



**cosmos<sup>®</sup>**  
lossless power transmission

SAFETY CATALOGUE 2016



**OFFICE AND WAREHOUSE**

Boundary Road HNO 3 Sigma  
Square East Lagon /Accra - Ghana  
Tel. +233 500 590 000  
Fax. +233 500 590 000  
[info@cosmoscable.com](mailto:info@cosmoscable.com)

**İSTANBUL OFFICE**

Perpa Elektrokent Trade Center  
A-11 No: 1676 ŞİŞLİ / İSTANBUL  
Tel. +90 212 688 0 886  
Tel. +90 542 557 45 80

[www.cosmoscable.com](http://www.cosmoscable.com)





# EDGEMOS<sup>®</sup>

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## PERSONAL PROTECTION EQUIPMENT

- ✓ *Gloves and accessories*
- ✓ *Individual protection equipment*
- ✓ *Harnesses and belts*
- ✓ *Lifeline set*
- ✓ *Work accessories*

SA



# SAFETY

Because life is the most important value

SAFETY

# GLOVES

## PERSONAL PROTECTION EQUIPMENT

### Mod. SG

#### Latex insulated gloves



The natural latex base has excellent dielectric properties. The thicker the glove, the greater the electrical resistance. The ergonomic design provides comfort and a smoother feel, and allows the glove to be put on and taken off very easily.

Insulated gloves are one of the most important pieces of PPE for working in the electrical sector. They are the first line of defence for contact with any live component or cable.

#### USE:

Electrical production, transport, transformation and distribution, railways, telecommunications, construction, maintenance in industry, solar panels, hybrid car batteries, etc.

#### RECOMMENDATIONS:

Latex insulated gloves are recommended, together with a suitable leather overglove, to provide mechanical protection against abrasions, cuts, tears and perforations. The natural latex glove is available in beige.

Other sizes under request.

CE IEC 60903  
EN 60903

SPECIFICATIONS / TECHNICAL DATA								
Code	Ref.	Class	Size	Length (mm)	Categories	Working Voltage (V) max.	Proof test Voltage (V) max.	Withstand Voltage (V) max.
530110 530120	SG-25 T9 SG-25 T10	00	9 10	360	AZC	500 V AC	2.500 V AC	5.000 V AC
530150 530160	SG-50 T9 SG-50 T10	0	9 10		RC	1.000 V AC	5.000 V AC	10.000 V AC
530190 530200	SG-10 T9 SG-10 T10	1	9 10		RC	7.500 V AC	10.000 V AC	20.000 V AC
530230 530240	SG-20 T9 SG-20 T10	2	9 10		RC	17.000 V AC	20.000 V AC	30.000 V AC
530270 530280	SG-30 T9 SG-30 T10	3	9 10		RC	26.500 V AC	30.000 V AC	40.000 V AC
530320 530330	SG-40 T10 SG-40 T11	4	10 11	410	RC	36.000 V AC	40.000 V AC	50.000 V AC

Meaning of letters in 'Categories': A: Acid / Z: Ozone / H: Oil / C: Very low temperature / R: A+Z+H resistance.

#### MECHANICAL AND THERMAL REQUIREMENTS

- Average tensile strength:  $\geq 16$  MPa
- Average elongation at break:  $\geq 600\%$
- Puncture resistance:  $\geq 18$  N/mm
- Tension set:  $\leq 15\%$

- Resistance to low temperature: conditioning of gloves for 1 hour at  $-25 \pm 3^\circ\text{C}$ .
- Flame-retardant test: Application of a flame for 10 seconds at a finger tip.

# GLOVES

## PERSONAL PROTECTION EQUIPMENT

### Mod. SGM

#### Dielectric composite gloves



Composite insulated gloves provide electrical, mechanical and arc-flash protection, and as such do not need to be combined with any other kind of glove.

They have been tested against abrasions, cuts, perforations and tears. This is a thick, smooth glove designed to enable electricians to work in comfort, even when handling very small parts. Chlorinated version available to facilitate fitting or removal of glove. Non-slip finish for a good grip in wet conditions. Particularly suited to outdoor work.

**Arc flash protection:** the glove material has excellent properties in the event of a short circuit in the electric arc.

Other sizes under request.

CE IEC 60903  
EN 60903  
IEC 61482

#### SPECIFICATIONS / TECHNICAL DATA

Code	Ref.	Class	Size	Length (mm)	Categories	Working Voltage (V) max.	Proof test Voltage (V) max.	Withstand Voltage (V) max.
531110	SGM-25 T9	00	9	360	RC	500 V AC	2.500 V AC	5.000 V AC
531120	SGM-25 T10		10					
531150	SGM-50 T9	0	9	410	RC	1.000 V AC	5.000 V AC	10.000 V AC
531160	SGM-50 T10		10					
531190	SGM-10 T9	1	9	410	RC	7.500 V AC	10.000 V AC	20.000 V AC
531200	SGM-10 T10		10					
531230	SGM-20 T9	2	9	410	RC	17.000 V AC	20.000 V AC	30.000 V AC
531240	SGM-20 T10		10					

Meaning of letters in 'Categories': A: Acid / Z: Ozone / H: Oil / C: Very low temperature / R: A+Z+H resistance.

The Composite glove range is made using a natural latex base covered by an outer layer of polychloroprene, combining mechanical resistance and comfort with a high level of protection.

Code	Ref.	Class	ARC FLASH TESTED	ARC FLASH RATED	OUTSIDE FINISHING	INSIDE FINISHING	Color
531110	SGM-25 T9	00	Box test 7kA/30cm	ATPV 60,3 Cal/cm <sup>2</sup>	Grip on palm and fingers	Chlorinated easier donning and doffing	Outside orange and inside beige
531120	SGM-25 T10						
531150	SGM-50 T9	0	Box test 7kA/30cm and 4kA/15cm	ATPV 61,4 Cal/cm <sup>2</sup>			
531160	SGM-50 T10						
531190	SGM-10 T9	1	*	*	Grip on fingers	Flocked: more comfort	Outside orange and inside beige
531200	SGM-10 T10						
531230	SGM-20 T9	2	*	*	Grip on fingers	Flocked: more comfort	Outside orange and inside beige
531240	SGM-20 T10						

\*Not applicable

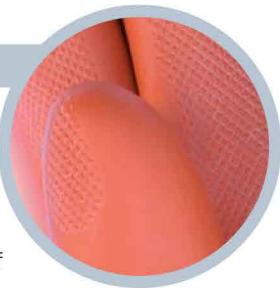
#### MECHANICAL AND THERMAL REQUIREMENTS

- Average tensile strength:  $\geq 16$  MPa
- Average elongation at break:  $\geq 600\%$
- Tension set:  $\leq 15\%$

Complementary test and performance levels to be achieved are as follows:

- Resistance to cutting:  $> 2.5$  (equivalent to level 2 according to EN 388)

- Resistance to abrasion:  $\geq 0,05$  mg/t
- Tearing resistance to:  $> 25$  N (equivalent to level 2 according to EN 388)
- Resistance to penetration:  $> 60$  N (equivalent to level 2 according to EN 388)
- Resistance to low temperature: conditioning of gloves for 1 hour at  $-25 \pm 3^\circ\text{C}$ .
- Flame-retardant test: Application of a flame for 10 seconds at a finger tip.



# GLOVES

## PERSONAL PROTECTION EQUIPMENT

### Mod. SG

#### Leather overgloves

Leather overgloves must be worn over dielectric gloves to protect against mechanical risks as well as against possible electric arc risks. These leather cowhide gloves with webbed thumbs have a 10 cm cuff with a retightening velcro strap on the back of the hand.

The cowhide leather is treated with silicone to increase its waterproof characteristics.

According to EN 388 standard.



CE EN 388

#### SPECIFICATIONS

Code	Ref.	Size	Mechanical resistance	Length (mm)	CROSS-REFERENCE UTILIZATION WITH DIELECTRIC GLOVES		
					Dielectric gloves Class OO, 0 and 1	Reference to be used	Dielectric gloves Class 2, 3 and 4
540113	SG-B	9	 EN-388 Abrasion 2 Blade cut 1 Tear 2 Puncture 2	310	Size 9	SG-B	Size 8
540114	SG-C	10		320	Size 10	SG-C	Size 9
540115	SG-D	11		330	Size 11	SG-D	Size 10
540116	SG-E	12		340	-	SG-E	Size 11

### Mod. SG-37

#### Fire-resistant gloves



Gloves made of NOMEX fibre with fire-resistant properties.

They are used under dielectric gloves with the aim of protecting against a possible electric arc.

According to EN 407 standard.

Code	Ref.
535100	SG-37

CE EN 407

# GLOVES ACCESSORIES

PERSONAL PROTECTION EQUIPMENT

## Mod. CG

### Plastic glove case

Resistant to impacts and UV rays ✓



Code	Ref.	Dimensions
545112	CG-70	48 x 30 x 7 cm
545113	CG-120	48 x 30 x 12 cm

Polyethylene box resistant to impacts and UV rays.

# GLOVES ACCESSORIES

## PERSONAL PROTECTION EQUIPMENT



### Mod. SG-36

Waterproof nylon bag

Code	Ref.	Dimensions
545100	SG-36	42,5x22 cm

Bags, plastic and metal boxes to transport, store and keep dielectric gloves.



### Mod. SG-35

Metallic glove case

Code	Ref.	Dimensions
545110	SG-35	45,3x19,1x7,2 cm



### Mod. SGP

Plastic glove case

Code	Ref.	Dimensions
545111	SGP	47,5x17x5 cm

### Mod. SG-117

Pneumatic gauge tester



Before using dielectric gloves for live working, the EN 60903 and IEC 60903 standards recommend a visual inspection by inflating the gloves with air to detect any possible leakages.

The pneumatic tester is a pump system to optimise inflation and visual inspection, especially at the cuff level.  
Class 0 and 00 only.

Code	Ref.
545120	SG-117

### Mod. TALCUM

Talcum powder



50 gr talcum powder pot designed to adapt to the boxes and bags used for gloves storage.

Code	Ref.	Capacity
545140	TALCUM	50 g

# GLOVES

## PERSONAL PROTECTION EQUIPMENT

### Mod. SG-38/39

#### Mechanical protection gloves



SG-39



SG-38

Working gloves to protect hands from mechanical risks.

Suitable for any kind of job where hands must be protected.

Gloves made of grey or yellow cowhide leather.  
According to EN 388-2122 and EN 420 standards.

Code

Ref.

540100

SG-38

540110

SG-39



EN 388-2122  
EN 420

### Mod. SH

#### Mechanical protection gloves



SH-265 T8  
SH-265 T9



SH-370 T8  
SH-370 T9

EN 388-2121  
EN 420

EN 388-4131  
EN 420

Gloves made of nylon. Palm covered with blue nitrile.  
According to EN 388-2121 and EN 420 standards.

Code

Ref.

540120

SH-265 T8

540130

SH-265 T9

Gloves made of nylon. Palm covered with grey nitrile.  
According to EN 388-4131 and EN 420 standards.

Code

Ref.

540140

SH-370 T8

540150

SH-370 T9

Gloves made of high performance polyethylene fabrics  
covered of nitrile. Cutt-off protection. Special sensibility and  
touch. According to 388-4241 and EN 420 standards.

Code

Ref.

540160

SH-350R T9

540170

SH-350R T10



SH-350R T9  
SH-350R T10

EN 388-4241  
EN 420



SH-GPKV T9  
SH-GPKV T10

EN 388-3543  
EN 420

Gloves made of nylon and fiberglass with black nitrile. Foam  
sheathing. According to EN 388-3543 and EN 420 standards.

Code

Ref.

540180

SH-GPKV T9

540190

SH-GPKV T10

CE CAT. II

# INDIVIDUAL PROTECTION EQUIPMENT

## PERSONAL PROTECTION EQUIPMENT

### Mod. SP-181

#### Safety helmet



Safety helmet manufactured from polyethylene to protect the head from mechanical and electrical risks. Includes plastic harness with six anchoring points and manual adjustment. Electric insulation up to 1.000 V. Working temperature: -10°C / +50°C. Supplied in white colour without chin strap. According to EN 397 standard and UNE-EN 50365:2003.

Other colours under request.

Up to 1.000 V

Code	Ref.
565099	SP-181

CE EN 397

UNE-EN 50365:2003

### Mod. SPE

#### Safety helmet



Safety helmet manufactured from polyethylene to protect the head from mechanical and electrical risks. Includes plastic harness adjustable using sprocket. Electric insulation up to 1.000 V. Working temperature: -10°C / +50°C. Supplied in white colour without chin strap. According to EN 397 standard and UNE-EN 50365:2003.

Other colours under request.

Up to 1.000 V

Code	Ref.
565102	SPE

CE EN 397

UNE-EN 50365:2003

### Mod. S/CABS-397

#### Safety helmet



Safety helmet for works involving heights manufactured from ABS with high-quality ultraviolet stabilization. Includes harness comprised of one interior PPE piece and one head band adjustable using sprocket. The stuffing in contact with the head includes pads to increase comfort. Working temperature: -10°C / +50°C. Supplied in white colour with textile chin strap with 4 attachment points. According to EN 12492 standard.

Other colours under request.

Code	Ref.
565106	S/CABS-397

CE EN 12492

# INDIVIDUAL PROTECTION EQUIPMENT

## PERSONAL PROTECTION EQUIPMENT

### Mod. S/BQ & Mod. S/BQM

#### Chin strap

Chin strap for helmets model SP-181 and SPE.



Code	Ref.
565130	S/BQ

Code	Ref.
565131	S/BQM



### Mod. SP-182

#### Face shield for short circuit arc



Face shield that can be adjusted to all kind of safety helmets without needing to modify its characteristics.

It is composed of a nylon adapter and a reclining visor. It repels molten metals, impacts at its highest level, liquid splashes, and the electric arc risk. It filters I.R. solar radiation.

According to EN 166 standard.

Code	Ref.
570120	SP-182

CE EN 166

### Mod. MP-4

#### Cushioned auditive protector



Cushioned auditive protector with adjustable headband height. It isolates the worker from external noises. According to EN 352 standard and SNR25DB.

Code	Ref.
575100	MP-4

CE EN 352 SNR25DB

### Mod. MP-1

#### Self-filtering mask



Self-filtering mask with nose brace for better adaptation. According to EN 149 standard.

Code	Ref.
570130	MP-1

CE EN 149

# HARNESSES AND BELTS

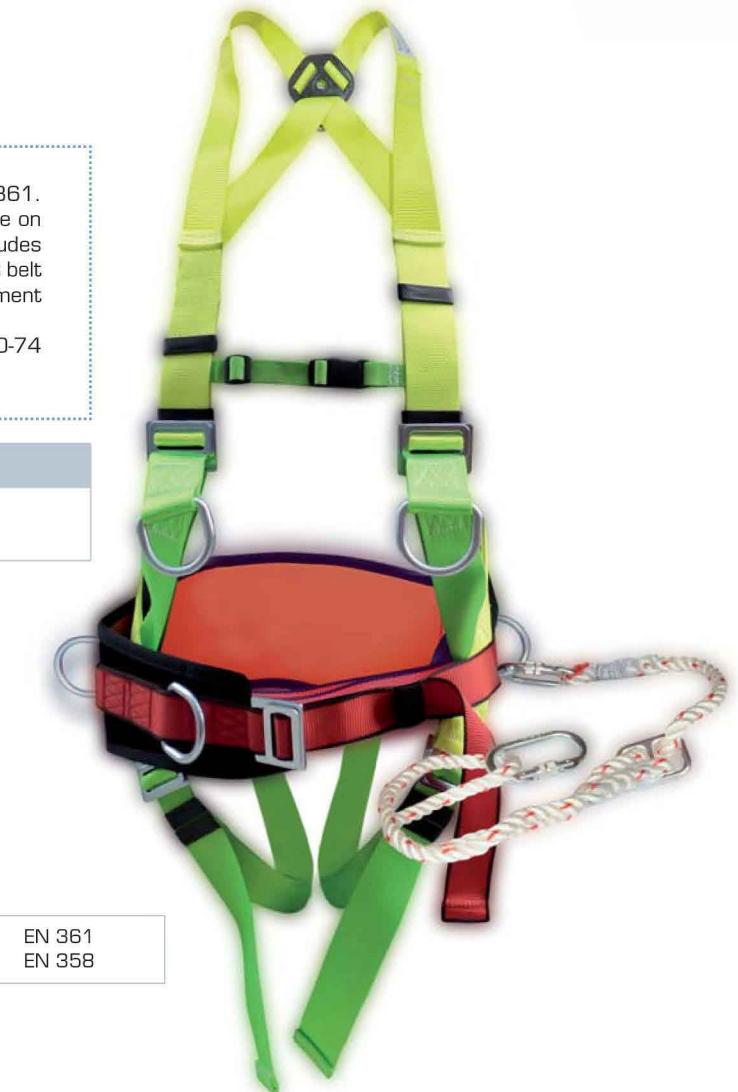
## PERSONAL PROTECTION EQUIPMENT

### Mod. SO-71

#### Fall-arrest harness with belt

Full body fall-arrest harness compliant with standard EN 361. Includes two attachment points (to climb up and down) one on the back and the other one on the abdominal area. Includes adjustable shoulder and leg straps as well as work support belt compliant with standard EN 358 with two side attachment points at the end for coupling an anchorage element. It is supplied with one SO-07 adjustable rope and one SO-74 karabiner.

Code	Ref.
550110	SO-71



EN 361  
EN 358



### Mod. SO-06

#### Support belt with rope

Support belt compliant with standard EN 358 with padded strap. Includes a ring at each end for coupling an anchorage element.

Supplied with one SO-07 adjustable rope and one SO-74 karabiner.

Code	Ref.
550100	SO-06



EN 358

# HARNESSES AND BELTS

## PERSONAL PROTECTION EQUIPMENT

### Mod. S/ATC

#### Safety harness with belt

Full body safety harness designed for use in all work environments involving heights equipped with foam back support and fast positioning buckles on the leg straps with four equipment loops.

**Includes four attachment points:**

Chest attachment point  
Stomach attachment point, for suspension or positioning  
Back attachment point  
Two adjustable lateral positioning rings

According to EN 361 and EN 358 standards.

Code	Ref.
550111	S/ATC
CE	EN 361 EN 358



### Mod. SO-45

#### Antilumbago and antivibratory belt

The antilumbago and antivibratory belt has been studied and designed to protect the back-lumbar area against all kind of efforts. It is made of red canvas material support with the inner side lined with 100% cotton. Quick adjustment with Velcro band and high security lock. Waist perimeter 100cm.



Code	Ref.
550120	SO-45
CE	

# HARNESSES AND BELTS

## PERSONAL PROTECTION EQUIPMENT

### Mod. SO-07

Adjustable rope

Anchorage element with adjustable length from 0.85m to 1.35m manufactured with 14mm diameter polyamide rope.  
Supplied without karabiners.  
According to UNE-EN 354 standard.



Code	Ref.
550170	SO-07

CE UNE-EN 354

### Mod. S/ELAR-354

Adjustable rope

Anchorage element with adjustable length from 0.85m to 1.35m manufactured with 11mm diameter polyamide rope. Supplied with one integrated karabiner.  
According to UNE-EN 354 standard.



Code	Ref.
550174	S/ELAR-354

CE UNE-EN 354

### Mod. S/ABE-355

Energy absorber

Energy absorber with integrated Y-type anchorage element designed for permanent connection even when passing anchor points thanks to its two straps.  
Total length 1.75m.  
According to EN 354 standard.



Code	Ref.
550175	S/ABE-355

CE UNE-EN 354

# LIFELINE SET

## PERSONAL PROTECTION EQUIPMENT



### Mod. BLVC-30E

#### Small lifeline set

Lifeline set that consists of hook with rope operation, 16 m rope with 14 mm<sup>2</sup> section, snap hook, fallarrester and connectable pole of 2 sections and 3 m total length.

Code	Ref.
550300	BLVC-30E

### Mod. BLVC-40E

#### Medium lifeline set

Lifeline set that consists of hook with rope operation, 16 m rope with 14 mm<sup>2</sup> section, snap hook, fallarrester and connectable pole of 2 sections and 4 m total length.

Code	Ref.
550310	BLVC-40E

### Mod. BLVC-60E

#### Large lifeline set

Lifeline set that consists of hook with rope operation, 16 m rope with 14 mm<sup>2</sup> section, snap hook, fallarrester and connectable pole of 3 sections and 6 m total length.

Code	Ref.
550320	BLVC-60E

### Mod. GLV

#### Lifeline hook



Device composed of a snap hook to fix safely the rope to which the worker will be connected when climbing up to the workplace.

Code	Ref.	Overture
630136	GLV	110 mm



# LIFELINE SET

## PERSONAL PROTECTION EQUIPMENT

### Mod. SO-28

Sliding fall arrest device



Fall arrest device for flexible anchorage line with 14 mm rope. Includes safety lock and system which avoids the equipment from being misplaced. Allows the user to move vertically without having to change position. Blocks automatically in the event of falling. According to EN 353-2 standard.

Code	Ref.
550140	SO-28

 EN 353-2

### Mod. SO-75

Lifeline cord



Roll of 20 m rope with 14 mm diameter with thimbles at each end. To be used with sliding fall arrest device model SO-28. According to EN 353-a standard.

Code	Ref.
550150	SO-75

 EN 353-2

### Mod. S/ADM-353

Sliding fall arrest device



Fall arrest device for flexible anchorage line with 11mm rope that allows user to move vertically without having to change position. Blocks automatically in the event of falling. According to EN 353-2 standard.

Code	Ref.
550176	S/ADM-353

 EN 353-2



# LIFELINE SET

## PERSONAL PROTECTION EQUIPMENT

### Mod. S/CSE-353

Semi-static rope



Roll of 20 m of semi-static "Rock-climbing" rope of 11 mm diameter. To be used as a source of progression with the sliding fall arrest device model S/ADM-353. According to EN-353-2 standard.

Code	Ref.
550177	S/CSE-353

 EN 353-2

### Mod. SO-74

Steel symmetrical karabiner



Steel symmetrical karabiner with safety lock. According to EN-362 standard.

Code	Ref.
550160	SO-74

 EN 362

### Mod. S/MOAL

Aluminium asymmetrical karabiner



Aluminium asymmetrical karabiner with safety lock. According to EN-362 standard.

Code	Ref.
550161	S/MOAL

 EN 362

# WORK ACCESSORIES

## PERSONAL PROTECTION EQUIPMENT

### Mod. CLIMBO

#### Climbing irons



The set of climbing irons for circular poles has been manufactured taking into account the health and safety demands specified in the provisions of the 89/686/CEE directive from 21st of December 1989.



It allows climbing up and down easily on circular fiberglass, steel and cement poles (in the case of cement poles, it is necessary to control the rubber level of wear and replace if necessary) with electrical infrastructure and telephone facilities. It also can be used in poles made of other materials as long as the user checks whether the adherence is correct and safe.

It gives stability and comfort for a long time work.

Code	Ref.
555115	CLIMBO 265

CE

**CLIMBO**  
**265**



✓ For poles with diameter between 85 and 265 mm

# WORK ACCESSORIES

## PERSONAL PROTECTION EQUIPMENT

### Mod. AIRCLIMB

#### Climbing irons



The set of climbing irons for circular poles has been manufactured taking into account the health and safety demands specified in the provisions of the 89/686/CEE directive from 21st of December 1989.



It allows climbing up and down easily on circular fiberglass, steel and cement poles (in the case of cement poles, it is necessary to control the rubber level of wear and replace if necessary) with electrical infrastructure and telephone facilities. It also can be used in poles made of other materials as long as the user checks whether the adherence is correct and safe.

