOR DIAM 200-8	200	8	0.040	50

## Sheath end cap



U349

### Application

This sheath end cap allows to seal the sheath by closing its end.

Code	Designation	Nominal diameter (mm)	Weight (kg)	Sales unit
U349_40	TPC SHEATH END CAP DIAM 40	40	0.010	50
U349_50	TPC SHEATH END CAP DIAM 50	50	0.013	50
U349_63	TPC SHEATH END CAP DIAM 63	63	0.017	50
U349_75	TPC SHEATH END CAP DIAM 75	75	0.030	50
U349_110	TPC SHEATH END CAP DIAM 110	110	0.032	50
U349_125	TPC SHEATH END CAP DIAM 125	125	0.040	50
U349_160	TPC SHEATH END CAP DIAM 160	160	0.049	50
U349_200	TPC SHEATH END CAP DIAM 200	200	0.060	50
U349_250	TPC SHEATH END CAP DIAM 250	250	0.080	50

## Cold-shrinkable seal

### E2R RF - E4R RF cable sealing end



**E4R RF 95-240  
HC103**



**E4R RF 35-70  
HC102**



**E4R RF 10-35  
HC101**

#### Application

This cable sealing end is designed to ensure the watertightness of network and service stripped conductors ends. It is slid on the conductors and implemented without using flame.



**E2R RF 10-35  
HC100**

#### The benefits:

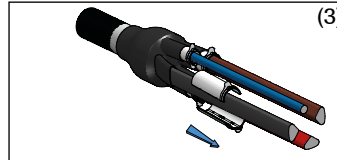
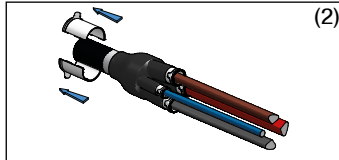
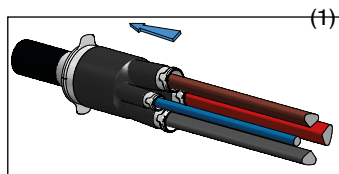
- + No tool is required
- + Very short installation time

#### Description

- Cable sealing ends are made of elastomer materials very elastic, flexible, resistant and treated to ensure a good protection to UV.
- For 2 conductors :
  - Service cable of 10 up to 35mm<sup>2</sup> (**HC100**),
- For 4 conductors :
  - Service cable of 10 up to 35mm<sup>2</sup> (**HC101**),
  - Network cable of 35 up to 70mm<sup>2</sup> (**HC102**),
  - Network cable of 95 up to 240mm<sup>2</sup> (**HC103**).

#### Installation

- Clean and strip the cable over the appropriate length.
- Remove the cable screen as well as stockings and clean each conductor.
- Cover the cut with three turns of adhesive tape.
- Re-insulate the neutral using a re-insulation sheath.
- Slide the cable sealing end up to the stop on the cable side (1).
- Remove the applicator ring on the cable side (2).
- Remove successively applicator rings on each conductor (3).



Code	Designation	Capacity** (mm <sup>2</sup> )	Weight (kg)	Sales unit
HC100	CABLE SEALING END E2R RF 10-35 SILICONE	2x10 to 2x35	0,034	20
HC101	CABLE SEALING END E4R RF 10-35 SILICONE	4x10 to 4x35	0,045	20
HC102	CABLE SEALING END E4R RF 35-70 SILICONE	4x35 to 4x70	0,085	20
HC103	CABLE SEALING END E4R RF 95-240 SILICONE	3x95 + 50/70M* to 3x240 + 95/120M*	0,192	10

\* M means that the conductor core is solid.

\*\* Capacities according to NF standards.



## Cable cap



CRC RF 46-80  
P464



CRC RF 26-48  
P463



CRC RF 16-27  
P462



CRC RF 8-16  
P561

### Application

This cap is designed to ensure the watertightness of network and service cables conductors end. It can be used on cable drums. It is used exclusively without power.

### The benefits:

- + No tool is required
- + Very short installation time



Installation video available on [www.michaud-export.com](http://www.michaud-export.com)

### Description

- Cable caps are made of elastomer material very elastic, flexible, resistant and treated to ensure a good protection to UV.
- Cable caps are available in 4 dimensions:
  - For service cable of 1.5 up to 10mm<sup>2</sup> (P561),
  - For service cable of 16 up to 35mm<sup>2</sup> and peripheral three phase neutral (P462),
  - For network cable of 50 up to 150mm<sup>2</sup> (P463),
  - For network cable of 240mm<sup>2</sup> (P464).



### Installation

- Make sure that the cable end is cleanly cut. If not, cut it again (1).
- Put the seal cap on the conductor end (2).
- Remove the applicator ring until total cap shrinking on the conductor (3).



Code	Designation	Capacity (mm <sup>2</sup> )	Diameter (mm)	Weight (kg)	Sales unit
P561	SEAL CAP CRC RF 8-16	2x1,5 à 2x10 or 4x1,5 to 4x6	8 to 16	0,012	10
P462	SEAL CAP CRC RF 16-27	LV : 4x16M* to 4x35M*	16 to 27	0,027	10
P463	SEAL CAP CRC RF 26-48	LV : 4x50 à 3x150 + 95M* HV : 50 à 240	26 to 48	0,052	10
P464	SEAL CAP CRC RF 46-80	LV : 3x240 + 120M* HV : 630 à 1200	46 to 80	0,124	10

\* M means that the conductor core is solid.

## Cold-shrinkable sheath

### Cold-shrinkable sleeve



**HC117**

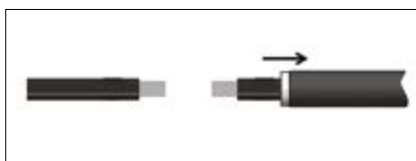
#### Application

This sleeve is designed to ensure watertightness and insulation of bare fittings on low voltage network cables. It is designed for round or sectoral type conductors.

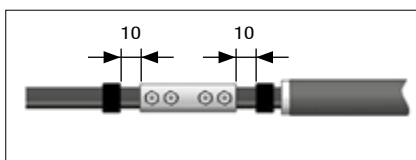
#### Description

- This sleeve is made of elastomer material, highly elastic, flexible and resistant.
- It is expand and waiting on an application ring which is breakable and disposable.
- The product is delivered with a mastic tape allowing to reinforce the weathertightness of the sleeve.

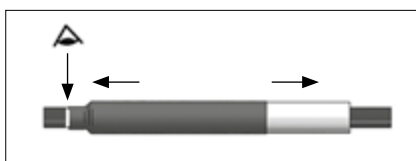
#### Installation



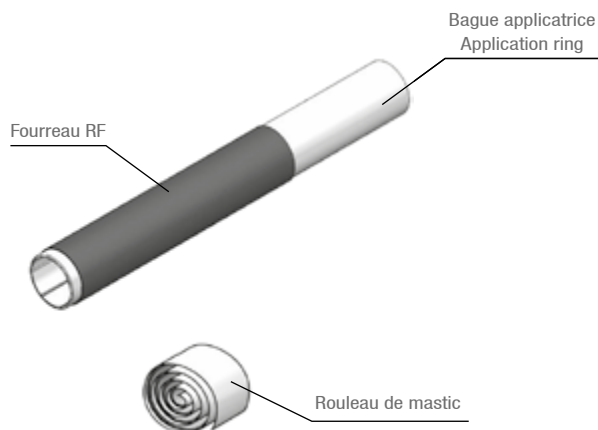
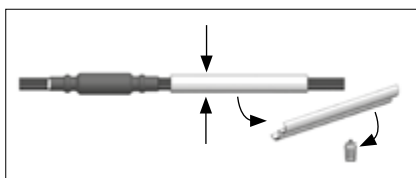
- Put on the sleeve around cable or conductor.



- Install the fitting and roll up the mastic tape on each side of it.



- Place the sleeve above the fitting. It should cover the two mastic tapes. Remove the application ring.



Code	Designation	Weight (kg)	Sales unit
HC117	COLD-SHRINKABLE SHEATH FRF 50-240	0.160	4

## Cold-slidable sheath



**HC11X**

### Application

This sheath is used to insulate the neutral conductor.  
Before the installation, lubricate the bare neutral conductor.

Code	Designation	Length (m)	Weight (kg)	Sales unit
HC112	COLD-SLIDABLE SHEATH GEF 35M	5	0.310	1
HC113	COLD-SLIDABLE SHEATH GEF 50M	5	0.320	1
HC114	COLD-SLIDABLE SHEATH GEF 70M	4	0.280	1
HC115	COLD-SLIDABLE SHEATH GEF 95M	4	0.330	1
HC116	COLD-SLIDABLE SHEATH GEF 120M	4	0.340	1

# Mecanico-shrinkable service end



### Application


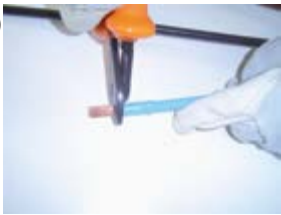




This product is designed to ensure watertightness at the end of a network cable and to connect home device with peripheral neutral service cable. No tool is required for the installation.

### Description

- These end kits include a cold-shrinkable end and one or two sheaths designed to be put on conductors. The inside kits (EI) contain one sheath for the neutral. The outside kits (EE) contain two sheaths for three-phases cables. The detail of each kit is below.
- The neutral sheaths have a tinned copper socket on one end, designed to gather strands of the peripheral neutral conductor.
- Cold-shrinkable ends is implemented by the removal of 2 pieces in synthetic material, located at the product base.
- Three-phases cable caps have a fifth outlet for implementation of a meter-reading system. Especially when using meter reading system cable, type **NF C 33-214**.

		P420	P422	P424
Package contents	Cold-shrinkable cap	2 outlets	5 outlets	5 outlets
	Sheath	Blue with socket Length: 40 cm	Blue with socket Length: 40 cm	Black with socket, UV resistant, marked « Neutral » Length: 1 m + Black, UV resistant. Length: 3 m
Application	Cable type	Peripheral neutral cable <b>HM-27/03/139</b>	-Peripheral neutral cable <b>HM-27/03/139</b> -Solid cable <b>NF C 33-210</b> -meter reading system cable <b>NF C 33-214</b> -U1000 R02V cable <b>NF C 32-321</b>	

## Installation

- ①  - Strip the cable 10 cm longer than the useful length and remove the insulation and the stuffing.
- ②  - If needed, cut the sheath on the opposite side of the socket.
- ③  - Adjust approximatively the length of the neutral conductor to the sheath length.
- ④  - Slip on the sheath under the neutral conductor. The socket should be at the cable end.
- ⑤  - Slip the cold-shrinkable cap.  
- Remove the 2 pieces in synthetic material.
- ⑥  - Cut the exceed strands from the socket.

Code	Designation	Weight (kg)	Sales unit
P420	INSIDE END EI2TF 25-35 D	0.030	1
P422	INSIDE END EI5TF 25-35 D	0.045	1
P424	OUTSIDE END EE5TF 25-35 D	0.140	1

## Variants

The sheaths can be delivered alone.

Code	Designation	Weight (kg)	Sales unit
P428	SET OF 10 BLUE INTERIOR SHEATHS 40cm D	0.150	1

The five-outlet inside end is also available with socket. In this case, it cannot be use on a peripheral neutral cable.

Code	Designation	Weight (kg)	Sales unit
P251	INTERIOR END EI5TF 25-35	0.050	1





# HOUSING

## Electrical riser

Floor supply box S31 .....	p.210
IRO tube .....	p.212
Corrugated tube .....	p.214

## Smart Meter Equipment

Meter circuit-breaker box .....	p.216
Universal meter board and accessory .....	p.218
Meter circuit-breaker board .....	p.220
AMM concentrator data supply kit .....	p.222
Modular distribution box .....	p.224
Cutout cabinet .....	p.226
Seal .....	p.228

## Universal flexible linking cable

Insulation piercing end connector EBCP 6-35 .....	p.230
Insulation piercing end connector EBCP 16-50 Class II .....	p.232
Reversible stripping end connector EBCD 6-35 .....	p.234
Flexible linking cable .....	p.236
Reducing end connector .....	p.238

# SOLUTIONS FOR HOUSING

Specialised in electrical distribution, MICHAUD develops its expertise with the arrival of Smart Meter, offering **solutions for the counting environment and protection.**



## Evolution in the housing field: Smart Meter

Due to the evolution of european specifications for **Smart Meter systems**, it is necessary to assist meters manufacturers or distribution networks operators.

The Smart Meters roll out requires an adaptation of residential installations. MICHAUD invests to make the change easier by developing solutions **suitable for current installations and ready to receive new counting solutions.**

Thanks to its expertise and engineering, MICHAUD proposes **custom-made solutions** to better suit the project.

### The benefits



Anticipate and facilitate transition towards Smart Meter



Reduce intervention time as well as electricity supply cut time



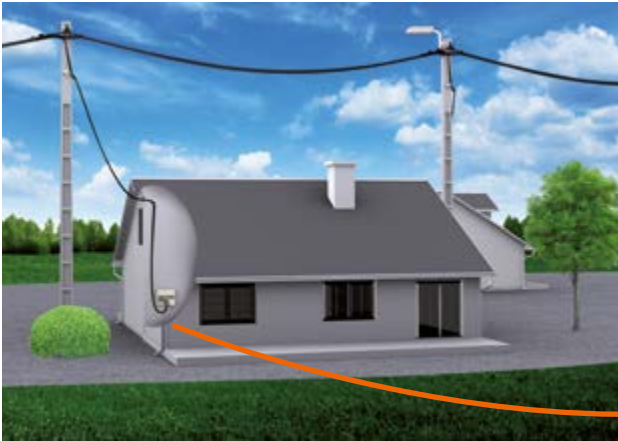
Minimise roll-out cost



# Adaptation to new counting systems

In this scalable environment, the development of **universal solutions** enables better preparation for change according to evolution of Smart Meter technology.

Thanks to its skills and its expertise, MICHAUD was a pioneer regarding the design of insulation piercing end connector. It is a solution for universal connection between service cable and board terminals enabling to realise safe connection between aluminium and copper.



## Characteristics

Connection between the aluminium service cable and the copper board terminal.

Cable tail flexibility and small end connector bulk.

Possible tail extension.

## Assets

- + No electrolytic corrosion phenomenon
- + Easier fitter work in confined space
- + Easy renovation

## Available end connectors types

Type	Normative rating
<b>Insulation piercing end connector</b> EBCP 6-35	<div style="border: 1px solid black; padding: 5px; display: inline-block;">EBCP 6-35/16</div> Tail section (16 or 25) EBCP: Insulation piercing end connector Leading-in conductor mini and maxi capacity
<b>Insulation piercing end connector</b> EBCP 16-50	<div style="border: 1px solid black; padding: 5px; display: inline-block;">16 - 50 SECT</div> Sectoral or round shape of leading-in conductor Leading-in conductor minimum section Leading-in conductor maximum section
<b>Reversible stripping end connector</b> EBCD 6-35	<div style="border: 1px solid black; padding: 5px; display: inline-block;">EBCD 35-25</div> Tail section EBCD: Reversible stripping end connector Leading-in connector maximum section

## Floor supply box S31

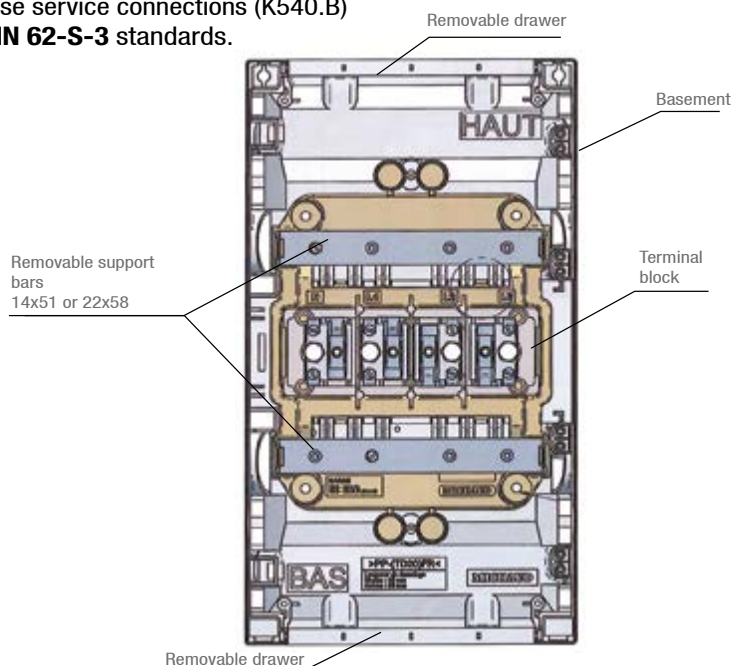


### Utilisation

The 200A floor supply box allows 6 single-phase service connections or 2 three-phases service connections from a electrical column. It can be installed vertically or horizontally.

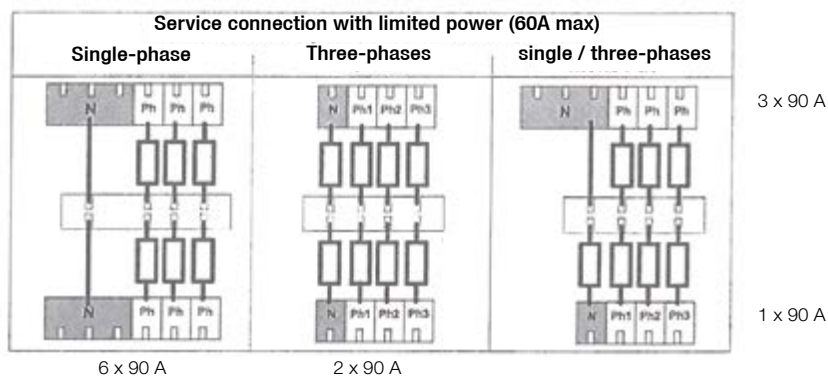
### Description

- The floor supply box is made of a basement with cover in synthetical material, 2 base support bars and a terminal block.
- The protection degree is IK10.
- The principal terminal block is removable and allows a bare connection for conductors 25 to 95 mm<sup>2</sup> Cu, or a bar from 24 mm<sup>2</sup> to 96 mm<sup>2</sup>.
- The tightening of the terminal blocks is done with a insulated 6mm socket wrench.
- The floor supply box can receive fuse holder (14x51 or 22x58).
- Floor supply box allows 6 single-phase service connections or 2 three-phases service connections with a power limit of 45kVA.
- An assembly version is also available :
  - For 2 single phase service connections (K540.A)
  - For 3 single phase service connections (K540.B)
- It was designed with **HN 62-S-3** standards.



