



2024/2025

# Electrical Distribution

Our energy at your service

Catalogue  
Low Voltage Energy

**MICHAUD**



## 65 YEARS OF EXPERTISE

MICHAUD 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



+400 employees

## PRESCRIPTION & DIAGNOSIS

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



## 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.





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.



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+ 70 PARTNERS IN THE WORLD-WIDE



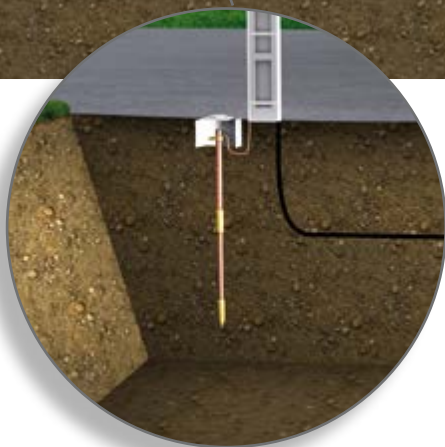
MICHAUD benefits from a privileged collaboration with many partners around the world. Thanks to an engineering Department dedicated to international business, MICHAUD provides support to Power Utilities in their grid expansion projects.

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

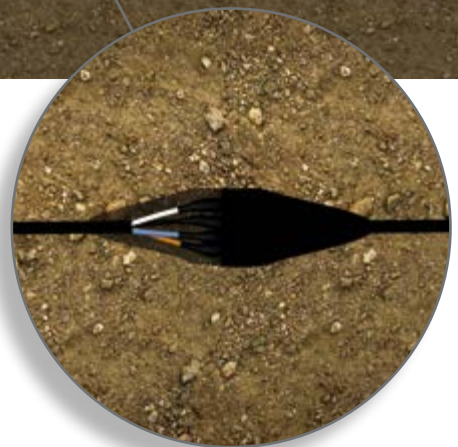
**PROTECTION** p.96



**MICHAUD**



**EARTH SYSTEM** p.130



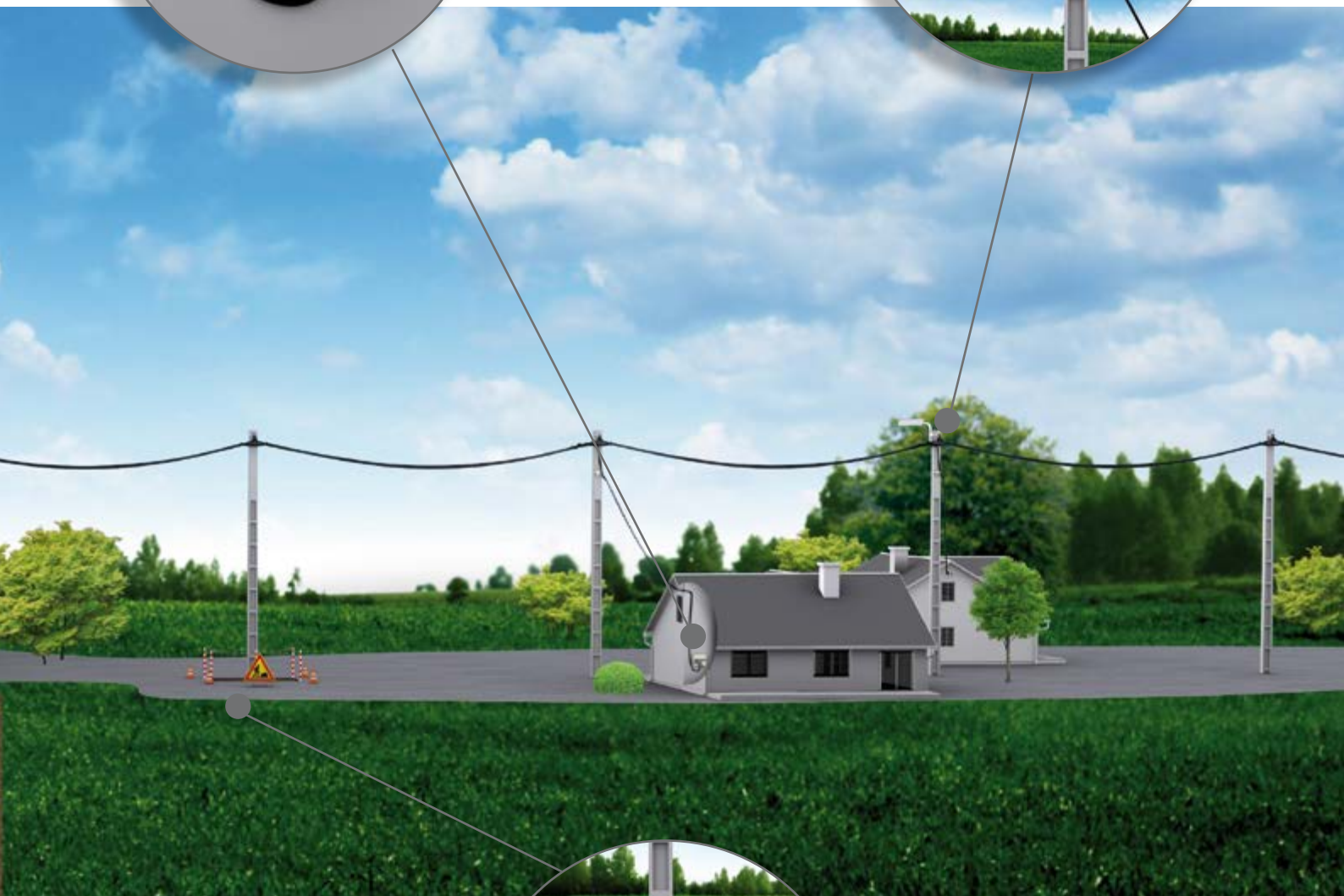
**UNDERGROUND** p.160



**HOUSING** p.208



**OVERHEAD** p.10



**INSTALLATION** p.242

## TO DISCOVER

### Overhead network

#### AERIAL CONNECTION BOX



Discover our complete range of **Aerial Connection Box** and all the options available.  
- page 28-35

#### MV ACCESSORIES



**U400** : Ring connector 25-95 / 25-95 - page 94-95

This connector is used to connect a **bare medium-voltage aluminium conductor** to another conductor of the same type.

### Protection

#### CONNECTION PROTECTION



**K223-2** : Fuse connector piercing 95-16 - Classe 2 - page 108-109

This **circuit-breaker connector** is used to protect insulated conductors or public lighting conductors connected to the low-voltage overhead network.



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## NETWORK PROTECTION



Discover our complete range of **Fuse Switch Disconnectors** and all the options available.  
- page 98-129

## Underground network

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### EMERGING CONNECTION



**REMIC equipped cabinet** : page 186-187

The cabinets are available in a fully-equipped version and an assembly version. Discover all our options page 186-197.



## OVERHEAD \_\_\_\_\_ P.10

|                                  |      |
|----------------------------------|------|
| LV service connector .....       | p.16 |
| Multiple connections .....       | p.28 |
| LV network connector .....       | p.36 |
| LV street light connection ..... | p.44 |
| LV junction .....                | p.48 |
| LV ending fitting .....          | p.60 |
| LV mechanical fixing .....       | p.70 |
| MV accessories .....             | p.92 |

## PROTECTION \_\_\_\_\_ P.96

|                          |       |
|--------------------------|-------|
| Service protection ..... | p.102 |
| Network protection ..... | p.118 |
| Fuses .....              | p.124 |

## EARTH SYSTEM \_\_\_\_\_ P.130

|                        |       |
|------------------------|-------|
| Earth electrodes ..... | p.138 |
| Earth connectors ..... | p.146 |
| Earth conductors ..... | p.152 |





# SUMMARY

## UNDERGROUND \_\_\_\_ P.160

|                           |       |
|---------------------------|-------|
| Underground service ..... | p.168 |
| Underground network ..... | p.178 |
| Emerging connection ..... | p.186 |
| Accessories .....         | p.198 |

## INSTALLATION \_\_\_\_ P.242

|                            |       |
|----------------------------|-------|
| Protective equipment ..... | p.246 |
| Tools .....                | p.258 |

## HOUSING \_\_\_\_\_ P.208

|  |       |
|--|-------|
| Electrical riser .....                 | p.212 |
| Smart Meter Equipment .....            | p.218 |
| Universal flexible linking cable ..... | p.232 |



### **LV service connector**

|  |      |
|--|------|
| Service insulation piercing connector .....                    | p.16 |
| Service insulation piercing connector with Test Probe .....    | p.18 |
| Service insulation piercing connector for bare conductor ..... | p.20 |
| Two stage bare conductor service connector .....               | p.22 |
| Service connector with independent tightening .....            | p.24 |
| Multitap service connector .....                               | p.26 |

### **Multiple connections**

|  |      |
|--|------|
| Aerial connection box .....                      | p.28 |
| Aerial fuse connections box RAMEX .....          | p.30 |
| Single pole connection block .....               | p.32 |
| Aerial connection box and network junction ..... | p.34 |

### **LV network connector**

|  |      |
|--|------|
| Network insulation piercing connector .....                                  | p.36 |
| Network insulation piercing connector fo bare conductor .....                | p.38 |
| Network insulation piercing connector with<br>dismountable tap contact ..... | p.40 |
| Parallel groove jaw .....  | p.42 |





### LV street light connector

|   |      |
|---|------|
| Street light insulation piercing connector..... | p.44 |
| Street light kit.....                           | p.46 |
| Cold shrink end cap.....                        | p.47 |

### LV junction

|   |      |
|---|------|
| Service cable dismountable sleeve and mains connection box..... | p.48 |
| Network preinsulated sleeve with mechanical tightening.....     | p.50 |
| Preinsulated sleeve E140.....                                   | p.52 |
| Preinsulated sleeve E173.....                                   | p.54 |
| Preinsulated sleeve E215.....                                   | p.56 |
| Preinsulated sleeve for aerial sub-surface connection E140..... | p.58 |

### LV ending fitting

|  |      |
|--|------|
| Preinsulated lug with mechanical tightening..... | p.60 |
| Preinsulated CPTAU lug.....                      | p.62 |
| Bare lug.....                                    | p.64 |
| Sealing end cap and cover.....                   | p.66 |
| Heat-shrinkable material.....                    | p.68 |

### LV mechanical fixing

|   |      |
|---|------|
| Stainless steel strap.....                              | p.70 |
| Stainless steel strap accessories.....                  | p.72 |
| Neutral messenger network suspension and anchoring..... | p.74 |
| Fully supported network suspension and anchoring.....   | p.76 |
| Service cable anchoring.....                            | p.78 |
| Low voltage line accessory.....                         | p.80 |
| Cable saddle.....                                       | p.82 |
| Cable tie.....  | p.84 |
| Pigtail bolt.....                                       | p.86 |
| Hot dip galvanised bolt and nut.....                    | p.88 |
| Protective duct.....                                    | p.90 |

### MV accessories

|                                 |      |
|---------------------------------|------|
| IPC for MV conductor.....       | p.92 |
| Connector for MV conductor..... | p.94 |

# SOLUTIONS FOR OVERHEAD NETWORK

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

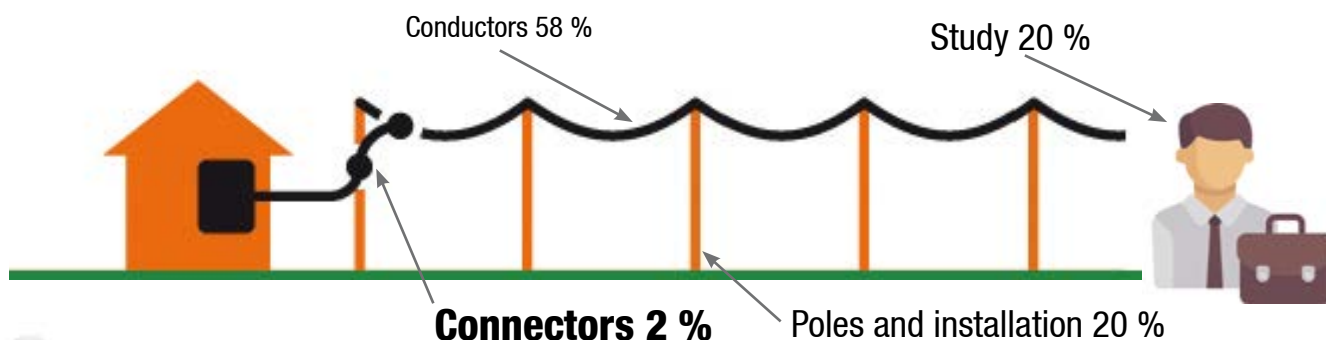
By taking into account the **overall cost** of the products over years (purchasing, maintenance, energy performance), MICHAUD offers a long terms **competitive range** of low voltage line accessories (with service life higher than 40 years).

# 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.

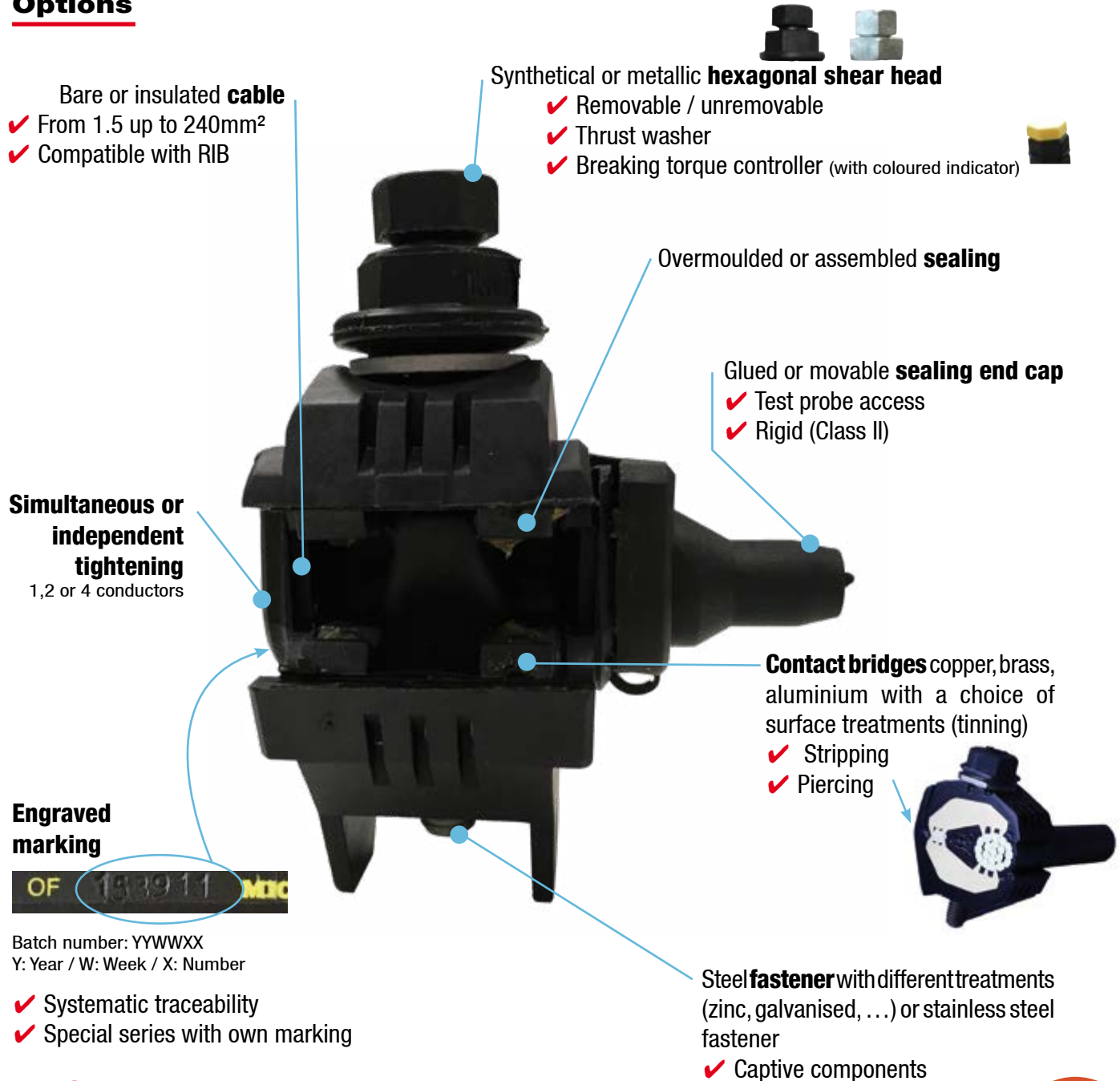


# SOLUTIONS FOR OVERHEAD NETWORK

## 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



### **MICHAUD** expertise

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



# 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...).

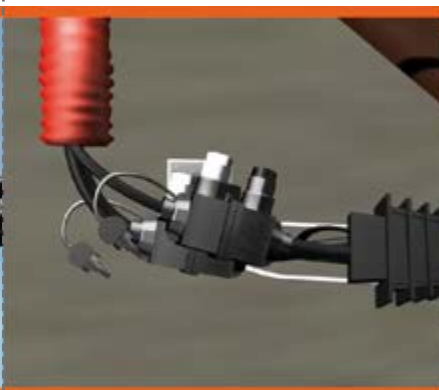
### Compression sleeve



#### 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

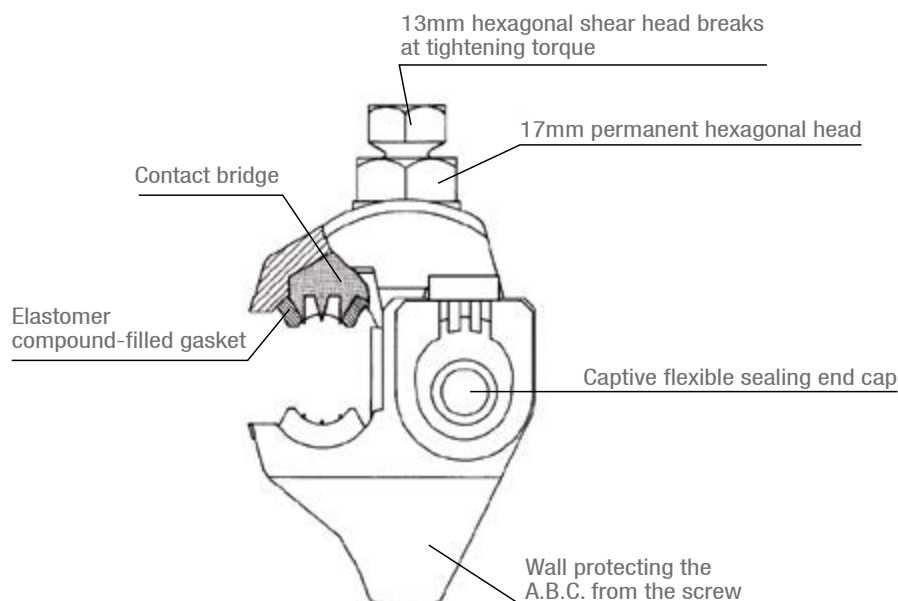
### Connector general features:

- 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 screw 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).







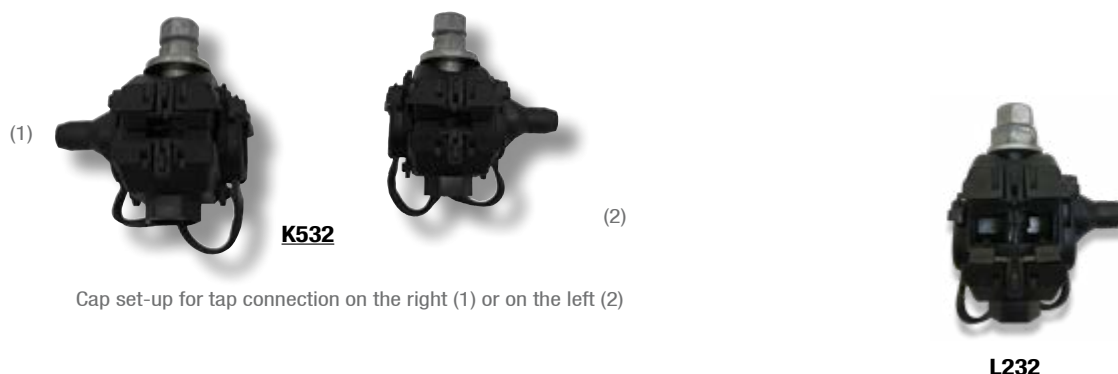
Installation video available on [www.michaud-export.com](http://www.michaud-export.com)

| Code  | Designation                    | Contact bridge  | Capacities<br>Main insulated<br>Al-Cu (mm <sup>2</sup> ) | Capacities<br>Tap insulated<br>Al-Cu (mm <sup>2</sup> ) | Weight<br>(kg) | Sales<br>unit |
|---|--------------------------------|-----------------|--|---|----------------|---------------|
| <b>ZINC-PLATED STEEL FASTENERS (ZF)</b>                             |                                |                 |  |   |                |               |
| K322  | CONNECTOR CBS/CT 25 ZF - ERDF  | Aluminium alloy | 16-25  | 6-25<br>6M-35M  | 0.120          | 12            |
| K323  | CONNECTOR CBS/CT 70 ZF - ERDF  | Aluminium alloy | 16-70  | 6-25<br>6M-35M  | 0.120          | 12            |
| K324  | CONNECTOR CBS/CT 150 ZF - ERDF | Aluminium alloy | 16-150   | 6-25<br>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.



| Code | Designation              | Contact bridge | Capacities<br>Main insulated<br>Al-Cu (mm <sup>2</sup> ) | Capacities<br>Tap insulated<br>Al-Cu (mm <sup>2</sup> ) | Weight<br>(kg) | Sales<br>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****Michaud Exclusivity**  
Test probe**K338**

with yellow shear head indicator

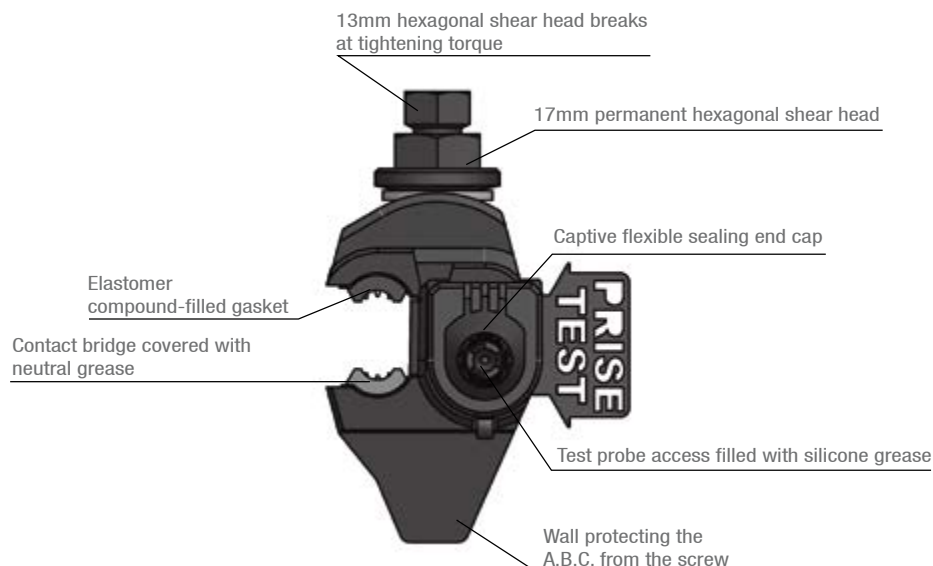
## Application

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

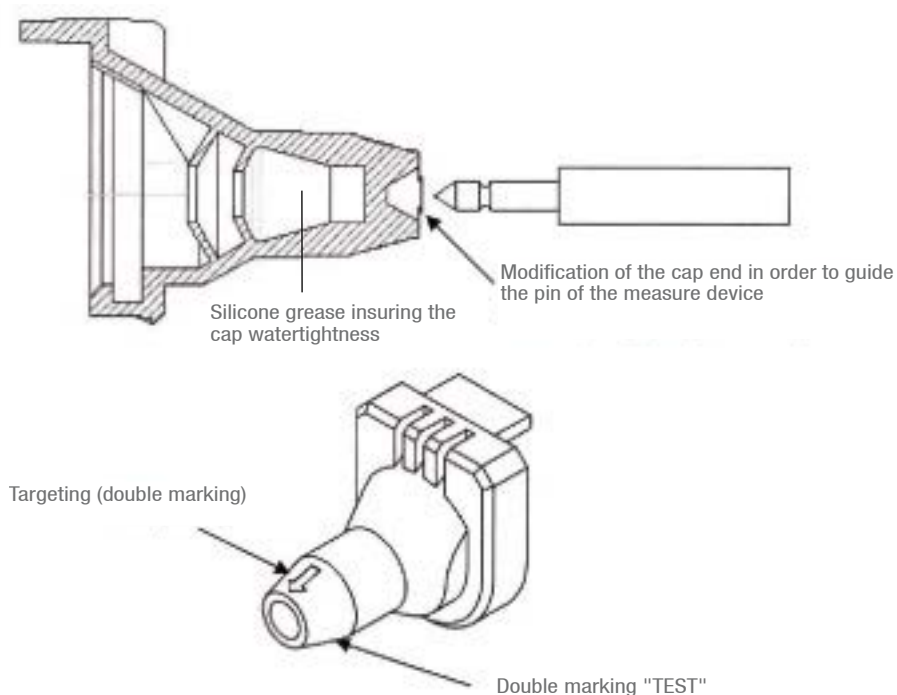
## Description

- 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<br>Main insulated<br>Al-Cu (mm <sup>2</sup> ) | Capacities<br>Tap insulated<br>Al-Cu (mm <sup>2</sup> ) | Weight<br>(kg) | Sales<br>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

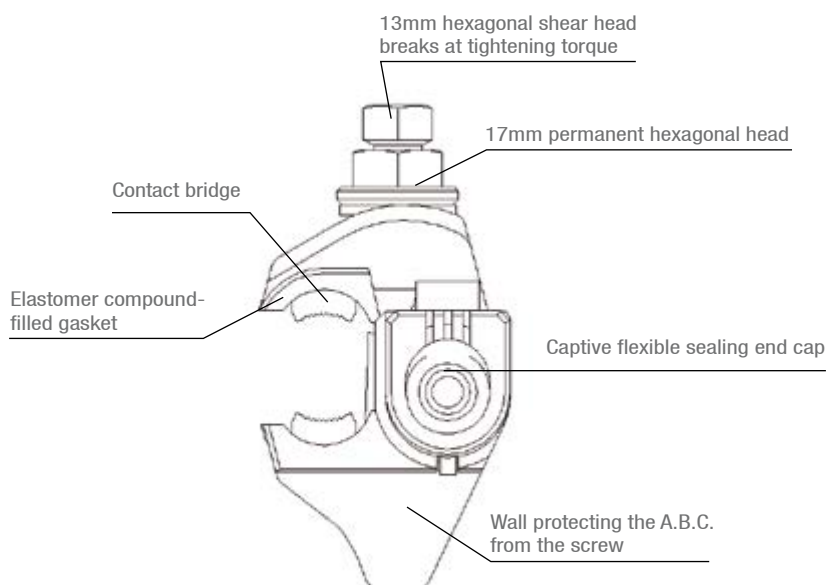
### Connector general features:

- 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<br>Main<br>bare (mm <sup>2</sup> ) | Capacities<br>Tap insulated<br>Al-Cu (mm <sup>2</sup> ) | Weight<br>(kg) | Sales<br>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.

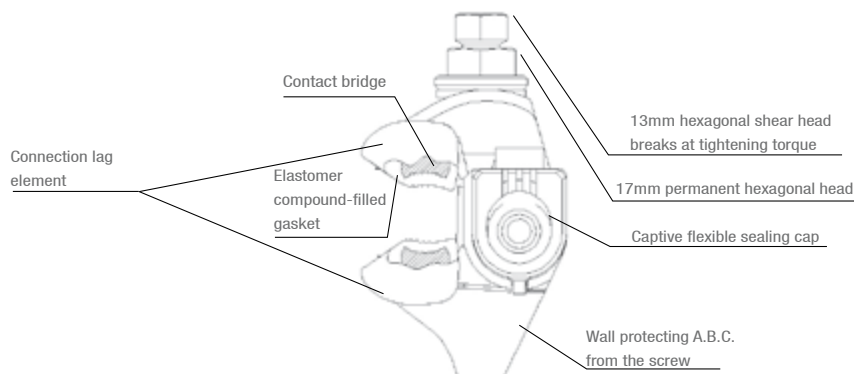
**Description****Connector general features:**

- 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.

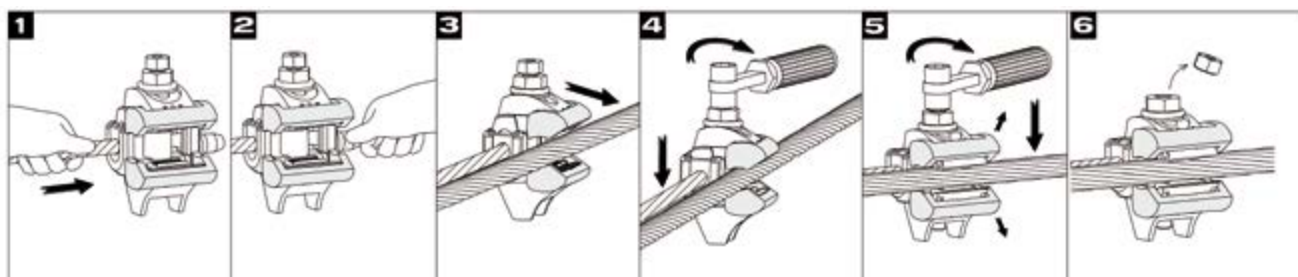
**Connector end cap:**

- 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<br>Main bare<br>(mm <sup>2</sup> ) | Capacities<br>Tap insulated<br>Al-Cu (mm <sup>2</sup> ) | Weight<br>(kg) | Sales<br>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<br>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<br>Main insulated<br>Al-Cu<br>(mm <sup>2</sup> ) | Capacities<br>Tap insulated<br>Al-Cu<br>(mm <sup>2</sup> ) | Weight<br>(kg) | Sales<br>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

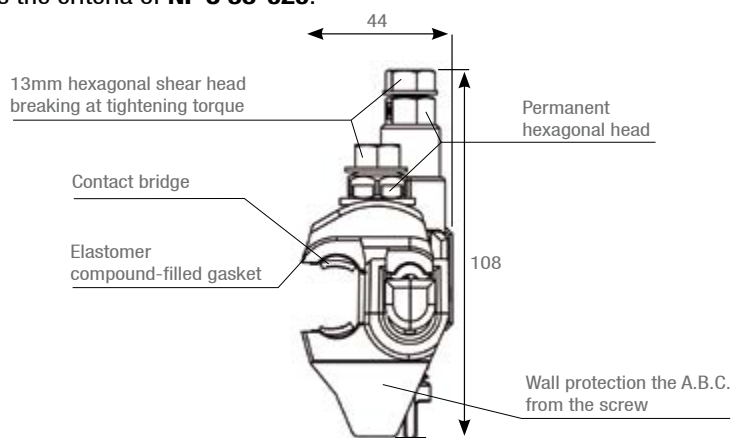
### Application

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<br>Main bare<br>(mm <sup>2</sup> ) | Capacities<br>Tap insulated<br>Al-Cu<br>(mm <sup>2</sup> ) | Weight<br>(kg) | Sales<br>unit |
|---|-----------------------------------|----------------|---|--|----------------|---------------|
| <b>ZINC-PLATED STEEL FASTENERS (VZ)</b> |                                   |                |   |  |                |               |
| K396                                    | STRIPPING CONNECTOR RDP 1d/CNU 95 | 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<br>Main insulated<br>Al-Cu (mm <sup>2</sup> ) | Capacities<br>Tap insulated<br>Al-Cu (mm <sup>2</sup> ) | Weight<br>(kg) | Sales<br>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<br>Main insulated<br>Al-Cu (mm <sup>2</sup> ) | Capacities<br>Tap insulated<br>Al-Cu (mm <sup>2</sup> ) | Weight<br>(kg) | Sales<br>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

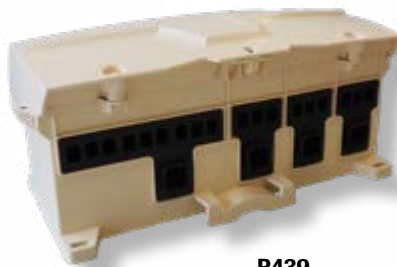
# Aerial connection box



**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**

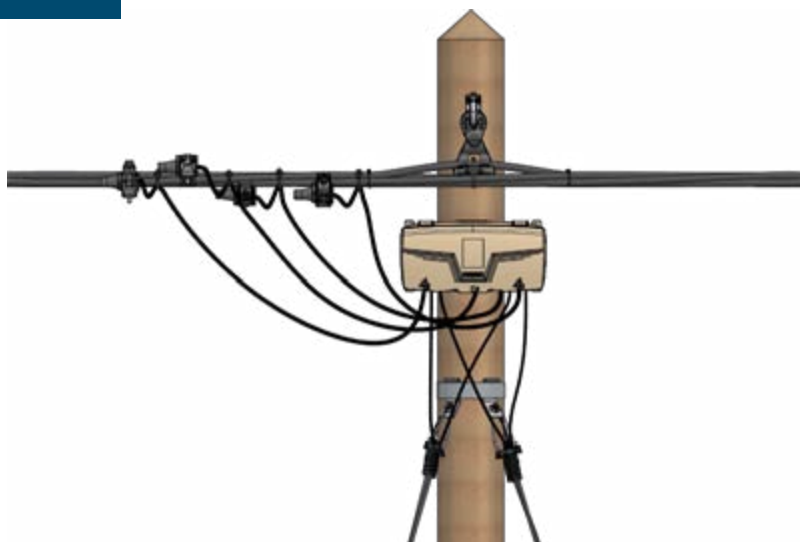
## The benefits :

- + 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** (electric 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                                     | Flow power |
|--------|------------|-----------------------------|--|------------|
|        |            | Network                     | Service                                    |            |
| P436-P | Capacities | 35-150mm <sup>2</sup> Al/Cu | 10-35mm <sup>2</sup> Al/Cu<br>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<br>16M - 50M Al  |            |
|        | Technology | Stripping                   | Stripping                                  |            |
| P439-P | Capacities | 35-150mm <sup>2</sup> Al/Cu | 10-35mm <sup>2</sup> Al/Cu<br>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<br>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

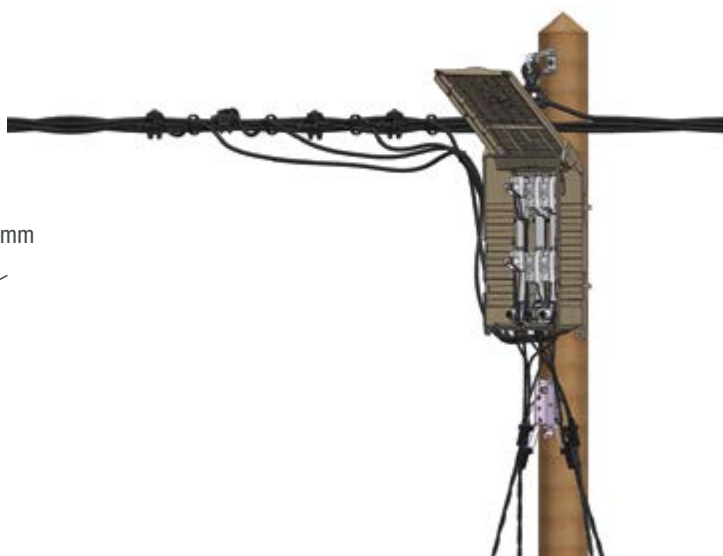
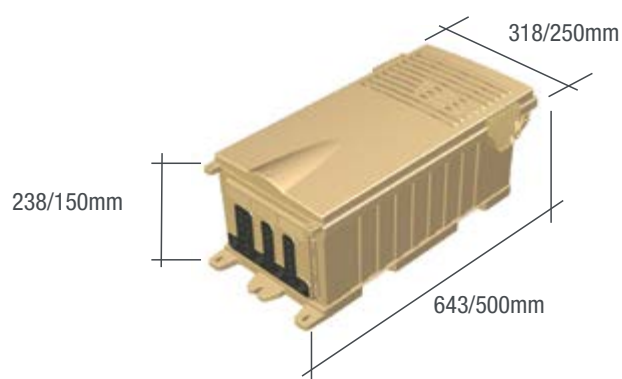
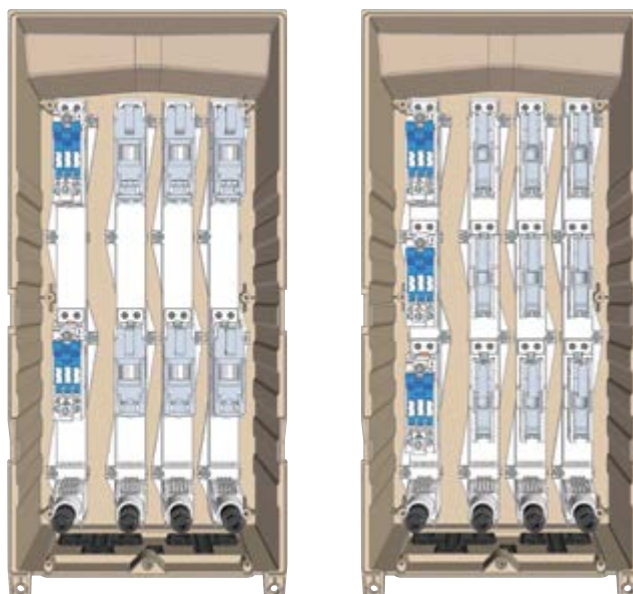
These enclosures meet the applicable criteria of **HN 62-S-33**.

## Installation

4 vertical bars



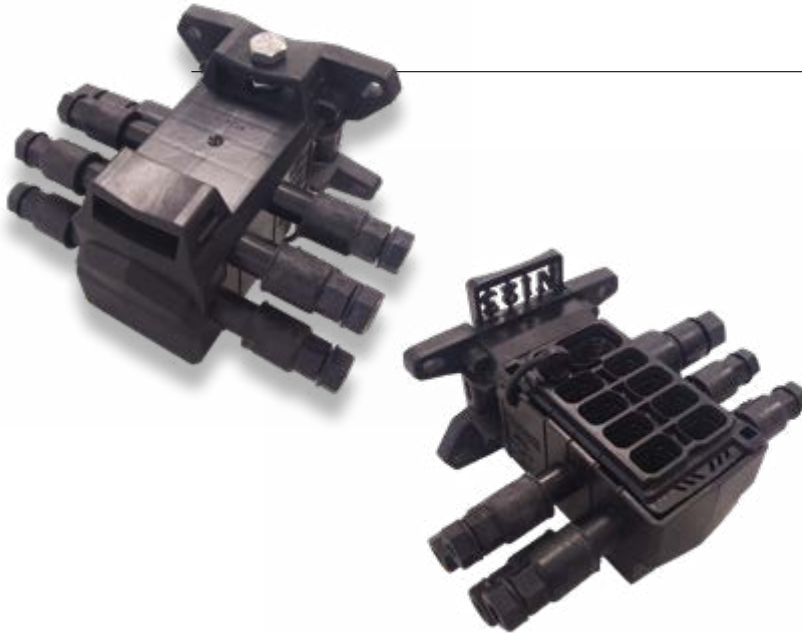
6 or 9 connections



| 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 :

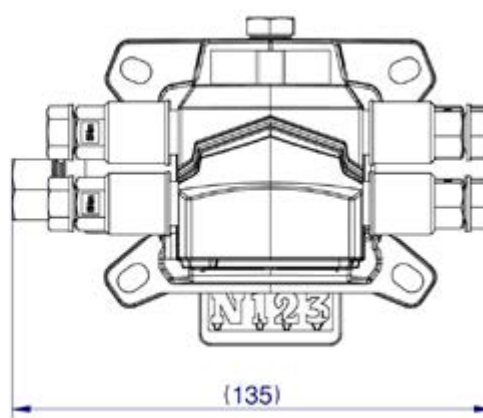
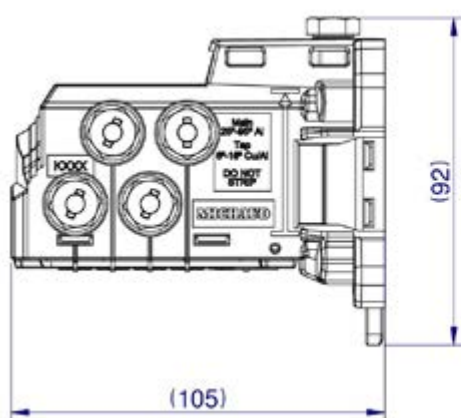
- + **Perform several single phase connections**
- + **Reduce the number of connectors** (safer network organization, strengthened fraud-prevention)
- + **Clean the network** (remove the "spiderweb" effect)
- + **Help to identify the phases** (thanks to the number plate)
- + **Check the potential at 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-flat 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

CE



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

## 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.

**MICHAUD Exclusivity**

### 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.

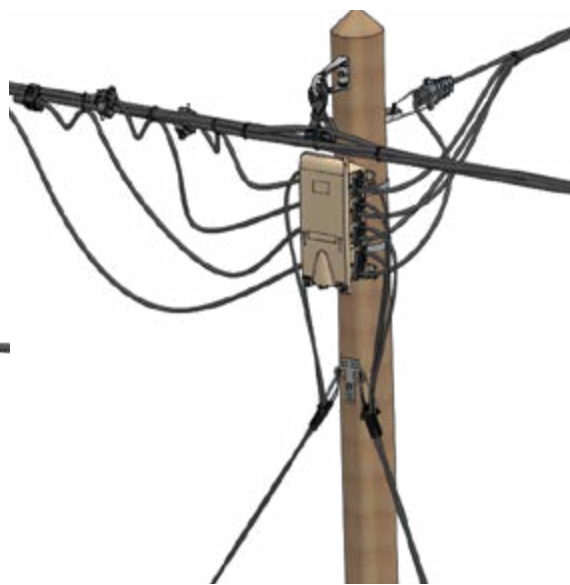
This box meets the criteria of the **HN 62-S-33** and **EN 50 483-5** standards.

\* Optional

## Installation



Network junction + service connections



Network tapping + service connections

|      |            | INLET                    | OUTLET                   |                               |            |
|------|------------|--------------------------|--------------------------|-------------------------------|------------|
|      |            | Network                  | Network                  | Service                       | Power flow |
| 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 | 160 kVA    |
|      | 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:

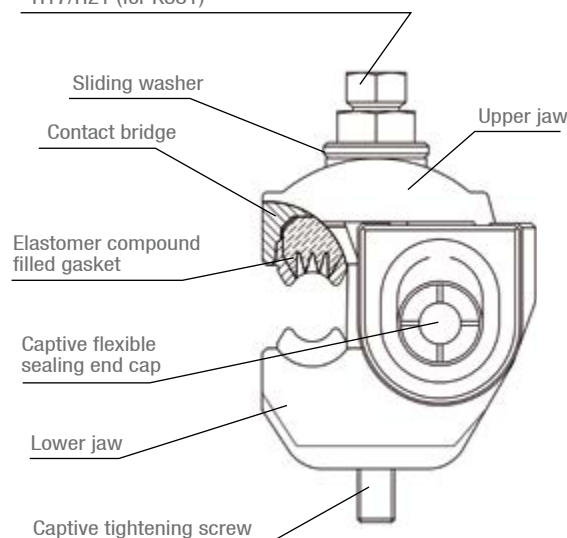
- The connector end cap is flexible so that to feel good tap conductor insertion simply by hand.
- It is carrying membranes instead of grease, granting watertightness around tap conductor end on long term basis.
- It is glued on connector body so that to avoid eventual loss during handling, installation 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<br>Main insulated<br>Al-Cu (mm²) | Capacities<br>Tap insulated<br>Al-Cu (mm²) | Weight<br>(kg) | Sales<br>unit |
|--|--|-------------|----------------|---|--|----------------|---------------|
| ZINC-PLATED STEEL FASTENERS (ZF)                             |  |             |                |   |  |                |               |
| 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             |
| STAINLESS STEEL FASTENERS (SF) + YELLOW SHEAR HEAD INDICATOR |  |             |                |   |  |                |               |
| 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<br>Main insulated<br>Al-Cu (mm²) | Capacities<br>Tap insulated<br>Al-Cu (mm²) | Weight<br>(kg) | Sales<br>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.

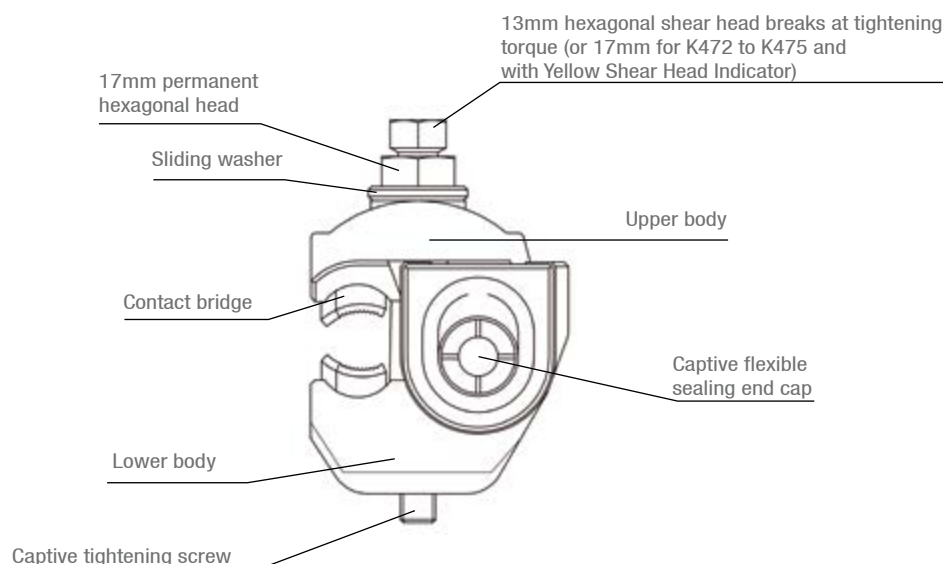
This connector meets the criteria of the **NF C 33-020** and **EN 50-483** standards.

### 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<br>Main bare<br>(mm <sup>2</sup> ) | Capacities<br>Tap insulated<br>Al-Cu (mm <sup>2</sup> ) | Weight<br>(kg) | Sales<br>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.

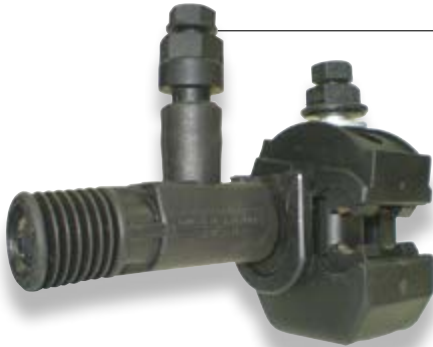


**SEE SHEET**

INSTALLATION / LV insulated toolings

# Network insulation piercing connector with dismantlable tap contact

On A.B.C

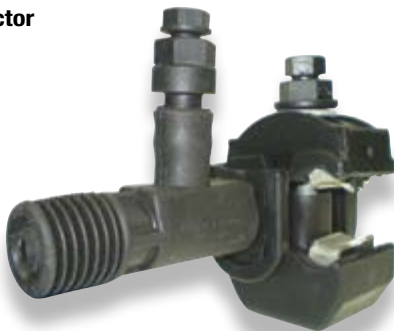


**K342**



**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.

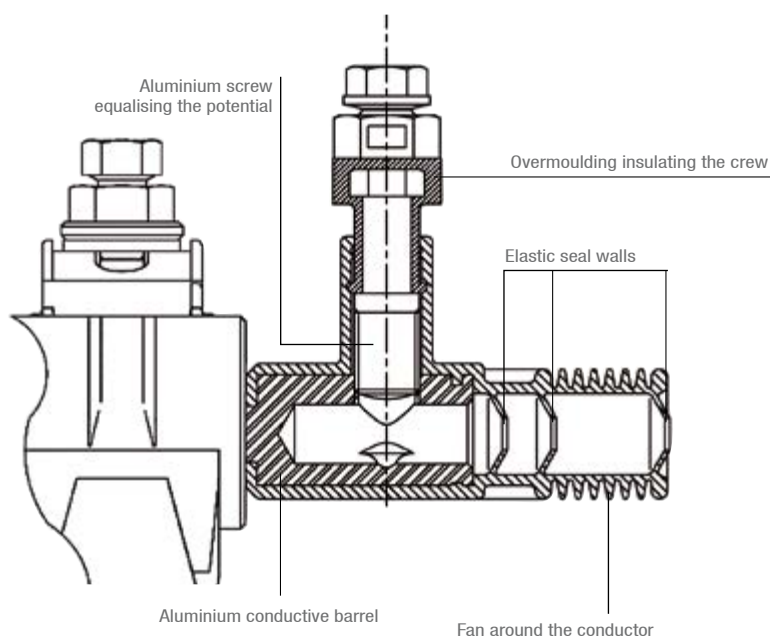
In main line, the section of the insulated conductors is from 25 to 150mm<sup>2</sup> depending on the model, and is from 7 to 120mm<sup>2</sup> on bare conductors.

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<br>Al-Cu (mm²) |        | Weight<br>(kg) | Sales<br>unit |
|--|--------------------------------|----------------|---------------------------|--------|----------------|---------------|
|  |                                |                | Main                      | Tap    |                |               |
| ON A.B.C. INSULATED ZINC-PLATED STEEL FASTENERS (ZF) |                                |                |                           |        |                |               |
| 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            |
| ON BARE CONDUCTOR ZINC-PLATED STEEL FASTENERS (ZF)   |                                |                |                           |        |                |               |
| 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<br>(mm²) |           | Weight<br>(kg) | Sales<br>unit |
|-------------------------|--|---------------------|-----------|----------------|---------------|
|                         |  | Main                | Tap       |                |               |
| BARE ALUMINIUM          |  |                     |           |                |               |
| 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            |
| BARE ALUMINIUM / COPPER |  |                     |           |                |               |
| U559-70/50              | PARALLEL GROOVE CLAMP BARE AI/Cu 70/50   | Al 16-70            | Cu 6-50   | 0.114          | 20            |
| U558-150/50             | PARALLEL GROOVE CLAMP BARE AI/Cu 150/50  | Al 25-150           | Cu 10-50  | 0.200          | 1             |
| U558-240/185            | PARALLEL GROOVE CLAMP BARE AI/Cu 240/185 | Al 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

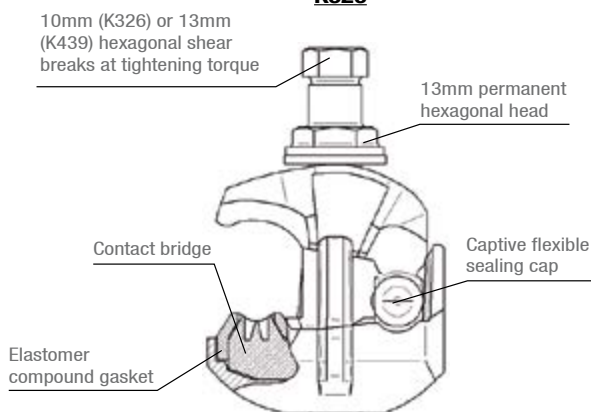
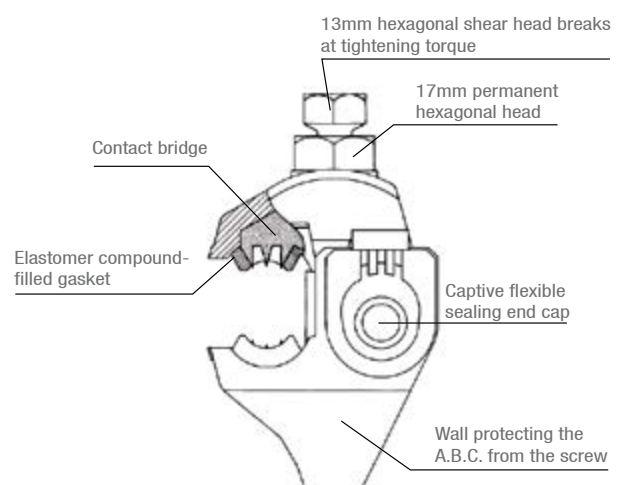
This connector is designed to connect the street light insulated conductors to the low voltage A.B.C. (Aerial Bundled Conductors).

**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.

**K326****K440 and K438**

## 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<br>Main insulated<br>Al-Cu (mm <sup>2</sup> ) | Capacities<br>Tap insulated<br>Al-Cu (mm <sup>2</sup> ) | Weight<br>(kg) | Sales<br>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

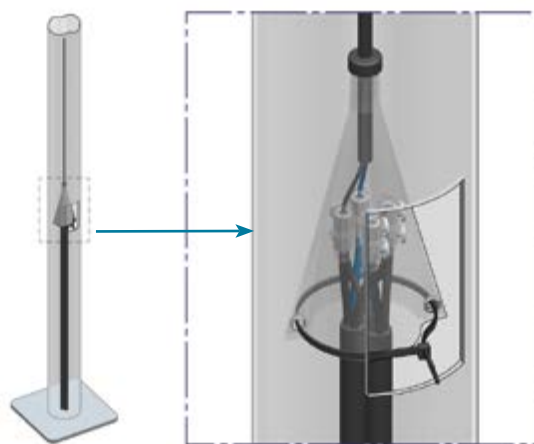
This street light set is designed to interconnect a network with a street light installation inside a lighting column.

## 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.

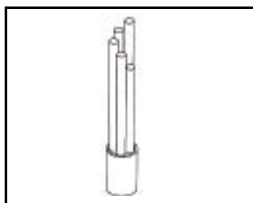
## Description

- 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.

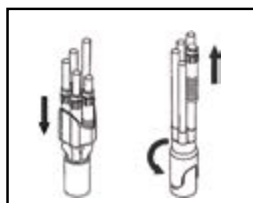
## End installation

1/



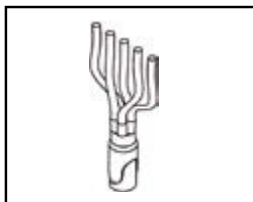
- Remove the sheath of the cable over the required length.
- Cut the conductors in a stair shape to facilitate assembly.

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



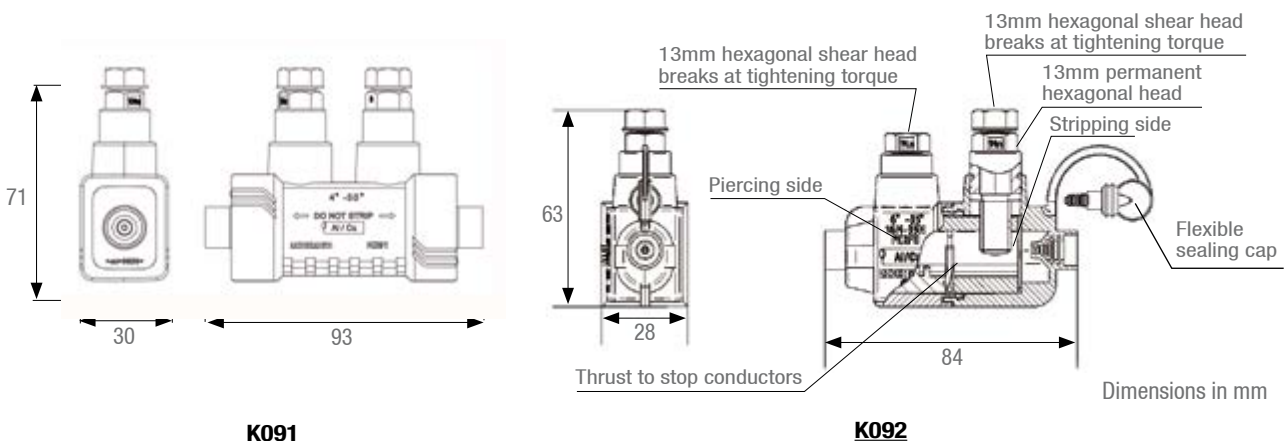
### Application

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><br>16M-50M | 6-35mm <sup>2</sup><br>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).