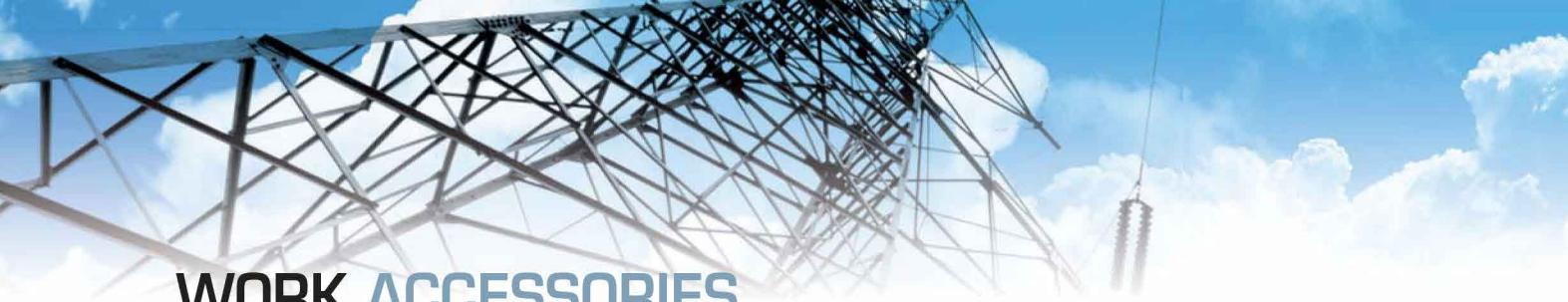
Specially designed to climb poles with obstacles like telecoms cables and others.



Code	Ref.
555125	AIRCLIMB



- ✓ For poles with diameter between 85 and 265 mm



# WORK ACCESSORIES

## PERSONAL PROTECTION EQUIPMENT

### Mod. SO-26

#### Climbing irons



Set of climbing irons specially designed for electrical and telecommunication wooden poles.

They are circular and have eight welded spikes with a special curved shape that enables climbing up and down.

They are fixed on with 1.15 m polyester straps of 30 mm wide and zinc steel buckles.



Code	Ø	Ref.
555100	260 mm	SO-26

### Mod. SO-27

#### Small climbing devices

With only one welded spike, they are made of carbon steel curved plate. They have four 65 cm long support polyester straps and leather cushioned pads with metallic buckles and eyelets. For wooden poles.



Code	Ref.
555110	SO-27





# WORK ACCESSORIES

## PERSONAL PROTECTION EQUIPMENT

### Mod. SO-31

#### Flat tool-holder bag



250x290 mm flat tool bag made of canvas with synthetic reinforcement at the bottom. Incorporates nylon straps with buckles to attach it to a belt.

Code	Ref.
600120	SO-31

### Mod. SO-32

#### Circular tool-holder bag



230x320 mm circular tool bag made of canvas with synthetic reinforcement at the bottom. Incorporates a nylon handle for carrying and lifting.

Code	Ref.
600130	SO-32

A photograph of a person in a small boat on a lake at sunset. The sky is filled with warm, orange and yellow clouds. The water reflects the light, creating a peaceful atmosphere. A large, semi-transparent watermark with the letters 'SA' is overlaid on the right side of the image.

## INSULATION

✓ *Insulating devices and accessories*

# SAFETY

Keeping you away from danger



# INSULATING DEVICES

## INSULATION

### Mod. ST

Insulating stool for indoor use

Made of high impact copolymer polypropylene. The platform surface is rough and non-slip. Rubber tips are placed under the legs to give it greater adherence to the floor and protection from wear.  
Platform: 525x525 mm  
Surface: 575x575 mm  
Class 5

According to UNE 204001 standard.



- ✓ **High stability**
- ✓ **High impact resistance**
- ✓ **High slip resistance**

#### RANGE / DIMENSIONS OF PRODUCT

Code	Ref.	Height [mm]	Class	Working voltage
580100	ST-36	200	4	36 kV
580110	ST-45	305	5	45 kV
580115	ST-66	305	6	66 kV

CE UNE 204001



# INSULATING DEVICES

## INSULATION

### Mod. STE INSULATING STOOL FOR OUTDOOR USE



✓ According to UNE 204001



#### Mod. STE

Insulating stool for outdoor use

Made of high impact copolymer polypropylene. The platform surface is rough, non-slip and the legs have deflecting hoods. Rubber tips are placed under the legs to give it greater adherence to the floor and protection from wear. Platform: 525x525mm According to UNE 204001 Legs made of IEC 60855 foam filled tube.



#### RANGE / DIMENSIONS OF PRODUCT

Code	Ref.	Height (mm)	Class	Num. deflecting hoods	Working voltage
580096	STE-26	270	3	1	26 kV
580111	STE-45	400	5	2	45 kV
580116	STE-66	450	6	3	66 kV

CE UNE 204001

# INSULATING DEVICES

## INSULATION

### Mod. AD

#### Insulating mat

**Rubber Base:** natural rubber SBR  
**Specific weight:** 1.56 g/cm<sup>3</sup>  
**Hardness:** 70 Shore A  
**Tensile Strength:** 70 Kg/cm<sup>2</sup>  
**Elongation at break:** 350%  
**Resistance to tearing:** 25 Kg/cm<sup>2</sup>  
**Resistance to abrasion:** 200 mm<sup>3</sup>  
**Temperature Field:** -25 °C / +70 °C  
**Thermal air Ageing:** 70 C/70h values: Hardness Inc.  
 Sha 5% -5 Cargo Inc., Inc. Elong 20%  
**Deformation:** 70% Def 22 h values. Max. 50  
**Chemical resistance:**  
 Ozone-Moderate, Acids and Bases diluted-Moderate, Acids and Bases  
 concentrates-not recommended, Hydrocarbon-not recommended and Organic  
 solvents-not recommended.  
 According to IEC 61111.

We can customize the lenght of the mats as per our clients' requests (max 10 m).

IEC 61111



FINISHED R

FINISHED C

#### RANGE / DIMENSIONS OF PRODUCT

Code	Ref.	Dimensions (m)	Class	Thickness (mm)	Weight (kg)	Finished	Work voltage (kV)	Test voltage (kV)	Supported voltage (kV)
585200	AD-2-0606/30R	0,6 x 0,6	2	3	1,2	R	17.000	20.000	30.000
585210	AD2-0610/30R	0,6 x 1,0			2,0				
585220	AD2-06100/30R	0,6 x 10			19,5				
585230	AD2-1010/30R	1,0 x 1,0			3,3				
585240	AD2-10100/30R	1,0 x 10			33,0				
585250	AD2-1210/30R	1,2 x 1,0			3,9				
585260	AD2-12100/30R	1,2 x 10			39,0				
585300	AD3-0606/30C	0,6 x 0,6	3	3,5	1,7	C	26.500	30.000	40.000
585310	AD3-0610/30C	0,6 x 1,0			2,8				
585320	AD3-06100/30C	0,6 x 10			27,5				
585330	AD3-1010/30C	1,0 x 1,0			4,6				
585340	AD3-10100/30C	1,0 x 10			46,0				
585350	AD3-1210/30C	1,2 x 1,0			5,5				
585360	AD3-12100/30C	1,2 x 10			55,0				
585400	AD4-0606/40C	0,6 x 0,6	4	4,5	2,2		36.000	40.000	50.000
585410	AD4-0610/40C	0,6 x 1,0			3,7				
585420	AD4-06100/40C	0,6 x 10			36,5				
585430	AD4-1010/40C	1,0 x 1,0			6,1				
585440	AD4-10100/40C	1,0 x 10			61,0				
585450	AD4-1210/40C	1,2 x 1,0			7,3				
585460	AD4-12100/40C	1,2 x 10			73,0				

# INSULATING DEVICES AND ACCESSORIES

## INSULATION

### Mod. ST-79

#### Insulating slab



Made of high impact polyethylene and 500x500 mm modules that can be joined together; makes any surface easier to be covered. This material can be easily cut as to be adapted to any space.

Code	Ref.
580130	ST-79

### Mod. SP-321

#### Profil



It is made of rubber and it is used as provisional insulation for bare conductors in low voltage or with insufficient protection in small spaces.

Diameter: 19 mm.  
Length: 1000 mm.

Code	Ref.	Measures
595101	SP-321	1 m
595103	SP-321	1,5 m

### Mod. SP-50

#### Profil bag



Nylon bag with reinforcements to facilitate the carriage of the insulating profil.

Code	Ø	Length	Ref.
600110	20 cm	115 cm	SP-50

# INSULATING DEVICES AND ACCESSORIES

## INSULATION

### Mod. SP-22

Cowl



It is made of rubber and it is used for the provisional insulation of bare conductors as they pass through low voltage insulators. It is bell-shaped and incorporates grooves for the conductors to pass through.

Code	Ø	Ref.
595100	90	SP-22

### Mod. SP-52

Cowl bag



Nylon bag with reinforcements to facilitate the carriage of the insulating cowl.  
According to IEC 60243-1 standard.

Code	Ref.
600100	SP-52

IEC 60243-1

### Mod. SZ-57

Wire cutter



Insulated wire cutter indicated for cutting cables up to Ø 25 mm. Incorporates metallic blades and two handles made of polyester reinforced with fibreglass of 32 mm diameter.

Code	Ref.	Length (mm)	Insolation
715120	SZ-57/25	680	25 KV
715125	SZ-57/36	830	36 KV

# INSULATING DEVICES AND ACCESSORIES

## INSULATION

### Mod. ME-60

Fuse-extracting handle



It is used to place and remove fuses in Low Voltage. Incorporates an insulating handle and a hand protector that acts as a glove to protect the operator from possible accidents.

Code	Ref.
545130	ME-60

### Mod. SP-35

Vinyl cloth



Made of 0,3 mm thick vinyl, it is used to insulate an element in low voltage facilities. Rolls of 50 m x 1,40 m.

According to IEC 61112:2009 standard.

Code	Ref.
595102	SP-35

IEC 61112:2009

### Mod. SP-39

Fixing peg



120 mm long wooden peg used to fix the vinyl cloth sheets on the conductors.

Code	Ref.
595112	SP-39

## INSULATING POLES

- ✓ *Maneuvering poles*
- ✓ *Telescopic poles*
- ✓ *Connectable poles*
- ✓ *Multiuse poles*
- ✓ *Connectable multiuse poles*
- ✓ *Fuse disconnecting pole*
- ✓ *Rescue poles*
- ✓ *Condenser discharging pole*
- ✓ *Accessories for poles*



# SAFETY

Making your job easy and safe



# MANEUVERING POLES

## INSULATING POLES



Maneuvering pole with only one section made of polyester and fibreglass tube Ø 32 mm with humidity-proof seals on each end, hand protector, grip, tip, Universal head and MANEUVERING hook.

### Mod. BM-45

- Total length: 1.60 meters
- Total length without hook: 1.50 meters
- Working voltage: 45 kV
- INDOOR and OUTDOOR use in dry environment

Code	Ref.
605100	BM-45

### Mod. BM-66

- Total length: 2.10 meters
- Total length without hook: 2.00 meters
- Working voltage: 66 kV
- INDOOR and OUTDOOR use in dry environment

Code	Ref.
605110	BM-66

### Mod. BM-90

- Total length: 2.60 meters
- Total length without hook: 2.50 meters
- Working voltage: 90 kV
- INDOOR and OUTDOOR use in dry environment

Code	Ref.
605115	BM-90

### Mod. BM-132

- Total length: 3.10 meters
- Total length without hook: 3.00 meters
- Working voltage: 132 kV
- INDOOR and OUTDOOR use in dry environment

Code	Ref.
605120	BM-132

# MANEUVERING POLES

## INSULATING POLES



Maneuvering pole with only one section made of polyester and fibreglass tube Ø 32 mm with humidity-proof seals on each end, 3 deflecting hoods, hand protector, grip, tip, Universal head and MANEUVERING hook.

### Mod. BME-45

- Total length: 1.60 meters
- Working voltage: 45 kV
- INDOOR and OUTDOOR use

Code	Ref.
605130	BME-45

### Mod. BME-66

- Total length: 2.10 meters
- Working voltage: 66 kV
- INDOOR and OUTDOOR use

Code	Ref.
605140	BME-66

### Mod. BME-132

- Total length: 3.10 meters
- Working voltage: 132 kV
- INDOOR and OUTDOOR use

Code	Ref.
605150	BME-132

# TELESCOPIC POLES

## INSULATING POLES



Telescopic pole with two sections made of reinforced fibreglass tube Ø 40 and 32 mm with humidity-proof seals on each end, hand protector, grip, tip and M (Metric-10), U (Universal), B (Bayonet) or P (Hexagonal + Metric-10) head.  
The length of each section can be adjusted as needed by means of an adjustment system with locking handles.

### Mod. BMTS-15/45

- Length folded: 0.85 meters
- Length extended: 1.486 meters
- Working voltage: 45 kV (fully extended)
- INDOOR and OUTDOOR use in dry environment
- Weight: 0.75 Kg

Code	Ref.
615300	BMTS-15/45M
615301	BMTS-15/45U
615302	BMTS-15/45B
615303	BMTS-15/45P

### Mod. BMTS-20/66

- Length folded: 1.15 meters
- Length extended: 2 meters
- Working voltage: 66 kV (fully extended)
- INDOOR and OUTDOOR use in dry environment
- Weight: 0.95 Kg

Code	Ref.
615310	BMTS-20/66M
615311	BMTS-20/66U
615312	BMTS-20/66B
615313	BMTS-20/66P

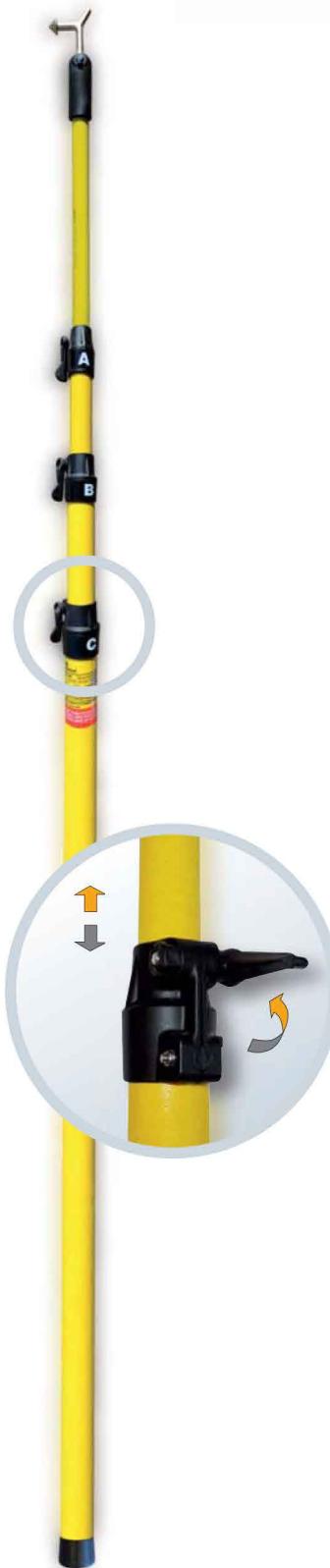
### Mod. BMTS-30/132

- Length folded: 1.65 meters
- Length extended: 3 meters
- Working voltage: 132 kV (fully extended)
- INDOOR and OUTDOOR use in dry environment
- Weight: 1.35 Kg

Code	Ref.
615320	BMTS-30/132M
615321	BMTS-30/132U
615322	BMTS-30/132B
615323	BMTS-30/132P

# TELESCOPIC POLES

## INSULATING POLES



Telescopic multiple section pole made of reinforced fibreglass tube with variable circular shape that allows to wedge automatically each section. The upper section is filled in with foam according to IEC 60855.

The length of each section can be adjusted as needed by means of an adjustment system with locking handles.

All models are supplied with Universal head and MANEUVERING hook. The A section must be always unfolded to be used.

### Mod. BMTS-4/6

- Length folded: 1.70 meters
- Length extended: 5.97 meters (4 sections)
- Working voltage: 380 kV (fully extended)
- INDOOR and OUTDOOR use in dry environment
- Weight: 3.40 Kg

Code	Sections	Voltage	Ref.
615325	C+A	132 kV	BMTS-4/6
	C+B+A	380 kV	

### Mod. BMTS-5/9

- Length folded: 2.00 meters
- Length extended: 8.75 meters (5 sections)
- Working voltage: 420 kV (fully extended)
- INDOOR and OUTDOOR use in dry environment
- Weight: 5.20 Kg

Code	Sections	Voltage	Ref.
615330	D+A	132 kV	BMTS-5/9
	D+B+A	380 kV	
	D+C+B+A	420 kV	

### Mod. BMTS-6/12

- Length folded: 2.30 meters
- Length extended: 11.80 meters (6 sections)
- Working voltage: 420 kV (fully extended)
- INDOOR and OUTDOOR use in dry environment
- Weight: 7.25 Kg

Code	Sections	Voltage	Ref.
615335	E+A	132 kV	BMTS-6/12
	E+B+A	380 kV	
	E+C+B+A	420 kV	
	E+D+C+B+A	420 kV	

# CONNECTABLE POLES

## INSULATING POLES



Connectable poles with two sections, made of polyester and fibreglass tube Ø 32 mm with humidity-proof seals on each end, hand protector, grip, tip and M (Metric-10), U (Universal), B (Bayonet) or P (Hexagonal + Metric-10) head.

### Mod. BMAI-2

- Total length: 2 meters
- Composed of 2 sections of 1 m each
- Working voltage: 66 kV
- INDOOR and OUTDOOR use in dry environment

Code	Ref.
616100	BMAI-2/66M
616101	BMAI-2/66U
616102	BMAI-2/66B
616103	BMAI-2/66P

### Mod. BMAI-2,5

- Total length: 2.5 meters
- Composed of 1 section of 1 m + 1 section of 1.5 m
- Working voltage: 110 kV
- INDOOR and OUTDOOR use in dry environment

Code	Ref.
616110	BMAI-2,5/110M
616111	BMAI-2,5/110U
616112	BMAI-2,5/110B
616113	BMAI-2,5/110P

### Mod. BMAI-3

- Total length: 3 meters
- Composed of 2 sections of 1.5 m each
- Working voltage: 132 kV
- INDOOR and OUTDOOR use in dry environment

Code	Ref.
616120	BMAI-3/132M
616121	BMAI-3/132U
616122	BMAI-3/132B
616123	BMAI-3/132P

# CONNECTABLE POLES

## INSULATING POLES



Connectable pole with two sections made of polyester and fibreglass tube Ø 32 mm with humidity-proof seals on each end, hand protector, grip, tip, 3 deflecting hoods and M (Metric-10), U (Universal), B (Bayonet) or P (Hexagonal + Metric-10) head.

### Mod. BMAE-2

- Total length: 2 meters
- Composed of 2 sections of 1 m each
- Working voltage: 30 kV
- INDOOR and OUTDOOR use

Code	Ref.
616200	BMAE-2/30M
616201	BMAE-2/30U
616202	BMAE-2/30B
616203	BMAE-2/30P

### Mod. BMAE-2,5

- Total length: 2.5 meters
- Composed of 1 section of 1 m + 1 section of 1.5 m
- Working voltage: 66 kV
- INDOOR and OUTDOOR use

Code	Ref.
616210	BMAE-2,5/66M
616211	BMAE-2,5/66U
616212	BMAE-2,5/66B
616213	BMAE-2,5/66P

### Mod. BMAE-3

- Total length: 3 meters
- Composed of 2 sections of 1.5 m each
- Working voltage: 110 kV
- INDOOR and OUTDOOR use

Code	Ref.
616220	BMAE-3/110M
616221	BMAE-3/110U
616222	BMAE-3/110B
616223	BMAE-3/110P

# CONNECTABLE POLES

## INSULATING POLES



Connectable pole with two or three sections made of polyester and fibreglass tube Ø 40 mm with hand protector, grip, tip and M (Metric-10), U (Universal), B (Bayonet) or P (Hexagonal + Metric-10) head.

### Mod. BMAI-3V

- Total length: 3 meters
- Composed of 2 sections of 1.5 m each
- Working voltage: 132 kV
- INDOOR and OUTDOOR use in dry environment

Code	Ref.
616500	BMAI-3V/132M
616501	BMAI-3V/132U
616502	BMAI-3V/132B
616503	BMAI-3V/132P

### Mod. BMAI-4V

- Total length: 4 meters
- Composed of 2 sections of 2 m each
- Working voltage: 220 kV
- INDOOR and OUTDOOR use in dry environment

Code	Ref.
616510	BMAI-4V/220M
616511	BMAI-4V/220U
616512	BMAI-4V/220B
616513	BMAI-4V/220P

### Mod. BMAI-5V

- Total length: 5 meters
- Composed of 2 sections of 2 m + 1 section of 1 m
- Working voltage: 380 kV
- INDOOR and OUTDOOR use in dry environment

Code	Ref.
616520	BMAI-5V/380M
616521	BMAI-5V/380U
616522	BMAI-5V/380B
616523	BMAI-5V/380P

### Mod. BMAI-6V

- Total length: 6 meters
- Composed of 3 sections of 2 m each
- Working voltage: 380 kV
- INDOOR and OUTDOOR use in dry environment

Code	Ref.
616530	BMAI-6V/380M
616531	BMAI-6V/380U
616532	BMAI-6V/380B
616533	BMAI-6V/380P

# CONNECTABLE POLES

## INSULATING POLES



Connectable pole with two or three sections made with polyester and fibreglass tube Ø 40 mm with hand protector, grip, tip, 3 deflecting hoods and M (Metric-10), U (Universal), B (Bayonet) or P (Hexagonal + Metric-10) head.

### Mod. BMAE-3V

- Total length: 3 meters
- Composed of 2 sections of 1.5 m each
- Working voltage: 110 kV
- INDOOR and OUTDOOR use

Code	Ref.
616600	BMAE-3V/110M
616601	BMAE-3V/110U
616602	BMAE-3V/110B
616603	BMAE-3V/110P

### Mod. BMAE-4V

- Total length: 4 meters
- Composed of 2 sections of 2 m each
- Working voltage: 220 kV
- INDOOR and OUTDOOR use

Code	Ref.
616610	BMAE-4V/220M
616611	BMAE-4V/220U
616612	BMAE-4V/220B
616613	BMAE-4V/220P

### Mod. BMAE-5V

- Total length: 5 meters
- Composed of 2 sections of 2 m + 1 section of 1 m
- Working voltage: 380 kV
- INDOOR and OUTDOOR use

Code	Ref.
616620	BMAE-5V/380M
616621	BMAE-5V/380U
616622	BMAE-5V/380B
616623	BMAE-5V/380P

### Mod. BMAE-6V

- Total length: 6 meters
- Composed of 3 sections of 2 m each
- Working voltage: 380 kV
- INDOOR and OUTDOOR use

Code	Ref.
616630	BMAE-6V/380M
616631	BMAE-6V/380U
616632	BMAE-6V/380B
616633	BMAE-6V/380P

# MULTIUSE POLES

## INSULATING POLES



Multiuse pole with only one section made of polyester and fibreglass tube Ø 32 mm and polyurethane foam filling with U (Universal), B (Bayonet) or H (Hexagonal) head.

Includes carrying bag.

According to IEC 60855 and UNE-EN-50508 standards.

### Mod. BSC-M3

- Length: 1.5 meters
- Working voltage: 30 kV
- INDOOR and OUTDOOR use (Humid environment)

Code	Ref.
616700	BSC-M3U
616701	BSC-M3B
616702	BSC-M3H

### Mod. BSC-M4

- Length: 2 meters
- Working voltage: 45 kV
- INDOOR and OUTDOOR use (Humid environment)

Code	Ref.
616703	BSC-M4U
616704	BSC-M4B
616705	BSC-M4H

### Mod. BSC-M5

- Length: 2.5 meters
- Working voltage: 66 kV
- INDOOR and OUTDOOR use (Humid environment)

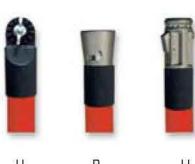
Code	Ref.
616706	BSC-M5U
616707	BSC-M5B
616708	BSC-M5H

### Mod. BSC-M6

- Length: 3 meters
- Working voltage: 132 kV
- INDOOR and OUTDOOR use (Humid environment)

Code	Ref.
616709	BSC-M6U
616710	BSC-M6B
616711	BSC-M6H

IEC 60855  
UNE-EN-50508



# CONNECTABLE MULTIUSE POLES

## INSULATING POLES



Connectable multiuse pole with two or three sections made of polyester and fibreglass tube Ø 32 mm and polyurethane foam filling with U (Universal), B (Bayonet) or H (Hexagonal) head.

Includes carrying bag.

According to IEC 60855 and UNE-EN-50508 standards.