Code	Designation	Dimensions (mm)			Weight (kg)	Sales unit
		L	I	H		
K540	FLOOR SUPPLY BOX S31	430	235	165	3.050	1
K540.B	FLOOR SUPPLY BOX WITH 3 CONNECTIONS	430	235	165	3.400	1

## Configuration

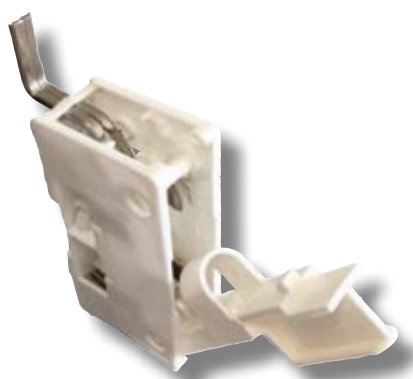


## Accessories

- Fuse holders are available in two different sizes :
  - \* 14x51 for fuse cartridge AD 15 and 30A,
  - \* 22x58 for fuse cartridge AD 30, 45, 60 and 90A.
- They are equipped with connection leg which allows the connexion before supplying the floor supply box.
- The triple neutral allows until 3 neutral taps thanks to its 3 independent terminal blocks.



**K541**



**K545**

Code	Designation	Sales unit
K541	FLOOR SUPPLY BOX FUSE HOLDER 14x51	25
K542	FLOOR SUPPLY BOX FUSE HOLDER 22x58	10
K545	FLOOR SUPPLY BOX TRIPLE NEUTRAL	20

## IRO tube



**U339**

### Application

These IRO tube are used outside to allow mechanical protection round electrical cables.

### Description

- This tube offers a compressive strength of 750 N (maximum deformation of 25%).
- This tube offers an impact resistance of 2 Joules.
- This tube is delivered in rigid bar of 3 meters.
- This tube is delivered with a junction sleeve.
- Installation and operating temperature is between -5°C et +60°C.
- The protection degree is IP43.

This product meets the requirements of the **EN 61386-1** and **EN 61386-21** standards.

Code	Designation	External diameter (mm)	Tolerance	Internal diameter (mm)	Weight (kg)	Sales unit
U339-16	IRO TUBE DIAM 16 (3m length) + JUNCTION SLEEVE IRO DIAM 16	16	+0/-0.3	12.5	0.324	19
U339-20	IRO TUBE DIAM 20 (3m length) + JUNCTION SLEEVE IRO DIAM 20	20	+0/-0.3	16	0.468	19
U339-25	IRO TUBE DIAM 25 (3m length) + JUNCTION SLEEVE IRO DIAM 25	25	+0/-0.4	20	0.731	19
U339-32	TUBE IRO DIAM 32 (3m length) + JUNCTION SLEEVE IRO DIAM 32	32	+0/-0.4	27	0.959	10
U339-40	TUBE IRO DIAM 40 (3m length) + JUNCTION SLEEVE IRO DIAM 40	40	+0/-0.4	34.5	1.332	10
U339-50	TUBE IRO DIAM 50 (3m length) + JUNCTION SLEEVE IRO DIAM 50	50	+0/-0.5	44	1.833	5
U339-63	TUBE IRO DIAM 63 (3m length) + JUNCTION SLEEVE IRO DIAM 63	63	+0/-0.6	56.5	2.525	5

## Junction sleeve



**U340**

### Application

This sleeve allows to connect two IRO tubes.

Code	Designation	External diameter (mm)	Weight (kg)	Sales unit
U340_16	SLEEVE FOR IRO TUBE DIAM 16	16	0.004	250
U340_20	SLEEVE FOR IRO TUBE DIAM 20	20	0,008	150
U340_25	SLEEVE FOR IRO TUBE DIAM 25	25	0.010	19
U340_32	SLEEVE FOR IRO TUBE DIAM 32	32	0.014	50
U340_40	SLEEVE FOR IRO TUBE DIAM 40	40	0.016	30
U340_50	SLEEVE FOR IRO TUBE DIAM 50	50	0.020	15
U340_63	SLEEVE FOR IRO TUBE DIAM 63	63	0.025	5

## T-sleeve and elbow



### Application

This T-sleeves and the elbows allow connection and adaptation of the circuit of the tubes.

Code	Designation	External diameter (mm)	Weight (kg)	Sales unit
<b>T-SLEEVE</b>				
U342_16	T-SLEEVE FOR IRO TUBE DIAM 16	16	0.014	25
U342_20	T-SLEEVE FOR IRO TUBE DIAM 20	20	0.018	25
U342_25	T-SLEEVE FOR IRO TUBE DIAM 25	25	0.022	25
U342_32	T-SLEEVE FOR IRO TUBE DIAM 32	32	0.028	5
<b>ELBOW 90°</b>				
U343_16	ELBOW 90° FOR IRO TUBE DIAM 16	16	0.013	25
U343_20	ELBOW 90° FOR IRO TUBE DIAM 20	20	0.016	25
U343_25	ELBOW 90° FOR IRO TUBE DIAM 25	25	0.020	25
U343_32	ELBOW 90° FOR IRO TUBE DIAM 32	32	0.025	15

## Mounting bracket



### Application

This mounting bracket allows to set the sheath beside a facade.

Code	Designation	External diameter (mm)	Weight (kg)	Sales unit
U344_16	MOUNTING BRACKET IRO TUBE DIAM 16	16	0.003	100
U344_20	MOUNTING BRACKET IRO TUBE DIAM 20	20	0.004	100
U344_25	MOUNTING BRACKET IRO TUBE DIAM 25	25	0.003	100
U344_32	MOUNTING BRACKET IRO TUBE DIAM 32	32	0.006	50
U344_40	MOUNTING BRACKET IRO TUBE DIAM 40	40	0.008	25
U344_50	MOUNTING BRACKET IRO TUBE DIAM 50	50	0.009	25
U344_63	MOUNTING BRACKET IRO TUBE DIAM 63	63	0.010	25
F012	TIE FOR IRO TUBE WITH BASE 16-32 (set of 100)		0.35	1

## Corrugated tube



### Application

This corrugated tube is designed to protect and insulate electrical cables and wires.

**F143-3422**

### Description

- They are available in black and/or grey.

Reference	F14X-2321	F14X-3422
Materials	Polyethylene	Polyolefin
Crushing strength (in N)	320 N	750 N
Impact resistance (in J)	2 J	6 J
Operating temperature (in °C)	-5°C / +60°C	-5°C / +90°C
Presence of thread pullers	✓	✓
UV protection	✗	✗

Code	Designation	External diameter (in mm)	Minimal internal diameter (in mm)	Weight (kg)	Sales unit
<b>ICTA 2321</b>					
F140-2321	RINGED TUBE DIAMETER 16 (100m)	16	11.2	2.800	1
F141-2321	RINGED TUBE DIAMETER 20 (100m)	20	13.7	3.600	1
F142-2321	RINGED TUBE DIAMETER 25 (50m)	25	18.7	2.700	1
F143-2321	RINGED TUBE DIAMETER 32 (50m)	32	24.8	3.500	1
F144-2321	RINGED TUBE DIAMETER 40 (50m)	40	31.6	4.300	1
F145-2321	RINGED TUBE DIAMETER 50 (50m)	50	39.8	5.400	1
<b>ICTA 3422</b>					
F140-3422	RINGED TUBE DIAMETER 16 (100m)	16	10.7	2.800	1
F141-3422	RINGED TUBE DIAMETER 20 (100m)	20	14.1	3.600	1
F142-3422	RINGED TUBE DIAMETER 25 (100m)	25	18.3	2.500	1
F143-3422	RINGED TUBE DIAMETER 32 (50m)	32	24.3	3.700	1
F144-3422	RINGED TUBE DIAMETER 40 (50m)	40	31.2	3.000	1
F145-3422	RINGED TUBE DIAMETER 50 (50m)	50	39	3.000	1
F146-3422	RINGED TUBE DIAMETER 63 (50m)	63	47	7.000	1

## Meter circuit breaker box



**F732 (Single phase)**



**F733 (Three-phases)**

### Application

The customer box is designed to receive a meter and the needed protection equipment. It can be installed outside or inside the house.

### Description

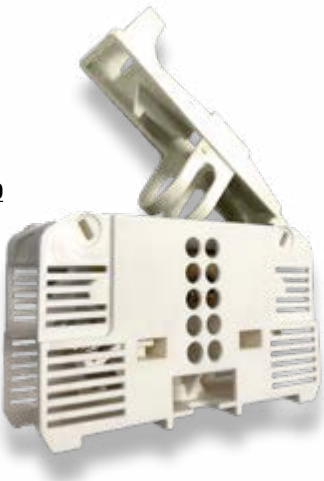
- The box is available in single-phase and three-phase versions.
- It includes two 22x58 fuses for the single-phase version and four 22x58 fuses for the three-phase version (phase and neutral protection).
- Includes:
  - A support for a meter,
  - A support for an earth leakage circuit breaker.
- It has a window on the front for reading the meter, and a hatch for accessing the location of the earth leakage circuit breaker.
- It has 2 entries equipped with 2 grommets for watertight cable routing at the bottom of the box.
- Injection-molded, fiberglass-reinforced synthetic materials offer excellent resistance to climatic conditions (very good protection against UV rays, humidity and water penetration).
- Enclosure protection degree :
  - IP 43 according to **NF EN 20010** and **NF EN 60529** standards
  - IK 09 according to **NF EN 50120** and **NFC 20015** standards
- It can be sealed or padlocked to limit tampering and access to live parts (components not supplied)
- It can be fastened with screws and plugs or strap (components not supplied)
- The F734 and F735 models feature a DIN rail specifically for mounting a modular circuit-breaker.
- These enclosures can be customized by marking the circuit-breaker access hatch.

Code	Designation	Weight (kg)	Sales unit
F732	SERVICE CABINET FOR PREPAYMENT METER SINGLE	2.80	1
F733	SERVICE CABINET FOR PREPAYMENT METER TRI	5.20	1
F734	SERVICE CABINET FOR PREPAYMENT METER SINGLE FOR MODULAR DISCONNECTOR	3.0	1
F735	SERVICE CABINET FOR PREPAYMENT METER TRI FOR MODULAR DISCONNECTOR	5.5	1



## Accessories

**U609**



### Application

The box is part of the control panel board. It is designed to fulfill the individual main branch circuit breaker. It is intended to receive a 22x58 fuse.

### Description

- The terminals of this device can accept either copper or aluminum conductors with a cross section of 6 to 35 mm<sup>2</sup>.
- These products are designed to be used in cabinets placed either outside or inside the home.
- The wide-open base assembly facilitates wiring and limits heating during operation.
- Fixation must be done vertically.
- It is designed to receive a 22x58 fuse. Delivered without fuse.
- Maximum current: 60A.

Code	Designation	Weight (kg)	Sales unit
U609	UNIPOLAR CUTOUT 22x58	0.152	80

### Description

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>- U607-T corresponds to 2 x U609.</li> <li>- The terminals of this device can receive sections from 6 to 35 mm<sup>2</sup>.</li> <li>- Fixation must be done vertically.</li> <li>- Delivered without fuse.</li> <li>- Maximum current: 60A.</li> </ul> | <ul style="list-style-type: none"> <li>- Le U608-T corresponds to 4 x U609.</li> <li>- The terminals of this device can receive sections from 6 to 35 mm<sup>2</sup>.</li> <li>- Fixation must be done vertically.</li> <li>- Delivered without fuse.</li> <li>- Maximum current: 60A.</li> </ul> |
|--|---|

Code	Designation	Weight (kg)	Sales unit
U607-T	CUTOUT 60A BIPOLAR	0,304	20
U608-T	CUTOUT 60A TETRAPOLAR	0,608	20

## Universal meter board and accessory



**K424**

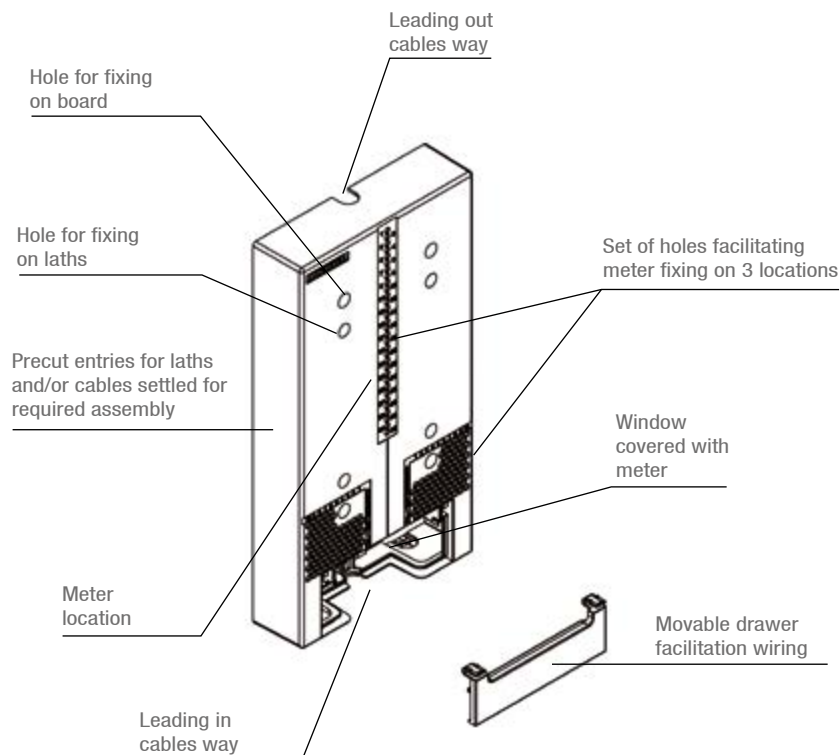
### Application

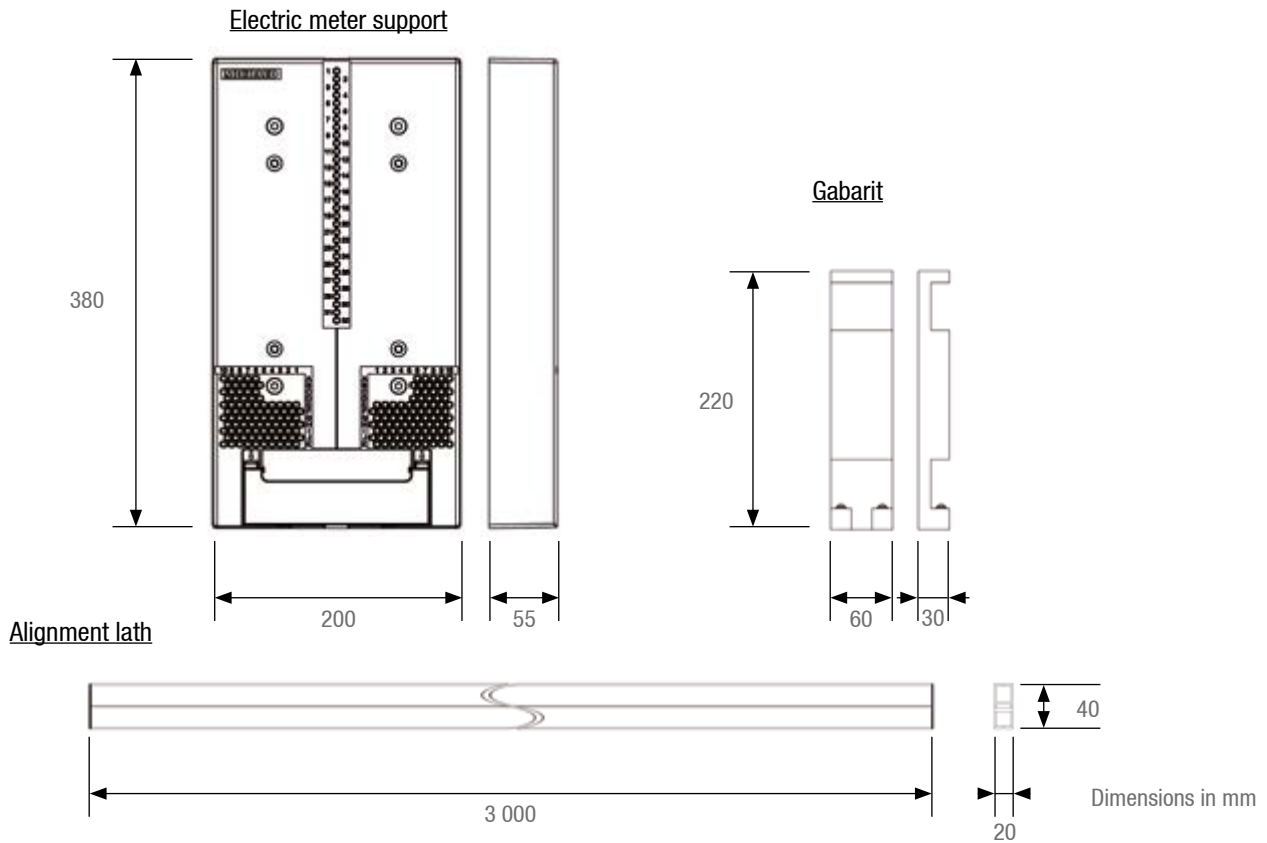
This meter board is used to receive any residential type electric meter whether single phase, three phase or tetrapolar, equipped with a cable cover. It can be combined with pluggable or non-pluggable module type connection equipment.

### Description

- The assembly is made of grey synthetic self-extinguishing materials (RAL 9035).
- The board is equipped with a removable clipped cover which is dismantable to make equipment wiring easier.
- The board is vertically fixed to a flat surface and possibly by means of alignment laths (see Accessories).
- When equipped with a tetrapolar meter, the board is IP4X on the front face and IK4.

The board is used to fix meters that meet the criteria of the **DIN 43857** standard.





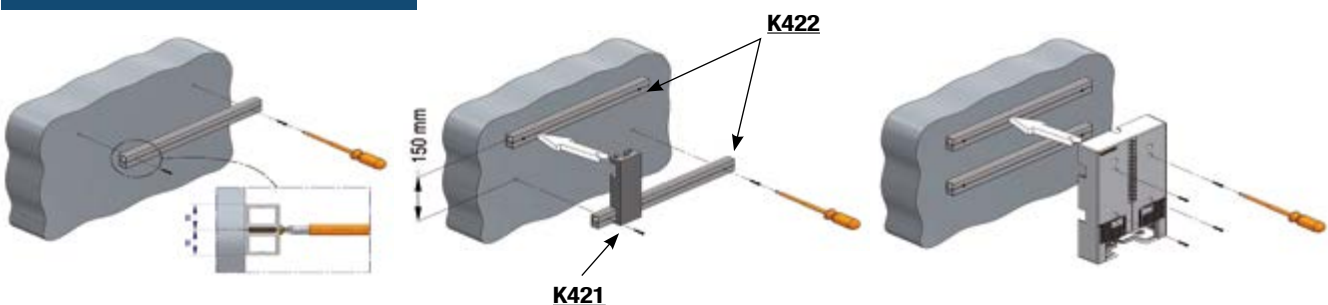
Code	Designation	Weight (kg)	Sales unit
K424	SUPPORT FOR ELECTRIC METER + COVER	0.500	240
K425	COVER (FOR ELECTRIC METER SUPPORT)	0.080	1

### Accessories

Code	Designation	Weight (kg)	Sales unit
K422	ALIGNMENT LATH (Length 3m)	1.500	270
K422-2	DUAL ALIGNMENT LATH (Length 3m)	1.470	204
K421	GABARIT FOR ALIGNMENT LATH	0.320	1

Comment: if the supporting wall is uneven, the meter board can be mounted using alignment laths. The laths are made from grey PVC. The gabarit makes it easier to assemble the laths and guarantee a centre-to-centre distance of 150mm between laths.