#### + Safe neutral connection

Customer side



Network side

**K099**

with yellow shear head indicator

| 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

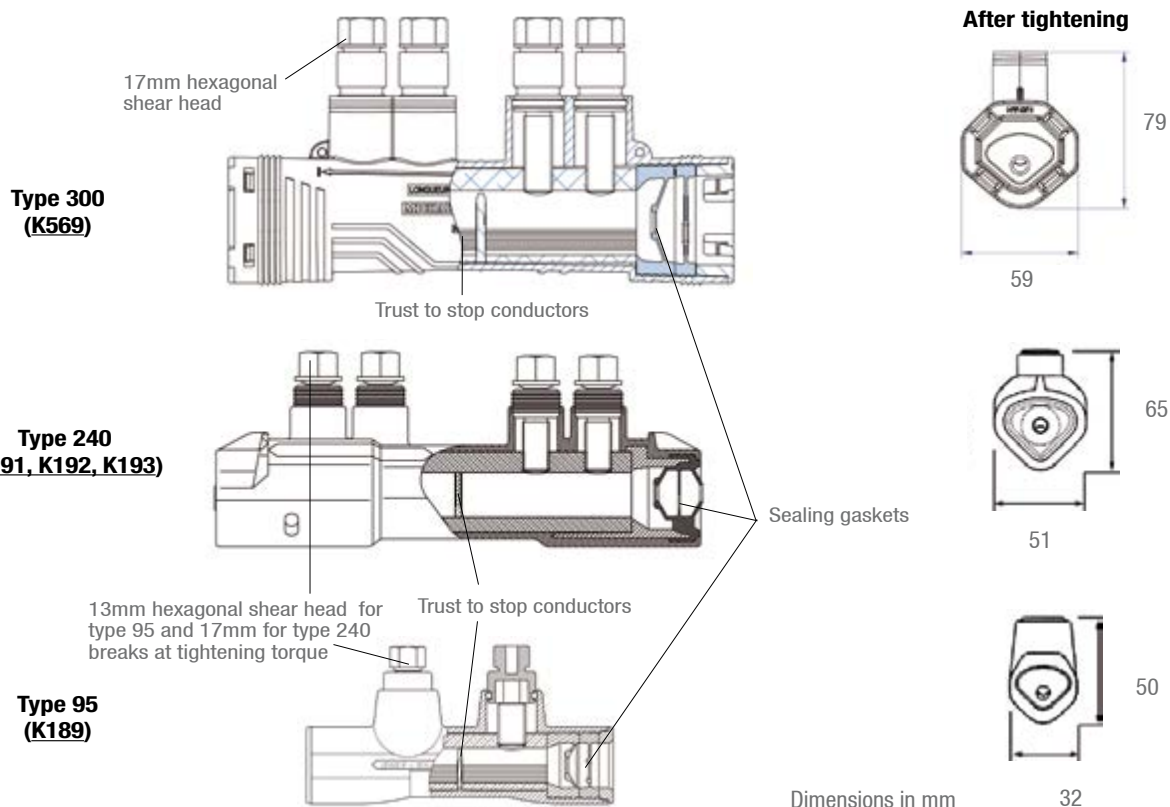
**Type 300**  
**K569****Type 240**  
**K191, K192, K193****Type 185**  
**K573****Type 95**  
**K189**

## Application

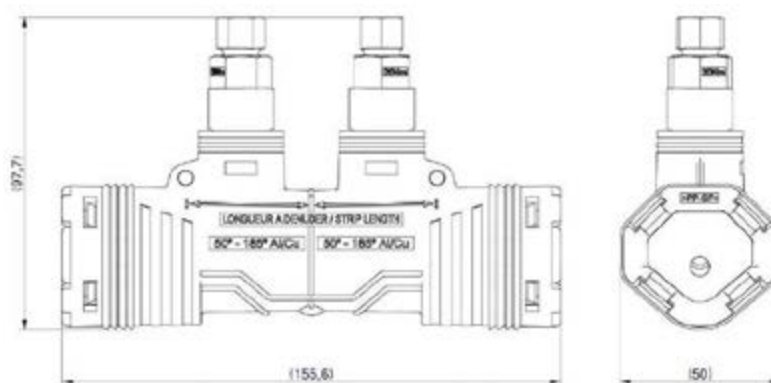
This sleeve is designed to connect aluminium or copper conductors. It does not need the sectoral cores to be rounded before. It is implemented using a 13 or 17mm spanner. The electrical capacity is respectively 240mm<sup>2</sup> aluminium conductors (K191, K192), 150mm<sup>2</sup> aluminium or copper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



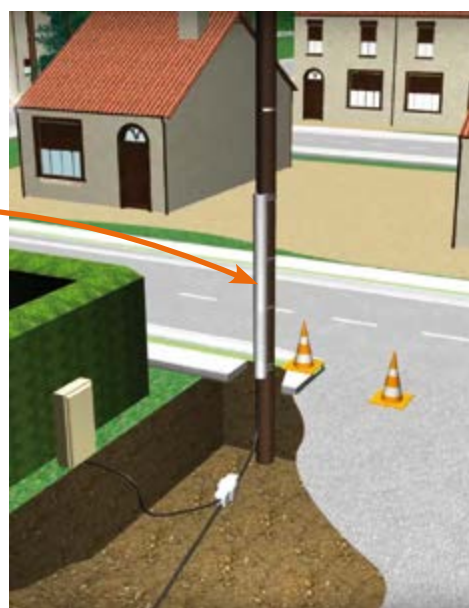
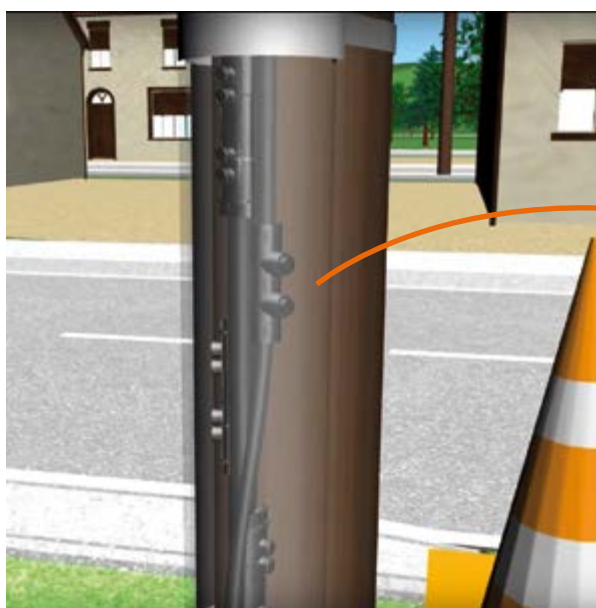
**Type 185  
(K573)**



Dimensions in mm



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



| Code | Designation   | Cable<br>insulated Al-Cu (mm²) * |                             | Weight<br>(kg) | Sales<br>unit |
|------|---|----------------------------------|-----------------------------|----------------|---------------|
|      |   | Leading-in                       | Leading-out                 |                |               |
| K573 | MECHANICAL SUBSURFACE PREINSULATED SLEEVE 50-185                      | Round/Sectoral<br>50-185         | Round/Sectoral<br>50-185    | 0.235          | 4             |
| K569 | MECHANICAL SUBSURFACE PREINSULATED SLEEVE 150-300                     | Round/Sectoral<br>150 - 300      | Round/Sectoral<br>150 - 300 | 0.545          | 4             |
| K191 | MECHANICAL SUBSURFACE PREINSULATED SLEEVE SECTORAL 95-240             | Sectoral<br>95 - 240             | Sectoral<br>95 - 240        | 0.520          | 4             |
| K192 | MECHANICAL SUBSURFACE PREINSULATED SLEEVE<br>ROUND 150 / SECTORAL 240 | Round<br>50 - 150                | Sectoral<br>95 - 240        | 0.520          | 4             |
| K193 | MECHANICAL PREINSULATED SLEEVE ROUND 50-150                           | Round<br>50 - 150                | Round<br>50 - 150           | 0.520          | 4             |
| K189 | MECHANICAL PREINSULATED SLEEVE 25-95                                  | Round/Sectoral<br>25 - 95        | Round/Sectoral<br>25 - 95   | 0.160          | 3             |

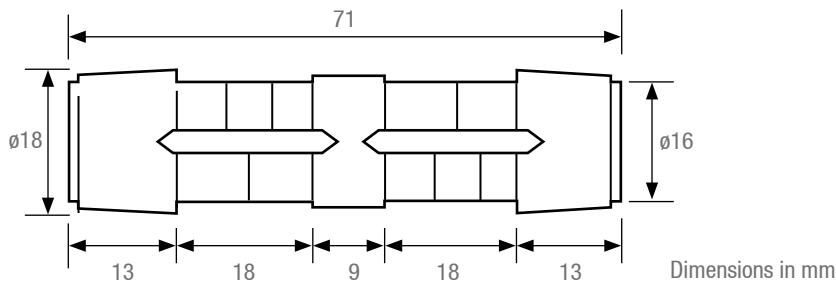
\* Others cross sections are available : please contact us.



**SEE SHEET**  
INSTALLATION / LV insulated toolings



# Preinsulated sleeve E140

**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.

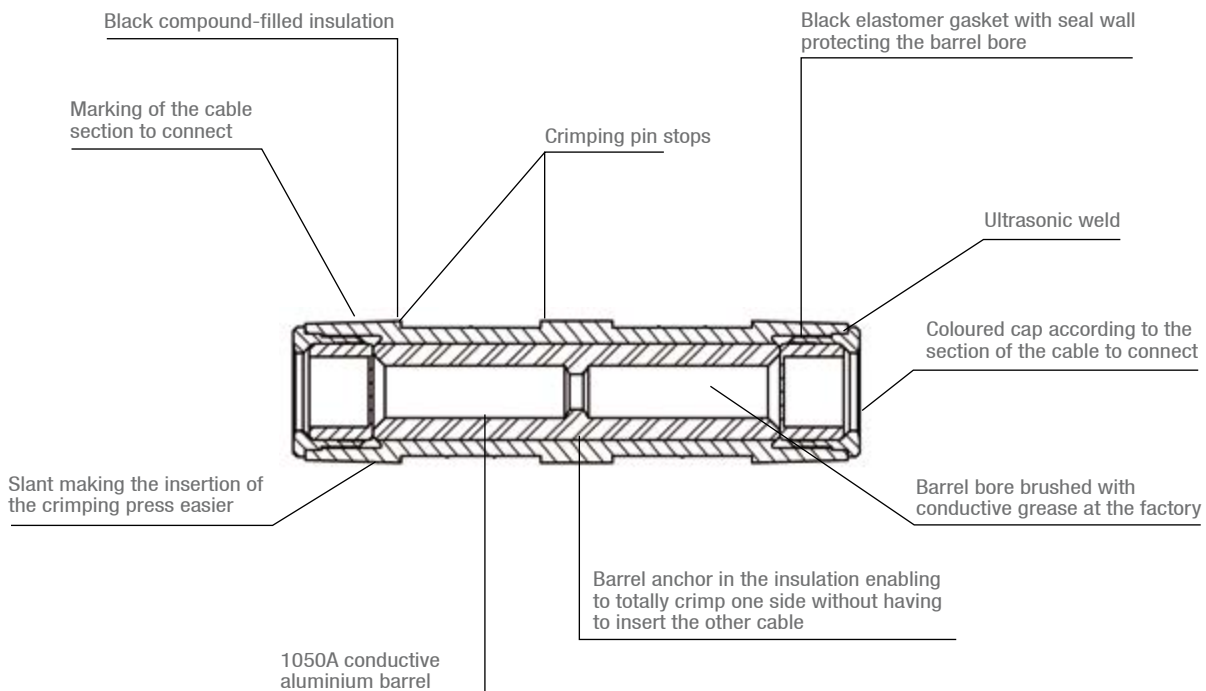
It is used for the installation, repair or modification of low voltage service lines. The junction can be established between two conductors of equal or unequal sections. All combinations of sections are possible.

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.



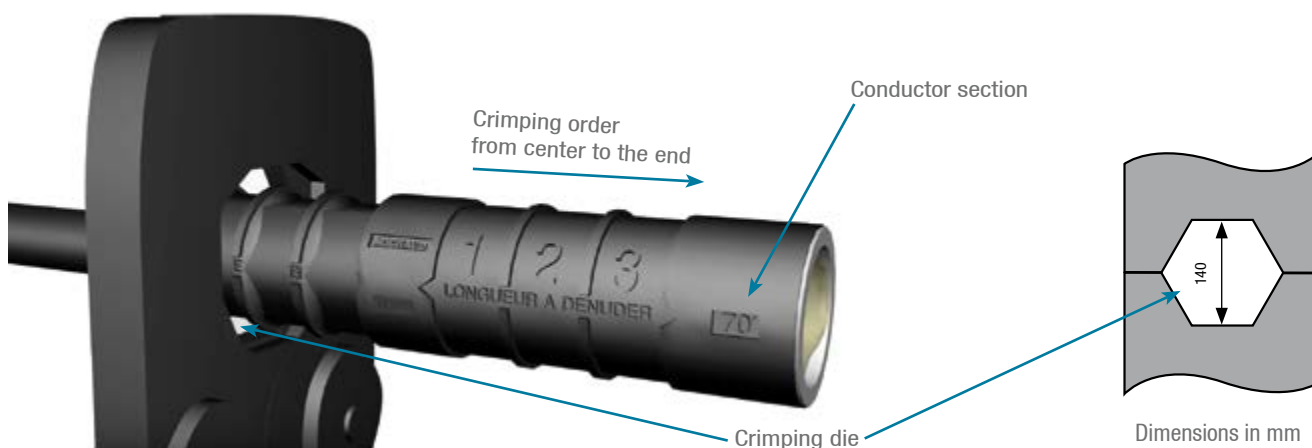
## Installation

### 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.

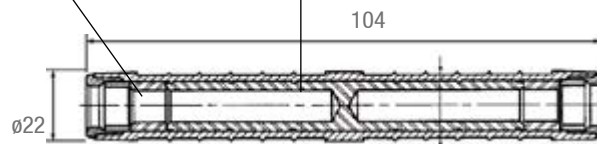
This preinsulated sleeve meets the requirements of the **NF C 33-021** and **EN 50-483** standards.

### Phase sleeve

Elastomer gasket with seal wall protecting the barrel bore

1050A conductive aluminium barrel

Coloured cap locating the conductor section to connect



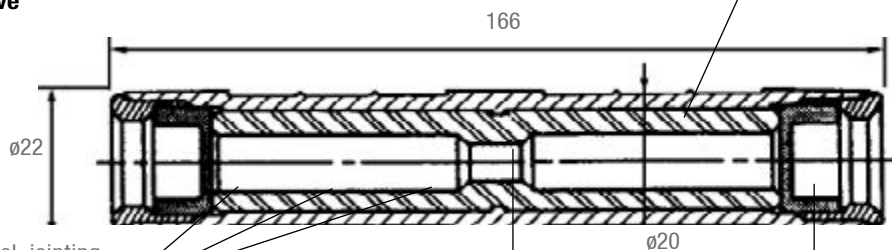
Black compound-filled insulation

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

Barrel bore brushed with conductive grease at the factory

### Neutral sleeve

Conductive barrel in aluminium alloy

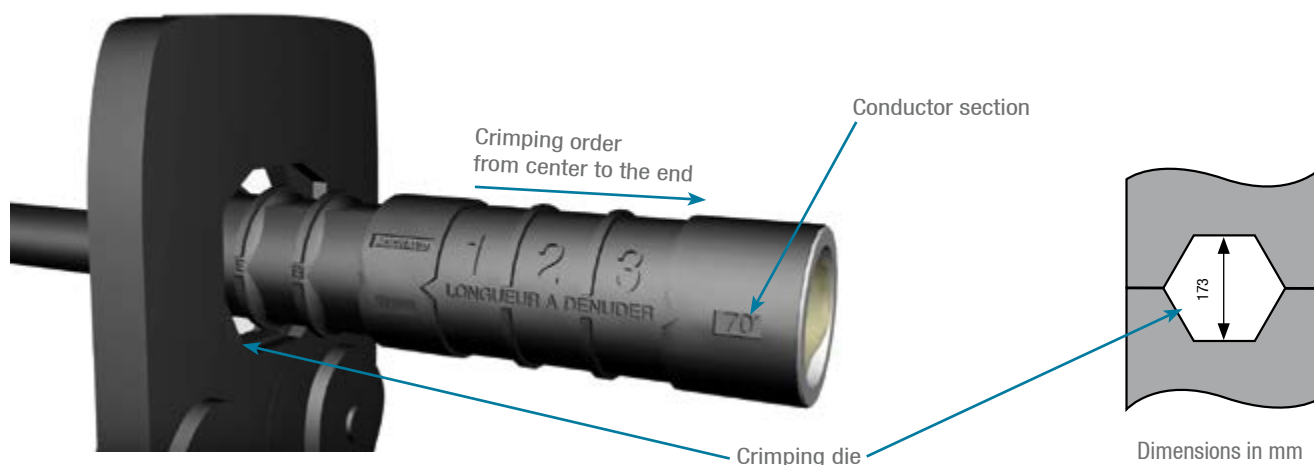


Insulation-barrel jointing anchorages

Discontinuity pin stop

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 (mm²) | Leading-in colour | Leading-out cable section insulated Al-Cu (mm²) | 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          |



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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>.

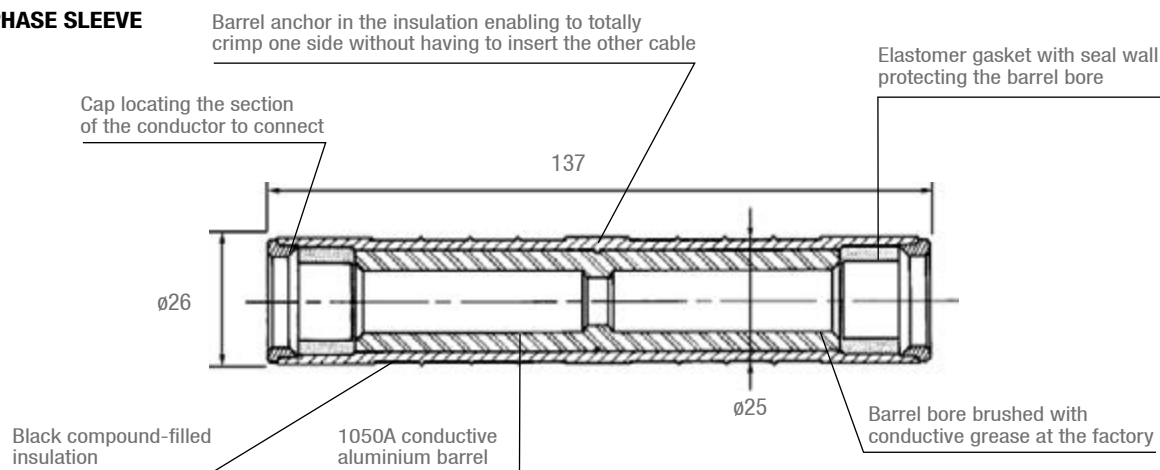
The neutral conductor is dimensioned to withstand tensile strength greater than 1 530daN for the 95mm<sup>2</sup> and greater than 2 500daN for the 150mm<sup>2</sup> section.

### Description

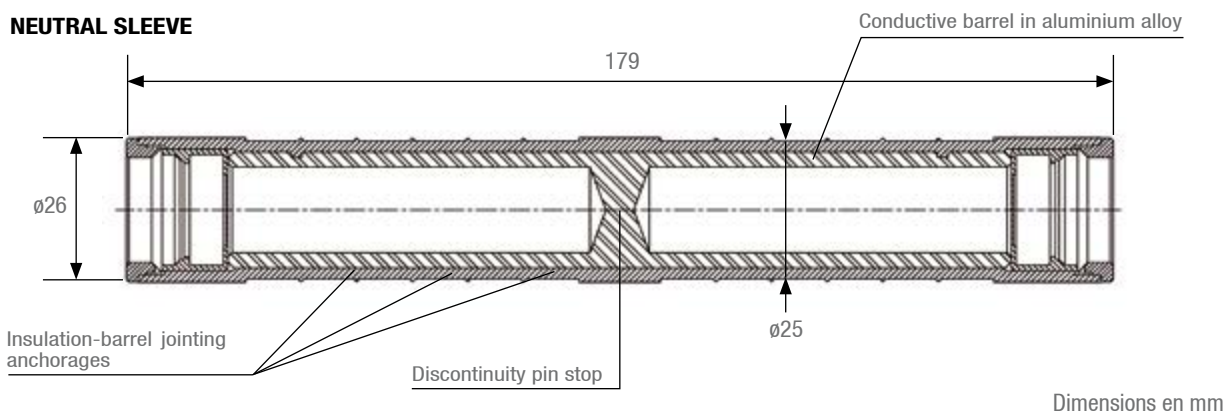
- The sleeve can be used in mechanical traction.
- The sleeve has got an excellent dielectric strength, greater than 6kV.
- The materials are protected against UV.

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

#### PHASE SLEEVE



#### NEUTRAL SLEEVE





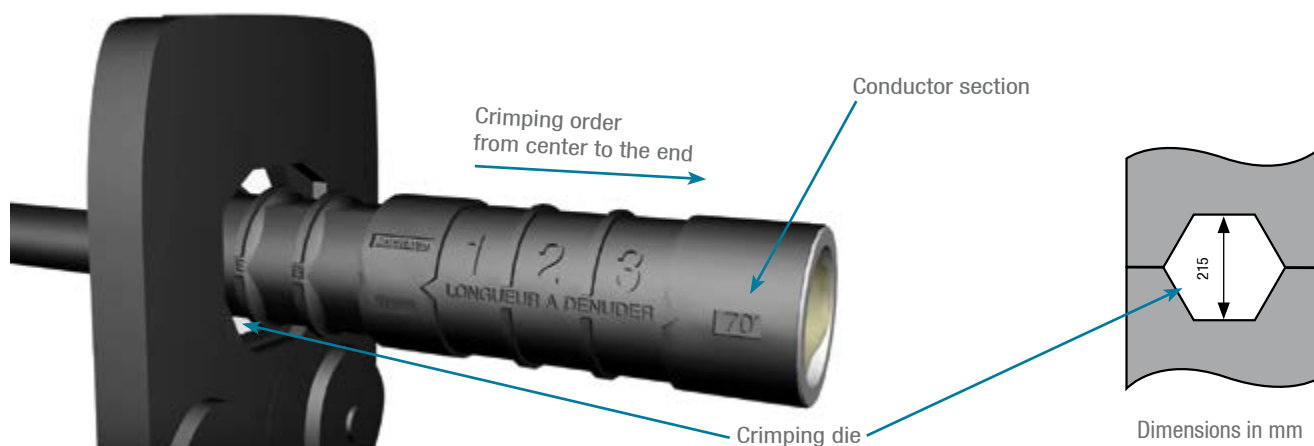
## Installation

### 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 (mm²) | Leading-in colour | Leading-out cable section insulated Al-Cu (mm²) | 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          |



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INSTALLATION / Hydraulic crimping tool

# Preinsulated sleeve for aerial sub-surface connection E140



## Application

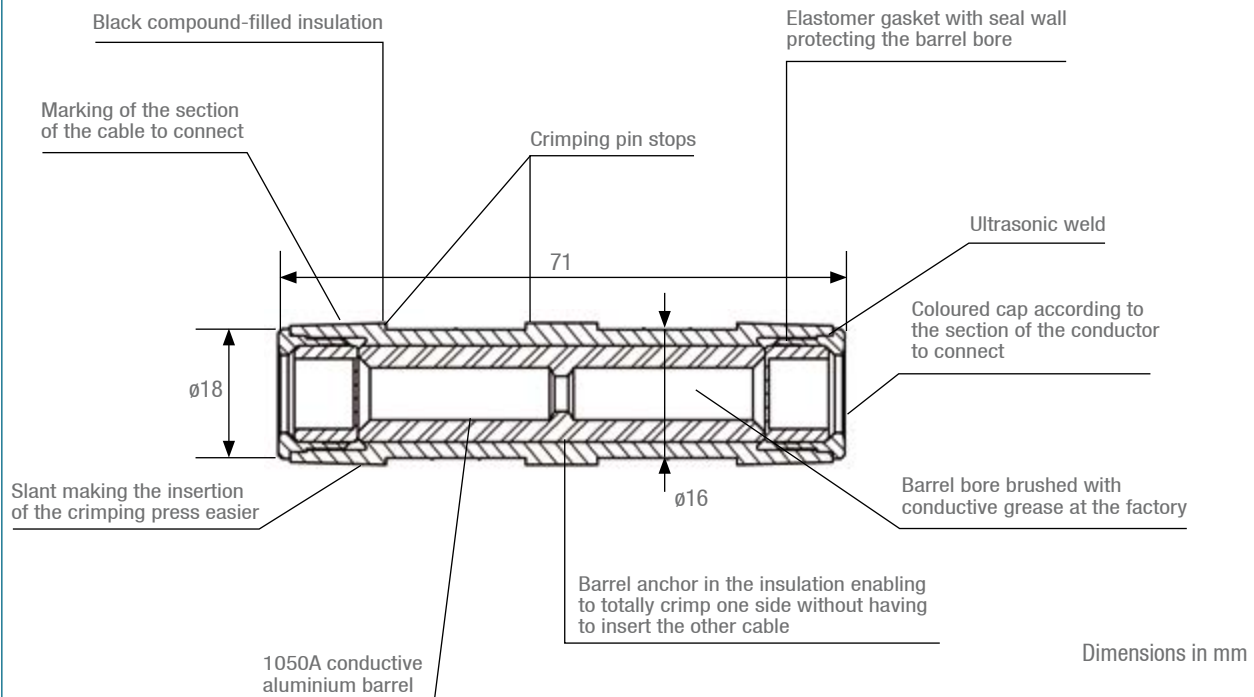
This preinsulated sleeve is designed for the connection of stranded core aerial service cables (aluminium or copper) to aluminium solid core sub-surface service cables.

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/<br>RED      | 0.030       | 10         |
| K073  | PREINSULATED SLEEVE (E140) MJPBS 25M-25M | 25 M   | 25 M  | GREY              | ORANGE/<br>ORANGE | 0.030       | 10         |
| K086  | PREINSULATED SLEEVE (E140) MJPBS 25M-35M | 25 M   | 35 M  | GREY              | ORANGE/<br>RED    | 0.030       | 10         |
| K075  | PREINSULATED SLEEVE (E140) MJPBS 35M-35M | 35 M   | 35 M  | GREY              | RED/<br>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

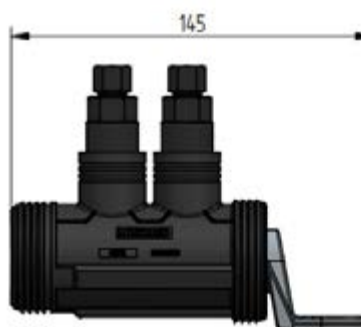
**K575****Michaud Exclusivity****K576**

## 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 |
|------|---|---------------------------------------|-------------------------------------|-------------|------------|
| K575 | PREINSULATED BIMETAL LUG WITH MECHANICAL TIGHTENING 25-95mm <sup>2</sup>  | 62-99                                 | Round 25-95                         | 0.22        | 12         |
| K576 | PREINSULATED BIMETAL LUG WITH MECHANICAL TIGHTENING 95-240mm <sup>2</sup> | 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**

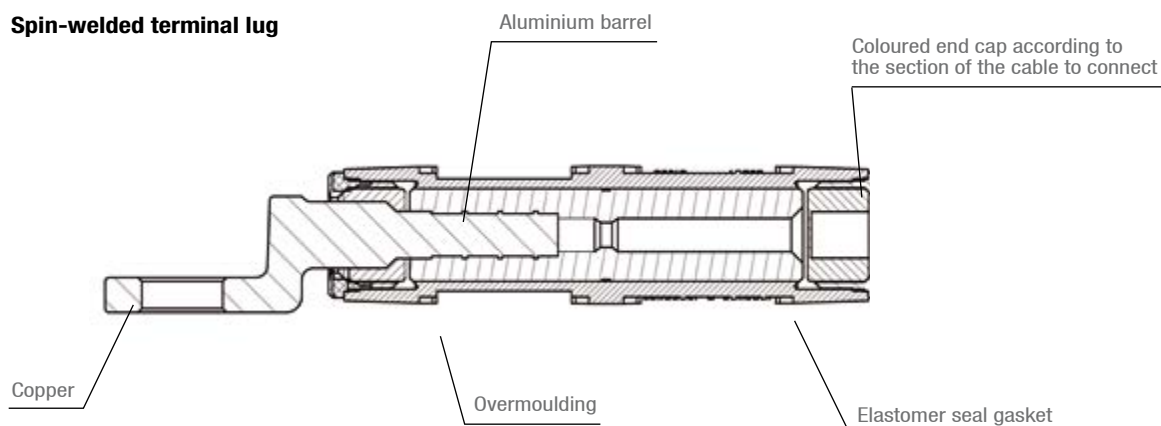
### Application

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.

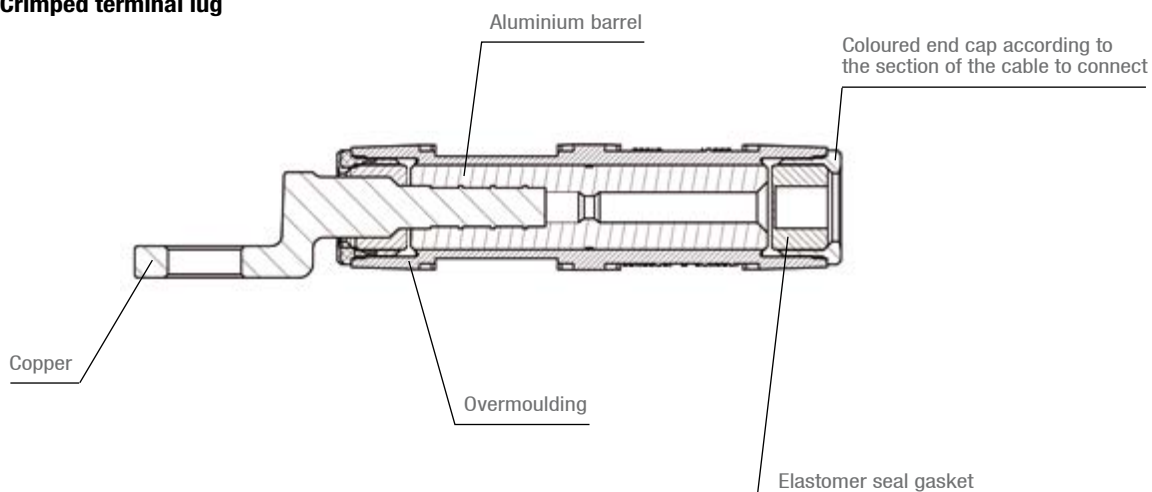
### Description

#### Spin-welded terminal lug



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

#### Crimped terminal lug

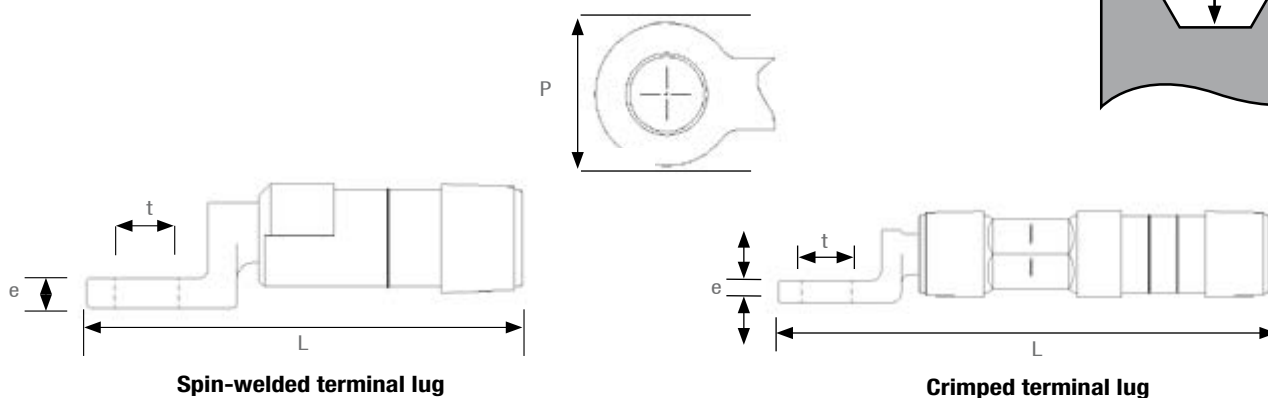
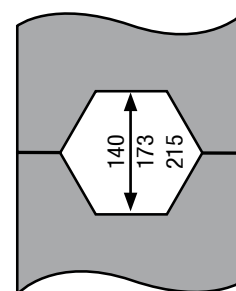


This preinsulated lug meets the requirements of the **NF C 33-021** and **EN 50-483** standards.

## 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<br>Al-Cu cable (mm²) | Dimensions in mm |      |     |       | Weight<br>(kg) | Sales<br>unit |
|--|--|-------------|--------------------------------|------------------|------|-----|-------|----------------|---------------|
|  |  |             |                                | P                | e    | t   | L     |                |               |
| SPIN-WELDED PREINSULATED LUG REQUIRING A E140 CRIMPING DIE |  |             |                                |                  |      |     |       |                |               |
| 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             |               |
| SPIN-WELDED PREINSULATED LUG REQUIRING A E173 CRIMPING DIE |  |             |                                |                  |      |     |       |                |               |
| 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             |               |
| SPIN-WELDED PREINSULATED LUG REQUIRING A E215 CRIMPING DIE |  |             |                                |                  |      |     |       |                |               |
| K024   | Cu TERMINAL LUG (E215) CPTAU 150         | 150         | 30                             | 6                | 12.8 | 118 | 0.120 | 20             |               |
| CRIMPED PREINSULATED LUG REQUIRING A E140 CRIMPING DIE     |  |             |                                |                  |      |     |       |                |               |
| K013   | Cu CRIMPED TERMINAL LUG (E140) CPTAU 25  | 25          | 20                             | 4.5              | 10.5 | 102 | 0.055 | 10             |               |
| CRIMPED PREINSULATED LUG REQUIRING A E173 CRIMPING DIE     |  |             |                                |                  |      |     |       |                |               |
| 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             |               |
| CRIMPED PREINSULATED LUG REQUIRING A E215 CRIMPING DIE     |  |             |                                |                  |      |     |       |                |               |
| K023   | Cu CRIMPED TERMINAL LUG (E215) CPTAU 150 | 150         | 30                             | 6                | 13   | 186 | 0,220 | 10             |               |



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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 (mm²) | Bore                   | Weight (kg) | Sales unit |
|------|------------------|---------------|------------------------|-------------|------------|
| U740 | TUBULAR LUG 1,5² | 1.5           | M2                     | 0.0008      | 100        |
| U741 | TUBULAR LUG 2.5² | 2.5           | M3, M4                 | 0.001       | 100        |
| U742 | TUBULAR LUG 4²   | 4             | M4, M6, M8             | 0.002       | 100        |
| U743 | TUBULAR LUG 6²   | 6             | M4, M5, M6, M8         | 0.004       | 100        |
| U744 | TUBULAR LUG 10²  | 10            | M4, M6, M8, M10        | 0.007       | 100        |
| U745 | TUBULAR LUG 16²  | 16            | M5, M6, M8, M10, M12   | 0.008       | 100        |
| U746 | TUBULAR LUG 25²  | 25            | M6, M8, M10, M12, M14  | 0.014       | 100        |
| U747 | TUBULAR LUG 35²  | 35            | M6, M8, M10, M12       | 0.019       | 100        |
| U748 | TUBULAR LUG 50²  | 50            | M6, M8, M10, M12, M16  | 0.025       | 100        |
| U749 | TUBULAR LUG 70²  | 70            | M8, M10, M12, M16      | 0.039       | 100        |
| U750 | TUBULAR LUG 95²  | 95            | M8, M10, M12, M14, M16 | 0.050       | 50         |
| U751 | TUBULAR LUG 120² | 120           | M8, M10, M12, M14, M16 | 0.067       | 50         |
| U752 | TUBULAR LUG 150² | 150           | M10, M12, M14, M16     | 0.086       | 50         |
| U753 | TUBULAR LUG 185² | 185           | M10, M12, M14, M16     | 0.109       | 50         |
| U754 | TUBULAR LUG 240² | 240           | M10, M12, M14, M16     | 0.146       | 50         |
| U756 | TUBULAR LUG 400² | 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.

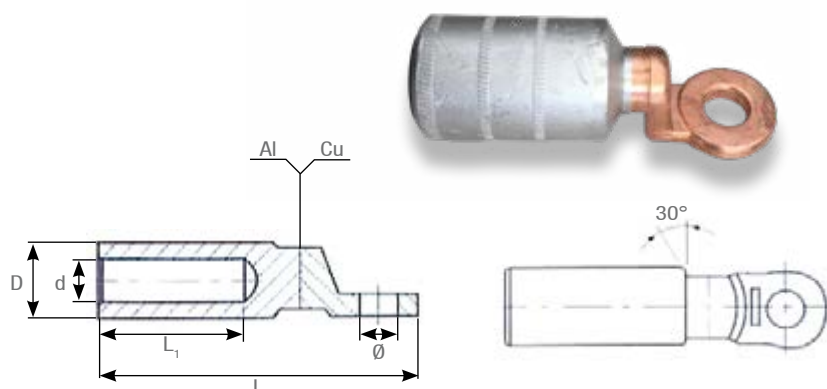
Example with tube lug model 35², in bore 8: **U747-8**



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INSTALLATION / Hydraulic crimping tool

## Spin-welded terminal lug for copper terminal



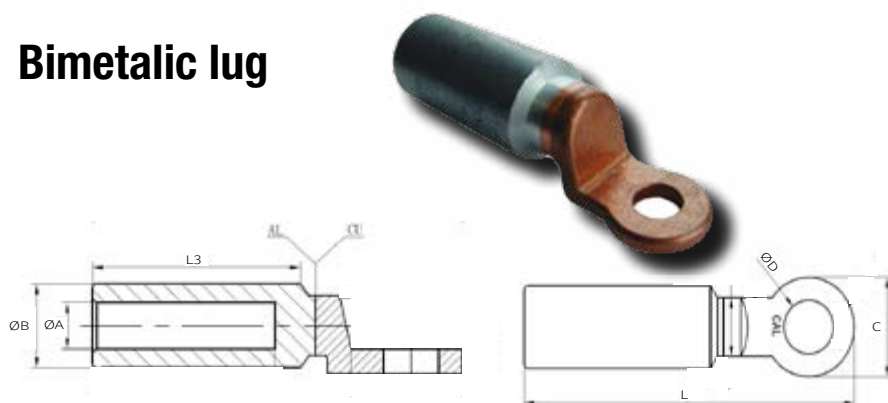
### Application

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     | L3   |             |            |
| U553_16-10  | BIMETAL LUG CAL 16mm <sup>2</sup> - DIAM 10 C0AU16   | 5.8             | 16 | 20 | 10.5 | 79    | 45.5 | 0.050       | 10         |
| U553_25-10  | BIMETAL LUG CAL 25mm <sup>2</sup> - DIAM 10 C0AU25   | 6.7             |    |    | 10.5 |       |      | 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             | 20 | 24 | 13   | 83.2  | 44.5 | 0.050       | 5          |
| U553_70-13* | BIMETAL LUG CAL 70mm <sup>2</sup> - DIAM 13 C1AU70   | 11.2            |    |    | 13   |       |      | 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            | 25 | 30 | 13   | 107.6 | 60.8 | 0.080       | 5          |
| U553_150-13 | BIMETAL LUG CAL 150mm <sup>2</sup> - DIAM 13 C2AU150 | 15.7            |    |    | 13   |       |      | 0.155       | 5          |
| U553_185-13 | BIMETAL LUG CAL 185mm <sup>2</sup> - DIAM 13 C4AU185 | 17.5            |    |    | 13   | 116.1 | 59.7 | 0.155       | 5          |
| U553_240-13 | BIMETAL LUG CAL 240mm <sup>2</sup> - DIAM 13 C4AU240 | 19.7            | 32 | 35 | 13   |       |      | 0.250       | 5          |
| U553_300-17 | BIMETAL LUG CAL 300mm <sup>2</sup> - DIAM 17 C5AU300 | 23.5            | 40 | 36 | 17   | 154.3 | 94   | 0.350       | 4          |
| U553_400-17 | BIMETAL LUG CAL 400mm <sup>2</sup> - DIAM 17 C5AU400 | 26.5            |    |    | 17   |       |      | 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

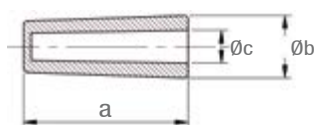
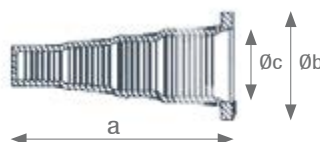
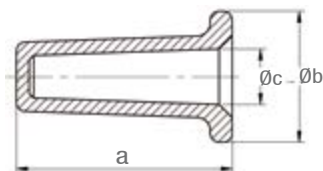
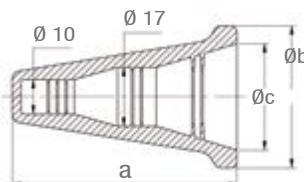


### Application

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<br>(mm) |      |      | Capacities<br>(mm <sup>3</sup> )  | Weight<br>(kg) | Sales<br>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<br>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 <sup>2</sup> ) | 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                      | 1.170       | 50         |

\*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<br>AISI 430              | STANDARD<br>AISI 201 | PREMIUM<br>AISI 304 |
| 10x0.4 - 3/8"   | 50m           | K945                         | K930                 | K930-304            |
| 10x0.7 - 3/8"   | 25m           | K944                         |                      |                     |
|                 | 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"              | 50                | 201  | 1.850       | 4          |
| K930-304                          | 50m WINDER STAINLESS STEEL STRAP 10x0.4mm - 3/8"              | 50                | 304  | 1.850       | 4          |
| K945                              | 50m WINDER STAINLESS STEEL STRAP EC 10x0.4mm - 3/8"           | 50                | 430  | 1.850       | 4          |
| <b>DIMENSIONS 10x0.7 - 3/8"</b>   |   |                   |      |             |            |
| K931                              | 50m WINDER STAINLESS STEEL STRAP 10x0.7mm - 3/8"              | 50                | 201  | 2.940       | 4          |
| K946                              | 50m WINDER STAINLESS STEEL STRAP EC 10x0.7mm - 3/8"           | 50                | 430  | 2.950       | 4          |
| L946-304                          | 30.5m WINDER STAINLESS STEEL STRAP 10x0.7mm - 3/8"            | 30.5              | 304  | 2.100       | 4          |
| K931-304                          | 50m WINDER STAINLESS STEEL STRAP 10x0.7mm - 3/8"              | 50                | 304  | 2.950       | 4          |
| K944                              | 25m WINDER STAINLESS STEEL STRAP EC 10x0.7mm - 3/8"           | 25                | 430  | 1.630       | 4          |
| L946                              | 30.5m WINDER STAINLESS STEEL STRAP 10x0.7mm - 3/8"            | 30.5              | 201  | 2.100       | 4          |
| <b>DIMENSIONS 12.7x0.4 - 1/2"</b> |   |                   |      |             |            |
| K938                              | 50m WINDER STAINLESS STEEL STRAP 13x0.4mm - 1/2"              | 50                | 201  | 2.600       | 4          |
| K938-304                          | 50m WINDER STAINLESS STEEL STRAP 13x0.4mm - 1/2"              | 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"          | 30.5              | 201  | 2.600       | 4          |
| L948-304                          | 30.5m WINDER STAINLESS STEEL STRAP 12.7x0.7mm - 1/2"          | 30.5              | 304  | 2.600       | 4          |
| <b>DIMENSIONS 16x0.4 - 5/8"</b>   |   |                   |      |             |            |
| K937                              | 50m WINDER STAINLESS STEEL STRAP 16x0.4mm - 5/8"              | 50                | 201  | 2.760       | 4          |
| K937-304                          | 50m WINDER STAINLESS STEEL STRAP 16x0.4mm - 5/8"              | 50                | 304  | 2.760       | 4          |
| <b>DIMENSIONS 16x0.7 - 5/8"</b>   |   |                   |      |             |            |
| L947                              | 30.5m WINDER STAINLESS STEEL STRAP 16x0.7mm - 5/8"            | 30.5              | 201  | 3.200       | 4          |
| L947-304                          | 30.5m WINDER STAINLESS STEEL STRAP 16x0.7mm - 5/8"            | 30.5              | 304  | 3.400       | 4          |
| <b>DIMENSIONS 19x0.7 - 3/4"</b>   |   |                   |      |             |            |
| L949                              | 30.5m WINDER STAINLESS STEEL STRAP 19x0.7mm - 3/4" - AISI 201 | 30.5              | 201  | 3.600       | 4          |
| L949-304                          | 30.5m WINDER STAINLESS STEEL STRAP 19x0.7mm - 3/4" - AISI 304 | 30.5              | 304  | 4.200       | 4          |
| <b>DIMENSIONS 20x0.4 - 3/4"</b>   |   |                   |      |             |            |
| K932                              | 50m WINDER STAINLESS STEEL STRAP 20x0.4mm - 3/4"              | 50                | 201  | 3.450       | 4          |
| K932-304                          | 50m WINDER STAINLESS STEEL STRAP 20x0.4mm - 3/4"              | 50                | 304  | 3.450       | 4          |
| K947                              | 50m WINDER STAINLESS STEEL STRAP 20x0.4mm - 3/4"              | 50                | 430  | 3.450       | 4          |
| <b>DIMENSIONS 20x0.7 - 3/4"</b>   |   |                   |      |             |            |
| K935                              | 25m WINDER STAINLESS STEEL STRAP 20x0.7mm - 3/4"              | 25                | 201  | 3.025       | 4          |
| K933                              | 50m WINDER STAINLESS STEEL STRAP 20x0.7mm - 3/4"              | 50                | 201  | 6.000       | 4          |
| K935-304                          | 25m WINDER STAINLESS STEEL STRAP 20x0.7mm - 3/4"              | 25                | 304  | 3.030       | 4          |
| K933-304                          | 50m WINDER STAINLESS STEEL STRAP 20x0.7mm - 3/4"              | 50                | 304  | 6.000       | 4          |
| K935-430                          | 25m WINDER STAINLESS STEEL STRAP 20x0.7mm - 3/4"              | 25                | 430  | 3.030       | 4          |
| K948                              | 50m WINDER STAINLESS STEEL STRAP 20x0.7mm - 3/4"              | 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



- + 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



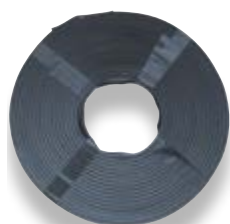
Reinforced buckle

#### 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       | 20         |
| U955-13 | REINFORCED BUCKLES FOR 13mm STRAP - 1/2" (x100) | 13mm (1/2")                 | 1.200       | 20         |
| U955-16 | REINFORCED BUCKLES FOR 16mm STRAP - 5/8" (x100) | 16mm (5/8")                 | 1.300       | 20         |
| U955-20 | REINFORCED BUCKLES FOR 20mm STRAP - 3/4" (x100) | 20mm (3/4")                 | 1.500       | 20         |

## 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.

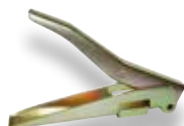
| Code | Designation  | Weight (kg) | Sales unit |
|------|--|-------------|------------|
| K957 | PROTECTION TAPE FOR 10mm STRAP - 3/8" (10m length) | 0.500       | 1          |
| K964 | PROTECTION TAPE FOR 13mm STRAP - 1/2" (10m length) | 0.580       | 1          |
| K965 | PROTECTION TAPE FOR 16mm 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



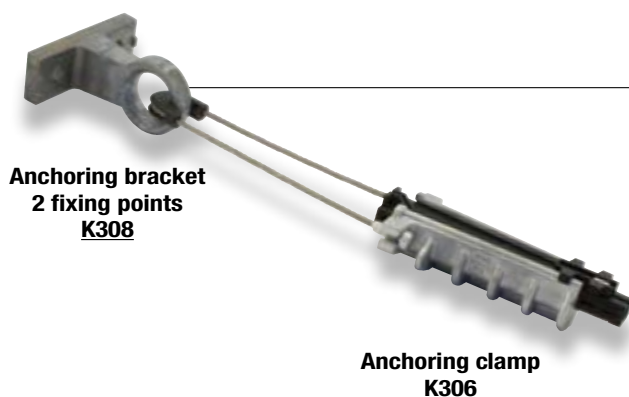
Cutting tool



| 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 - 95mm² sections for code **K277** and 50 - 70mm² 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  $715 \pm 65\text{daN}$ ).

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.

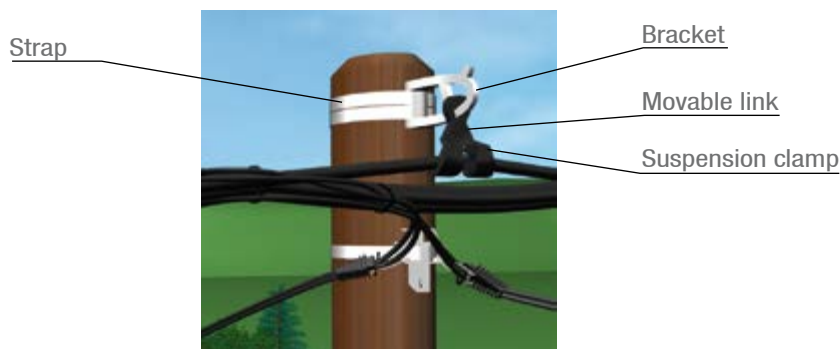
#### Movable link system:

- 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 shear 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).

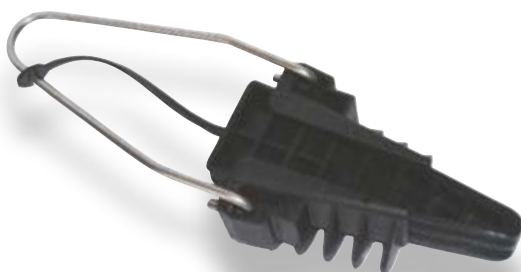
| Code | Designation                                       | Weight (kg) | Sales unit |
|------|---|-------------|------------|
| U519 | FULLY SUPPORTED SUSPENSION CLAMP 2/4 (25-120) 30° | 0.26        | 1          |

## 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>.

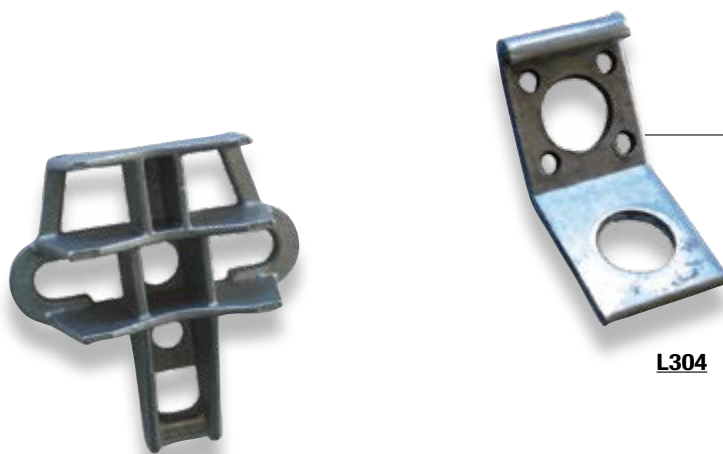
The anchoring clamp is also available in an adjustable hook version.

#### 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

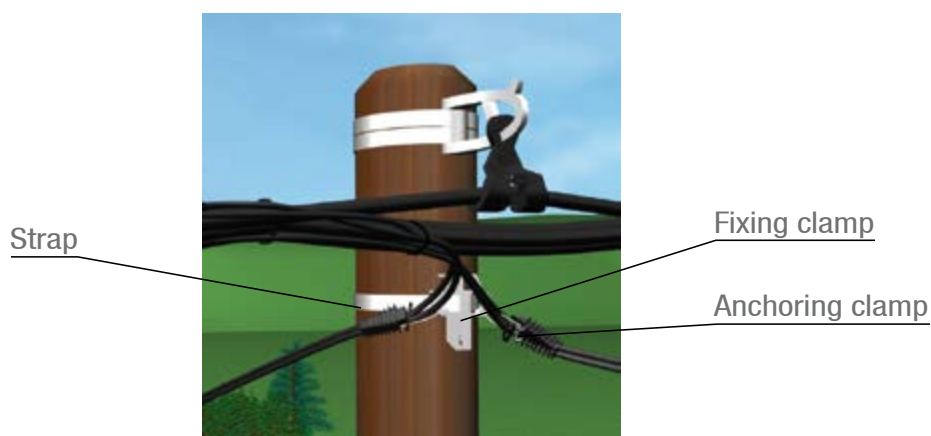
### **Fixing clamp and bracket:**

- 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

### Application

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



U526



U527

| 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.