### Mod. BSC-M22

- Total length: 2 meters
- Composed of 2 sections of 1 m each
- Working voltage: 45 kV
- INDOOR and OUTDOOR use (Humid environment)

Code	Ref.
616712	BSC-M22U
616713	BSC-M22B
616714	BSC-M22H

### Mod. BSC-M32

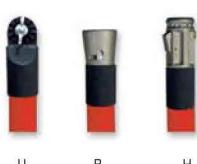
- Total length: 2.5 meters
- Composed of 1 section of 1 m + 1 section of 1.5 m
- Working voltage: 66 kV
- INDOOR and OUTDOOR use (Humid environment)

Code	Ref.
616715	BSC-M32U
616716	BSC-M32B
616717	BSC-M32H

### Mod. BSC-M33

- Total length: 3 meters
- Composed of 2 sections of 1.5 m each
- Working voltage: 132 kV
- INDOOR and OUTDOOR use (Humid environment)

Code	Ref.
616718	BSC-M33U
616719	BSC-M33B
616720	BSC-M33H



IEC 60855  
UNE-EN-50508

### Mod. BSC-M222

- Total length: 3 meters
- Composed of 3 sections of 1 m each
- Working voltage: 132 kV
- INDOOR and OUTDOOR use (Humid environment)

Code	Ref.
616721	BSC-M222U
616722	BSC-M222B
616723	BSC-M222H

# CONNECTABLE MULTIUSE POLES

## INSULATING POLES



Connectable multiuse pole with two or three sections, made of polyester and fibreglass tube Ø 39 mm and polyurethane foam filling with U (Universal) or B (Bayonet) head. Includes carrying bag.

According to IEC 60855 and UNE-EN-50508 standards.



IEC 60855  
UNE-EN-50508

### Mod. BSC-A43

- Total length: 3.5 meters
- Composed of 1 section of 2 m and 1 section of 1.5 m
- Working voltage: 132 kV
- INDOOR and OUTDOOR use (Humid environment)

Code	Ref.
616724	BSC-A43U
616725	BSC-A43B

### Mod. BSC-A44

- Total length: 4 meters
- Composed of 2 sections of 2 m each
- Working voltage: 220 kV
- INDOOR and OUTDOOR use (Humid environment)

Code	Ref.
616726	BSC-A44U
616727	BSC-A44B

### Mod. BSC-A54

- Total length: 4.5 meters
- Composed of 1 section of 2 m + 1 section of 2.5 m
- Working voltage: 220 kV
- INDOOR and OUTDOOR use (Humid environment)

Code	Ref.
616728	BSC-A54U
616729	BSC-A54B

### Mod. BSC-A55

- Total length: 5 meters
- Composed of 2 sections of 2.5 m each
- Working voltage: 380 kV
- INDOOR and OUTDOOR use (Humid environment)

Code	Ref.
616730	BSC-A55U
616731	BSC-A55B

### Mod. BSC-A66

- Total length: 6 meters
- Composed of 2 sections of 3 m each
- Working voltage: 380 kV
- INDOOR and OUTDOOR use (Humid environment)

Code	Ref.
616732	BSC-A66U
616733	BSC-A66B

### Mod. BSC-A444

- Total length: 6 meters
- Composed of 3 sections of 2 m each
- Working voltage: 380 kV
- INDOOR and OUTDOOR use (Humid environment)

Code	Ref.
616734	BSC-A444U
616735	BSC-A444B

# FUSE DISCONNECTING INSULATING POLES



One-section fuse disconnecting pole of Ø 40 mm with hand protector and MANEUVERING handle to open and close the hand-grip head.

Light and with an easy operation system it helps to extract fuses in a proper way.



## Mod. BEF-9000/24

- Length: 1.07 meters
- For fuses with diameter from 30 to 90 mm.
- Working voltage: 24 kV
- INDOOR and OUTDOOR use in dry environment

Code	Ref.
625105	BEF-9000/24

## Mod. BEF-9000/36

- Length: 1.72 meters
- For fuses with diameter from 30 to 90 mm.
- Working voltage: 36 kV
- INDOOR and OUTDOOR use in dry environment

Code	Ref.
625107	BEF-9000/36



# RESCUE POLES

## INSULATING POLES



Rescue pole with only one section made of polyester and fibreglass tube Ø 32 mm with humidity-proof seals on each end, hand protector, grip, tip, M-10 metric head and rescue hook.

Used to remove the casualty from the danger area in rescue operations.

### Mod. BS-45

- Length: 1.79 meters
- Working voltage: 45 kV

Code	Ref.
610100	BS-45

### Mod. BS-66

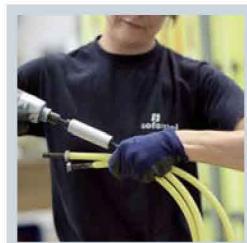
- Length: 2.29 meters
- Working voltage: 66 kV

Code	Ref.
610110	BS-66

### Mod. BS-90

- Length: 2.79 meters
- Working voltage: 90 kV

Code	Ref.
610115	BS-90



# CONDENSER DISCHARGING POLE

## INSULATING POLES



Insulating condenser discharging pole with earthing system. It is also suitable for devices with static electricity.

Pole with only one section made of polyester and fiberglass tube Ø 32 mm, with hand protector, grip and tip.



### Mod. BDC

- Length: 1.6 meters
- Working voltage: 36 kV
- INDOOR and OUTDOOR use in dry environment
- Copper earthing cable: 16 mm<sup>2</sup> section and 2 meters long

Code	Ref.
625110	BDC

# ACCESSORIES FOR POLES

## INSULATING POLES

### Mod. AVPM

Adapter for Medium Voltage detectors that allows their fixing to the maneuvering poles with Universal head. It permits the maneuvering operations without damaging the detector. Immediately afterward you can check if the power is off.



Code

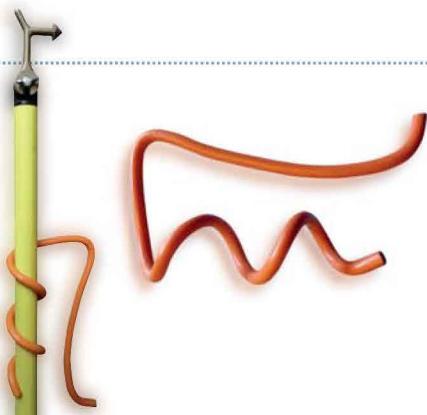
630175

Ref.

AVPM

### Mod. GSP

PVC device that fits to the maneuvering poles allowing their suspension while doing the job.



Code

630170

Ref.

GSP-32

### WALL SUPPORT FOR POLES



Code

615205

Ref.

ROBUST METALLIC WALL SUPPORT FOR POLES

Product supplied with screws and nail plugs.

### Mod. FP

Bag for pole



Nylon bags used to store and transport poles.

### RANGE / DIMENSIONS OF PRODUCT

Code	Ref.	Dimensions (mm) width x length
899000	FP-20/140	200 x 1400
899005	FP-20/210	200 x 2100
899010	FP-25/125	250 x 1250
899015	FP-25/175	250 x 1750
899020	FP-25/225	250 x 2250
899025	FP-25/275	250 x 2750
899030	FP-25/325	250 x 3250

# ACCESSORIES FOR POLES

## INSULATING POLES



### Mod. SM-02R

Metric-10 maneuvering hook

Code	Ref.
630100	Maneuvering hook with M-10 thread. <b>SM-02R</b>



### Mod. SM-02C

Hexagonal-12 maneuvering hook

Code	Ref.
630110	Maneuvering hook with Hexagonal-12 head. <b>SM-02C</b>



### Mod. SM-02K

Universal-K maneuvering hook

Code	Ref.
630120	Maneuvering hook with Universal-K head. <b>SM-02K</b>



### Mod. ADAP. B-UK

Bayonet to Universal-K adapter

Code	Ref.
630107	Adapter from Bayonet to Universal-K head. <b>ADAP. B-UK</b>



### Mod. ADAP. B-M10

Bayonet to M-10 adapter

Code	Ref.
630108	Adapter from Bayonet head to M-10 thread. <b>ADAP. B-M10</b>



### Mod. ADAP. H12-M10

Hexagonal-12 to M-10 adapter

Code	Ref.
630101	Adapter from Hexagonal-12 head to M-10 thread. <b>ADAP. H12-M10</b>



### Mod. GS-49

Rescue hook

Code	Ref.
630130	Rescue hook with M-10 thread. <b>GS-49</b>

# ACCESSORIES FOR POLES

## INSULATING POLES



### Mod. GA-TML

#### Operating hook

Code	Ref.
630116	Operating hook for the high voltage overhead lines earthing equipments model PATL-TML.



### Mod. ADAP. UK-B

#### Universal-K to Bayonet adapter

Code	Ref.
630162	Adapter from Universal-K to Bayonet head.



### Mod. ADAP. UK-P

#### Universal-K to Polivalent adapter

Code	Ref.
630163	Adapter from Universal-K to Polivalent head.



### Mod. ADAP. H12-UK

#### Hexagonal-12 to Universal-K adapter

Code	Ref.
630109	Adapter from Hexagonal-12 to Universal-K head.



### Mod. ADAP. M10-UK

#### M-10 to Universal-K adapter

Code	Ref.
630106	Adapter from M-10 thread to Universal-K head.



### Mod. ADAP. UK-M10

#### Universal-K to M-10 adapter

Code	Ref.
630102	Adapter from Universal-K head to M-10 thread.

## EARTHING AND SHORT-CIRCUIT EQUIPMENT

- ✓ *Low voltage electric panels*
- ✓ *Low voltage overhead lines*
- ✓ *Unipolar earthing equipment*
- ✓ *Medium voltage overhead lines - screw clamps*
- ✓ *Medium voltage overhead lines - automatic clamps*
- ✓ *Medium voltage substations - steerable clamps*
- ✓ *Medium voltage substations - bus bar clamps*
- ✓ *Medium voltage substations screw clamps*
- ✓ *High voltage overhead lines and substations*
- ✓ *High voltage overhead lines*
- ✓ *High voltage substations*
- ✓ *Overhead lines*
- ✓ *Clamps' information*
- ✓ *Accessories and cables for earthing equipment*
- ✓ *Section of short circuiting cable*

# SAFETY

The best protection equipment for professionals



# LOW VOLTAGE ELECTRIC PANELS

## EARTHING AND SHORT - CIRCUIT EQUIPMENT

### Mod. ECBT-NH

#### Low voltage electric panels



Earthing and short-circuit kit for low-voltage distribution boards.

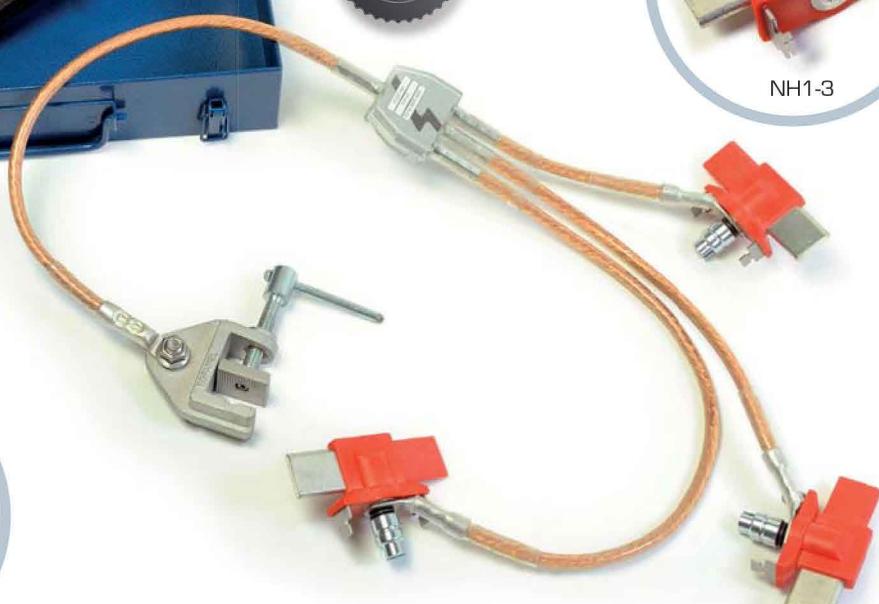
The main reason for their installation is to protect the worker from accidental power-on or return of voltage during repair work.

With insulated pole for extracting blades using M-10 screw.

According to IEC 61230 standard.

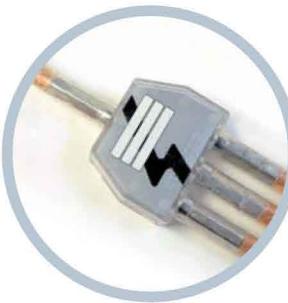


NH1-3



#### Composed of:

- 3 disconnecting and earthing NH1-3 blades.
- 3 copper PVC-insulated cables 25 mm<sup>2</sup> section and 0.2 - 0.4 - 0.6 m for short circuit of phases.
- 1 copper PVC-insulated cables 25 mm<sup>2</sup> section and 0.5 m long for earthing.
- 1 insulated pole for placing blades.
- 1 TT-38A earthing lathe.
- 1 metal case for storage and transport.



Code

659130

Ref.

ECBT-NH

# LOW VOLTAGE ELECTRIC PANELS

## EARTHING AND SHORT - CIRCUIT EQUIPMENT

### Mod. ECBT-PTA3

#### Low voltage electric panels

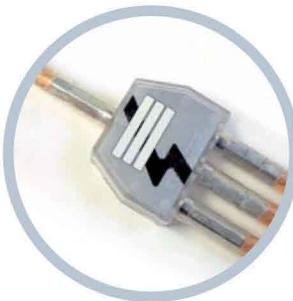


Earthing and short-circuit kit for low-voltage distribution boards.

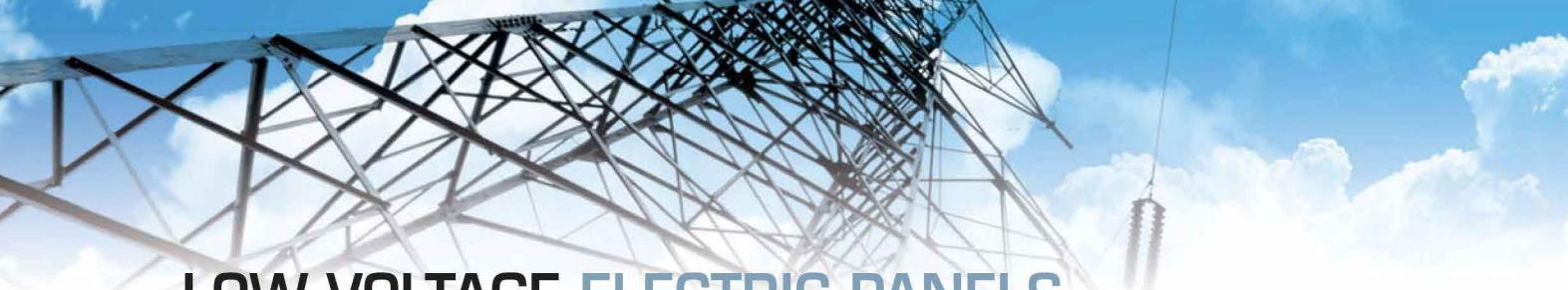
The main reason for their installation is to protect the worker from accidental power-on or return of voltage during repair work.  
According to IEC 61230 standard.

#### Composed of:

- 3 insulated PTA earth clamps.
- 3 copper PVC-insulated cables 25 mm<sup>2</sup> section and 0.4 m long for short circuit of phases.
- 1 copper PVC-insulated cable 25 mm<sup>2</sup> section and 1 m long for earthing.
- 1 branch-joint connector (4 cables).
- 1 TT-38A earthing lathe.
- 1 metal case for storage and transport.



Code	Ref.
659140	ECBT-PTA3



# LOW VOLTAGE ELECTRIC PANELS

## EARTHING AND SHORT - CIRCUIT EQUIPMENT

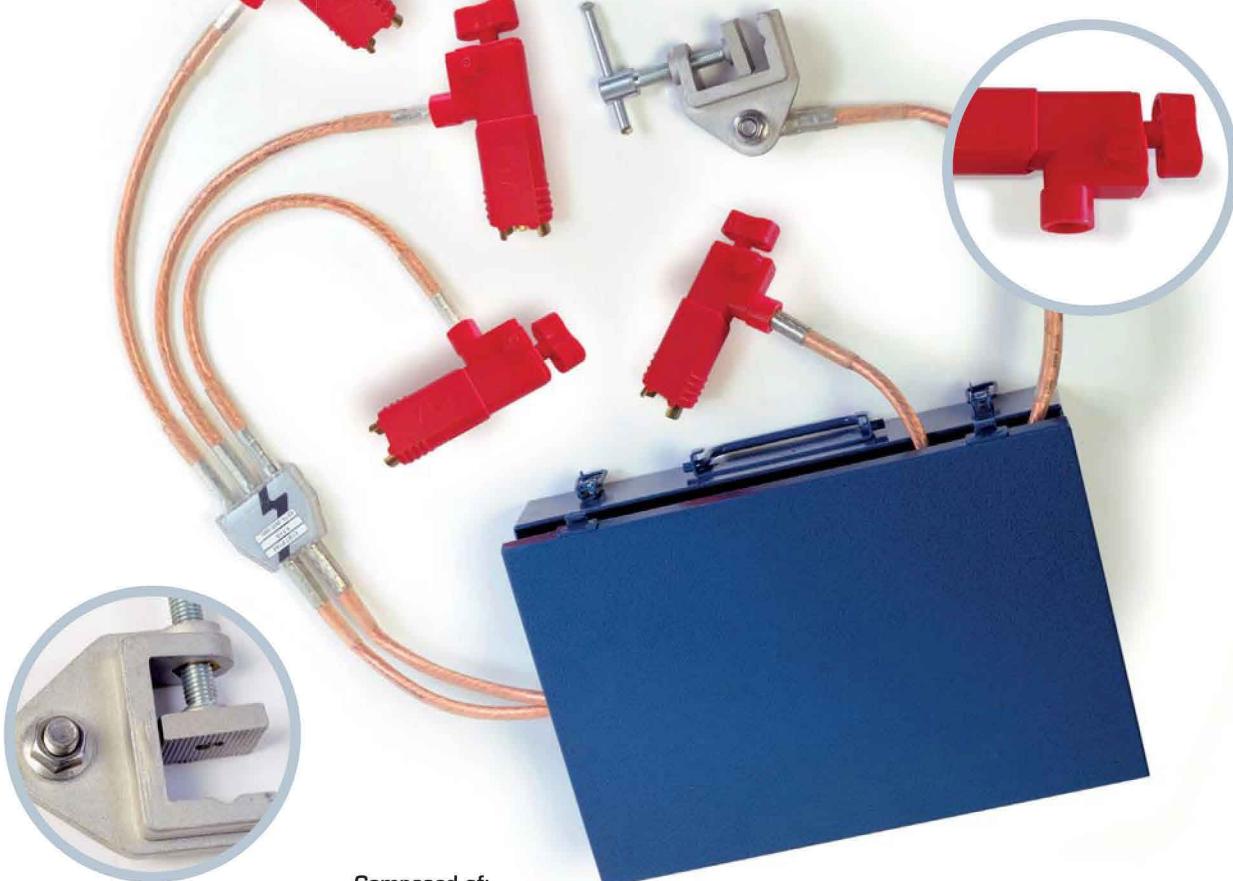
### Mod. ECBT-PTA4

#### Low voltage electric panels



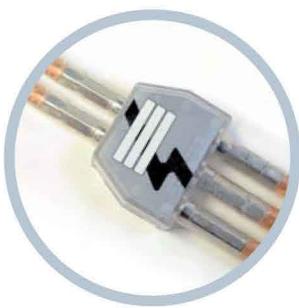
Earthing and short-circuit kit for low-voltage distribution boards.

The main reason for their installation is to protect the worker from accidental power-on or return of voltage during repair work.  
According to IEC 61230 standard.



Composed of:

- 4 insulated PTA earth clamps and the neutral.
- 3 copper PVC-insulated cables 25 mm<sup>2</sup> section and 1,2 m long for short circuit of phases.
- 1 copper cables 25 mm<sup>2</sup> section and 1,5 m long for the neutral's earthing.
- 1 PVC-insulated cable 25 mm<sup>2</sup> section and 2 m long for earthing.
- 1 branch-joint connector (5 cables).
- 1 TT-38A earthing lathe.
- 1 metal case for storage and transport.



Code

659150

Ref.

ECBT-PTA4

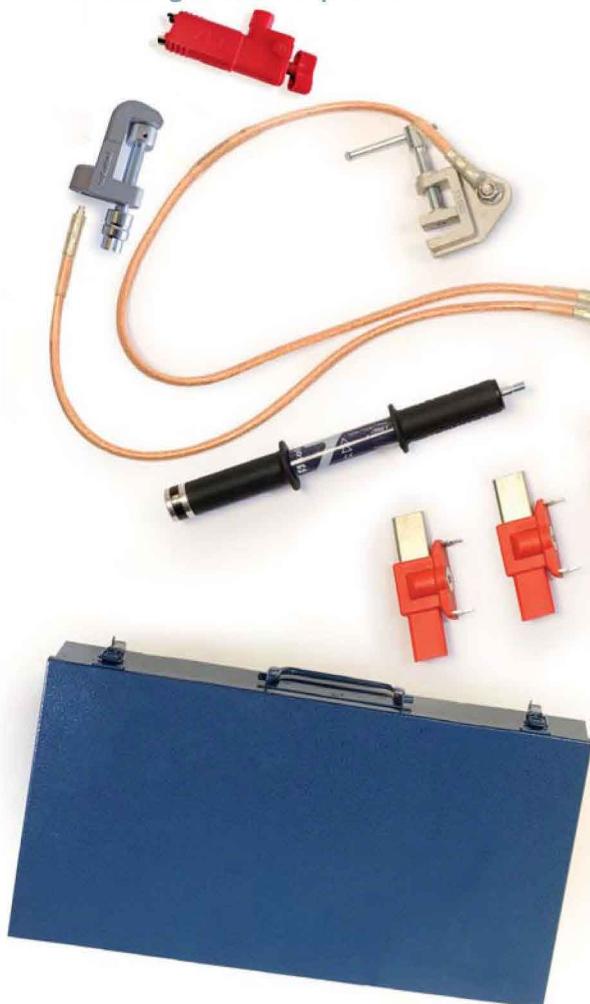
# LOW VOLTAGE ELECTRIC PANELS

## EARTHING AND SHORT - CIRCUIT EQUIPMENT



### Mod. ECBT-ID

#### Low voltage electric panels



Earthing and short-circuit kit for low-voltage distribution boards.

The main reason for their installation is to protect the worker from accidental power-on or return of voltage during repair work. With insulated pole for extracting blades using M-10 screw. According to IEC 61230 standard.



NH1-3

NH00

#### Composed of:

- 3 disconnecting and earthing NH00 blades.
- 3 disconnecting and earthing NH1-3 blades.
- 3 copper PVC-insulated cables 25 mm<sup>2</sup> section and 0.45 - 0.60 - 0.85 m long for short circuit of phases.
- 1 m copper PVC-insulated cables 25 mm<sup>2</sup> section and 0.75 m long for neutral.
- 1 m copper PVC-insulated cables 25 mm<sup>2</sup> section and 1 m long for earthing.
- 1 insulated PTA neutral clamp.
- 1 MPUCN neutral clamp.
- 1 insulated pole for placing blades.
- 1 TT-38A earthing lathe.
- 1 metal case for storage and transport.
- 1 branch-joint connector ( 5 ends)



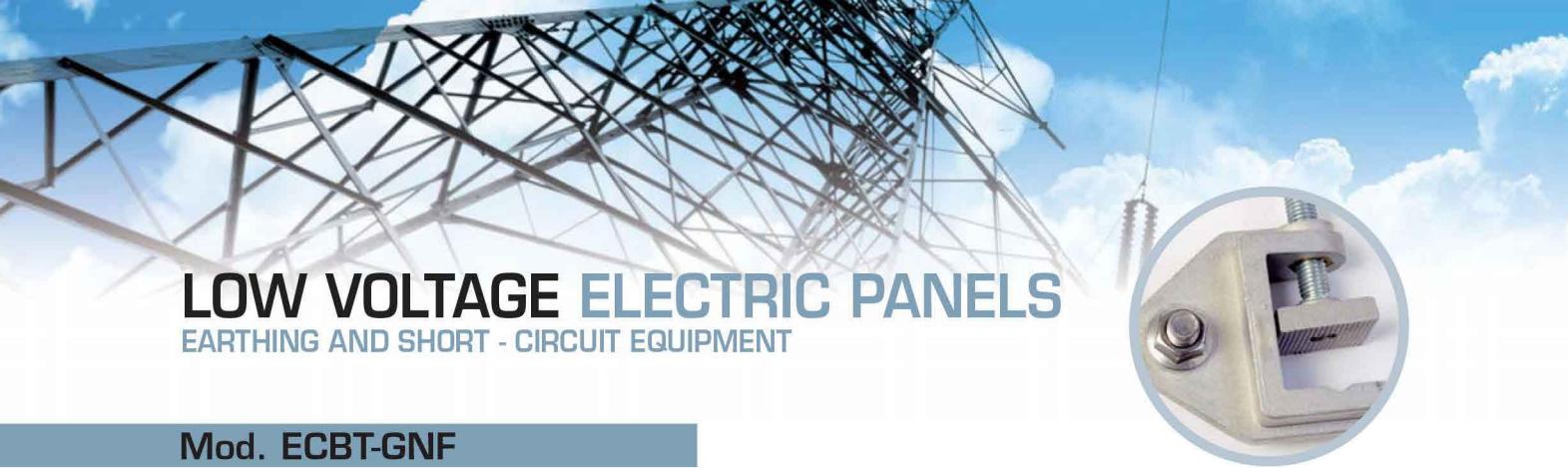
MPUCN

Code

Ref.