### Installation



## Meter circuit-breaker board



**P475**



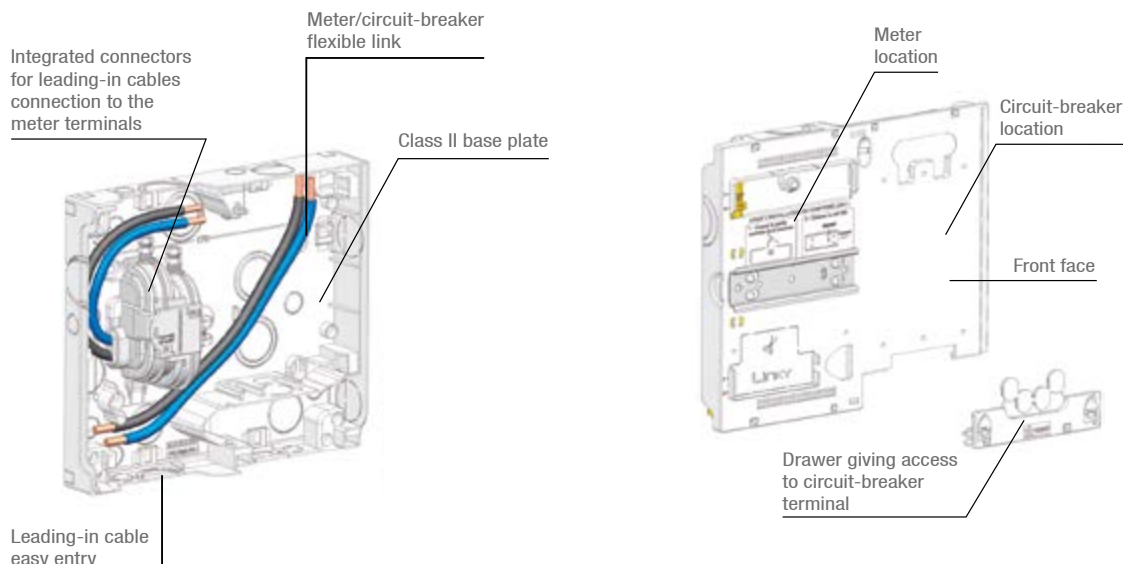
**P474**

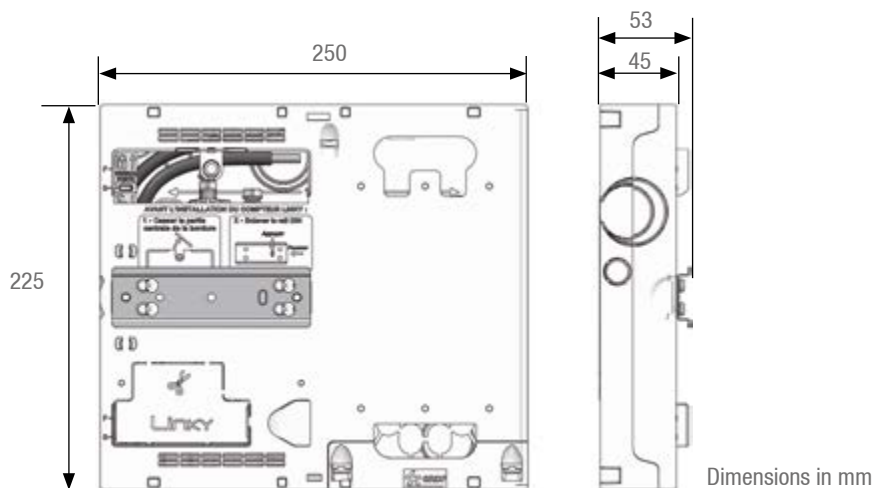
### Application

This board is designed to accommodate the single phase electronic meter and the circuit-breaker. It defines the boundary between the energy distributor and the installer private domain. The cover is optional.

### Description

- The assembly is made of white synthetic self-extinguishing materials (RAL 9010).
- The front face is equipped with a fixing rail for installing the meter and windows for conductors to run through. It can be dismantled for easier wiring of the devices. The rail can be removed for installing the meter.
- The board is equipped with connectors fixed to the bottom, designed to receive the leading-in cables from the top or the bottom. The terminals use insulation piercing technology and shear heads.
- Connectors have a IPXXB protection degree after installation. The system integrates 16mm<sup>2</sup> copper links which length enables the connection of any meters with terminals at the top or bottom.
- The terminals downstream of the circuit-breaker are accessible via a drawer in the lower part.
- The meter board can be covered with the P474. The cover is equipped with a board fixing to be attached on the board and a swivel window on the front face to access the meter and circuit breaker.





Code	Designation	Weight (kg)	Sales unit
P475	METER AND CIRCUIT-BREAKER BOARD	0.920	1
P474	COVER FOR METER AND CIRCUIT-BREAKER BOARD	0.340	1

**Variants:**

Panels for three-phase electronic meter and circuit breaker. To be installed inside the home, close to the distribution board. The R043 and R093 versions are the most compact.



Code	Designation	Weight (kg)	Sales unit
R092	250x550 PANEL FOR THREE PHASE METER + CIRCUIT-BREAKER + COVER	3.550	1
R041	250x550 PANEL FOR THREE PHASE METER + CIRCUIT-BREAKER WITHOUT LOGO	1.920	1
R112	COVER FOR 250x550 PANEL	1.160	1
R043	330x330 PANEL FOR THREE PHASE METER + CIRCUIT-BREAKER WITHOUT LOGO	2.500	1
R093	330x330 PANEL - THREE PHASE METER + CIRCUIT BREAKER	2.300	1

## AMM concentrator data supply kit



AMM concentrator  
data supply kit  
(K716)

### Application

This kit is designed for the installation of an AMM (Automatic Meter Management) data concentrator in a LV/MV transformer or on a pole depending on the type of network (underground or overhead). These products supply and protect the concentrator.



P070

### Description

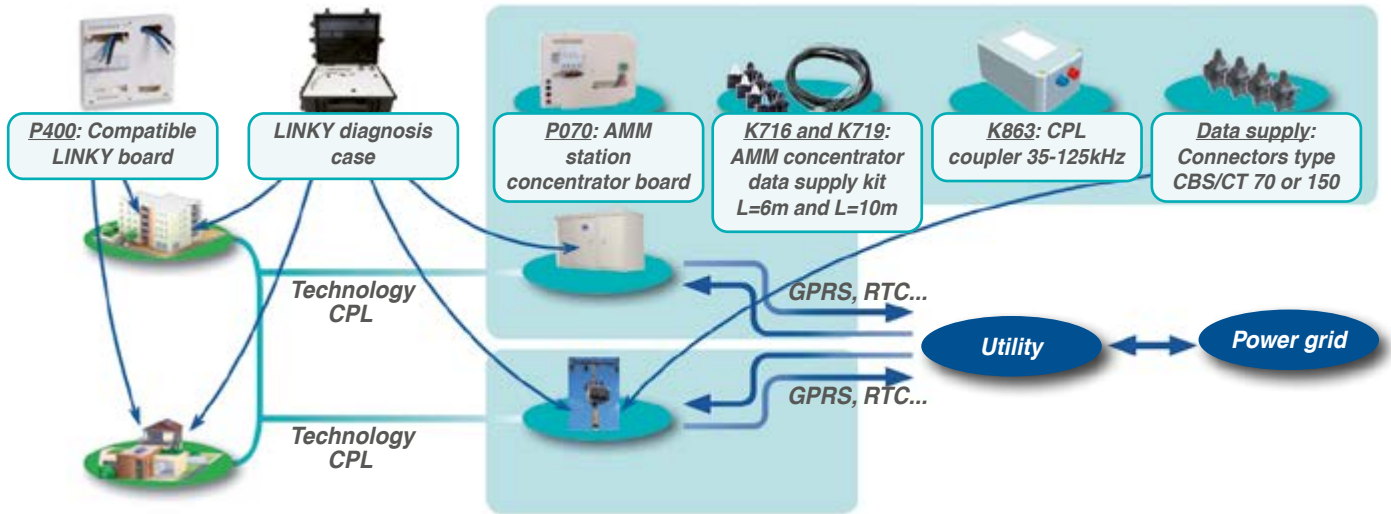
To facilitate the use and management, these products are supplied in packs:

#### **For LV/MV underground stations: Pack Alim L6000 + AMM station connector board**

This pack comprises the following elements:

- 1 AMM station concentrator board (P070) of dimensions 377x281 equipped with:
  - 1 DIN rail on which a three phase cutout is fixed
  - 4 links 2.5mm<sup>2</sup> for the cutout and concentrator connection through a pluggable service end.  
The concentrator board is delivered with 3 fuses cartridges size 10.3x38, gauge 2A, a neutral tube and 3 screws pre-screwed on the connector board ensuring the concentrator fixing.
- 1 AMM concentrator data supply kit L=6M (K716) or L=10M (K719) comprising:
  - 3 phase connectors and 1 neutral insulation piercing connector with integrated removable fuse protection (3P+1N), 3 fuses size 10x38, rated 10A and a neutral tube.
  - 1 connection link of 6 or 10 meters (depending on the type) between connectors and the concentrator board cutout. It is equipped with quick connection plug on the connectors side end.

## Installation



\* LINKY: French electricity board Erdf electronic Smart Meter.  
For the references P400 and K863, contact us.

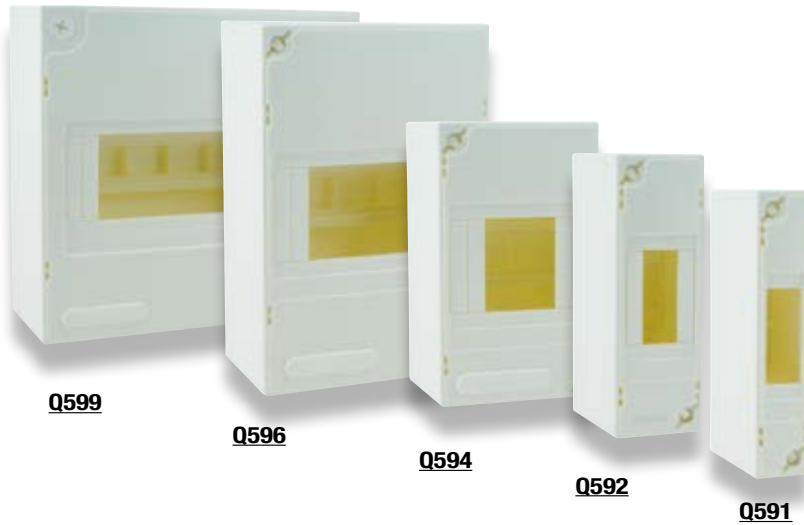
Code	Designation	Weight (kg)	Sales unit
K716	AMM CONCENTRATOR DATA SUPPLY KIT + LINKING CABLE L=6m	2.000	1
K719	AMM CONCENTRATOR DATA SUPPLY KIT + LINKING CABLE L=10m	2.400	1
P070	AMM STATION CONCENTRATOR BOARD	1.350	1

## Accessories

SEE SHEET  
OVERHEAD / Service connector

## Modular distribution box

### Projecting



### Application

This one row modular distribution box is designed to be equipped with devices that protect the customer installation.

### Description

- The assembly is made of synthetic materials passing the incandescent wire resistance test at 750°C.
- The cover is white (RAL 9010) and offers a IP30/IK05 protection degree.
- The distribution boxes with 6 and 9 modules are delivered with an IP2X earth system terminal offering 7 inlets/outlets including connection terminals of 16mm<sup>2</sup> section maximum.
- The distribution boxes with 1 up to 6 modules can be opened using a clip. The distribution box with 9 modules uses screws.

This distribution box meets the criteria of the **NF C 61-910** specification.

Code	Designation	Height (mm)	Length (mm)	Depth (mm)	Weight (kg)	Sales unit
Q591	DISTRIBUTION BOX WITH 1 MODULE	140	30	70	0.080	1
Q592	DISTRIBUTION BOX WITH 2 MODULES	141	48	70	0.100	1
Q594	DISTRIBUTION BOX WITH 4 MODULES	142	84	70	0.140	1
Q596	DISTRIBUTION BOX WITH 6 MODULES	180	120	70	0.250	1
Q599	DISTRIBUTION BOX WITH 9 MODULES	180	190	70	0.360	1

### 30 mA differential switches



### Application

The 30 mA differential switches for two-phases are designed to protect persons by detecting insulation defects. The AC-type detected faults on the AC component. The A-type detected faults on the AC and DC components. The DC components faults can be produce by some electrical devices.

The size of differential swith is 2 modules.

Code	Designation	Max. terminal capacity	Type	Sales unit
Q540	DIFFERENTIAL SWIFT BIPO AC 30mA 25A NF MoD	16mm <sup>2</sup>	AC	10
Q541	DIFFERENTIAL SWIFT BIPO AC 30mA 40A NF MoD	16mm <sup>2</sup>	AC	10
Q542	DIFFERENTIAL SWIFT BIPO AC 30mA 63A NF MoD	50mm <sup>2</sup>	AC	10
Q543	DIFFERENTIAL SWITCHES TWO-POLE 30mA TYPE A 40A MoD	16mm <sup>2</sup>	A	10
Q544	DIFFERENTIAL SWITCHES TWO-POLE 30mA TYPE A 63A MoD	50mm <sup>2</sup>	A	10



## Integrable



**U636**

**U637**

**U638**

### Application

This integrable modular distribution box is designed to be equipped with devices that protect the customer installation.

### Description

- Several box widths are available: 8, 12, 24 (2 rows of 12) and 36 (3 rows of 12) modules.
- The cover is white and the door is transparent.
- The opening and closing system is ergonomic and the door is reversible.
- The distribution box offers IP40 protection degree (protection against penetration of body superior or equal to 1mm).
- The use temperature range goes from -25°C up to 60°C.
- Used materials are without halogen.

Code	Designation	Height (mm)	Length (mm)	Depth (mm)	Weight (kg)	Sales unit
U635	INTEGRATED MODULAR BOX - 8 MODULES	90	240	90	0.485	20
U636	INTEGRATED MODULAR BOX - 12 MODULES	260	330	90	0.825	12
U637	INTEGRATED MODULAR BOX - 24 MODULES (12x2)	420	330	100	1.655	10
U638	INTEGRATED MODULAR BOX - 36 MODULES (12x3)	570	330	100	2.325	10

## Subdivisional circuit breakers

**Q53x**



### Utilisation

Subdivisional circuit breakers are designed to protect the circuits of the installation.

The proposed materials are :

- Neutral Phase 230V,
- A type C trip curve according to EN 60898-1.

Code	Designation	Sales unit
Q530	CIRCUIT BREAKER P+N 2A	10
Q535	CIRCUIT BREAKER P+N 3A	10
Q531	CIRCUIT BREAKER P+N 10A	10
Q532	CIRCUIT BREAKER P+N 16A	10
Q533	CIRCUIT BREAKER P+N 20A	10
Q534	CIRCUIT BREAKER P+N 32A	10

## Cutout cabinet

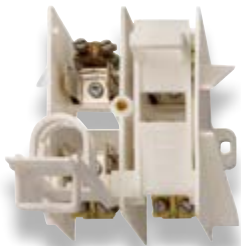


**P100**

**Bipolar 10A**

### Application

The cabinet is part of the installation check board. It ensures the connection individual principal cutout function. It is designed to receive fuse cartridges size 10.3x38, 14x51, 22x58 and DIN 00.



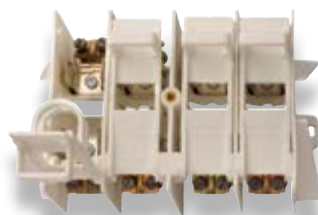
**U607**

**Bipolar 60A**



**U606**

**Tetrapolar 30A**



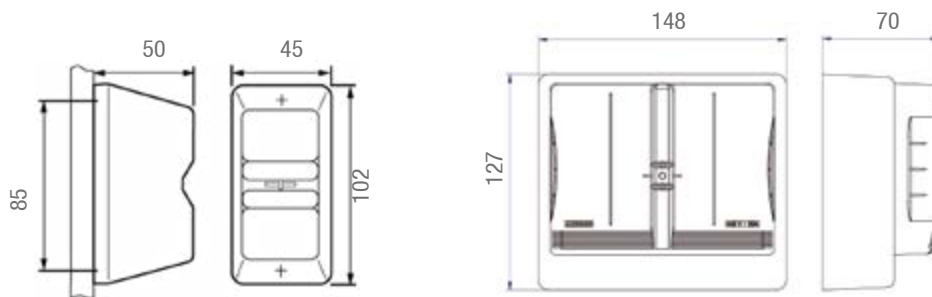
**U608**

**Tetrapolar 60A**

### Description

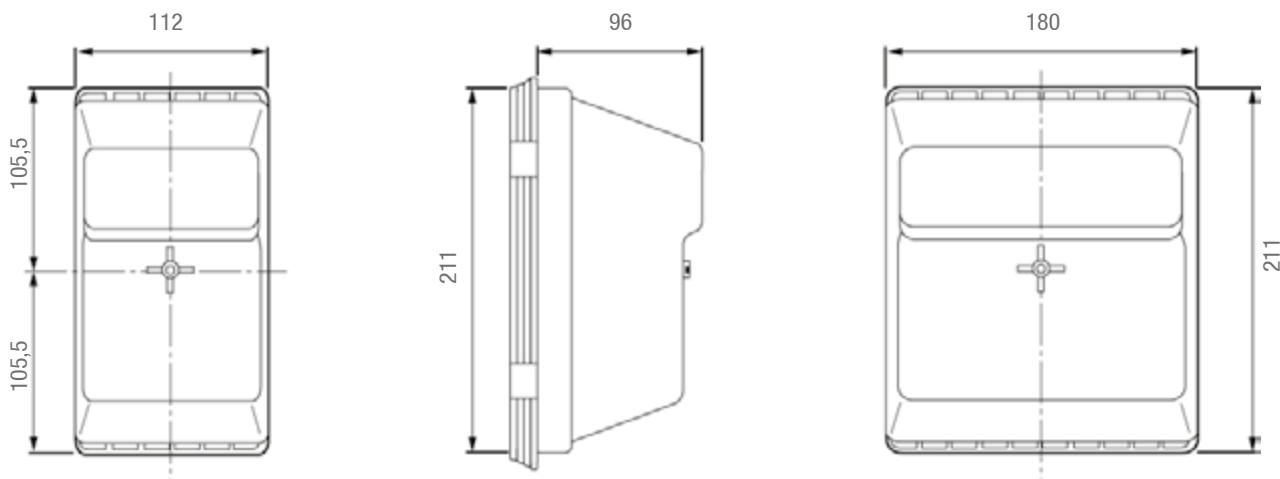
- The cover is equipped with ventilations (except P100 and U606) and a huge air volume restricting warming.
- The sealing is performed with two 90° notches in the cover and a hole in the tightening screw indexed in the crack for U607, U608 and U606.
- Terminal screws are in stainless steel. They allow an important durability in harsh atmosphere (except U606).
- Cabinet's cage terminals of the board P100 can receive cable sections from 1.5mm<sup>2</sup> up to 10mm<sup>2</sup>.
- Cutout terminals, size 14x51, can receive cable sections from 6mm<sup>2</sup> up to 25mm<sup>2</sup>.
- Cutout terminals, size 22x58 and DIN 00, can receive copper or aluminium cable sections from 6mm<sup>2</sup> up to 35mm<sup>2</sup>.
- The cabinet P100 is delivered equipped with a neutral tube. The other ones are delivered empty.