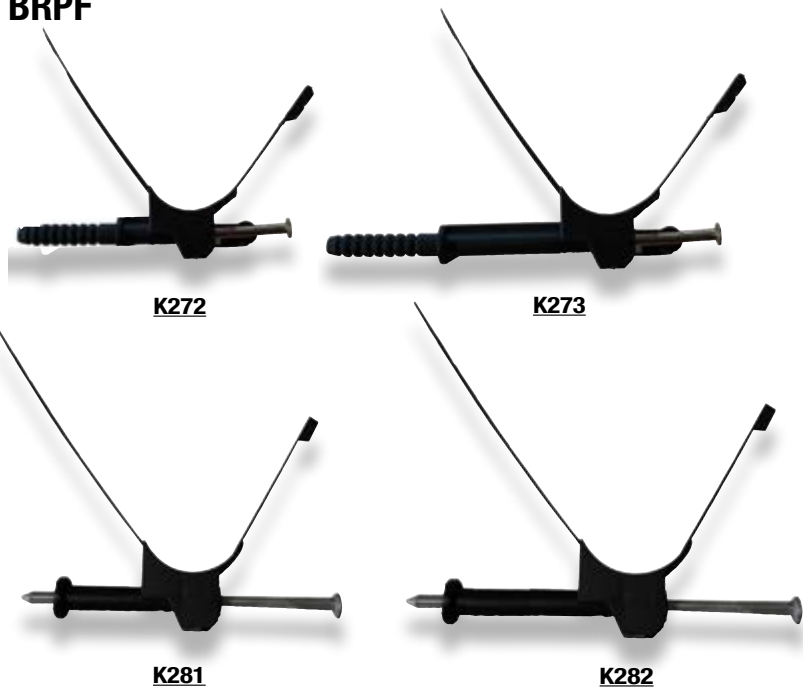
| Code | Designation            | Length (mm) | Section (mm <sup>2</sup> ) | Weight (kg) | Sales unit |
|------|------------------------|-------------|----------------------------|-------------|------------|
| U522 | HOOK BOLT DIAM 16 -250 | 250         | 16                         | 1.080       | 10         |
| 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



### 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.

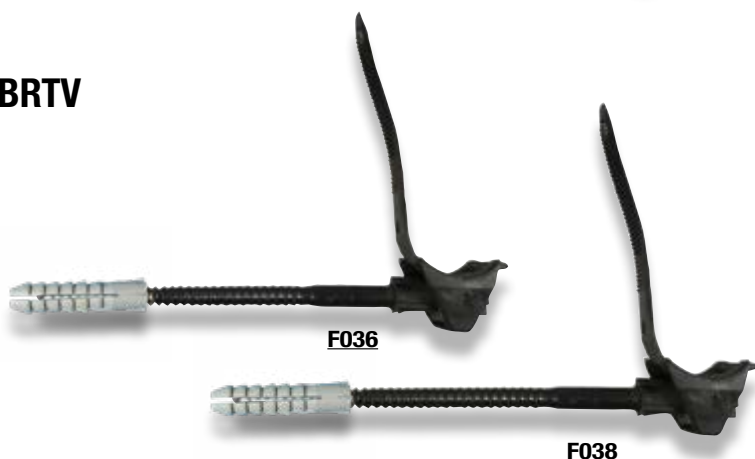
### BRPV



### CPBF



### BRTV



## 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<br>(mm <sup>2</sup> )       | Wall clearance<br>(mm) | Weight<br>(kg) | Sales<br>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<br>to<br>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<br>to<br>3x150 + 95N + 16      | 40                     | 0.050          | 30            |
| K282 | CABLE SADDLE - BRPF9                |   | 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.

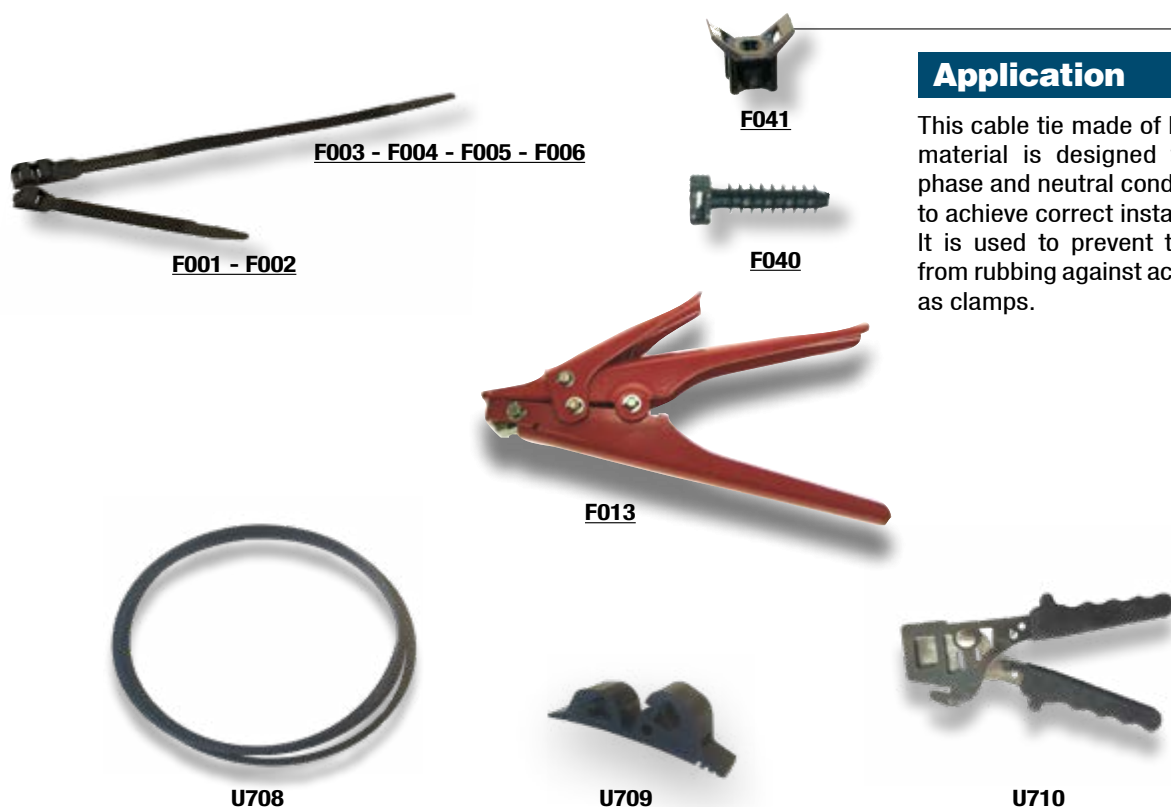
It is made of UV protected thermoplastic material.

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<br>(kg) | Sales<br>unit |
|-----------------------------|--|----------------|---------------|
| <b>CABLE SADDLE</b>         |  |                |               |
| N733                        | CABLE SADDLE BIC 15/30 TIE 9/180                     | 0.013          | 10            |
| N734                        | CABLE SADDLE BIC 30/50 TIE 9/265                     | 0.015          | 10            |
| N735                        | CABLE SADDLE BIC 50/90 TIE 9/360                     | 0.017          | 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

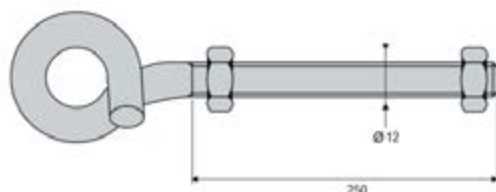
This cable tie provides a self locking system enabling easy installation. It is made of stainless steel type 304. It is designed to allow installation in every type of environment.

| 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                  | 0.440                      | 1          |
| 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)

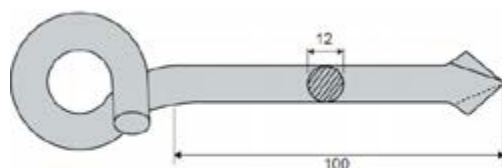


### Application

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



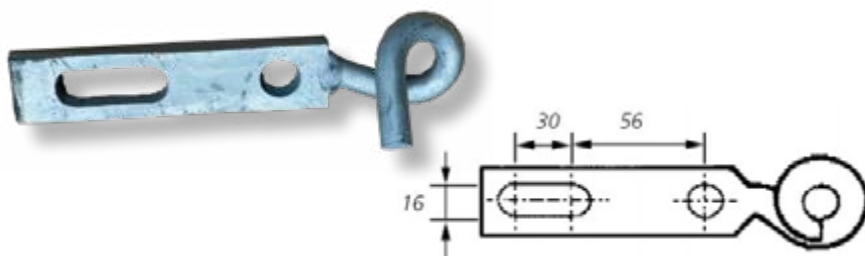
### Application

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



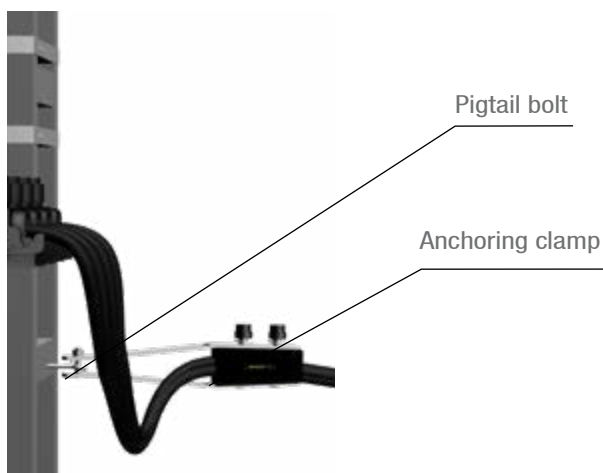
### Application

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

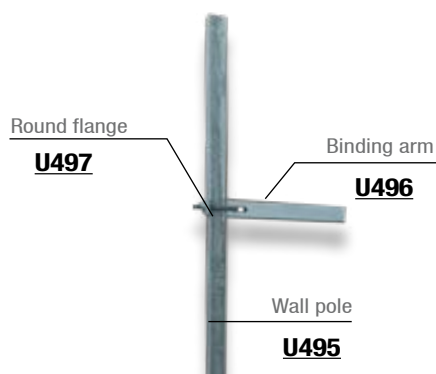
| Code | Designation       | Weight (kg) | Sales unit |
|------|-------------------|-------------|------------|
| F340 | PIGTAIL PLATE PQC | 0.370       | 10         |

### Installation

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



## Wall pole and accessories



**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



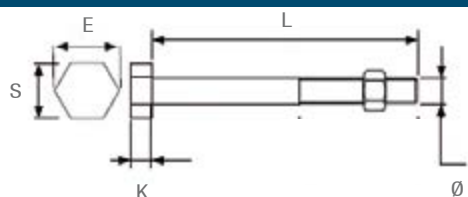
**U435**

### 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

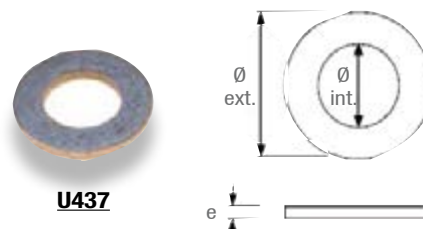


Dimensions in mm

| 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 1 | 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



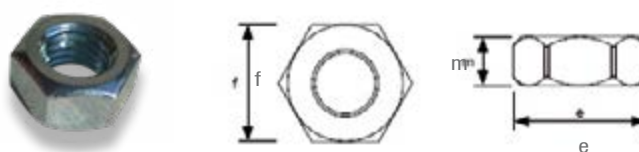
U437

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

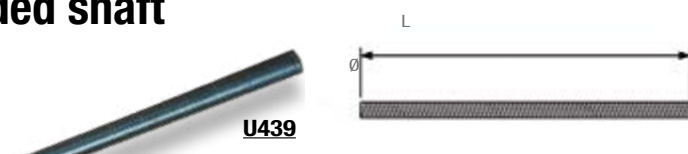


U438

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



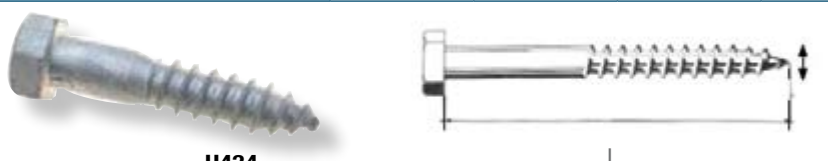
U439

### 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

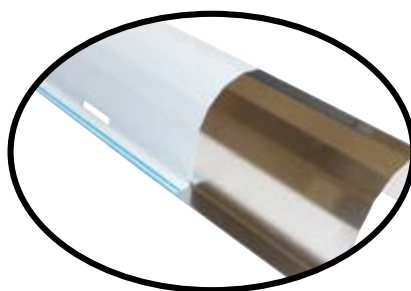






### Application

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**






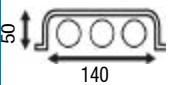
|   | Code | Designation                         | Length (m) | Weight (kg) | Sales unit |
|---|------|-------------------------------------|------------|-------------|------------|
|  | N297 | METAL PROTECTIVE DUCT GPC 35.35mm   | 2.75       | 1.100       | 5          |
|  | N298 | METAL PROTECTIVE 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>
  - 50-241mm<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**



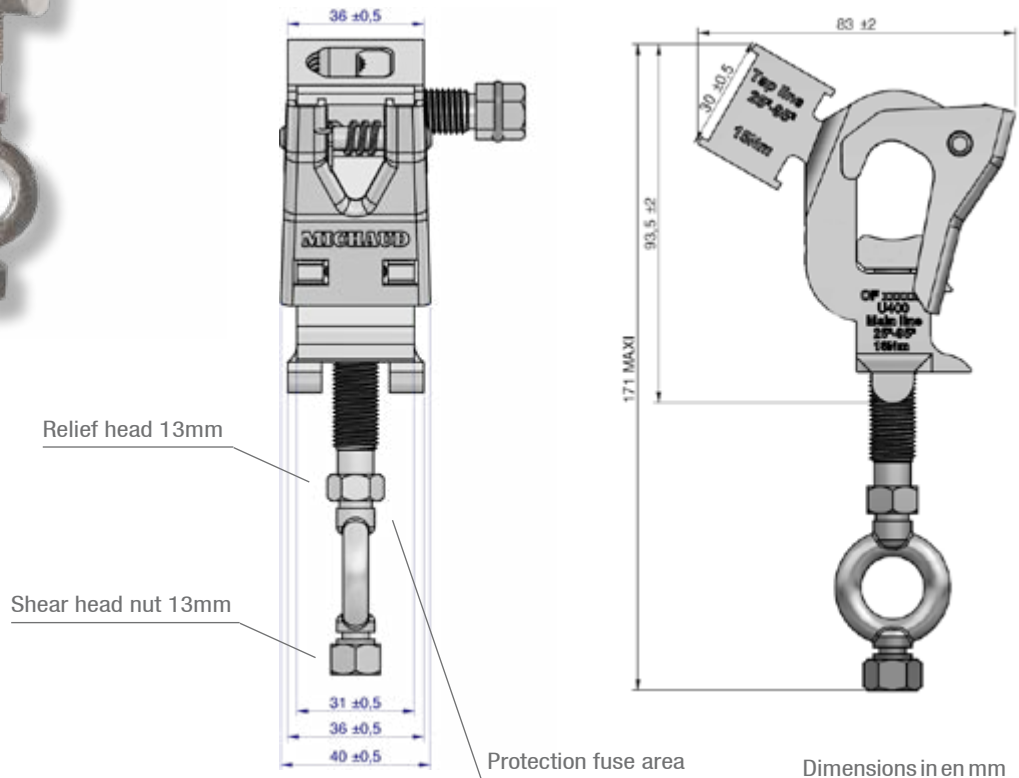
**K253**

| 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



### 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.

### Description

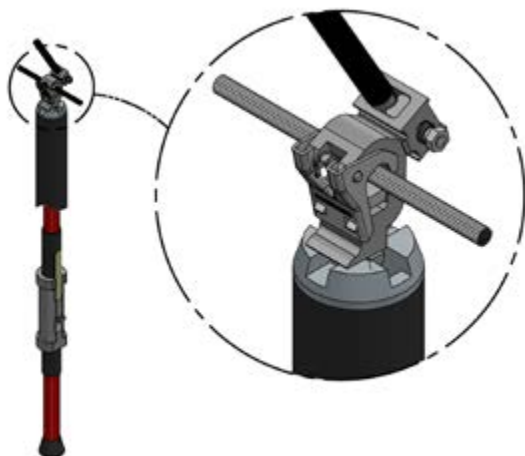
- This aluminum connector is highly resistant to corrosion.
- The metal flap ensures the connector's mechanical strength during installation. The flap is held opened thanks to a stainless steel spring during implementation. Once the connector has been correctly positioned on the main cable, the flap 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.

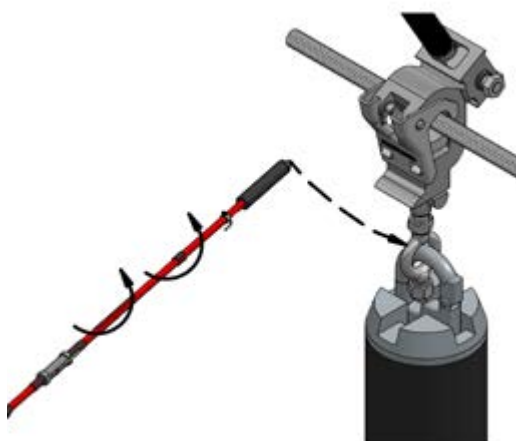
## Installation

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.

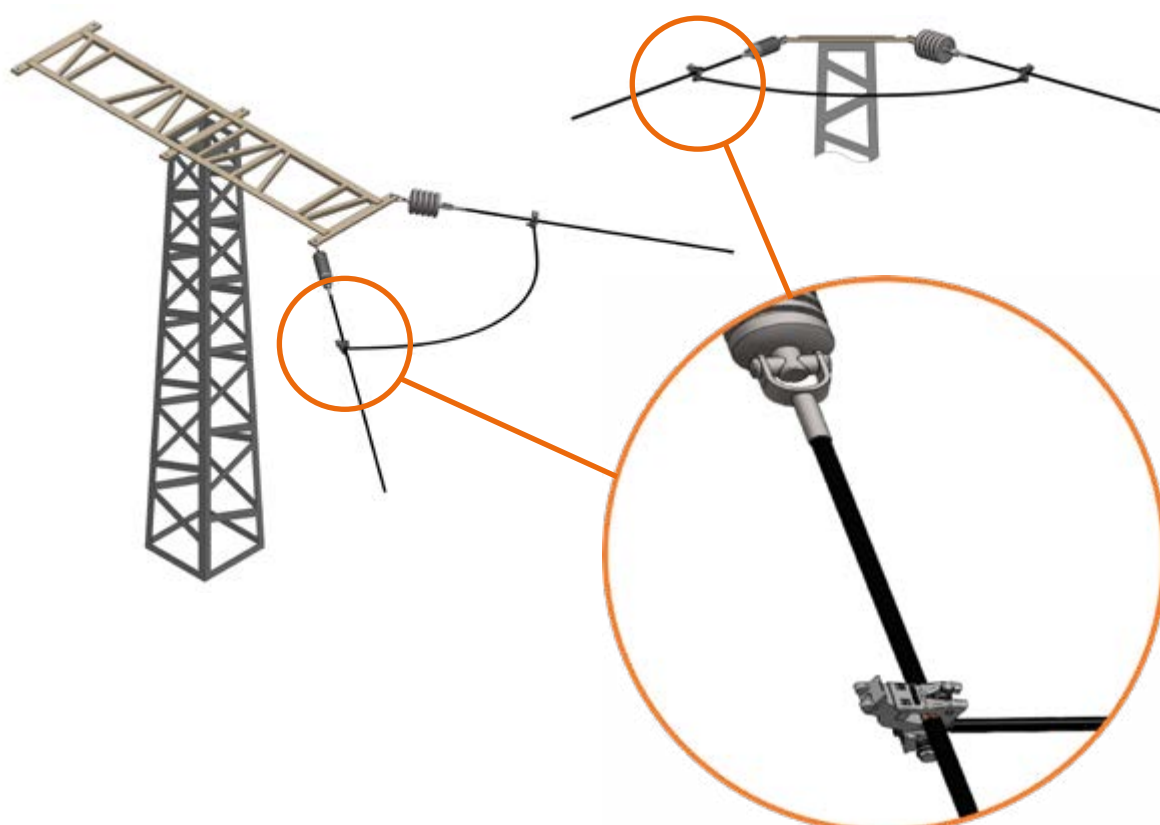


Simply disconnect the stick by opening the hook to release the connector.

### 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.102 |
| Fuse switch disconnecter 100A, 22x58, 95 <sup>2</sup> .....                  | p.104 |
| Fuse switch disconnecter 160A, T00, 95 <sup>2</sup> + 120 <sup>2</sup> ..... | p.106 |
| Fuse switch connector 20A, 10,3x38, 95 <sup>2</sup> .....                    | p.108 |
| Fuse switch connector 100A, 22x58, 150 <sup>2</sup> .....                    | p.110 |
| Fuse cutout sleeve 100A, 22x58, 35 <sup>2</sup> .....                        | p.112 |
| Fuse insulation piercing pit connector 100A, 22x58, 50 <sup>2</sup> .....    | p.114 |

## Network protection

|  |       |
|--|-------|
| Fuse switch disconnecter double pole<br>160A, T00, 95 <sup>2</sup> + 120 <sup>2</sup> .....    | p.116 |
| Fuse switch disconnecter triple pole<br>160A, T00, 95 <sup>2</sup> + 120 <sup>2</sup> .....    | p.118 |
| Fuse switch disconnecter quadruple pole<br>160A, T00, 95 <sup>2</sup> + 120 <sup>2</sup> ..... | p.120 |
| Operating stick .....  | p.122 |

## Fuses

|                         |       |
|-------------------------|-------|
| Fuse cartridge gG ..... | p.124 |
| Fuse cartridge AD ..... | p.126 |
| Fuse cartridge NH ..... | p.128 |



# 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...).

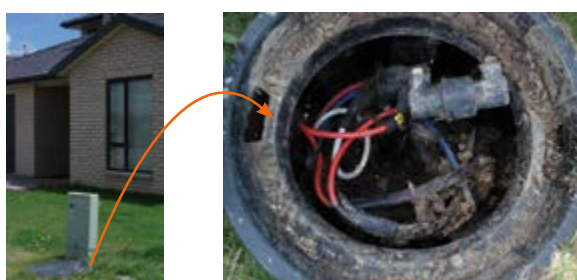
## Service protection

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   | ++<br>From ground level with a stick |     | +<br>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.



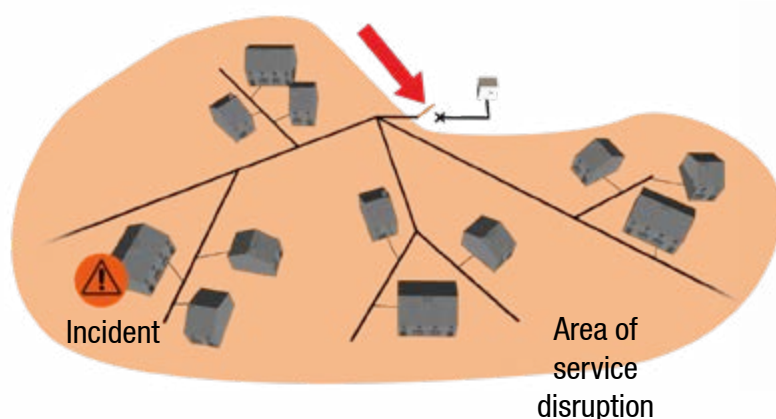
- ✓ Installation in a pit
- ✓ Working temporarily into water
- ✓ Full waterproof connection

## Network protection

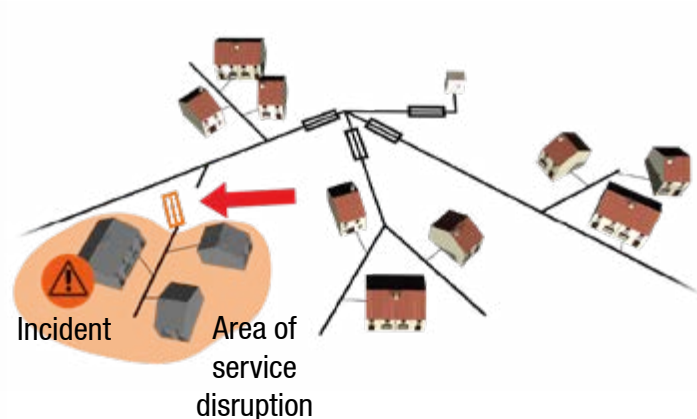
Low voltage networks are usually **structured in a star shape** from the LV/MV transformer and are not looped. A single short-circuit could therefore make an entire network fail, creating customer service disruptions.

### MICHAUD solution: protection on strategic points

Network  
without FSD




Network  
with FSD



- ✓ 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

Many options

P

**Fuse presence indicator**



Check the fuse presence

L

**Blown fuse LED light**



Be aware of a blown fuse

H

**Shear head indicator**



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

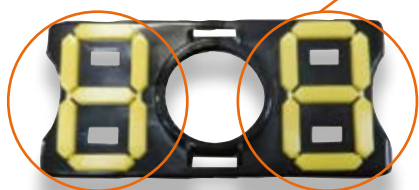
Fuse size NH 00

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

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

N

**Customer  
identification number**



+ Many possible combinations

Identify the line or customer number

S

**Neutral  
simultaneous cut**



Enable the simultaneous cut of phases and neutral

C

**Color of  
the fuse carrier**



Distinguish phases and neutral



## Fuse switch disconnecter 100A



**K291**

**Rating** 100A

**Fuse size** 22x58

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

### Application

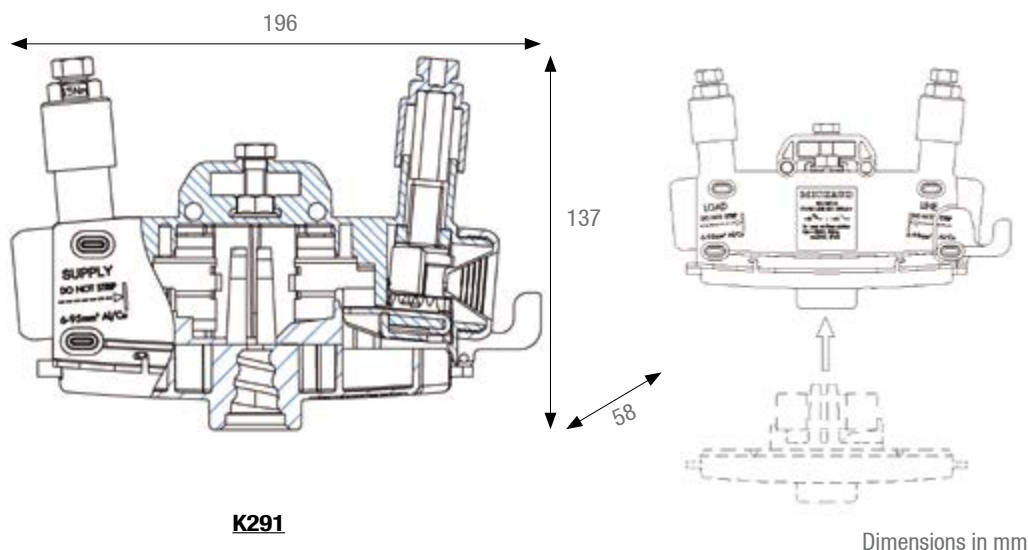
This Fuse Switch Disconnecter (FSD) is a single phase device. It is installed at the top of pole or on façade. It protects the overhead connection supplying an individual customer and the low voltage network.

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,  $U_e$  : 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 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.



| Code | Designation                                 | Weight (kg) | Sales unit |
|------|---|-------------|------------|
| K291 | SINGLE PHASE FSD 100A (22x58) PIERCING 6-95 | 0.510       | 24         |

### Costumised 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).



### 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.



| Code | Designation                                  | Weight (kg) | Sales unit |
|------|--|-------------|------------|
| K297 | BRACKET FOR SINGLE PHASE FSD                 | 0.490       | 30         |
| K295 | PLASTIC ADAPTOR FOR SINGLE PHASE FSD BRACKET | 0.070       | 100        |

➤ **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

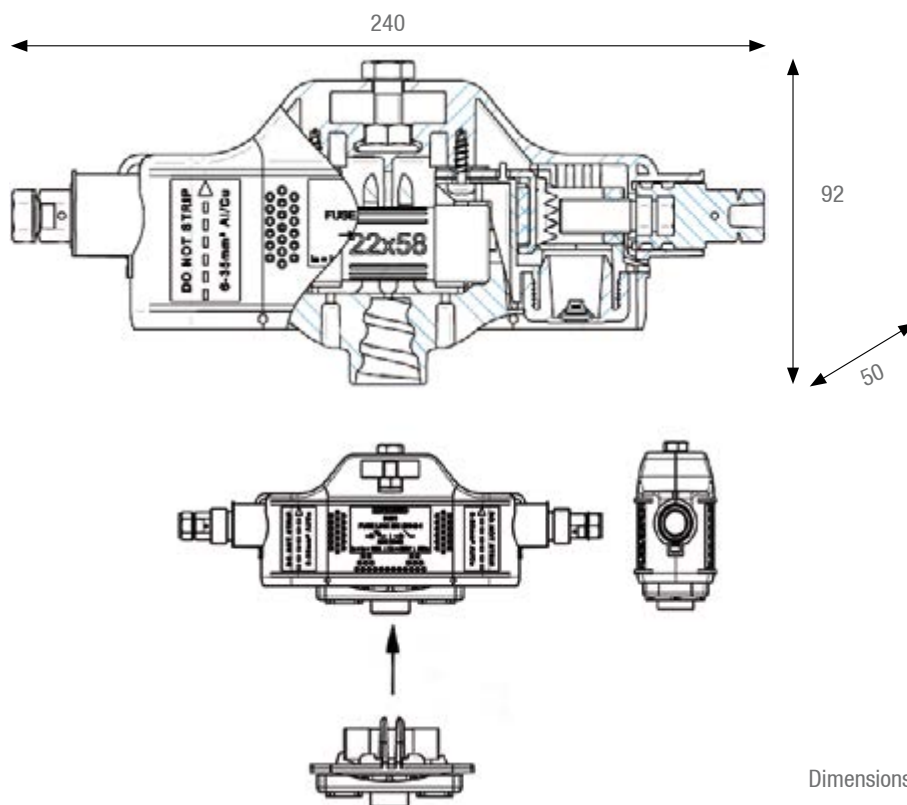
This Fuse Switch Disconnecter (FSD) is a single phase device. It is installed at the top of pole or on façade. It protects the overhead connection supplying an individual customer and the low voltage network.

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.



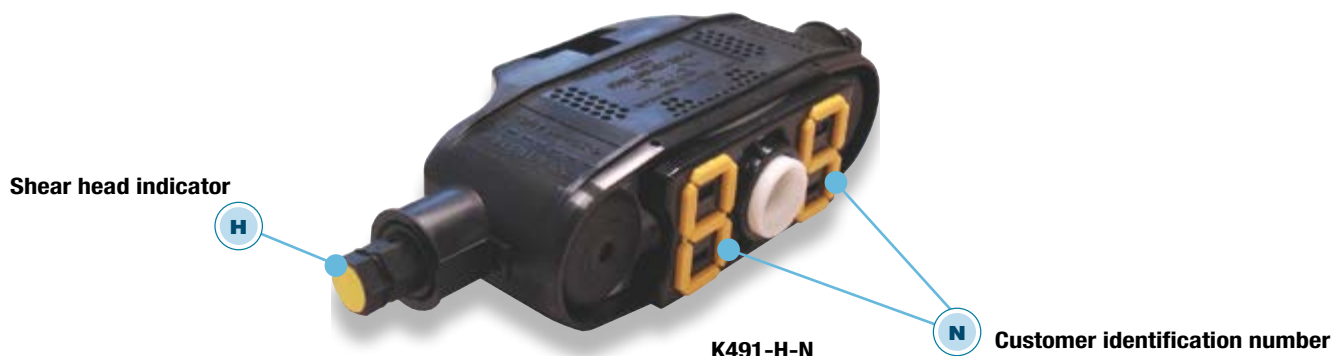
Dimensions in mm

| 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 ON FSD K491 + K291 OR 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 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 | BRACKET FOR SINGLE PHASE FSD                 | 0.490       | 30         |
| K295 | PLASTIC ADAPTOR FOR SINGLE PHASE FSD BRACKET | 0.070       | 100        |

➤ **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

**Rating** 160A

**Fuse size** NH 00

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



**L277**  
Stripping

### Application

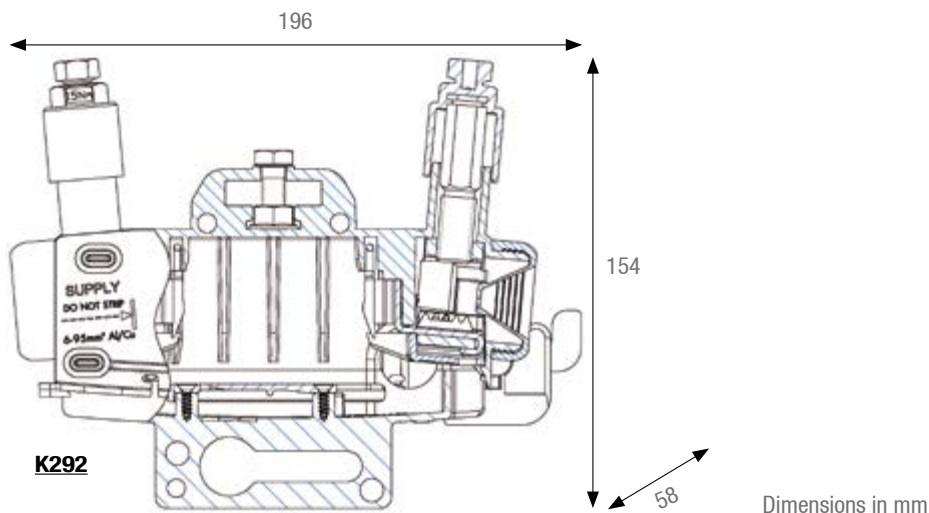
This Fuse Switch Disconnecter (FSD) is a single phase device. It is installed at the top of pole or on façade. It protects the overhead connection supplying an individual customer and the low voltage network.

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, Ue : 500V
  - Rated frequency : 50 up to 60Hz
  - Rated insulation voltage, Ui : 1 000V
  - Rated current, Ie : 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.



| Code | Designation                                  | Weight (kg) | Sales unit |
|------|--|-------------|------------|
| K292 | SINGLE PHASE FSD 160A (NH00) PIERCING 6-95   | 0.490       | 24         |
| L277 | SINGLE PHASE FSD 160A (NH00) STRIPPING 6-120 | 0.500       | 24         |

### 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).



### 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 (NH00)/L   | 0.096       | 160        |
| L298 | FUSE CARRIER (NH00)/P-L | 0.101       | 160        |

### 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 disconnect 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 | 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



**K223-2**



**K223**



**K228 and K229**

### 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.

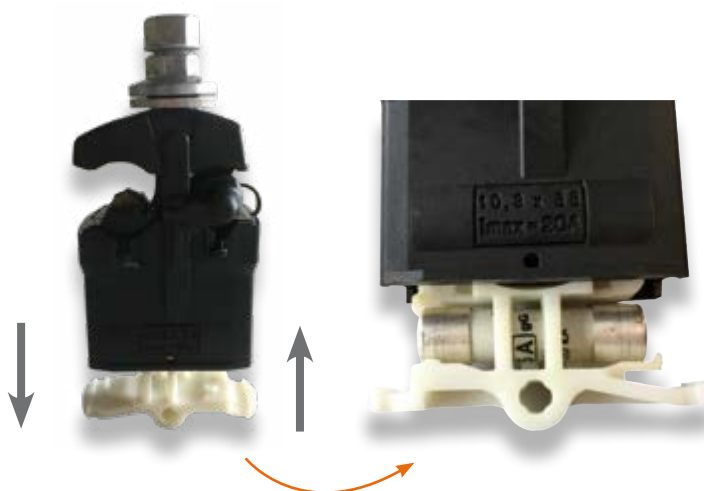
**Rating** 20A

**Fuse size** 10.3x38

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

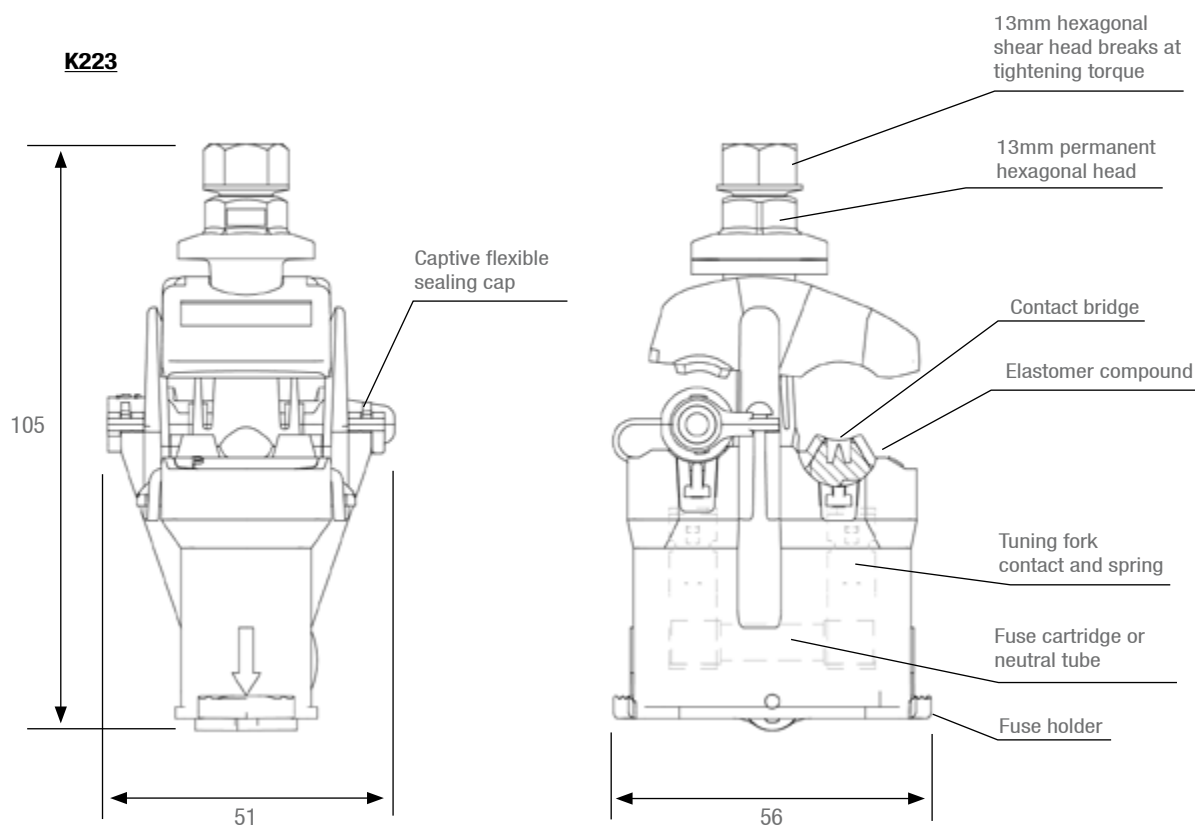
### The benefits :

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



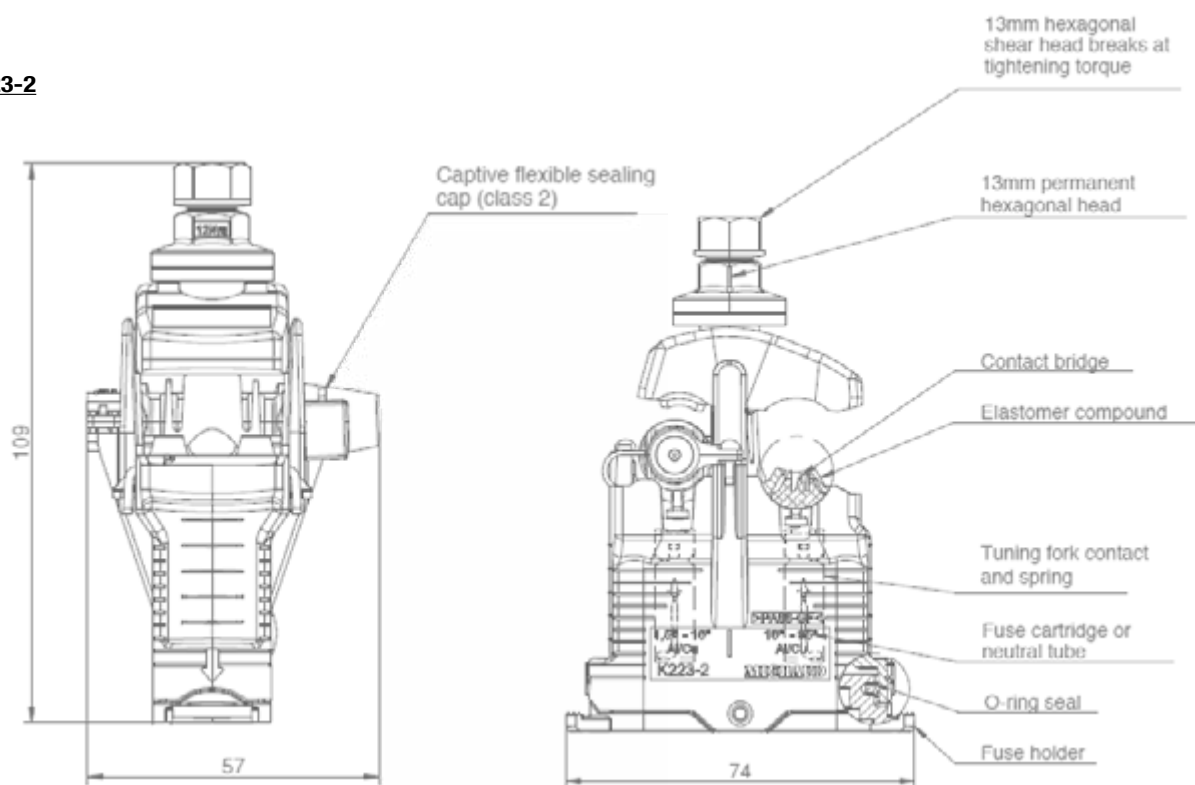
### Description

- 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).

**K223**

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

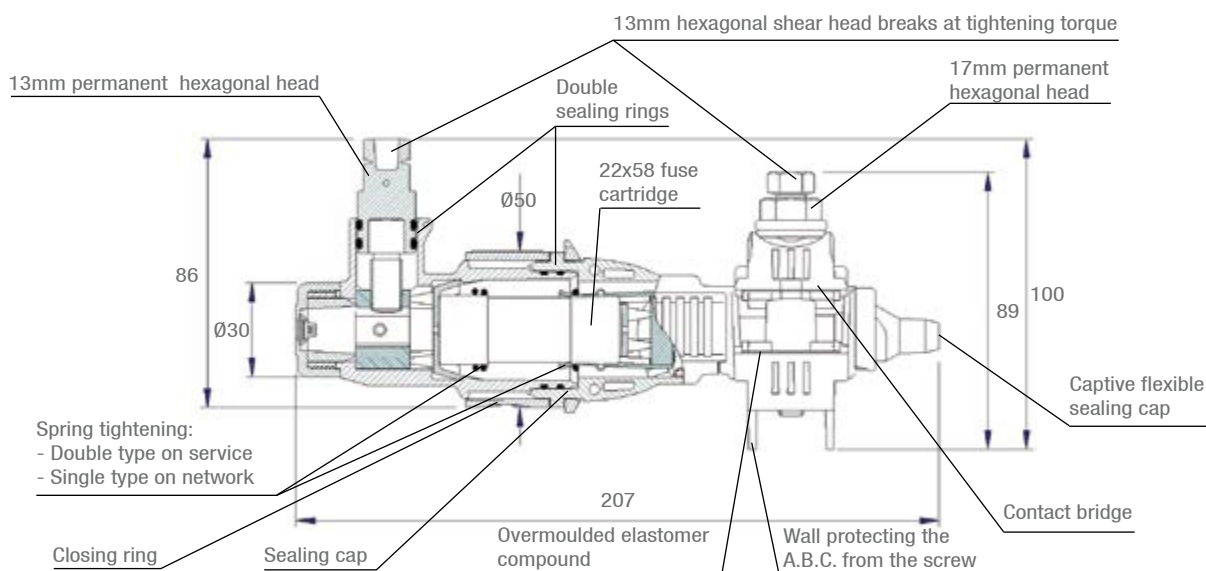
This fuse switch connector is designed to receive a 22x58mm fuse cartridge or neutral tube.

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.



Dimensions in mm



| Code | Designation                                       | Capacities Main<br>insulated Al-Cu (mm <sup>2</sup> ) | Capacities Tap<br>insulated Al-Cu (mm <sup>2</sup> ) | Weight<br>(kg) | Sales<br>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)



**K219**  
Stripping



**K221**  
Insulation piercing

### 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.

13mm hexagonal shear head breaks at tightening torque

13mm permanent hexagonal head

22x58 fuse cartridge

Ø 30

NETWORK

Sealing rings

92

152

50

Spring tightening:  
- Double type on service  
- Single type on network

Sealing cap

Closing ring

Dimensions in mm



| 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         |

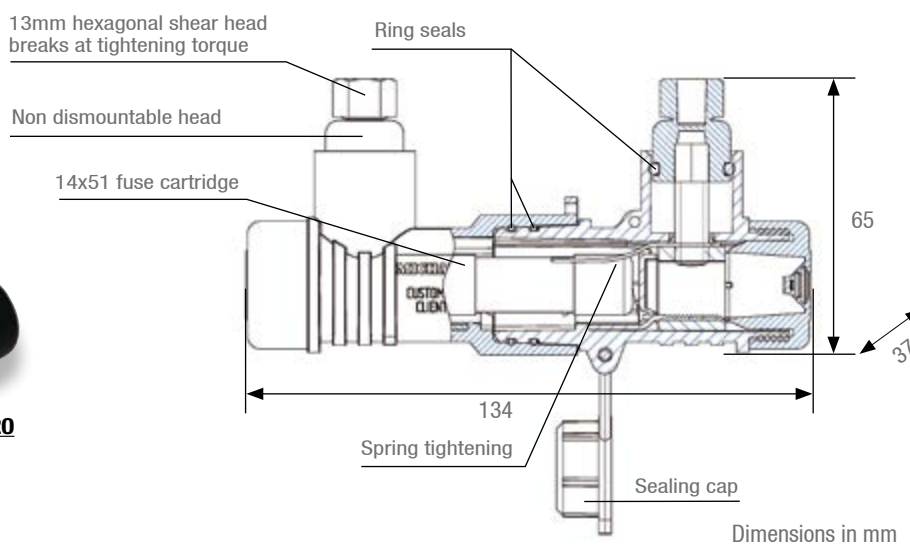
### Alternative: Cutout sleeve with 50A

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>**



| 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>

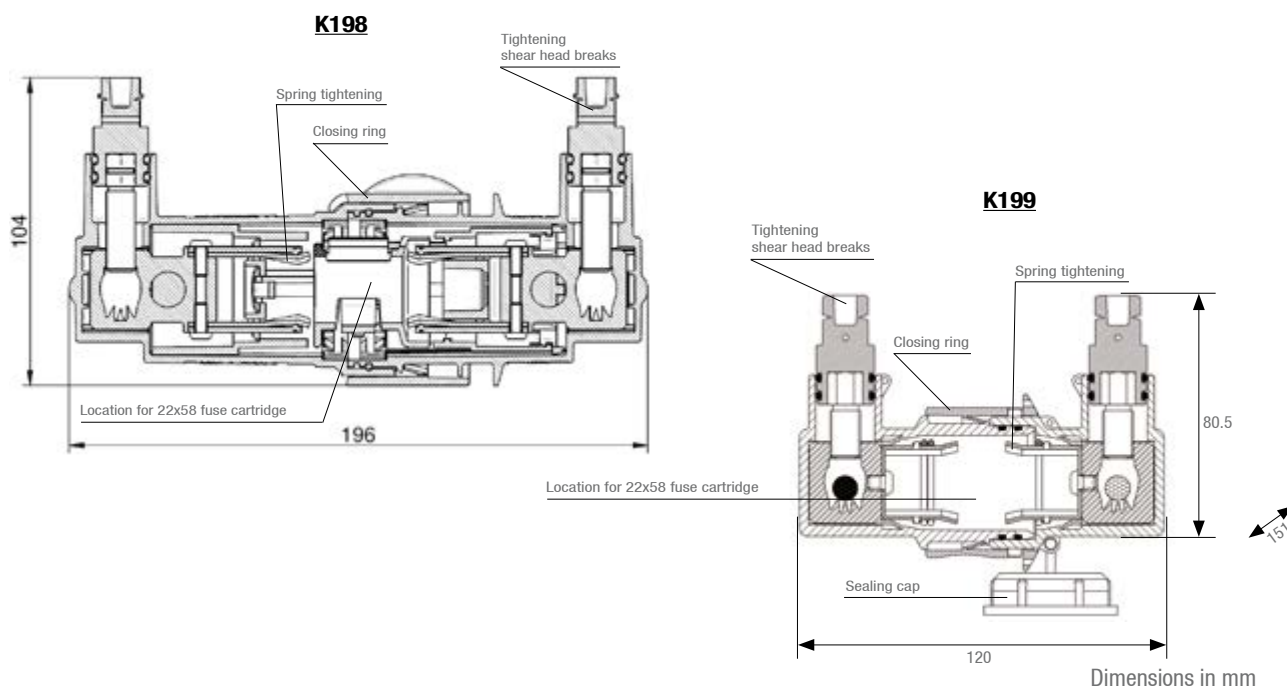


### Application

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)**L278**  
Stripping**K298**  
Insulation piercing

## 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.

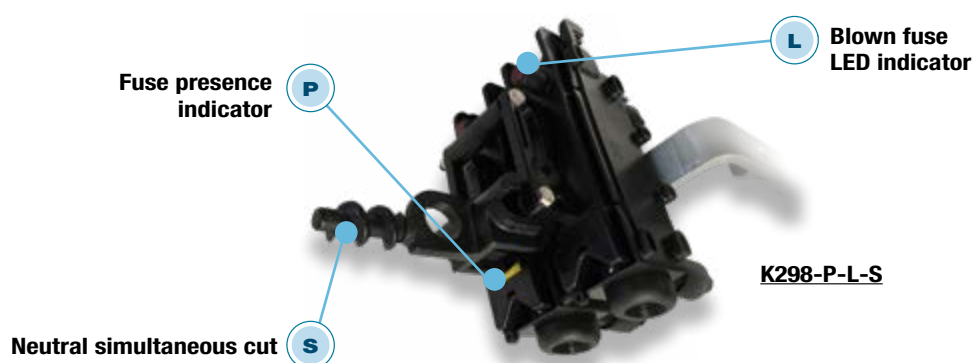
| Code | Designation                                  | Weight (kg) | Sales unit |
|------|--|-------------|------------|
| K298 | DOUBLE PHASE FSD 160A (NH00) PIERCING 6-95   | 1.850       | 4          |
| L278 | DOUBLE PHASE FSD 160A (NH00) STRIPPING 6-120 | 1.650       | 4          |

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

### Costumised 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)

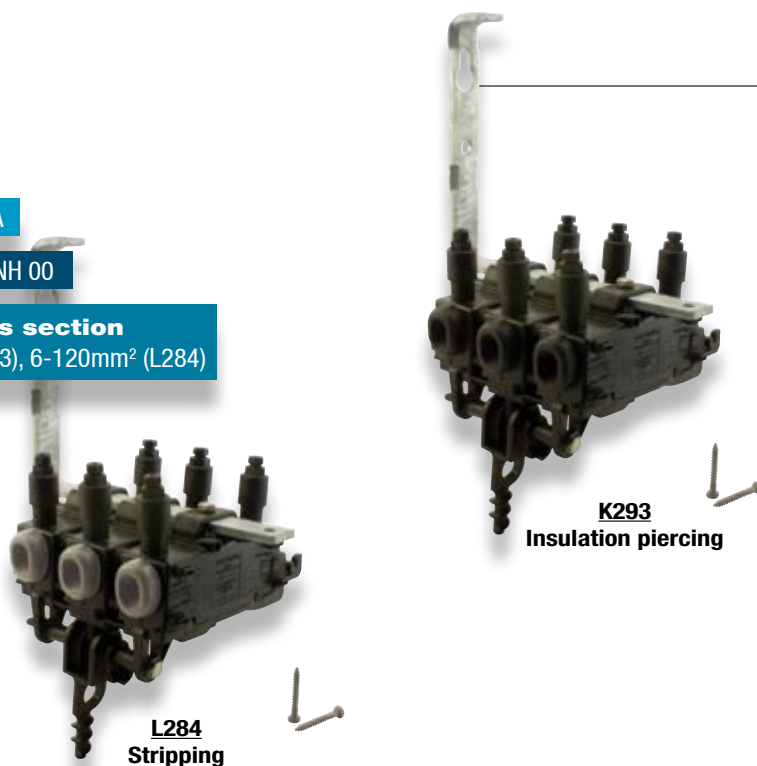
## Fuse switch disconnector triple pole 160A

**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.

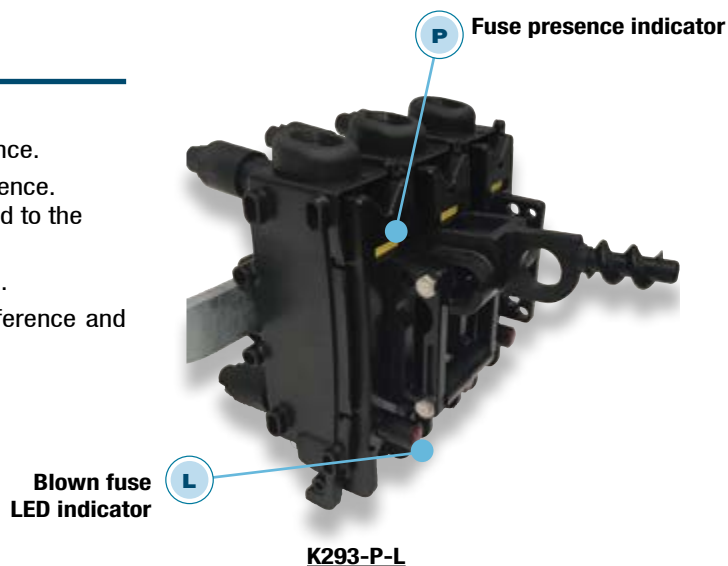
| Code | Designation                                  | Weight (kg) | Sales unit |
|------|--|-------------|------------|
| K293 | TRIPLE PHASE FSD 160A (NH00) PIERCING 6-95   | 2.710       | 2          |
| L284 | TRIPLE PHASE FSD 160A (NH00) STRIPPING 6-120 | 2.710       | 2          |

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

### Costumised 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).

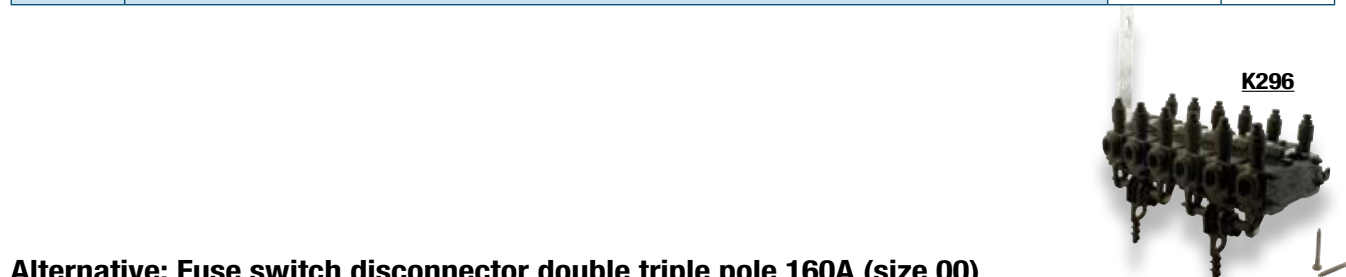


### Option: Double tap

A double tap is available by adding an end connector with two insulation piercing taps. The conductor section goes from 6 to 35mm² Al/Cu.



| Code | Designation                        | Weight (kg) | Sales unit |
|------|------------------------------------|-------------|------------|
| K098 | DOUBLE TAP END CONNECTOR (6-35mm²) | 0.140       | 10         |



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

| Code | Designation                                       | Weight (kg) | Sales unit |
|------|---|-------------|------------|
| K296 | DOUBLE TRIPLE PHASE FSD 160A (NH00) PIERCING 6-95 | 3.800       | 2          |

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)

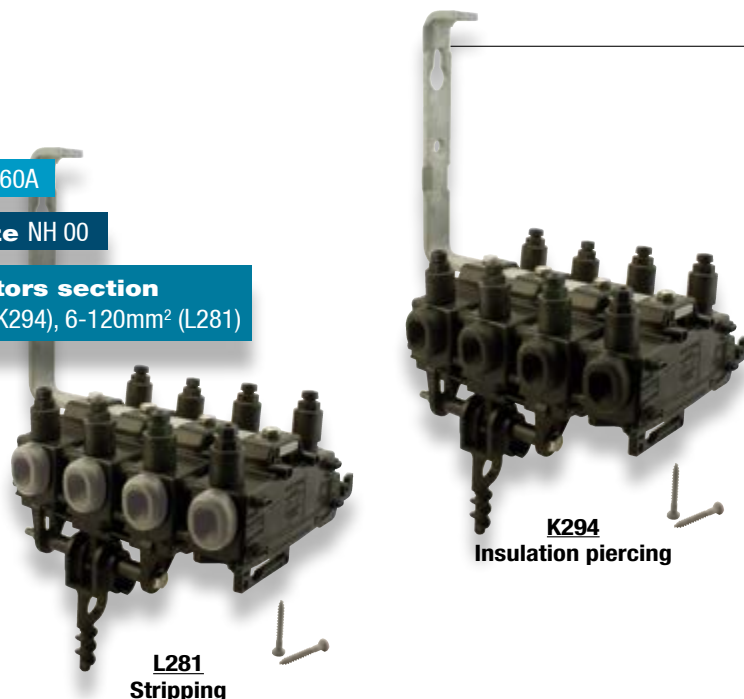
## Fuse switch disconnecter quadruple pole 160A

**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 PHASE FSD 160A (NH00) PIERCING 6-95   | 3.240       | 2          |
| L281 | QUADRUPLE PHASE FSD 160A (NH00) STRIPPING 6-120 | 3.240       | 2          |

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

### Costumised 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.



**K098**

| 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



### 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.

**F208**

### 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 | POLE ADAPTER FOR FSD (NH00)              | 0.200       | 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**

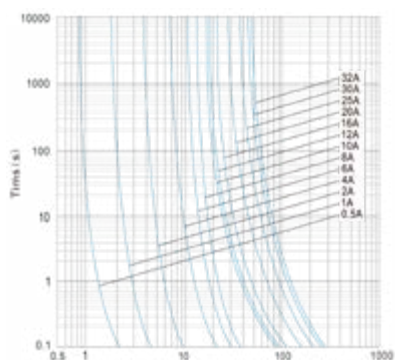
## Application

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

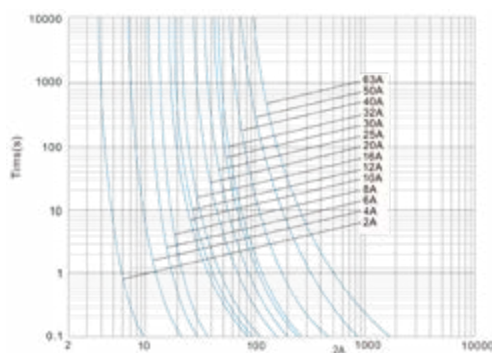
## Description

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

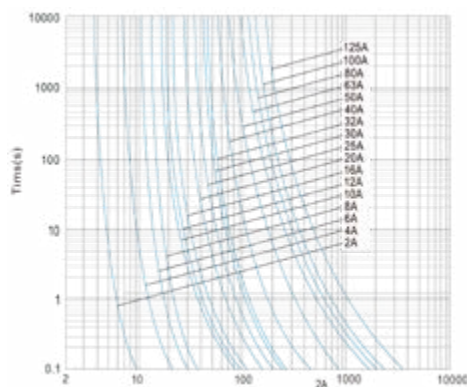
This fuse meets the criteria of the **NF/EN/IEC 60269-1**, **NF HD/IEC 60269-2**, **NF C 60200-1** and **NF C 60200-2** standards.