659160

ECBT-ID



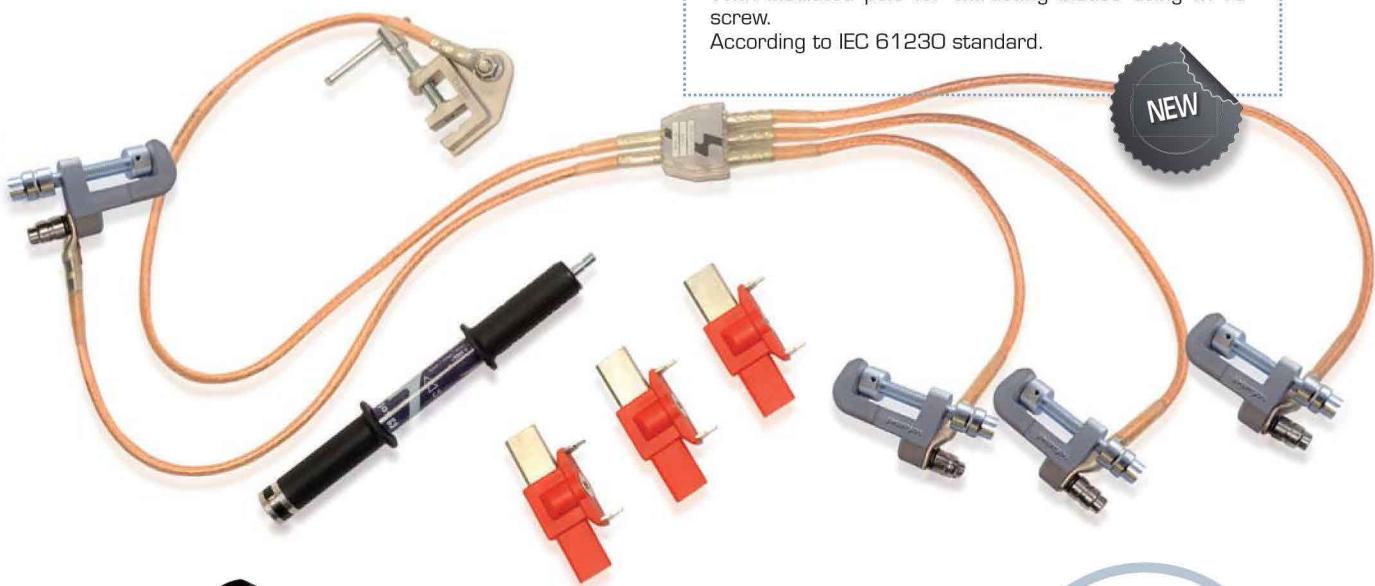
# LOW VOLTAGE ELECTRIC PANELS

## EARTHING AND SHORT - CIRCUIT EQUIPMENT



### Mod. ECBT-GNF

#### Low voltage electric panels



Earthing and short-circuit kit for low-voltage distribution boards.

The main reason for their installation is to protect the worker from accidental power-on or return of voltage during repair work.

With insulated pole for extracting blades using M-10 screw.

According to IEC 61230 standard.

NEW



NH1-3



#### Composed of:

- 3 disconnecting and earthing NH1-3 blades.
- 4 disconnecting and earthing MPUCF clamp.
- 3 copper PVC-insulated cables 35/50 mm<sup>2</sup> section and 0.45 - 0.60 - 0.85 m long for short circuit of phases.
- 1 copper PVC-insulated cables 35/50 mm<sup>2</sup> section and 0.75 m long for neutral.
- 1 copper PVC-insulated cables 35/50 mm<sup>2</sup> section and 1 m long for earthing.
- 1 branch-joint connector (5 cables).
- 1 insulated pole for placing blades.
- 1 MPUC neutral clamp.
- 1 TT-38A earthing lathe.
- 1 nylon bag for storage and transport.



Code	Cable length	Ref.
659170	35 mm <sup>2</sup>	ECBT-GNF/35
659180	50 mm <sup>2</sup>	ECBT-GNF/50

# ACCESSORIES FOR LOW VOLTAGE ELECTRIC PANELS

## EARTHING AND SHORT - CIRCUIT EQUIPMENT

### BLADES

Disconnecting and earthing blades



#### Mod. NH00

Code	Descripción	Ref.
659134	Earthing	NH00
659126	Fully isolated	NH00/A

#### Mod. NHO

Code	Description	Ref.
659135	Earthing	NHO
659127	Fully isolated	NHO/A

#### Mod. NH1-3

Code	Description	Ref.
659136	Earthing	NH1-3
659128	Fully isolated	NH1-3/A

#### Mod. NH4

Code	Description	Ref.
659137	Earthing	NH4
659129	Fully isolated	NH4/A

### CLAMPS

Earth clamps



#### Mod. MPUC

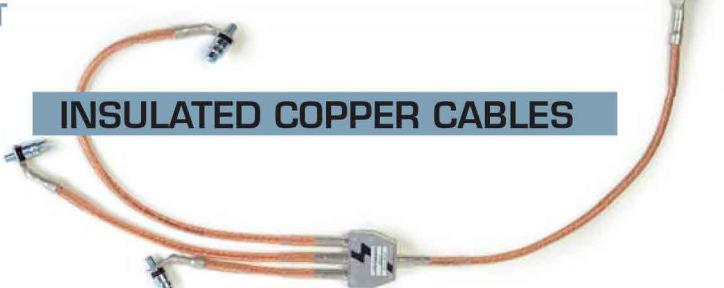
Code	Ref.
659133	MPUCN
659139	MPUCF



#### Mod. PTA

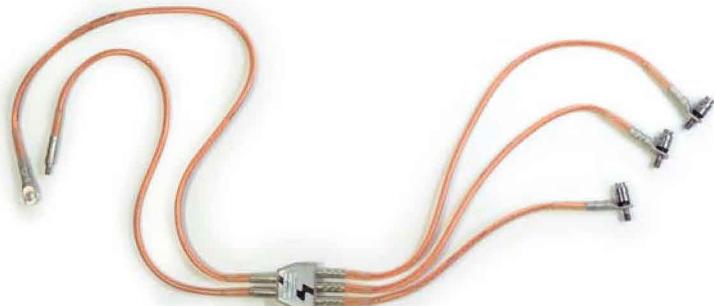
Code	Ref.
659132	PTA

### INSULATED COPPER CABLES



Copper PVC-insulated cables from 25 to 50 mm<sup>2</sup> section for short circuit of phases, connected to a trifurcating joint from which runs a copper PVC-insulated cable from 25 to 50 mm<sup>2</sup> section for earthing and a copper PVC-insulated cable from 25 to 50 mm<sup>2</sup> section for neutral.

Can be adjusted to suit client needs.



### POLE

Insulated pole for placing blades



#### Mod. PC

Code	Ref.
659131	PC



### METAL CASE

Metal carry case

High strength metal case to store and transport the equipment.

Code	Dimensions (mm)	Ref.
659151	260 x 525 x 80 Used to transport the equipment.	

# LOW VOLTAGE ELECTRIC PANELS

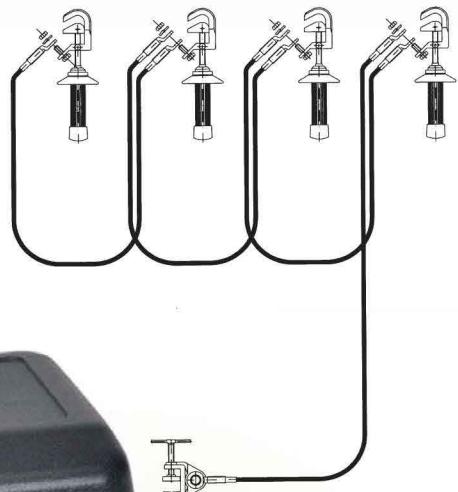
## EARTHING AND SHORT - CIRCUIT EQUIPMENT

### Mod. ECBT-MPUE

#### Low voltage electric panels

Earthing and short-circuit equipment for low voltage electric panels. The main aim for its installation is operator's protection against an accidental commissioning or possible voltage return during repair operations.

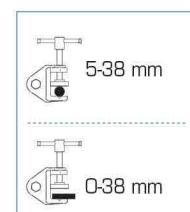
The MPUE clamps can be fixed on bare cylindrical conductors, flat bars, bending bus-bars or fixing points. Each one has its own fixed handle.



#### Composed of:

- 4 MPUE aluminium alloy clamps with screw tighten and insulated grip for cylindrical conductors with diameter between 4 and 30 mm, flat bars max. 45 mm, bending bus-bars max. 45 mm and fixing points between Ø 20 and 25 mm.
- 3 copper cables with PVC insulation of 35 mm<sup>2</sup> section and 0,6 m long.
- 1 copper cable with PVC insulation of 25 mm<sup>2</sup> section and 2 m long.
- 1 TT-38A milling earthing lathe.
- 1 plastic case to store and transport the equipment.

Code	Ref.
659000	ECBT-MPUE/35



# LOW VOLTAGE ELECTRIC PANELS

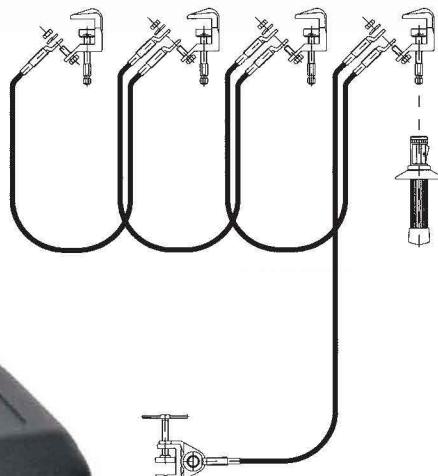
## EARTHING AND SHORT - CIRCUIT EQUIPMENT

### Mod. ECBT-MPUBTH

#### Low voltage electric panels

Earthing and short-circuit equipment for low voltage electric panels. The main aim for its installation is operator's protection against an accidental commissioning or possible voltage return during repair operations.

The MPUBTH clamps for low voltage are perfect to be fixed on flat bars.



Composed of:

- 4 MPUBTH aluminium alloy clamps with screw tighten.
- 1 insulated grip with polivalent head.
- 3 copper cables with PVC insulation of 35 mm<sup>2</sup> section and 0,6 m long.
- 1 copper cable with PVC insulation of 25 mm<sup>2</sup> section and 2 m long.
- 1 TT-38A milling earthing lathe.
- 1 plastic case to store and transport the equipment.



Code

659001

Ref.

ECBT-MPUBTH/35



# LOW VOLTAGE OVERHEAD LINES

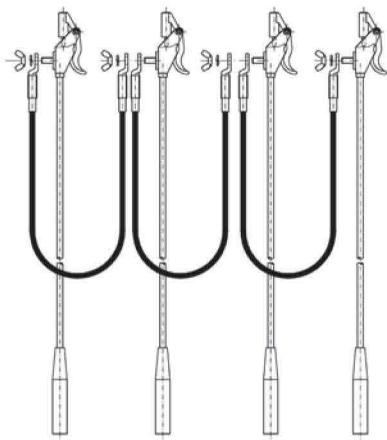
## EARTHING AND SHORT - CIRCUIT EQUIPMENT

### Mod. ELBT-CC

#### Low voltage overhead lines

Short-circuit equipment for low voltage overhead lines. The main aim for its installation is operator's protection against an accidental commissioning or possible voltage return during repair operations.

The ELBT clamp is installed on the bare conductor by leaning it on this one and pressing downwards. The clamp mechanism guarantees a permanent and steady contact.



##### Composed of:

- 4 ELBT spring clamps with 70 cm poles for cylindrical conductors with diameter between 3 and 18 mm.
- 3 copper cables with PVC insulation of 16 mm<sup>2</sup> section and 0,6 m long.
- 1 nylon bag to store and transport the equipment.

Code	Ref.
658110	ELBT-CC



# LOW VOLTAGE OVERHEAD LINES

## EARTHING AND SHORT - CIRCUIT EQUIPMENT

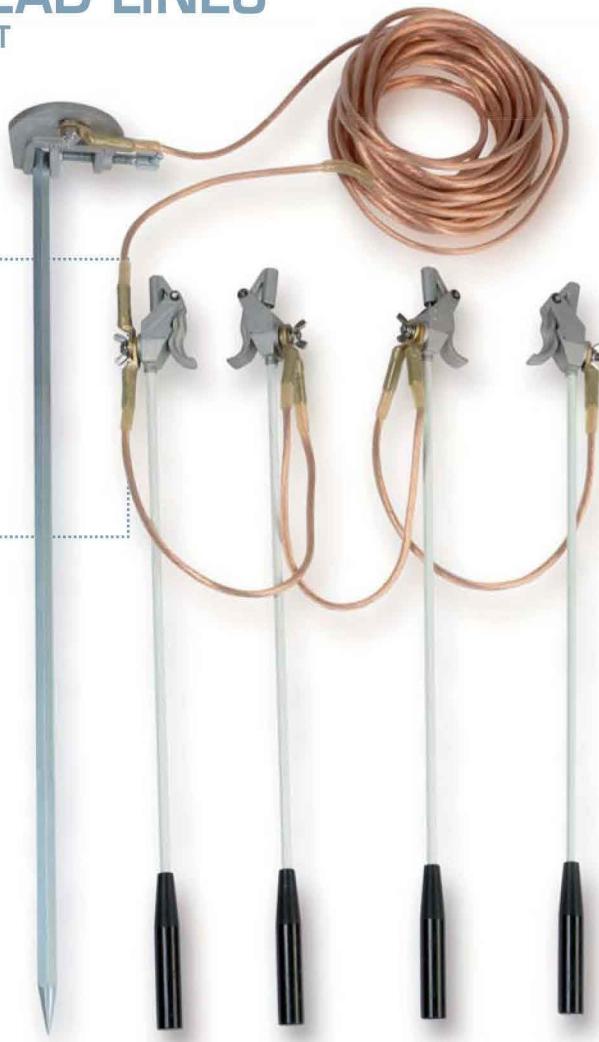
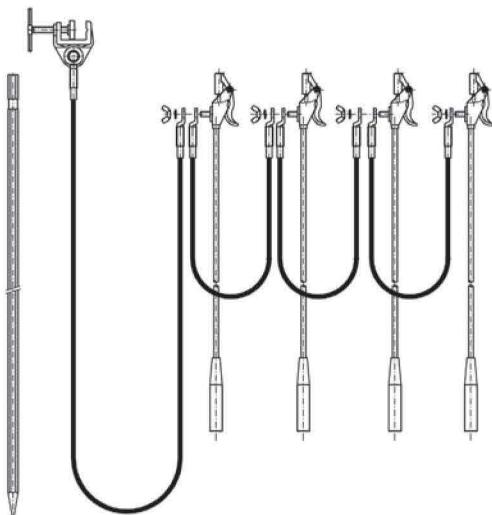
### Mod. ELBT-PAT/CC

#### Low voltage overhead lines

Earthing and short-circuit equipment for low voltage overhead lines.

The main aim for its installation is operator's protection against an accidental commissioning or possible voltage return during repair operations.

The ELBT clamp is installed on the bare conductor by leaning it on this one and pressing downwards. The clamp mechanism guarantees a permanent and steady contact.



#### Composed of:

- 4 ELBT spring clamps with 70 cm poles for cylindrical conductors with diameter between 3 and 18 mm.
- 3 copper cables with PVC insulation of 16 mm<sup>2</sup> section and 0,6 m long.
- 1 copper cable with PVC insulation of 16 mm<sup>2</sup> section and 15 m long.
- 1 TT-38A milling earthing lathe.
- 1 earthing rod.
- 2 nylon bags to store and transport the equipment.



Code

658120

Ref.

ELBT-PAT/CC



# UNIPOLAR EARTHING EQUIPMENT

## EARTHING AND SHORT - CIRCUIT EQUIPMENT

### Mod. PATF-MPU

#### Unipolar earthing equipment

Unipolar earthing equipment for railway system catenary lines with MPUB or MPUH clamp which allows the earthing connection of the lines during repair operations.



#### Composed of:

- 1 MPU aluminium alloy clamp with screw tighten and Bayonet (MPUB) or Hexagonal -12 (MPUH) fixing for cylindrical conductors with diameter between 4 and 30 mm.
- 1 copper cable with PVC insulation of 50 mm<sup>2</sup> section and 7 m long.
- 1 TT-38A milling earth lathe.
- 1 nylon bag to store and transport the equipment.

Code	Ref.
666100	PATF-MPUB/50
666110	PATF-MPUH/50

# MEDIUM VOLTAGE OVERHEAD LINES

## SCREW CLAMPS

### EARTHING AND SHORT - CIRCUIT EQUIPMENT

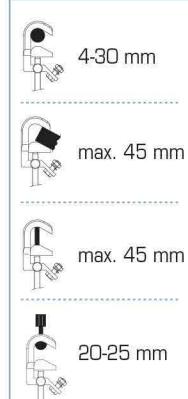
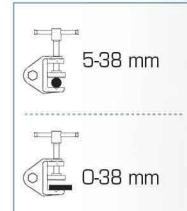
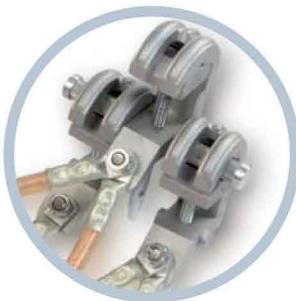
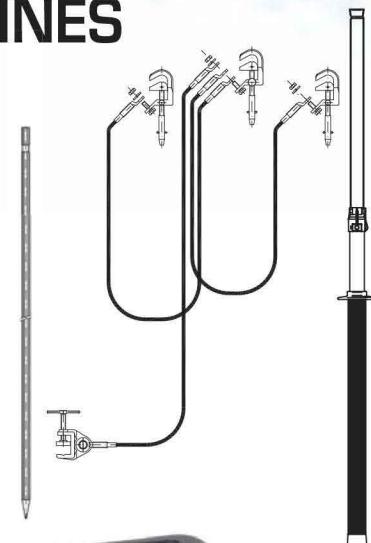
#### Mod. PATL-MPUB

##### Medium voltage overhead lines - Screw clamps

Earthing and short-circuit equipment for medium voltage overhead lines. The main aim for its installation is operator's protection against an accidental commissioning or possible voltage return during repair operations.

The MPU clamp is fixed on bare conductors by screw-tightening. This equipment has got a MPUP clamp (carrier) which facilitates the lifting and placing of the three clamps at the same time reducing installation time considerably.

According to IEC 61230 standard.



##### Composed of:

- 2 MPU aluminium alloy clamps with screw tighten for cylindrical conductors with diameter between 4 and 30 mm, flat bars max. 45 mm, bending bus-bars max. 45 mm and fixing points, between 20 and 25 mm.
- 1 MPUP aluminium alloy clamp (carrier) with screw tighten for cylindrical conductors with diameter between 4 and 30 mm, flat bars max. 45 mm, depending on model, bending bus-bars max. 45 mm and fixing points between 20 and 25 mm.
- 2 copper cables with PVC insulation of 16/25/35 mm<sup>2</sup> section depending on model and 2,5 m long.
- 1 copper cable with PVC insulation of 16/16/25 mm<sup>2</sup> section depending on model and 15 m long.
- 1 TT-38A milling earthing lathe.
- 1 earthing rod.
- 1 telescopic pole (1,15 m folded and 2 m extended).
- 1 plastic case to store and transport the equipment.
- 1 bag to store and transport the pole and the earthing rod.

Code	Ref.	Short circuit current Max. ICC
660290	PATL-MPUB/1616	4,0 KA/1s
660300	PATL-MPUB/2516	6,9 KA/1s
660310	PATL-MPUB/3525	9,0 KA/1s

IEC 61230

# MEDIUM VOLTAGE OVERHEAD LINES

## SCREW CLAMPS

### EARTHING AND SHORT - CIRCUIT EQUIPMENT

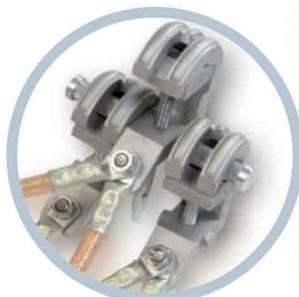
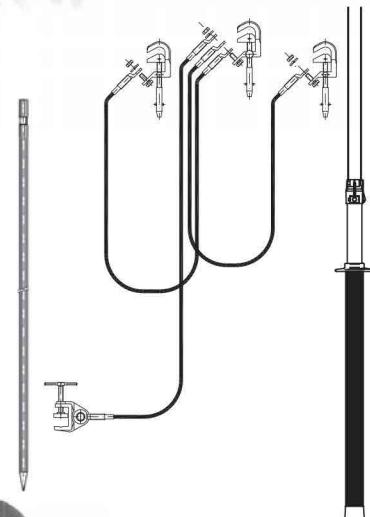
#### Mod. PATL-MPLB

##### Medium voltage overhead lines - Screw clamps

Earthing and short-circuit equipment for medium voltage overhead lines. The main aim for its installation is operator's protection against an accidental commissioning or possible voltage return during repair operations.

The MPL clamp is fixed on bare conductors by screw-tightening. This equipment has got a MPUP clamp (carrier) which facilitates the lifting and placing of the three clamps at the same time reducing installation time considerably.

According to IEC 61230 standard.



Composed of:

- 2 MPL aluminium alloy clamps with screw tighten for cylindrical conductors with diameter between 5 and 45 mm, flat bars max. 45 mm bending bus-bars max. 45 mm, fixing points, between 20 and 25 mm.
- 1 MPLP aluminium alloy clamp (carrier) with screw tighten for cylindrical conductors with diameter between 5 and 45 mm, flat bars max. 45 mm, bending bus-bars max. 45 mm, and fixing points between 20 and 25 mm.
- 2 copper cables with PVC insulation of 70 mm<sup>2</sup> section and 2,5 m long.
- 1 copper cable with PVC insulation of 70 mm<sup>2</sup> section and 15 m long.
- 1 TT-50 milling earthing lathe.
- 1 earthing rod.
- 1 telescopic pole (1,15 m folded and 2 m extended).
- 1 plastic case to store and transport the equipment.
- 1 bag to store and transport the pole and the earthing rod.