The synthetic materials that are used meet the criteria of the **HN 60-E-02** and **HN 60-S-02** specification.



**P100**

**U606**



**Bipolar  
U607**

Dimensions in mm

**Tretapolar  
U608**

Code	Designation	Weight (kg)	Sales unit
<b>SIZE 10.3x38</b>			
P100	CUTOUT CABINET 2A NEUTRAL TUBE	0.170	1
<b>SIZE 14x51</b>			
U606	CUTOUT CABINET 14x51 30A TETRAPOLAR	0.330	1
<b>SIZE 22x58</b>			
U607	CUTOUT CABINET 60A BIPOLAR	0.510	30
U608	CUTOUT CABINET 60A TETRAPOLAR	0.780	18

Devices are delivered without fuse cartridges.

**Option:**

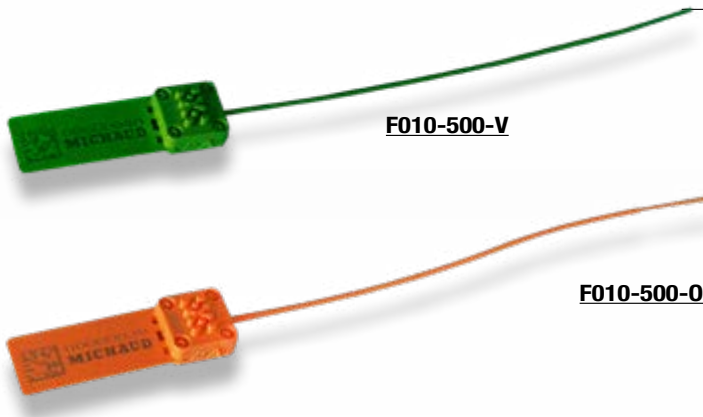
Fuses 10.3x38, 14x51, 22x58 and size 00 are available.

 **SEE SHEET**  
PROTECTION / Fuses



## Seal

### Numbered seal with wire

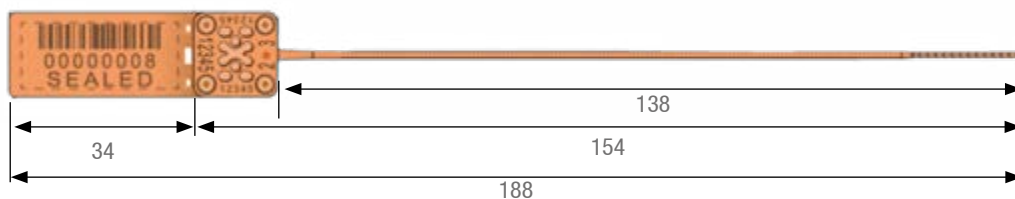


#### Utilisation

This seal is designed with a fast closing system by means of a locking button. It is specifically designed to be installed on water, gas or electricity meters. The breaking of the link enables to highlight a potential fraud.

#### Description

- The seal is made of polyamide (PA), mono-material and recyclable.
- The seal is UV treated.
- The fast closing of the seal is done by means of the locking button and without tools.
- Once closed, the tensile strength is 8kg.
- The link diameter is 1.4mm and it is suitable for small holes and ayelets of a minimum diameter of 1.5mm. The introduction way is not important.
- The seal conception enables to tighten very close to the product from a maximum diameter of 30mm to a total tightening.
- The seal has four areas for marking around the locking button:
  - Three markings comprising 5 digits
  - One marking comprising 2 digits
- The flag is optional (to be specified when ordering).
- The seal identification on the flag is realised through:
  - One barcode to guarantee a certain handling of the information
  - One marking comprising 8 digits

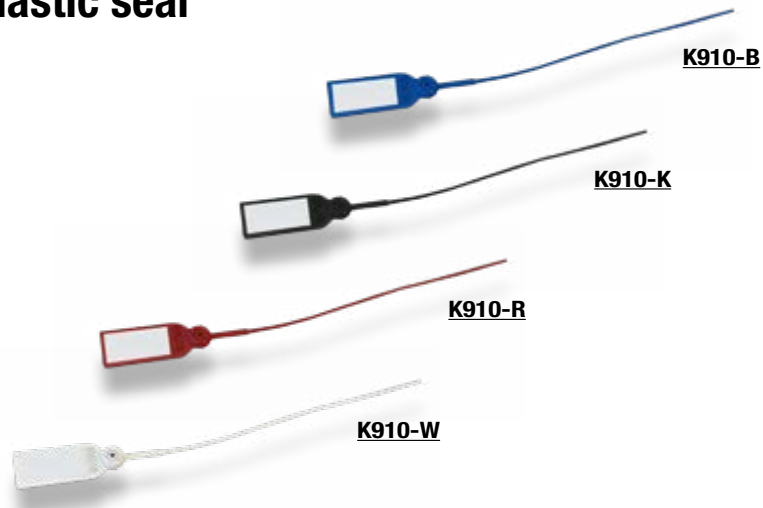


Dimensions in mm

Code	Designation	Length (mm)	Weight (kg)	Sales unit
F010-500-V	PLASTIC SEAL WITH UNIQUE NUMBER GREEN (BAG 500 PIECES)	188	0.960	6
F010-500-O	PLASTIC SEAL WITH UNIQUE NUMBER ORANGE (BAG 500 PIECES)	188	0.960	6

Nota: Minimum order quantities are 6 bags of 500 pieces.

## Plastic seal



### Application

This seal is designed with a tail to run through a locking hole. It is used to seal electrical equipment, water meters, gas meters, etc. The breakage of this element highlights possible fraud.

### Description

- These seals are made of UV resistant synthetic materials.
- The seal identification is made through:
  - A 1234567 marking type (7 digits consecutive numbering) for F010-500
  - A permanent marker inscription for K910
- They are implemented manually without using particular tools.
- These seals are available in blue, red, white and black. For other colors, contact us.

Code	Designation	Length (mm)	Weight (kg)	Sales unit
K910-B	BLUE SEAL (BOX OF 100 PIECES)	130	0.240	1
K910-K	BLACK SEAL (BOX OF 100 PIECES)	130	0.240	1
K910-R	RED SEAL (BOX OF 100 PIECES)	130	0.240	1
K910-W	WHITE SEAL (BOX OF 100 PIECES)	130	0.240	1

## Sealable screw cover



### Application

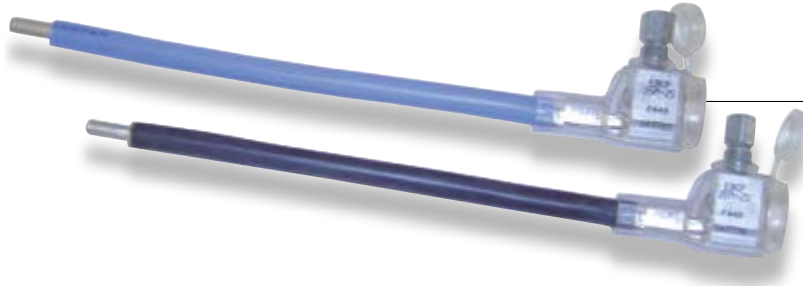
When installing the meter, the anti-fraud system may need to be modified. This sealable screw cover is designed to seal a screw.

### Description

- The screw cover enables to seal a fixing screw with the following dimensions: 6mm on threads, head height of 4mm (max) and head diameter of 7mm (min) up to 12mm (max).
- The screw cover can receive a seal of maximum 2mm diameter.

Code	Designation	Weight (kg)	Sales unit
P641	SEALABLE SCREW COVER (2mm diameter)	0.002	20
P642	SEALABLE SCREW COVER + 5x30 VBA SCREW	0.006	20
U433	WOOD SCREWS (x100)	-	1
F332	WOOD SCREWS POZIDRIVE (x200)	1.600	1

## Insulation piercing end connector EBCP 6-35



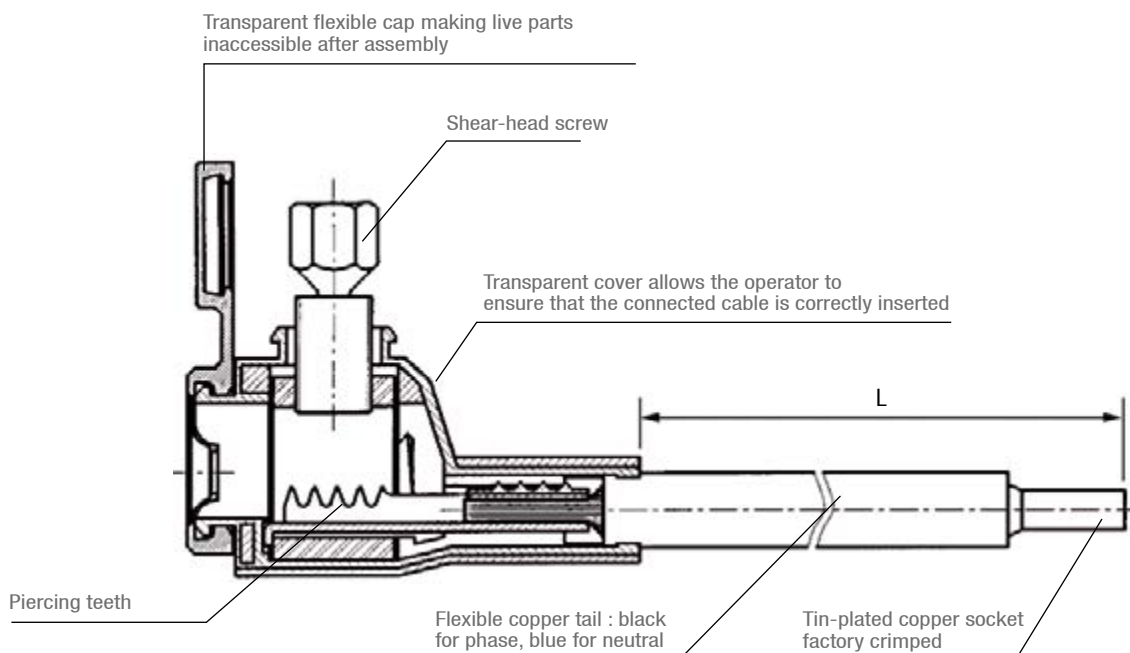
### Application

This end connector is used for the connection of leading in cables to electrical equipment terminals (cutouts, electronic meter, etc). This is a universal solution for connecting the cable to the meter terminals, regardless of the type of metal or the block nature. It can be fitted on copper or aluminum stranded, or solid core conductors.

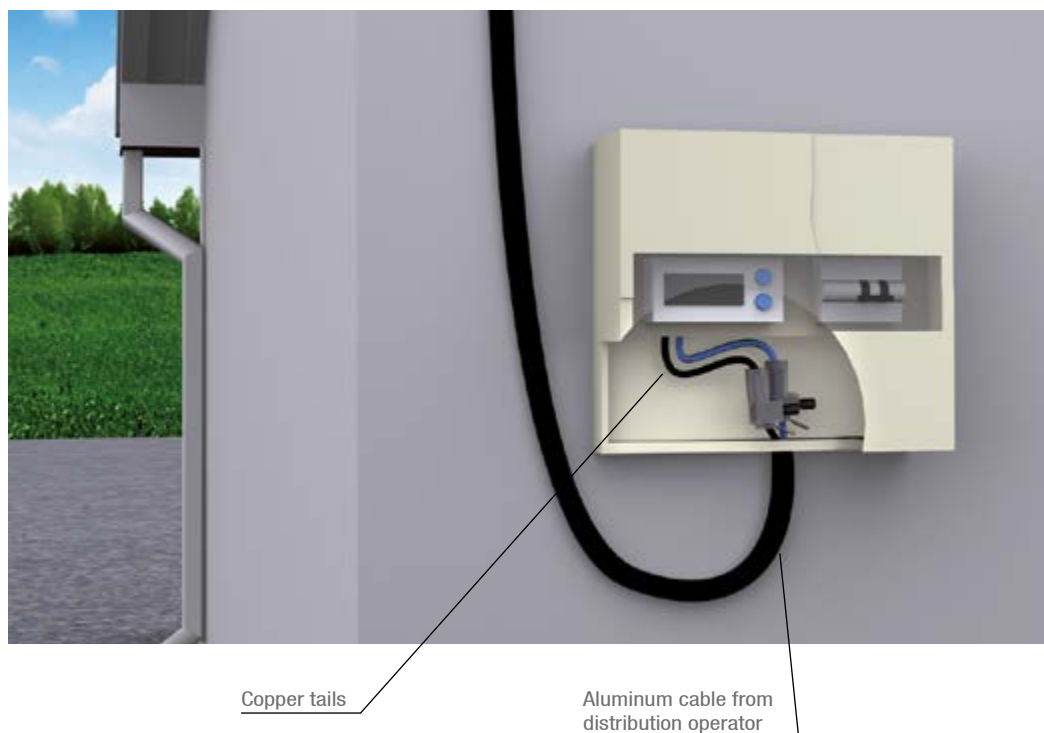
### Description

- The end connector uses the insulation piercing technology (6-35mm<sup>2</sup>)
- The protection degree is IP2X when it is implemented
- The maximum power running through the insulation piercing end connector is 63A for 16mm<sup>2</sup> and 90A for 25mm<sup>2</sup>.
- Low dimensions enable to easily fit the end connector behind the panel in a restricted space.
- Solid teeth ensure connection in extreme environments even under low temperatures.
- The sturdy material of the cover allows it to be held with pliers during installation, making it easy to maintain.

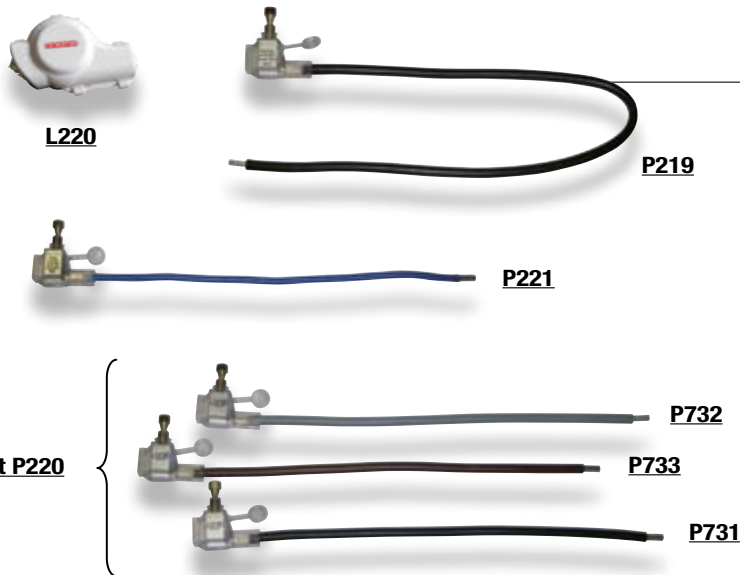
This end connector meets criteria of the **H-M24-2011-02598-FR** specification.



Code	Designation	Out of box length: L (mm)	Capacities (mm <sup>2</sup> )	Weight (kg)	Sales unit
P446	EBCP 6-35/16 BLACK L235	235	6-35	0,090	10
P447	EBCP 6-35/16 BLUE L235	235		0,090	10
P648	SET OF 2 EBCP 6-35/16 (BLACK+BLUE) L235 - SINGLE PHASE KIT	235		0,190	1
P651	SET OF 4 EBCP 6-35/16 (3 BLACK +1 BLUE) L235 - THREEPHASE KIT	235		0,370	1
P222	EBCP 6-35/16 BLACK L500	500		0,140	1
P223	EBCP 6-35/16 BLUE L500	500		0,140	1
P448	EBCP 10-35/25 BLACK L190	185	10-35	0,100	10
P449	EBCP 10-35/25 BLUE L190	185		0,100	10
P649	SET OF 2 EBCP 10-35/25 (BLACK+BLUE) L190 - SINGLE PHASE KIT	185		0,210	1
P650	SET OF 4 EBCP 10-35/25 (3 BLACK + 1 BLUE) L190 - THREEPHASE KIT	185		0,420	1



## Insulation piercing end connector EBCP 16-50 Class II



### Application

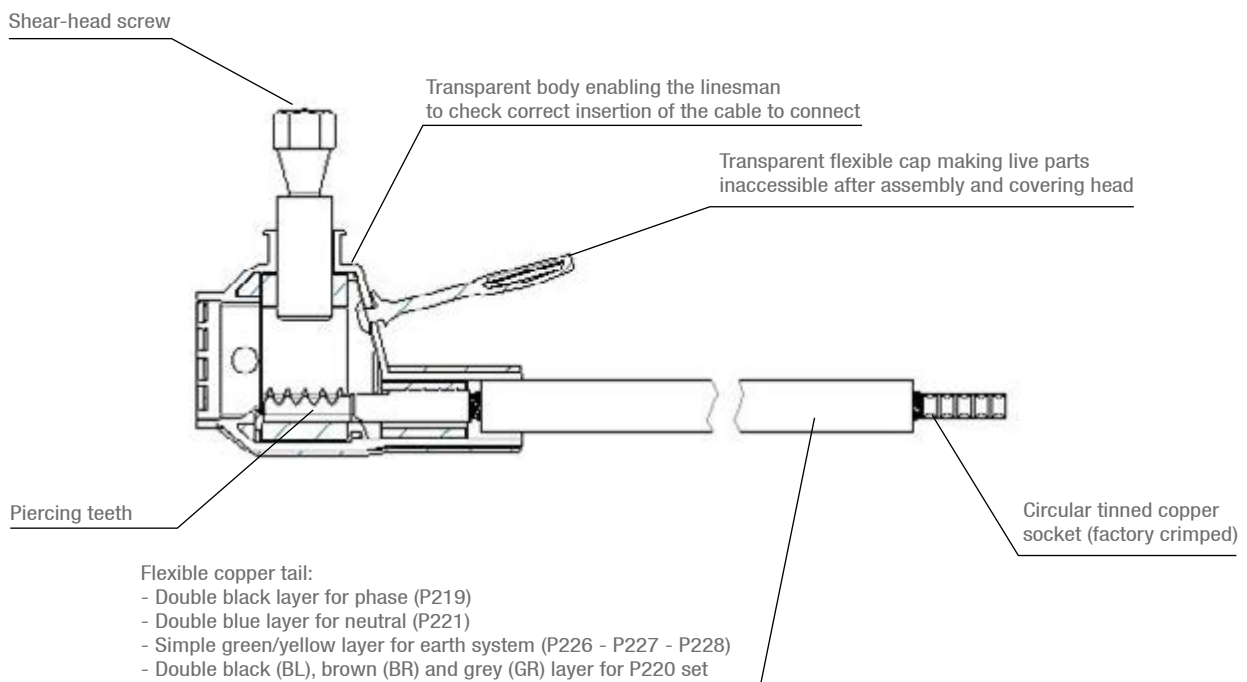
This end connectors range is used for the connection of leading in cables to electrical equipment terminals (cutouts, electronic meters, ect). It is a universal solution to connect the connection cable and the meter terminals no matter what is the metal or the block nature.