**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

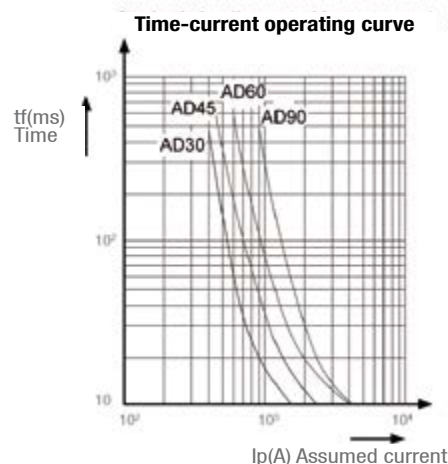
These AD fuse cartridges are used together with the circuit-breaker installed on the individual service tap connection. They perform the cutoff for high short-circuit currents and thereby extend the service life of the associated circuit-breaker, which is not overloaded up to the limit.

## 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

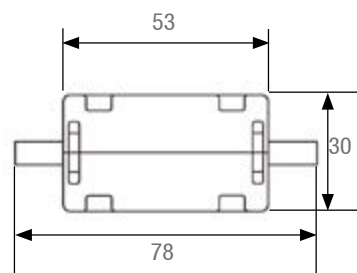
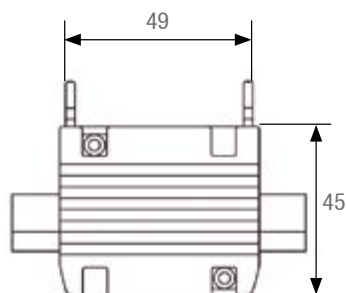


### Description

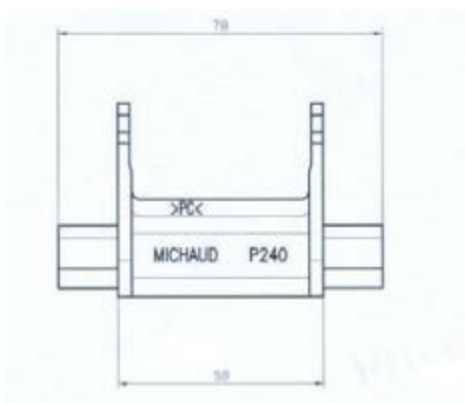
- The size of this blade fuse cartridge is 00 according to the **IEC 60269-2-1** standard.
- There are 4 models available according to the nominal current of the circuit-breaker to which it must be connected: AD 30A, AD 45A, AD 60A and AD 90A.
- The fixing brackets are made of insulating synthetic materials.
- 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



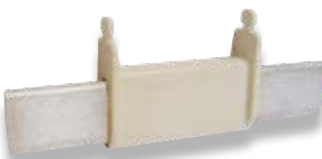
**NH00**



**NH2 115mm**



**NH1 115mm**



**NH1 115mm**



**NH2 160mm**



**NH2 160mm**

## Application

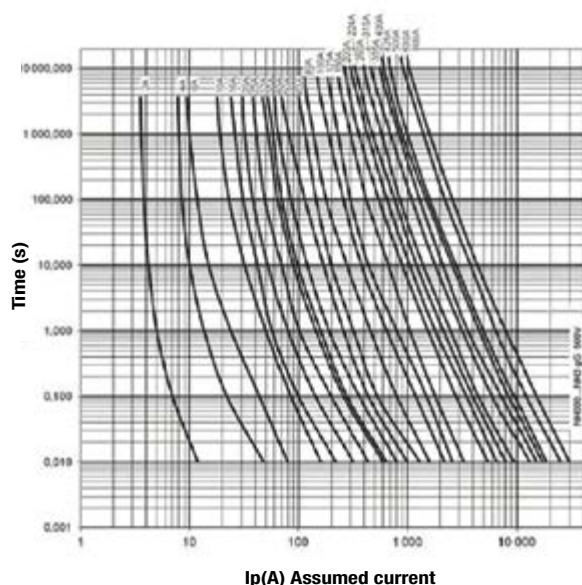
These low voltage fuses cartridges NH00, NH1 or NH2 are type gG. They are used as protection unit of the low voltage public electricity supply networks and works. It is installed in:

- 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.

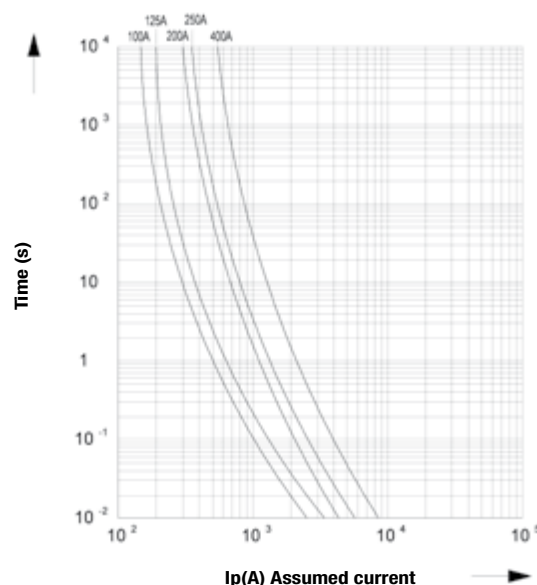
## Description

- 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 electrodes

|   |       |
|---|-------|
| Copper bonded steel rod .....                 | p.136 |
| Threaded copper bonded steel earth rod .....  | p.138 |
| Galvanised steel earth electrodes .....       | p.140 |
| Copper earth plate and grid .....             | p.142 |
| Earth resistance measure - Earth tester ..... | p.143 |

### Earth connectors

|  |       |
|--|-------|
| Earth connector .....  | p.144 |
| Surge protection device connector .....                              | p.146 |
| Insulation piercing connector for measure and short-circuiting ..... | p.148 |

### Earth conductors

|  |       |
|--|-------|
| Earth system and short-circuiting device .....                     | p.150 |
| Switch earth system and short-circuiting device for Gang FSD ..... | p.152 |
| Cable .....  | p.154 |
| Tape .....   | p.155 |
| Aluminium earth cable and accessory .....                          | p.156 |

# 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.

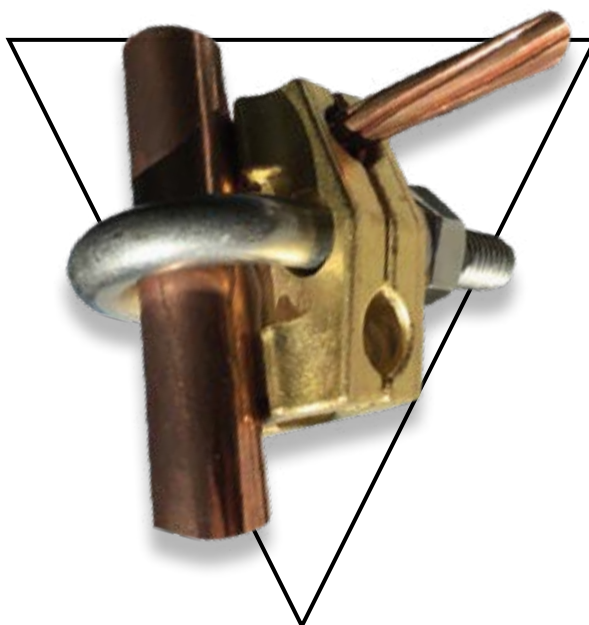
## Components of an earth terminal

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.

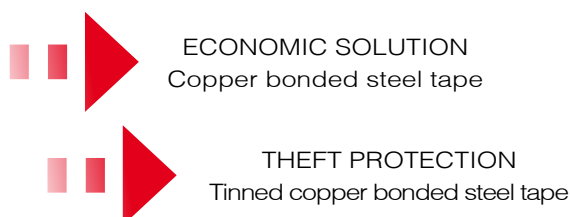
### Copper conductors

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

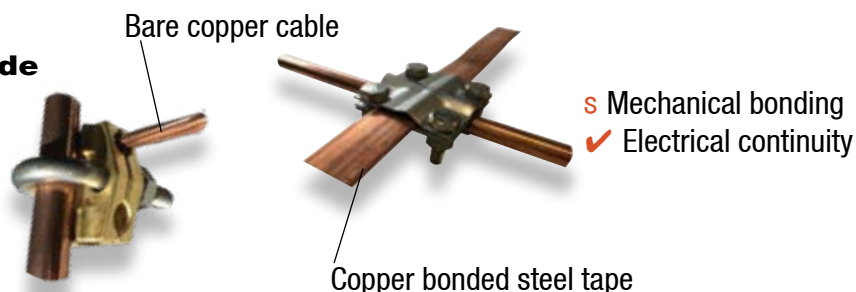
Copper conductors are generally recommended in earth circuits. Other metallic combinations can bring solutions to existing issues in the field.



## Connectors

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

### Connection conductor/electrode



### 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    | ✗     | ✓                | ✓               |

### Conductive solution

|                          |                       |
|--------------------------|-----------------------|
| Less noble metal (Anode) | Noble metal (Cathode) |
|--------------------------|-----------------------|

Electrons transfer →

All combinations are allowed with a copper conductor.

- ✓ Allowed
- ✓ Tolerated
- ✗ Not allowed

# SOLUTIONS FOR EARTH SYSTEM

## 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

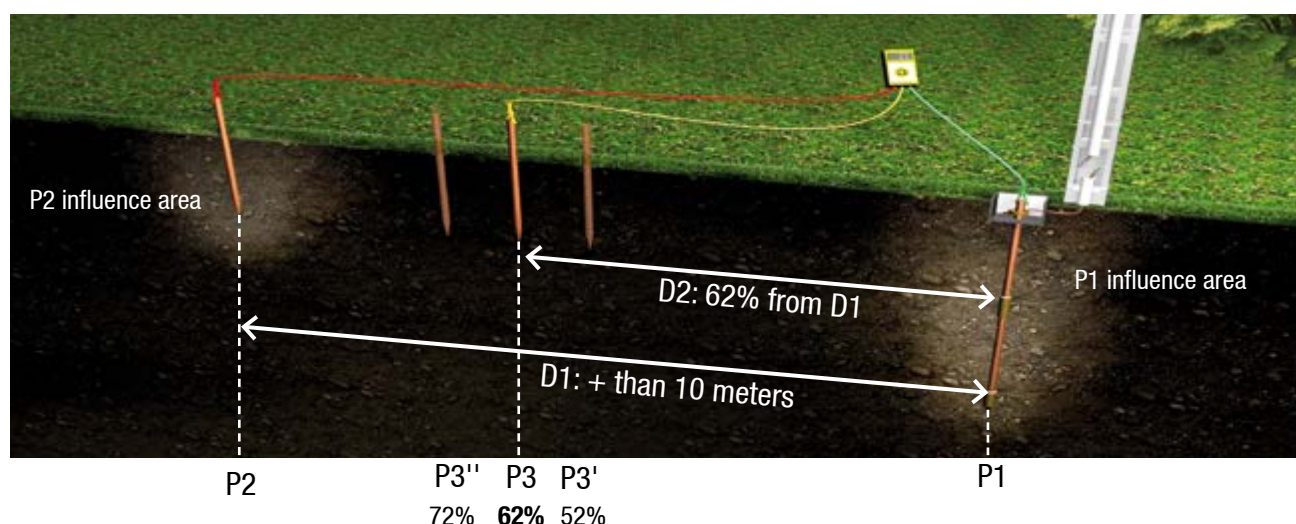
## The resistance measurement through the 3 rods method

### 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:

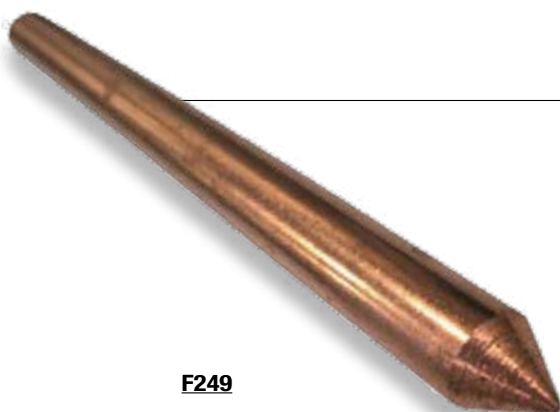
The measure is not conclusive, the earth resistance value is too high. The rod must be extended or earth terminals must be multiplied taking care of the system equipotentiality in order to decrease value.

### 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                               | Real diameter (mm) | Length (m) | Weight (kg) | Sales unit |
|-----------------------------|---|--------------------|------------|-------------|------------|
| <b>50µm COPPER COATING</b>  |   |                    |            |             |            |
| U203                        | EARTH ROD COPPER 50µm L = 1m DIAM 12.7    | 12.7               | 1          | 1.025       | 10         |
| U204                        | EARTH ROD COPPER 50µm L = 1.5m DIAM 12.7  | 12.7               | 1.5        | 1.537       | 10         |
| U205                        | EARTH ROD COPPER 50µm L = 2m DIAM 12.7    | 12.7               | 2          | 2.050       | 10         |
| F226                        | EARTH ROD COPPER 50µm L = 1m DIAM 14      | 14                 | 1          | 1.250       | 10         |
| F244                        | EARTH ROD COPPER 50µm L = 1.5m DIAM 14    | 14                 | 1.5        | 1.870       | 10         |
| F245                        | EARTH ROD COPPER 50µm L = 2m DIAM 14      | 14                 | 2          | 2.400       | 10         |
| F250                        | EARTH ROD COPPER 50µm L = 1.5m DIAM 17    | 17.2               | 1.5        | 3           | 10         |
| <b>100µm COPPER COATING</b> |   |                    |            |             |            |
| U230                        | EARTH ROD COPPER 100µm L = 1m DIAM 14     | 14                 | 1          | 1.250       | 10         |
| U231                        | EARTH ROD COPPER 100µm L = 1.5m DIAM 14   | 14                 | 1.5        | 1.900       | 10         |
| U232                        | EARTH ROD COPPER 100µm L = 2m DIAM 14     | 14                 | 2          | 2.450       | 10         |
| U233                        | EARTH ROD COPPER 100µm L = 1m DIAM 17.2   | 17.2               | 1          | 2.000       | 10         |
| U234                        | EARTH ROD COPPER 100µm L = 1.5m DIAM 17.2 | 17.2               | 1.5        | 3.000       | 10         |
| U235                        | EARTH ROD COPPER 100µm L = 2m DIAM 17.2   | 17.2               | 2          | 4.000       | 10         |
| <b>254µm COPPER COATING</b> |   |                    |            |             |            |
| U206                        | EARTH ROD COPPER 254µm L = 1m DIAM 14     | 14                 | 1          | 1.250       | 10         |
| F249                        | EARTH ROD COPPER 254µm L = 1.5m DIAM 14   | 14                 | 1.5        | 1.900       | 10         |
| F227                        | EARTH ROD COPPER 254µm L = 2m DIAM 14     | 14                 | 2          | 2.500       | 10         |
| U207                        | EARTH ROD COPPER 254µm L = 3m DIAM 14     | 14                 | 3          | 3.700       | 10         |
| U208                        | EARTH ROD COPPER 254µm L = 1m DIAM 17.2   | 17.2               | 1          | 2.000       | 10         |
| U209                        | EARTH ROD COPPER 254µm L = 1.5m DIAM 17.2 | 17.2               | 1.5        | 3.000       | 10         |
| U210                        | EARTH ROD COPPER 254µm L = 2m DIAM 17.2   | 17.2               | 2          | 4.000       | 10         |
| U211                        | EARTH ROD COPPER 254µm L = 3m DIAM 17.2   | 17.2               | 3          | 6.000       | 10         |
| <b>350µm COPPER COATING</b> |   |                    |            |             |            |
| U212                        | EARTH ROD COPPER 350µm L = 1m DIAM 17.2   | 17.2               | 1          | 2.000       | 10         |
| U213                        | EARTH ROD COPPER 350µm L = 1.5m DIAM 17.2 | 17.2               | 1.5        | 3.000       | 10         |
| U214                        | EARTH ROD COPPER 350µm L = 2m DIAM 17.2   | 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 (mm²) | Screw | Weight (kg) | Sales unit |
|---------------------------|---|---------------------------|--------------------|---------------------------|-------|-------------|------------|
|                           |   | Nominal diameter (mm)     | Real diameter (mm) |                           |       |             |            |
| ROUND CONNECTION CLAMP    |   |                           |                    |                           |       |             |            |
| 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         |
| "U" BOLT CONNECTION CLAMP |   |                           |                    |                           |       |             |            |
| F233                      | "U" BOLT CONNECTION CLAMP 50² ROD DIAM 12.7 + 14 THREADED | 14 - 16                   | 12.7-14            | 16 - 50                   | -     | 0,095       | 10         |
| F224                      | "U" BOLT CONNECTION CLAMP 150² 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 (mm²) | Screw | Weight (kg) | Sales unit |
|---------------------------|---|---------------------------|--------------------|---------------------------|-------|-------------|------------|
|                           |   | Nominal diameter (mm)     | Real diameter (mm) |                           |       |             |            |
| ROUND CONNECTION CLAMP    |   |                           |                    |                           |       |             |            |
| 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         |
| "U" BOLT CONNECTION CLAMP |   |                           |                    |                           |       |             |            |
| F233                      | "U" BOLT CONNECTION CLAMP 50² ROD DIAM 12.7 + 14 THREADED | 14 - 16                   | 12,7-14            | 16 - 50                   | -     | 0,095       | 10         |
| F224                      | "U" BOLT CONNECTION CLAMP 150² 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



Stainless steel

**F230**

Copper bonded steel

**U175**

### 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    | 17.2          | 1          | 1.900       | 10         |
| U179                        | EARTH ROD COPPER AUTO-EXTENDABLE 250µm L = 1,5m DIAM 17.2  | 17.2          | 1.5        | 2.850       | 10         |
| U180                        | EARTH ROD COPPER AUTO-EXTENDABLE 250µm L = 2m DIAM 17.2    | 17.2          | 2          | 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

**F234****F224**

### Application

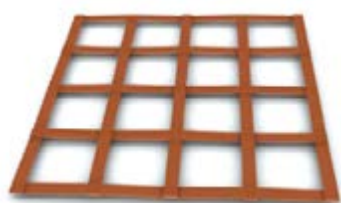
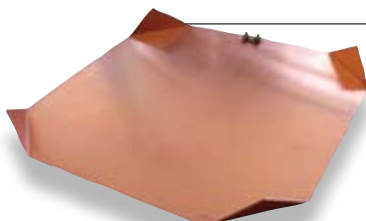
This **round bronze clamp (F234)** is designed to establish a connection between the stainless steel earth rod and the conductor.

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 (mm²) | 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 50² ROD            | 14 - 16           | 16-50                     | -     | 0.095       | 10         |
| F224                             | "U" BOLT CONNECTION CLAMP 150² 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

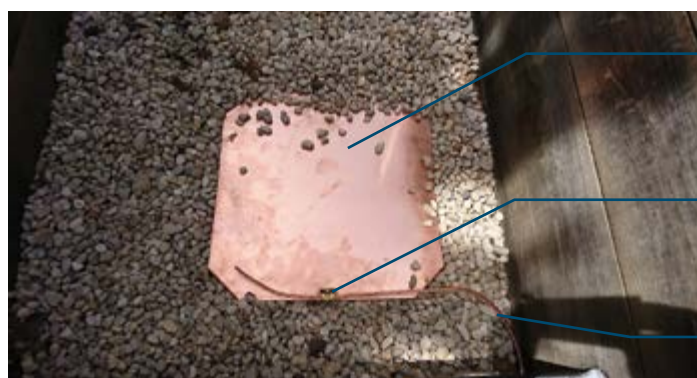
### Description

- 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



Copper earth plate

"U"bolt connection clamp

Bare copper cable

# 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

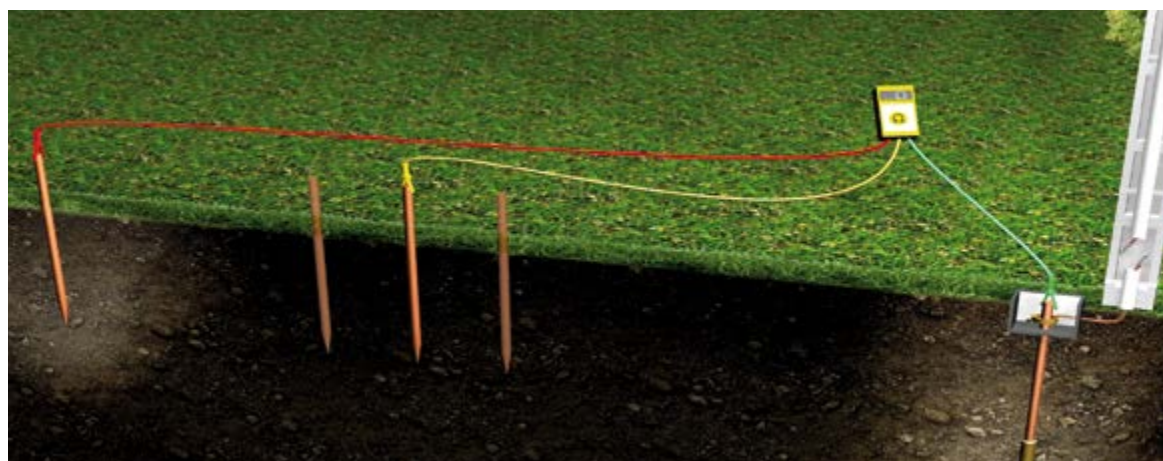
- This earth tester is installed in a anti-shock briefcase including three green, yellow and red cords respectively of 5m, 10m and 15m length.
- Cords are provided with a clamp to be placed on rod enabling the measure.
- The tester supply is possible thanks to batteries.
- The recommended surrounding 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<br>( $\Omega$ ) | Measure current      | Dimensions<br>(mm) | Weight<br>(kg) | Sales<br>unit |
|------|--------------|-------------------------------|----------------------|--------------------|----------------|---------------|
| F439 | EARTH TESTER | 0 to 2k                       | Constant 2mA @ 820Hz | 205x90x55          | 0.550          | 1             |

## Installation

Measure with the 3 rods method.



# Earth connector

## "C" tined 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         | Désignation                        | 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 | Désignation                  | 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



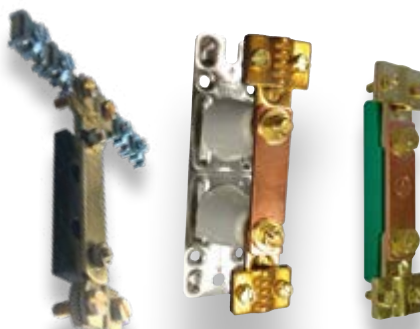
**U031**

### 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:

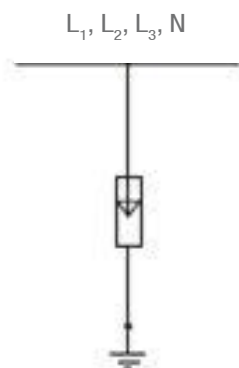
- After a certain number of over-voltages, when the current passing through the surge protection device increases by more than 1mA,
- In the case of atmospheric discharge (lightning strike), the current exceeding 65mA.

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                     | $I_{max}$<br>Maximal discharge current (kA) | $U_c$<br>Continuous operating voltage V(AC) | $I_n$<br>Nominal discharge current (kA) | $U_p$<br>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



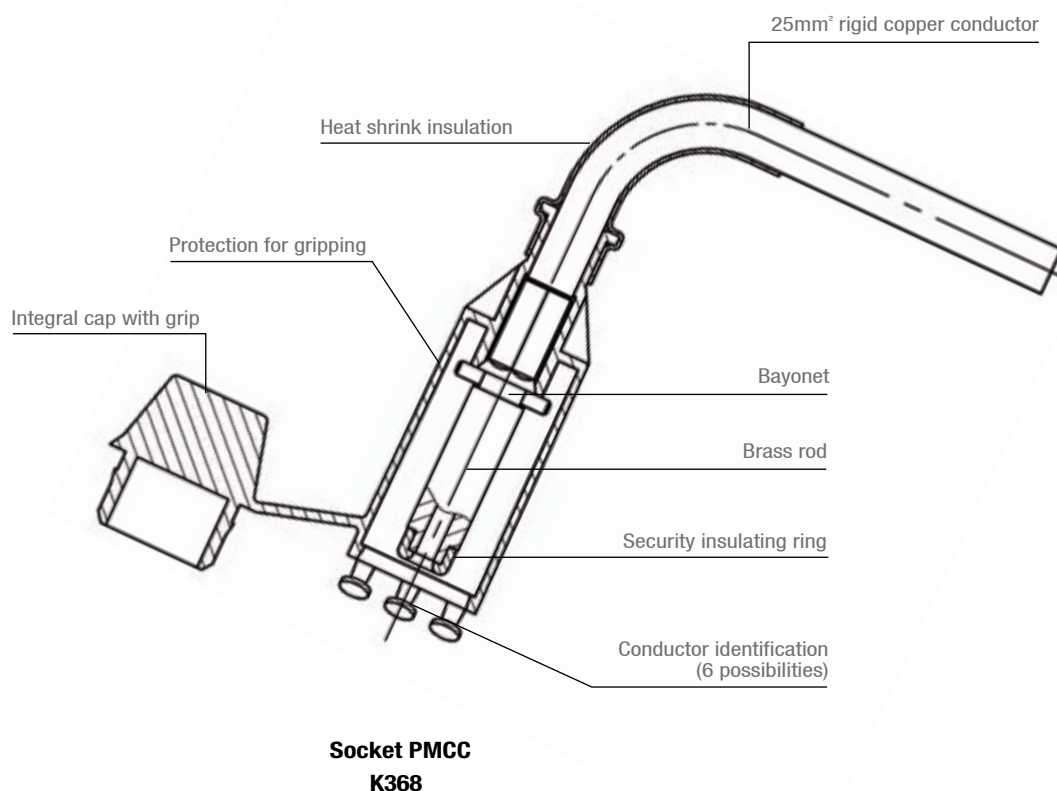
## Application

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<br>Main insulated<br>Al-Cu (mm <sup>2</sup> ) | Weight<br>(kg) | Sales<br>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<br>(kg) | Sales<br>unit |
|------|---|----------------|---------------|
| K368 | SHORT-CIRCUITING AND EARTH SYSTEM SOCKET (PMCC) | 0.100          | 25            |

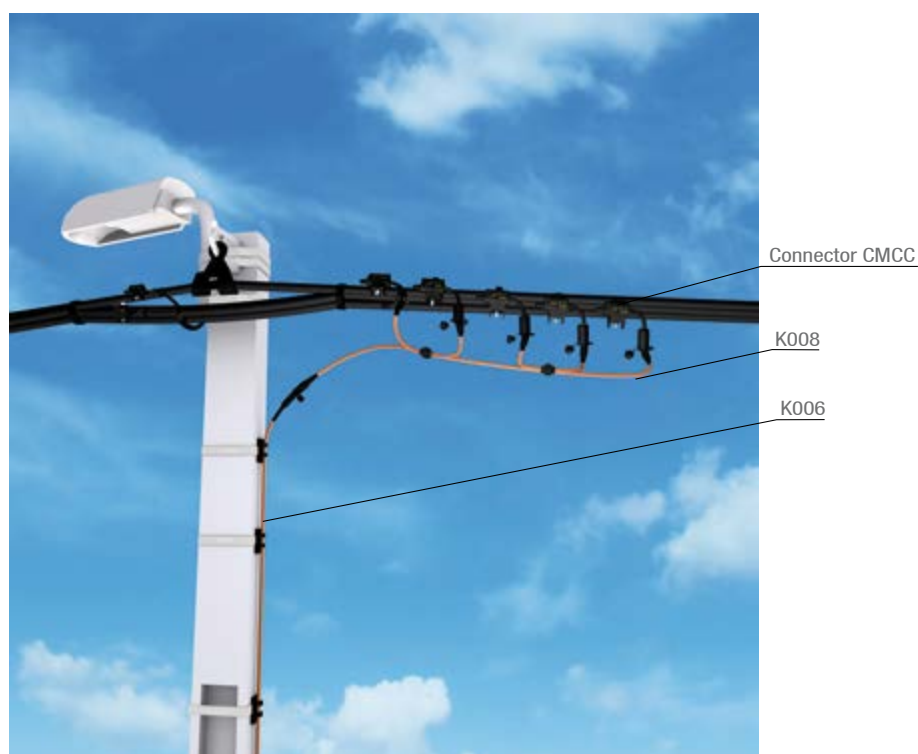
### Variant:

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<br>(mm) | Weight<br>(kg) | Sales<br>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 Cinductors). 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 strett 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 lenght 10m for the section of 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

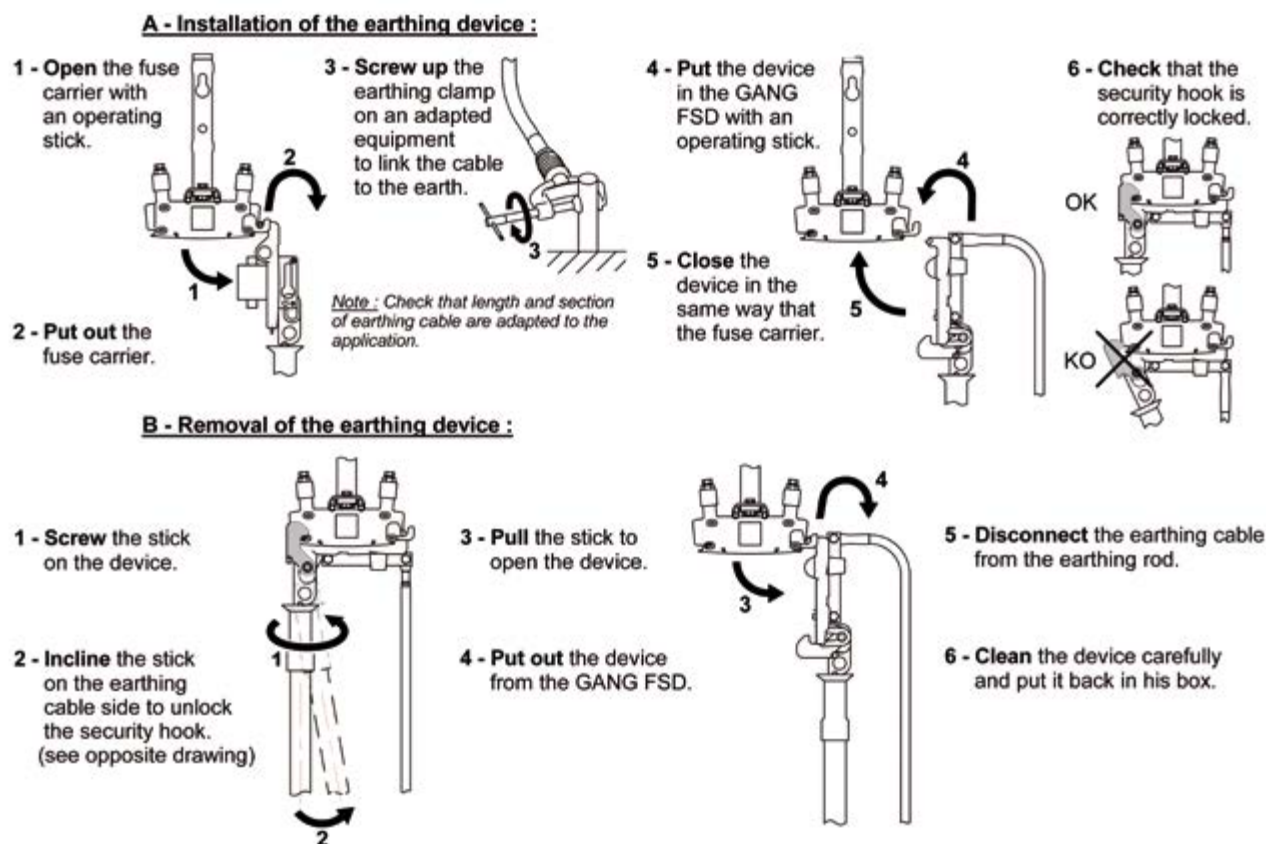
This device is designed for short-circuiting and earthing the low voltage A.B.C. (Aerial Bundled Conductor). It is connected to the MICHAUD 3-poles type pole-mounted Gang Fuse Switch Disconnecter (Gang FSD).

## 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



### 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, dismount 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

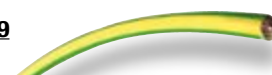
- Nominal voltage: 600/1000V
- Short-circuit temperature:  $+250^{\circ}\text{C}$
- Annealed Copper Cable
- Minimum bending radius:
  - From  $10\text{mm}^2$  up to  $25\text{mm}^2$  (3x external  $\emptyset$ )
  - From  $29\text{mm}^2$  up to  $300\text{mm}^2$  (6x external  $\emptyset$ )
- This cable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

| Code | Designation                                    | Section ( $\text{mm}^2$ ) | Weight (kg) | Sales unit |
|------|--|---------------------------|-------------|------------|
| U050 | BARE COPPER CABLE $10\text{mm}^2$ - 500m drum  | 10                        | 49          | 1          |
| U051 | BARE COPPER CABLE $16\text{mm}^2$ - 500m drum  | 16                        | 76          | 1          |
| U052 | BARE COPPER CABLE $25\text{mm}^2$ - 500m drum  | 25                        | 116,5       | 1          |
| U053 | BARE COPPER CABLE $29\text{mm}^2$ - 500m drum  | 29                        | 139,5       | 1          |
| U054 | BARE COPPER CABLE $35\text{mm}^2$ - 500m drum  | 35                        | 160         | 1          |
| U055 | BARE COPPER CABLE $50\text{mm}^2$ - 500m drum  | 50                        | 216         | 1          |
| U056 | BARE COPPER CABLE $70\text{mm}^2$ - 500m drum  | 70                        | 327         | 1          |
| U057 | BARE COPPER CABLE $95\text{mm}^2$ - 500m drum  | 95                        | 455         | 1          |
| U058 | BARE COPPER CABLE $120\text{mm}^2$ - 500m drum | 120                       | 595         | 1          |
| U059 | BARE COPPER CABLE $150\text{mm}^2$ - 500m drum | 150                       | 705         | 1          |
| U060 | BARE COPPER CABLE $185\text{mm}^2$ - 500m drum | 185                       | 885         | 1          |
| U061 | BARE COPPER CABLE $240\text{mm}^2$ - 500m drum | 240                       | 1190        | 1          |
| U062 | BARE COPPER CABLE $300\text{mm}^2$ - 500m drum | 300                       | 1420        | 1          |

For other lengths, consult us.

## Insulated copper H07V-R

U069



### Description

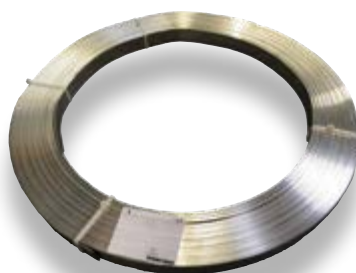
- Nominal voltage: 450/750V
- Test voltage: 2500V
- Short circuit temperature:  $+160^{\circ}\text{C}$
- Minimum bending radius: 5x external  $\emptyset$
- This copper cable is covered by a PVC insulation.
- This cable meets the criteria of the **EN 50525-2-31** standard.

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

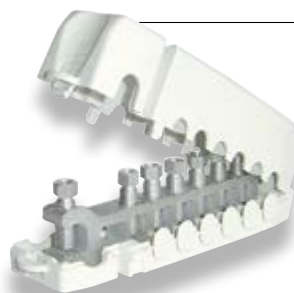
## Aluminium earth cable and accessory



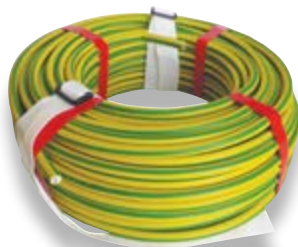
**MICHAUD Exclusivity**  
Antifraud solution



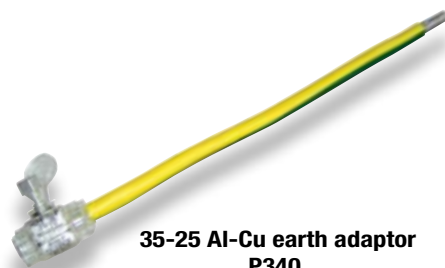
**Ground cutting blade  
aluminium with box**  
**N106**



**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.

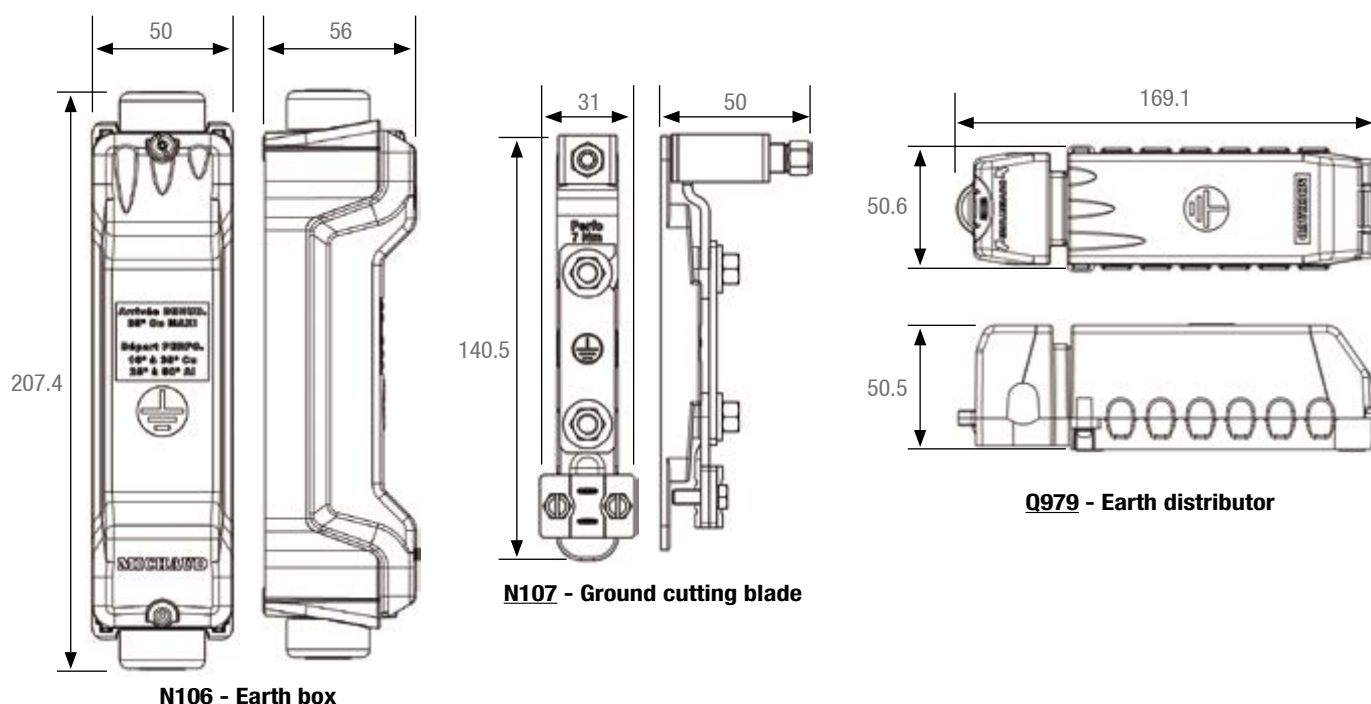
### Benefits:

- + 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**.





| 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 service

|   |       |
|---|-------|
| Multipole ring connector 150mm <sup>2</sup> ..... | p.168 |
| Multipole ring connector 240mm <sup>2</sup> ..... | p.170 |
| Multipole ring connector 300mm <sup>2</sup> ..... | p.172 |
| Single pole service connector.....                | p.174 |
| Service repairing function kit - JRB.....         | p.176 |

## Underground network

|   |       |
|---|-------|
| Single pole network connector.....                        | p.178 |
| Mechanical tightening underground junction.....           | p.180 |
| Short-circuiting lost end - BPMCC.....                    | p.182 |
| Aerial sub-surface connections for LV network (NJAS)..... | p.184 |

## Emerging connection

|   |       |
|---|-------|
| REMIC bare cabinet.....                             | p.186 |
| REMIC set of bars.....                              | p.188 |
| REMIC service module.....                           | p.190 |
| REMIC network module.....                           | p.192 |
| REMIC disconnection and protection module RRCP..... | p.194 |
| REMIC tool set.....                                 | p.196 |

## Accessories

|                                      |       |
|--------------------------------------|-------|
| Protection and warning.....          | p.198 |
| TPC sheath.....                      | p.200 |
| Cold shrinkable seal.....            | p.202 |
| Cold shrinkable sheath.....          | p.204 |
| Mecanico-shrinkable service end..... | p.206 |

# 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.



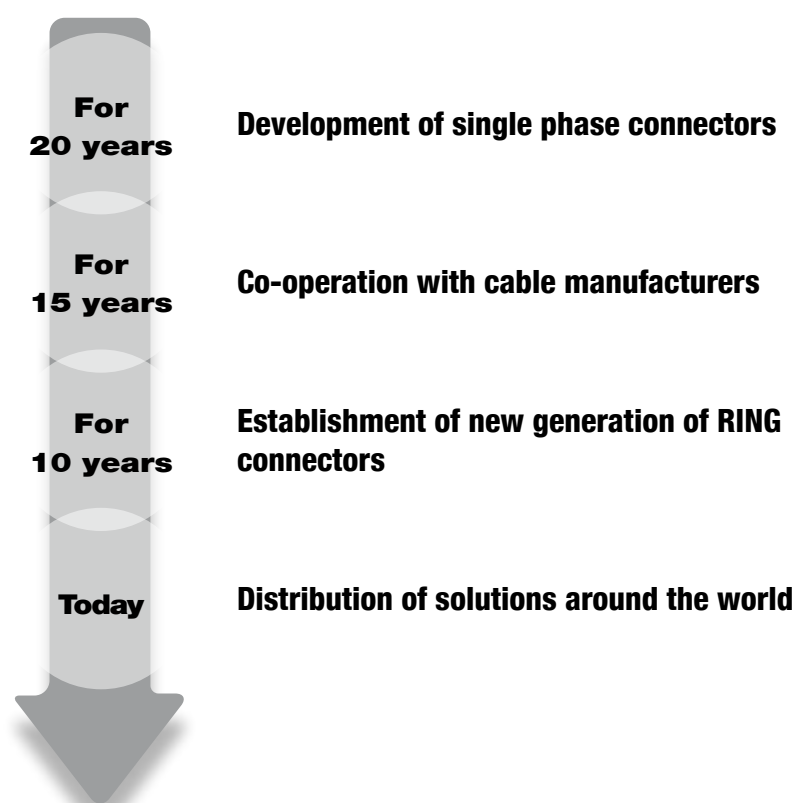
# Underground networks

## Many assets

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



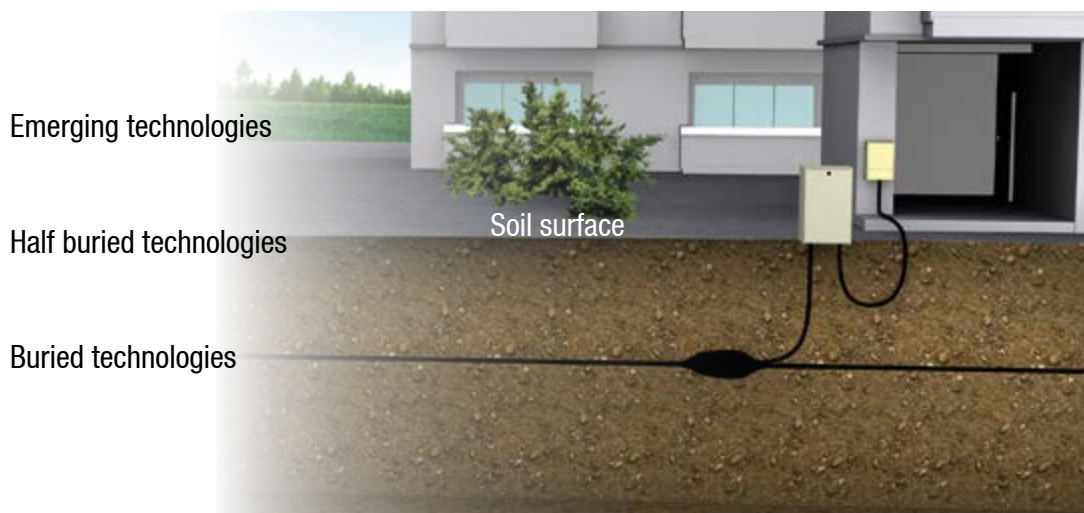
## A recognized experience in the sector





# SOLUTIONS FOR UNDERGROUND NETWORKS

## Three levels of installations

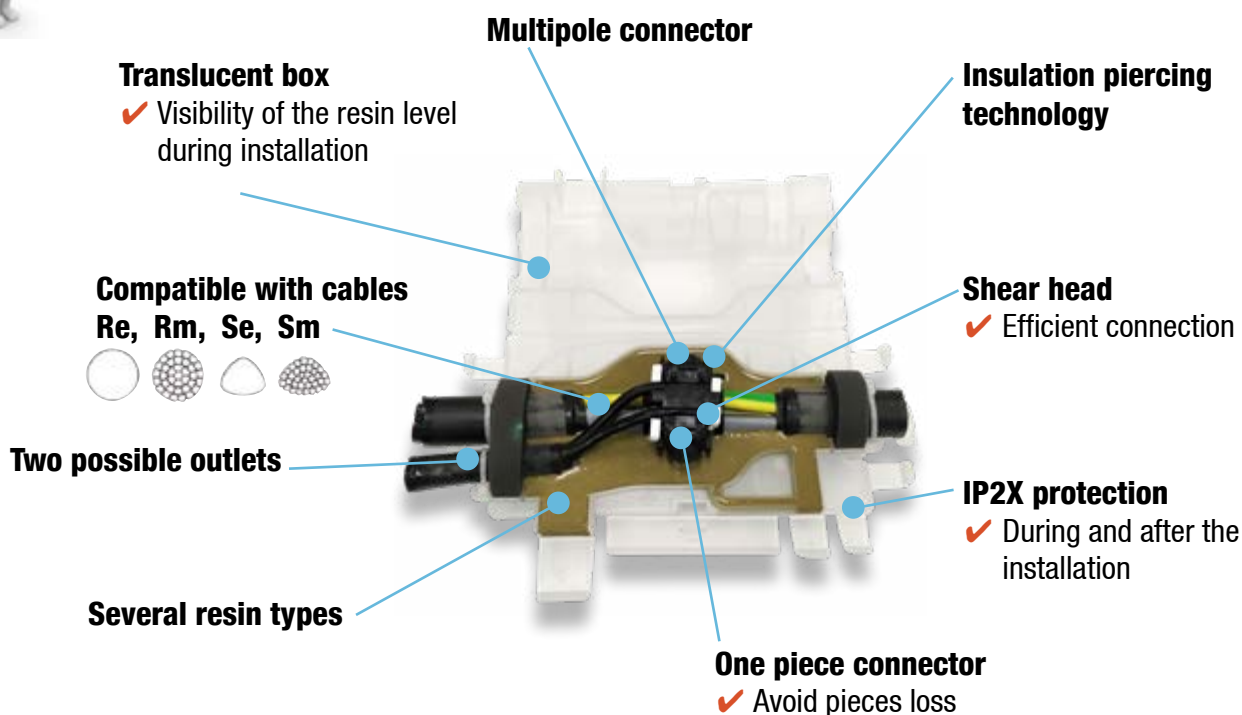


## 1 - Buried solutions

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



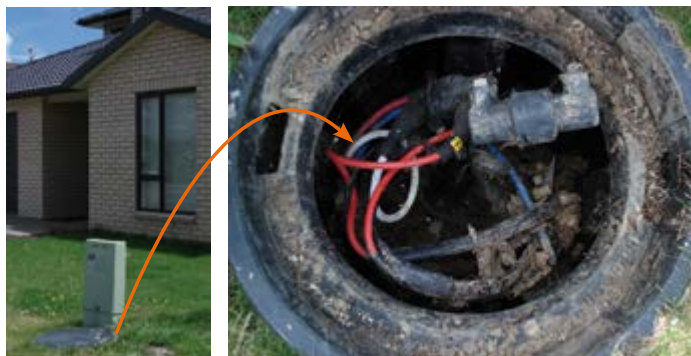
## 2 - Half-buried solutions

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



SEE  
PROTECTION

## 3 - Emerging connection solutions

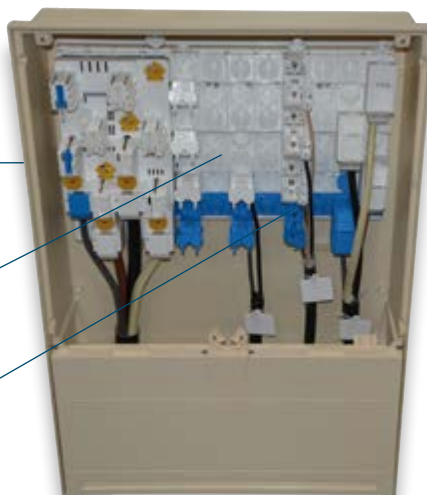
The modular range of emerging cabinets makes possible an adaptation to different searched configurations.

### 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

Application field

## Service



|                           | 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

## Cast technology

**The +**  
Easy installation

**The -**  
No possible flexibility in the installation configuration

## Injected technology

**The +**  
Easy adaptation to specific environments

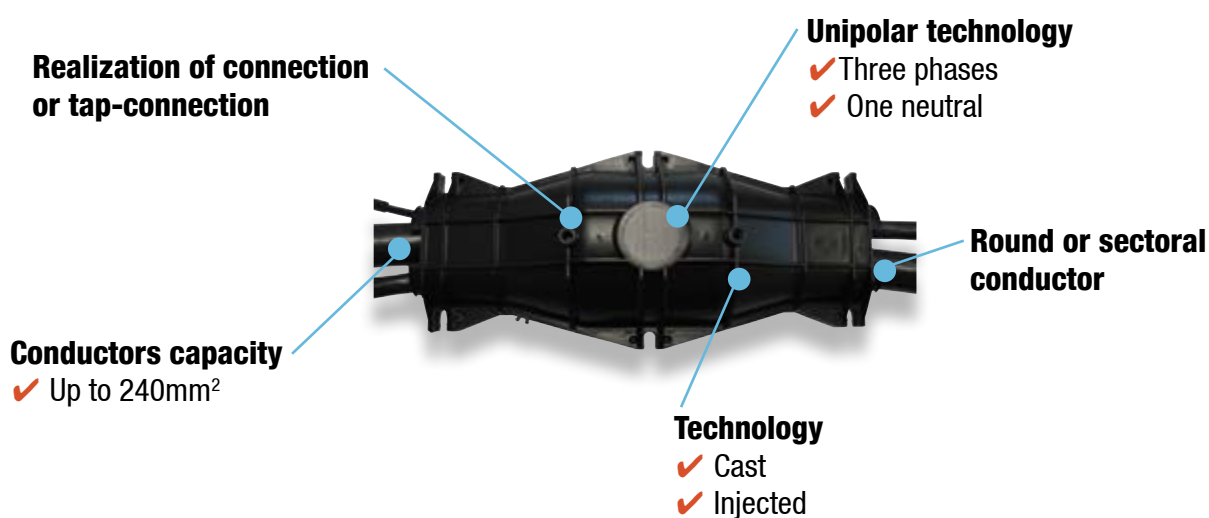
**The -**  
Installation requiring fitters training

## Michaud guides you in your installations



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

## Network



## 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.

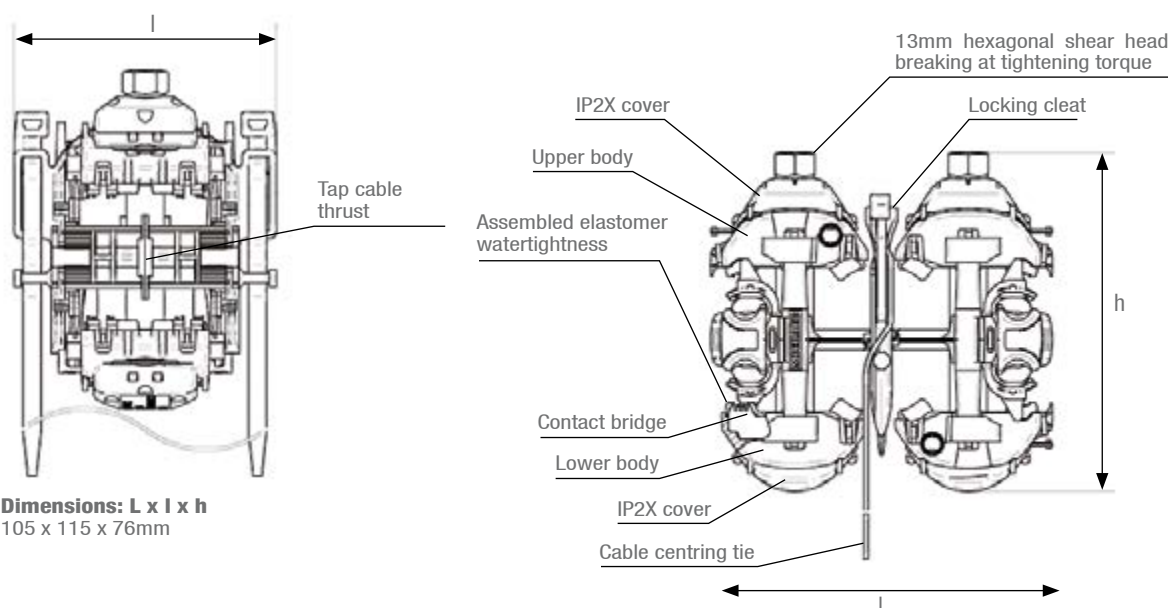
It is used on a main cable with synthetic insulation of type:

- 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:  $\emptyset \leq 119\text{mm}$ .
- 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).