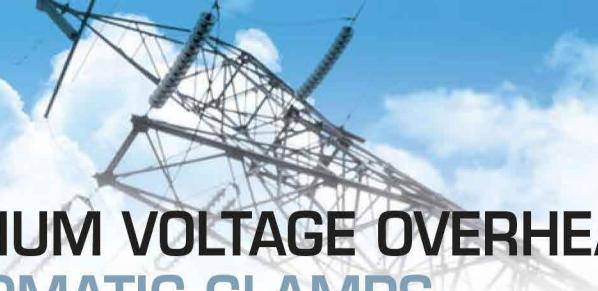


Code	Ref.	Short circuit current Max. ICC
665285	PATL-MPLB/7070	19 KA/1s

# MEDIUM VOLTAGE OVERHEAD LINES

## AUTOMATIC CLAMPS

EARTHING AND SHORT - CIRCUIT EQUIPMENT



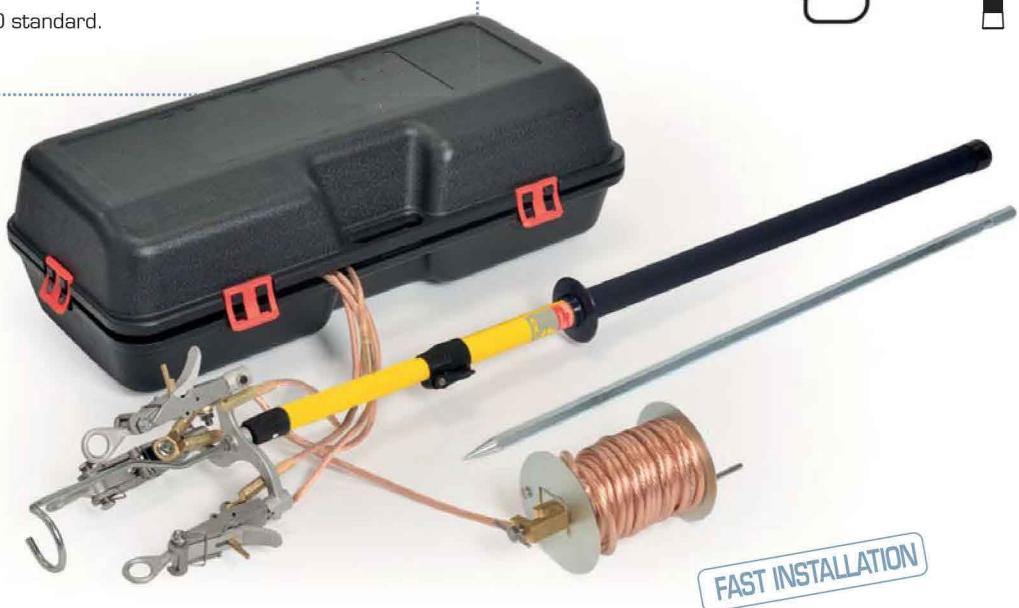
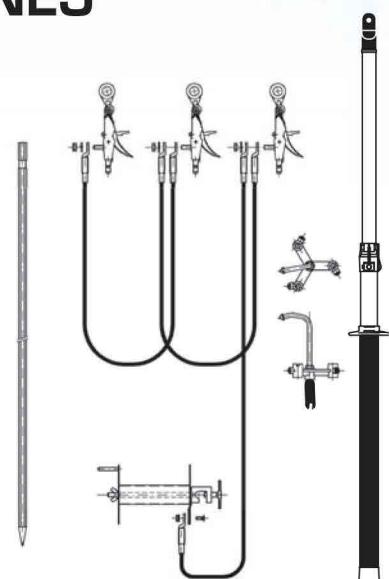
### Mod. PATL-MC

Medium voltage overhead lines - Automatic clamps

Earthing and short-circuit equipment for medium voltage overhead lines. The main aim for its installation is operator's protection against an accidental commissioning or possible voltage return during repair operations.

The MC clamp is fixed on bare conductors by pressure and can be removed by an operating hook. The three clamps can be placed at the same time thanks to the dispenser head facilitating operator's work.

According to IEC 61230 standard.



Code 671128

#### Composed of:

- 3 MC aluminium alloy clamps with automatic activation fastening for cylindrical conductors with diameter between 3 and 20 mm.
- 1 dispenser head with hook with M-10 thread.
- 2 copper cables with PVC insulation of 16/25/35 mm<sup>2</sup> section depending on model and 2,5 m long.
- 1 copper cable with PVC insulation of 16/25 mm<sup>2</sup> section depending on model and 15 m long.
- 1 metallic spool to store the 15 m of earthing cable.
- 1 telescopic pole (1,15 m folded and 2 m extended).
- 1 earthing rod.
- 1 plastic case to store and transport the equipment.
- 1 bag to store and transport the pole and the earthing rod.



Code	Ref.	Short circuit current Max. ICC
660225	PATL-MC/1616	4,0 KA/1s
660230	PATL-MC/2516	6,9 KA/1s
660240	PATL-MC/3525	9,0 KA/1s

IEC 61230

# MEDIUM VOLTAGE OVERHEAD LINES

## AUTOMATIC CLAMPS

### EARTHING AND SHORT - CIRCUIT EQUIPMENT

#### Mod. PATL-PCA25

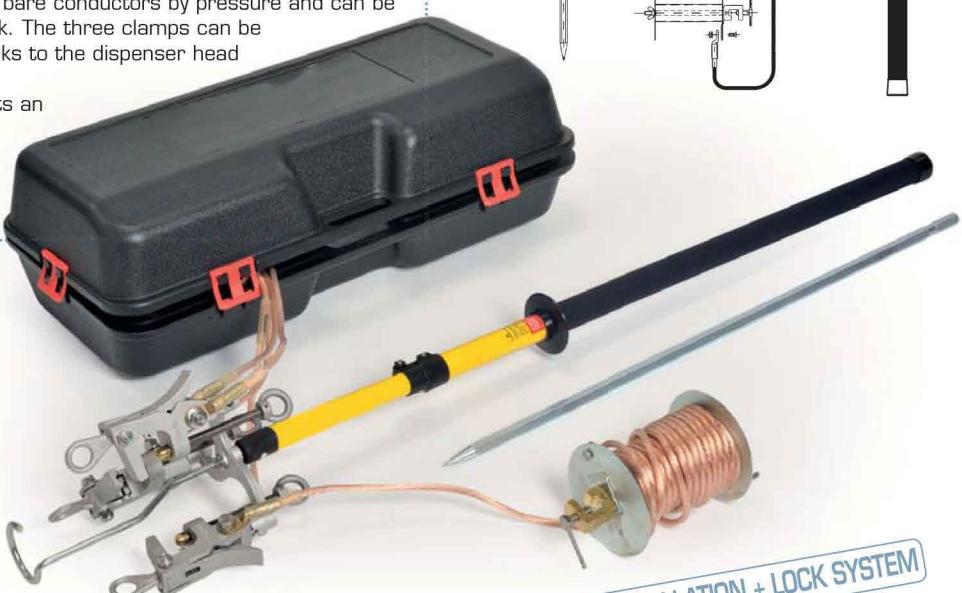
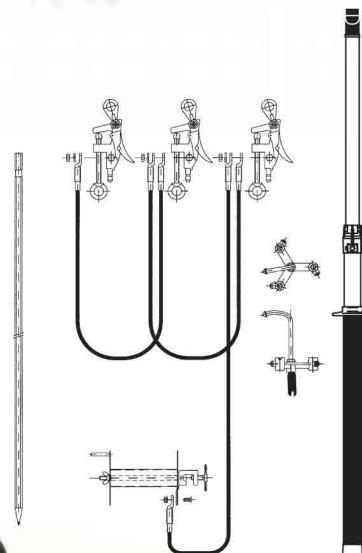
##### Medium voltage overhead lines Automatic clamps with final mechanical fixing

Earthing and short-circuit equipment for medium voltage overhead lines. The main aim for its installation is operator's protection against an accidental commissioning or possible voltage return during repair operations.

The PCA25 clamp is fixed on bare conductors by pressure and can be removed by an operation hook. The three clamps can be placed at the same time thanks to the dispenser head facilitating operator's work.

The new PCA-25 clamp grants an easy and secure installation.

According to IEC 61230 standard.



FAST INSTALLATION + LOCK SYSTEM

##### Composed of:

- 3 PCA-25 aluminium alloy clamps with automatic activation fastening and final mechanical fixing for cylindrical conductors with diameter between 6 and 25 mm.
- 1 dispenser head with hook with M-10 thread.
- 2 copper cables with PVC insulation of 16/25/35 mm<sup>2</sup> section (depending on model) and 2,5 m long.
- 1 copper cable with PVC insulation of 16/16/25 mm<sup>2</sup> section (depending on model) and 15 m long.
- 1 metallic spool to store the 15 m of earthing cable.
- 1 telescopic pole (1,15 m folded and 2 m extended).
- 1 earthing rod.
- 1 plastic case to store and transport the equipment.
- 1 bag to store and transport the pole and the earthing rod.

Code 671128



Code	Ref.	Short circuit current Max. ICC
660250	PATL-PCA25/1616	4,0 KA/1s
660260	PATL-PCA25/2516	6,9 KA/1s
660270	PATL-PCA25/3525	9,0 KA/1s

IEC 61230

# MEDIUM VOLTAGE SUBSTATIONS

## STEERABLE CLAMPS

### EARTHING AND SHORT - CIRCUIT EQUIPMENT

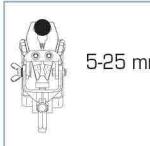
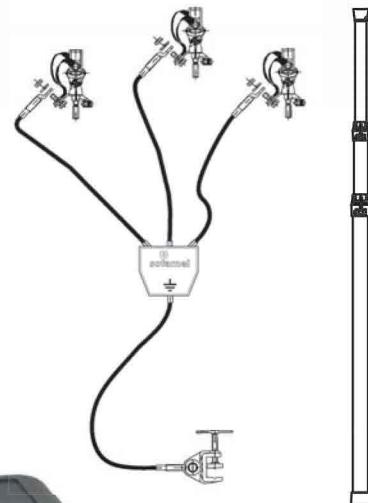
#### Mod. PATC-5014H

##### Medium voltage substations - Steerable clamps

Earthing and short-circuit equipment for medium voltage substations. The main aim for its installation is operator's protection against an accidental commissioning or possible voltage return during repair operations.

The 5014H clamp is perfect for difficult access areas. The clamp can be adjusted depending on the required inclination thanks to its multi-directional head system.

According to IEC 61230 standard.



##### Composed of:

- 3 5014H brass steerable clamps with screw tighten and Hexagonal-12 fixing for cylindrical conductors with diameter between 5 and 25 mm.
- 3 copper cables with PVC insulation of 25/35/50 mm<sup>2</sup> section (depending on model) and 0,75 m long.
- 1 copper cable with PVC insulation of 25/35/50 mm<sup>2</sup> section (depending on model) and 2 m long.
- 1 insulated trifurcating connector.
- 1 TT-38A milling earthing lathe.
- 1 1,5 m telescopic pole with three sections.
- 1 plastic case to store and transport the equipment.

Code	Ref.	Short circuit current Max. ICC
665250	PATC-5014H/2525	6,9 KA/1s
665255	PATC-5014H/3535	9,0 KA/1s
665260	PATC-5014H/5050	12,0 KA/1s

IEC 61230

# MEDIUM VOLTAGE SUBSTATIONS

## BUS BAR CLAMPS

EARTHING AND SHORT - CIRCUIT EQUIPMENT

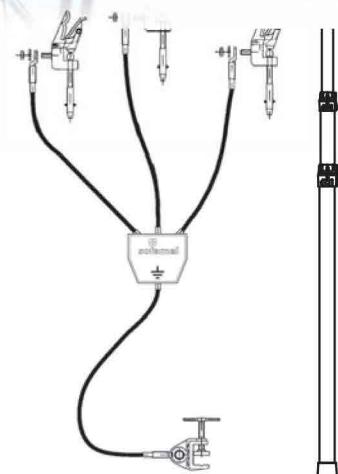
### Mod. PATC-PP15

#### Medium voltage substations - Bus-bar clamps

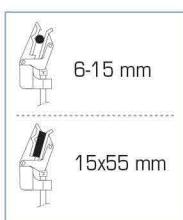
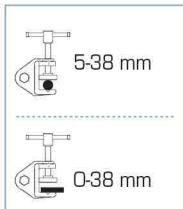
Earthing and short-circuit equipment for medium voltage substations. The main aim for its installation is operator's protection against an accidental commissioning or possible voltage return during repair operations.

The PP15 clamp is suitable for installations with flat bars in horizontal or vertical position.

According to IEC 61230 standard.



#### Composed of:



- 3 PP15 aluminium alloy clamps with bayonet fixing for cylindrical conductors with diameter between 6 and 15 mm and flat bars up to 15 x 55 mm.
- 3 copper cables with PVC insulation of 25/35/50 mm<sup>2</sup> section (depending on model) and 0,75 m long.
- 1 copper cable with PVC insulation of 25/35/50 mm<sup>2</sup> section (depending on model) and 2 m long.
- 1 insulated trifurcating connector.
- 1 TT-38A milling earthing lathe.
- 1 1,5 m telescopic pole with three sections.
- 1 plastic case to store and transport the equipment.

Code	Ref.	Short circuit current Max. ICC
665270	PATC-PP15/2525	6,9 KA/1s
665275	PATC-PP15/3535	9,0 KA/1s
665280	PATC-PP15/5050	12,0 KA/1s

# MEDIUM VOLTAGE SUBSTATIONS

## SCREW CLAMPS

### EARTHING AND SHORT - CIRCUIT EQUIPMENT

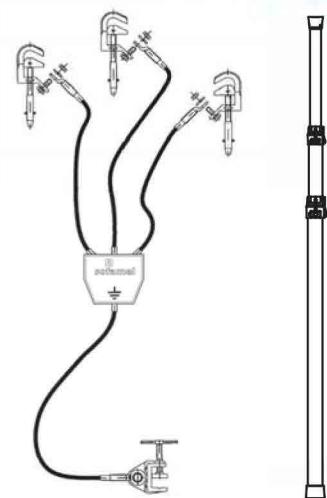
#### Mod. PATC-MPU

##### Medium voltage substations - Screw clamps

Earthing and short-circuit equipment for medium voltage substations. The main aim for its installation is operator's protection against an accidental commissioning or possible voltage return during repair operations.

The MPU clamp is fixed on bare cylindrical conductors, flat bars, bending bus-bars or fixing points by screw tightening.

According to IEC 61230 standard.



##### Composed of:

- 3 MPU aluminium alloy clamps with screw tighten and Bayonet (MPUB) or Hexagonal-12 (MPUH) fixing for cylindrical conductors with diameter between 4 and 30 mm, flat bars max.45 mm, bending bus-bars max.45 mm and fixing points between 20 and 25 mm.
- 3 copper cables with PVC insulation of 25/35/50 mm<sup>2</sup> section (depending on model) and 0,75 m long.
- 1 copper cable with PVC insulation of 25/35/50 mm<sup>2</sup> section (depending on model) and 2 m long.
- 1 insulated trifurcating connector.
- 1 TT-38A milling earthing lathe.
- 1 1,5 m telescopic pole with three sections.
- 1 plastic case to store and transport the equipment.



Code	Ref.	Short circuit current Max. ICC
665220	PATC-MPUB/2525	6,9 KA/1s
665225	PATC-MPUB/3535	9,0 KA/1s
665230	PATC-MPUB/5050	12,0 KA/1s
665235	PATC-MPUH/2525	6,9 KA/1s
665240	PATC-MPUH/3535	9,0 KA/1s
665245	PATC-MPUH/5050	12,0 KA/1s

# MEDIUM VOLTAGE SUBSTATIONS

## SCREW CLAMPS

### EARTHING AND SHORT - CIRCUIT EQUIPMENT

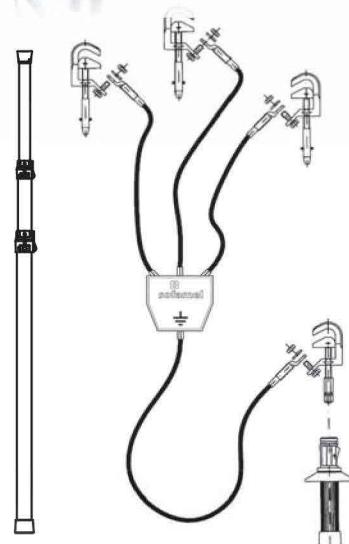
#### Mod. PATCPF-MPU

##### Medium voltage substations - Screw clamps

Earthing and short-circuit equipment for medium voltage substations. The main aim for its installation is operator's protection against an accidental commissioning or possible voltage return during repair operations.

The MPU clamp is fixed on bare cylindrical conductors, flat bars, bending bus-bars or fixing points by screw tightening.

According to IEC 61230 standard.



##### Composed of:

- 3 MPU aluminium alloy clamps with screw tighten and Bayonet fixing for cylindrical conductors with diameter between 4 and 30 mm, flat bars max. 45 mm bending bus-bars max. 45 mm and fixing points between 20 and 25 mm.
- 3 copper cables with PVC insulation of 25/35/50 mm<sup>2</sup> section (depending on model) and 0,75 m long.
- 1 copper cable with PVC insulation of 25/35/50 mm<sup>2</sup> section (depending on model) and 2 m long.
- 1 insulated trifurcating connector.
- 1 1,5 m telescopic pole with three sections.
- 1 insulating grip for the earthing clamp.
- 1 plastic case to store and transport the equipment.



Code	Ref.	Short circuit current Max. ICC
665310	PATCPF-MPU/2525	6,9 KA/1s
665315	PATCPF-MPU/3535	9,0 KA/1s
665320	PATCPF-MPU/5050	12,0 KA/1s

# HIGH VOLTAGE OVERHEAD LINES AND SUBSTATIONS

## EARTHING AND SHORT - CIRCUIT EQUIPMENT

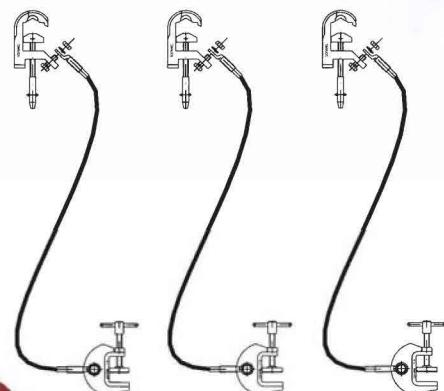
### Mod. PAT-MPL

#### High voltage overhead lines and substations

Phase earthing and short-circuit equipment for high voltage overhead lines.

The main aim for its installation is operator's protection against an accidental commissioning or possible voltage return during repair operations.

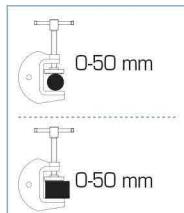
According to IEC 61230 standard.



#### Composed of:

- 3 MPL aluminium alloy clamps with screw tighten for cylindrical conductors with diameter between 5 and 45 mm, flat bars max. 45 mm, bending bus-bars max. 45 mm, and fixing points between 20 and 25 mm.
- 3 copper cables with PVC insulation. Section and length depending on model.
- 3 TT-50 milling earthing lathe.
- 3 nylon bags to store and transport the equipment.

#### LIGHT CLAMPS



Code	Ref.	Cable section (mm <sup>2</sup> )	Length (m)	Short circuit current Max. ICC
680176	PAT-MPL/05006		6	
680177	PAT-MPL/05007		7	
680178	PAT-MPL/05008	50	8	12 kA/1s
680179	PAT-MPL/05009		9	
680180	PAT-MPL/05010		10	
680186	PAT-MPL/07006		6	
680187	PAT-MPL/07007		7	
680188	PAT-MPL/07008	70	8	19 kA/1s
680189	PAT-MPL/07009		9	
680190	PAT-MPL/07010		10	
680196	PAT-MPL/09506		6	
680197	PAT-MPL/09507		7	
680198	PAT-MPL/09508	95	8	25 kA/1s
680199	PAT-MPL/09509		9	
680200	PAT-MPL/09510		10	
680206	PAT-MPL/12006		6	
680207	PAT-MPL/12007		7	
680208	PAT-MPL/12008	120	8	30 kA/1s
680209	PAT-MPL/12009		9	
680210	PAT-MPL/12010		10	

IEC 61230

# HIGH VOLTAGE OVERHEAD LINES

## EARTHING AND SHORT - CIRCUIT EQUIPMENT

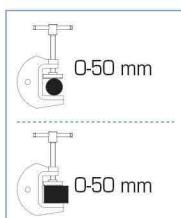
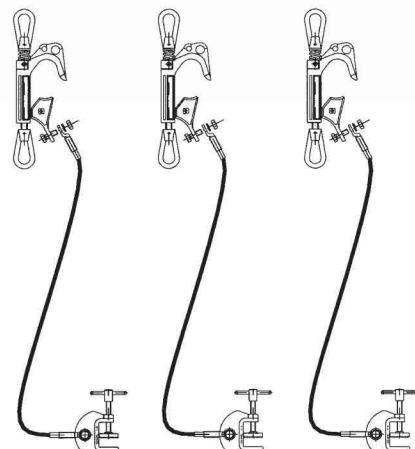
### Mod. PATL-TML

#### High voltage overhead lines

Phase earthing and short-circuit equipment for high voltage overhead lines.

The main aim for its installation is operator's protection against an accidental commissioning or possible voltage return during repair operations.

According to IEC 61230 standard.



#### Composed of:

- 3 TML aluminium alloy clamps with screw tighten for cylindrical conductors with diameter between 10 and 70 mm.
- 3 copper cables with PVC insulation. Section and length depending on model.
- 3 TT-50 milling earthing lathe.
- 3 nylon bags to store and transport the equipment.



Code	Ref.	Cable section (mm <sup>2</sup> )	Length (m)	Short circuit current Max. ICC
670176	PATL-TML/05006		6	
670177	PATL-TML/05007		7	
670178	PATL-TML/05008	50	8	12 kA/1s
670179	PATL-TML/05009		9	
670180	PATL-TML/05010		10	
670186	PATL-TML/07006		6	
670187	PATL-TML/07007		7	
670188	PATL-TML/07008	70	8	19 kA/1s
670189	PATL-TML/07009		9	
670190	PATL-TML/07010		10	
670196	PATL-TML/09506		6	
670197	PATL-TML/09507		7	
670198	PATL-TML/09508	95	8	25 kA/1s
670199	PATL-TML/09509		9	
670200	PATL-TML/09510		10	
670206	PATL-TML/12006		6	
670207	PATL-TML/12007		7	
670208	PATL-TML/12008	120	8	30 kA/1s
670209	PATL-TML/12009		9	
670210	PATL-TML/12010		10	

IEC 61230

# HIGH VOLTAGE SUBSTATIONS

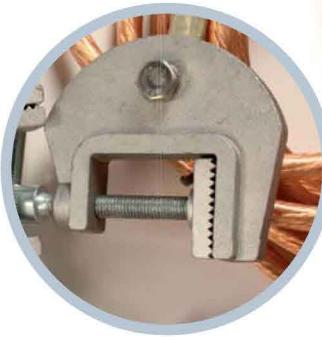
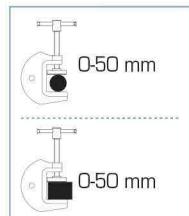
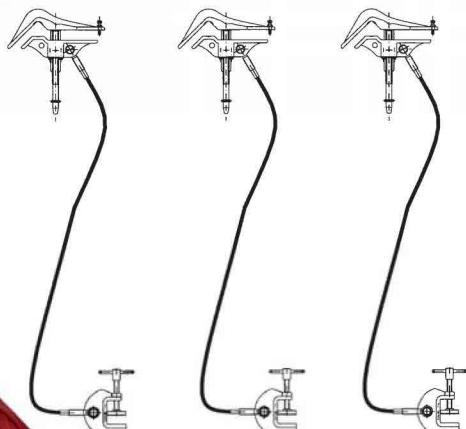
## EARTHING AND SHORT - CIRCUIT EQUIPMENT

### Mod. PATC-TMC

#### High voltage substation

Phase earthing and short-circuit equipment for high voltage substations. The main aim for its installation is operator's protection against an accidental commissioning or possible voltage return during repair operations.

According to IEC 61230 standard.



#### Composed of:

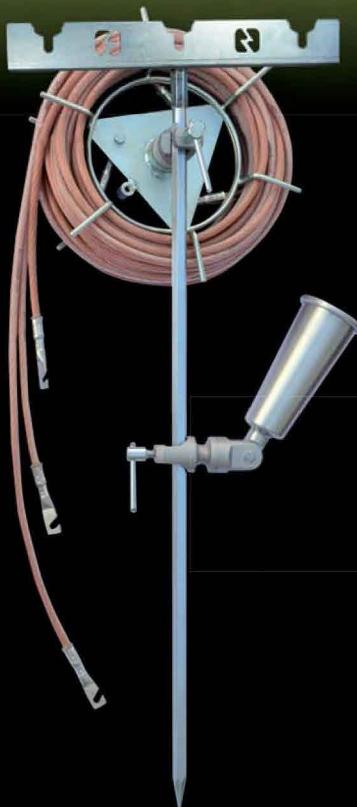
- 3 TMC aluminium alloy clamps with screw tighten for cylindrical conductors with diameter between 10 and 70 mm, flat bars max. 90 x 100 mm and bending bus-bars max. 50 x 120 mm.
- 3 copper cables with PVC insulation. Section and length depending on model.
- 3 TT-50 milling earthing lathe.
- 3 nylon bags to store and transport the equipment.