The end connector can be fitted on sectoral or circular-shaped copper or aluminum stranded or solid core conductors.

It provides class II protection using the double insulated colored tail, when equipped with the cover.

### Description

- The end connector uses the insulation piercing technology (16-50mm<sup>2</sup>).
- The protection degree is IP2X when it is implemented.
- The maximum power running through the insulation piercing end connector is 80A.
- Low dimensions enable to easily fit the end connector behind the panel in a restricted space.
- Solid teeth ensure connection in extreme environments even under low temperatures.
- The robust material constituting the cover enables it to be held with a pair of pliers during installation, facilitating holding.
- The synthetic cover ensures a protection class II of the connector body and can be sealed.
- The reference P220 comprises a kit of 3 colored end connectors with black, brown or grey tail.





## Option: Class II Setting-up

The cover (L220) enables to establish a class II installation.

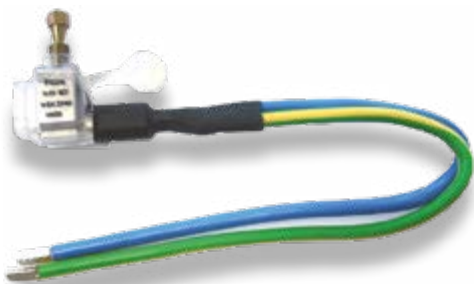


+ Cover L220

Code	Designation	Out of box length: L (mm)	Capacities (mm <sup>2</sup> )	Weight (kg)	Sales unit
P219	EBCP 50 SECT-16 BLACK L700 CLASS II	700	16-50	0.190	9
P220	SET OF 3 EBCP 50 SECT-16 BL/BR/GR L375	375		0.390	1
P221	EBCP 50 SECT-16 BLUE L375 CLASS II	375		0.130	9
P731	EBCP 50 SECT-16 BLACK L375 CLASS II	375		0.390	100
P732	EBCP 50 SECT-16 GREY L375 CLASS II	375		0.390	100
P733	EBCP 50 SECT-16 BROWN L375 CLASS II	375		0.390	100
L220	EBCPAU COVER CLASS II			0.020	12

## Option :

Insulation piercing end connector for earth systems.



A wide range of insulation piercing end connectors has been designed for earth system:

- P 227 and P 226 with two tails (yellow/green and blue) for connecting and earth system the neutral at the same time,
- P228 with one tail (yellow/green) for the earth conductor.

The neutral conductor (blue) has double insulation whereas the earth conductor (yellow/green) has single insulation as it is not considered as a live element (class II not required).

Code	Designation	Out of box length: L (mm) tail	Out of box length: L (mm) earth system	Capacities (mm <sup>2</sup> )	Weight (kg)	Sales unit
P226	EBCP P221 + YELLOW/GREEN EARTH SYSTEM L345	375	345	16-50	0.220	9
P227	EBCP P221 + YELLOW/GREEN EARTH SYSTEM L800	375	800		0.330	9
P228	EBCP 50 SECT-16 YELLOW/GREEN L800		800		0.200	9

## Reversible stripping end connector **EBCD 6-35**



**P620**



**MICHAUD Exclusivity**  
 Patented system

### Application

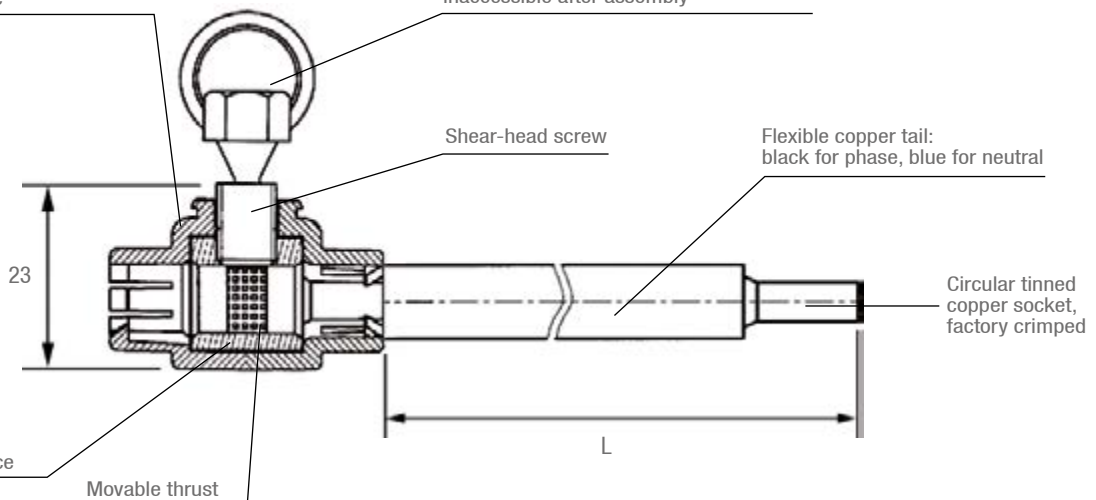
This end connectors range is used for the connection of leading in cables to electrical equipment terminals (cutouts, electronic meters, ect). It is a universal solution to connect the connection cable and the meter terminals no matter what is the metal or the block nature. They can be fitted on copper or aluminum stranded or solid core conductors.

### Description

- The end connector uses the stripping technology (6-35mm<sup>2</sup>).
- The protection degree is IP2X when it is implemented.
- The maximum power running through the stripping end connector is 90A.
- The end connector can be connected in two opposite directions, which overcomes bulky loops in the event of insertion of the power cable from the top.
- Low dimensions enable to easily fit the end connector behind the panel in a restricted space.
- The robust material constituting the cover enables it to be held with a pair of pliers during the installation facilitating the holding.

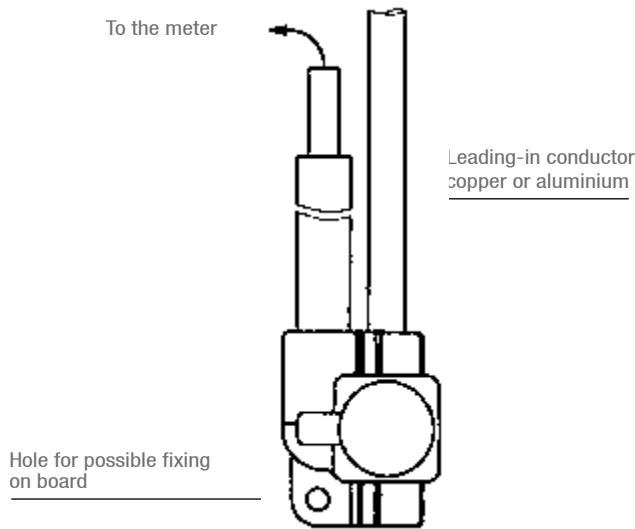
Transparent body enabling the linesman to check correction insertion of the connected cable

Transparent flexible cap making live parts inaccessible after assembly

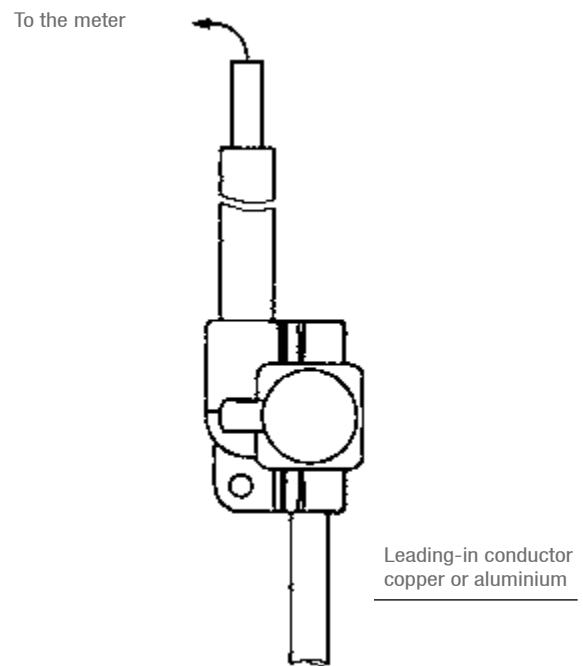


**The benefits:**

- + Connection possible from the top or bottom
- + A flexible cap enables to make the tightening screw inaccessible
- + The reversible end connector can either remain floating or be fixed using a 4mm diameter screw



**Power cable coming from the top**

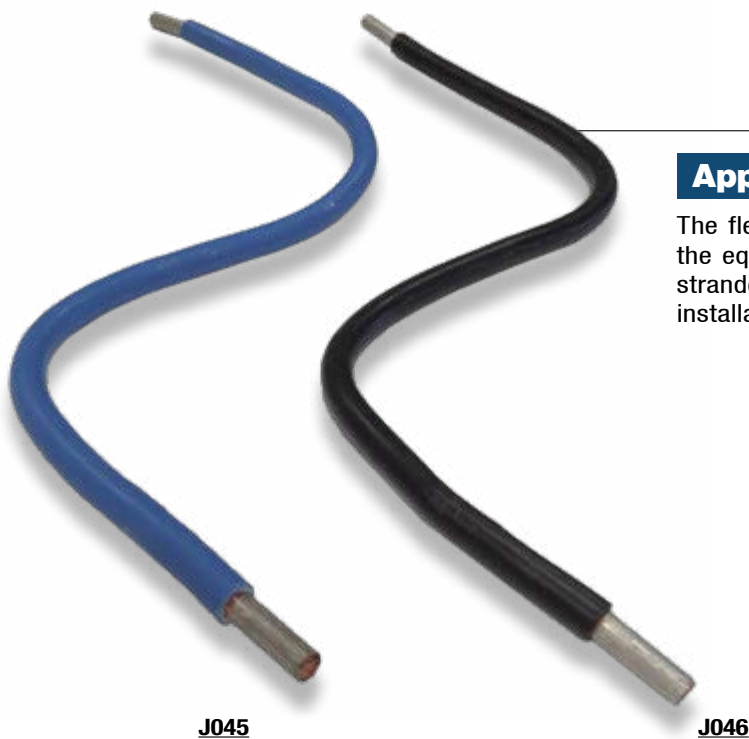


**Power cable coming from the bottom**

Code	Designation	Out of box length: L (mm)	Capacities (mm <sup>2</sup> )	Weight (kg)	Sales unit
P620	SET OF 2 EBCD 35-25 (1 BLACK + 1 BLUE) - SINGLE PHASE KIT	185	6-35	0.220	1
P621	SET OF 4 EBCD 35-25 (3 BLACK + 1 BLUE) - THREEPHASE KIT			0.440	1

Nota: please enquire for any other length.

## Flexible linking cable

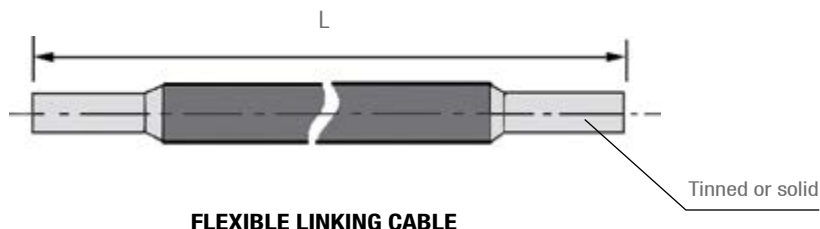


### Application

The flexible linking cable is used for the equipment wiring when the rigid stranded core or solid core conductor installation is too difficult.

### Description

- The linking cable is a 16mm<sup>2</sup> or 25mm<sup>2</sup> flexible copper conductor, multi-stranded of H07 VK type.
- Each end is factory crimped with a tinned copper-bonded socket or a stripped and tinned socket for J412 and J413. The socket is designed for connection to a plate or tunnel terminal, or to an insulation piercing terminal.



- The length L of the link is stated on the right-hand page.

Code	Designation	Conducteur (mm <sup>2</sup> )	Length (mm)	Weight (kg)	Sales unit
J045	1 BLUE 16mm <sup>2</sup> LINKING CABLE L560	16	560	0.100	10
J046	1 BLACK 16mm <sup>2</sup> LINKING CABLE L530	16	530	0.090	10
J047	1 BLUE 16mm <sup>2</sup> LINKING CABLE L700	16	700	0.135	10
J048	1 BLACK 16mm <sup>2</sup> LINKING CABLE L700	16	700	0.135	10
J041	1 BLUE 16mm <sup>2</sup> LINKING CABLE L1200	16	1 200	0.200	10
J042	1 BLACK 16mm <sup>2</sup> LINKING CABLE L1200	16	1 200	0.210	10
J808	SET OF 2 16mm <sup>2</sup> LINKING CABLES (1 BLUE + 1 BLACK)	16	560+530	0.215	1
J809	SET OF 4 16mm <sup>2</sup> LINKING CABLES (1 BLUE + 3 BLACK)	16	560+3x440	0.370	1
J412	BLUE CABLE 16VK L500	16	500	0.085	200
J413	BLUE CABLE 16VK L500	16	500	0.085	200
J132	1 BLUE 25mm <sup>2</sup> LINKING CABLE L700	25	700	0.185	5
J133	1 BLACK 25mm <sup>2</sup> LINKING CABLE L700	25	700	0.180	5

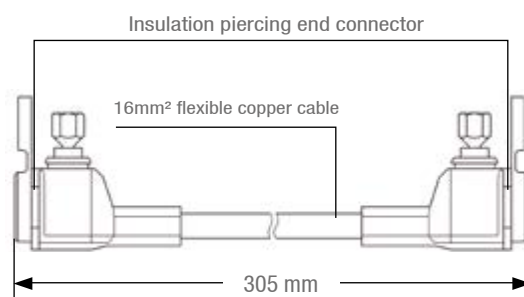
## Variants:

Two insulation piercing end connectors can be connected to the ends of the flexible linking cable for connection to other conductors.

Possible sections for conductors to be connected:

- Aluminium solid core conductors: 16M, 25M, 35M, 50M \*
- Aluminium or copper rigid stranded core conductors: 10mm<sup>2</sup>, 16mm<sup>2</sup>, 25mm<sup>2</sup>,
- Copper multi-stranded conductors: 10mm<sup>2</sup>, 16mm<sup>2</sup>, 25mm<sup>2</sup> (in this case, the connection must be carried out only if the end of the conductor has been compressed).

\* M means that the conductor is solid.



Code	Designation	Weight (kg)	Sales unit
P660	SET OF 2 16mm <sup>2</sup> EBCPAU LINKING CABLE SINGLE 2 PIERCINGS	0.260	1
P662	SET OF 4 16mm <sup>2</sup> EBCPAU LINKING CABLE THREE-PHASE 2 PIERCINGS	0.505	1

## Reducing end connector

### Service

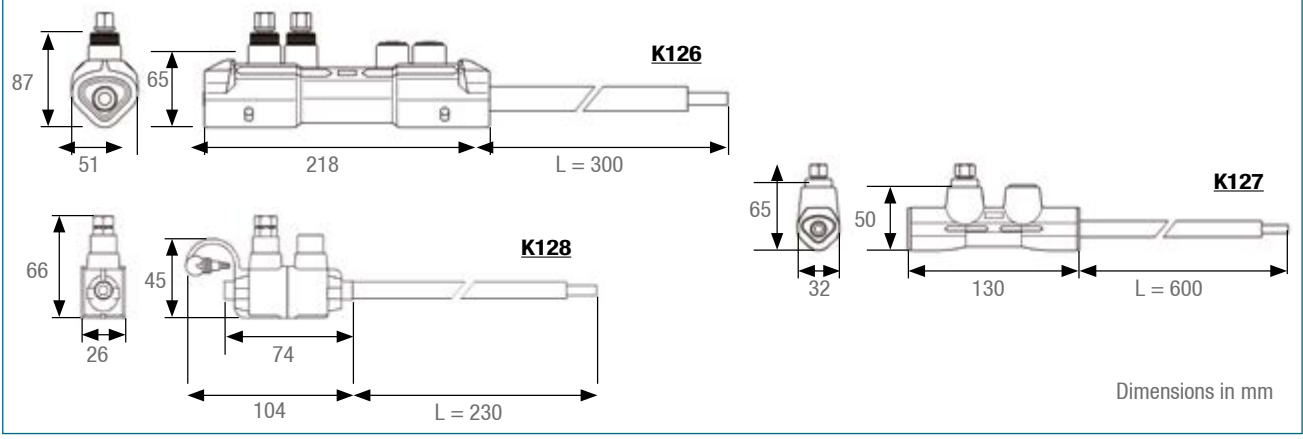


### Application

This end connector is used for connecting a conductor with a given section into a terminal with a smaller one. It is usually used for industrial supplies and long-line supplies.

### Description

- The dielectric strength in water is greater than 6kV.
- The flexible copper tails enable direct connection to the equipment.
- The conductor connection terminal is of insulation stripping type.
- This end connector can be used on aluminium or copper conductors.



Code	Designation	Tail length (mm)	Leading-in capacities Al-Cu (mm <sup>2</sup> )	Tail section (mm <sup>2</sup> )	Weight (kg)	Sales unit
K126	STRIPPING REDUCING END CONNECTOR 95-240	300	Round 95-150 Sectoral 95-240	50	0.780	4
K127	STRIPPING REDUCING END CONNECTOR 25-95	600	Round 25-95 Sectoral 50-95	25	0.330	2
K128	STRIPPING REDUCING END CONNECTOR 6-50M	230	Round 6-35 Round 16M-50M	25	0.170	2

Note: For other adaptations, please contact us.