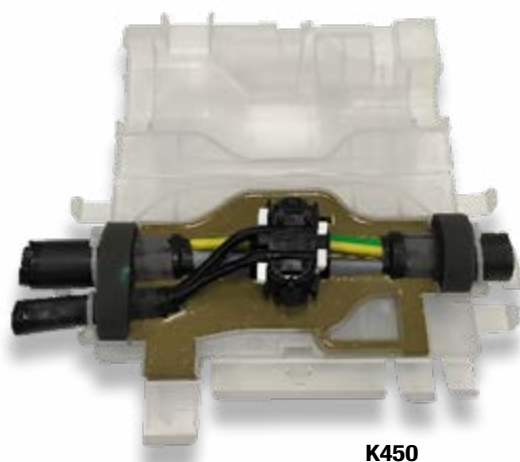
## Accessory



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



**K450**

### 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.

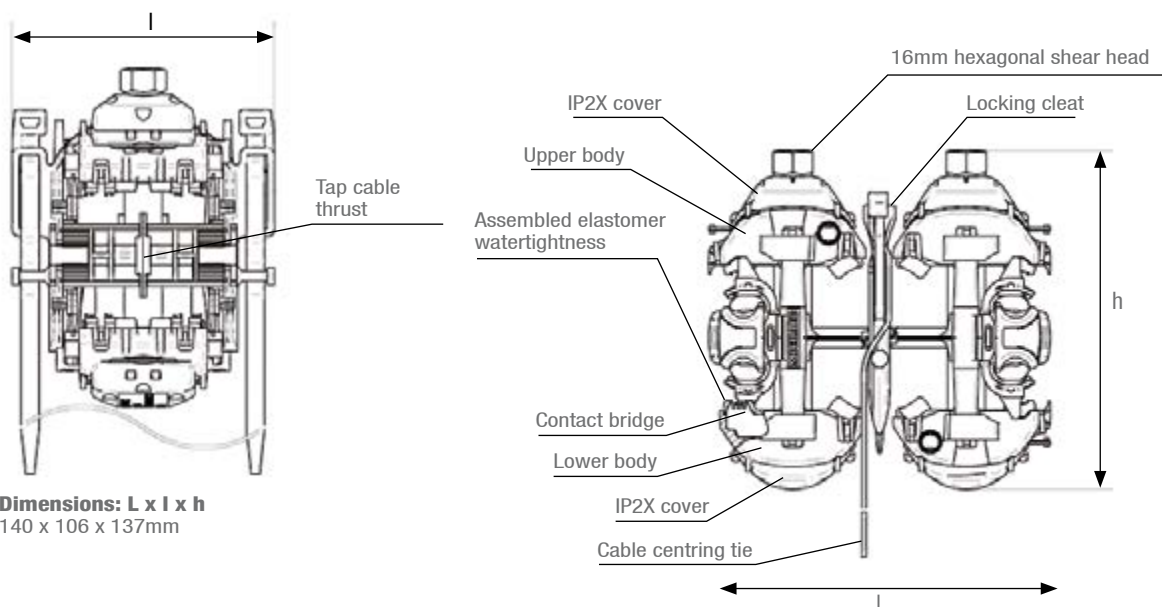
It is used on a main cable with synthetic insulation of type:

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

### Description

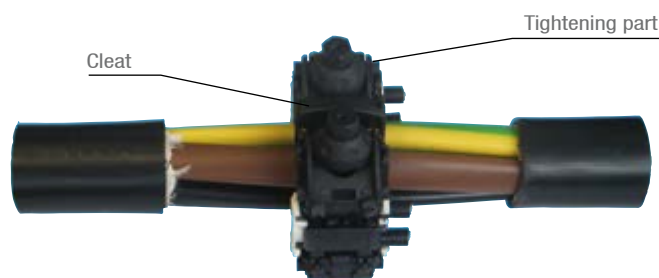
- Connection is ensured through insulation piercing technology, simultaneously on main and tap lines.
- Connector capacities are: 50 to 240mm<sup>2</sup> main and 1 up to 2x10 to 35mm<sup>2</sup> tap.
- The connector accepts a reduced neutral.
- Adjustable clips are used to guide the cable and act as 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.



| 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

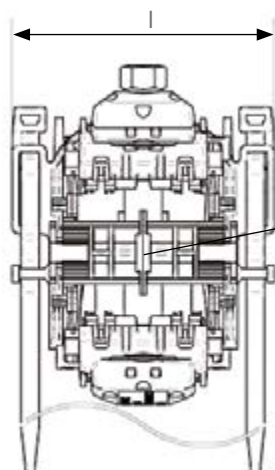
This RING connector is designed to establish a tap connection on low voltage underground networks. It is installed inside an underground box.

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

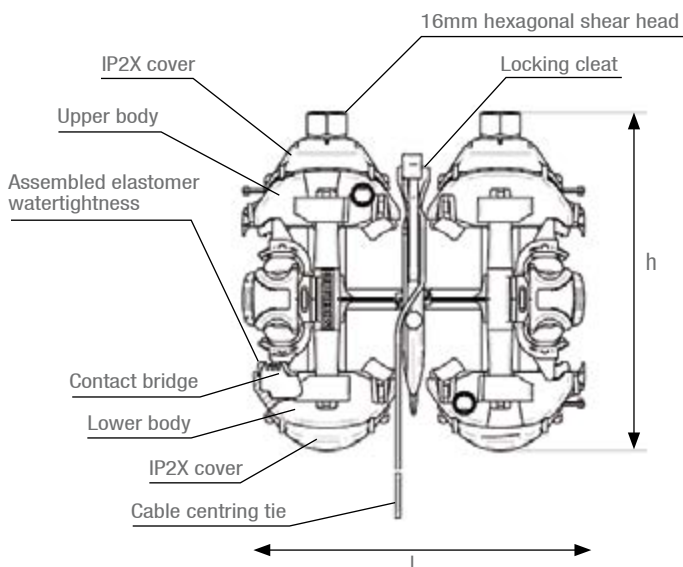
- Circular or sectoral,
- Copper or aluminium,
- Solid or stranded core.

## 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         |



# Single pole service connector

**Phase - K317****Neutral - K318**

## 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.

**Phase - K419****Neutral - K420**

## 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<br>(mm <sup>2</sup> ) | Tap capacities<br>(mm <sup>2</sup> ) | Weight<br>(kg) | Sales<br>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<br>(kg) | Sale<br>unit |
|------|-------------------------------|----------------|--------------|
| K001 | BLACK FLEXIBLE END CAP 10-50m | 0,003          | 20           |

# Service repairing junction kit - JRB

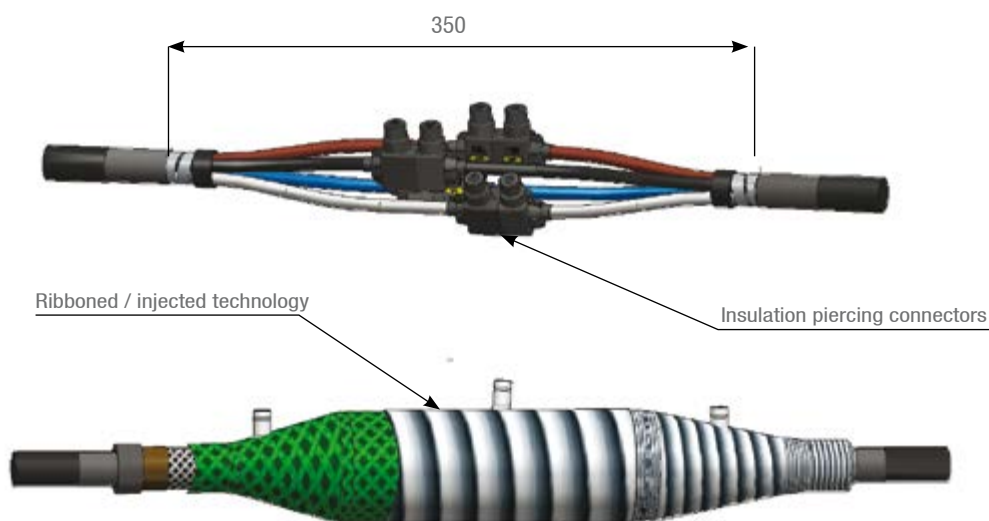
**BE004**

## 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.



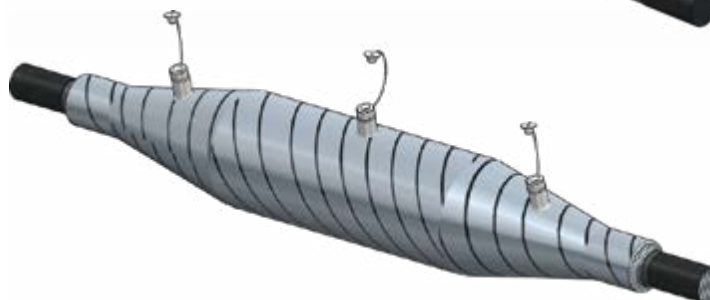
Dimensions in mm

## Installation

- Cables preparation

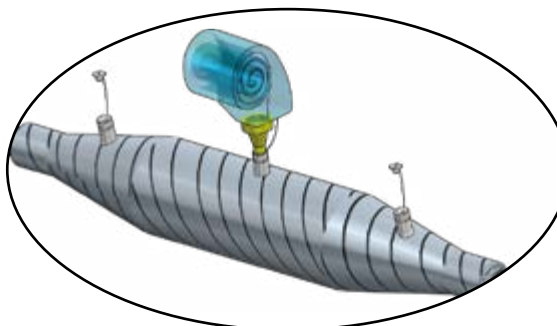


- Cables connection



- Ribboning

- Resin injection



| Code  | Designation                              | Cable section<br>(mm <sup>2</sup> ) |      | Weight<br>(kg) | Sales<br>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<br>(mm <sup>2</sup> ) | Tap Capacities<br>(mm <sup>2</sup> ) | Weight<br>(kg) | Sales<br>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          |

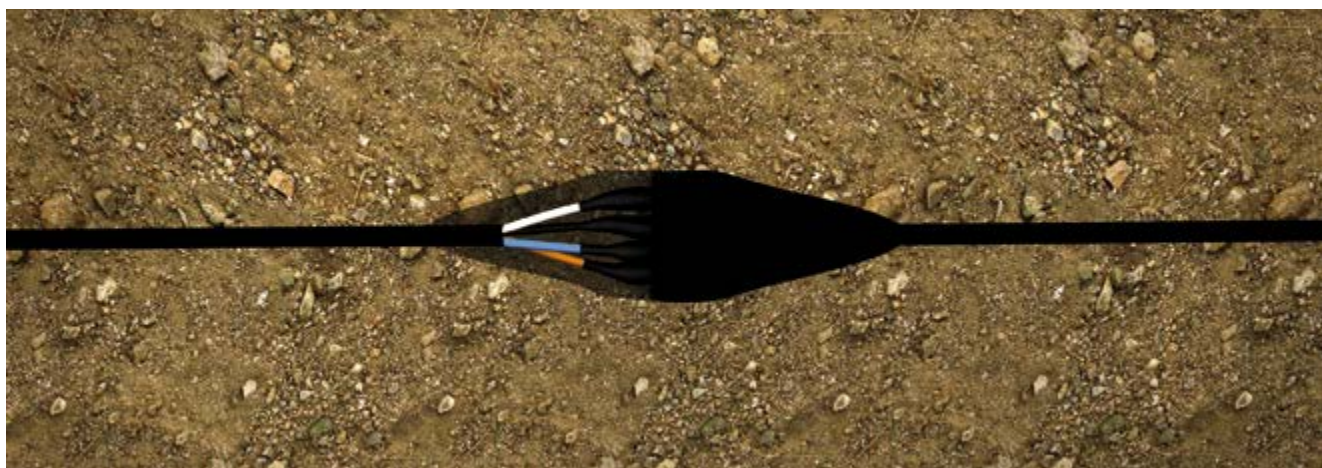
## Option: Sealing

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.

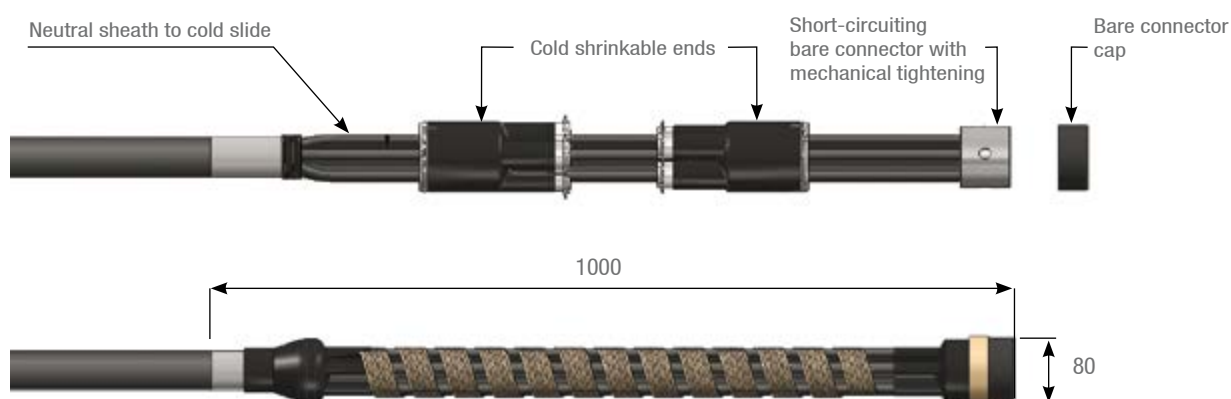
It ensures cables watertightness.

### The benefit:

- + Easy installation

### Description

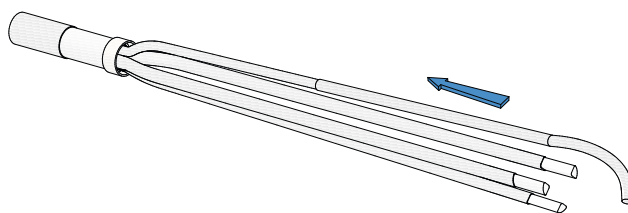
- This kit comprises the following accessories:
  - 1 short-circuiting bare connector with mechanical tightening,
  - 1 neutral sheath to cold slide,
  - 2 cold shrinkable ends.



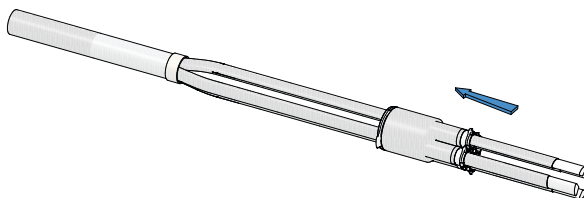
Dimensions in mm

## Installation

- Cables preparation.



- Cable re-insulation.



- Conductors short-circuiting.



- Accessory reinforcement.



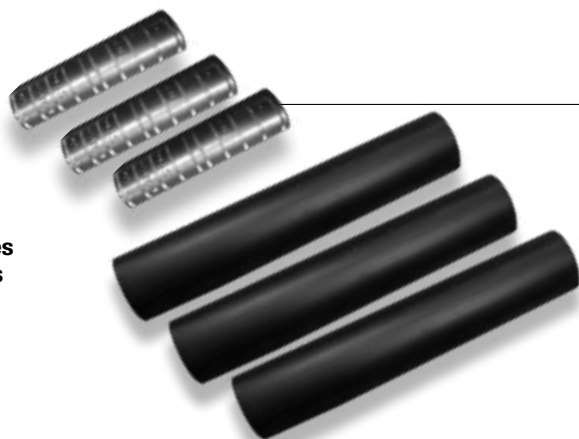
| Code  | Désignation                            | Cable section (mm <sup>2</sup> ) |             | Weight (kg) | Sales unit |
|-------|--|----------------------------------|-------------|-------------|------------|
|       |  | Mini                             | Maxi        |             |            |
| 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)

Phase sleeves and sheaths



Neutral sleeve and sheath



4 outlets end



### Utilisation

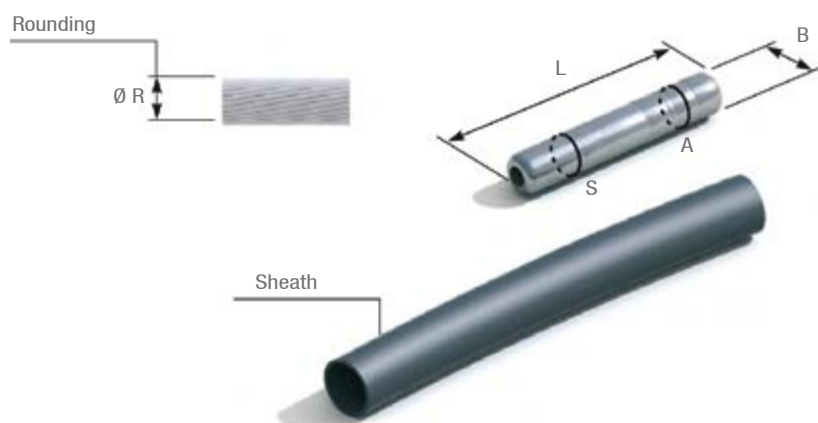
Aerial sub-surface junction is designed to establish the connection from an underground network to a low voltage overhead network.

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<br>(mm)  | B<br>(mm) | L<br>(mm) | H   |       |
|---------|---------|-----------------|--------------|-----------|-----------|-----|-------|
| S (mm²) | A (mm²) |                 |              |           |           |     |       |
| 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<br>(mm <sup>2</sup> ) |           | Weight<br>(kg) | Sales<br>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.

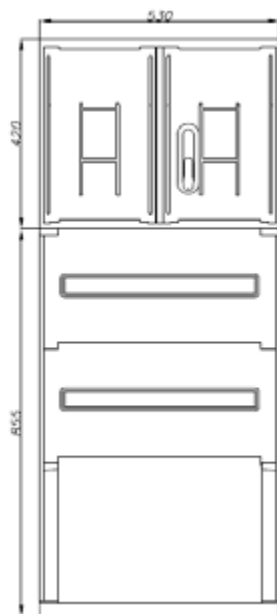
## Description

- 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**.

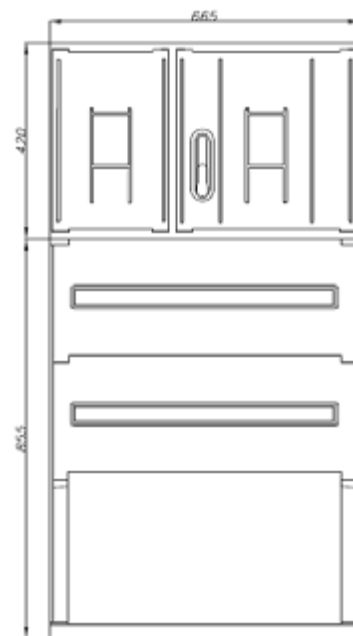
## Dimensions



**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**

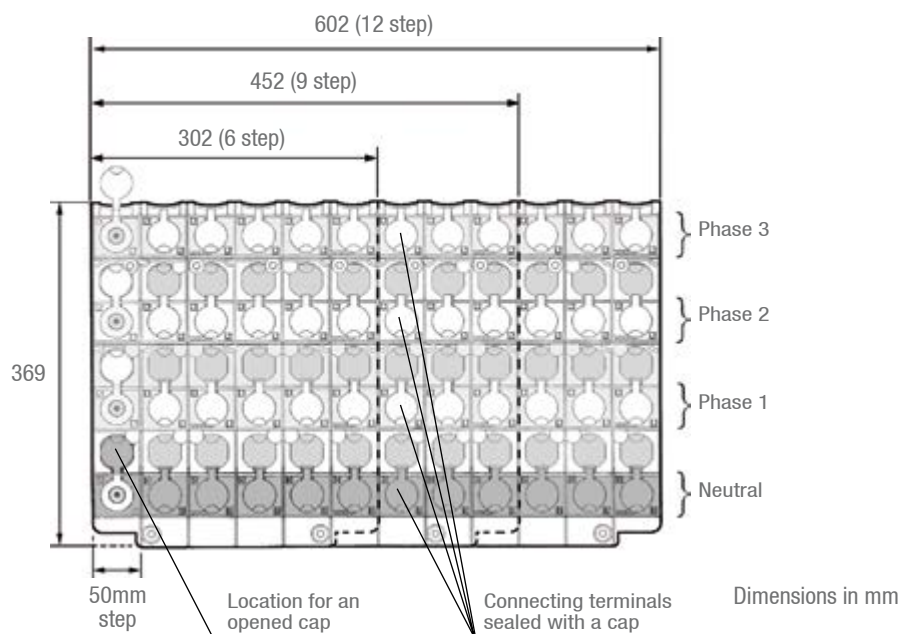
### Application

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.

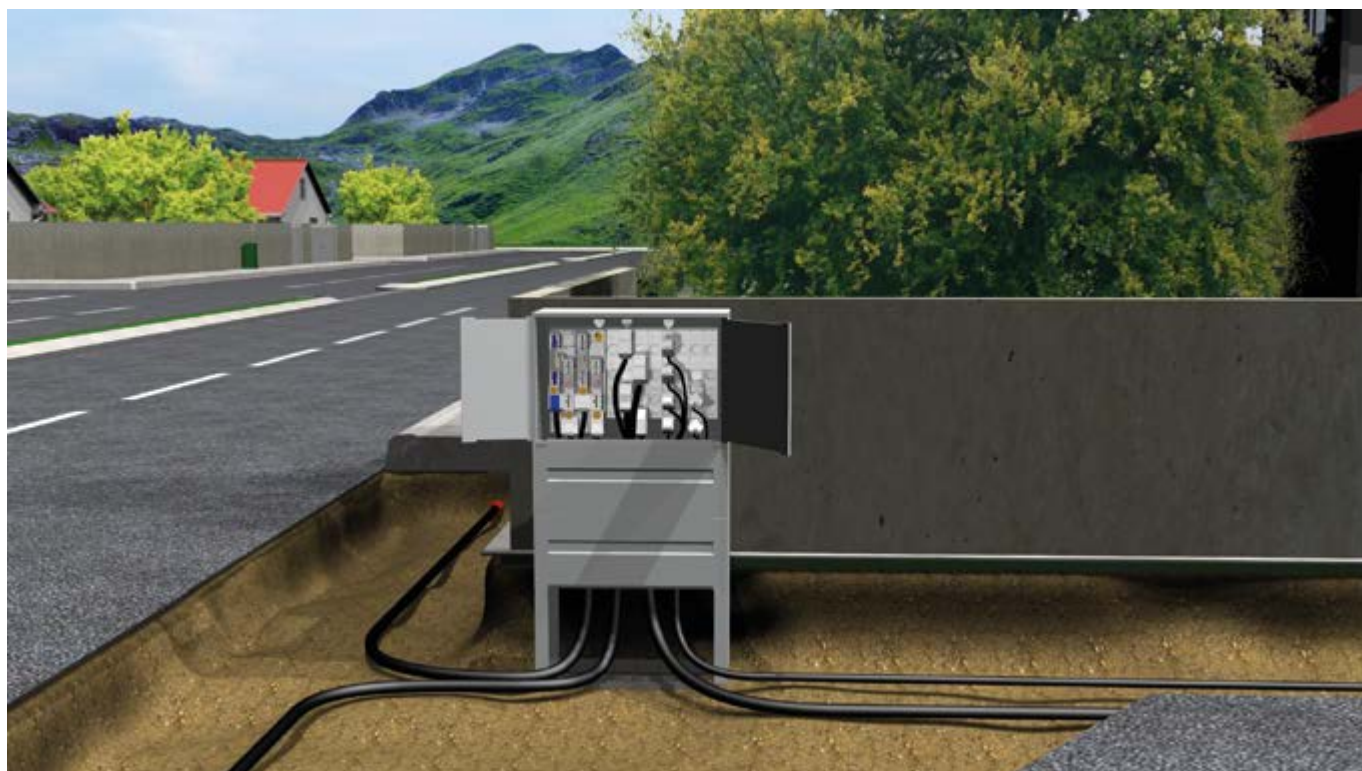




| Code | Designation                   | Weight (kg) | Sales unit |
|------|-------------------------------|-------------|------------|
| Q600 | REMIC SET OF BARS SUPPORT 300 | 2.630       | 1          |
| Q601 | REMIC SET OF BARS SUPPORT 450 | 3.760       | 1          |
| Q602 | REMIC SET OF BARS SUPPORT 600 | 4.870       | 1          |

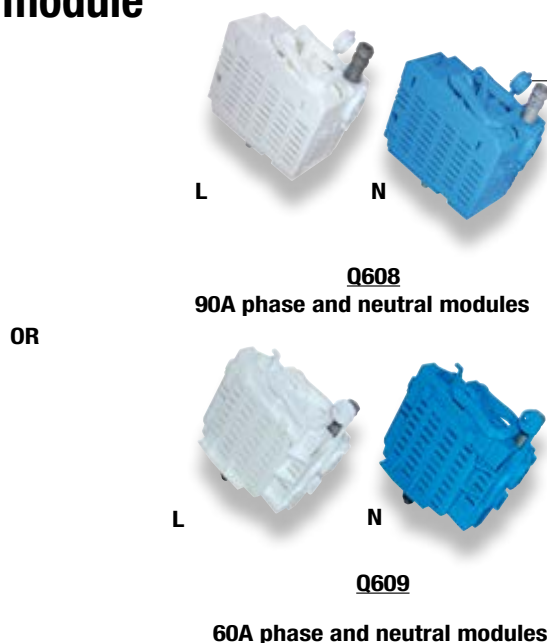
## Accessories

| Code                          | Designation                      | Weight (kg) | Sales unit |
|-------------------------------|----------------------------------|-------------|------------|
| ADAPTORS FOR S15-S20 CABINETS |                                  |             |            |
| 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.

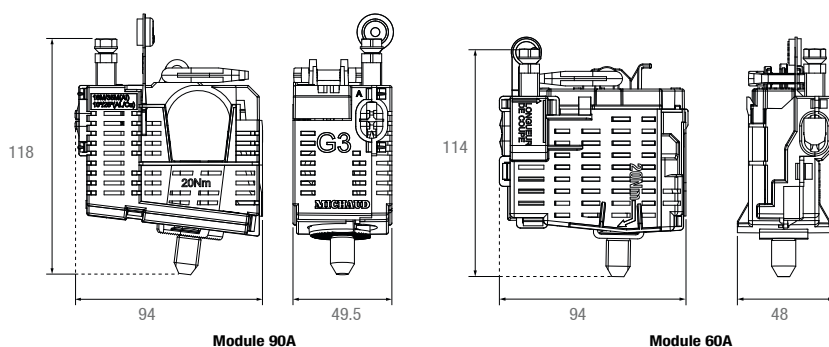
#### The benefit:

- + 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

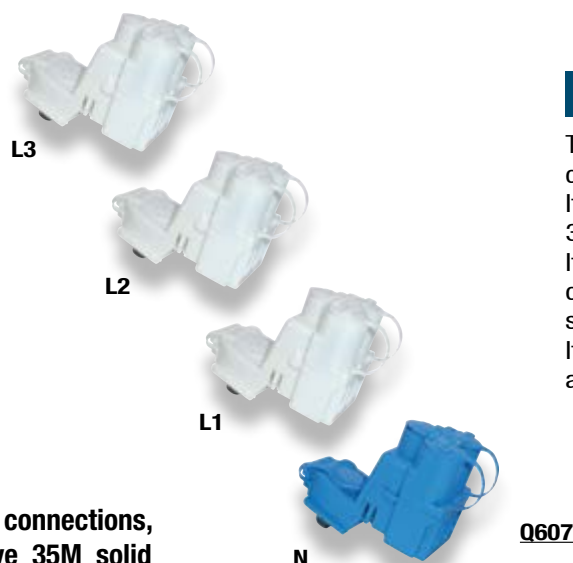
| Code | Designation  | Number of phase modules | Neutral type module | ENEDIS capacity (A) | Real capacity (A) | Weight (kg) | Sales unit |
|------|--|-------------------------|---------------------|---------------------|-------------------|-------------|------------|
| Q608 | REMIC MODULE TYPE FUSE 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.

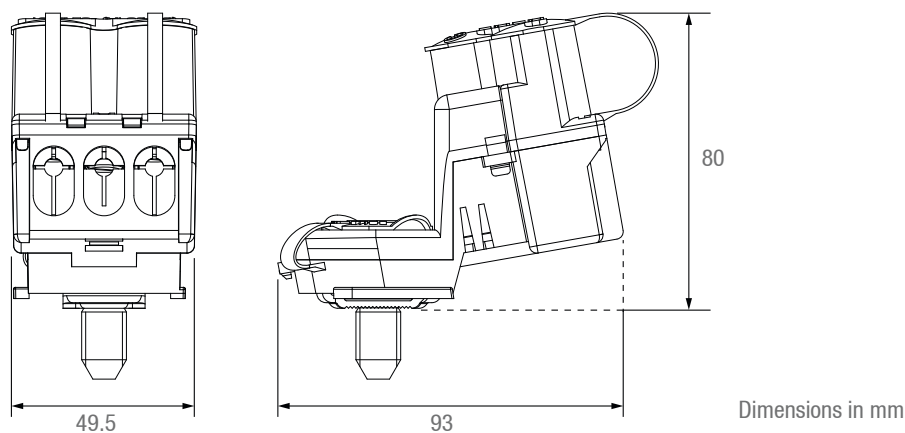
### The benefit:

- + 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.



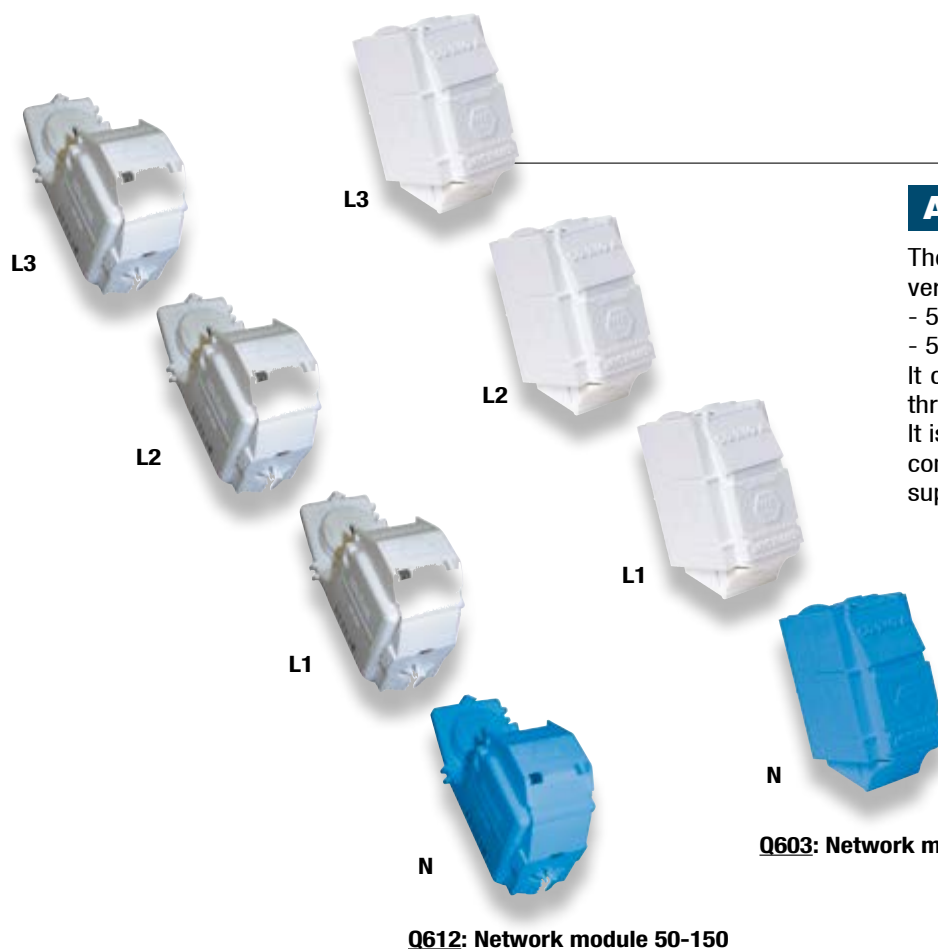
| Code | Designation  | Weight (kg) | Sales unit |
|------|--|-------------|------------|
| Q607 | REMICA MULTITAP CONNECTION MODULE RBD (1 NEUTRAL + 3 PHASES) | 0.950       | 1          |

### Variant:

The multitap connection module is available in single phase version.

| Code | Designation  | Weight (kg) | Sales unit |
|------|--|-------------|------------|
| Q610 | REMICA 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.

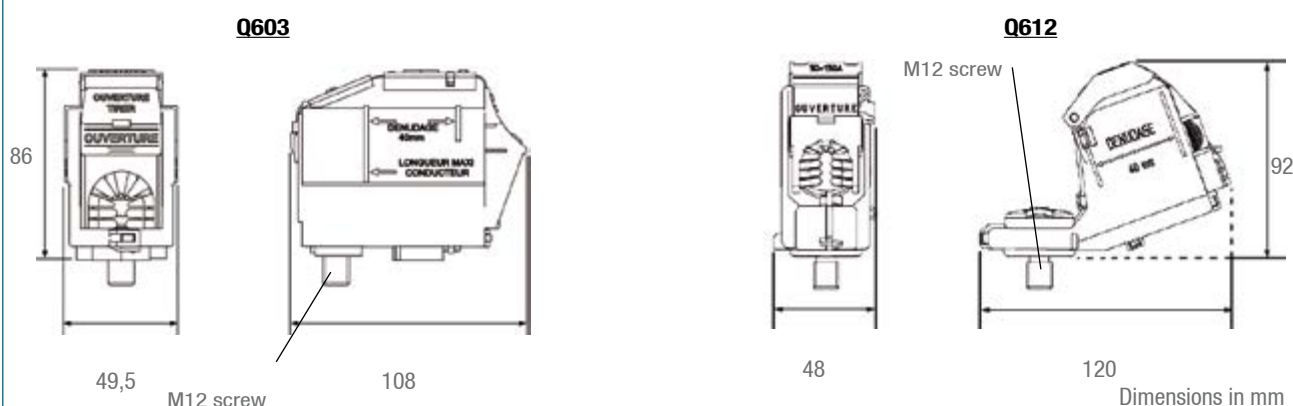
### The benefits:

- + 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.

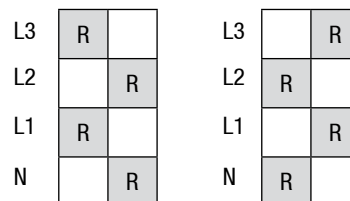
This module meets the criteria of the **HN 63-S-65** standard.



## Installation

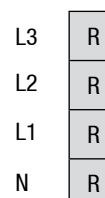
### PRINCIPLE

- 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.



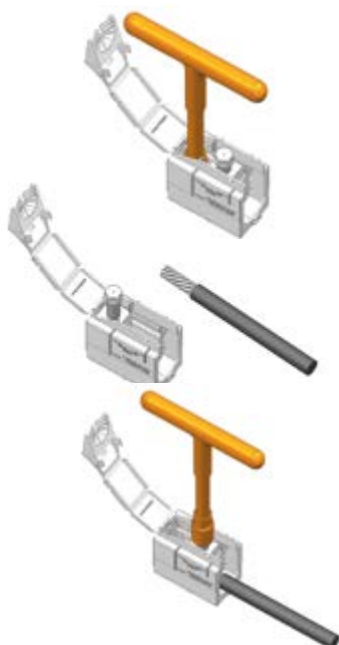
R = Network terminal

- 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.

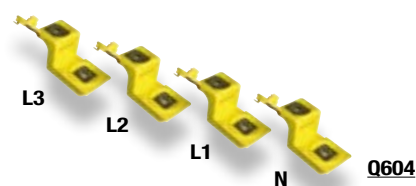
- For the 50-150 module  
The principle is the same except the fact that the slide of the terminal does not have a retention system in the upper part (the slide is installed and removed from the front).

| 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:

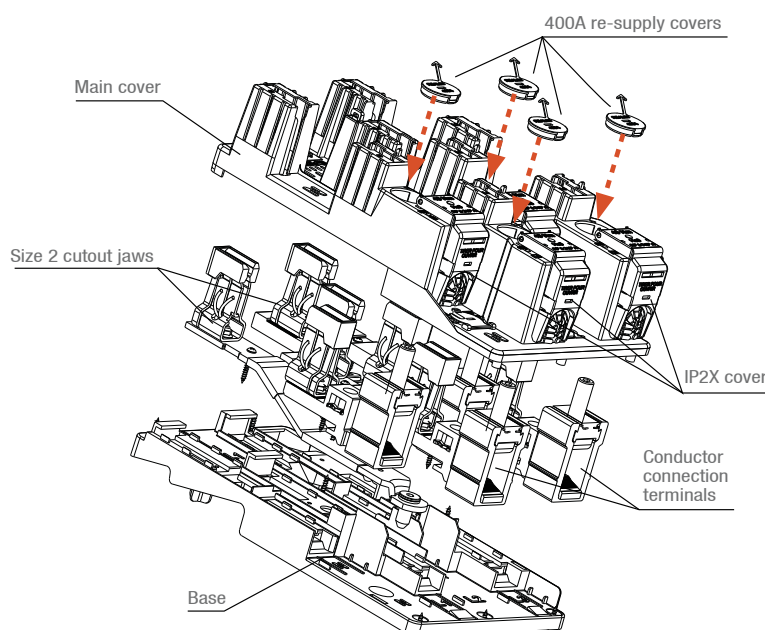
- + 1 single tool for installation
- + Compatibility with flat doors
- + Clear poles separation
- + Integrated IP2X protection on each pole

## 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.

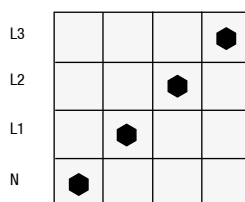




## Installation

### 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                         | INSULATED 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

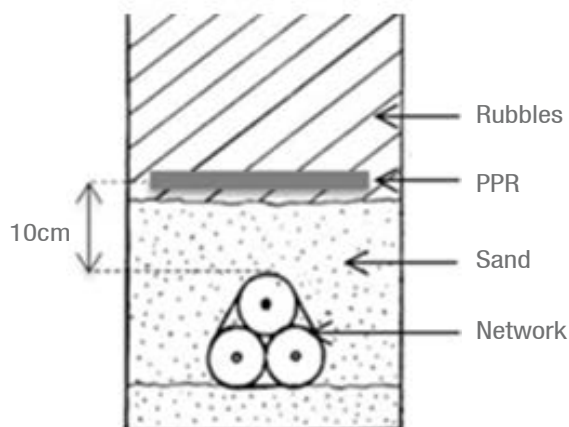
This protection plate roll (PPR) is designed to protect underground networks from extraction (pipes and/or cables).

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.

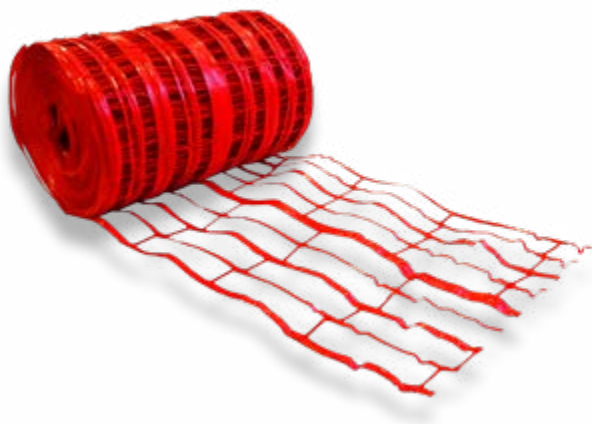
This protection plate roll meets the criteria of the **DIN 54841-5** standard.



| 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:

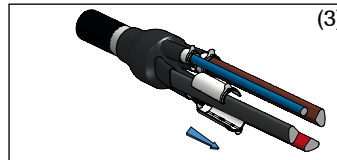
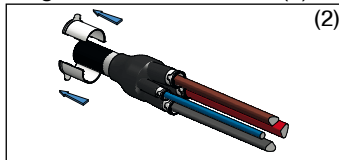
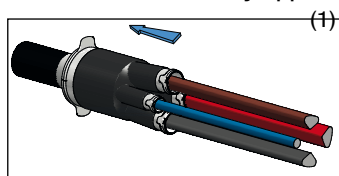
- + No tool is required
- + Very short installation time

### 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**<br>(mm <sup>2</sup> )      | Weight<br>(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<br>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*<br>HV : 50 à 240 | 26 to 48      | 0,052       | 10         |
| P464 | SEAL CAP CRC RF 46-80 | LV : 3x240 + 120M*<br>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**

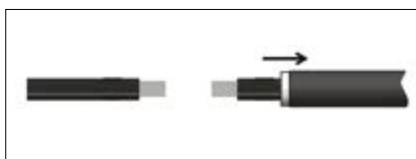
#### Application

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.

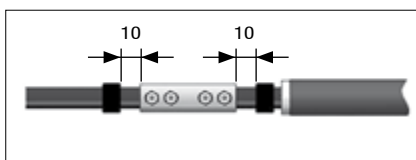
#### Description

- 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 watertightness of the sleeve.

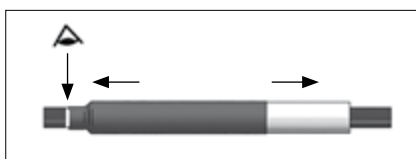
#### Installation



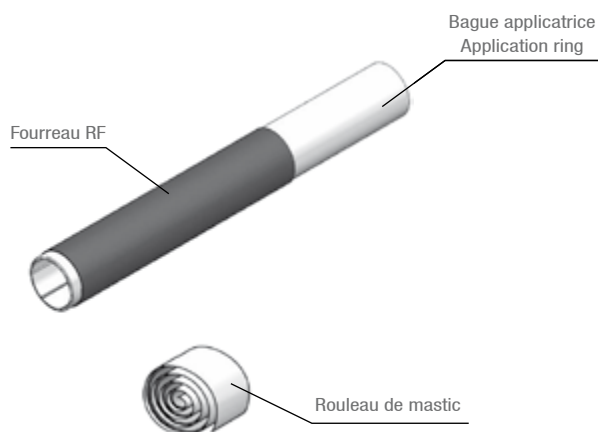
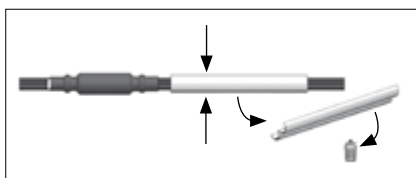
- Put on the sleeve around cable or conductor.



- 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<br>Length: 40 cm               | Blue with socket<br>Length: 40 cm  | Black with socket, UV resistant, marked « Neutral »<br>Length: 1 m<br>+<br>Black, UV resistant.<br>Length: 3 m |
| Application      | Cable type          | Peripheral neutral cable<br><b>HM-27/03/139</b> | -Peripheral neutral cable <b>HM-27/03/139</b><br>-Solid cable <b>NF C 33-210</b><br>-meter reading system cable <b>NF C 33-214</b><br>-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.212 |
| IRO tube .....             | p.214 |
| Corrugated tube .....      | p.216 |

## Smart Meter Equipment

|   |       |
|---|-------|
| Meter circuit-breaker box .....           | p.218 |
| Universal meter board and accessory ..... | p.220 |
| Meter circuit-breaker board .....         | p.222 |
| AMM concentrator data supply kit .....    | p.224 |
| Modular distribution box .....            | p.226 |
| Cutout cabinet .....                      | p.228 |
| Seal .....                                | p.230 |

## Universal flexible linking cable

|   |       |
|---|-------|
| Insulation piercing end connector EBCP 6-35 .....           | p.232 |
| Insulation piercing end connector EBCP 16-50 Class II ..... | p.234 |
| Reversible stripping end connector EBCD 6-35 .....          | p.236 |
| Flexible linking cable .....                                | p.238 |
| Reducing end connector .....                                | p.240 |

# 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

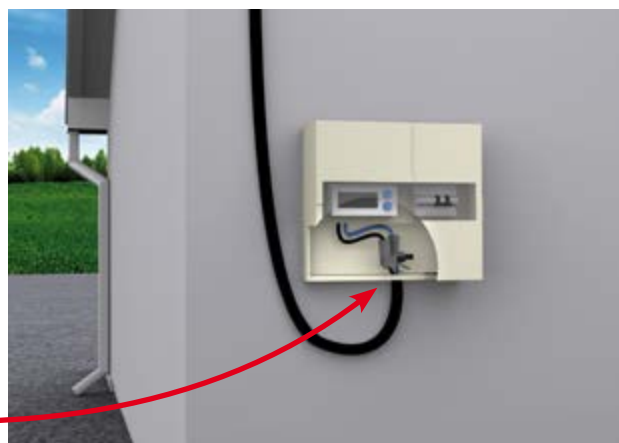
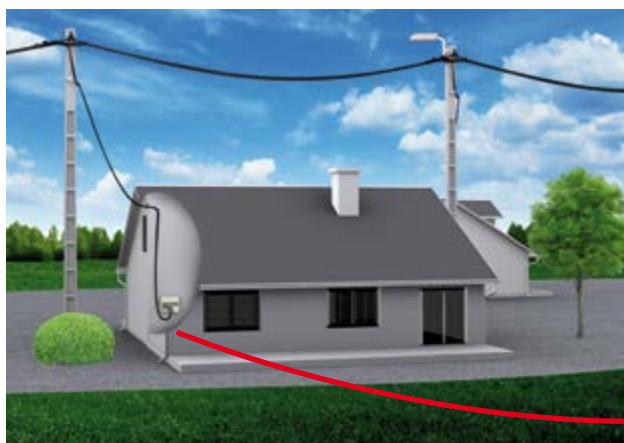


Minimise roll-out cost

## 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><br>EBCP 6-35  | <div style="text-align: center;"> <b>EBCP 6-35/16</b> </div> <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: left;">           EBCP:<br/>Insulation piercing end connector         </div> <div style="text-align: right;">           Tail section (16 or 25)<br/>           Leading-in conductor<br/>mini and maxi capacity         </div> </div>                   |
| <b>Insulation piercing end connector</b><br>EBCP 16-50 | <div style="text-align: center;"> <b>16 - 50 SECT</b> </div> <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: left;">           Leading-in conductor<br/>minimum section         </div> <div style="text-align: right;">           Sectoral or round shape<br/>of leading-in conductor<br/>           Leading-in conductor<br/>maximum section         </div> </div> |
| <b>Reversible stripping end connector</b><br>EBCD 6-35 | <div style="text-align: center;"> <b>EBCD 35-25</b> </div> <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: left;">           EBCD:<br/>Reversible stripping end<br/>connector         </div> <div style="text-align: right;">           Tail section<br/>           Leading-in connector<br/>maximum section         </div> </div>                                  |



# Floor supply box S31

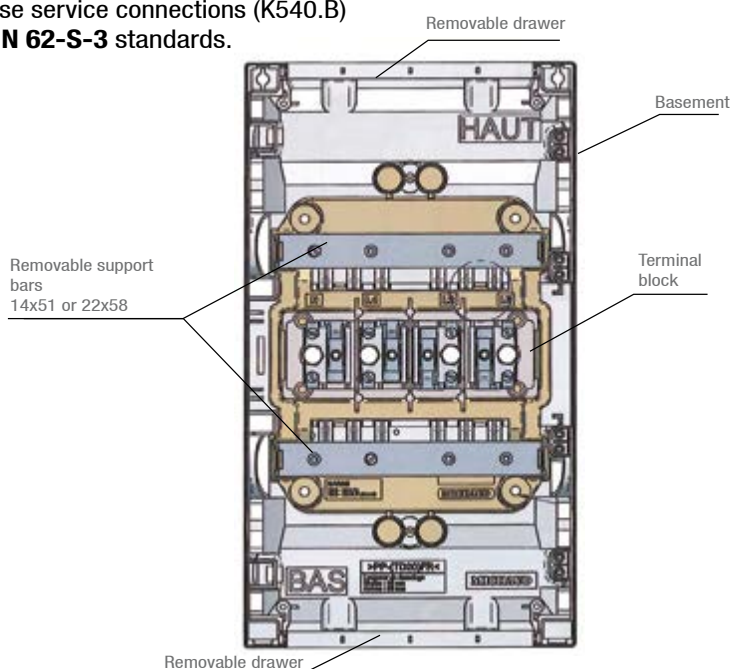


## Utilisation

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

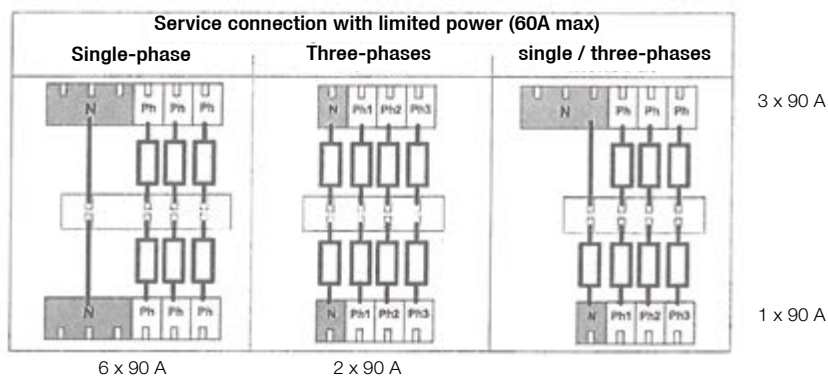
- The floor supply box is made of a basement with cover in synthetical material, 2 base support bars and a terminal block.
- The protection degree is IK10.
- The principal terminal block is removable and allows a bare connection for conductors 25 to 95 mm<sup>2</sup> Cu, or a bar from 24 mm<sup>2</sup> 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

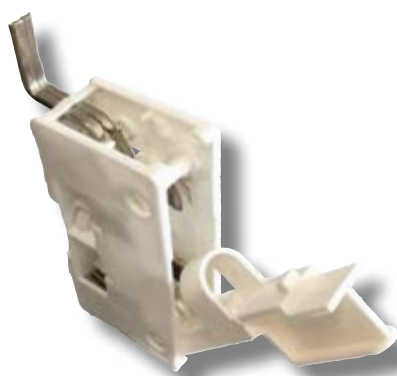


## Accessories

- 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<br>(in mm) | Minimal internal diameter<br>(in mm) | Weight<br>(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

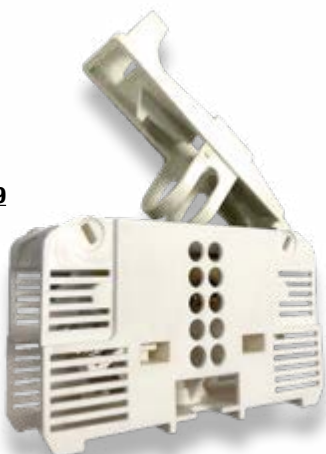
- The box is available in single-phase and three-phase versions.
- It includes two 22x58 fuses for the single-phase version and four 22x58 fuses for the three-phase version (phase and neutral protection).
- Includes:
  - A support for a meter,
  - A support for an earth leakage circuit breaker.
- It 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

- U607-T corresponds to 2 x U609.
- The terminals of this device can receive sections from 6 to 35 mm<sup>2</sup>.
- Fixation must be done vertically.
- Delivered without fuse.
- Maximum current: 60A.
- Le U608-T corresponds to 4 x U609.
- The terminals of this device can receive sections from 6 to 35 mm<sup>2</sup>.
- Fixation must be done vertically.
- Delivered without fuse.
- Maximum current: 60A.

| 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**

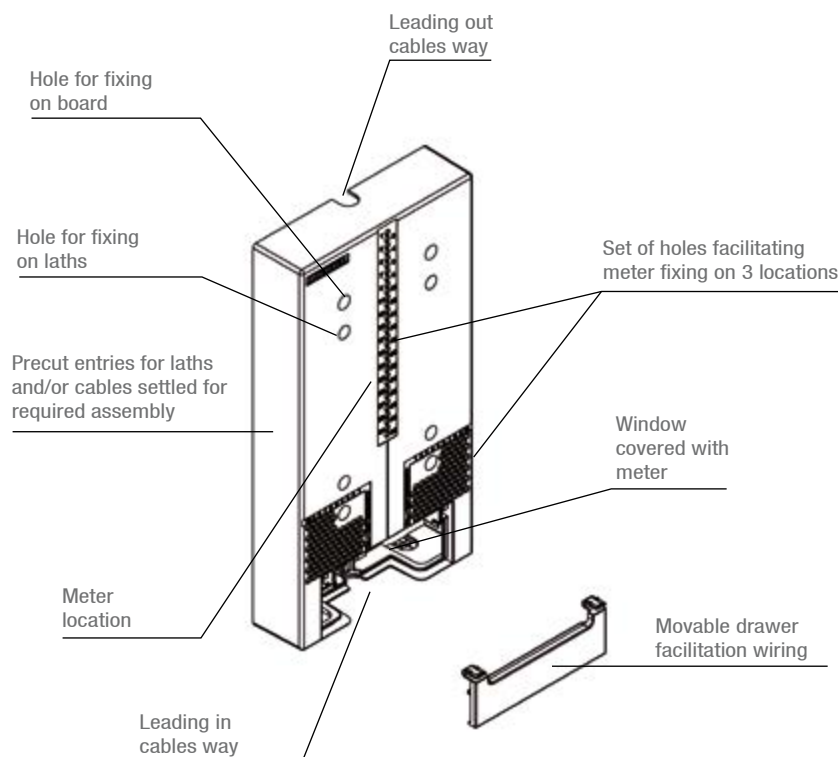
## Application

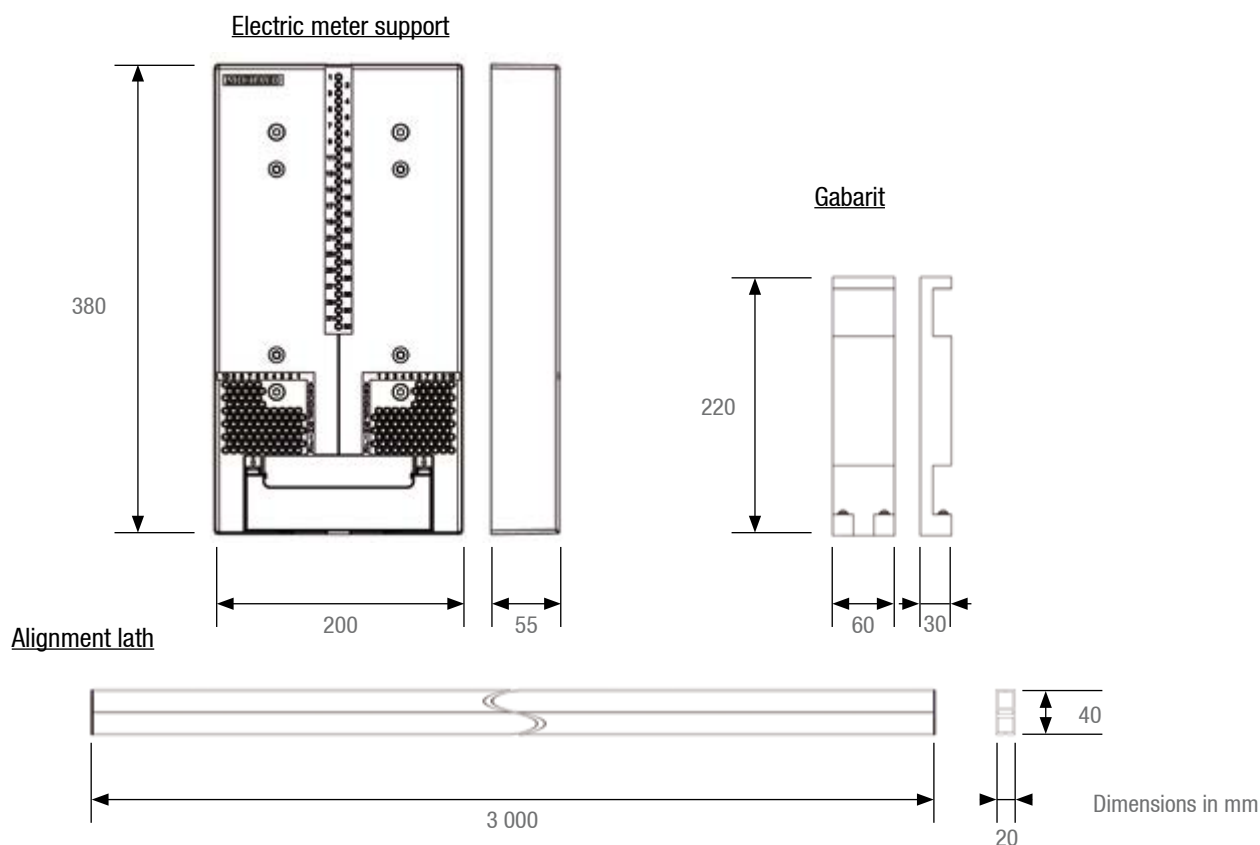
This meter board is used to receive any residential type electric meter whether single phase, three phase or tetrapolar, equipped with a cable cover. It can be combined with pluggable or non-pluggable module type connection equipment.