Code	Ref.	Cable section (mm <sup>2</sup> )	Length (m)	Short circuit current Max. ICC
675176	PATC-TMC/05006		6	
675177	PATC-TMC/05007		7	
675178	PATC-TMC/05008	50	8	
675179	PATC-TMC/05009		9	12 kA/1s
675180	PATC-TMC/05010		10	
675186	PATC-TMC/07006		6	
675187	PATC-TMC/07007		7	
675188	PATC-TMC/07008	70	8	
675189	PATC-TMC/07009		9	19 kA/1s
675190	PATC-TMC/07010		10	
675196	PATC-TMC/09506		6	
675197	PATC-TMC/09507		7	
675198	PATC-TMC/09508	95	8	
675199	PATC-TMC/09509		9	25 kA/1s
675200	PATC-TMC/09510		10	
675206	PATC-TMC/12006		6	
675207	PATC-TMC/12007		7	
675208	PATC-TMC/12008	120	8	
675209	PATC-TMC/12009		9	30 kA/1s
675210	PATC-TMC/12010		10	

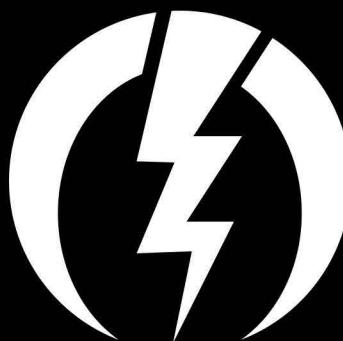
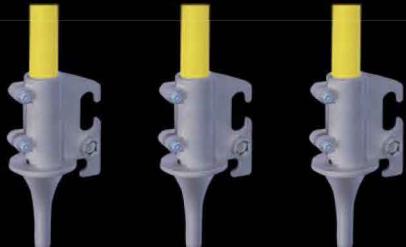
# ERLAIN

EARTHING EQUIPMENT  
FOR OVERHEAD LINES

- ✓ Light and easy to use
- ✓ Special pole lift with support bearing to operate in a quicker and safer way
- ✓ Very suitable for difficult access areas



*The most effective  
one for working at heights*



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lossless power transmission

# OVERHEAD LINES

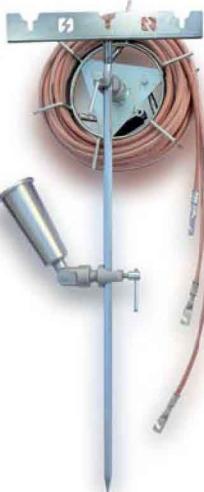
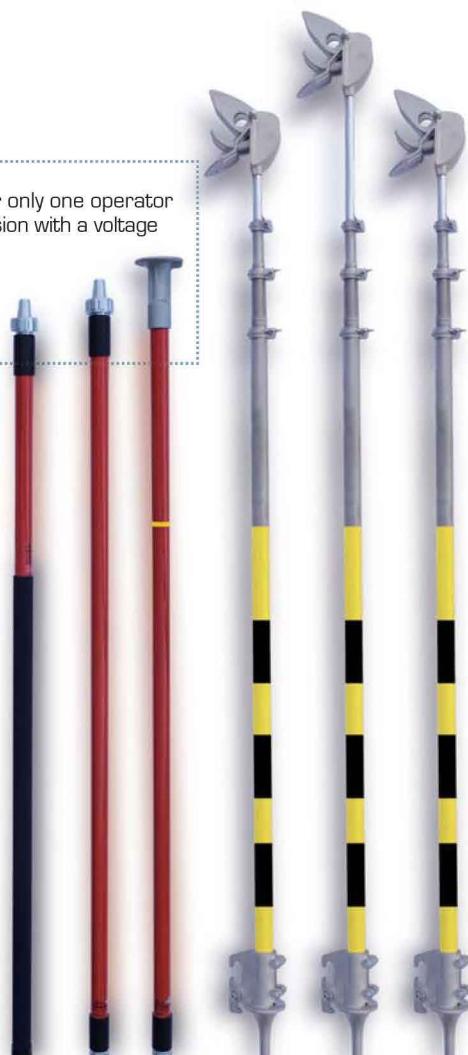
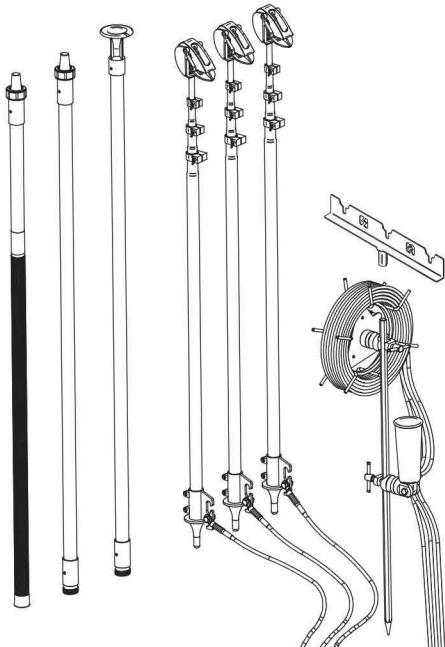
## EARTHING AND SHORT - CIRCUIT EQUIPMENT

### Mod. ERLAIN

#### Earthing equipment for overhead lines

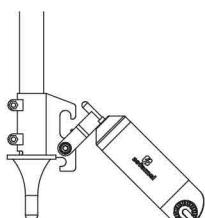
Earthing equipment for overhead lines, easy to use for only one operator that besides facilitates the verification of absence of tension with a voltage detector (not included).

Thanks to the operation sections of the metal pole, it has multiple length adjustments.



#### Composed of:

- 3 telescopic metal poles composed of 3 or 4 parts with self-locking contact fixed clamp for conductors with diameter between 3 and 22 mm and with a short circuit capacity of 8 kA/1s.
- 1 fiberglass + Epoxy resin and polyurethane foam filled insulating pole with 3 sections of  $1.72 + 1.65 + 1.63$  m; certified by the IEC 60855 Standard.  
Total length: 5 m (has the option of using it without the middle section with a remaining total length of 3.4 m)
- 1 pole lift
- 1 coil with 3 copper cables of  $35 \text{ mm}^2$  section and 10 m length
- 1 galvanized steel earthing rod with hexagonal section of 1 m
- 1 carrying bag



Code	Ref.	Extended lenght metal pole	Folded Length metal pole	Nº sections metal pole
660400	ERLAIN-3/11	6,00 m	2,20 m	3
660405	ERLAIN-4/10	5,10 m	1,50 m	4

# CLAMPS' INFORMATION

## EARTHING AND SHORT - CIRCUIT EQUIPMENT

### MC

Code 671120



3-20 mm  
Icc 9 KA/1s

### MPUP

Code 671116



4-30 mm  
max. 45 mm  
max. 45 mm  
20-25 mm  
Icc 12 KA/1s

### MPUB

Code 671115



4-30 mm  
max. 45 mm  
max. 45 mm  
20-25 mm  
Icc 12 KA/1s

### MPUH

Code 671110



4-30 mm  
max. 45 mm  
max. 45 mm  
20-25 mm  
Icc 12 KA/1s

### 5014H

Code 671100



5-25 mm  
Icc 12 KA/1s

### MPUBT

Code 659001P



0-35 mm  
Icc 12 KA/1s

### MPLP

Code 671158



5-45 mm  
max. 45 mm  
max. 45 mm  
20-25 mm  
Icc 30 KA/1s

### PP15

Code 671166



6-15 mm  
15x55 mm  
Icc 12 KA/1s

### PCA-25

Code 671171



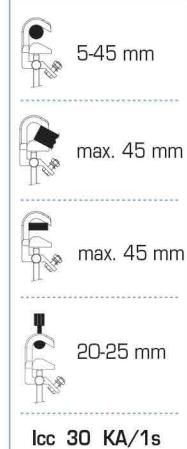
6-25 mm  
Icc 19 KA/1s

# CLAMPS' INFORMATION

## EARTHING AND SHORT - CIRCUIT EQUIPMENT

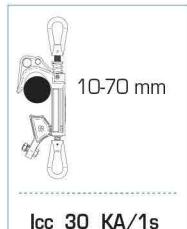
### MPL

Code 671157



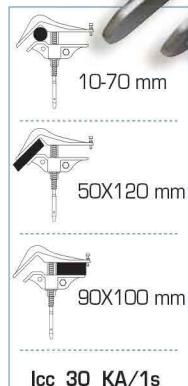
### TML

Code 670100P



### TMC

Code 675100P



### PP-3

Code 671126



### MPUE

Code 671112



### EMP

Code 659001E



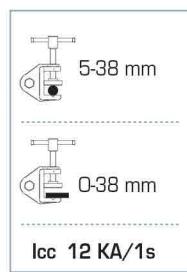
### PP-4

Code 671127



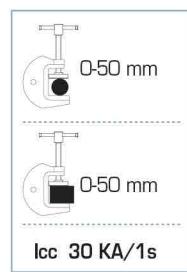
### TT38A

Code 671141



### TT50

Code 671151



# ACCESSORIES AND CABLES FOR EARTHING EQUIPMENT

## EARTHING AND SHORT - CIRCUIT EQUIPMENT

### Mod. FE

#### Bag for earthing equipment



Nylon bag to store and transport earthing equipment.

#### RANGE / DIMENSIONS OF PRODUCT

Code	Ref.	Dimensions (mm) width x length
899050	FE-20/120	200 x 1200
899055	FE-20/110	200 x 1100
899060	FE-40/30	400 x 300



#### Earthing and short circuit cable information

Extra flexible stranded copper cable coated with transparent PVC manufactured according to IEC-61138 standard (cables for portable earthing and short circuit complying with IEC 61230 standard).  
Test voltage: 1000V for 1 hour A.C.  
Temperature: -30°C to +70°C

Code	Nominal cross section (mm <sup>2</sup> )	I <sub>cc</sub> (kA/s)	Weight (Kg/m)	External Ø (mm)
M-03.015.00	16	4,0	0,18	8,6
M-03.025.00	25	6,9	0,26	10
M-03.035.00	35	9,0	0,36	11,4
M-03.050.00	50	12,0	0,515	13,7
M-03.070.00	70	19,0	0,710	16
M-03.095.00	95	25,0	0,95	18,3
M-03.120.00	120	30,0	1,17	20,1

# SHORT CIRCUIT CABLE

## SECTION

### EARTHING AND SHORT - CIRCUIT EQUIPMENT

#### Short circuit cable section - Heating curves

Fig. 1 - Melting point curve for copper cable.

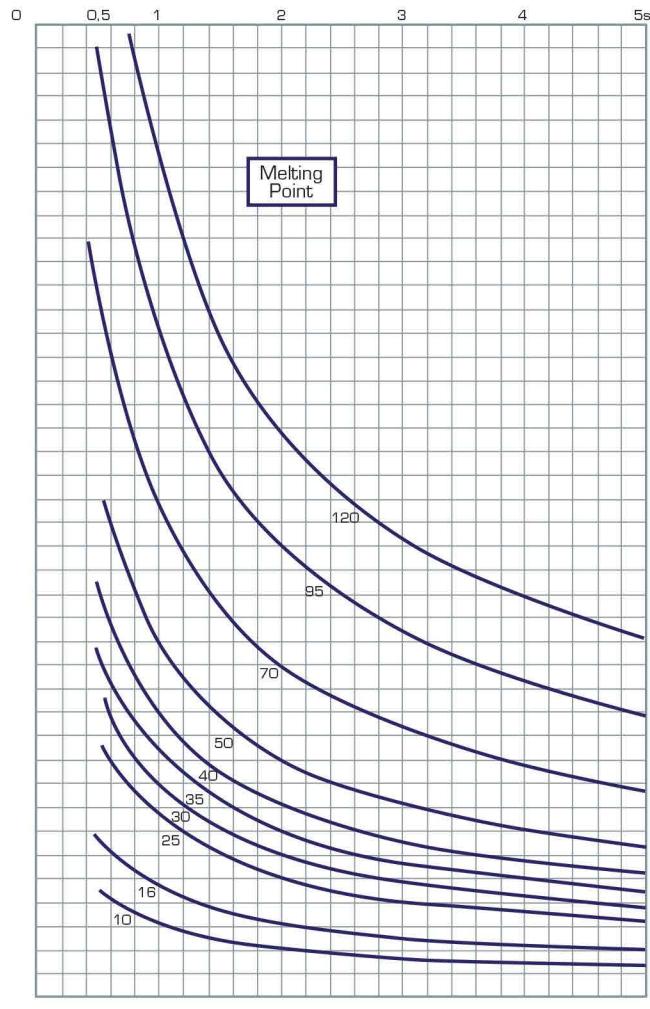
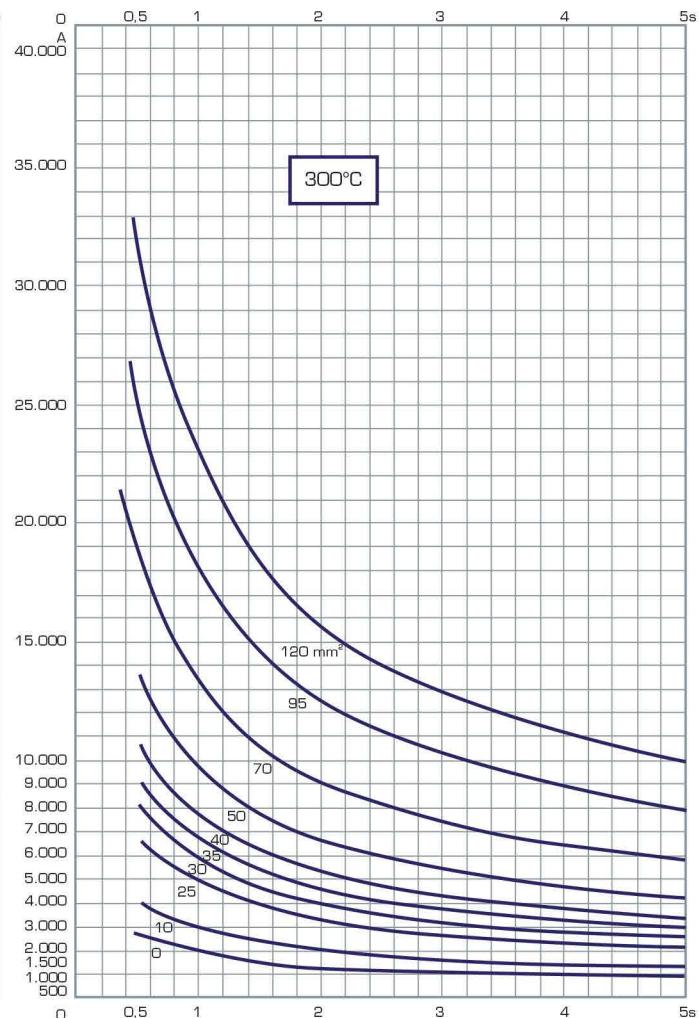


Fig. 2 - Heating curve (at 300° C) for copper cable.



Example: Choosing cable for a short circuit rating of 15 kA/1 sec.

Beginning with the curve in fig. 1, if a 50 mm<sup>2</sup> cable is used for more than 1 sec, cable burn-out will occur. If this is not permissible, a 70 mm<sup>2</sup> cable must be selected.

Fig. 2 shows if a 70 mm<sup>2</sup> cable conducts 15 kA for 1 sec, its temperature will rise to more than 300° C. Any cable which heats to 300° C will not be entirely destroyed, but should never be reused.



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lossless power transmission

# ANALOGIC VOLTAGE DETECTORS

## VOLTAGE DETECTORS



### Analogic voltage detector with pole Medium Voltage - Optical

Voltage presence is indicated by LED lights. Self-checking system by means of an incorporated piezoelectric generator.  
It works with no battery.  
Indoor use by insulating pole according to the rated voltage of the detector.  
Connection to the pole by Universal head.

#### Mod. VTO-5/36-P

##### Detector with pole

- Rated voltage: from 5 to 36 kV
- Frequency: 50 / 60 Hz
- Insulating pole: 1.30 m (included)
- Supplied with carrying bag for pole and metallic box to store and transport the voltage detector

Code	Ref.
640210	VTO-5/36-P

#### Mod. VTO-5/66-P

##### Detector with pole

- Rated voltage: from 5 to 66 kV
- Frequency: 50 / 60 Hz
- Insulating pole: 2 m (included)
- Supplied with carrying bag for pole and metallic box to store and transport the voltage detector

Code	Ref.
640215	VTO-5/66-P



# ANALOGIC VOLTAGE DETECTORS

## VOLTAGE DETECTORS

### Analogic voltage detector Medium Voltage - Optical

Voltage presence is indicated by LED lights. Self-checking system by means of an incorporated piezoelectric generator.

It works with no battery.

Indoor use by insulating pole according to the rated voltage of the detector.

Connection to the pole by Universal head.



#### Mod. VTO-5/36-U

##### Detector

- Rated voltage: from 5 to 36 kV
- Frequency: 50 / 60 Hz
- Supplied with a metallic box to store and transport the voltage detector

Code	Ref.
640200	VTO-5/36-U

#### Mod. VTO-5/66-U

##### Detector

- Rated voltage: from 5 to 66 kV
- Frequency: 50 / 60 Hz
- Supplied with a metallic box to store and transport the voltage detector

Code	Ref.
640205	VTO-5/66-U



# COMPACT VOLTAGE DETECTORS

## VOLTAGE DETECTORS

### Compact voltage detector Medium Voltage - Optical



Voltage presence is indicated by three red LED lights.

Self-checking system by means of an incorporated piezoelectric generator.

It works with no battery.

Indoor use by included compact insulating pole.  
As per RD 614/2001 directive.



### Mod. PEKE-5/36

#### Detector with pole

- Rated voltage: from 5 to 36 kV
- Frequency: 50 / 60 Hz
- Insulating telescopic pole included
- Total extended length with voltage detector: 125,5 cm
- Total folded length with voltage detector: 44,3 cm
- Supplied with bag to transport the voltage detector that can be attached to the belt.

Code	Ref.
640104	PEKE-5/36



# ELECTRONIC VOLTAGE DETECTORS

## VOLTAGE DETECTORS



### High resolution voltage detector Medium Voltage - Optical & Acoustic

Electronic voltage detector with micro controller and direct contact detection.

New advanced technology acquisition that guarantees a perfect and safe indication even in conflicting electric field environments.

Voltage presence is indicated by high luminosity red LED and high acoustic pressure buzzer.

Voltage absence is indicated by high luminosity green LED.

Low battery is indicated by orange LED.

Self-checking system for its complete circuit by pressing test button.

Stops working when low battery.

Work temperature range: from -25°C to +55°C.

Self-ignition when voltage presence.

Auto turn-off into sleep mode after two minutes of voltage absence.

Consumption is less than 1µA in this mode.

Power supply: 9V alkaline battery, type 6LR61 (included).

Indoor and outdoor use by appropriate insulating pole to the detector voltage detector range connection to the pole by Universal head.

Manufactured according to IEC 61243 Standard (except voltage range).

### Mod. VTE-5/36-P

#### Voltage detector with pole

- Rated voltage: from 5 to 36 kV
- Frequency: 50 / 60 Hz
- Insulating pole: 1.30 m (included)
- Supplied with carrying bag for pole and metallic box to store and transport the voltage detector

Code	Ref.
641103	VTE-5/36-P

### Mod. VTE-5/66-P

#### Voltage detector with pole

- Rated voltage: from 5 to 66 kV
- Frequency: 50 / 60 Hz
- Insulating pole: 2 m (included)
- Supplied with carrying bag for pole and metallic box to store and transport the voltage detector

Code	Ref.
641105	VTE-5/66-P



# ELECTRONIC VOLTAGE DETECTORS

## High resolution voltage detector Medium Voltage - Optical & Acoustic

Electronic voltage detector with micro controller and direct contact detection. New advanced technology acquisition that guarantees a perfect and safe indication even in conflicting electric field environments.

Voltage presence is indicated by high luminosity red LED and high acoustic pressure buzzer.

Voltage absence is indicated by high luminosity green LED.

Low battery is indicated by orange LED.

Self-checking system for its complete circuit by pressing test button.

Stops working when low battery.

Work temperature range: from -25°C to +55°C.

Self-ignition when voltage presence.

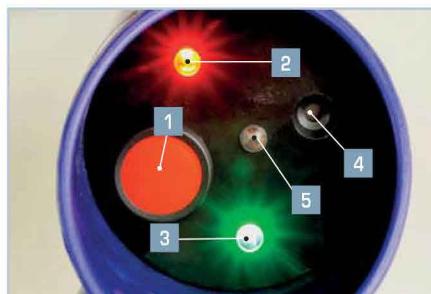
Auto turn-off into sleep mode after two minutes of voltage absence.

In this mode consumption is less than 1µA.

Power supply: 9V alkaline battery, type 6LR61 (included).

Indoor and outdoor use by appropriate insulating pole to the detector voltage range. Connection to the pole by Universal head.

Manufactured according to IEC 61243 Standard (except voltage range).



1. On/test button
2. Red LED (Voltage presence)
3. Green LED (Voltage absence)
4. Buzzer (Audible signal)
5. Orange LED (Low battery)

### Mod. VTE-5/36-U

#### Voltage detector

- Rated voltage: from 5 to 36 kV
- Frequency: 50 / 60 Hz
- Supplied with a metallic box to store and transport the voltage detector

Code	Ref.
641113	VTE-5/36-U

### Mod. VTE-5/66-U

#### Voltage detector

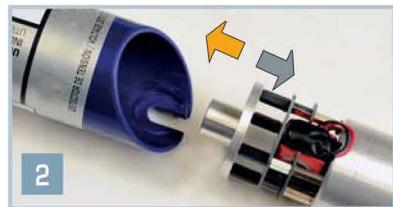
- Rated voltage: from 5 to 66 kV
- Frequency: 50 / 60 Hz
- Supplied with a metallic box to store and transport the voltage detector

Code	Ref.
641115	VTE-5/66-U

#### BATTERY REPLACEMENT



Unscrew the contact electrode.



Separate the inside from the plastic piece.



Change battery.

# IEC ELECTRONIC VOLTAGE DETECTORS

## VOLTAGE DETECTORS

### IEC High resolution voltage detector Medium Voltage - Optical & Acoustic

Electronic voltage detector with micro controller and direct contact detection. New advanced technology acquisition that guarantees a perfect and safe indication even in conflicting electric field environments. Voltage presence is indicated by high luminosity red LED and high acoustic pressure buzzer. Voltage absence is indicated by high luminosity green LED. Low battery is indicated by orange LED. Self-checking system for its complete circuit by pressing test button. Stops working when low battery. Work temperature range: from -25°C to +55°C. Self-ignition when voltage presence. Auto turn-off into sleep mode after two minutes of voltage absence. In this mode consumption is less than 1µA. Power supply: 9V alkaline battery, type 6LR61 (included). Indoor and outdoor use by appropriate insulating pole to the detector voltage range. Connection to the pole by Universal head. Supplied with metallic box. According to IEC 61243-1 Ed2 and UNE-EN 61243-1/2006+A1.2011 standards.



#### Mod. VTM-3/10-U

##### Voltage detector

- Rated voltage: from 3 to 10 kV
- Frequency: 50 / 60 Hz

Code	Ref.
645220	VTM-3/10-U

#### Mod. VTM-4/12-U

##### Voltage detector

- Rated voltage: from 4 to 12 kV
- Frequency: 50 / 60 Hz

Code	Ref.
645225	VTM-4/12-U

#### Mod. VTM-10/30-U

##### Voltage detector

- Rated voltage: from 10 to 30 kV
- Frequency: 50 / 60 Hz

Code	Ref.
645230	VTM-10/30-U

#### Mod. VTM-11/33-U

##### Voltage detector

- Rated voltage: from 11 to 33 kV
- Frequency: 50 / 60 Hz

Code	Ref.
645235	VTM-11/33-U

#### Mod. VTM-15/45-U

##### Voltage detector

- Rated voltage: from 15 to 45 kV
- Frequency: 50 / 60 Hz

Code	Ref.
645240	VTM-15/45-U

#### Mod. VTM-22/66-U

##### Voltage detector

- Rated voltage: from 22 to 66 kV
- Frequency: 50 / 60 Hz

Code	Ref.
645245	VTM-22/66-U



IEC 61243-1 Ed2  
UNE-EN 61243-1/2006+A1.2011

# IEC ELECTRONIC VOLTAGE DETECTORS

## VOLTAGE DETECTORS

### IEC high tech voltage detector High Voltage - Optical & Acoustic



Electronic voltage detector by micro controller and direct contact detection. New advanced technology acquisition by pulse of light that guarantees a perfect and safe indication even in conflicting electric field environments. Work temperature range: from -25°C to +55°C. Self-checking system for its complete circuit by pressing test button. Self-ignition when voltage presence. Auto turn-off into sleep mode after two minutes of voltage absence. In this mode consumption is less than 1 µA. Voltage presence is indicated by high luminosity red LED and high acoustic pressure buzzer. Voltage absence is indicated by high luminosity green LED. Power supply 9V alkaline battery, type 6LR61 (included). Indoor and outdoor use by appropriate insulating pole to the detector voltage range. Connection to the pole by Universal head. Supplied with metallic box. According to IEC 61243-1 Ed2 and UNE-EN 61243-1/2006+A1.2011 standards.