## Fraud-preventing service connection



**K131**



**K132**

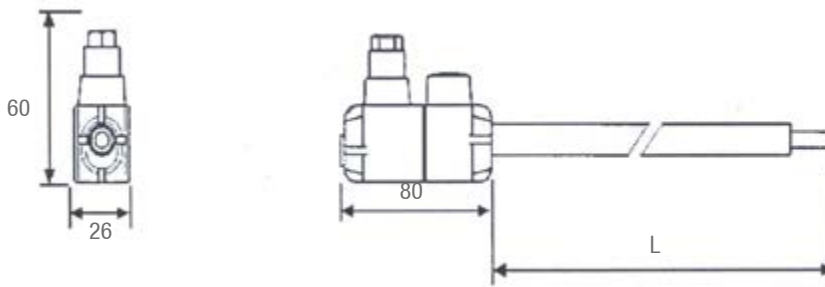
### Application

This end connector is used for connecting a service conductor to an equipment terminal.

Four models are available with black tail for Phase connection (K129 and K131) or blue for Neutral connection (K130 and K132). This solution is used to secure the outdoor connection to equipment terminals.

### Description

- The dielectric strength of the end connector in water is greater than 6kV.
  - The service end connector is designed for connection to 6-35mm<sup>2</sup> section copper or aluminium conductors.
  - A 16mm<sup>2</sup> insulated flexible copper tail enables connection to equipment terminals (meter circuit-breaker).
  - The conductor connection terminal is of insulation piercing type. The shear head ensures tightening efficiency.
- Note: to prevent dismantling of the end connector with risk of fraud, none of the permanent screw heads is accessible.



\*Dimensions in mm  
L= 220 (K131 and K132)  
L= 520 (K129 and K130)

Code	Designation	Tail length (mm)	Leading-in capacities Al-Cu (mm <sup>2</sup> )	Tail section (mm <sup>2</sup> )	Weight (kg)	Sales unit
K131	PIERCING REDUCING END CONNECTOR 6-50M PHASE L300	220	6-35 16-50M	16	0.150	16
K132	PIERCING REDUCING END CONNECTOR 6-50M NEUTRAL L300	220	6-35 16-50M	16	0.150	16
K129	PIERCING REDUCING END CONNECTOR 6-50M PHASE L600	520	6-35 16-50M	16	0.190	12
K130	PIERCING REDUCING END CONNECTOR 6-50M NEUTRAL L600	520	6-35 16-50M	16	0.190	12







# INSTALLATION

## **Protective equipment**

Personal protective equipment.....	p.244
Collective protective equipment.....	p.254

## **Tools**

LV line unwinding and pulling.....	p.256
Overhead pulling grip and swivel.....	p.258
LV insulated tooling.....	p.260
Hydraulic crimping tool.....	p.266

# SOLUTIONS FOR INSTALLATION

In order to offer global service to customers, MICHAUD proposes a range of equipment and tools to **facilitate and to secure** products installation.



In the low voltage field, **fitters' safety and protection** are essential themes. With a range of personal protective equipment, MICHAUD ensures an installation on safe environments.



To realise an installation in the best conditions, MICHAUD offers a **range of tools and equipment** to support low voltage lines and accessories.



In order to support the fitter the best way, MICHAUD supplies its products with **didactic solutions** assuring the right installation and to guarantee fitters' safety.

## Protection against the electrical risk

During the installation of electrical equipment, the protection of the fitters from risks of direct or indirect contacts is a necessity. The risk is real when a part of the human body is in contact with an active part of the installation.

Several conditions must be respected to guarantee protection:

- Installation of products with **no load**, except for specific indications
- Respect of the current **regulation**
- **Trained** and skilled **staff**
- Use of **personal protective equipment**

### Classification of maximum used voltages of insulated gloves:



Class	Working voltage (V)	Tested voltage (V)
00	500	2 500
0	1 000	5 000
1	7 500	10 000
2	17 000	20 000
3	26 500	30 000
4	36 000	40 000

## A support for your installations

MICHAUD uses its expertise to guide at best the fitters.

### ➤ Installation instructions

✚ Products supplied with detailed instructions for the assembly >>>

### ➤ Installation videos

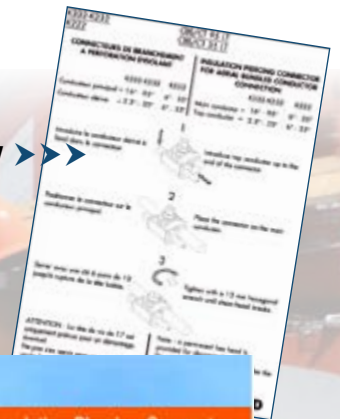
✚ Supporting videos for some products >>>



See videos on  
Michaud Export Youtube Channel

### ➤ Training

✚ Fitters' guidance on the field >>>



# Personal protective equipment

## Application

These equipment aim to protect hands during installation works.

## Hands protection

### PROTECTIVE NITRILE GLOVES



**U833-1**

These gloves are in nitrile on hands palm. They offer an important perforation resistance.

### PROTECTIVE LEATHER GLOVES



**U833-2**

These leather gloves are made of red leather. They offer an important perforation and cutting up resistance.

### LEATHER PROTECTION GLOVES



**F081**

The handling leather gloves protect insulating gloves against sharp and cutting objects. A scratch band holds the handling gloves around the wrists.

Code	Designation	Size	Weight (kg)	Sales unit
U833-1	PROTECTIVE NITRILE GLOVES	S - M - L - XL	0.200	1
U833-2	PROTECTIVE LEATHER GLOVES	33cm	0.220	1
F081	LEATHER PROTECTION GLOVES	10	0.160	1

## Accessories



**U82x**

### Utilisation

These insulating gloves are designed to protect against electrical shocks during powered works. Accessories are used to check the watertightness of the insulating gloves.

### Description

- Gloves are available in one size (size 10).
- According to the kind of work to realize, the range goes from class 00 to class 4.

Code	Designation	Weight (kg)	Sales unit
U820-10	INSULATING GLOVES CLASS 00 (500V)	0.530	1
U821-10	INSULATING GLOVES CLASS 0 (1 000V)	0.550	1
U822-10	INSULATING GLOVES CLASS 1 (7 500V)	0.575	1
U823-10	INSULATING GLOVES CLASS 2 (17 000V)	0.600	1
U824-10	INSULATING GLOVES CLASS 3 (26 500V)	0.650	1
U825-10	INSULATING GLOVES CLASS 4 (36 000V)	0.700	1

# Personal protective equipment

## Application

These equipment aim to protect the head and the face during installation works.

## Head protection



**U830-1**



**U830-2**



**U830-4**



**U830-3**

## Breathing protection



**U832-1**

The half mask without valve is FFP1.  
It offers 75% of dust absorption.



**U832-2**

The half mask with valve is FFP2  
It offers 95% of dust absorption.

Code	Designation	Weight (kg)	Sales unit
U830-1	BASIC HELMET	0.300	1
U830-2	HELMET WITH TOOTH WHEEL	0.300	1
U830-3	CHIN STRAP WITHOUT CHIN REST	0.050	1
U830-4	CHIN STRAP WITH CHIN REST	0.030	1
U832-1	FILTERING HALF MASK WITHOUT VALVE - FFP1	0.040	1
U832-2	FILTERING HALF MASK WITH VALVE - FFP2	0.070	1

## Eyes protection



**U831-1**



**U831-2**

These tinted protection glasses have a UV filter.



**U831-3**



**U831-4**

The flexible vinyl frame gets an anti-fog treatment.



**U831-5**

This face shield guarantees a protection from impact.

The standard is EN 166. The product has a optical class 2, a protection from risk of impact "F" and a echanical resistance "A".



**U831-6**

This set comprising face shield + helmet guarantees an electric arc protection.

Code	Designation	Weight (kg)	Sales unit
U831-1	PROTECTION GLASSES	0.030	12
U831-2	PROTECTION GLASSES TINTED - UV FILTER	0.030	12
U831-3	PROTECTION OVER GLASSES	0.035	1
U831-4	PROTECTION MASK	0.070	1
U831-5	FACE SHIELD - IMPACT PROTECTION	0.300	1
U831-6	FACE SHIELD - ELECTRIC ARC PROTECTION	0.500	1

# Personal protective equipment

## Dielectric and mechanical protection

**U826** - high shoes**U827** - short shoes

### Application

These safety shoes ensure protection against electrical shocks. They also offer a mechanical protection.

Two models are available :

- high shoes
- short shoes

### Description

- These shoes are made of bovine black leather. They comprise a polyamide anti-allergic lining, a polyurethane antistatic sole and a non-metallic end.  
The antistatic property of the sole does not protect against electrical shocks.
  - The models are tested in compliance with ANSI Z41 and ASTM F2413-05 standards. When 14 000 and 18 000V currents are applied during 1 minute with a 60Hz frequency, the passage of current intensity is inferior to 1mA (according to conditions described in the standards).
  - Available sizes go from 39 up to 46.
  - The shoes offer an impact resistance of 200J and a compression resistance of 15kN. The sole is resistant to hydrocarbons.
  - The resistance to perforation is about 1100N.
  - The energy absorption in the heel is superior to 20J for both models.
  - Shoes are waterproof.
  - They provide an insulation against cold and heat coming from the ground. The resistance to heat contact from the ground is 300°C.
  - The soles are nonskid.
- Dielectric safety shoes are not a substitute to obligatory PPE but an element of secondary protection.

These shoes meet the criteria of **EN ISO 20345** standard.

Code	Designation	Available sizes	Protection classes	Weight (kg)	Sales unit
U826	HIGH SAFETY SHOES - DIELECTRIC AND MECHANICAL PROTECTION	39 up to 46	SB+P+E+CI+HI+WRU+HRO+SRC+FO	0.900	1
U827	SHORT SAFETY SHOES - DIELECTRIC AND MECHANICAL PROTECTION	39 up to 46	SB+P+E+CI+HI+WRU+HRO+SRC+FO	0.700	1

### Required size:

Add the required size to the reference.

Example with the high shoes model, size 42 : **U826-42**



## Mechanical protection



**U828** - high shoes



**U829** - short shoes

### Application

These safety shoes ensure a mechanical protection. Two models are available :

- high shoes : allow an optimal support of the ankle.
- short shoes

### Description

- The shoes are made of black bovine leather.
- The antistatic property of the sole does not protect against electric shocks.
- Available sizes range from 40 to 47 for the high model and from 39 to 46 for the short one.
- The shoes offer an impact resistance of 200J.
- They dissipate electrostatic charges.
- The shoe sole absorbs energy at the heel.
- The shoe sole is resistant to perforation. It is also resistant to oils and hydrocarbons.

These shoes meet the criteria of the **EN ISO 20345** standard.

Code	Designation	Available sizes	Protection classes	Weight (kg)	Sales unit
U828	HIGH SAFETY SHOES - MECHANICAL PROTECTION	40 up to 47	S3	1.500	1
U829	SHORT SAFETY SHOES - MECHANICAL PROTECTION	39 up to 46	S2+CI+SRC	0.700	1

### Required size:

Add the required size to the reference.

Example with the high shoes model, size 42 : **U828-42**

## Personal protective equipment

### Fall protection

#### Application

These equipment aim to protect the fitter from falls during installation works at height. Harnesses are dielectric (excepted in the kit).

#### HARNESS



**U834-2**



**U834-3**



**U834-6**

#### Option: Kit

- 1 harness
- 1 tether
- 2 carabiners
- 1 bag



**U834-1**

#### BELT



**U835-1**

#### Option: Kit

- 1 belt
- 1 rope
- 1 carabiner



**U835-2**

Code	Designation	Weight (kg)	Sales unit
U834-2	DIELECTRIC FALL ARREST HARNESS	0.750	1
U834-3	DIELECTRIC FALL ARREST AND SUPPORT HARNESS	0.800	1
U834-1	BASIC HARNESS KIT (HARNESS + TETHER + 2 CARABINERS + BAG)	1.300	1
U834-6	WAIST HARNESS	0.500	1
U835-1	WORK POSITIONNING BELT	0.300	1
U835-2	WORK POSITIONNING BELT (BELT + ROPE + CARABINER)	0.580	1

## ROPE AND TETHER



U836-1 U836-2



U837- 3



U837-1



U837-2



U837-4



U837-5



U837-6



U837-7

## ACCESSORIES



U836-3



U836-4



U838-2



U838-3

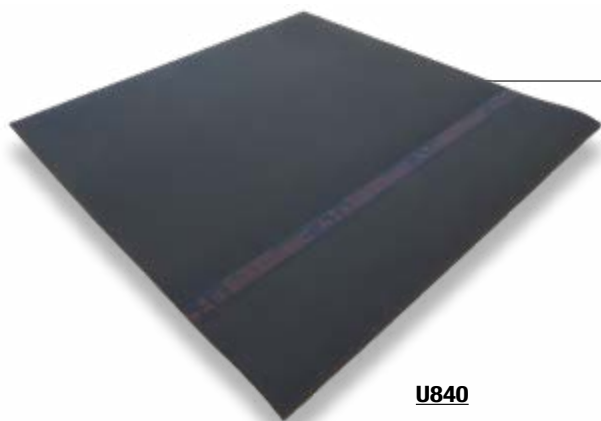


U838-4

Code	Designation	Weight (kg)	Sales unit
U836-1	POLYAMIDE ROPE - 10 METERS	3.00	1
U836-2	POLYAMIDE ROPE - 20 METERS	6.00	1
U837-1	Y TETHER WITH CARABINERS AND ENERGY ABSORBER	0.700	1
U837-2	SIMPLE TETHER WITH CARABINERS AND ENERGY ABSORBER	0.600	1
U837-3	SIMPLE TETHER WITH CARABINERS AND ENERGY ABSORBER - DIELECTRIC	0.800	1
U837-4	Y TETHER WITH CARABINERS	1.10	1
U837-5	SIMPLE TETHER WITH CARABINERS	0.800	1
U837-6	SIMPLE TETHER	0.400	1
U837-7	SIMPLE ADJUSTABLE TETHER	0.450	1
U837-8	SIMPLE ADJUSTABLE TETHER WITH CARABINERS - DIELECTRIC	0.650	1
U836-3	GUIDED TYPE FALL ARRESTERS	0.230	1
U836-4	CARABINER	0.080	1
U838-1	TIE-OFF	0.070	1
U838-2	TIE-OFF - DIELECTRIC	0.030	1
U838-3	ANCHORING POINT	0.030	1
U838-4	HANGING RING	0.050	1

# Personal protective equipment

## Insulating mat

**U840**

### Application

This mat is used to protect the work area and the installer from contact voltages, when working off-load in HV and on-load in LV. Several models are available, from class 0 to class 4.

### Description

- This mat is made of rubber with non-slip surfaces on both sides.
  - The mat offers high dielectric rigidity.
  - It can be used in temperatures ranging from -40°C to +70°C.
  - The mat is laid directly on the floor.
- The insulating mat is not a substitute for compulsory PPE, but is a secondary protective element. It meets IEC 61111 criteria.

Code	Designation	Alternating voltage RMS (V)	Thickness (mm)	Weight (kg)	Sales Unit
U840-0 1x1	INSULATING MAT CLASS 0 - 1x1m	1 000	2,5	3,98	1
U840-1 1x1	INSULATING MAT CLASS 1 - 1x1m	7 500	3	4,74	1
U840-2 1x1	INSULATING MAT CLASS 2 - 1x1m	17 000	3,5	5,51	1
U840-3 1x1	INSULATING MAT CLASS 3 - 1x1m	26 500	4	7,19	1
U840-4 1x1	INSULATING MAT CLASS 4 - 1x1m	36 000	5	8,11	1

## Insulating ladder



**U841**

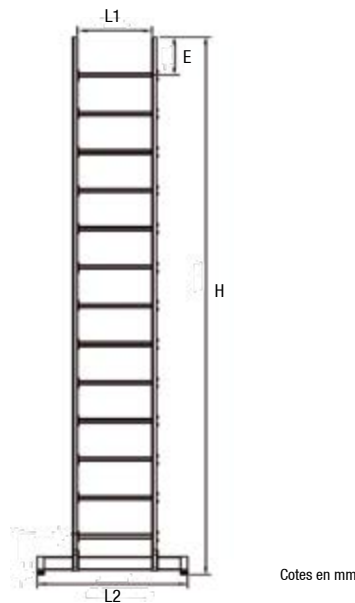
### Application

This insulating ladder protects the installer from contact voltages during electrical installation work.

### Description

- This ladder is made of fiberglass. It is made entirely of composite material and has no metal parts for mechanical connections (screws, nuts, etc.).
- The ladder is lightweight and therefore easy to transport.
- It is highly resistant to atmospheric and chemical agents.
- It is available in several lengths.
- The bottom of the ladder is fitted with a stabilizer for models over 3 meters long.

This ladder complies with the EN 131 standard.



Code	Designation	Dimensions (mm)				Number of rungs	Weight (kg)	Sales Unit
		H	L1	L2	E			
U841-3	INSULATING LADDER 3m	3	400	400	250	11	9,5	1
U841-3.5	INSULATING LADDER 3.5m	3,5	400	800	250	13	10,5	1
U841-4	INSULATING LADDER 4m	4	400	850	250	15	12	1
U841-4.5	INSULATING LADDER 4.5m	4,5	400	900	250	17	14	1
U841-5	INSULATING LADDER 5m	5	400	950	250	19	16	1
U841-6	INSULATING LADDER 6m	6	400	1050	250	23	19	1

# Collective protective equipment

## Warning tape

**F865**

### Application

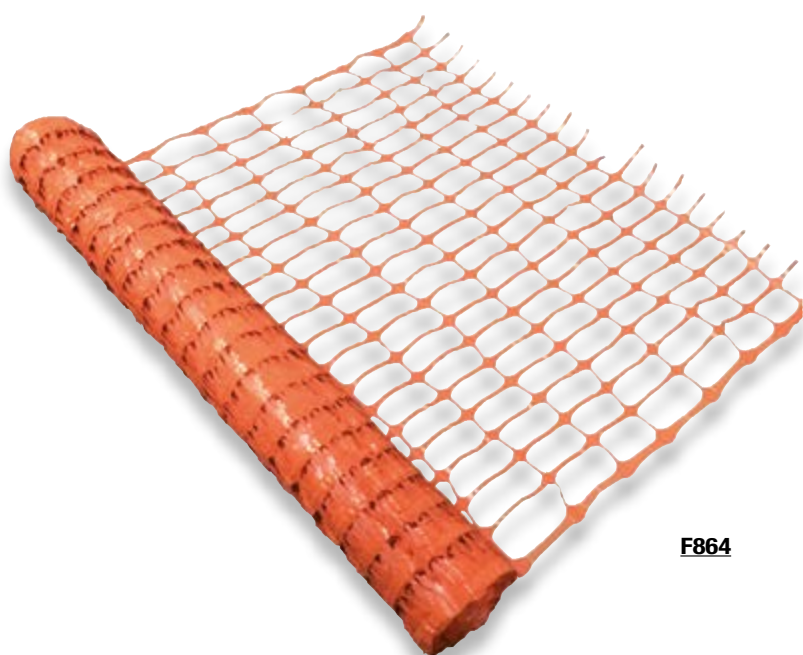
This warning tape enables to secure and delimit a work area on a construction site.