## Description

- The assembly is made of grey synthetic self-extinguishing materials (RAL 9035).
- The board is equipped with a removable clipped cover which is dismountable 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.





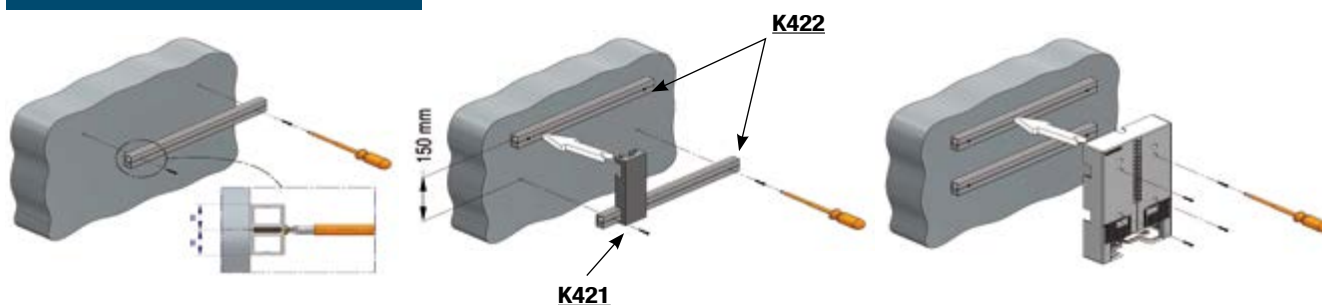
| Code | Designation                        | Weight (kg) | Sales unit |
|------|------------------------------------|-------------|------------|
| K424 | SUPPORT FOR ELECTRIC METER + COVER | 0.500       | 240        |
| K425 | COVER (FOR ELECTRIC METER SUPPORT) | 0.080       | 1          |

## 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

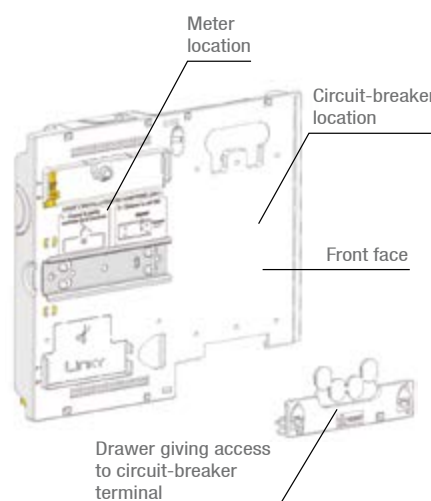
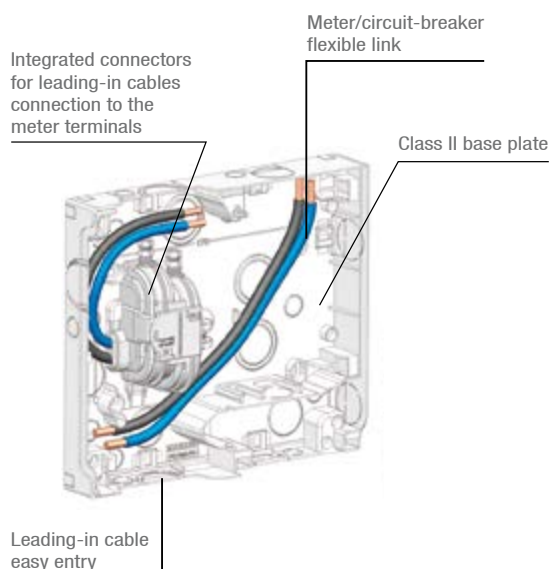
This board is designed to accommodate the single phase electronic meter and the circuit-breaker.

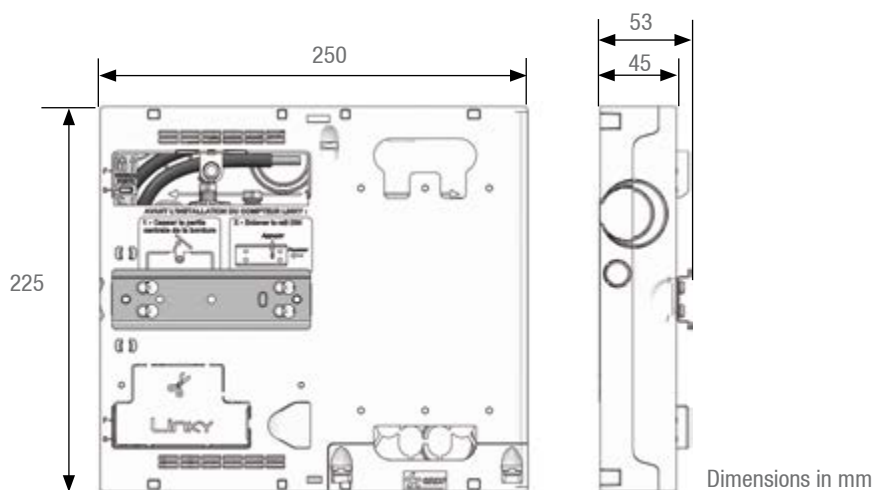
It defines the boundary between the energy distributor and the installer private domain.

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.

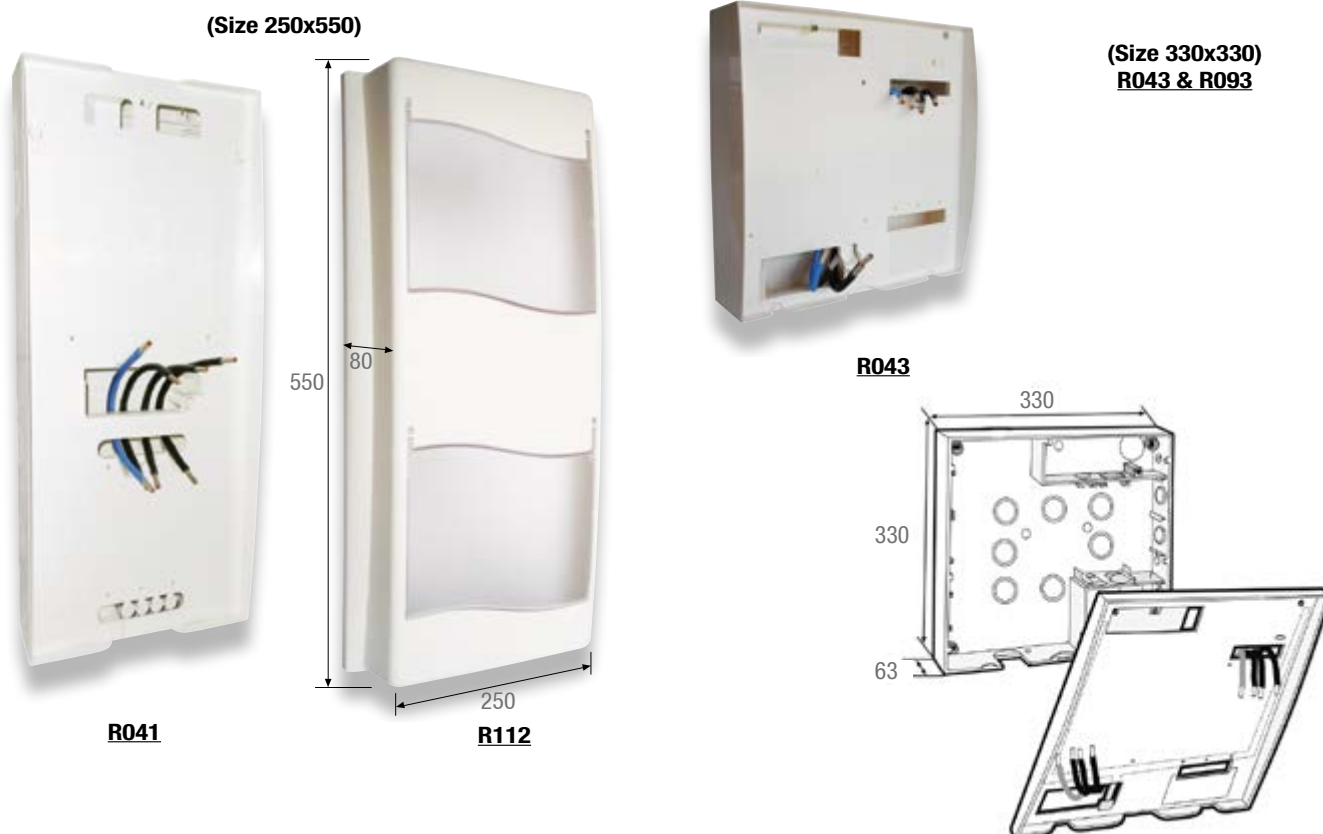




| Code | Designation                               | Weight (kg) | Sales unit |
|------|---|-------------|------------|
| P475 | METER AND CIRCUIT-BREAKER BOARD           | 0.920       | 1          |
| P474 | COVER FOR METER AND CIRCUIT-BREAKER BOARD | 0.340       | 1          |

### 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:

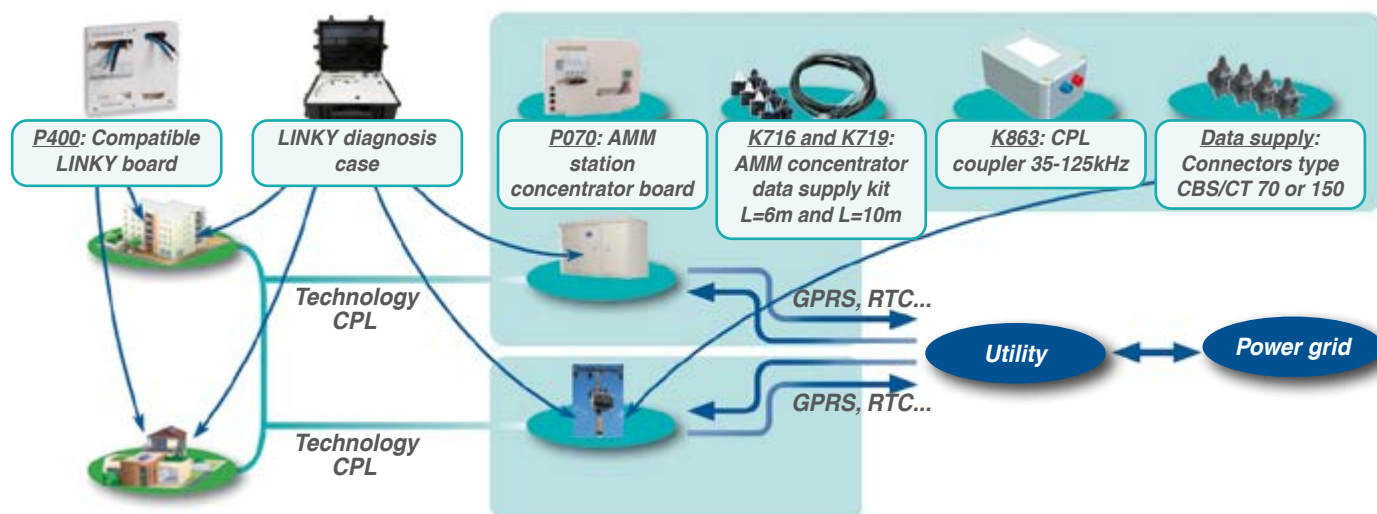
### **For LV/MV underground stations: Pack Alim L6000 + AMM station connector board**

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          |

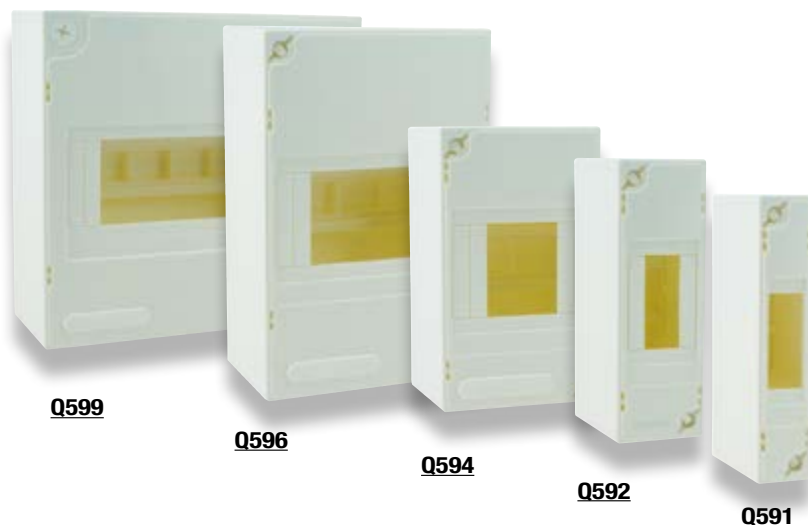
## Accessories



**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 produced by some electrical devices. The size of differential switch 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.

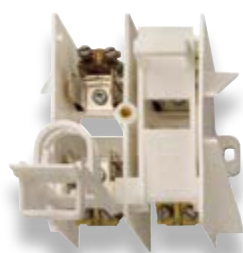
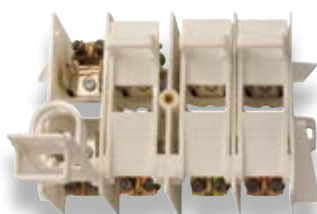
| Code | Designation                    | Sales unit |
|------|--------------------------------|------------|
| Q530 | CIRCUIT BREAKER P+N 2A         | 10         |
| Q535 | CIRCUIT BREAKER P+N 3A 3KA MOD | 10         |
| Q531 | CIRCUIT BREAKER P+N 10A        | 10         |
| Q532 | CIRCUIT BREAKER P+N 16A        | 10         |
| Q533 | CIRCUIT BREAKER P+N 20A        | 10         |
| Q534 | CIRCUIT BREAKER P+N 32A        | 10         |

# Cutout cabinet

**P100****Bipolar 10A**

## Application

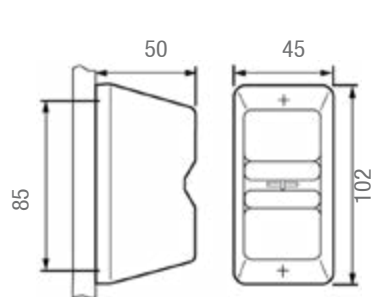
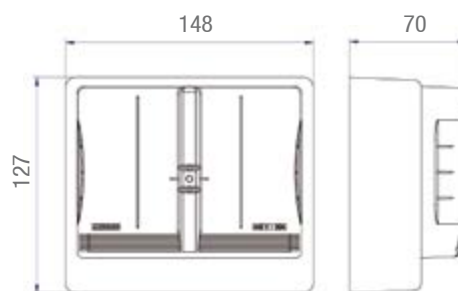
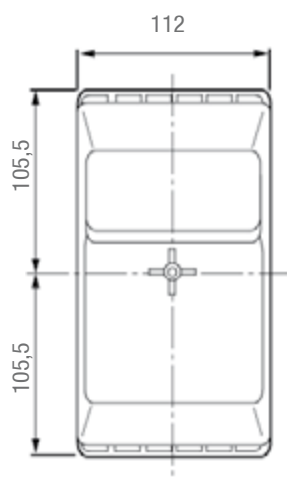
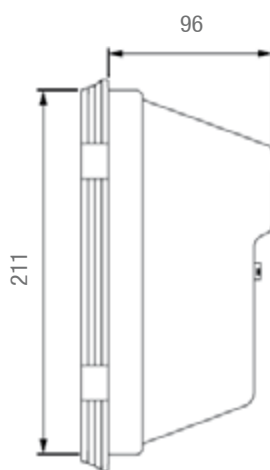
The cabinet is part of the installation check board. It ensures the connection individual principal cutout function. It is designed to receive fuse cartridges size 10.3x38, 14x51, 22x58 and DIN 00.

**U607****Bipolar 60A****U606****Tetrapolar 30A****U608****Tetrapolar 60A**

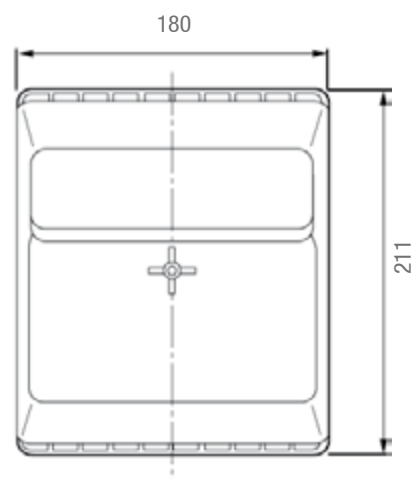
## Description

- 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.

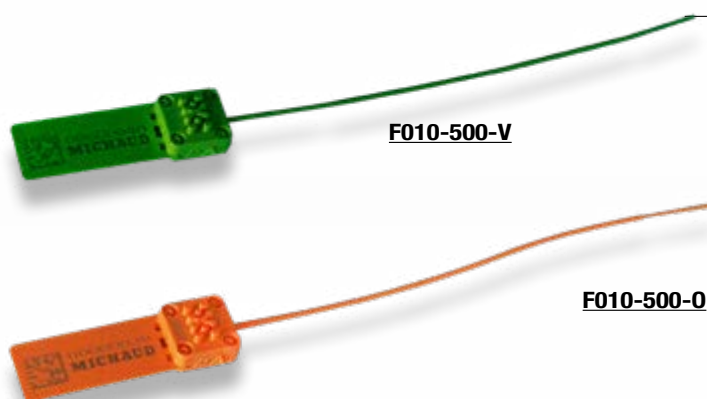


**SEE SHEET**  
PROTECTION / Fuses



## Seal

### Numbered seal with wire

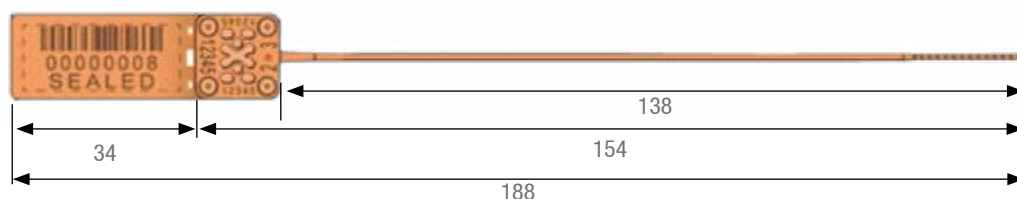


#### Utilisation

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



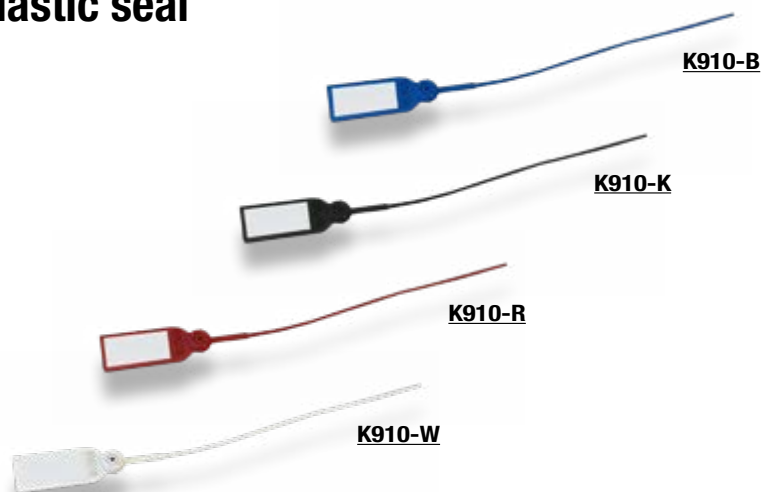
Dimensions in mm

| 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

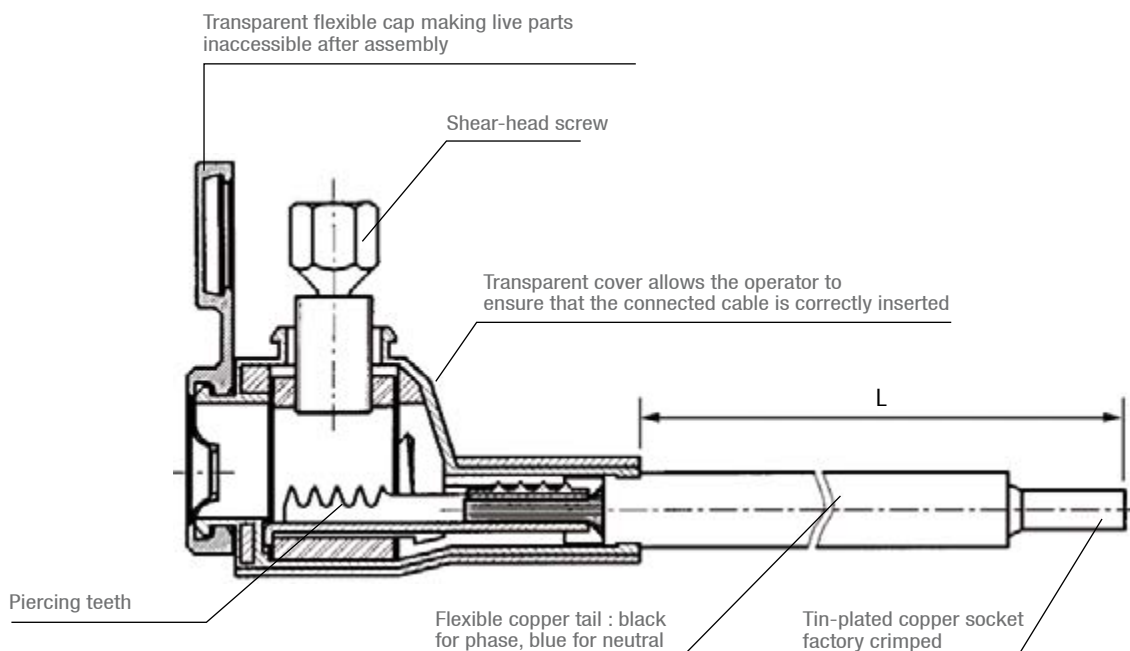
This end connector is used for the connection of leading in cables to electrical equipment terminals (cutouts, electronic meter, etc). This is a universal solution for connecting the cable to the meter terminals, regardless of the type of metal or the block nature.

It can be fitted on copper or aluminum stranded, or solid core conductors.

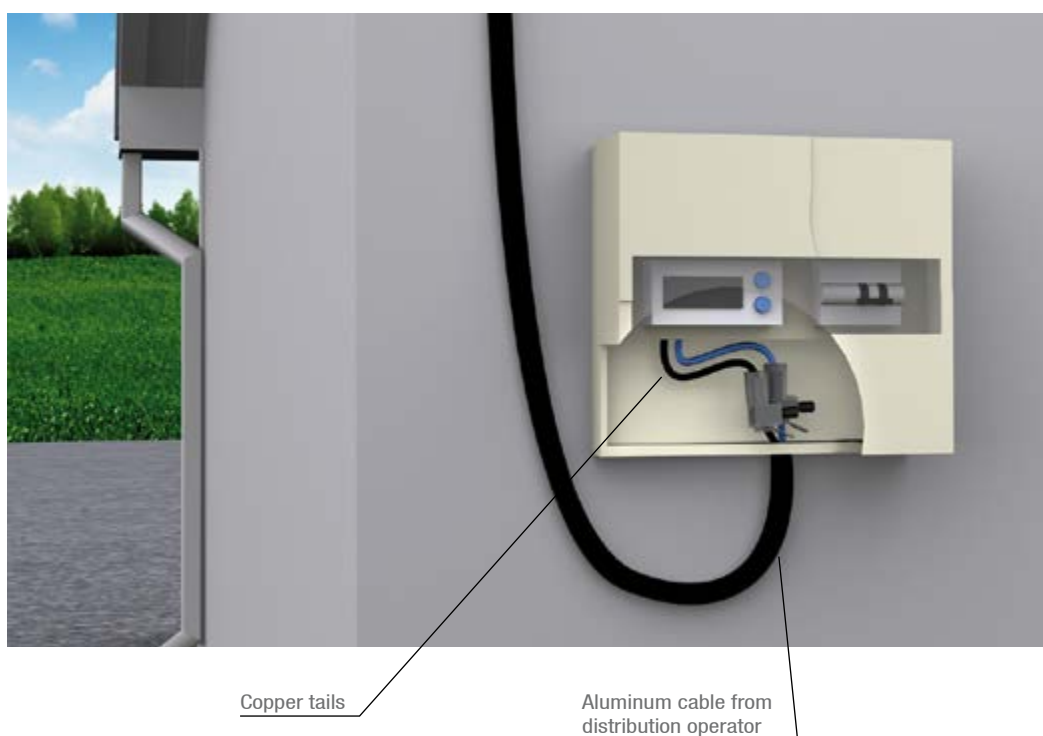
## Description

- The end connector uses the insulation piercing technology (6-35mm<sup>2</sup>)
- The protection degree is IP2X when it is implemented
- The maximum current 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.

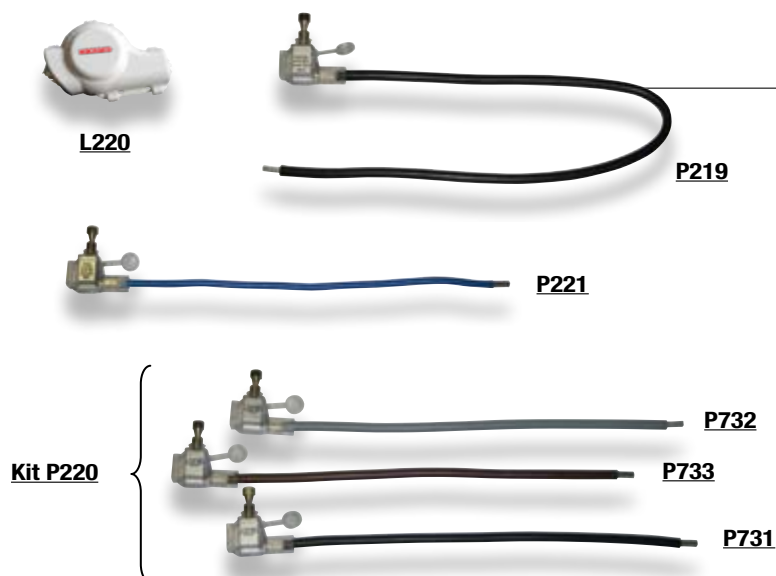


| Code | Designation   | Out of box length: L (mm) | Capacities (mm <sup>2</sup> ) | Weight (kg) | Sales unit |
|------|---|---------------------------|-------------------------------|-------------|------------|
| P446 | EBCP 6-35/16 BLACK L235   | 235                       | 6-35                          | 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

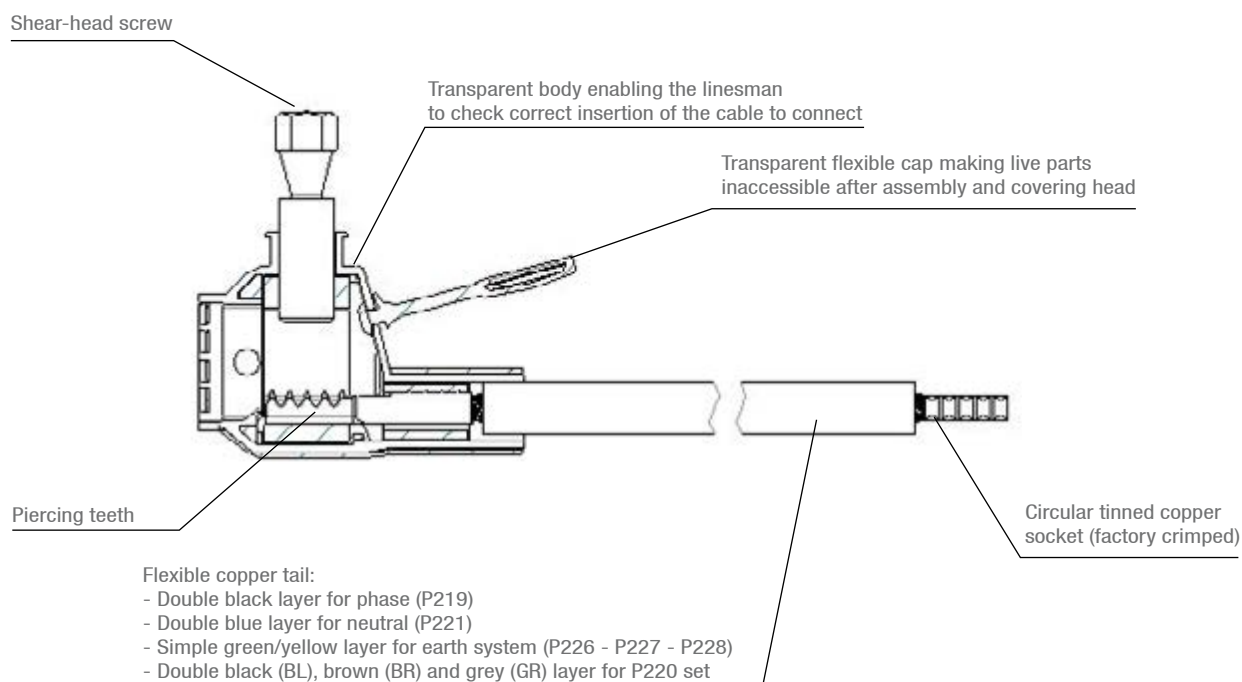
This end connectors range is used for the connection of leading in cables to electrical equipment terminals (cutouts, electronic meters, ect). It is a universal solution to connect the connection cable and the meter terminals no matter what is the metal or the block nature.

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 (16-50mm²).
- The protection degree is IP2X when it is implemented.
- The maximum current 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

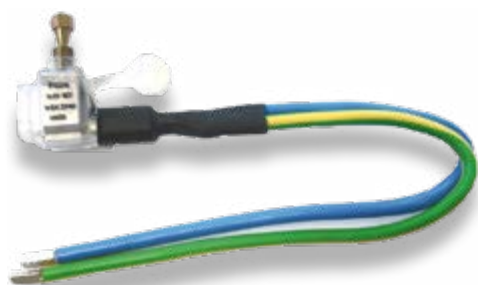
The cover (L220) enables to establish a class II installation.



| 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

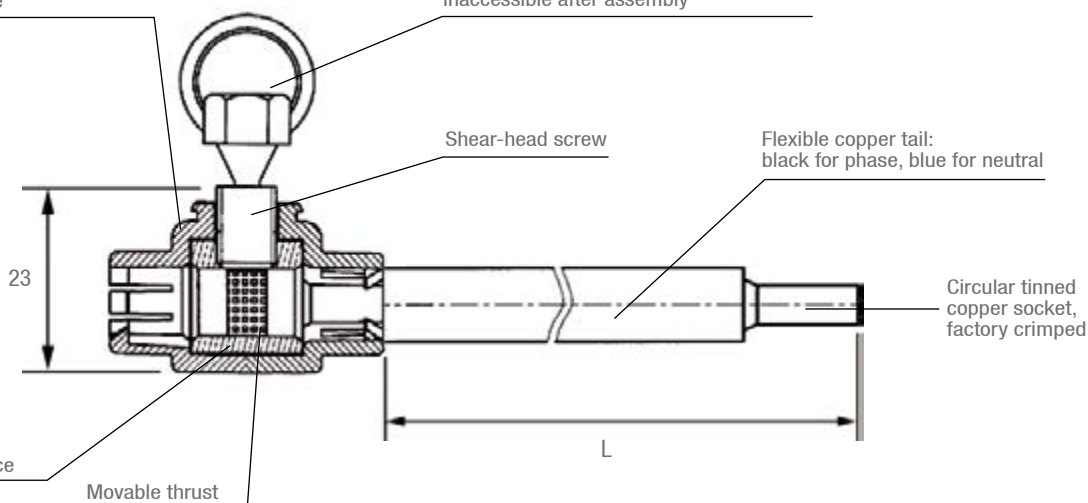
This end connectors range is used for the connection of leading in cables to electrical equipment terminals (cutouts, electronic meters, ect). It is a universal solution to connect the connection cable and the meter terminals no matter what is the metal or the block nature. They can be fitted on copper 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 current 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

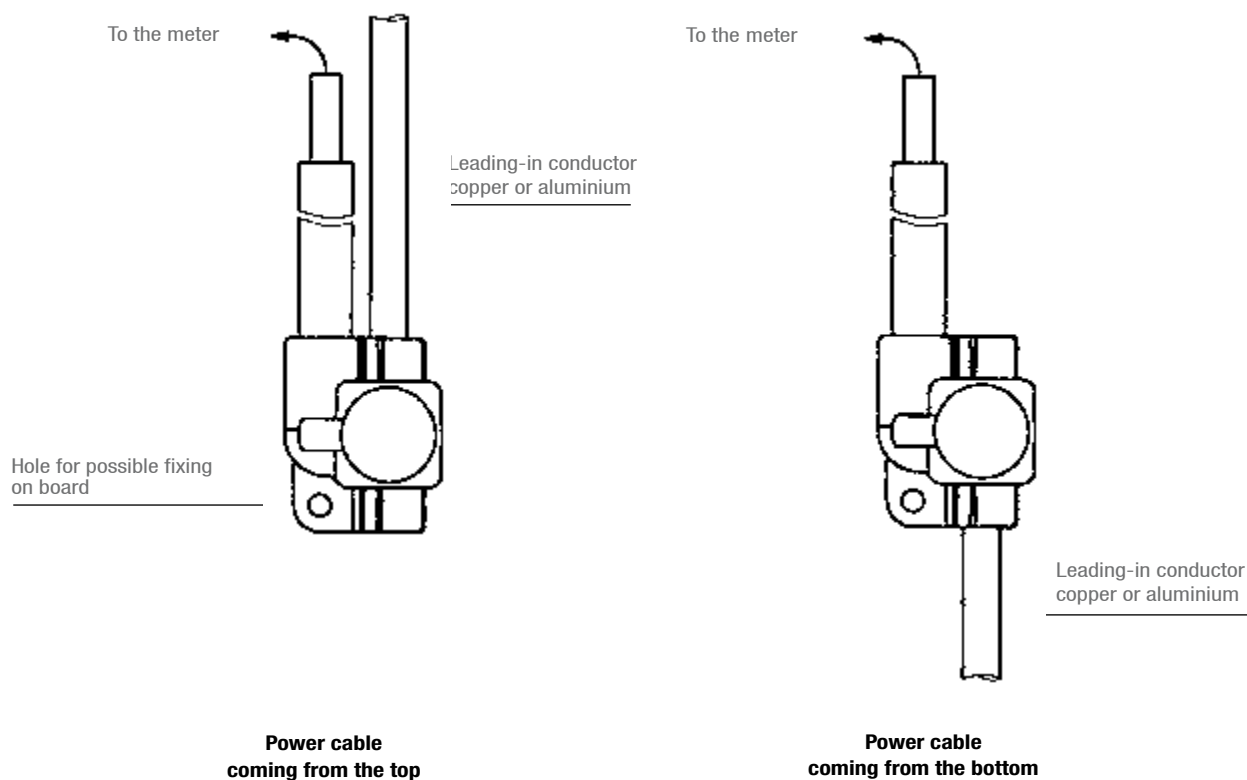
Transparent flexible cap making live parts inaccessible after assembly





**The benefits:**

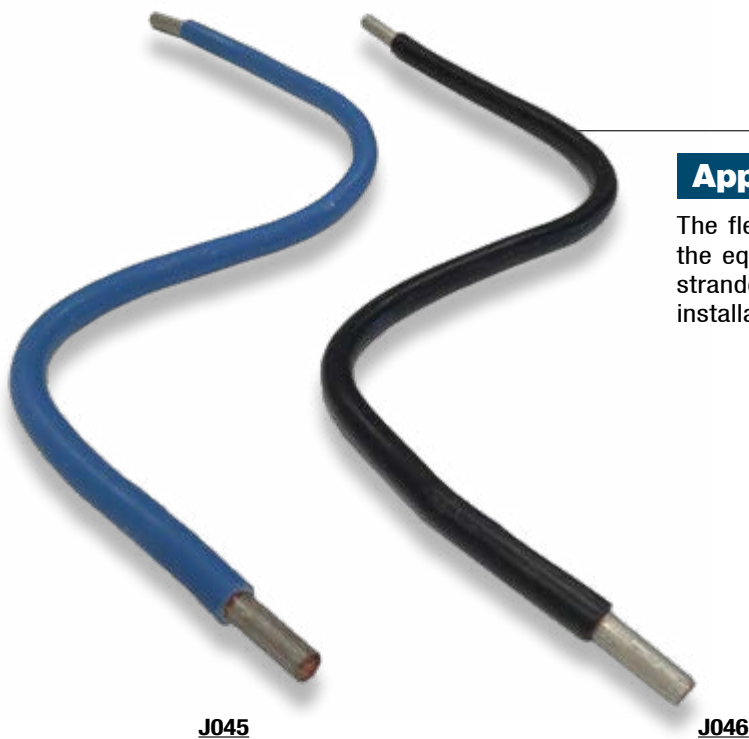
- + Connection possible from the top or bottom
- + A flexible cap enables to make the tightening screw inaccessible
- + The reversible end connector can either remain floating or be fixed using a 4mm diameter screw



| 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

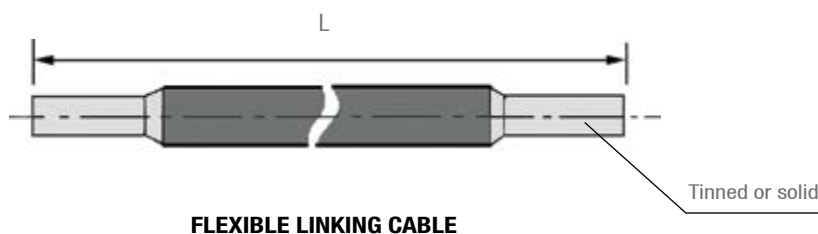


## Application

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          |

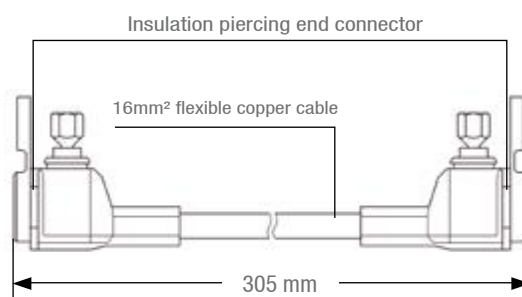
## Variants:

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

**K126****K127****K128**

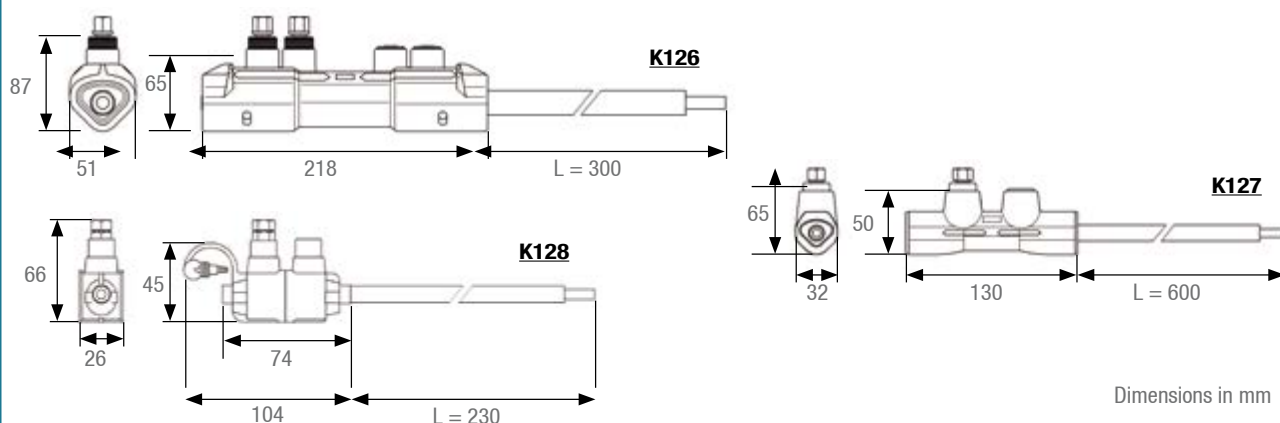
### Application

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 (mm²) | Tail section (mm²) | Weight (kg) | Sales unit |
|------|---|------------------|-----------------------------------|--------------------|-------------|------------|
| K126 | STRIPPING REDUCING END CONNECTOR 95-240 | 300              | Round 95-150<br>Sectoral 95-240   | 50                 | 0.780       | 4          |
| K127 | STRIPPING REDUCING END CONNECTOR 25-95  | 600              | Round 25-95<br>Sectoral 50-95     | 25                 | 0.330       | 2          |
| K128 | STRIPPING REDUCING END CONNECTOR 6-50M  | 230              | Round 6-35<br>Round 16M-50M       | 25                 | 0.170       | 2          |

Note: For other adaptations, please contact us.

## Fraud-preventing service connection



K131



K132

### Application

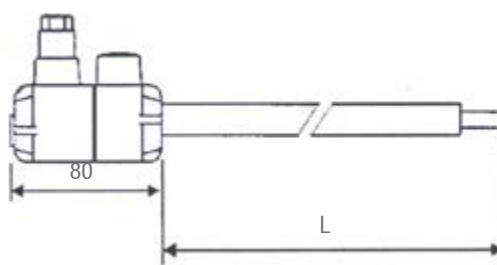
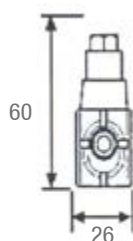
This end connector is used for connecting a service conductor to an equipment terminal.

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<br>16-50M                                 | 16                              | 0.150       | 16         |
| K132 | PIERCING REDUCING END CONNECTOR 6-50M NEUTRAL L300 | 220              | 6-35<br>16-50M                                 | 16                              | 0.150       | 16         |
| K129 | PIERCING REDUCING END CONNECTOR 6-50M PHASE L600   | 520              | 6-35<br>16-50M                                 | 16                              | 0.190       | 12         |
| K130 | PIERCING REDUCING END CONNECTOR 6-50M NEUTRAL L600 | 520              | 6-35<br>16-50M                                 | 16                              | 0.190       | 12         |







# INSTALLATION

## **Protective equipment**

|                                       |       |
|---------------------------------------|-------|
| Personal protective equipment .....   | p.246 |
| Collective protective equipment ..... | p.256 |

## **Tools**

|  |       |
|--|-------|
| LV line unwinding and pulling .....    | p.258 |
| Overhead pulling grip and swivel ..... | p.260 |
| LV insulated tooling .....             | p.262 |
| Hydraulic crimping tool .....          | p.270 |

# 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:



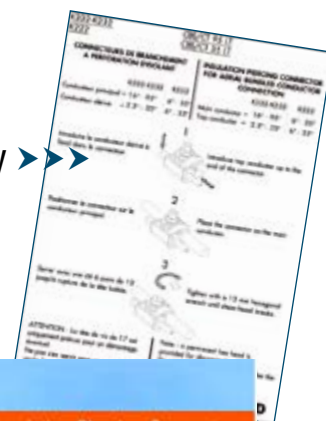
| Class | Working voltage (V) | Tested voltage (V) |
|-------|---------------------|--------------------|
| 00    | 500                 | 2 500              |
| 0     | 1 000               | 5 000              |
| 1     | 7 500               | 10 000             |
| 2     | 17 000              | 20 000             |
| 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       | 10         |



## 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 mechanical 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

### 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**

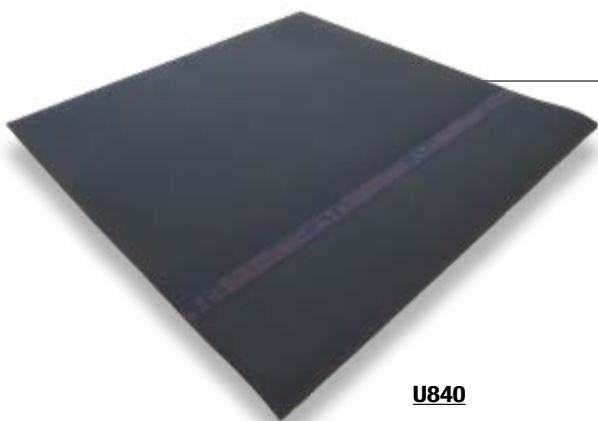


**U838-4**

| 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**

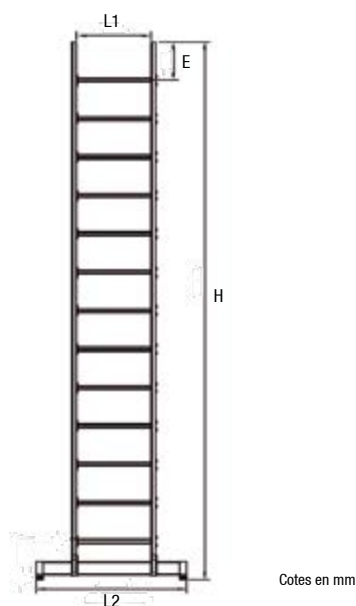
### Application

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          |

# 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-TOP DIELECTRIC SAFETY SHOES | 39 up to 46     | SB+P+E+CI+HI+WRU+HRO+SRC+FO | 1.500       | 1          |
| U827 | DIELECTRIC SAFETY SHOES          | 39 up to 46     | SB+P+E+CI+HI+WRU+HRO+SRC+FO | 1.300       | 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-TOP SAFETY SHOES | 40 up to 47     | S3                 | 1.500       | 1          |
| U829 | SAFETY SHOES          | 39 up to 46     | S2+CI+SRC          | 1.300       | 1          |

### Required size:

Add the required size to the reference.

Example with the high shoes model, size 42 : **U828-42**

# Collective protective equipment

## Warning tape



**F865**

### Application

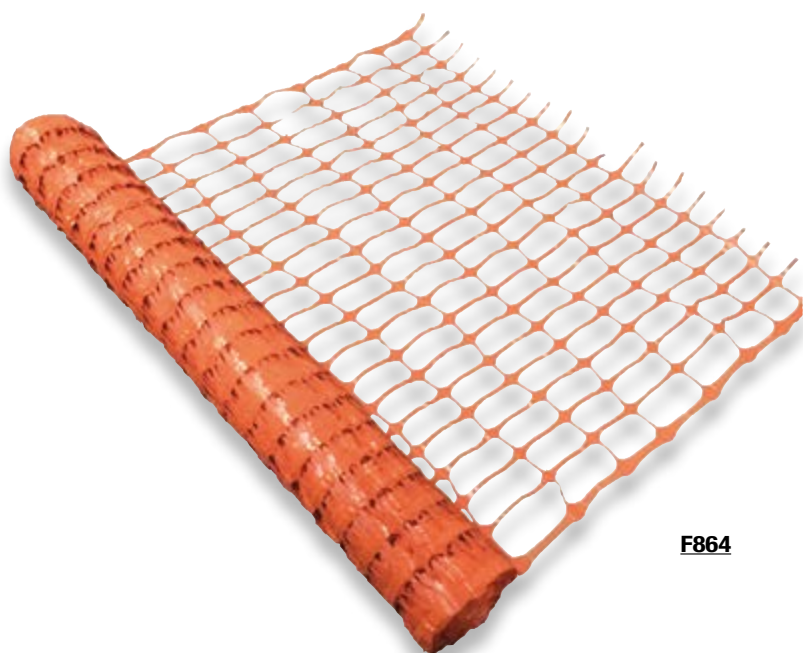
This warning tape enables to secure and delimit a work area on a construction site.

### 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

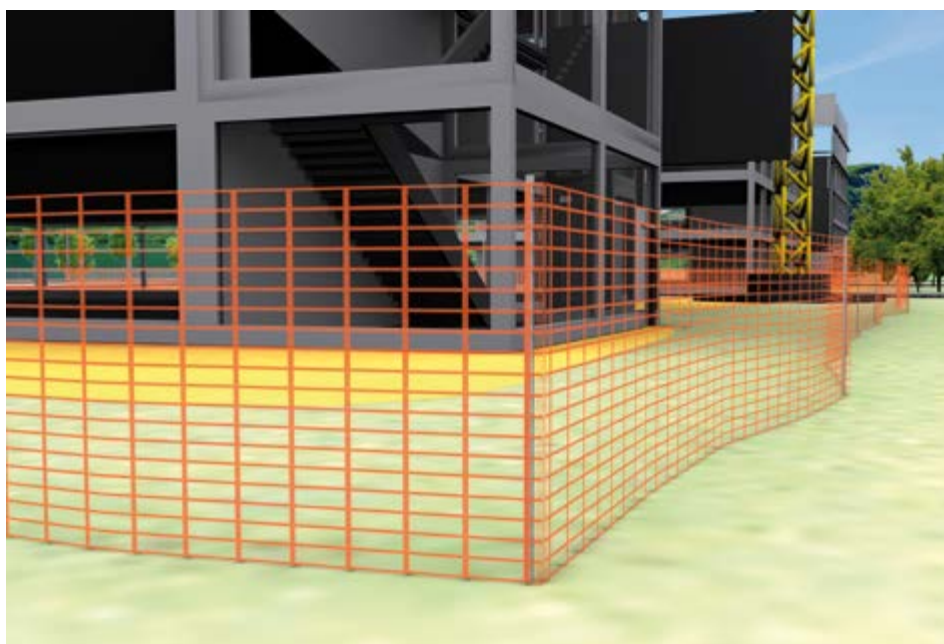
This safety barrier enables to secure and delimit a work area on a construction site. This netting is made of stretch mesh and offers a high tensile strength allowing extension without any risk of deformation or tearing.

### 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:

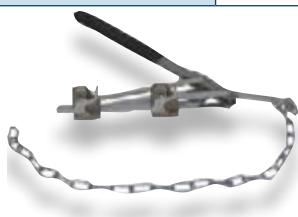
- Bare steel or aluminium cable,
- A.B.C. (Aerial Bundled Conductors) type neutral messenger,
- A.B.C. type fully supported.

### 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.

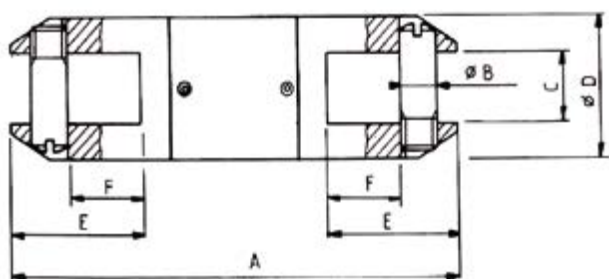
| Code                                       | Designation                                  | Weight (kg) | Sales unit |
|--|--|-------------|------------|
| <b>WOODEN POLE CLIMBERS</b>                |  |             |            |
| F448-20                                    | WOODEN POLE CLIMBERS 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.