#### Mod. VTA-63/150-U

##### Voltage detector

- Rated voltage from: 63 to 150 kV
- Frequency: 50 / 60 Hz

Code	Ref.
645162 (50 / 60 Hz)	VTA-63/150-U

#### Mod. VTA-66/220-U

##### Voltage detector

- Rated voltage from: 66 to 220 kV
- Frequency: 50 / 60 Hz

Code	Code	Ref.
645164 (50 Hz)	645165 (60 Hz)	VTA-66/220-U

#### Mod. VTA-90/225-U

##### Voltage detector

- Rated voltage from: 90 to 225 kV
- Frequency: 50 / 60 Hz

Code	Ref.
645172 (50 / 60 Hz)	VTA-90/225-U

#### Mod. VTA-150/420-U

##### Voltage detector

- Rated voltage from: 150 to 420 kV
- Frequency: 50 / 60 Hz

Code	Ref.
645182 (50 / 60 Hz)	VTA-150/420-U

#### Mod. VTA-45/420-U\*

##### Voltage detector

- Rated voltage from: 45 to 420 kV
- Frequency: 50 / 60 Hz

Code	Ref.
645184 (50 / 60 Hz)	VTA-45/420-U

#### Mod. VTA-225/420-U\*

##### Voltage detector

- Rated voltage from: 225 to 420 kV
- Frequency: 50 / 60 Hz

Code	Ref.
645186 (50 / 60 Hz)	VTA-225/420-U

\* Out of IEC Standard.

# ELECTRONIC DETECTOR FOR CATEINARY LINES

VOLTAGE DETECTORS

Mod. VTC-OAD

DC voltage detector with AC induced voltage indication  
Optical & Acoustic



<b>Voltage range:</b>	DC voltage: from 500 to 3.500 V AC induced voltage: from 500 to 3.500 V
<b>Usage frequency:</b>	DC: continous AC: 50 / 60 Hz
<b>Operating temperature:</b>	From -25°C to 55°C
<b>Humidity Range:</b>	From 20 to 96 %
<b>Indication of alert status:</b>	High luminosity green LED when there is no voltage or it is below the established detection threshold
<b>Optical indication:</b>	High luminosity orange fixed LED when there is DC voltage presence High luminosity flashing red LED when there is AC induced voltage presence
<b>Acoustic indication:</b>	Fixed acoustic buzzer for DC voltage presence Alternated buzzer for AC induced voltage presence Fixed acoustic buzzer with different frequency when DC voltage and AC induced voltage are present at the same time
<b>Power supply:</b>	9v alkaline battery, type 6LR61
<b>Earthing cable:</b>	Extra flexible cable with silicon sheath and 6m long (possibility of other lengths as per customer's request)
<b>Connection to insulation pole:</b>	By universal head (not included)
<b>Self-checking:</b>	Full self-checking system with automatic disconnection after two minutes WITHOUT VOLTAGE DETECTION
<b>Automatic start-up:</b>	Automatic start-up system using detection of voltage (approx. 500 V DC and 1.000 V AC)
<b>Electrode:</b>	Possibility of exchanging electrode
<b>Threshold voltage:</b>	DC Threshold - From 400 to 500 V AC Threshold - From 400 to 500 V

# ELECTRONIC DETECTOR FOR Catenary LINES

VOLTAGE DETECTORS

Mod. VTC-OA

DC voltage detector  
Optical & Acoustic



Code

645210

Ref.

VTC-OA



<b>Voltage range:</b>	DC voltage from 500 to 3.500 V
<b>Usage frequency:</b>	DC: continuos
<b>Operating temperature:</b>	From -25°C to +55°C
<b>Humidity Range:</b>	From 20 to 96 %
<b>Indication of alert status:</b>	High luminosity green LED, when there is no voltage or it is below the established detection threshold
<b>Optical indication:</b>	High luminosity red LED for voltage range 1 High luminosity red+orange LED for voltage range 2
<b>Acoustic indication:</b>	Different frequency high pressure acoustic buzzer for each threshold
<b>Power supply:</b>	9v alkaline battery, type 6LR61
<b>Earthing cable:</b>	Low battery is indicated by flashing green LED, when battery level is critical green LED is off Extra flexible cable with silicon sheath and 6m long (possibility of other lengths as per customer's request)
<b>Connection to insulation pole:</b>	By universal head (not included)
<b>Self-checking:</b>	Full self-checking system with automatic disconnection after two minutes WITHOUT DETECTION
<b>Automatic start-up:</b>	Automatic start-up system using detection of voltage (approx. 500 V DC)
<b>Electrode:</b>	Possibility of changing electrode
<b>Threshold voltage:</b>	Threshold 1 - from 400 to 1.000 V Threshold 2 - from 1.000 to 1.500 V

# ELECTRONIC DETECTOR FOR CATEINARY LINES

VOLTAGE DETECTORS

Mod. VTE-25-U

AC voltage detector for fast speed train networks  
Optical & Acoustic

Electronic voltage detector with micro controller and direct contact detection. New advanced technology acquisition that guarantees a perfect and safe indication even in conflicting electric field environments.

Voltage presence is indicated by high luminosity red LED and high acoustic pressure buzzer.

Voltage absence is indicated by high luminosity green LED.

Low battery is indicated by orange LED.

Self-checking system for its complete circuit by pressing test button.

Stops working when low battery.

Work temperature range: from -25°C to +55°C.

Self-ignition when voltage presence.

Auto turn-off into sleep mode after two minutes of voltage absence.

In this mode consumption in less than 1µA.

Power supply: 9V alkaline battery, type 6LR61 (included).

Indoor and outdoor use by appropriate insulating pole to the detector voltage range. Connection to the pole by Universal head.

Manufactured according to IEC 61243 Standard.

- Rated voltage: 25 kV AC
- Frequency: 50 / 60 Hz
- Supplied with carrying bag for pole and metallic box to store and transport the voltage detector



Code

Ref.

641120

VTE-25-U

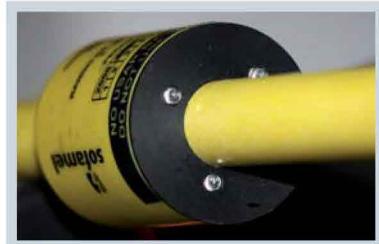


# BIPOLAR VOLTAGE DETECTORS

## VOLTAGE DETECTORS

### Mod. VTBR-3/36

Bipolar voltage detector



Bipolar voltage detector with high impedance probes for MV networks and optical signalling of voltage presence.  
It works with no battery.  
External checking device with battery included.  
Supplied with carrying bag to store and transport the equipment.  
Manufactured according to IEC 61481 standard.

- Voltage range: from 3 to 36 kV AC
- Optical indication via LED
- Frequency: 50 Hz
- Indoor use

	Code	Length of wire	Ref.
	650101	2 m	VTBR-3/36

# BIPOLAR VOLTAGE DETECTORS

## VOLTAGE DETECTORS

### Mod. VBD-3/36

Bipolar voltage detector with OLED screen  
Optical & Acoustic



Bipolar voltage detector with digital display OLED to be used in MV networks.  
Internal and external use in dry environment.  
Voltage range: from 3 to 36 kV AC.  
Automatic start-up when voltage is detected.  
Auto turn-off to standby mode after two minutes WITHOUT VOLTAGE DETECTION. In this mode consumption is less than 1  $\mu$ A.  
Doble indication of concordance-discordance by LED lights, reading on digital display, and high acoustic pressure buzzer.  
Removable antenna.  
Power supply: 9V alkaline battery, type 6LR61.

**Functionalities:**  
Phase comparator  
Fuse tester  
Voltage meter (True RMS)  
Network analyzer  
Displaying of Labor Statistics  
Menu languages: English - Spanish - French

- Rated voltage: from 3 to 36 kV AC
- LED optical indication
- Frequency: 50 or 60 Hz AC
- Type: resistive
- S class with extension of the contact electrode
- Climatic category N, climatic conditions for use and storage, temperature from -25°C to +55°C, and humidity from 20 to 96%
- Indoor and outdoor use in dry environment

Code	Ref.	Length of wire	Hz	kV
650105	VBD-3/36-50Hz	2 m	50	3 to 36

Code	Ref.	Length of wire	Hz	kV
650110	VBD-3/36-60Hz	2 m	60	3 to 36

Accessories VBD check and 45° angle antenna not included.

### Mod. VBD CHECK



Code	Ref.
650108	VBD CHECK

### 45°ANGLE ANTENNA



Code	Ref.
650107	45°ANGLE ANTENNA

# PERSONAL VOLTAGE DETECTOR

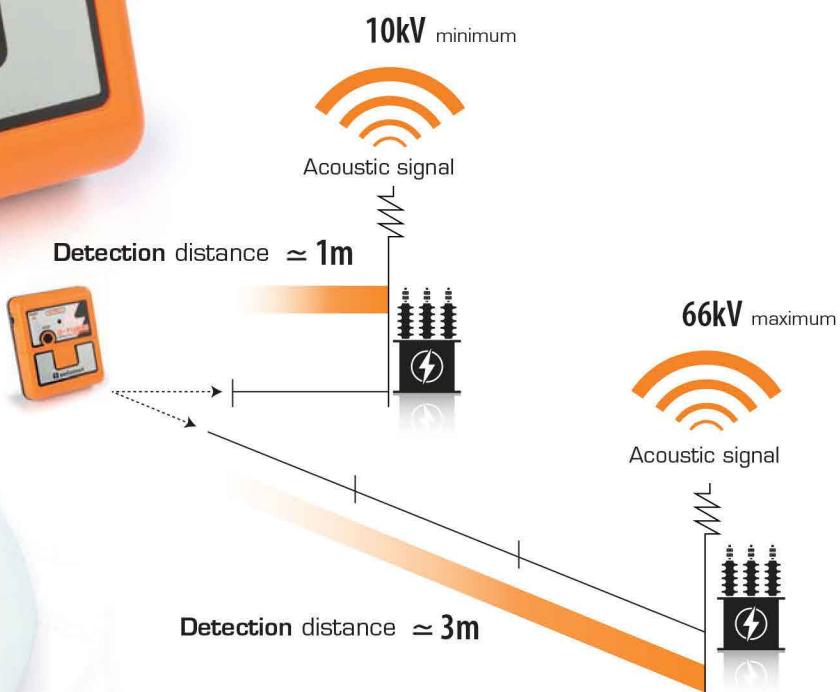
## VOLTAGE DETECTORS



**D-TUERI**  
PERSONAL DETECTOR

Omnidirectional electric field personal voltage detector  
Medium Voltage - Optical & Acoustic

Additional safety device for individual use.  
Personal omnidirectional electric field detector. When the operator approaches an electric field between 10kV and 66kV and exceeds an approximate distance of 1m for 10 kV and 3m for 66kV, the detector emits a sound to inform the operator that he/she is in a danger area, and the sound will continue until the operator moves away from the voltage source.



- Optimized for use in distribution / transformer substations & overhead lines
- Operating range: 10 kV to 66 kV
- Operating frequency: 50 and 60Hz
- Powered by two LR-03 batteries

Code	Ref.
645250	D-TUERI



# LOW VOLTAGE DETECTORS

## VOLTAGE DETECTORS

### Mod. TESTER PRC

#### Optical & Acoustic



Handy voltage contact-less tester, very easy to operate with. Appropriate for a wide range of applications. Confirms the presence of voltage by a red LED and acoustic sign by buzzer.

Code	Ref.	
635200	TESTER PRC	1

#### Technical Details

Display  
Measurement Range  
Power Supply  
Protection  
Overload Category  
Certifications  
Dimension  
Weight  
Lamp  
Colour  
Includes

**TESTER PRC**  
optical and acoustical  
12V to 1000V AC  
2x 1,5V  
IP 44  
CAT III 1000V  
TÜV/GS  
IEC/EN 61010-1  
160 x 25 mm  
45 g  
Integrated LED-torch  
red  
2 batteries type AAA LRO3

3 years manufacturer's warranty.

### Mod. TESTER PD

#### Optical & Acoustic



A two-pole voltage tester with phase discriminator, optical signal by LEDs when presence of voltage and continuity test.

Code	Ref.	
635205	TESTER PD	1

#### Technical Details

Display  
Operating panel  
Measurement range  
Voltage range  
Continuity test  
Phase indication  
Switchable load  
Power supply  
Overload category  
Dimension  
Protection  
Weight  
Colour  
Includes  
Supplies, optional  
Total length of the cable

**TESTER PD**  
optical 12 LEDs  
finger tip / RCD button  
automatic range  
6 - 1000V AC/DC, 0 - 400Hz  
0 - 500k with acoustical signal  
> 100V AC  
Is ~ 30mA ED(DT) = 30 sec.  
2x 1,5V  
CAT IV 1000V  
238x70x30mm  
IP 65  
200 g  
red  
2 batteries type AAA LRO3  
bag  
110cm

3 years manufacturer's warranty.

# LOW VOLTAGE DETECTORS

## VOLTAGE DETECTORS

### Mod. Multimeter CAM

### Optical & Acoustic



Multimeter with AC/DC non invasive amperimetric clamp up to 600 A.

Code	Ref.	
635210	Multimeter CAM	1

Technical Details
Display
AC Current
Accuracy
Highest Resolution
DC current
Accuracy
Highest Resolution
AC voltage
Accuracy
Highest Resolution
Input Impedance
DC voltage
Accuracy
Highest Resolution
Input Impedance
Frequency by clamp
Accuracy
Highest Resolution
Frequency by plugs
Accuracy
Highest Resolution
Duty Cycle
Frequency response
Resistance
Accuracy
Highest Resolution
Diode test
Resolution
Continuity test
Power Supply
Overload Category
Dimensions
Protection
Weight
Certifications
Colour
Scope of Delivery
Includes

Multimeter CAM
4digit LCD, 6599counts
60A, 600A, 40 to 400Hz
±3,0%+10digits overall
10mA
60A, 600A
±3,0% +10digit overall
10mA
600mV, 6, 60, 600V, 40 to 400Hz
±1,5%+10digit till 600mV / ±1,2%+5digit till 60V / ±1,5%+10digit till 600V
100µV
10MΩ
600m, 6, 60, 600V
±0,8%+3digit till 60V / ±1,0%+5digit till 600V
100µV
10MΩ
600Hz, 1kHz, >1A AC rms
±1,5%+5digit till 1kHz
100mHz
600Hz, 6kHz, 10kHz, >0,2V AC rms
±1,5%+5digit till 10kHz
100mHz
10 to 95%, ±3,0%, >1A AC rms
10Hz to 1kHz
600, 6k, 60k, 600k, 6M, 60MΩ
±1,2%+2digit till 6MΩ ±2,0%+5digit till 60MΩ
100mΩ
forward current ~1mA, drop voltage ~3,3V
1mV
buzzer if resistance under 30Ω
3x 1,5V
CAT III 600V
220 x 75 x 35mm
IP44
340g
TÜV/GS
IEC/EN 61010-1
red
1x measuring lines
1 battery 1,5V, AAA, LR03

3 years manufacturer's warranty.



## FIRST AID, PREVENTION AND SIGNALIZATION

- ✓ *Rescue panoplies*
- ✓ *Rescue and first aid*
- ✓ *Padlocks*
- ✓ *Electrical locks*
- ✓ *Protection for valves*
- ✓ *Lockouts*
- ✓ *Lock boxes*
- ✓ *Lockout stations*
- ✓ *Beacons for cables*
- ✓ *Bird anticollision devices*
- ✓ *Aluminium signs*
- ✓ *Adhesive plastic and polycarbonate signs*
- ✓ *PVC boards and extending barrier*
- ✓ *Work area delimiting tape and beacon tape*
- ✓ *Sign chains, chain supports, sign flags and banners*
- ✓ *Hanging signs*



# SAFETY

Prevention depends on you

# RESCUE PANOPLIES

## FIRST AID, PREVENTION AND SIGNALIZATION

Mod. SZ-51S



In the event of an electrical accident, fast intervention is essential. The panel contains all the rescue tools in a single place making it accessible to all users when an intervention is necessary.

Composed of a 0.9 x 1.6 m board that contains the following elements:

- 1 BS-45 rescue pole
- 1 plastic case for gloves
- 1 pair of dielectric gloves (class 3)
- 1 SZ-57/25 insulated wire cutter
- 1 pipette
- 1 45 kV insulating stool
- 1 jar of salts
- 1 first aid plate
- 1 instruction plate

Code	Description	Ref.
690100	Spanish	SZ-51S
690100 I	English	SZ-51S
690100 F	French	SZ-51S



Code: 580110  
Ref: ST-45

Code: 715120  
Ref: SZ-57/25

Code: 545113  
Ref: CG-120

Code: 530270  
Ref: SG-30 T9

Code: 610100  
Ref: BS-45



Code Ref.  
ES: X690165 SZ08 E  
EN: X690166 SZ08 I  
FR: X690167 SZ08 F



Code Ref.  
ES: X690170 PA-29P E  
EN: X690171 PA-29P I  
FR: X690172 PA-29P F

Code: 695120 Code: 715100  
Ref: SZ-01 Ref: SZ-55

# RESCUE PANOPlies

## FIRST AID, PREVENTION AND SIGNALIZATION

Mod. SZ-51M



In the event of an electrical accident, fast intervention is essential. The panel contains all the rescue tools in a single place making it accessible to all users when an intervention is necessary.

Composed of a 0.9 x 1.6 m board that contains the following elements:

- 1 BS-45 rescue pole
- 1 5-36 kV voltage detector with pole
- 1 plastic case for gloves
- 1 pair of dielectric gloves (class 3)
- 1 SZ-57/25 insulated wire cutter
- 1 pipette
- 1 45 kV insulating stool
- 1 jar of salts
- 1 pair of insulating shoes
- 1 first aid plate
- 1 instruction plate

Code	Description	Ref.
<b>690110</b>	Spanish	<b>SZ-51M</b>
<b>690110 I</b>	English	<b>SZ-51M</b>
<b>690110 F</b>	French	<b>SZ-51M</b>



Code: 580110  
Ref: ST-45

Code: 715120  
Ref: SZ-57/25

Code: 5451

Code: 640103  
Ref: VTO-5/36-P

Code: 610100  
Ref: BS-45



Code Ref.  
**ES:** X690170 PA-29P E  
**EN:** X690171 PA-29P I  
**EP:** X690172 PA-29P E

Code Ref.  
S: X690165 SZ08 E  
N: X690166 SZ08 I  
D: X690167 SZ08 E



A black leather loafer with a wingtip toe and a small decorative hole on the toe cap.

# KRM-4001

## MANOEUVRING AND RESCUE KIT

THE ESSENTIAL  
AND HANDY SAFETY KIT



# RESCUE AND FIRST AID

## FIRST AID, PREVENTION AND SIGNALIZATION



Mod. KRM-4001

Manoeuvring and rescue kit

The kit is sold in one special black plastic box.

### Elements of the kit:

- ✓ 1 1.5 m telescopic pole of three sections
- ✓ 1 optical and acoustical detector from 5 to 36 kV with bag
- ✓ 1 rescue hook with universal head
- ✓ 1 pair of dielectric gloves SG-40 T10 stored in a nylon bag
- ✓ 1 insulating mat AD4-0610/40C of 60 cm x 1 m, working voltage 36 kV
- ✓ 1 respiration pipette
- ✓ 1 neck immobilizer
- ✓ 1 fire resistant blanket SZ-180 of 1.2 x 1.8 m
- ✓ 1 stretcher

\* For other compositions, please consult.

Code	Ref.
690114	KRM-4001



Dielectric gloves  
SG-40 T10

Telescopic pole



Insulating mat  
AD4-0610/40C

Optical & Acoustical  
Detector VTE-5/36U



Fire resistant blanket  
SZ-180



Rescue hook,  
respiration pipette  
and neck immobilizer

Stretcher



# RESCUE AND FIRST AID

## FIRST AID, PREVENTION AND SIGNALIZATION



### Mod. SZ-01

#### Artificial respiration pipette

Air conduct to carry out artificial respiration, avoiding direct contact between the injured person and the attending person.

Code	Ref.
695120	SZ-01



CE

### Mod. SZ-02

#### Standard resuscitator

Portable resuscitator designed to be used in emergency situations. It provides pulmonary ventilation for those people whose respiratory function is deteriorated. Includes transparent mask with pneumatic edge and connection for oxygen. It is supplied with a carrying bag.

Code	Ref.
695100	SZ-02



### Mod. SZ-56

#### Insulating shoes

A pair of overshoes made of insulating material to move around the accident area with insulation from the floor.  
Up to 1000 V.

Code	Ref.
715110	SZ-56



### Mod. SZ-05

#### First aid kit

Material included.  
Box which contains the necessary items for first aid.

Code	Ref.	Wraparound	Dimensions
700100	SZ-05	Metal	37 x 30 x 13 cm



### Mod. SZ-06

#### First aid kit

Material included.  
Box which contains the necessary items for first aid.

Code	Ref.	Wraparound	Dimensions
700110	SZ-06	Plastic	38 x 26 x 13 cm

# RESCUE AND FIRST AID

## FIRST AID, PREVENTION AND SIGNALIZATION



### Mod. SZ-07

#### Stretcher

180x55 cm canvas stretcher with metal bars that can be taken apart into three parts. Folded 70x10x10 cm. Supplied with carrying bag.

Code

705100

Ref.

SZ-07

CEE 93/42 Sanitary products



### Mod. SZ

#### Fire-resistant blankets

Fire-resistant blankets made of flameproof fabric based on fiberglass which is coated both sides with special high temperature resistant silicone. Immediate use device.

It stands up to temperatures of 1100°C for more than 15 min.

Especially efficient where fire extinguishers use is inadvisable.

Supplied in a rigid red color plastic case.

According to UNE-EN-1869:97



### Mod. SZ-100

Code

710100

Ref.

Dimensions

100 x 100 cm

### Mod. SZ-120

Code

710110

Ref.

Dimensions

120 x 120 cm

### Mod. SZ-180

Code

710120

Ref.

Dimensions

120 x 180 cm

UNE - EN - 1869:97



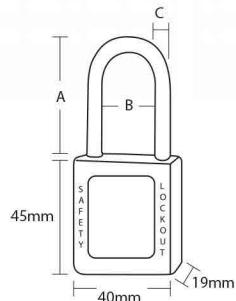
# PADLOCKS

## FIRST AID, PREVENTION AND SIGNALIZATION

### Metal shank padlocks

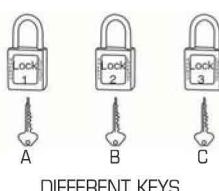
*Padlocks for blocking off a single work area and/or area in discharge.*

*Available in three different colours depending on their use.*



### Mod. C/ABS-25

#### ABS security padlock



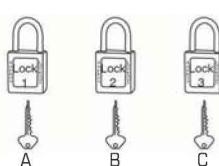
DIFFERENT KEYS

Body made of ABS with high impact resistance, UV protection, low and high temperature resistance.  
Includes "danger" and "property of" markings.  
Blue, red and yellow colours.  
Dimensions: 40x45x19 mm  
With a different key for each padlock.

Code	Ref.	Colors	A	B	C
761100	C/ABS-25 AZ	■	25	20	6
761103	C/ABS-25 RJ	■	25	20	6
761106	C/ABS-25 AM	■	25	20	6

### Mod. C/ABS-38

#### ABS security padlock



DIFFERENT KEYS

Body made of ABS with high impact resistance, UV protection, low and high temperature resistance.  
Includes "danger" and "property of" markings.  
Blue, red and yellow colours.  
Dimensions: 40x45x19 mm  
With a different key for each padlock.