### Description

- The warning tape is red and white (stripes).
- It is made of polyethylene.
- It is delivered in roll of 100m.

Code	Designation	Length (m)	Width (mm)	Thickness (mm)	Weight (kg)	Sales unit
F865	WARNING TAPE RED/WHITE (ROLL 100m)	100	70	0.050	1.500	1

## Safety barrier



**F864**

### Application

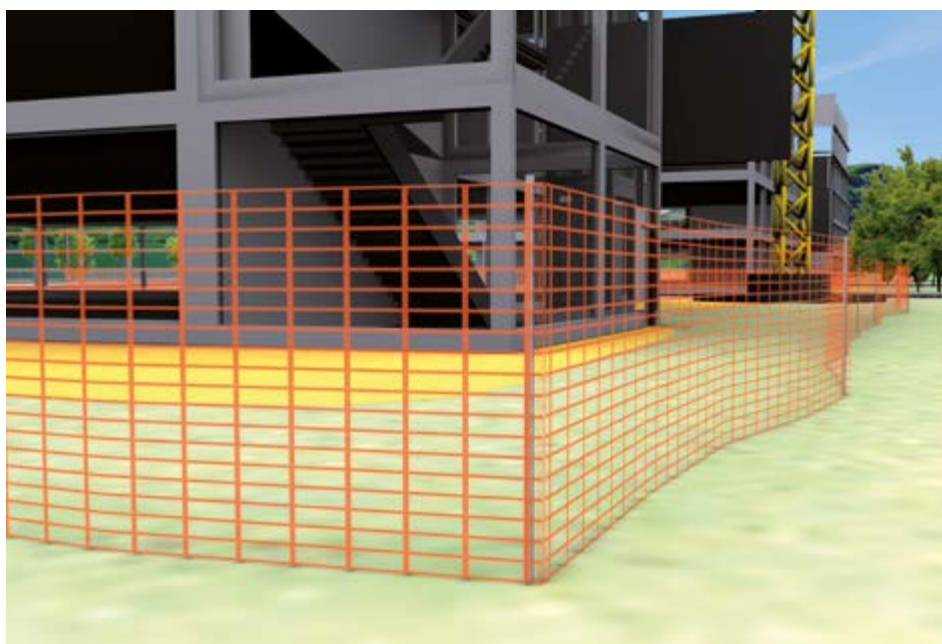
This safety barrier enables to secure and delimit a work area on a construction site. This netting is made of stretch mesh and offers a high tensile strength allowing extension without any risk of deformation or tearing.

### Description

- The safety barrier is orange.
- The unoriented manufacturing process makes it more resistant in lengthwise axis.
- The netting is made of high density polyethylene.

It meets the criteria of the **EN 13934-1** standard.

Code	Designation	Length (m)	Height (m)	Color	Weight (g/m <sup>2</sup> )	Sales unit
F864	NETTING BARRIER	50	1	Orange	90	1



## LV line unwinding and pulling

### Pulley for aerial bundled conductors


**F240**

**F241**

#### Application

This pulley is designed to receive low voltage A.B.C. (Aerial Bundled Conductors) for unwinding and pulling operations.

#### Description

- The body of the pulley is made of aluminium alloy.
- The 250mm diameter wheel is made of synthetic materials. It has a 60mm groove to make the passage of A.B.C. up to 3x150 + 70N + 16mm<sup>2</sup> easier.
- The pulley is equipped with safety locking allowing the rope to be fitted with one hand. This system prevents the rope and therefore the A.B.C. from jumping out of the wheel during handling.
- Two types of pole fixing are available:
  - Pulley with swivelling hook,
  - Pulley with ratchet tightener and 1.20m strap.

Code	Designation	Pulley width (mm)	Operating load (daN)	Weight (kg)	Sales unit
F240	PULLEY WITH STRAP	60	800	5.200	1
F241	PULLEY WITH HOOK	60	800	2.650	1

For other characteristics, please contact us.

### Mechanical winch



#### Application

This mechanical winch is designed to pull conductors of a low voltage power line. Light and small, it can be used for all types of cable adjustments, in particular on top of supports. It can be used also for lifting loads, stowing poles and other applications.

#### Description

- Two hooks at each end enable the winch to be fixed. They are equipped with a safety locking pin.
- The operating arm with ergonomic handle makes it easier to adjust the traction.
- The body is equipped with ratchet tightening system.

Code	Designation	Operating load (daN)	Weight (kg)	Sales unit
U354	MECHANICAL WINCH 500	500	9.00	1
U355	MECHANICAL WINCH 1 000	1 000	9.00	1



## Overhead comealong clamp



### Application

This overhead comealong clamp is designed to pull, retain and stretch bare or insulated conductors of a power line. Three models are available according to the type of conductors to be implemented:

- Bare steel or aluminium cable,
- A.B.C. (Aerial Bundled Conductors) type neutral messenger,
- A.B.C. type fully supported.

### Description

- The half-cylinder shaped parallel jaws ensure secure tightening of the conductor, protecting it.
- An ergonomic handle with its wide opening enables good handling.
- The sliding of the jaws and arms is facilitated thanks to bolts and slides.
- The assembly is made of corrosion-proof galvanised steel or aluminium.

Code	Designation	Conductor type	Tighten capacity	Maximum load (daN)	Weight (kg)	Sales unit
F257	BARE CONDUCTOR COMEALONG 4-12mm	Bare Al / Steel	4-12mm	1 700	0.500	1
F258	INSULATED CONDUCTOR COMEALONG 6-14mm	Insulated Al / Cu	6-14mm	800	1.555	1
F269	SELF-SUPPORTED A.B.C. COMEALONG 4x95-150mm <sup>2</sup>	A.B.C.	4x95mm <sup>2</sup>	600	6.500	1
			4x150mm <sup>2</sup>	900		

## Wire-strainer



### Application

This wire-strainer is designed to pull conductors on a low voltage electrical line manually. The forward/backward distance can be varied by changing the position of the cam to increase the traction speed to reduction of the effort.

Code	Designation	SWL (kg)	Ø cable or Ø wire to pull (mm)	Lever's two way distance (mm)	Comealong type	Weight (kg)	Sales unit
U353	WIRE-STRAINER (400KG)	400	from 6 up to 8	65	2	3.65	1
U351	WIRE-STRAINER (600KG)	600	from 7 up to 15	75	3	4.75	1
U352	WIRE-STRAINER (800KG)	800	from 14 up to 18	90	4	5.70	1

## Wooden pole climbers



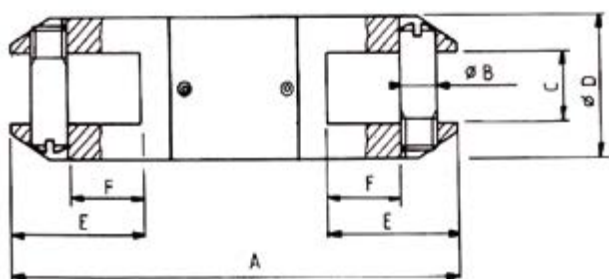
### Application

These climbers are designed to help fitters climbing along poles and facilitate work at height. Sold in pair.

Code	Designation	Weight (kg)	Sales unit
<b>WOODEN POLE CLIMBERS</b>			
F448-20	WOODEN POLE CLIMBERS 6 PEAKS DIAM 20cm	2.45	1
F448-22	WOODEN POLE CLIMBERS 6 PEAKS DIAM 22cm	3,10	1
F448-25	WOODEN POLE CLIMBERS 6 PEAKS DIAM 25cm	2.70	1
F448-30	WOODEN POLE CLIMBERS 6 PEAKS DIAM 30cm	3.00	1
F448-35	WOODEN POLE CLIMBERS 6 PEAKS DIAM 35cm	3.20	1
<b>AUTOMATIC LOCKING CONCRETE CLIMBERS</b>			
F495	CLIMBING ROPES FOR CONCRETE POSTS 120-450 mm	8.200	1
F496	CLIMBING BEAMS 5/20	3.700	1

## Overhead pulling grip and swivel

### Swivel


**U356-14**


#### Application

This overhead swivel is used between two overhead pulling grips to replace an old conductor by a new one or between a pulling grip and the wire rope on the winch.

It prevents any twisting of the conductor during pulling, unreeling and laying. All of the parts are made of alloyed steel.

Code	Designation	A (mm)	B (mm)	C (mm)	Ø D (mm)	E (mm)	Linear break-down (daN)	Weight (kg)	Sales unit
U356-14	OVERHEAD SWIVEL DIAMETER 14	61	6	6	14	16	1 650	0.075	1
U356-16	OVERHEAD SWIVEL DIAMETER 16	70	6.5	8	16	19	1 700	0.100	1
U356-22	OVERHEAD SWIVEL DIAMETER 22	88	8.5	10	22	29	4 600	0.230	1
U356-34	OVERHEAD SWIVEL DIAMETER 34	122	12	16	34	35	6 500	0.520	1
U356-38	OVERHEAD SWIVEL DIAMETER 38	122	12	16	38	35	9 500	0.690	1
U356-55	OVERHEAD SWIVEL DIAMETER 55	200	16	32	55	35	5 000	2.000	1

### Overhead pulling grip for self-supporting cable



#### Application

This overhead pulling grip is designed for the pulling, unreeling and laying of bare and insulated self-supporting overhead cables.

#### Description

- These pulling grip are made of galvanized steel.
- They are requested for implementation of self-supporting cable.

Code	Designation	Ø of cables (mm)	Maximum operating load (daN)	Requested cable	Weight (kg)	Sales unit
U359-30	OVERHEAD PULLING GRIP GALVA SS 4x35-50 <sup>2</sup> - 30mm	23 to 29	8 000	Self-supporting 4x35 et 4x50 <sup>2*</sup>	1.450	1
U359-40	OVERHEAD PULLING GRIP GALVA SS 4x70-95 <sup>2</sup> - 40mm	29 to 38	13 000	Self-supporting 4x70 et 4x95 <sup>2*</sup>	1.600	1

\*According to HD626 standards

## Overhead pulling grip for neutral messenger

Simple-loop nylon    Double-loop nylon



Galvanized steel

### Application

This overhead pulling grip is designed for the pulling, unreeling and larying of bare and insulated overhead cables with neutral messenger.

### Description

- The pulling grip for neutral messenger is made of galvanized steel.
- The pulling grip for aerial bundled cable with neutral messenger is made of nylon and are available in simple or double-loop.
- The single-loop overhead pulling grip has one buckle at one end and is closed (with a splice end) on the other end. It is used to pull a cable at its end.
- The double-loop overhead pulling grip has two buckles and is open on its two ends. It is used to start the pulling at its end and all along the cable.

Code	Designation	Ø of cables (mm)	Maximum operating load (T)	Requested cable	Weight (kg)	Sales unit
<b>GALVANIZED STEEL</b>						
U359-15	OVERHEAD PULLING GRIP GALVA NM 54.6 -70 <sup>2</sup> - 15mm	11 to 14	3 500	Neutral messenger 54.6 et 70 mm <sup>2</sup> *	0.950	1
U359-20	OVERHEAD PULLING GRIP GALVA NM 54.6 -70 <sup>2</sup> - 15mm	14 to 17	3 500	Neutral messenger 95 mm <sup>2</sup> *	1.100	1
<b>NYLON SIMPLE BOUCLE</b>						
U357-30	OVERHEAD PULLING GRIP SINGLE EYE DIAMETER 20-30	20 to 30	84	Aerial bundled cable with neutral messenger 3x35+54.6+Kx16*	0.080	1
U357-40	OVERHEAD PULLING GRIP SINGLE EYE DIAMETER 30-40	30 to 40	112	Aerial bundled cable with neutral messenger 3x50+54.6+Kx16 et 3x70+54.6+Kx16 et 3x70+54.6+Kx25*	0.110	1
U357-50	OVERHEAD PULLING GRIP SINGLE EYE DIAMETER 40-50	40 to 50	135	Aerial bundled cable with neutral messenger 3x70+70+Kx16 et 3x95+70+Kx16*	0.120	1
<b>NYLON DOUBLE BOUCLE</b>						
U358-30	OVERHEAD PULLING GRIP DOUBLE EYE DIAMETER 20-30	20 to 30	84	Aerial bundled cable with neutral messenger 3x35+54.6+Kx16*	0.090	1
U358-40	OVERHEAD PULLING GRIP DOUBLE EYE DIAMETER 30-40	30 to 40	112	Aerial bundled cable with neutral messenger 3x50+54.6+Kx16 et 3x70+54.6+Kx16 et 3x70+54.6+Kx25*	0.170	1
U358-50	OVERHEAD PULLING GRIP DOUBLE EYE DIAMETER 40-50	40 to 50	135	Aerial bundled cable with neutral messenger 3x70+70+Kx16 et 3x95+70+Kx16*	0.220	1

\*According to HD626 standards

## LV insulated tooling

### Application

These toolings are designed to realise connections.



**F445**

#### INSULATED RATCHET WRENCH HEXAGONAL

This ratchet spanner is generally used for the installation of connectors. It has a H13/H17 end socket. It is manufactured according to the standard: **DIN EN 60900: 2012 = 1000V + double triangle.**



**K004**

#### HOLDING SPANNER

The holding spanner is designed to facilitate the installation of service connectors. It is placed on the connector walls.



**K005**

#### INSULATED WEDGE SEPARATOR

The wedge separator is designed to separate a conductor in an aerial bundle or in an underground cable to enable localised work on this conductor.

It comprises 2 wedges linked by a 1m long cord. Each black wedge is made of strong synthetic material, and is UV, shock and cold resistant.

2 separations are possible:

- 2cm: for the installation of connectors.
- 4cm: for the installation of anchoring and pulling devices.

A hole at the end enables insertion of a tool to make 90° rotation easier, providing the separation from 2 to 4cm. Very smooth ribs and a slight penetration angle make wedge insertion in the cable easier.



**F450**

#### BRUSH

This brush is used with neutral grease to brush conductor cores in order to remove the oxide film.

Code	Designation	Weight (kg)	Sales unit
F450	BRUSH FOR CONDUCTOR WITH CASE	0.080	1
F445	INSULATED RATCHET WRENCH HEXAGONAL 13/17mm	0.380	1
K004	HOLDING SPANNER CBS/RDP	0.080	20
K005	INSULATED WEDGE SEPARATOR	0.360	5
K007	INSULATED WEDGE SEPARATOR 200x15x9mm	0.050	10

## Spanners

### INSULATED CROSS SPANNER 8 - 10 - 13 - 17mm

The particular structure of this spanner allows it to be easily held. Generally, 13 and 17mm spanners are used for the installation of insulation piercing connectors. The 4 sides are insulated from one to another one. This cross spinner ensures a 1000 V protection. This product complies with the **IEC EN 60900** standard.



**F460**

Code	Designation	Weight (kg)	Sales unit
F460	CROSS SPANNER 8-10-13-17mm 1000V	0.400	1

### MONKEY WRENCH

These monkey wrenches ensure a 1000V protection. This product complies with the **IEC EN 60900** standard.



**U814-1**



**U814-2**

Code	Designation	Length (mm)	Weight (kg)	Sales unit
U814-1	MONKEY WRENCH 10" 1000V	250	0.620	1
U814-2	MONKEY WRENCH 12" 1000V	300	0.950	1

### HEX KEYS



**U814-3**

This set of spherical head hex keys comprises 10 pieces covering diameters from 1.5 up to 10mm<sup>2</sup>.

Code	Designation	Ø key (mm)	Weight (kg)	Sales unit
U814-3	SET OF 10 SPHERICAL HEAD HEX KEYS	1.5 2 2.5 3 4 5 5.5 6 8 10	0.360	1

## Screwdrivers



**U815-5**

**U815-4**

**U815-x**



Sets of screwdrivers U815-1 and U815-2 comprise 6 screwdrivers (3 flat screwdrivers and 3 cross-head screwdrivers PZ).

The set of screwdrivers U815-3 comprises 7 screwdrivers type Torx (T).

Code	Designation	Number of pieces	Shape				Sales unit
U815-1	SET OF 6 SCREWDRIVERS 1000V	6	-	3x100 4x125 5x150	-	PZ0 PZ1 PZ2	1
U815-2	SET OF 6 SCREWDRIVERS	6	-	4x100 5.5x100 6.5x125	-	PZ1 PZ2 PZ3	1
U815-3	SET OF 7 SCREWDRIVERS TORX	7	T6 T8 T10 T15 T20 T25 T30	-	-	-	1
U815-4	FLAT SCREWDRIVER 1000V 6,5x150	1	-	6.5x150	-	-	1
U815-5	CROSS-HEADED SCREWDRIVER - PH-1	1	-	-	PH1	-	1

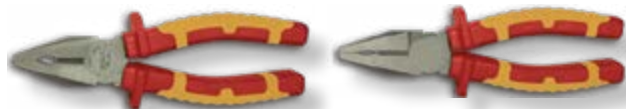
# LV insulated tooling

## Pliers

### Application

These pliers are designed to facilitate the cable work for connection operations.

#### UNIVERSAL PLIER



U810-1 U810-2 U810-3

U810-4

#### PHONE PLIER



U810-5

U810-6

#### CUTTING PLIER



U810-7

U810-8

#### STRIPPING PLIER



U810-9

#### PLIER FOR INSULATED TERMINALS



U810-10

#### WATER PUMP PLIER



U810-11

#### SET OF 3 PLIERS

The set of 3 pliers comprises:  
- a universal plier L=180mm  
- a diagonal cutting plier L=160mm  
- a stripping plier L=160mm



U810-12

Code	Designation	Length (mm)	Weight (kg)	Sales unit
U810-1	UNIVERSAL PLIER L=165mm 1000V	165	0.230	1
U810-2	UNIVERSAL PLIER L=180mm 1000V	180	0.270	1
U810-3	UNIVERSAL PLIER L=200mm 1000V	200	0.330	6
U810-4	UNIVERSAL PLIER L=210mm 1000V	210	0.280	1
U810-5	PHONE PLIER 1000V	200	0.210	1
U810-6	CURVED PHONE PLIER 1000V	200	0.210	1
U810-7	DIAGONAL CUTTING PLIER L=160mm 1000V	160	0.210	6
U810-8	STRENGTHENED CUTTING PLIER 1000V	200	0.380	6
U810-9	STRIPPING PLIER 1000V	160	0.170	6
U810-10	PLIER FOR INSULATED TERMINALS	200	0.175	1
U810-11	WATER PUMP PLIER	254	0.350	6
U810-12	SET OF 3 PLIERS 1000V		0.620	1

## Cutting

### Application

These toolings are designed for cables and synthetic materials cut.