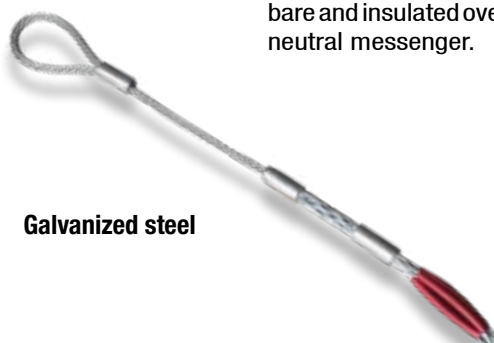
| Code    | Designation  | Ø of cables (mm) | Maximum operating load (daN) | Requested cable                             | Weight (kg) | Sales unit |
|---------|--|------------------|------------------------------|---|-------------|------------|
| U359-30 | OVERHEAD PULLING GRIP GALVA SS 4x35-50 <sup>2</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

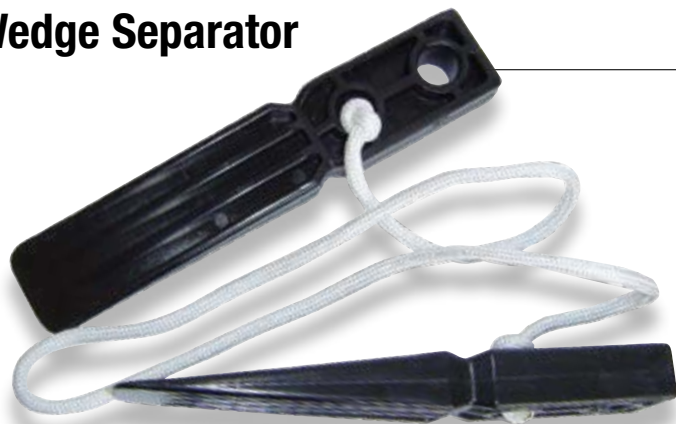
- The pulling grip for neutral messenger is made of galvanized steel.
- The pulling grip for aerial bundled cable with neutral messenger is made of nylon and are available in simple or double-loop.
- The single-loop overhead pulling grip has one buckle at one end and is closed (with a splice end) on 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

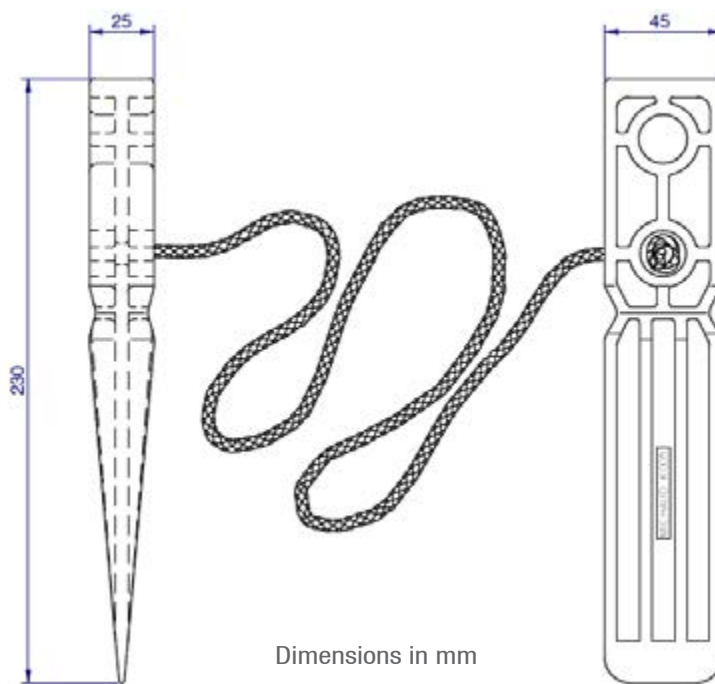
## Wedge Separator



### Application

The wedge spreader is used to separate a conductor in an aerial twist or in an underground cable to allow localised intervention on this conductor.

**K005**



Dimensions in mm

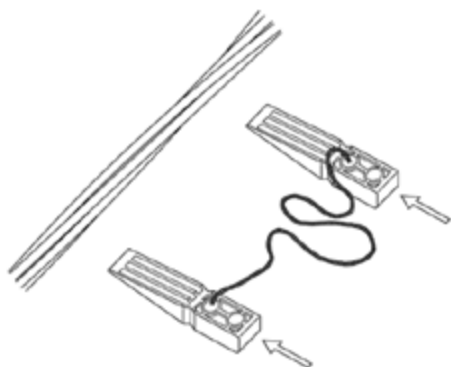
### Description

- The spreader consists of 2 wedges connected by a 1m-long cord.
- Each black corner is made from tough, UV-, impact- and cold-resistant plastic.
- 2 spacings are possible:
  - 2cm: for fitting connectors.
  - 4cm: for the installation of anchoring and pulling devices.
- A hole at the end allows a tool to be inserted to facilitate 90° rotation, allowing the passage from 2cm to 4cm.
- Very smooth ribs and a low penetration angle make it easy to insert the wedge into the cable.

| Code | Designation               | Weight (kg) | Sales unit |
|------|---------------------------|-------------|------------|
| K005 | INSULATED WEDGE SEPARATOR | 0.360       | 5          |

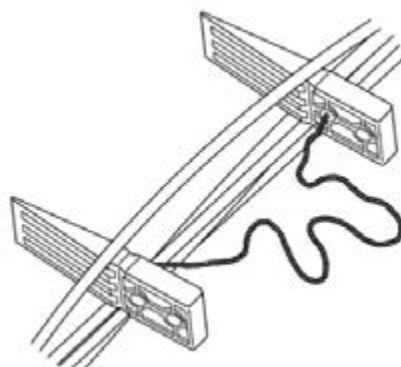
## Installation

2cm spacer (fitting a connector)



Insert the wedge into the cable, either manually or with a mallet.

4cm spacer (fitting of another accessory)



Insert the spacer in the same way as for the 2cm connector, then turn 90°.

## Brush



This brush is used with neutral grease to brush conductor cores in order to remove the oxide film.

F450

| Code | Designation                    | Weight (kg) | Sales unit |
|------|--------------------------------|-------------|------------|
| F450 | BRUSH FOR CONDUCTORS WITH CASE | 0.080       | 1          |

## Screwdrivers



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<br>4x125<br>5x150     | -   | PZ0<br>PZ1<br>PZ2 | 1          |
| U815-2 | SET OF 6 SCREWDRIVERS           | 6                | -                            | 4x100<br>5.5x100<br>6.5x125 | -   | PZ1<br>PZ2<br>PZ3 | 1          |
| U815-3 | SET OF 7 SCREWDRIVERS TORX      | 7                | T6 T8 T10 T15<br>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

## Spanners

### Application

These tools are used to make the connections.



**F445**

### INSULATED RATCHET WRENCH HEXAGONAL

This ratchet spanner is generally used to fit connectors. It has an H13 and H17 bit. It is manufactured in compliance with the **DIN EN 60900 : 2012 = 1000V + double triangle** standard.



**K004**

### HOLDING SPANNER

The holding spanner is designed to facilitate the installation of service connectors. It is placed on the connector walls.

| Code | Designation                                | Weight (kg) | Sales unit |
|------|--|-------------|------------|
| F445 | INSULATED RATCHET WRENCH HEXAGONAL 13/17mm | 0.380       | 1          |
| K004 | HOLDING SPANNER CBS/RDP                    | 0.080       | 20         |

### 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 insulating piercing connectors. The 4 sides are insulated from one to another one. This key provides 1000V protection. This product complies with **IEC EN 60900**.



**F460**

| Code | Designation                                | Weight (kg) | Sales unit |
|------|--|-------------|------------|
| F460 | INSULATED CROSS SPANNER 8-10-13-17mm 1000V | 0.400       | 1          |

### MONKEY WRENCH

These monkey wrenches ensure a 1000V protection. This product complies with **IEC EN 60900**.



**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 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          |

## INSULATED OPEN-END SPANNER

These open-end spanners provide 1000V protection. This product complies with **IEC EN 60900**.



**U850**

| Code    | Designation  | Weight (kg) | Sales Unit |
|---------|--|-------------|------------|
| U850-10 | SINGLE ENDED OPEN JAW SPANNER WRENCH 1000 V - 10mm | 0.043       | 10         |
| U850-13 | SINGLE ENDED OPEN JAW SPANNER WRENCH 1000 V - 13mm | 0.058       | 10         |
| U850-14 | SINGLE ENDED OPEN JAW SPANNER WRENCH 1000 V - 14mm | 0.095       | 10         |
| U850-16 | SINGLE ENDED OPEN JAW SPANNER WRENCH 1000 V - 16mm | 0.084       | 10         |
| U850-17 | SINGLE ENDED OPEN JAW SPANNER WRENCH 1000 V - 17mm | 0.105       | 10         |
| U850-21 | SINGLE ENDED OPEN JAW SPANNER WRENCH 1000 V - 21mm | 0.200       | 10         |

## INSULATED RATCHET SPANNER

These ratchet spanners provide 1000V protection. This product complies with **IEC EN 60900**.



**U851**

| Code    | Designation                       | Weight (kg) | Sales Unit |
|---------|-----------------------------------|-------------|------------|
| U851-10 | RING RATCHET WRENCH 1000 V - 10mm | 0.061       | 6          |
| U851-13 | RING RATCHET WRENCH 1000 V - 13mm | 0.098       | 6          |
| U851-14 | RING RATCHET WRENCH 1000 V - 14mm | 0.109       | 6          |
| U851-16 | RING RATCHET WRENCH 1000 V - 16mm | 0.137       | 6          |
| U851-17 | RING RATCHET WRENCH 1000 V - 17mm | 0.158       | 6          |

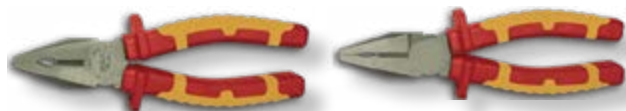
# LV insulated tooling

## 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<br>(mm <sup>2</sup> ) | Al<br>(mm <sup>2</sup> ) | Length<br>(mm) | Weight<br>(kg) | Sales<br>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



5 pieces - U812-4



10 pieces - U812-5

| 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**



**U813-3**

### DIGITAL TESTER

It enables to perform voltage measurements from 0 up to 220V.

## 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 strenght (35 N/cm).

**U843-X** : thickness 0,13mm. Good tensile strenght (25N/cm). Self-extinguishing, premium quality, they have a very good dielectric strenght (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**

### 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.



**F424**



**F432**



**F420 - F421 - F422**

## 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 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          |
| F407                                 | 60kN ELECTRO-HYDRAULIC CRIMPING TOOL        | 4.500       | 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                         | 46-47   |
| BD | BD010      | MECHANICAL TIGHTENING SLEEVE 95-240 4 SCREWS            | 180-181 |
|    | BD020      | MECHANICAL TIGHTENING SLEEVE 95-150 2 SCREWS            | 180-181 |
|    | BD030      | MECHANICAL TIGHTENING SLEEVE 50-120 2 SCREWS            | 180-181 |
| BE | BE002      | SHORT-CIRCUITING LOST END BPMCC 50-240                  | 182-183 |
|    | BE004      | SERVICE REPAIRING JUNCTION KIT JRB 10-50                | 176-177 |
| ED | ED001      | EARTH DISTRIBUTOR STRIP AL 5 TAPS                       | 158-159 |
|    | ED002      | EARTH DISTRIBUTOR STRIP AL 8 TAPS                       | 158-159 |
|    | ED003      | GROUND CUTTING BLADE AL STRIP                           | 158-159 |
| F  | F001       | CABLE TIE 9x123mm (bag of 100)                          | 84-85   |
|    | F002       | CABLE TIE 9x180mm (bag of 100)                          | 84-85   |
|    | F003       | CABLE TIE 9x265mm (bag of 100)                          | 84-85   |
|    | F004       | CABLE TIE 9x360mm (bag of 100)                          | 84-85   |
|    | F005       | CABLE TIE 9x500mm (bag of 100)                          | 84-85   |
|    | F006       | CABLE TIE 9x750mm (bag of 100)                          | 84-85   |
|    | F010-500-0 | PLASTIC SEAL WITH UNIQUE NUMBER ORANGE (BAG 500 PIECES) | 230-231 |
|    | F010-500-V | PLASTIC SEAL WITH UNIQUE NUMBER GREEN (BAG 500 PIECES)  | 230-231 |
|    | F012       | TIE FOR IRO TUBE WITH BASE 16-32 (set of 100)           | 214-215 |
|    | F013       | IMPLEMENTATION TOOL FOR TIE                             | 84-85   |
|    | F016       | PLASTIC JUMPER CLAMP - MOUNTING BRACKET (x100) - 9mm    | 82-83   |
|    | F032       | BAC CABLE TIE - CPBF (batch of 100)                     | 82-83   |
|    | F033       | CABLE SADDLE - BRPV1                                    | 82-83   |
|    | F035       | CABLE SADDLE - BRPV6                                    | 82-83   |
|    | F036       | CABLE SADDLE - BRTV10                                   | 82-83   |
|    | F038       | CABLE SADDLE - BRTV17                                   | 82-83   |
|    | F040       | WALL TYPE STRAP SUPPORT WITH BRACKET TO STRIKE (x100)   | 84-85   |
|    | F041       | WALL TYPE STRAP SUPPORT ATTACHED BY SCREW (x100)        | 84-85   |
|    | F081       | LEATHER PROTECTION GLOVES                               | 246-247 |
|    | F100       | HEAT-SHRINKABLE END E2R 10-35                           | 68-69   |
|    | F101       | HEAT-SHRINKABLE END E4R 10-35                           | 68-69   |
|    | F102       | HEAT-SHRINKABLE END E4R 50-150                          | 68-69   |
|    | F103       | HEAT-SHRINKABLE END E4R 240                             | 68-69   |
|    | F110       | HEAT-SHRINKABLE END CAP CRB 10-25                       | 68-69   |
|    | F111       | HEAT-SHRINKABLE END CAP CRR 16-70                       | 68-69   |
|    | F112       | HEAT-SHRINKABLE END CAP CRR 150                         | 68-69   |
|    | F113       | HEAT-SHRINKABLE END CAP CRC 16-27                       | 68-69   |
|    | F114       | HEAT-SHRINKABLE END CAP CRC 26-48                       | 68-69   |
|    | F115       | HEAT-SHRINKABLE END CAP CRC 46-80                       | 68-69   |
|    | F116       | HEAT-SHRINKABLE END CAP CRR 240                         | 68-69   |
|    | F119       | HEAT-SHRINKABLE SHEATH GR 35-95 (10m)                   | 68-69   |



# F

|           |  |         |
|-----------|--|---------|
| F120      | HEAT-SHRINKABLE SHEATH GR 10-35 (10m)                    | 68-69   |
| F121      | HEAT-SHRINKABLE SHEATH GR 50-150 (10m)                   | 68-69   |
| F122      | HEAT-SHRINKABLE SHEATH GR 240 (10m)                      | 68-69   |
| F129      | HEAT-SHRINKABLE SLEEVE FRM 30-150                        | 68-69   |
| F130      | HEAT-SHRINKABLE SLEEVE FRM 16-100                        | 68-69   |
| F131      | HEAT-SHRINKABLE SLEEVE FRM 25-100                        | 68-69   |
| F132      | HEAT-SHRINKABLE SLEEVE FRM 25-200                        | 68-69   |
| F133      | HEAT-SHRINKABLE SLEEVE FRM 30-250                        | 68-69   |
| F134      | HEAT-SHRINKABLE SLEEVE FRM 30-200                        | 68-69   |
| F135      | HEAT-SHRINKABLE SLEEVE FRM 35-150                        | 68-69   |
| F136      | HEAT-SHRINKABLE SLEEVE FRM 35-250                        | 68-69   |
| F140-2321 | RINGED TUBE DIAMETER 16 (100m)                           | 216-217 |
| F140-3422 | RINGED TUBE DIAMETER 16 (100m)                           | 216-217 |
| F141-2321 | RINGED TUBE DIAMETER 20 (100m)                           | 216-217 |
| F141-3422 | RINGED TUBE DIAMETER 20 (100m)                           | 216-217 |
| F142-2321 | RINGED TUBE DIAMETER 25 (50m)                            | 216-217 |
| F142-3422 | RINGED TUBE DIAMETER 25 (100m)                           | 216-217 |
| F143-2321 | RINGED TUBE DIAMETER 32 (50m)                            | 216-217 |
| F143-3422 | RINGED TUBE DIAMETER 32 (50m)                            | 216-217 |
| F144-2321 | RINGED TUBE DIAMETER 40 (50m)                            | 216-217 |
| F144-3422 | RINGED TUBE DIAMETER 40 (50m)                            | 216-217 |
| F145-2321 | RINGED TUBE DIAMETER 50 (50m)                            | 216-217 |
| F145-3422 | RINGED TUBE DIAMETER 50 (50m)                            | 216-217 |
| F146-3422 | RINGED TUBE DIAMETER 63 (50m)                            | 216-217 |
| F150      | 35mm <sup>2</sup> BIMETAL SPIN-WELDED BARE TERMINAL LUG  | 64-65   |
| F151      | 50mm <sup>2</sup> BIMETAL SPIN-WELDED BARE TERMINAL LUG  | 64-65   |
| F153      | 70mm <sup>2</sup> BIMETAL SPIN-WELDED BARE TERMINAL LUG  | 64-65   |
| F154      | 150mm <sup>2</sup> BIMETAL SPIN-WELDED BARE TERMINAL LUG | 64-65   |
| F155      | 240mm <sup>2</sup> BIMETAL SPIN-WELDED BARE TERMINAL LUG | 64-65   |
| F156      | 95mm <sup>2</sup> BIMETAL SPIN-WELDED BARE TERMINAL LUG  | 64-65   |
| F200      | OPERATING STICK 2E - 1.5M (TERMINAL END U)               | 122-123 |
| F201      | OPERATING STICK 2E - 2M (TERMINAL END U)                 | 122-123 |
| F202      | OPERATING STICK 2E - 3.2M (TERMINAL END U)               | 122-123 |
| F203      | OPERATING STICK 2E - 5M (TERMINAL END U)                 | 122-123 |
| F204      | OPERATING STICK 3E - 4.5M (TERMINAL END U)               | 122-123 |
| F205      | OPERATING STICK 3E - 5M (TERMINAL END U)                 | 122-123 |
| F206      | OPERATING STICK 3E - 6M (TERMINAL END U)                 | 122-123 |
| F207      | OPERATING STICK 1E - 1M                                  | 122-123 |
| F208      | PROTECTIVE COVER FOR OPERATING STICK                     | 122-123 |
| F209      | BORED TERMINAL END DISCONNECTOR / STICK                  | 122-123 |
| F210      | THREAD TERMINAL END DISCONNECTOR / STICK                 | 122-123 |
| F213      | TERMINAL END TYPE L DISCONNECTOR / STICK                 | 122-123 |
| F216      | EARTH ROD COPPER 100µm L = 1.5m DIAM 14 - 2 THREADS 5/8" | 140-141 |

## Commercial reference index

|          | Code   | Designation   | Pages                         |
|----------|--------|---|-------------------------------|
| <b>F</b> | F217   | EARTH ROD COPPER 100µm L = 2m DIAM 14 - 2 THREADS 5/8"              | 140-141                       |
|          | F221   | EARTH ROD COPPER 254µm L = 2m DIAM 14 - 2 THREADS 5/8"              | 140-141                       |
|          | F222   | EARTH ROD COPPER 254µm L = 1.5m DIAM 14 - 2 THREADS 5/8"            | 140-141                       |
|          | F223   | EARTH ROD COPPER 50µm L = 2m DIAM 14 - 2 THREADS 5/8"               | 140-141                       |
|          | F224   | U BOLT CONNECTION CLAMP 150 <sup>2</sup> ROD DIAM 12.7 TO 17.2      | 138-139<br>140-141<br>142-143 |
|          | F226   | EARTH ROD COPPER 50µm L = 1m DIAM 14                                | 138-139                       |
|          | F227   | EARTH ROD COPPER 254µm L = 2m DIAM 14                               | 138-139                       |
|          | F228   | SCREW FOR COUPLING FOR ROD DIAM 14 THREAD 5/8"                      | 140-141                       |
|          | F229   | DRIVING SPIKE FOR ROD DIAM 12.7 + 14 UNTHREADED                     | 138-139                       |
|          | F229   | DRIVING SPIKE FOR ROD DIAM 12.7 THREADED                            | 140-141                       |
|          | F230   | EARTH ROD STAINLESS STEEL SELF-EXTENDABLE L = 1m DIAM 16            | 142-143                       |
|          | F231   | EARTH ROD STAINLESS STEEL SELF-EXTENDABLE L = 1.5m DIAM 16          | 142-143                       |
|          | F232   | EARTH ROD STAINLESS STEEL SELF-EXTENDABLE L = 2m DIAM 16            | 142-143                       |
|          | F233   | U BOLT CONNECTION CLAMP 50 <sup>2</sup> ROD DIAM 12.7 + 14 THREADED | 138-139<br>140-141            |
|          | F233   | U BOLT CONNECTION CLAMP 50 <sup>2</sup> ROD                         | 142-143                       |
|          | F234   | CONNECTION CLAMP ROD DIAM 12.7 AND 14mm                             | 138-139<br>140-141            |
|          | F234   | CONNECTION CLAMP ROD  | 142-143                       |
|          | F235   | EARTH ROD COPPER 50µm L = 1.5m DIAM 14 - 2 THREADS 5/8"             | 140-141                       |
|          | F236   | THREADED COUPLING FOR ROD DIAM 14 THREAD 5/8"                       | 140-141                       |
|          | F237   | DRIVING HEAD FOR ROD DIAM 17.2                                      | 138-139<br>140-141            |
|          | F238   | DRIVING HEAD FOR ROD DIAM 14  | 138-139<br>140-141            |
|          | F239   | DRIVING SPIKE FOR ROD DIAM 17.2 UNTHREADED                          | 138-139                       |
|          | F239   | DRIVING SPIKE FOR ROD DIAM 14 THREADED                              | 140-141                       |
|          | F244   | EARTH ROD COPPER 50µm L = 1.5m DIAM 14                              | 138-139                       |
|          | F245   | EARTH ROD COPPER 50µm L = 2m DIAM 14                                | 138-139                       |
|          | F246   | CONNECTION CLAMP ROD DIAM 17.2mm                                    | 138-139<br>140-141            |
|          | F249   | EARTH ROD COPPER 254µm L = 1.5m DIAM 14                             | 138-139                       |
|          | F262   | EARTH ROD COPPER 254µm L = 1.5m DIAM 17.2 - 2 THREADS 3/4"          | 140-141                       |
|          | F265   | THREADED COUPLING FOR ROD DIAM 17.2 THREAD 3/4"                     | 140-141                       |
|          | F296   | EARTH ROD COPPER 50µm L = 1.5m DIAM 12.7 - 2 THREADS 1/2"           | 140-141                       |
|          | F298   | THREADED COUPLING FOR ROD DIAM 12.7 THREAD 1/2"                     | 140-141                       |
|          | F305-9 | MULTIPLE ANCHORING BRACKET (x9) - CAM 25                            | 78-79                         |
|          | F332   | WOOD SCREWS POZIDRIVE (X200)  | 230-231                       |
|          | F340   | PIGTAIL PLATE PQC   | 86-87                         |
|          | F344   | TQC 12x150  | 86-87                         |
|          | F345   | TQC 12x200  | 86-87                         |

# F

|            |  |         |
|------------|--|---------|
| F346       | TQC 12x250   | 86-87   |
| F400       | 50kN HYDRAULIC CRIMPING TOOL   | 270-271 |
| F401       | CARRYING PLASTIC CASE FOR 50kN HYDRAULIC CRIMPING TOOL               | 270-271 |
| F407       | 60kN ELECTRO-HYDRAULIC CRIMPING TOOL                                 | 270-271 |
| F408       | HEXAGONAL DIE ADAPTOR  | 270-271 |
| F409       | BATTERY FOR F407   | 270-271 |
| F420       | HEXAGONAL DIE TYPE E140  | 270-271 |
| F421       | HEXAGONAL DIE TYPE E173  | 270-271 |
| F422       | HEXAGONAL DIE TYPE E215  | 270-271 |
| F424-140   | HEXAGONAL DIE E140 Al/Cu SECTIONS 35+50                              | 270-271 |
| F424-173   | HEXAGONAL DIE E173 Al/Cu SECTIONS 70+95+120                          | 270-271 |
| F432-10-50 | HEXAGONAL DIE SECTIONS 10+50   | 270-271 |
| F432-150   | HEXAGONAL DIE SECTION 150  | 270-271 |
| F432-16-70 | HEXAGONAL DIE SECTIONS 16+70   | 270-271 |
| F432-185   | HEXAGONAL DIE SECTION 185  | 270-271 |
| F432-240   | HEXAGONAL DIE SECTION 240  | 270-271 |
| F432-25-95 | HEXAGONAL DIE SECTIONS 25+95   | 270-271 |
| F432-4-120 | HEXAGONAL DIE SECTIONS 4+120   | 270-271 |
| F432-6-35  | HEXAGONAL DIE SECTIONS 6+35  | 270-271 |
| F439       | EARTH TESTER   | 144-145 |
| F445       | INSULATED RATCHET WRENCH HEXAGONAL 13/17mm                           | 262-263 |
| F450       | BRUSH FOR CONDUCTOR WITH CASE  | 262-263 |
| F460       | INSULATED CROSS SPANNER 8-10-13-17mm                                 | 262-263 |
| F732       | METERING CUSTOMER BOX / SINGLE-PHASE CIRCUIT BREAKER                 | 218-219 |
| F733       | METERING CUSTOMER BOX / THREE-PHASES CIRCUIT BREAKER                 | 218-219 |
| F734       | SERVICE CABINET FOR PREPAYMENT METER SINGLE FOR MODULAR DISCONNECTOR | 218-219 |
| F735       | SERVICE CABINET FOR PREPAYMENT METER TRI FOR MODULAR DISCONNECTOR    | 218-219 |
| F860       | WARNING MESH 0.1m (300m roll)  | 198-199 |
| F861       | WARNING MESH 0.2m (100m roll)  | 198-199 |
| F862       | WARNING MESH 0.3m (100m roll)  | 198-199 |
| F864       | NETTING BARRIER  | 256-257 |
| F865       | WARNING TAPE RED/WHITE (ROLL 100m)                                   | 256-257 |

# HC

|       |  |         |
|-------|--|---------|
| HC100 | CABLE SEALING END E2R RF 10-35 SILICONE  | 202-203 |
| HC101 | CABLE SEALING END E4R RF 10-35 SILICONE  | 202-203 |
| HC102 | CABLE SEALING END E4R RF 35-70 SILICONE  | 202-203 |
| HC103 | CABLE SEALING END E4R RF 95-240 SILICONE | 202-203 |
| HC112 | COLD-SLIDABLE SHEATH GEF 35M             | 204-205 |
| HC113 | COLD-SLIDABLE SHEATH GEF 50M             | 204-205 |
| HC114 | COLD-SLIDABLE SHEATH GEF 70M             | 204-205 |
| HC115 | COLD-SLIDABLE SHEATH GEF 95M             | 204-205 |
| HC116 | COLD-SLIDABLE SHEATH GEF 120M            | 204-205 |
| HC117 | COLD-SHRINKABLE SHEATH FRF 50-240        | 204-205 |

# J

|      |  |         |
|------|--|---------|
| J041 | 1 BLUE 16mm <sup>2</sup> LINKING CABLE L1200 | 238-239 |
|------|--|---------|

## Commercial reference index

|          | Code | Designation   | Pages                         |
|----------|------|---|-------------------------------|
| <b>J</b> | J042 | 1 BLACK 16mm <sup>2</sup> LINKING CABLE L1200                         | 238-239                       |
|          | J045 | 1 BLUE 16mm <sup>2</sup> LINKING CABLE L560                           | 238-239                       |
|          | J046 | 1 BLACK 16mm <sup>2</sup> LINKING CABLE L530                          | 238-239                       |
|          | J047 | 1 BLUE 16mm <sup>2</sup> LINKING CABLE L700                           | 238-239                       |
|          | J048 | 1 BLACK 16mm <sup>2</sup> LINKING CABLE L700                          | 238-239                       |
|          | J132 | 1 BLUE 25mm <sup>2</sup> LINKING CABLE L700                           | 238-239                       |
|          | J133 | 1 BLACK 25mm <sup>2</sup> LINKING CABLE L700                          | 238-239                       |
|          | J412 | BLUE CABLE 16VK L500  | 238-239                       |
|          | J413 | BLUE CABLE 16VK L500  | 238-239                       |
|          | J808 | SET OF 2 16mm <sup>2</sup> LINKING CABLES (1 BLUE + 1 BLACK)          | 238-239                       |
|          | J809 | SET OF 4 16mm <sup>2</sup> LINKING CABLES (1 BLUE + 3 BLACK)          | 238-239                       |
| <b>K</b> | K001 | BLACK FLEXIBLE END CAP 10-50M   | 66-67                         |
|          | K002 | BLACK FLEXIBLE END CAP 35-95  | 66-67                         |
|          | K003 | BLACK FLEXIBLE END CAP 95-150   | 66-67                         |
|          | K004 | HOLDING SPANNER CBS/RDP   | 264-265                       |
|          | K005 | INSULATED WEDGE SEPARATOR   | 264-265                       |
|          | K007 | WEDGE SEPARATOR 200x15x9mm  | 168-169<br>170-171<br>172-173 |
|          | K007 | INSULATED WEDGE SEPARATOR 200x15x9mm                                  | 264-265                       |
|          | K010 | GANG FSD EARTHING DEVICE 3 POLES                                      | 154-155                       |
|          | K011 | GANG FSD EARTHING DEVICE 4 POLES                                      | 154-155                       |
|          | K012 | GANG FSD EARTH SYSTEM DEVICE COPPER CABLE (2.5m / 35mm <sup>2</sup> ) | 154-155                       |
|          | K013 | Cu CRIMPED TERMINAL LUG (E140) CPTAU 25                               | 62-63                         |
|          | K017 | Cu CRIMPED TERMINAL LUG (E173) CPTAU 54                               | 62-63                         |
|          | K018 | Cu CRIMPED TERMINAL LUG (E173) CPTAU 70                               | 62-63                         |
|          | K023 | Cu CRIMPED TERMINAL LUG (E215) CPTAU 150                              | 62-63                         |
|          | K024 | Cu TERMINAL LUG (E215) CPTAU 150                                      | 62-63                         |
|          | K030 | PREINSULATED SLEEVE (E140) MJPB 6                                     | 52-53                         |
|          | K031 | PREINSULATED SLEEVE (E140) MJPB 10-6                                  | 52-53                         |
|          | K032 | PREINSULATED SLEEVE (E140) MJPB 16-6                                  | 52-53                         |
|          | K033 | PREINSULATED SLEEVE (E140) MJPB 25-6                                  | 52-53                         |
|          | K035 | PREINSULATED SLEEVE (E140) MJPB 10                                    | 52-53                         |
|          | K036 | PREINSULATED SLEEVE (E140) MJPB 16-10                                 | 52-53                         |
|          | K037 | PREINSULATED SLEEVE (E140) MJPB 25-10                                 | 52-53                         |
|          | K039 | PREINSULATED SLEEVE (E140) MJPB 16                                    | 52-53                         |
|          | K040 | PREINSULATED SLEEVE (E140) MJPB 25-16                                 | 52-53                         |
|          | K042 | PREINSULATED SLEEVE (E140) MJPB 25                                    | 52-53                         |
|          | K053 | PREINSULATED SLEEVE (E140) MJPB 35-16                                 | 52-53                         |
|          | K054 | PREINSULATED SLEEVE (E140) MJPB 35-25                                 | 52-53                         |
|          | K055 | PREINSULATED SLEEVE (E140) MJPB 35                                    | 52-53                         |

# K

|      |  |                    |
|------|--|--------------------|
| K064 | PREINSULATED SLEEVE (E140) MJPBAS 16-4M              | 58-59              |
| K065 | PREINSULATED SLEEVE (E140) MJPBAS 16-6M              | 58-59              |
| K068 | PREINSULATED SLEEVE (E140) MJPBAS 10-25M             | 58-59              |
| K069 | PREINSULATED SLEEVE (E140) MJPBAS 10-35M             | 58-59              |
| K070 | PREINSULATED SLEEVE (E140) MJPBAS 16-16M             | 58-59              |
| K072 | PREINSULATED SLEEVE (E140) MJPBAS 25-16M             | 58-59              |
| K073 | PREINSULATED SLEEVE (E140) MJPBS 25M-25M             | 58-59              |
| K074 | PREINSULATED SLEEVE (E140) MJPBAS 25-25M             | 58-59              |
| K075 | PREINSULATED SLEEVE (E140) MJPBS 35M-35M             | 58-59              |
| K076 | PREINSULATED SLEEVE (E140) MJPBAS 25-35M             | 58-59              |
| K078 | PREINSULATED SLEEVE (E140) MJPBAS 16-25M             | 58-59              |
| K079 | PREINSULATED SLEEVE (E140) MJPBAS 16-35M             | 58-59              |
| K081 | PREINSULATED SLEEVE (E140) MJPBAS 25-21Cu            | 58-59              |
| K083 | PREINSULATED SLEEVE (E140) MJPBS 25M-21Cu            | 58-59              |
| K085 | PREINSULATED SLEEVE (E140) MJPBS 16M-35M             | 58-59              |
| K086 | PREINSULATED SLEEVE (E140) MJPBS 25M-35M             | 58-59              |
| K091 | DISMOUNTABLE SLEEVE PIERCING 4-50 / PIERCING 4-50    | 48-49              |
| K092 | DISMOUNTABLE SLEEVE PIERCING 6-50M / STRIPPING 6-50M | 48-49              |
| K096 | DISMOUNTABLE SLEEVE PIERCING 6-35 / STRIPPING 4-35   | 48-49              |
| K098 | DOUBLE TAP END CONNECTOR (6-35mm <sup>2</sup> )      | 116-117<br>118-119 |
| K098 | DOUBLE TAP END CONNECTOR (6-35mm <sup>2</sup> )      | 120-121            |
| K099 | HSC PIERCING 6-35 / STRIPPING 4-35 / 4 BOLTS         | 48-49              |
| K101 | PREINSULATED SLEEVE (E173) MJPT 16                   | 54-55              |
| K103 | PREINSULATED SLEEVE (E173) MJPT 25                   | 54-55              |
| K106 | PREINSULATED SLEEVE (E173) MJPT 35                   | 54-55              |
| K108 | PREINSULATED SLEEVE (E173) MJPT 50-25                | 54-55              |
| K109 | PREINSULATED SLEEVE (E173) MJPT 50-35                | 54-55              |
| K110 | PREINSULATED SLEEVE (E173) MJPT 50                   | 54-55              |
| K114 | PREINSULATED SLEEVE (E173) MJPT 54-50                | 54-55              |
| K115 | PREINSULATED SLEEVE (E173) NEUTRAL MJPT 54           | 54-55              |
| K116 | PREINSULATED SLEEVE (E173) NEUTRAL MJPT 70           | 54-55              |
| K117 | PREINSULATED SLEEVE (E173) NEUTRAL MJPT 70-54        | 54-55              |
| K118 | PREINSULATED SLEEVE (E173) MJPT 70-35                | 54-55              |
| K119 | PREINSULATED SLEEVE (E173) MJPT 70-50                | 54-55              |
| K121 | PREINSULATED SLEEVE (E173) MJPT 70                   | 54-55              |
| K122 | PREINSULATED SLEEVE (E173) MJPT 95-70                | 54-55              |
| K123 | PREINSULATED SLEEVE (E173) MJPT 95                   | 54-55              |
| K126 | STRIPPING REDUCING END CONNECTOR 95-240              | 238-239            |
| K127 | STRIPPING REDUCING END CONNECTOR 25-95               | 238-239            |
| K128 | STRIPPING REDUCING END CONNECTOR 6-50M               | 240-241            |
| K129 | PIERCING REDUCING END CONNECTOR 6-50M PHASE L600     | 240-241            |
| K130 | PIERCING REDUCING END CONNECTOR 6-50M NEUTRAL L600   | 240-241            |
| K131 | PIERCING REDUCING END CONNECTOR 6-50M PHASE L300     | 240-241            |

## Commercial reference index

|   | Code   | Designation   | Pages   |
|---|--------|---|---------|
| K | K132   | PIERCING REDUCING END CONNECTOR 6-50M NEUTRAL L300                  | 240-241 |
|   | K159   | Cu TERMINAL LUG (E140) CPTAU 16                                     | 62-63   |
|   | K160   | Cu TERMINAL LUG (E140) CPTAU 25                                     | 62-63   |
|   | K163   | Cu TERMINAL LUG (E173) CPTAU 35                                     | 62-63   |
|   | K164   | Cu TERMINAL LUG (E173) CPTAU 50                                     | 62-63   |
|   | K165   | Cu TERMINAL LUG (E173) CPTAU 54                                     | 62-63   |
|   | K166   | Cu TERMINAL LUG (E173) CPTAU 70                                     | 62-63   |
|   | K167   | Cu TERMINAL LUG (E173) CPTAU 95                                     | 62-63   |
|   | K170   | PREINSULATED SLEEVE (E215) MJPT 95                                  | 56-57   |
|   | K174   | PREINSULATED SLEEVE (E215) MJPT 150-70                              | 56-57   |
|   | K175   | PREINSULATED SLEEVE (E215) MJPT 150                                 | 56-57   |
|   | K176   | PREINSULATED SLEEVE (E215) MJPT 150-95                              | 56-57   |
|   | K185   | PREINSULATED SLEEVE (E215) NEUTRAL MJPT 150 FT                      | 56-57   |
|   | K188   | PREINSULATED SLEEVE (E215) MJPT 120                                 | 56-57   |
|   | K189   | MECHANICAL PREINSULATED SLEEVE 25-95                                | 50-51   |
|   | K191   | MECHANICAL SUBSURFACE PREINSULATED SLEEVE SECTORAL 95-240           | 50-51   |
|   | K192   | MECHANICAL SUBSURFACE PREINSULATED SLEEVE ROUND 150 / SECTORAL 240  | 50-51   |
|   | K193   | MECHANICAL PREINSULATED SLEEVE ROUND 50-150                         | 50-51   |
|   | K198   | FUSE INSULATION PIERCING PIT CONNECTOR 100A (22x58) PERFO 6-50 IP2X | 114-115 |
|   | K199   | FUSE INSULATION PIERCING PIT CONNECTOR 100A (22x58) PERFO 6-50      | 114-115 |
|   | K210   | FUSE SWITCH CONNECTOR 63A (22x58) PIERCING 150/35                   | 110-111 |
|   | K219   | CUTOUT SLEEVE 63A (22x58) STRIPPING 16-35                           | 112-113 |
|   | K220   | CUTOUT SLEEVE 50A (14x51) 2.5-16                                    | 112-113 |
|   | K221   | CUTOUT SLEEVE 63A (22x58) PIERCING 6-35                             | 112-113 |
|   | K223   | FUSE CONNECTOR 20A (10.3x38) PIERCING 95/16                         | 108-109 |
|   | K223-2 | FUSE CONNECTOR PIERCING 95/16 - CLASS 2                             | 108-109 |
|   | K228   | FUSE CONNECTOR 20A (10.3x38) BARE Cu 95/10                          | 108-109 |
|   | K229   | FUSE CONNECTOR 20A (10.3x38) BARE AI 95/100                         | 108-109 |
|   | K235   | 2 STAGES CONNECTOR RDP/CNU 95 SF                                    | 22-23   |
|   | K236   | 2 STAGES CONNECTOR RDP/CNA 95 SF                                    | 22-23   |
|   | K241   | SPD IPC 15kA/275VAC 0.5m  | 148-149 |
|   | K242   | SPD IPC 15kA/440VAC 0.5m  | 148-149 |
|   | K243   | SPD SPARE PART 15KA/275VAC 0.5m                                     | 148-149 |
|   | K244   | SPD SPARE PART 15kA/440VAC 0.5m                                     | 148-149 |
|   | K247   | BLACK FLEXIBLE END CAP 95-240 - FOR CONNECTOR K381                  | 36-37   |
|   | K247   | BLACK FLEXIBLE END CAP 95-240                                       | 66-67   |
|   | K250   | IPC 50-157 BLL/BLX  | 92-93   |
|   | K251   | IPC 50-241 BLL/BLX  | 92-93   |
|   | K252   | HORN TYPE OPEN FOR BLL/BLX IPC                                      | 92-93   |
|   | K253   | HORN TYPE CLOSED FOR BLL/BLX IPC                                    | 92-93   |



# K

|      |   |                               |
|------|---|-------------------------------|
| K254 | CONNECTOR CDRSp/CN 120-70 ZF                      | 38-39                         |
| K257 | CONNECTOR CDRSp/CN 120-150 ZF                     | 38-39                         |
| K258 | CONNECTOR RDP/CNU 95 ZF                           | 20-21                         |
| K259 | CONNECTOR RDP/CNA 95 ZF                           | 20-21                         |
| K272 | CABLE SADDLE - BRPF1                              | 82-83                         |
| K273 | CABLE SADDLE - BRPF6                              | 82-83                         |
| K277 | SUSPENSION ASSEMBLY [50-95] - ES 1500             | 74-75                         |
| K280 | SPARE PART - PS + LM 715                          | 74-75                         |
| K281 | CABLE SADDLE - BRPF4                              | 82-83                         |
| K282 | CABLE SADDLE - BRPF9                              | 82-83                         |
| K283 | FUSE SUSPENSION ASSEMBLY [50-70] - ESF 715        | 74-75                         |
| K288 | FULLY SUPPORTED ANCHORING CLAMP 4x50-120          | 76-77                         |
| K292 | SINGLE PHASE FSD 160A (NH 00) PIERCING 6-95       | 106-107                       |
| K293 | TRIPLE POLE FSD 160A (NH 00) PIERCING 6-95        | 118-119                       |
| K294 | QUADRUPLE POLE FSD 160A (NH 00) PIERCING 6-95     | 120-121                       |
| K295 | PLASTIC ADAPTOR FOR SINGLE PHASE FSD BRACKET      | 102-103<br>104-105<br>106-107 |
| K296 | DOUBLE TRIPLE POLE FSD 160A (NH 00) PIERCING 6-95 | 118-119                       |
| K297 | METAL BRACKET FOR SINGLE PHASE FSD                | 102-103<br>104-105<br>106-107 |
| K298 | DOUBLE POLE FSD 160A (NH 00) PIERCING 6-95        | 116-117                       |
| K306 | ANCHORING CLAMP - PA 1500                         | 74-75                         |
| K307 | ANCHORING CLAMP WITH HANDLE - PA 25               | 78-79                         |
| K308 | ANCHORING BRACKET - CA 1500 - 2FP                 | 74-75                         |
| K309 | ANCHORING CLAMP WITH ADJUSTABLE HOOK - PACR 25    | 78-79                         |
| K313 | CONNECTOR CDR/CS 50-95                            | 178-179                       |
| K314 | EARTH SYSTEM CONNECTOR 50-95 / 25                 | 178-179                       |
| K322 | CONNECTOR CBS/CT 25 ZF - ERDF                     | 16-17                         |
| K323 | CONNECTOR CBS/CT 70 ZF - ERDF                     | 16-17                         |
| K324 | CONNECTOR CBS/CT 150 ZF - ERDF                    | 16-17                         |
| K326 | CONNECTOR CES/CT 70 ZF                            | 44-45                         |
| K330 | CONNECTOR CBS/CT 150 ZF                           | 16-17                         |
| K331 | CONNECTOR CBS/CT 70 ZF                            | 16-17                         |
| K332 | CONNECTOR CBS/CT 95 ZF                            | 16-17                         |
| K336 | CONNECTOR CBS/CT 95 TEST PROBE ZF                 | 18-19                         |
| K337 | CONNECTOR CBS/CT 150 TEST PROBE ZF                | 18-19                         |
| K338 | CONNECTOR CBS/CT 95 TEST PROBE SF                 | 18-19                         |
| K342 | CONNECTOR CDR/CT 2S 150-70 ZF                     | 40-41                         |
| K343 | CONNECTOR CDR/CT 2S 150-150 ZF                    | 40-41                         |
| K348 | PIERCING CONNECTOR CB 2p/CT 95 ZF A               | 26-27                         |
| K349 | PIERCING CONNECTOR CB 4p/ CT 185 ZF               | 26-27                         |
| K354 | CONNECTOR CDRS/CT 150-95 SF                       | 36-37                         |
| K355 | CONNECTOR CDRS/CT 150-95 ZF                       | 36-37                         |

## Commercial reference index

|   | Code   | Designation                                     | Pages   |
|---|--------|---|---------|
| K | K356   | CONNECTOR CDRS/CT 150-150 ZF                    | 36-37   |
|   | K360   | CONNECTOR CDR NEUTRAL/CS 50-95                  | 178-177 |
|   | K361   | CONNECTOR CMCC/CT 95 ZF                         | 150-151 |
|   | K362   | CONNECTOR CMCC/CT 25 ZF                         | 150-151 |
|   | K363   | CONNECTOR CMCC/CT 70 ZF                         | 150-151 |
|   | K364   | CONNECTOR CMCC/CT 150 ZF                        | 150-151 |
|   | K365   | CONNECTOR CDRS/CT 95-95 ZF                      | 36-37   |
|   | K366   | CONNECTOR CDRS/CT AL 150-150 ZF                 | 36-37   |
|   | K368   | SHORT-CIRCUITING AND EARTH SYSTEM SOCKET (PMCC) | 150-151 |
|   | K376   | CONNECTOR CDR/CNA 2S 70 ZF                      | 40-41   |
|   | K377   | CONNECTOR CDR/CNA 2S 150 ZF                     | 40-41   |
|   | K378   | CONNECTOR CDR/CNU 2S 70 ZF                      | 40-41   |
|   | K379   | CONNECTOR CDR/CNU 2S 150 ZF                     | 40-41   |
|   | K381   | CONNECTOR CDRS/CT 240-240 ZF (without cap)      | 36-37   |
|   | K383   | CONNECTOR CDR/CS 50-240                         | 178-179 |
|   | K384   | CONNECTOR CDR/CS 50-240/50-150                  | 178-179 |
|   | K389   | PIERCING CONNECTOR CB 2p/CT 150 SF              | 26-27   |
|   | K390   | PIERCING CONNECTOR CB 2p/CT 150 ZF              | 26-27   |
|   | K391   | PIERCING CONNECTOR CB 2p/CT 150 ZF              | 26-27   |
|   | K392   | PIERCING CONNECTOR CB 2p/CT 70 ZF               | 26-27   |
|   | K393   | STRIPPING CONNECTOR CB 2d/CT 70 ZF              | 26-27   |
|   | K394   | PIERCING CONNECTOR CB 2p/CT 95 ZF               | 26-27   |
|   | K396   | STRIPPING CONNECTOR RDP 1d/CNU 95               | 24-25   |
|   | K397   | PIERCING CONNECTOR CB 1d/CT 95                  | 24-25   |
|   | K416   | STREET LIGHT SET                                | 46-47   |
|   | K421   | GABARIT FOR ALIGNMENT LATH                      | 220-221 |
|   | K422   | ALIGNMENT LATH (Length 3m)                      | 220-221 |
|   | K422-2 | DUAL ALIGNMENT LATH (Length 3m)                 | 220-221 |
|   | K424   | SUPPORT FOR ELECTRIC METER + COVER              | 220-221 |
|   | K425   | COVER (FOR ELECTRIC METER SUPPORT)              | 220-221 |
|   | K439   | CONNECTOR CES/CT 95 ZF                          | 44-45   |
|   | K440   | CONNECTOR CES/CT 95 SF                          | 44-45   |
|   | K441   | CONNECTOR CBS/CT 95 SF                          | 16-17   |
|   | K442   | CONNECTOR CBS/CT 150/1.5-25 SF                  | 16-17   |
|   | K443   | CONNECTOR CBS/CT 150/6-35 SF                    | 16-17   |
|   | K445   | CONNECTOR CDRS/CT 95-95 SF                      | 36-37   |
|   | K446   | CONNECTOR CDRS/CT 150-150 SF                    | 36-37   |
|   | K449   | 4 POLES SERVICE CONNECTOR 150 / 1x35            | 168-169 |
|   | K450   | MULTIPOLE CONNECTOR 150 + UNDERGROUND BOX       | 168-169 |
|   | K451   | SINGLE PHASE MCB + 2 K096                       | 48-49   |

# K

|        |   |         |
|--------|---|---------|
| K455   | THREE PHASE MCB + 4 K096  | 48-49   |
| K459   | 4 POLES SERVICE CONNECTOR 240 / 2x35                                      | 170-171 |
| K470   | CONNECTOR RDP/CNU 95 SF   | 20-21   |
| K471   | CONNECTOR RDP/CNA 95 SF   | 20-21   |
| K472   | CONNECTOR RDP/CNU 120-95 SF   | 38-39   |
| K473   | CONNECTOR RDP/CNA 120-95 SF   | 38-39   |
| K474   | CONNECTOR RDP/CNU 240-150 SF  | 38-39   |
| K475   | CONNECTOR RDP/CNA 240-150 SF  | 38-39   |
| K491   | SINGLE PHASE FSD 100A (22x58) PIERCING 6-35                               | 104-105 |
| K492   | NUMBER PLATE FOR FSD K491 / CABLE   | 104-105 |
| K503   | SET OF SLEEVES (E173) EJPT 35-54.6  | 54-55   |
| K504   | SET OF SLEEVES (E173) EJPT 50-54.6  | 54-55   |
| K505   | SET OF SLEEVES (E173) EJPT 70-54.6  | 54-55   |
| K506   | SET OF SLEEVES (E173) EJPT 70-35-54.6                                     | 54-55   |
| K507   | SET OF SLEEVES (E173) EJPT 70-50/54.6                                     | 54-55   |
| K509   | SET OF SLEEVES (E215) EJPT 150-70/70-54.6                                 | 56-57   |
| K510   | SET OF SLEEVES (E215) EJPT 150-70/150-70                                  | 56-57   |
| K532   | CONNECTOR CBS/CT 95 VZ A  | 16-17   |
| K540   | FLOOR SUPPLY BOX S31  | 212-213 |
| K540.B | FLOOR SUPPLY BOX WITH 3 CONNECTIONS                                       | 212-213 |
| K541   | FLOOR SUPPLY BOX FUSE HOLDER 14x51  | 212-213 |
| K542   | FLOOR SUPPLY BOX FUSE HOLDER 22x58  | 212-213 |
| K545   | FLOOR SUPPLY BOX TRIPLE NEUTRAL   | 212-213 |
| K555   | CONNECTOR CDRS/CT 150-95 ZF   | 36-37   |
| K569   | MECHANICAL SUBSURFACE PREINSULATED SLEEVE 150-300                         | 50-51   |
| K573   | MECHANICAL SUBSURFACE PREINSULATED SLEEVE 50-185                          | 50-51   |
| K575   | PREINSULATED BIMETAL LUG WITH MECHANICAL TIGHTENING 25-95mm <sup>2</sup>  | 60-61   |
| K576   | PREINSULATED BIMETAL LUG WITH MECHANICAL TIGHTENING 95-240mm <sup>2</sup> | 60-61   |
| K594   | PIERCING CONNECTOR CB 2p/CT 95 ZF A                                       | 26-27   |
| K642   | 4 POLES SERVICE CONNECTOR 300 / 2x35                                      | 172-173 |
| K645   | SERVICE BOX MULTI-CONNECTION CAST 240-35                                  | 170-171 |
| K646   | SERVICE BOX MULTI-CONNECTIONS CAST + CONNECTOR 3002                       | 172-173 |
| K654   | EYES 25x25 (x100)   | 72-73   |
| K655   | EYES 25x40 (x100)   | 72-73   |
| K656   | EYES 25x60 (x100)   | 72-73   |
| K699   | SET OF SLEEVES (E173) EJPT 70-50/70-54.6                                  | 54-55   |
| K700   | SET OF SLEEVES (E173) EJPT 70/70-54.6                                     | 54-55   |
| K701   | SET OF SLEEVES (E173) EJPT 70-70  | 54-55   |
| K702   | SET OF SLEEVES (E215) EJPT 150-70/70-70                                   | 56-57   |
| K716   | AMM CONCENTRATOR DATA SUPPLY KIT + LINKING CABLE L=6m                     | 224-225 |
| K719   | AMM CONCENTRATOR DATA SUPPLY KIT + LINKING CABLE L=10m                    | 224-225 |
| K910-B | BLUE SEAL (BOX OF 100 PIECES)   | 230-231 |
| K910-K | BLACK SEAL (BOX OF 100 PIECES)  | 230-231 |