#### CABLE CUTTER



**U811-1**



**U811-2**  
**U811-3**



**U811-4**

#### SCISSORS



**U811-5**

#### ANGLED KNIFE



**U811-6**

#### CUTTING PLIER FOR PLASTIC SADDLES



**U811-7**

#### PLASTIC PIPE CUTTER



**U811-8**

Code	Designation	Cu (mm <sup>2</sup> )	Al (mm <sup>2</sup> )	Length (mm)	Weight (kg)	Sales unit
U811-1	CABLE CUTTER 1000V			250	0.500	1
U811-2	CABLE CUTTER WITH PAWL DIAM 32 1000V	240	300	260	0.600	1
U811-3	CABLE CUTTER WITH PAWL DIAM 52 1000V	400	600	280	0.800	1
U811-4	CABLE CUTTER WITH PAWL DIAM 70 1000V	800	1000	300	0.900	1
U811-5	BIG BREACH SCISSORS 1000V			160	0.098	1
U811-6	ANGLED KNIFE 1000V			190	0.111	1
U811-7	CUTTING PLIER FOR PLASTIC SADDLES			150	0.100	1
U811-8	PLASTIC PIPE CUTTER 1000V			64	0.600	1

# LV insulated tooling

## Electrician sets

### Application

These sets offer several toolings designed for LV electrical equipment installation.



17 pieces - U812-1



26 pieces - U812-2



37 pieces - U812-3



10 pieces - U812-5



5 pieces - U812-4

Code	Designation	Number of pieces	Weight (kg)	Sales unit
U812-1	ELECTRICIAN SET 17 PCS 1000V	17	3.60	1
U812-2	ELECTRICIAN SET 26 PCS 1000V	26	5.00	1
U812-3	ELECTRICIAN SET 37 PCS 1000V	37	9.00	1
U812-4	ELECTRICIAN TOOLINGS SET 5 PCS 1000V	5	0.75	1
U812-5	RATCHET WRENCH AND SOCKETS SET 3/8" 10 PCS 1000V	10	2.00	1

Other kits can be provided according to your needs in tools and personalized bags can be made. Please consult us.

## Tool belts

### Application

These belts make the fitter's job easier by giving an easy access to needed tools during the installation



U839-2



U839-1

Code	Designation	Weight (kg)	Sales Unit
U839-1	SIMPLE TOOL BELT	0,500	1
U839-2	DOUBLE TOOL BELT	0,800	1



## Measuring devices



### DIGITAL MULTIMETER

It measures direct or alternative current and voltage, resistance, electrical capacity, diodes and frequency.

**U813-1**



### DIGITAL TESTER

It enables to perform voltage measurements from 0 up to 220V.

**U813-3**

## Application

These devices are designed to perform test or control measurements in order to make sure of the right products installation.

### CLAMP MULTIMETER

The clamp ammeter measures current, voltage, resistance, temperature, diodes and electrical continuity. The U813-2 product has an intensity from 2 to 400A AC and the U813-21 has an intensity from 40 to 1000A AC.



**U813-2**

Code	Designation	Weight (kg)	Sales unit
U813-1	DIGITAL MULTIMETER	0.915	1
U813-2	CLAMP MULTIMETER 400A	0.520	1
U813-21	CLAMP MULTIMETER 1000A	0.665	1
U813-3	DIGITAL TESTER 220V	0.040	1

## Tooling

### Consumable material



**L024**

### NEUTRAL GREASE

This tube of neutral grease is used to brush the conductors to be connected and thus protect the electrical connection. The neutral grease complies with the ERDF France technical guide. It is neutral as regards aluminium and copper. It has the following technical characteristics:

- A high drop point (190°),
- A wide use temperature range (-20°C up to + 120°C).



**U843**

### ADHESIVE TAPES

Specially designed for any electrical insulation application, ideal for protecting low and medium voltage cable connections, polyvinyl chloride (PVC) insulating tapes have good abrasion resistance.

**U842** : 0.18mm thickness, excellent resistance to abrasion. High tensile strength (35 N/cm).

**U843-X** : thickness 0,13mm. Good tensile strength (25N/cm). Self-extinguishing, premium quality, they have a very good dielectric strength (40kV/mm).

Both are compliant with the EU Directive 2011/65/EC (RoHS 2) and the Commission Directive (EU) 2015/863 (RoHS 3).

Code	Designation	Weight (kg)	Lenght (m)	Width (mm)	Sales Unit
L024	CONTACTAL N190 NEUTRAL GREASE - TUBE OF 100g	0.115	1	-	1
U842	DARK ADHESIVE TAPE ROLL 33m x 19mm ISO ADH	0,091	33	19	48
U843	DARK ADHESIVE TAPE ROLL 10m x 15mm	0,026	10	15	100
U843-B	BLUE ADHESIVE TAPE ROLL 10m x 15mm	0,026	10	15	100
U843-R	RED ADHESIVE TAPE ROLL 10m x 15mm	0,026	10	15	100
U843-VJ	GREEN YELLOW ADHESIVE TAPE ROLL 10m x 15mm	0,026	10	15	100

## Hydraulic crimping tool



**F400**



**F407**



**F408**



**F420 - F421 - F422**



**F401**



**F424**



**F432**

### Application

These crimping tools are designed for the crimping of junction sleeves and lugs.

They are available in 2 versions:

- hydraulic type,
- electro-hydraulic type.

### Description

#### Hydraulic type:

- The ergonomic mobile handle enables the beginning of crimping by operating the tool with one hand.
- The developed force is 50kN maximum.
- The safety valve and audible "click" ensure efficient crimping and good protection of the hydraulic closing system.
- The ram retract mechanism is actuated by a release trigger.
- A 13mm stroke enables crimp connectors to be crimped between 6 and 150mm<sup>2</sup>.
- The 180° rotating head facilitates use in any situations.
- The length is 365mm.
- The carrying case can contain one hydraulic crimping tool and up to 12 dies.

This hydraulic crimping tool meets the criteria of **NF C 20-130**.

#### Electro-hydraulic type:

- The developed force is 60kN maximum.
- The crimping time varies between 5 and 8 seconds depending on the section.
- The return is automatic after complete crimping.
- The autonomy is approximately 120 crimping operations.
- The F408 adaptor is used to assemble proposed dies.
- The product is delivered in a carrying case.

Code	Designation	Weight (kg)	Sales unit
<b>CRIMPING TOOLS</b>			
F400	50kN HYDRAULIC CRIMPING TOOL	2.350	1
F401	CARRYING PLASTIC CASE FOR 50kN HYDRAULIC CRIMPING TOOL	2.850	1
F407	60kN ELECTRO-HYDRAULIC CRIMPING TOOL	4.500	1
F408	HEXAGONAL DIE ADAPTOR	0.110	1
F409	BATTERY FOR F407	1.200	1
<b>DIES FOR PREINSULATED SLEEVES</b>			
F420	HEXAGONAL DIE TYPE E140	0.115	1
F421	HEXAGONAL DIE TYPE E173	0.115	1
F422	HEXAGONAL DIE TYPE E215	0.115	1
<b>DIES FOR Al/Cu LUGS</b>			
F424-140	HEXAGONAL DIE E140 Al/Cu SECTIONS 35+50	0.115	1
F424-173	HEXAGONAL DIE E173 Al/Cu SECTIONS 70+95+120	0.115	1
<b>DIES FOR TUBULAR LUGS</b>			
F432-4-120	HEXAGONAL DIE SECTIONS 4+120	0.115	1
F432-6-35	HEXAGONAL DIE SECTIONS 6+35	0.115	1
F432-10-50	HEXAGONAL DIE SECTIONS 10+50	0.115	1
F432-16-70	HEXAGONAL DIE SECTIONS 16+70	0.115	1
F432-25-95	HEXAGONAL DIE SECTIONS 25+95	0.115	1
F432-150	HEXAGONAL DIE SECTION 150	0.115	1
F432-185	HEXAGONAL DIE SECTION 185	0.115	1
F432-240	HEXAGONAL DIE SECTION 240	0.115	1

Other dies and hydraulic tools are available. Please contact us.



Installation video available on [www.michaud-export.com](http://www.michaud-export.com)

## Commercial reference index

BC	Code	Designation	Pages
	BC001	STREET LIGHT END CAP EE2TF 6-16	44-45
BD	BD010	MECHANICAL TIGHTENING SLEEVE 95-240 4 SCREWS	178-179
	BD020	MECHANICAL TIGHTENING SLEEVE 95-150 2 SCREWS	178-179
	BD030	MECHANICAL TIGHTENING SLEEVE 50-120 2 SCREWS	178-179
BE	BE002	SHORT-CIRCUITING LOST END BPMCC 50-240	180-181
	BE004	SERVICE REPAIRING JUNCTION KIT JRB 10-50	174-175
ED	ED001	EARTH DISTRIBUTOR STRIP AL 5 TAPS	156-157
	ED002	EARTH DISTRIBUTOR STRIP AL 8 TAPS	156-157
	ED003	GROUND CUTTING BLADE AL STRIP	156-157
F	F001	CABLE TIE 9x123mm (bag of 100)	82-83
	F002	CABLE TIE 9x180mm (bag of 100)	82-83
	F003	CABLE TIE 9x265mm (bag of 100)	82-83
	F004	CABLE TIE 9x360mm (bag of 100)	82-83
	F005	CABLE TIE 9x500mm (bag of 100)	82-83
	F006	CABLE TIE 9x750mm (bag of 100)	82-83
	F010-500-0	PLASTIC SEAL WITH UNIQUE NUMBER ORANGE (BAG 500 PIECES)	228-229
	F010-500-V	PLASTIC SEAL WITH UNIQUE NUMBER GREEN (BAG 500 PIECES)	228-229
	F012	TIE FOR IRO TUBE WITH BASE 16-32 (set of 100)	212-213
	F013	IMPLEMENTATION TOOL FOR TIE	82-83
	F016	PLASTIC JUMPER CLAMP - MOUNTING BRACKET (x100) - 9mm	80-81
	F032	BAC CABLE TIE - CPBF (batch of 100)	80-81
	F033	CABLE SADDLE - BRPV1	80-81
	F035	CABLE SADDLE - BRPV6	80-81
	F036	CABLE SADDLE - BRTV10	80-81
	F038	CABLE SADDLE - BRTV17	80-81
	F040	WALL TYPE STRAP SUPPORT WITH BRACKET TO STRIKE (x100)	82-83
	F041	WALL TYPE STRAP SUPPORT ATTACHED BY SCREW (x100)	82-83
	F081	LEATHER PROTECTION GLOVES	244-245
	F100	HEAT-SHRINKABLE END E2R 10-35	66-67
	F101	HEAT-SHRINKABLE END E4R 10-35	66-67
	F102	HEAT-SHRINKABLE END E4R 50-150	66-67
	F103	HEAT-SHRINKABLE END E4R 240	66-67
	F110	HEAT-SHRINKABLE END CAP CRB 10-25	66-67
	F111	HEAT-SHRINKABLE END CAP CRR 16-70	66-67
	F112	HEAT-SHRINKABLE END CAP CRR 150	66-67
	F113	HEAT-SHRINKABLE END CAP CRC 16-27	66-67
F114	HEAT-SHRINKABLE END CAP CRC 26-48	66-67	
F115	HEAT-SHRINKABLE END CAP CRC 46-80	66-67	
F116	HEAT-SHRINKABLE END CAP CRR 240	66-67	
F119	HEAT-SHRINKABLE SHEATH GR 35-95 (10m)	66-67	

<b>F</b>	F120	HEAT-SHRINKABLE SHEATH GR 10-35 (10m)	66-67
	F121	HEAT-SHRINKABLE SHEATH GR 50-150 (10m)	66-67
	F122	HEAT-SHRINKABLE SHEATH GR 240 (10m)	66-67
	F129	HEAT-SHRINKABLE SLEEVE FRM 30-150	66-67
	F130	HEAT-SHRINKABLE SLEEVE FRM 16-100	66-67
	F131	HEAT-SHRINKABLE SLEEVE FRM 25-100	66-67
	F132	HEAT-SHRINKABLE SLEEVE FRM 25-200	66-67
	F133	HEAT-SHRINKABLE SLEEVE FRM 30-250	66-67
	F134	HEAT-SHRINKABLE SLEEVE FRM 30-200	66-67
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	F140-2321	RINGED TUBE DIAMETER 16 (100m)	214-215
	F140-3422	RINGED TUBE DIAMETER 16 (100m)	214-215
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## INSTALLATION

These products must be implemented and used in **compliance with the applicable regulations** with a skilled, qualified professional undertaking to do so following the generally accepted rules of the trade.

For **live-line** implementation or handling, the electrician must comply with the requirements for live-line work conditions and must be equipped with the necessary personal protection equipment. The implementation temperature limits are: -10°C to +40°C.

Live-line work is carried out under the responsibility of the ordering customer in compliance with the applicable rules.

Before powering up the equipment, all the required verifications must be carried out.



## RECOMMENDATIONS

The installation instructions must be read carefully before using the product.

The product must be used and implemented in compliance with these recommendations for use and installation instructions. It must be used for the applications for which it was defined by the operator/manager of the network and on an electrical installation that is compliant and compatible with the product.

Never exceed the capacities indicated on the device and in the instructions sheet.

Unless explicitly indicated, products are designed for no-load connection.



## TOOLS

The product should be installed and used with **suitable tools**.

The screw heads should be tightened with the appropriate tool: **Spanner** for hexagonal cap screws, **flat screwdriver** for slotted screw heads of the right size, **Phillips screwdriver** for cruciform screw heads, **HSHC screw head (awls)** for hollow hexagonal screw heads, etc. The screw heads with no torque-limiting device must be tightened to the recommended torque and must not be tightened again.



## ENVIRONMENT

Please gather your waste together and follow the recycling and destruction instructions before leaving the worksite.

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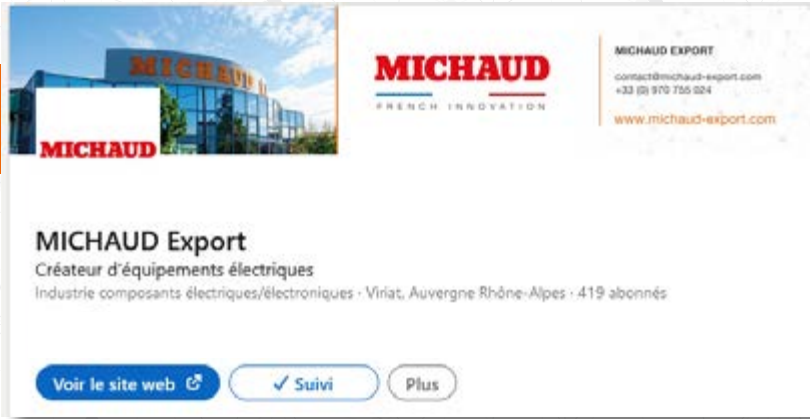


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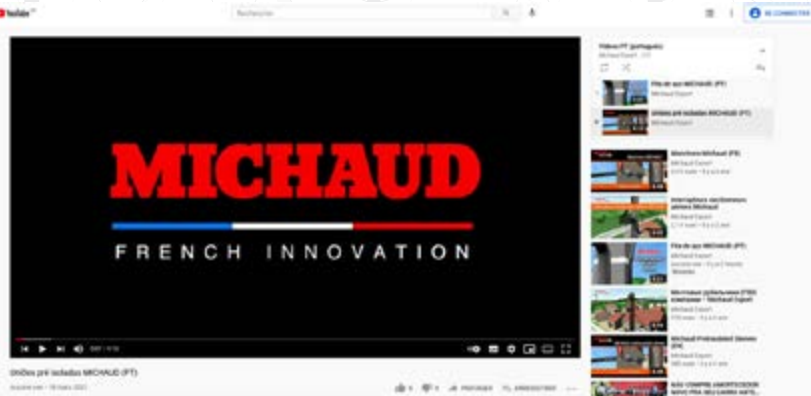
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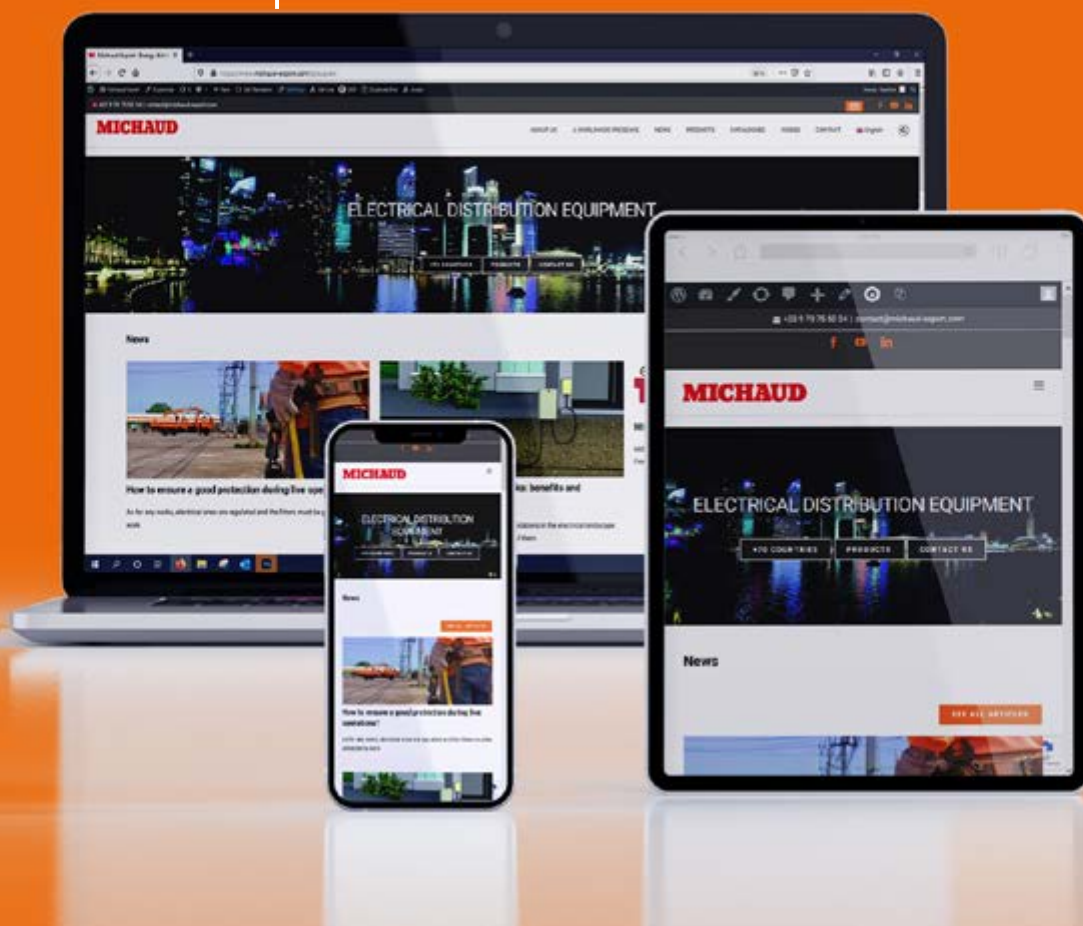


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