## Commercial reference index

|   | Code     | Designation  | Pages   |
|---|----------|--|---------|
| K | K910-R   | RED SEAL (BOX OF 100 PIECES)                                   | 230-231 |
|   | K910-W   | WHITE SEAL (BOX OF 100 PIECES)                                 | 230-231 |
|   | K930     | 50m WINDER STAINLESS STEEL STRAP 10x0.4mm - 3/8" - AISI 201    | 70-71   |
|   | K930-304 | 50m WINDER STAINLESS STEEL STRAP 10x0.4mm - 3/8" - AISI 304    | 70-71   |
|   | K931     | 50m WINDER STAINLESS STEEL STRAP 10x0.7mm - 3/8" - AISI 201    | 70-71   |
|   | K931-304 | 50m WINDER STAINLESS STEEL STRAP 10x0.7mm - 3/8" - AISI 304    | 70-71   |
|   | K932     | 50m WINDER STAINLESS STEEL STRAP 20x0.4mm - 3/4" - AISI 201    | 70-71   |
|   | K932-304 | 50m WINDER STAINLESS STEEL STRAP 20x0.4mm - 3/4" - AISI 304    | 70-71   |
|   | K933     | 50m WINDER STAINLESS STEEL STRAP 20x0.7mm - 3/4" - AISI 201    | 70-71   |
|   | K933-304 | 50m WINDER STAINLESS STEEL STRAP 20x0.7mm - 3/4" - AISI 304    | 70-71   |
|   | K935     | 25m WINDER STAINLESS STEEL STRAP 20x0.7mm - 3/4" - AISI 201    | 70-71   |
|   | K935-304 | 25m WINDER STAINLESS STEEL STRAP 20x0.7mm - 3/4" - AISI 304    | 70-71   |
|   | K935-430 | 25m WINDER STAINLESS STEEL STRAP 20x0.7mm - 3/4" - AISI 430    | 70-71   |
|   | K937     | 50m WINDER STAINLESS STEEL STRAP 16x0.4mm - 5/8" - AISI 201    | 70-71   |
|   | K937-304 | 50m WINDER STAINLESS STEEL STRAP 16x0.4mm - 5/8" - AISI 304    | 70-71   |
|   | K938     | 50m WINDER STAINLESS STEEL STRAP 13x0.4mm - 1/2" - AISI 201    | 70-71   |
|   | K938-304 | 50m WINDER STAINLESS STEEL STRAP 13x0.4mm - 1/2" - AISI 304    | 70-71   |
|   | K944     | 25m WINDER STAINLESS STEEL STRAP EC 10x0.7mm - 3/8" - AISI 430 | 70-71   |
|   | K945     | 50m WINDER STAINLESS STEEL STRAP EC 10x0.4mm - 3/8" - AISI 430 | 70-71   |
|   | K946     | 50m WINDER STAINLESS STEEL STRAP EC 10x0.7mm - 3/8" - AISI 430 | 70-71   |
|   | K947     | 50m WINDER STAINLESS STEEL STRAP 20x0.4mm - 3/4" - AISI 430    | 70-71   |
|   | K948     | 50m WINDER STAINLESS STEEL STRAP 20x0.7mm - 3/4" - AISI 430    | 70-71   |
|   | K950     | YOKES FOR 10mm STRAP - 3/8" (x100)                             | 72-73   |
|   | K951     | YOKES FOR 20mm STRAP - 3/4" (x100)                             | 72-73   |
|   | K956     | ANTI-CLIMBING STAINLESS STEEL BUCKLES (X25)                    | 72-73   |
|   | K957     | PROTECTION TAPE FOR 10mm STRAP - 3/8" (10m length)             | 72-73   |
|   | K958     | PROTECTION TAPE FOR 20mm STRAP - 3/4" (10m length)             | 72-73   |
|   | K959     | BINDING TOOL WHEEL TYPE FOR STRAP                              | 72-73   |
|   | K960     | BINDING TOOL RATCHET TYPE FOR STRAP                            | 72-73   |
|   | K961     | CUTTING TOOL FOR STRAP   | 72-73   |
|   | K963     | CARRYING CASE FOR STRAP TOOLS                                  | 72-73   |
|   | K964     | PROTECTION TAPE FOR 13mm STRAP - 1/2" (10m length)             | 72-73   |
|   | K965     | PROTECTION TAPE FOR 16mm STRAP - 5/8" (10m length)             | 72-73   |
|   | K968     | STRAP FOLDING PLIER  | 72-73   |
| L | L024     | CONTACTAL N190 NEUTRAL GREASE - TUBE OF 100g                   | 268-269 |
|   | L220     | EBCPAU COVER CLASS II  | 234-235 |
|   | L232     | CONNECTOR CBS/CT 95 VZ   | 16-17   |
|   | L260     | CONNECTOR Cu 10-70 (SF + SH)                                   | 146-147 |
|   | L261     | CONNECTOR Cu 10-70 (SF)  | 146-147 |
|   | L268     | TAPER COUPLING FOR ROD DIAM 5/8" - 50µm                        | 138-139 |

|          |           |  |         |
|----------|-----------|--|---------|
| <b>L</b> | L277      | SINGLE PHASE FSD 160A (NH 00) STRIPPING 6-120                      | 106-107 |
|          | L278      | DOUBLE POLE FSD 160A (NH 00) STRIPPING 6-120                       | 116-117 |
|          | L281      | QUADRUPLE POLE FSD 160A (NH 00) STRIPPING 6-120                    | 120-121 |
|          | L284      | TRIPLE POLE FSD 160A (NH 00) STRIPPING 6-120                       | 118-119 |
|          | L297      | FUSE CARRIER (NH00)/L  | 106-107 |
|          | L298      | FUSE CARRIER (NH00)/P-L  | 106-107 |
|          | L304      | FIXING CLAMP - PF 25   | 78-79   |
|          | L306      | SCREW - M10  | 78-79   |
|          | L307      | WHITE SHEAR HEAD SCREW FOR K099                                    | 48-49   |
|          | L436      | AERIAL SINGLE POLE STAR CONNECTION BLOCK 8 OUTLETS 95-16           | 32-33   |
|          | L437      | SET OF 2 AERIAL SINGLE POLE STAR CONNECTION BLOCKS 8 OUTLETS 95-16 | 32-33   |
|          | L946      | 30.5m WINDER STAINLESS STEEL STRAP 10x0.7mm - 3/8" - AISI 201      | 70-71   |
|          | L946-304  | 30.5m WINDER STAINLESS STEEL STRAP 10x0.7mm - 3/8" - AISI 304      | 70-71   |
|          | L947      | 30.5m WINDER STAINLESS STEEL STRAP 16x0.7mm - 5/8" - AISI 201      | 70-71   |
|          | L947-304  | 30.5m WINDER STAINLESS STEEL STRAP 16x0.7mm - 5/8" - AISI 304      | 70-71   |
|          | L948      | 30.5m WINDER STAINLESS STEEL STRAP 12.7x0.7mm - 1/2" - AISI 201    | 70-71   |
|          | L948-304  | 30.5m WINDER STAINLESS STEEL STRAP 12.7x0.7mm - 1/2" - AISI 304    | 70-71   |
|          | L949      | 30.5m WINDER STAINLESS STEEL STRAP EC 19x0.7mm - 3/4" - AISI 201   | 70-71   |
|          | L949-304  | 30.5m WINDER STAINLESS STEEL STRAP EC 19x0.7mm - 3/4" - AISI 304   | 70-71   |
|          | L950      | YOKES EC FOR 10mm - 3/8" STRAP (x100)                              | 72-73   |
|          | L951      | YOKES EC FOR 20mm - 3/4" STRAP (x100)                              | 72-73   |
|          | L952 - HT | SMART BUCKLES 10 AND 13 mm - 3/8" and 1/2" (x100) - WT             | 72-73   |
|          | L953 - HT | SMART BUCKLES 16 AND 20 mm - 5/8" and 3/4" (x100) - WT             | 72-73   |
| <b>N</b> | N106      | GROUND CUTTING BLADE ALUMINIUM WITH BOX                            | 158-159 |
|          | N107      | GROUND CUTTING BLADE BARE AL                                       | 158-159 |
|          | N108      | BOX FOR GROUND CUTTING BLADE                                       | 158-159 |
|          | N109      | BOX OF 25 LABELS AL CABLE  | 158-159 |
|          | N273      | PROTECTIVE DUCT GPT 30.30 GREY                                     | 90-91   |
|          | N274      | PROTECTIVE DUCT GPC 35.35 GREY                                     | 90-91   |
|          | N275      | PROTECTIVE DUCT GPC 60.60 GREY                                     | 90-91   |
|          | N276      | PROTECTIVE DUCT GPC 90.90 GREY                                     | 90-91   |
|          | N277      | PROTECTIVE DUCT GPC 120.120 GREY                                   | 90-91   |
|          | N278      | PROTECTIVE DUCT GPC 140.50 GREY                                    | 90-91   |
|          | N297      | METAL PROTECTIVE DUCT GPC 35.35mm                                  | 90-91   |
|          | N298      | METAL PROTECTIVE DUCT GPC 60.60mm                                  | 90-91   |
|          | N299      | METAL PROTECTIVE DUCT GPC 90.90mm                                  | 90-91   |
|          | N300      | METAL PROTECTIVE DUCT GPC 120.120mm                                | 90-91   |
|          | N733      | CABLE SADDLE BIC 15/30   | 82-83   |
|          | N734      | CABLE SADDLE BIC 30/50   | 82-83   |
|          | N735      | CABLE SADDLE BIC 50/90   | 82-83   |
| <b>P</b> | P070      | AMM STATION CONCENTRATOR BOARD                                     | 224-225 |
|          | P091      | 14 SQUARE 11 TRIANGULAR 9X4 FLAT WRENCH                            | 196-197 |
|          | P100      | CUTOUT CABINET 2A NEUTRAL TUBE                                     | 228-229 |

## Commercial reference index

|   | Code   | Designation  | Pages   |
|---|--------|--|---------|
| P | P130   | FUSE CARTRIDGE NH2 125A 160mm                              | 128-129 |
|   | P131   | FUSE CARTRIDGE NH2 200A 160mm                              | 128-129 |
|   | P132   | FUSE CARTRIDGE NH2 250A 160mm                              | 128-129 |
|   | P134   | FUSE CARTRIDGE NH2 400A 160mm                              | 128-129 |
|   | P219   | EBCP 50 SECT-16 BLACK L700 CLASS II                        | 234-235 |
|   | P220   | SET OF 3 EBCP 50 SECT-16 BL/BR/GR L375                     | 234-235 |
|   | P221   | EBCP 50 SECT-16 BLUE L375 CLASS II                         | 234-235 |
|   | P222   | EBCP 6-35/16 BLACK L500                                    | 232-233 |
|   | P223   | EBCP 6-35/16 BLUE L500                                     | 232-233 |
|   | P226   | EBCP P221 + YELLOW/GREEN EARTH SYSTEM L345                 | 234-235 |
|   | P227   | EBCP P221 + YELLOW/GREEN EARTH SYSTEM L800                 | 234-235 |
|   | P228   | EBCP 50 SECT-16 YELLOW/GREEN L800                          | 234-235 |
|   | P237   | HANDLE FOR FUSES SIZE 00 - SIZE 2                          | 128-129 |
|   | P237   | HANDLE FOR FUSES SIZE 00 - SIZE 2                          | 196-197 |
|   | P238   | NEUTRAL BLADE CONTACT NH2 115mm                            | 128-129 |
|   | P239   | NEUTRAL BLADE CONTACT NH2 160mm                            | 128-129 |
|   | P240   | NEUTRAL BLADE CONTACT SIZE 00                              | 126-127 |
|   | P241   | FUSE CARTRIDGE SIZE 00 AD 30A                              | 126-127 |
|   | P242   | FUSE CARTRIDGE SIZE 00 AD 45A                              | 126-127 |
|   | P243   | FUSE CARTRIDGE SIZE 00 AD 60A                              | 126-127 |
|   | P244   | FUSE CARTRIDGE SIZE 00 AD 90A                              | 126-127 |
|   | P251   | INTERIOR END EI5TF 25-35                                   | 206-207 |
|   | P336-D | AERIAL 22x58 FUSE CONNECTIONS BOX (x6) STRIPPING           | 30-31   |
|   | P336-P | AERIAL 22x58 FUSE CONNECTIONS BOX (x6) PIERCING            | 30-31   |
|   | P339-D | AERIAL 14x51 FUSE CONNECTIONS BOX (x9) STRIPPING           | 30-31   |
|   | P339-P | AERIAL 14x51 FUSE CONNECTIONS BOX (x9) PIERCING            | 30-31   |
|   | P340   | AL/CU EARTH ADAPTOR 35-25                                  | 158-159 |
|   | P414   | STREET LIGHT END CAP EE4TF 6-16                            | 46-47   |
|   | P415   | STREET LIGHT END CAP EE3TF 6-16                            | 46-47   |
|   | P419   | STREET LIGHT END CAP EE5TF 6-16                            | 46-47   |
|   | P420   | INSIDE END EI2TF 25-35 D                                   | 206-207 |
|   | P422   | INSIDE END EI5TF 25-35 D                                   | 206-207 |
|   | P424   | OUTSIDE END EE5TF 25-35 D                                  | 206-207 |
|   | P426   | AERIAL CONNECTIONS BOX (x8) STRIPPING + 1 NETWORK JUNCTION | 34-35   |
|   | P428   | SET OF 10 BLUE INTERIOR SHEATHS 40CM D                     | 206-207 |
|   | P429   | AERIAL CONNECTIONS BOX (x8) PIERCING + 1 NETWORK JUNCTION  | 34-35   |
|   | P436-D | AERIAL CONNECTIONS BOX (x6) STRIPPING                      | 28-29   |
|   | P436-P | AERIAL CONNECTIONS BOX (x6) PIERCING                       | 28-29   |
|   | P439-D | AERIAL CONNECTIONS BOX (x9) STRIPPING                      | 28-29   |
|   | P439-P | AERIAL CONNECTIONS BOX (x9) PIERCING                       | 28-29   |



**P**

|      |   |         |
|------|---|---------|
| P446 | EBCP 6-35/16 BLACK L235   | 232-233 |
| P447 | EBCP 6-35/16 BLUE L235  | 232-233 |
| P448 | EBCP 10-35/25 BLACK L190  | 232-233 |
| P449 | EBCP 10-35/25 BLUE L190   | 232-233 |
| P462 | SEAL CAP CRC RF 16-27   | 202-203 |
| P463 | SEAL CAP CRC RF 26-48   | 202-203 |
| P464 | SEAL CAP CRC RF 46-80   | 202-203 |
| P474 | COVER FOR METER AND CIRCUIT-BREAKER BOARD                               | 222-223 |
| P475 | METER AND CIRCUIT-BREAKER BOARD   | 222-223 |
| P561 | SEAL CAP CRC RF 8-16  | 202-203 |
| P620 | SET OF 2 EBCD 35-25 (1 BLACK + 1 BLUE)                                  | 236-237 |
| P621 | SET OF 4 EBCD 35-25 (3 BLACK + 1 BLUE)                                  | 236-237 |
| P641 | SEALABLE SCREW COVER (2mm diameter)                                     | 230-231 |
| P642 | SEALABLE SCREW COVER + 5x30 VBA SCREW                                   | 230-231 |
| P648 | SET OF 2 EBCP 6-35/16 (1 BLACK + 1 BLUE) L235                           | 232-233 |
| P649 | SET OF 2 EBCP 10-35/25 (1 BLACK + 1 BLUE) L190                          | 232-233 |
| P650 | SET OF 4 EBCP 10-35/25 (3 BLACK + 1 BLUE) L190                          | 232-233 |
| P651 | SET OF 4 EBCP 6-35/16 (3 BLACK + 1 BLUE) L235                           | 232-233 |
| P660 | SET OF 2 16mm <sup>2</sup> EBCPAU LINKING CABLE SINGLE 2 PIERCINGS      | 238-239 |
| P662 | SET OF 4 16mm <sup>2</sup> EBCPAU LINKING CABLE THREE-PHASE 2 PIERCINGS | 238-239 |
| P731 | EBCP 50 SECT-16 BLACK L375 CLASS II                                     | 234-235 |
| P732 | EBCP 50 SECT-16 GREY L375 CLASS II                                      | 234-235 |
| P733 | EBCP 50 SECT-16 BROWN L375 CLASS II                                     | 234-235 |

**Q**

|      |   |         |
|------|---|---------|
| Q530 | CIRCUIT BREAKER P+N 2A                                      | 226-227 |
| Q531 | CIRCUIT BREAKER P+N 10A                                     | 226-227 |
| Q532 | CIRCUIT BREAKER P+N 16A                                     | 226-227 |
| Q533 | CIRCUIT BREAKER P+N 20A                                     | 226-227 |
| Q534 | CIRCUIT BREAKER P+N 32A                                     | 226-227 |
| Q535 | CIRCUIT BREAKER P+N 3A                                      | 226-227 |
| Q540 | DIFFERENTIAL SWIFT BIPO AC 30mA 25A NF MoD                  | 226-227 |
| Q541 | DIFFERENTIAL SWIFT BIPO AC 30mA 40A NF MoD                  | 226-227 |
| Q542 | DIFFERENTIAL SWIFT BIPO AC 30mA 63A NF MoD                  | 226-227 |
| Q543 | DIFFERENTIAL SWITCHES TWO-POLE 30mA TYPE A 40A MoD          | 226-227 |
| Q544 | DIFFERENTIAL SWITCHES TWO-POLE 30mA TYPE A 63A MoD          | 226-227 |
| Q591 | DISTRIBUTION BOX WITH 1 MODULE                              | 226-227 |
| Q592 | DISTRIBUTION BOX WITH 2 MODULES                             | 226-227 |
| Q594 | DISTRIBUTION BOX WITH 4 MODULES                             | 226-227 |
| Q596 | DISTRIBUTION BOX WITH 6 MODULES                             | 226-227 |
| Q599 | DISTRIBUTION BOX WITH 9 MODULES                             | 226-227 |
| Q600 | REMIC SET OF BARS SUPPORT 300                               | 188-189 |
| Q601 | REMIC SET OF BARS SUPPORT 450                               | 188-189 |
| Q602 | REMIC SET OF BARS SUPPORT 600                               | 188-189 |
| Q603 | REMIC MODULE TYPE NETWORK RRD 50-240 (1 neutral + 3 phases) | 192-193 |

## Commercial reference index

|   | Code     | Designation   | Pages   |
|---|----------|---|---------|
| Q | Q604     | REMIC 4-TYPE INSULATION BLOC MODULE                                 | 192-193 |
|   | Q606     | REMIC MODULE TYPE FUSE SERVICE THREE PHASE 60A RBPT                 | 190-191 |
|   | Q607     | REMIC MULTITAP CONNECTION MODULE RBD (1 NEUTRAL + 3 PHASES)         | 190-191 |
|   | Q608     | REMIC MODULE TYPE FUSE SERVICE SINGLE PHASE 90A RBPM                | 190-191 |
|   | Q609     | REMIC MODULE TYPE FUSE SERVICE SINGLE PHASE 60A RBPM                | 190-191 |
|   | Q610     | REMIC MULTITAP CONNECTION MODULE SINGLE PHASE (1 NEUTRAL + 1 PHASE) | 190-191 |
|   | Q612     | REMIC MODULE TYPE NETWORK RRD 50-150 (1 neutral + 3 phases)         | 192-193 |
|   | Q613     | REMIC MODULE RRC 400A   | 194-195 |
|   | Q614     | REMIC MODULE RRCP 400A / 200A                                       | 194-195 |
|   | Q618     | REMIC STANDARD S20 CABINET FRAME                                    | 188-189 |
|   | Q619     | REMIC STANDARD S15 CABINET FRAME                                    | 188-189 |
|   | Q979     | EARTH DISTRIBUTOR AL 6 TAPS   | 158-159 |
|   | Q984     | ALUMINIUM EARTH CABLE 252 100M                                      | 158-159 |
|   | Q985     | ALUMINIUM EARTH CABLE 352 100M                                      | 158-159 |
|   | Q986     | ALUMINIUM EARTH CABLE 502 50M                                       | 158-159 |
| R | R041     | 250x550 PANEL FOR THREE PHASE METER + CIRCUIT-BREAKER WITHOUT LOGO  | 222-223 |
|   | R043     | 330x330 PANEL FOR THREE PHASE METER + CIRCUIT-BREAKER WITHOUT LOGO  | 222-223 |
|   | R092     | 250x550 PANEL FOR THREE PHASE METER + CIRCUIT-BREAKER + COVER       | 222-223 |
|   | R093     | 330x330 PANEL - THREE PHASE METER + CIRCUIT BREAKER                 | 222-223 |
|   | R112     | COVER FOR 250x550 PANEL   | 222-223 |
| U | U001_x-x | C TINNED CONNECTOR  | 146-147 |
|   | U018     | STRAIGHT CABLE AND ROUND TERMINAL LUGS 10-70                        | 146-147 |
|   | U019     | STRAIGHT CABLE AND ROUND TERMINAL LUGS 25-120                       | 146-147 |
|   | U020     | JUMPER CLAMP 6-16MM <sup>2</sup>                                    | 146-147 |
|   | U021     | JUMPER CLAMP 16-50MM <sup>2</sup>                                   | 146-147 |
|   | U022     | JUMPER CLAMP 50-95MM <sup>2</sup>                                   | 146-147 |
|   | U024     | JUMPER CLAMP 95-150MM <sup>2</sup>                                  | 146-147 |
|   | U025     | JUMPER CLAMP 150-240MM <sup>2</sup>                                 | 146-147 |
|   | U030     | TUBULAR LUG 25-29   | 146-147 |
|   | U031     | EARTH SYSTEM DISCONNECTION KIT 25-29                                | 146-147 |
|   | U034     | T SHAPE GROUND CUTTING BLADE  | 146-147 |
|   | U035     | HIGH GROUND CUTTING BLADE   | 146-147 |
|   | U036     | LOW GROUND CUTTING BLADE  | 146-147 |
|   | U050     | BARE COPPER CABLE 10MM <sup>2</sup> - 500M DRUM                     | 156-157 |
|   | U051     | BARE COPPER CABLE 16MM <sup>2</sup> - 500M DRUM                     | 156-157 |
|   | U052     | BARE COPPER CABLE 25MM <sup>2</sup> - 500M DRUM                     | 156-157 |
|   | U053     | BARE COPPER CABLE 29MM <sup>2</sup> - 500M DRUM                     | 156-157 |
|   | U054     | BARE COPPER CABLE 35MM <sup>2</sup> - 500M DRUM                     | 156-157 |
|   | U055     | BARE COPPER CABLE 50MM <sup>2</sup> - 500M DRUM                     | 156-157 |
|   | U056     | BARE COPPER CABLE 70MM <sup>2</sup> - 500M DRUM                     | 156-157 |

# U

|          |   |         |
|----------|---|---------|
| U057     | BARE COPPER CABLE 95MM <sup>2</sup> - 500M DRUM           | 156-157 |
| U058     | BARE COPPER CABLE 120MM <sup>2</sup> - 500M DRUM          | 156-157 |
| U059     | BARE COPPER CABLE 150MM <sup>2</sup> - 500M DRUM          | 156-157 |
| U060     | BARE COPPER CABLE 185MM <sup>2</sup> - 500M DRUM          | 156-157 |
| U061     | BARE COPPER CABLE 240MM <sup>2</sup> - 500M DRUM          | 156-157 |
| U062     | BARE COPPER CABLE 300MM <sup>2</sup> - 500M DRUM          | 156-157 |
| U063     | INSULATED COPPER CABLE 6MM <sup>2</sup> - 500M DRUM       | 156-157 |
| U064     | INSULATED COPPER CABLE 10MM <sup>2</sup> - 500M DRUM      | 156-157 |
| U065     | INSULATED COPPER CABLE 16MM <sup>2</sup> - 500M DRUM      | 156-157 |
| U066     | INSULATED COPPER CABLE 25MM <sup>2</sup> - 500M DRUM      | 156-157 |
| U068     | INSULATED COPPER CABLE 35MM <sup>2</sup> - 500M DRUM      | 156-157 |
| U069     | INSULATED COPPER CABLE 50MM <sup>2</sup> - 500M DRUM      | 156-157 |
| U070     | INSULATED COPPER CABLE 70MM <sup>2</sup> - 500M DRUM      | 156-157 |
| U071     | INSULATED COPPER CABLE 95MM <sup>2</sup> - 500M DRUM      | 156-157 |
| U072     | INSULATED COPPER CABLE 120MM <sup>2</sup> - 500M DRUM     | 156-157 |
| U073     | INSULATED COPPER CABLE 150MM <sup>2</sup> - 500M DRUM     | 156-157 |
| U074     | INSULATED COPPER CABLE 185MM <sup>2</sup> - 500M DRUM     | 156-157 |
| U075     | INSULATED COPPER CABLE 240MM <sup>2</sup> - 500M DRUM     | 156-157 |
| U077     | COPPER TAPE 20X3 L=100M                                   | 156-157 |
| U078     | COPPER TAPE 25X3 *  | 156-157 |
| U080     | COPPER BONDED STEEL TAPE 20X3 L=60M                       | 156-157 |
| U081     | COPPER BONDED STEEL TAPE 25X3 L=40M                       | 156-157 |
| U082     | COPPER BONDED STEEL TAPE 25X4 L=30M                       | 156-157 |
| U083     | COPPER BONDED STEEL TAPE 30X3 L=40M                       | 156-157 |
| U084     | COPPER BONDED STEEL TAPE 30X4 L=30M                       | 156-157 |
| U085     | COPPER BONDED STEEL TAPE 40X4 L=20M                       | 156-157 |
| U086     | TINNED COPPER BONDED STEEL TAPE 20X3 L=60M                | 156-157 |
| U087     | TINNED COPPER BONDED STEEL TAPE 25X3 L=40M                | 156-157 |
| U088     | TINNED COPPER BONDED STEEL TAPE 25X4 L=30M                | 156-157 |
| U089     | TINNED COPPER BONDED STEEL TAPE 30X3 L=40M                | 156-157 |
| U090     | TINNED COPPER BONDED STEEL TAPE 30X4 L=30M                | 156-157 |
| U091     | TINNED COPPER BONDED STEEL TAPE 40X4 L=30M                | 156-157 |
| U094-50  | TINNED COPPER TAPE 30X2 L = 50M                           | 156-157 |
| U094-100 | TINNED COPPER TAPE 30X2 L = 100M                          | 156-157 |
| U100-4   | GALVANIZED STEEL TAPE 30x4 L=50M                          | 156-157 |
| U101-4   | GALVANIZED STEEL TAPE 40x4 L=38M                          | 156-157 |
| U175     | EARTH ROD COPPER AUTO-EXTENDABLE 250µm L = 1m DIAM 14     | 142-143 |
| U176     | EARTH ROD COPPER AUTO-EXTENDABLE 250µm L = 1,5m DIAM 14   | 142-143 |
| U177     | EARTH ROD COPPER AUTO-EXTENDABLE 250µm L = 2m DIAM 14     | 142-143 |
| U178     | EARTH ROD COPPER AUTO-EXTENDABLE 250µm L = 1m DIAM 17.2   | 142-143 |
| U179     | EARTH ROD COPPER AUTO-EXTENDABLE 250µm L = 1,5m DIAM 17.2 | 142-143 |
| U180     | EARTH ROD COPPER AUTO-EXTENDABLE 250µm L = 2m DIAM 17.2   | 142-143 |
| U181     | EARTH ROD COPPER AUTO-EXTENDABLE 350µm L = 1m DIAM 17.2   | 142-143 |

## Commercial reference index

|   | Code | Designation   | Pages   |
|---|------|---|---------|
| U | U182 | EARTH ROD COPPER AUTO-EXTENDABLE 350µm L = 1,5m DIAM 17.2 | 142-143 |
|   | U183 | EARTH ROD COPPER AUTO-EXTENDABLE 350µm L = 2m DIAM 17.2   | 142-143 |
|   | U184 | COPPER EARTH PLATE 500X500X2                              | 144-145 |
|   | U185 | COPPER EARTH PLATE 500X500X3                              | 144-145 |
|   | U186 | COPPER EARTH PLATE 500X1000X2                             | 144-145 |
|   | U187 | COPPER EARTH PLATE 500X1000X3                             | 144-145 |
|   | U188 | COPPER EARTH GRID 1000X1000X2                             | 144-145 |
|   | U189 | COPPER EARTH GRID 2000X1000X2                             | 144-145 |
|   | U190 | COPPER EARTH GRID 3000X1000X2                             | 144-145 |
|   | U192 | CONNECTION BOLT AND NUT ROD CROSS-SHAPED                  | 142-143 |
|   | U193 | EARTHING ROD ROUND TERMINAL LUG M8 - 25 MM²               | 142-143 |
|   | U194 | EARTHING ROD ROUND TERMINAL LUG M8 - 50 MM²               | 142-143 |
|   | U195 | EARTH ROD GALVA L = 1M DIAM 16                            | 142-143 |
|   | U196 | EARTH ROD GALVA L = 1.5M DIAM 16                          | 142-143 |
|   | U197 | EARTH ROD GALVA L = 2M DIAM 16                            | 142-143 |
|   | U198 | EARTH ROD GALVA L = 1.5M DIM 50X50X3                      | 142-143 |
|   | U199 | EARTH ROD GALVA L = 1M DIAM 25                            | 142-143 |
|   | U200 | EARTH ROD GALVA L = 1.5M DIAM 25                          | 142-143 |
|   | U201 | EARTH ROD GALVA L = 2m DIAM 25                            | 142-143 |
|   | U203 | EARTH ROD COPPER 50µm L = 1m DIAM 12.7                    | 138-139 |
|   | U204 | EARTH ROD COPPER 50µm L = 1.5m DIAM 12.7                  | 138-139 |
|   | U205 | EARTH ROD COPPER 50µm L = 2m DIAM 12.7                    | 138-139 |
|   | U206 | EARTH ROD COPPER 254µm L = 1m DIAM 14                     | 138-139 |
|   | U207 | EARTH ROD COPPER 254µm L = 3m DIAM 14                     | 138-139 |
|   | U208 | EARTH ROD COPPER 254µm L = 1m DIAM 17.2                   | 138-139 |
|   | U209 | EARTH ROD COPPER 254µm L = 1.5m DIAM 17.2                 | 138-139 |
|   | U210 | EARTH ROD COPPER 254µm L = 2m DIAM 17.2                   | 138-139 |
|   | U211 | EARTH ROD COPPER 254µm L = 3m DIAM 17.2                   | 138-139 |
|   | U212 | EARTH ROD COPPER 350µm L = 1m DIAM 17.2                   | 138-139 |
|   | U213 | EARTH ROD COPPER 350µm L = 1.5m DIAM 17.2                 | 138-139 |
|   | U214 | EARTH ROD COPPER 350µm L = 2m DIAM 17.2                   | 138-139 |
|   | U215 | EARTH ROD COPPER 50µm L = 1m DIAM 12.7 - 2 THREADS 1/2"   | 140-141 |
|   | U216 | EARTH ROD COPPER 50µm L = 2m DIAM 12.7 - 2 THREADS 1/2"   | 140-141 |
|   | U217 | EARTH ROD COPPER 50µm L = 1m DIAM 14 - 2 THREADS 5/8"     | 140-141 |
|   | U218 | EARTH ROD COPPER 254µm L = 1m DIAM 14 - 2 THREADS 5/8"    | 140-141 |
|   | U219 | EARTH ROD COPPER 254µm L = 3m DIAM 14 - 2 THREADS 5/8"    | 140-141 |
|   | U220 | EARTH ROD COPPER 254µm L = 1m DIAM 17.2 - 2 THREADS 3/4"  | 140-141 |
|   | U221 | EARTH ROD COPPER 254µm L = 2m DIAM 17.2 - 2 THREADS 3/4"  | 140-141 |
|   | U222 | EARTH ROD COPPER 254µm L = 3m DIAM 17.2 - 2 THREADS 3/4"  | 140-141 |
|   | U223 | EARTH ROD COPPER 350µm L = 1m DIAM 17.2 - 2 THREADS 3/4"  | 140-141 |

# U

|           |  |         |
|-----------|--|---------|
| U224      | EARTH ROD COPPER 350µm L = 1.5m DIAM 17.2 - 2 THREADS 3/4" | 140-141 |
| U225      | EARTH ROD COPPER 350µm L = 2m DIAM 17.2 - 2 THREADS 3/4"   | 140-141 |
| U226      | DRIVING SPIKE FOR ROD DIAM 17.2 THREADED                   | 140-141 |
| U227      | DRIVING HEAD FOR ROD DIAM 12.7                             | 138-139 |
| U227      | DRIVING HEAD FOR ROD DIAM 12.7                             | 140-141 |
| U228      | SCREW FOR COUPLING FOR ROD DIAM 12.7 THREAD 1/2"           | 140-141 |
| U229      | SCREW FOR COUPLING FOR ROD DIAM 17.2 THREAD 3/4"           | 140-141 |
| U230      | EARTH ROD COPPER 100µm L = 1m DIAM 14                      | 138-139 |
| U231      | EARTH ROD COPPER 100µm L = 1.5m DIAM 14                    | 138-139 |
| U232      | EARTH ROD COPPER 100µm L = 2m DIAM 14                      | 138-139 |
| U233      | EARTH ROD COPPER 100µm L = 1m DIAM 17.2                    | 138-139 |
| U234      | EARTH ROD COPPER 100µm L = 1.5m DIAM 17.2                  | 138-139 |
| U235      | EARTH ROD COPPER 100µm L = 2m DIAM 17.2                    | 138-139 |
| U236      | EARTH ROD COPPER 100µm L = 1m DIAM 14 - 2 THREADS 5/8"     | 140-141 |
| U237      | EARTH ROD COPPER 100µm L = 1m DIAM 17.2 - 2 THREADS 3/4"   | 140-141 |
| U238      | EARTH ROD COPPER 100µm L = 1.5m DIAM 17.2 - 2 THREADS 3/4" | 140-141 |
| U239      | EARTH ROD COPPER 100µm L = 2m DIAM 17.2 - 2 THREADS 3/4"   | 140-141 |
| U248      | EARTHING BRACKET   | 150-151 |
| U250      | FUSE CARTRIDGE NH1 63A 115mm                               | 128-129 |
| U251      | FUSE CARTRIDGE NH1 80A 115mm                               | 128-129 |
| U252      | FUSE CARTRIDGE NH1 100A 115mm                              | 128-129 |
| U253      | FUSE CARTRIDGE NH1 125A 115mm                              | 128-129 |
| U254      | FUSE CARTRIDGE NH1 160A 115mm                              | 128-129 |
| U255      | FUSE CARTRIDGE NH1 200A 115mm                              | 128-129 |
| U256      | FUSE CARTRIDGE NH1 250A 115mm                              | 128-129 |
| U257      | FUSE CARTRIDGE NH2 125A 115mm                              | 128-129 |
| U258      | FUSE CARTRIDGE NH2 200A 115mm                              | 128-129 |
| U259      | FUSE CARTRIDGE NH2 250A 115mm                              | 128-129 |
| U260      | FUSE CARTRIDGE NH2 315A 115mm                              | 128-129 |
| U261      | FUSE CARTRIDGE NH2 400A 115mm                              | 128-129 |
| U262      | FUSE CARTRIDGE NH2 160A 115 mm                             | 128-129 |
| U263      | FUSE CARTRIDGE NH2 224A 115 mm                             | 128-129 |
| U264      | FUSE CARTRIDGE NH2 335A 115 mm                             | 128-129 |
| U339-xx   | IRO TUBE DIAM xx (3m length) + JUNCTION SLEEVE IRO DIAM xx | 214-215 |
| U340_xx   | SLEEVE FOR IRO TUBE DIAM xx                                | 214-215 |
| U342_xx   | T-SLEEVE FOR IRO TUBE DIAM xx                              | 214-215 |
| U343_xx   | ELBOW 90° FOR IRO TUBE DIAM xx                             | 214-215 |
| U344_xx   | MOUNTING BRACKET IRO TUBE DIAM xx                          | 214-215 |
| U345_xx   | TPC SHEATH DRUM 50M LENGTH DIAM xx                         | 200-201 |
| U346_xx   | TPC SHEATH TUBE 6M LENGTH DIAM xx                          | 200-201 |
| U347_xx   | TPC SHEATH JUNCTION SLEEVE DIAM xx                         | 200-201 |
| U348_xx-x | TPC SHEATH SEPARATOR DIAM xx-x                             | 200-201 |
| U349_xx   | TPC SHEATH END CAP DIAM xx                                 | 200-201 |

## Commercial reference index

|   | Code            | Designation  | Pages   |
|---|-----------------|--|---------|
| U | U356-xx         | OVERHEAD SWIVEL DIAMETER xx                              | 260-261 |
|   | U357-xx         | OVERHEAD PULLING GRIP SINGLE EYE DIAMETER xx             | 260-261 |
|   | U358-xx         | OVERHEAD PULLING GRIP DOUBLE EYE DIAMETER xx             | 260-261 |
|   | U359-xx         | OVERHEAD PULLING GRIP GALVA                              | 260-261 |
|   | U400            | RING CONNECTOR 25-95 / 25-95                             | 94-95   |
|   | U433            | WOOD SCREWS (X100)                                       | 230-231 |
|   | U434            | GALVANISED LAG SCREW DIN 571 DIAMETER x LENGTH           | 88-89   |
|   | U435_xx-xx      | BOLTS BH   | 88-89   |
|   | U437_xx         | WASHERS xx (BATCH OF 100)                                | 88-89   |
|   | U438_HMxx       | NUTS HMxx (BATCH OF 100)                                 | 88-89   |
|   | U439_xx-1000    | THREADED SHAFTS TF xx-1000 (100 pieces)                  | 88-89   |
|   | U480_12-110     | PIGTAIL BOLT BQC 12x110 WITH 2 SCREWS                    | 86-87   |
|   | U480_12-110-CH  | PIGTAIL BOLT BQC 12x110 WITH 1 DOWEL                     | 86-87   |
|   | U480_12-200     | PIGTAIL BOLT BQC 12x200 WITH 2 SCREWS                    | 86-87   |
|   | U480_12-250     | PIGTAIL BOLT BQC 12x250 WITH 2 SCREWS                    | 86-87   |
|   | U480_12-300     | PIGTAIL BOLT BQC 12x300 WITH 2 SCREWS                    | 86-87   |
|   | U480_12-35      | PIGTAIL BOLT BQC 12x35 WITH 1 SCREW                      | 86-87   |
|   | U480_12-350     | PIGTAIL BOLT BQC 12x350 WITH 2 SCREWS                    | 86-87   |
|   | U480_12-55      | PIGTAIL BOLT BQC 12x55 WITH 1 SCREW                      | 86-87   |
|   | U480_14-250     | PIGTAIL BOLT BQC 14x250 WITH 2 SCREWS                    | 86-87   |
|   | U480_14-300     | PIGTAIL BOLT BQC 14x300 WITH 2 SCREWS                    | 86-87   |
|   | U480_14-350     | PIGTAIL BOLT BQC 14x350 WITH 2 SCREWS                    | 86-87   |
|   | U495_45-45-4000 | WALL POLE 45x45x4000                                     | 86-87   |
|   | U495-1500       | WALL POLE 50x50x1500                                     | 86-87   |
|   | U495-2000       | WALL POLE 50x50x2000                                     | 86-87   |
|   | U495-2500       | WALL POLE 50x50x2500                                     | 86-87   |
|   | U495-3000       | WALL POLE 50x50x3000                                     | 86-87   |
|   | U496-1100       | SEALING TYPE BRACKET 1100                                | 86-87   |
|   | U496-350        | SEALING TYPE BRACKET 350                                 | 86-87   |
|   | U496-500        | SEALING TYPE BRACKET 500                                 | 86-87   |
|   | U497-50         | ROUND FLANGE 50  | 86-87   |
|   | U499-45         | U-BOLT FOR SEALING - 45                                  | 86-87   |
|   | U500_4x25       | SERVICE ANCHORING CLAMP GS - PA 25                       | 78-79   |
|   | U510            | ANCHORING CLAMP WITH MOVABLE HANDLE (NUT) 2x10-25        | 80-81   |
|   | U511            | ANCHORING CLAMP WITH MOVABLE HANDLE (NUT) 4x10-25        | 80-81   |
|   | U512            | ANCHORING CLAMP WITH CLOSED HANDLE 2x16-35               | 80-81   |
|   | U513            | ANCHORING CLAMP WITH CLOSED HANDLE 4x16-35               | 80-81   |
|   | U514            | FULLY SUPPORTED ANCHORING CLAMP OPENED HANDLE 4x25-50 EC | 80-81   |
|   | U515            | FULLY SUPPORTED ANCHORING CLAMP OPENED HANDLE 4x50-95 EC | 80-81   |
|   | U516            | FULLY SUPPORTED ANCHORING CLAMP CLOSED HANDLE 4x35-70 EC | 80-81   |



# U

|            |   |         |
|------------|---|---------|
| U517       | FULLY SUPPORTED ANCHORING CLAMP CLOSED HANDLE 4x70-120 EC | 80-81   |
| U518       | FULLY SUPPORTED SUSPENSION CLAMP 4x10-120                 | 80-81   |
| U519       | PINCE DE SUSPENSION AUTOPORTÉE 2/4 (25-120) 30°           | 76-77   |
| U520       | BRACKET WITH HOOK DIAM 16 6 POLE TYPE                     | 80-81   |
| U521       | BRACKET WITH HOOK DIAM 16 6 UNIVERSAL                     | 80-81   |
| U522       | HOOK BOLT DIAM 16 -250                                    | 80-81   |
| U523       | HOOK BOLT DIAM 20 -250                                    | 80-81   |
| U524       | HOOK NUT DIAM 16  | 80-81   |
| U525       | HOOK NUT DIAM 20  | 80-81   |
| U526       | BRACKET WITH SUSPENSION HOOK DIAM 16 -1800 daN            | 80-81   |
| U527       | BRACKET WITH SUSPENSION HOOK DIAM 16 -2000 daN            | 80-81   |
| U528       | BLACK FLEXIBLE END CAP 16-95                              | 66-67   |
| U553_xx-xx | BIMETAL LUG CAL xxmm <sup>2</sup> - DIAM xx               | 64-65   |
| U558-X     | PARALLEL GROOVE CLAMP BARE X                              | 42-43   |
| U559-70/50 | PARALLEL GROOVE CLAMP BARE Al/Cu 70/50                    | 42-43   |
| U580       | NJAS 95 - 50/70-54  | 184-185 |
| U581       | NJAS 95 - 50/70-70N                                       | 184-185 |
| U582       | NJAS 95 - 50/150-70N                                      | 184-185 |
| U583       | NJAS 95 - 70/70-54  | 184-185 |
| U584       | NJAS 150 - 70/70-70N                                      | 184-185 |
| U585       | NJAS 150 - 70/150-70N                                     | 184-185 |
| U586       | NJAS 240 - 95/70-54                                       | 184-185 |
| U587       | NJAS 240 - 95/70-70N                                      | 184-185 |
| U588       | NJAS 240 - 95/150-70N                                     | 184-185 |
| U589       | NJAS 150-70N / 70-54.6                                    | 184-185 |
| U590       | PROTECTION PLATE ROLL (width 120mm)                       | 198-199 |
| U591       | PROTECTION PLATE ROLL (width 160mm)                       | 198-199 |
| U592       | PROTECTION PLATE ROLL (width 180mm)                       | 198-199 |
| U593       | PROTECTION PLATE ROLL (width 240mm)                       | 198-199 |
| U594       | PROTECTION PLATE ROLL (width 300mm)                       | 198-199 |
| U606       | CUTOUT CABINET 30A TETRAPOLAR                             | 228-229 |
| U607       | CUTOUT CABINET 60A BIPOLAR                                | 228-229 |
| U607-T     | CUTOUT 60A BIPOLAR  | 218-219 |
| U608       | CUTOUT CABINET 60A TETRAPOLAR                             | 228-229 |
| U608-T     | CUTOUT 60A TETRAPOLAR                                     | 218-219 |
| U609       | UNIPOLAR CUTOUT 22x58                                     | 218-219 |
| U610       | FUSE CARTRIDGE 22x58 AD 15A                               | 126-127 |
| U611       | FUSE CARTRIDGE 22x58 AD 30A                               | 126-127 |
| U612       | FUSE CARTRIDGE 22x58 AD 45A                               | 126-127 |
| U613       | FUSE CARTRIDGE 22x58 AD 60A                               | 126-127 |
| U614       | FUSE CARTRIDGE 22x58 AD 90A                               | 126-127 |
| U615       | FUSE CARTRIDGE 14x51 AD 15A                               | 126-127 |
| U616       | FUSE CARTRIDGE 14x51 AD 30A                               | 126-127 |

## Commercial reference index

|   | Code    | Designation                                 | Pages              |
|---|---------|---|--------------------|
| U | U617    | FUSE CARTRIDGE 14x51 AD 45A                 | 126-127            |
|   | U618    | FUSE CARTRIDGE 10.3X38 AD 5A                | 126-127            |
|   | U619    | FUSE CARTRIDGE 10.3X38 AD 10A               | 126-127            |
|   | U620    | NEUTRAL TUBE 10.3x38                        | 124-125<br>126-127 |
|   | U621    | NEUTRAL TUBE 14x51                          | 124-125<br>126-127 |
|   | U622    | NEUTRAL TUBE 22x58                          | 124-125<br>126-127 |
|   | U623    | FUSE CARTRIDGE 10.3x38 AD 15A               | 126-127            |
|   | U635    | INTEGRATED MODULAR BOX - 8 MODULES          | 226-227            |
|   | U636    | INTEGRATED MODULAR BOX - 12 MODULES         | 226-227            |
|   | U637    | INTEGRATED MODULAR BOX - 24 MODULES (12x2)  | 226-227            |
|   | U638    | INTEGRATED MODULAR BOX - 36 MODULES (12x3)  | 226-227            |
|   | U640    | FUSE CARTRIDGE 22x58 gG 2A                  | 124-125            |
|   | U641    | FUSE CARTRIDGE 22x58 gG 4A                  | 124-125            |
|   | U642    | FUSE CARTRIDGE 22x58 gG 6A                  | 124-125            |
|   | U643    | FUSE CARTRIDGE 22x58 gG 8A                  | 124-125            |
|   | U644    | FUSE CARTRIDGE 22x58 gG 10A                 | 124-125            |
|   | U645    | FUSE CARTRIDGE 22x58 gG 12A                 | 124-125            |
|   | U646    | FUSE CARTRIDGE 22x58 gG 16A                 | 124-125            |
|   | U647    | FUSE CARTRIDGE 22x58 gG 20A                 | 124-125            |
|   | U648    | FUSE CARTRIDGE 22x58 gG 25A                 | 124-125            |
|   | U649    | FUSE CARTRIDGE 22x58 gG 32A                 | 124-125            |
|   | U650    | FUSE CARTRIDGE 22x58 gG 40A                 | 124-125            |
|   | U651    | FUSE CARTRIDGE 22x58 gG 50A                 | 124-125            |
|   | U652    | FUSE CARTRIDGE 22x58 gG 63A                 | 124-125            |
|   | U653    | FUSE CARTRIDGE 22x58 gG 80A                 | 124-125            |
|   | U654    | FUSE CARTRIDGE 22x58 gG 100A                | 124-125            |
|   | U655    | FUSE CARTRIDGE 22x58 gG 125A                | 124-125            |
|   | U660-x  | FUSE CARTRIDGE 14x51 gG xA                  | 124-125            |
|   | U661-x  | FUSE CARTRIDGE 10.3x38 xA                   | 124-125            |
|   | U664-xx | FUSE CARTRIDGE NH00 gG 500V xxA             | 128-129            |
|   | U665    | NEUTRAL BLADE CONTACT NH00                  | 128-129            |
|   | U701    | DIN CABINET FOR 6 STEPS REMIC GRID          | 186-187            |
|   | U702    | DIN CABINET FOR 9 STEPS REMIC GRID          | 186-187            |
|   | U703    | DIN CABINET FOR 12 STEPS REMIC GRID         | 186-187            |
|   | U704-xx | STAINLESS STEEL TIE 4.6xXX (batch of 100)   | 84-85              |
|   | U705-xx | STAINLESS STEEL TIE 7.9xXX (batch of 100)   | 84-85              |
|   | U708    | PLASTIC CABLE TIE ROLL 30 m                 | 84-85              |
|   | U709    | PLASTIC BUCKLE FOR PLASTIC CABLE TIE (x100) | 84-85              |

# U

|         |   |         |
|---------|---|---------|
| U710    | TOOL FOR PLASTIC CABLE TIE                            | 84-85   |
| U740    | TUBULAR LUG 1,5 <sup>2</sup>                          | 64-65   |
| U741    | TUBULAR LUG 2.5 <sup>2</sup>                          | 64-65   |
| U742    | TUBULAR LUG 4 <sup>2</sup>                            | 64-65   |
| U743    | TUBULAR LUG 6 <sup>2</sup>                            | 64-65   |
| U744    | TUBULAR LUG 10 <sup>2</sup>                           | 64-65   |
| U745    | TUBULAR LUG 16 <sup>2</sup>                           | 64-65   |
| U746    | TUBULAR LUG 25 <sup>2</sup>                           | 64-65   |
| U747    | TUBULAR LUG 35 <sup>2</sup>                           | 64-65   |
| U748    | TUBULAR LUG 50 <sup>2</sup>                           | 64-65   |
| U749    | TUBULAR LUG 70 <sup>2</sup>                           | 64-65   |
| U750    | TUBULAR LUG 95 <sup>2</sup>                           | 64-65   |
| U751    | TUBULAR LUG 120 <sup>2</sup>                          | 64-65   |
| U752    | TUBULAR LUG 150 <sup>2</sup>                          | 64-65   |
| U753    | TUBULAR LUG 185 <sup>2</sup>                          | 64-65   |
| U754    | TUBULAR LUG 240 <sup>2</sup>                          | 64-65   |
| U756    | TUBULAR LUG 400 <sup>2</sup>                          | 64-65   |
| U801    | EXTENSION FOR INSULATED RATCHET SPANNER               | 196-197 |
| U803-xx | HEXAGONAL SOCKET FOR INSULATED RATCHET SPANNER - xxMM | 196-197 |
| U803-xA | INSULATED SOCKET WRENCH - xMM                         | 196-197 |
| U804    | REMIC's INSULATED TOOLS KIT                           | 196-197 |
| U810-x  | UNIVERSAL PLIER 1000V                                 | 266-267 |
| U810-10 | PLIER FOR INSULATED TERMINALS                         | 266-267 |
| U810-11 | WATER PUMP PLIER                                      | 266-267 |
| U810-12 | SET OF 3 PLIERS 1000V                                 | 266-267 |
| U810-5  | PHONE PLIER 1000V                                     | 266-267 |
| U810-6  | CURVED PHONE PLIER 1000V                              | 266-267 |
| U810-7  | DIAGONAL CUTTING PLIER 1000V                          | 266-267 |
| U810-8  | STRENGTHENED CUTTING PLIER 1000V                      | 266-267 |
| U810-9  | STRIPPING PLIER 1000V                                 | 266-267 |
| U811-1  | CABLE CUTTER 1000V                                    | 266-267 |
| U811-x  | CABLE CUTTER WITH PAWL DIAM xx 1000V                  | 266-267 |
| U811-5  | BIG BREACH SCISSORS 1000V                             | 266-267 |
| U811-6  | ANGLED KNIFE 1000V                                    | 266-267 |
| U811-7  | CUTTING PLIER FOR PLASTIC SADDLES                     | 266-267 |
| U811-8  | PLASTIC PIPE CUTTER 1000V                             | 266-267 |
| U812-x  | ELECTRICIAN SET xx PCS 1000V                          | 268-269 |
| U812-4  | ELECTRICIAN TOOLINGS SET 5 PCS 1000V                  | 268-269 |
| U812-5  | RATCHET WRENCH AND SOCKETS SET 3/8" 10 PCS 1000V      | 268-269 |
| U813-1  | DIGITAL MULTIMETER                                    | 268-269 |
| U813-2  | CLAMP MULTIMETER 400A                                 | 268-269 |
| U813-21 | CLAMP MULTIMETER 1000A                                | 268-269 |
| U813-3  | DIGITAL TESTER 220V                                   | 268-269 |

## Commercial reference index

|   | Code   | Designation   | Pages   |
|---|--------|---|---------|
| U | U814-1 | MONKEY WRENCH 10" 1000V                                   | 264-265 |
|   | U814-2 | MONKEY WRENCH 12" 1000V                                   | 264-265 |
|   | U814-3 | SET OF 10 SPHERICAL HEAD HEX KEYS                         | 264-265 |
|   | U814-4 | INSULATED TORQUE WRENCH 3/8" - 50NM                       | 196-197 |
|   | U815-1 | SET OF 6 SCREWDRIVERS 1000V                               | 262-263 |
|   | U815-2 | SET OF 6 SCREWDRIVERS                                     | 262-263 |
|   | U815-3 | SET OF 7 SCREWDRIVERS TORX                                | 262-263 |
|   | U815-4 | FLAT SCREWDRIVER 1000V 6,5x150                            | 262-263 |
|   | U815-5 | CROSS-HEADED SCREWDRIVER - PH-1                           | 262-263 |
|   | U826   | HIGH-TOP DIELECTRIC SAFETY SHOES                          | 254-255 |
|   | U827   | DIELECTRIC SAFETY SHOES                                   | 254-255 |
|   | U828   | HIGH-TOP SAFETY SHOES                                     | 254-255 |
|   | U829   | SAFETY SHOES  | 254-255 |
|   | U830-1 | BASIC HELMET  | 248-249 |
|   | U830-2 | HELMET WITH TOOTH WHEEL                                   | 248-249 |
|   | U830-3 | CHIN STRAP WITHOUT CHIN REST                              | 248-249 |
|   | U830-4 | CHIN STRAP WITH CHIN REST                                 | 248-249 |
|   | U831-1 | PROTECTION GLASSES  | 248-249 |
|   | U831-2 | PROTECTION GLASSES TINTED - UV FILTER                     | 248-249 |
|   | U831-3 | PROTECTION OVER GLASSES                                   | 248-249 |
|   | U831-4 | PROTECTION MASK   | 248-249 |
|   | U831-5 | FACE SHIELD - IMPACT PROTECTION                           | 248-249 |
|   | U831-6 | FACE SHIELD - ELECTRIC ARC PROTECTION                     | 248-249 |
|   | U832-1 | FILTERING HALF MASK WITHOUT VALVE - FFP1                  | 248-249 |
|   | U832-2 | FILTERING HALF MASK WITH VALVE - FFP2                     | 248-249 |
|   | U833-1 | PROTECTIVE NITRILE GLOVES                                 | 246-247 |
|   | U833-2 | PROTECTIVE LEATHER GLOVES                                 | 246-247 |
|   | U834-1 | BASIC HARNESS KIT (HARNESS + TETHER + 2 CARABINERS + BAG) | 250-251 |
|   | U834-2 | DIELECTRIC FALL ARREST HARNESS                            | 250-251 |
|   | U834-3 | DIELECTRIC FALL ARREST AND SUPPORT HARNESS                | 250-251 |
|   | U834-6 | WAIST HARNESS   | 250-251 |
|   | U835-1 | WORK POSITIONNING BELT                                    | 250-251 |
|   | U835-2 | WORK POSITIONNING BELT (BELT + ROPE + CARABINER)          | 250-251 |
|   | U836-1 | POLYAMIDE ROPE - 10 METERS                                | 250-251 |
|   | U836-2 | POLYAMIDE ROPE - 20 METERS                                | 250-251 |
|   | U836-3 | GUIDED TYPE FALL ARRESTERS                                | 250-251 |
|   | U836-4 | CARABINER   | 250-251 |
|   | U837-1 | Y TETHER WITH CARABINERS AND ENERGY ABSORBER              | 250-251 |
|   | U837-2 | SIMPLE TETHER WITH CARABINERS AND ENERGY ABSORBER         | 250-251 |

# U

|         |  |         |
|---------|--|---------|
| U837-3  | SIMPLE TETHER WITH CARABINERS AND ENERGY ABSORBER - DIELECTRIC | 250-251 |
| U837-4  | Y TETHER WITH CARABINERS                                       | 250-251 |
| U837-5  | SIMPLE TETHER WITH CARABINERS                                  | 250-251 |
| U837-6  | SIMPLE TETHER  | 250-251 |
| U837-7  | SIMPLE ADJUSTABLE TETHER                                       | 250-251 |
| U837-8  | SIMPLE ADJUSTABLE TETHER WITH CARABINERS - DIELECTRIC          | 250-251 |
| U838-1  | TIE-OFF  | 250-251 |
| U838-2  | TIE-OFF - DIELECTRIC   | 250-251 |
| U838-3  | ANCHORING POINT  | 250-251 |
| U838-4  | HANGING RING   | 250-251 |
| U840-x  | INSULATING MAT CLASS X - 1x1m                                  | 252-253 |
| U841-x  | INSULATING LADDER Xm   | 252-253 |
| U842    | DARK ADHESIVE TAPE ROLL 33m x 19mm ISO ADH                     | 268-269 |
| U843    | DARK ADHESIVE TAPE ROLL 10m x 15mm                             | 268-269 |
| U843-B  | BLUE ADHESIVE TAPE ROLL 10m x 15mm                             | 268-269 |
| U843-R  | RED ADHESIVE TAPE ROLL 10m x 15mm                              | 268-269 |
| U843-VJ | GREEN YELLOW ADHESIVE TAPE ROLL 10m x 15mm                     | 268-269 |
| U850-x  | SINGLE ENDED OPEN JAW SPANNER WRENCH 1000 V                    | 264-265 |
| U851-x  | RING RATCHET WRENCH 1000 V                                     | 264-265 |
| U955-10 | REINFORCED BUCKLES FOR 10mm STRAP - 3/8" (x100)                | 72-73   |
| U955-13 | REINFORCED BUCKLES FOR 13mm STRAP - 1/2" (x100)                | 72-73   |
| U955-16 | REINFORCED BUCKLES FOR 16mm STRAP - 5/8" (x100)                | 72-73   |
| U955-20 | REINFORCED BUCKLES FOR 20mm STRAP - 3/4" (x100)                | 72-73   |

# RECOMMENDATIONS FOR PRODUCTS USE

## 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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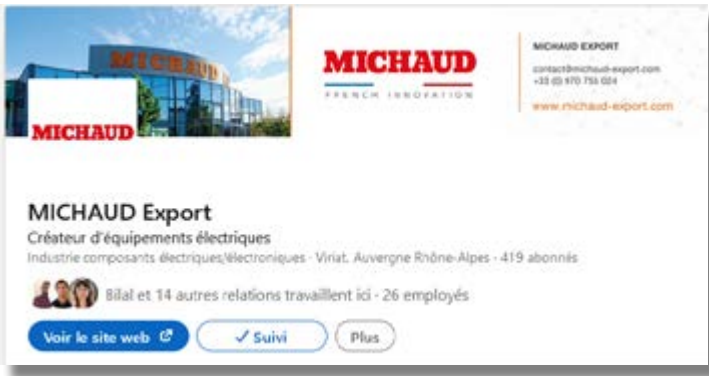
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