Code	Ref.	Colors	A	B	C
761101	C/ABS-38 AZ	■	38	20	6
761108	C/ABS-38 RJ	■	38	20	6
761110	C/ABS-38 AM	■	38	20	6

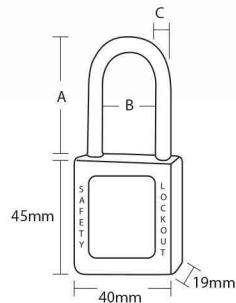
# ELECTRICAL LOCKS

## FIRST AID, PREVENTION AND SIGNALIZATION

### Nylon shank padlocks

*Padlocks for blocking off a single work area and/or area in discharge.*

*Available in three different colours depending on their use.*

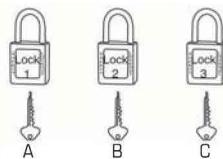


### Mod. C/COM-38-DK

#### Composite security padlock



Body made of composite.  
Non-conductive. Does not produce sparks. Dielectric test.  
Appropriate for use in environments which entail inflammable or explosive risk.  
Blue, red and yellow colours.  
Dimensions: 40x45x19 mm  
With a different key for each padlock.



DIFFERENT KEYS

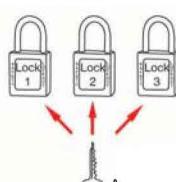
Code	Ref.	Colors	A	B	C
761102	C/COM-38-DK AZ	■ Blue	38	20	6
761107	C/COM-38-DK RJ	■ Red	38	20	6
761109	C/COM-38-DK AM	■ Yellow	38	20	6

### Mod. C/COM-38-SK

#### Composite security padlock



Body made of composite.  
Non-conductive. Does not produce sparks. Dielectric test.  
Appropriate for use in environments which entail inflammable or explosive risk.  
Blue, red and yellow colours.  
Dimensions: 40x45x19 mm  
With same key for each padlock.



SINGLE KEY

Code	Ref.	Colors	A	B	C
761112	C/COM-38-SK RJ	■ Red	38	20	6
761114	C/COM-38-SK AM	■ Yellow	38	20	6

# ELECTRICAL LOCKS

FIRST AID, PREVENTION AND SIGNALIZATION

## Mod. P/PU-22

Protective cover for pushbutton



Made of transparent resin.

Used for preventing an unwanted operation being carried out by mistake.

Used for pushbuttons up to Ø22 mm.

Code

Ref.

762100

P/PU-22



## Mod. P/IN-28

Protective cover for switch

Made of transparent resin.

Used for preventing an unwanted operation being carried out by mistake.

Used for switches of 28 mm long x 22.5 mm wide.

Code

Ref.

762101

P/IN-28

## Mod. P/EM

Cover for pushbutton



Made of transparent resin.

Used for preventing an unwanted operation being carried out by mistake.

Code

Ref.

762102

P/EM-22

762103

P/EM-30,5

# ELECTRICAL LOCKS

## FIRST AID, PREVENTION AND SIGNALIZATION

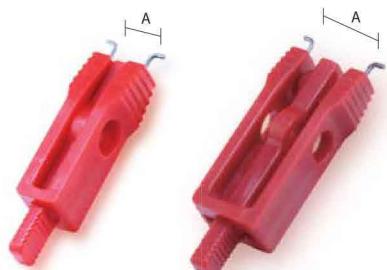


### Mod. P/DMT

#### Lockout for switches

Made of nylon.  
Automatic lockout for switches using stainless steel sawtooth mechanism.  
Adjustable to cover a wider range.

Code	Ref.	Dimensions
762110	P/DMT	47x32x15 mm



P/DM-11

P/DM-20

### Mod. P/DM

#### Lockout for switches



Made of nylon.  
Lockout for switches, circuit breakers, differentials and power control switches.

Code	Ref.	Dimensions	A
762104	P/DM-11	57.4x14.5x14 mm	For space smaller than 11 mm
762105	P/DM-20	68.3x23.3x314 mm	For space smaller than 20 mm



### Mod. P/DIG-41

#### Lockout for switches



Made of nylon.  
Lockout for automatic switches using a stainless steel saw-tooth system. Thanks to its full adjustability, it allows encompassing a wider range.

Code	Ref.	Dimensions	Description
762106	P/DIG-41	68.3x48.3x27.6 mm	For circuit breakers with maximum dimensions of 41x15.8 mm



### Mod. P/DIP-9

#### Lockout for switches



Made of nylon and metal part of Zinc and Aluminium alloy. Its design allows an easy and fast installation.  
Adjustments for thick operating levers from 5.3 mm to 9 mm.

Code	Ref.	Dimensions
762107	P/DIP-9	93x34.3x28 mm

# ELECTRICAL LOCKS & PROTECTION FOR VALVES

FIRST AID, PREVENTION AND SIGNALIZATION



## Mod. P/DIPA-9

### Lockout for switches



Made of nylon.  
Lockout for automatic switches using a stainless steel saw-tooth system. Thanks to its full adjustability, it allows encompassing a wider range.

Code	Ref.	Dimensions
762108	P/DIPA-9	93x34.3x28 mm



## Mod. P/BOL-450

### Pouch for storing plugs

Made of break-resistant nylon.  
Ideal for safe-keeping of any size electrical connectors.

Code	Ref.	Dimensions
762109	P/BOL-450	450x250 mm



## Mod. P/VAL

### Protection for valves



Made of ABS, anti-blow with high wear resistance.  
Efficient operation in extreme conditions.  
Temperature range from -20°C to 100°C.  
Protects from accidental opening of the valve.  
Label for identifying the person responsible.

Code	Ref.	Dimensions
763100	P/VAL-6	25 mm - 63 mm
763101	P/VAL-127	63 mm - 127 mm
763102	P/VAL-165	127 mm - 165 mm
763103	P/VAL-254	165 mm - 254 mm

# LOCKOUTS

## FIRST AID, PREVENTION AND SIGNALIZATION



EN-6/38

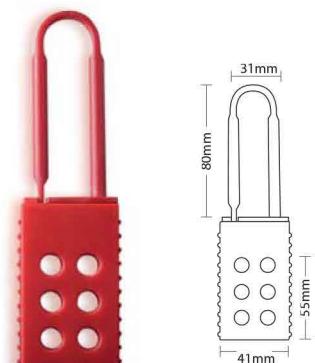
EN-6/25

### Mod. EN-6

#### Lockout hasps

Protects the equipment from being opened accidentally.  
Holds six padlocks.  
Shackle made of steel with polypropylene-covered handle.

Code	Ref.	Dimensions	Ø Ring
764100	EN-6/25	115x45 mm	26 mm
764101	EN-6/38	130x60 mm	39 mm



### Mod. EA-7818

#### Lockout hasps

Protects the equipment from being opened accidentally. Holds six padlocks.  
Fully insulated lockout. Made of polyamide.  
Dielectric protection.  
Non-conductive. Anti-spark.

Code	Ref.	Dimensions	Dimensions ring
764102	EA-7818	157x45 mm	78x78 mm



### Mod. EAL-3628

#### Lockout hasps

Made of anodized aluminium with high anti-corrosion protection.  
Identification by name, department and comments label.  
Holds six padlocks.

Code	Ref.	Dimensions	Dimensions ring
764103	EAL-3628	188x76 mm	36x28 mm



### Mod. EV-52

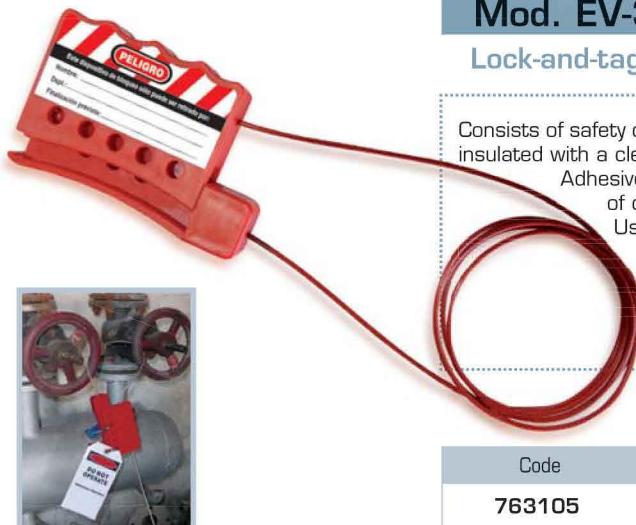
#### Lockout hasps

Used for blocking different sized gate valves as well as multiple valves.  
Lighter than chains, the device is easy to transport and use.  
Cable made of Ø 5 mm plasticised steel and 2.0 m long.  
Holds six padlocks.

Code	Ref.
763104	EV-52

# LOCKOUTS & LOCK BOXES

FIRST AID, PREVENTION AND SIGNALIZATION



## Mod. EV-318

Lock-and-tag device with adjustable tie cable

Consists of safety clamp and 4 mm multi-filament strong and flexible steel cable insulated with a clear plastic coating (PVC-free).

Adhesive safety label to identify the person responsible for installation of device.

Used to block gate valves of different sizes, and to block multiple valves at once.

Lighter than chains, the device is easy to carry and use. Cable made from laminated steel Ø 3 mm and 1.8 m. long. Can fit five locks.

Code

763105

Ref.

EV-318



## Mod. SB-12

Lock box

After machine or process is locked out, the keys can be kept in the lock box.

Each authorised person can place a personal padlock in the box as to prevent it from being opened.

Ensures that no single employee has access to the box unless all the employees have removed their padlocks.

Holds 12 padlocks + master padlock.

Supplied without products.

Code

765100

Ref.

SB-12

Dimensions

260x103x152 mm

# LOCKOUT STATIONS

## FIRST AID, PREVENTION AND SIGNALIZATION



Panel made of ABS. Door made of high-resistance polycarbonate.  
Used for organising daily use of padlocks and labels.



LS-4



LS-10

### Mod. LS-4

#### Lockout station

Code	Ref.	Dimensions	Capacity
765101	LS-4	330x230x67 mm	Supplied without products
765111	LS-4-D	330x230x67 mm	Supplied with: 4 padlocks (cod. 761108), 2 lockout hasps (cod. 764101) and 25 labels (cod. 765103)

### Mod. LS-10

#### Lockout station

Code	Ref.	Dimensions	Capacity
765102	LS-10	515x330x70 mm	Supplied without products
765112	LS-10-D	515x330x70 mm	Supplied with: 10 padlocks (cod. 761108), 3 lockout hasps (cod. 764101) and 25 labels (cod. 765103)

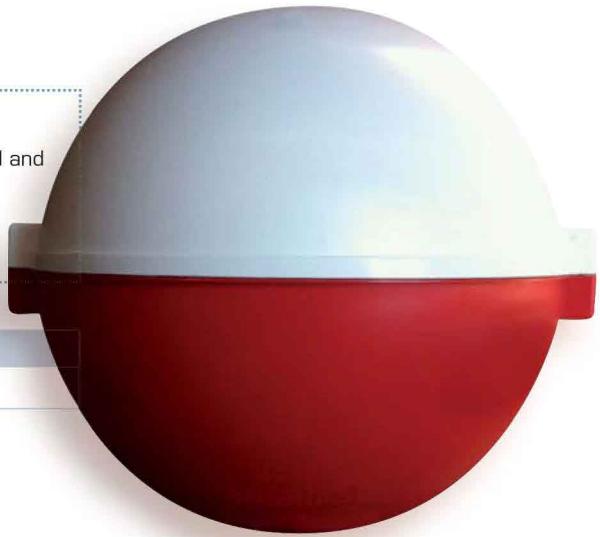
# BEACONS FOR CABLES

## FIRST AID, PREVENTION AND SIGNALIZATION

### Mod. SAE-400

Beacon made of reinforced polyamide.  
They are designed in such way that they can be quickly assembled and disassembled.  
To be fixed on cables from 9 to 30 mm Ø.  
The cable can have voltage going through it.  
Resistance to UV Rays.

Code	Ref.	Ø	Weight
590100	SAE-400	400 mm	2,5 Kg

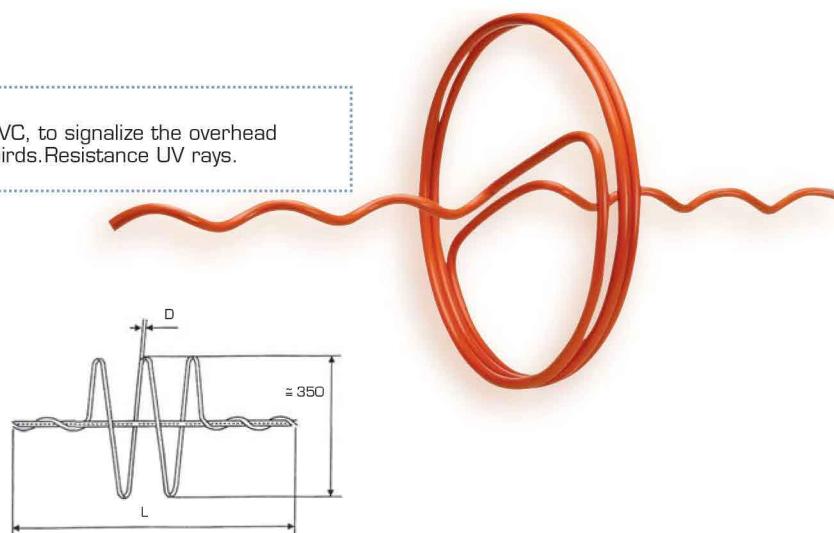


# BIRD ANTICOLLISION DEVICES

## FIRST AID, PREVENTION AND SIGNALIZATION

### Mod. SPD

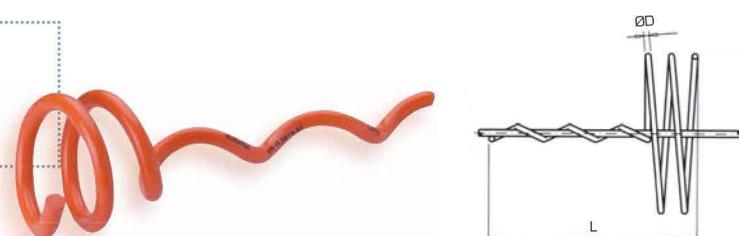
Double fixing spiral of orange color PVC, to signalize the overhead lines in passing areas of migratory birds. Resistance to UV rays.



Code	Ref.	Cable diameter Min (mm)	Cable diameter Max (mm)	L (mm)	D (mm)
591120	SPD-7,00/9,50	7,00	9,50		
591125	SPD-9,51/13,40	9,51	13,40	1000	12
591130	SPD-13,41/17,50	13,41	17,50		
591135	SPD-17,51/21,80	17,51	21,80		

### Mod. SPS

Simple fixing spiral of orange color PVC, to signalize the overhead lines in passing areas of migratory birds. Resistance to UV rays.



Code	Ref.	Cable diameter Min (mm)	Cable diameter Max (mm)	L (mm)	D (mm)
591100	SPS-6,35/8,88	6,35	8,88	220	
591105	SPS-8,89/11,42	8,89	11,42	240	
591110	SPS-11,43/15,23	11,43	15,23	280	9

# ALUMINIUM SIGNS

## FIRST AID, PREVENTION AND SIGNALIZATION

All signs are made according to AMYS R.A. 1.4-10 recommendation.

### Electrical hazard

Triangle with lightning screen-printing, black border and yellow background.



Code	Ref.	Dimensions
720100	AE-10S	105 mm
720110	AE-14S	148 mm
720120	AE-21S	210 mm
720130	AE-29S	297 mm

UNE 1-115-85

### High voltage

Triangle with lightning screen-printing, black border and yellow background.  
Text: "HIGH VOLTAGE DANGER OF DEATH".



Code	Ref.	Dimensions
720140	CE-10S	105 mm
720150	CE-14S	148 mm
720160	CE-21S	210 mm
720170	CE-29S	297 mm

UNE 1-115-85 English and French edition under request.

### Return voltage

Triangle with lightning screen-printing, black border and yellow background.  
Text: "RETURN VOLTAGE DANGER OF DEATH".



Code	Ref.	Dimensions
720180	CR-10S	105 mm
720190	CR-14S	148 mm
720200	CR-21S	210 mm
720210	CR-29S	297 mm

UNE 1-115-85 English and French edition under request.

### Manoeuvring forbidden

Circular sign of manoeuvre prohibition.



Code	Ref.	Dimensions
720220	PM-10S	105 mm
720230	PM-21S	210 mm

# ADHESIVE PLASTIC SIGNS AND POLYCARBONATE SIGNS

## FIRST AID, PREVENTION AND SIGNALIZATION

All signs are made according to AMYS R.A. 1.4-10 recommendation.

### Electrical hazard



Triangle with lightning screen-printing, black border and yellow background.

Code	Ref.	Dimensions
725100	AE05ADH	52 mm
725110	AE10ADH	105 mm

UNE 1-115-85

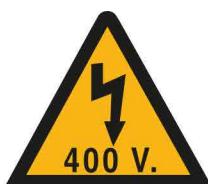


### Electrical hazard 230V

Triangle with lightning and 230V screen-printing, black border and yellow background.

Code	Ref.	Dimensions
725120	VT230V55	52 mm
725130	VT230V10	105 mm

UNE 1-115-85



### Electrical hazard 400V

Triangle with lightning and 400V screen-printing, black border and yellow background.

Code	Ref.	Dimensions
725140	VT400V55	52 mm
725150	VT400V10	105 mm

UNE 1-115-85



### Earthing

Triangle with Earthing symbol screen-printing, black border and yellow background.

Code	Ref.	Dimensions
725155	TT05ADH	52 mm
725160	TT10ADH	105 mm

UNE 1-115-85

### Polycarbonate signs



### High voltage

Triangle with lightning screen-printing, black border and yellow background.  
Text: "HIGH VOLTAGE DANGER OF DEATH".

Code	Ref.	Dimensions
735100	CE-14PCI	148 mm
735110	CE-21PCI	210 mm

UNE 1-115-85

English and French edition under request.

# PVC BOARDS

## FIRST AID, PREVENTION AND SIGNALIZATION

All signs are made according to AMYS R.A. 1.4-10 recommendation.



## First aid

Code	Language	Ref.	Dimensions
730100	Spanish	<b>PA-42P</b>	420 x 297 mm
730101	English	<b>PA-42P</b>	420 x 297 mm
730102	French	<b>PA-42P</b>	420 x 297 mm
730110	Spanish	<b>PA-29P</b>	297 x 210 mm
730111	English	<b>PA-29P</b>	297 x 210 mm
730112	French	<b>PA-29P</b>	297 x 210 mm



## Prerequisites

Code	Language	Ref.	Dimensions
730120	Spanish	RTE-42P	420 x 297 mm
730121	English	RTE-42P	420 x 297 mm
730122	French	RTE-42P	420 x 297 mm
730130	Spanish	RTE-29P	297 x 210 mm
730131	English	RTE-29P	297 x 210 mm
730132	French	RTE-29P	297 x 210 mm



## Five golden rules

Code	Language	Ref.	Dimensions
<b>730140</b>	Spanish	<b>CRO-42P</b>	420 x 297 mm
<b>730144</b>	English	<b>CRO-42P</b>	420 x 297 mm
<b>739146</b>	French	<b>CRO-42P</b>	420 x 297 mm



## Sign tape

For underground cables signalling. Made of 150 mm yellow color PVC. 500 m rolls.  
Text: "WARNING! ELECTRIC CABLES UNDERGROUND".

Code	Ref.	Dimensions
740100	CCS-01AM	150 x 500 m

English and French edition under request.

# WORK AREA DELIMITING AND BEACON TAPES

## FIRST AID, PREVENTION AND SIGNALIZATION

All signs are made according to AMYS R.A. 1.4-10 recommendation.



### Mod. ST-62A

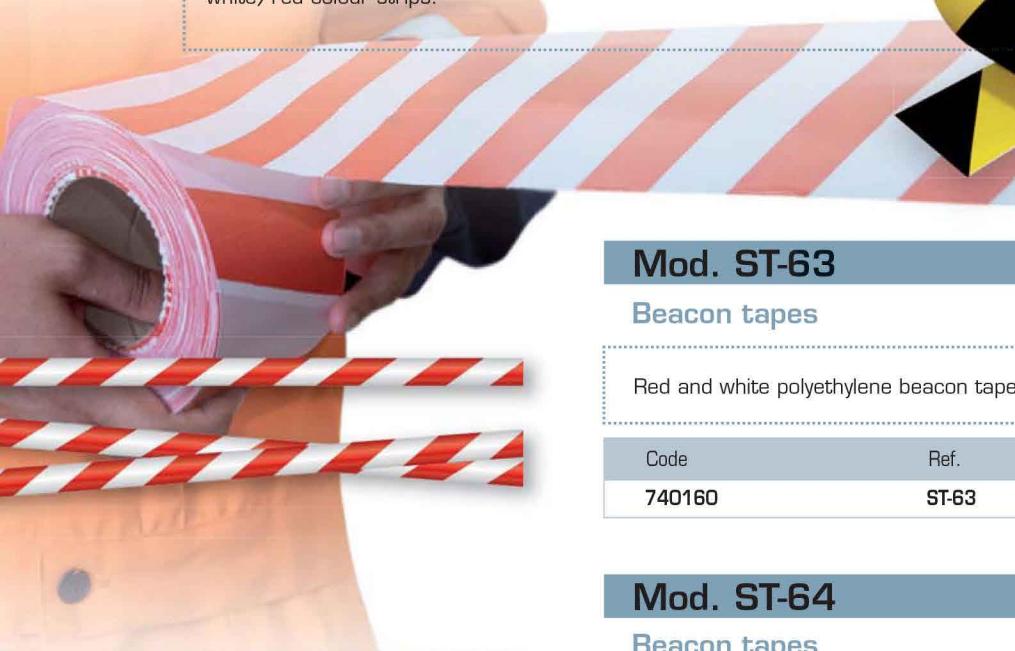
#### Work area delimiting

25 m work area delimiting tape reel. Please consult for other dimensions.

Code	Ref.
740180	ST-62A

### Beacon tapes

Tapes for other uses in work areas. Ideal for areas where access cannot be prevented and there is a specific work area to tape off. These tapes are not a substitute for work area cordons. Made from polyethylene laminate 80 mm wide and printed on both sides in yellow/black and white/red colour strips.



### Mod. ST-63

#### Beacon tapes

Red and white polyethylene beacon tape. 250 m rolls and 8 cm wide.

Code	Ref.	Color
740160	ST-63	Red and White

### Mod. ST-64

#### Beacon tapes

Black and yellow polyethylene beacon tape. 250 m rolls and 8 cm wide.

Code	Ref.	Color
740170	ST-64	Black and yellow

# SIGN CHAINS, CHAIN SUPPORTS, SIGN FLAGS AND BANNERS

## FIRST AID, PREVENTION AND SIGNALIZATION

### Polyethylene



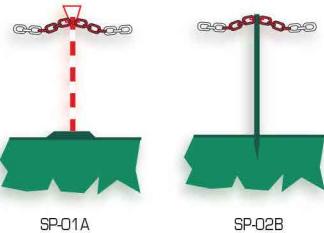
High resistant red and white sign chain. 25 m rolls.



Code	Ref.	Dimensions
745110	SP-52A	29 x 52 x 7,5 mm
745100	SP-35A	20 x 35 x 5 mm

### Mod. SP-01A

#### Chain support

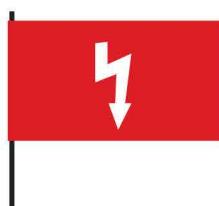


Code	Ref.	Model
745140	SP-01A	With base

### Mod. SP-02B

#### Chain support

Code	Ref.	Model
745150	SP-02B	With pick



### Mod. ST-70

#### Signs flags

Red flag with lightning.

Code	Ref.	Dimensions
750100	ST-70	60 x 35 cm

### Mod. ST-71

#### Banner

Red banner with lightning.

Code	Ref.	Dimensions
750110	ST-71	60 x 35 cm

# HANGING SIGNS AND EXTENDING BARRIERS

FIRST AID, PREVENTION AND SIGNALIZATION



## Mod. ST-72

### Hangings signs

Code	Length	Ref.
750120	1.20 mts	ST-72

English and French edition under request.

## Mod. ST-73

### Hangings signs

Code	Length	Ref.
750130	1.20 mts	ST-73

English and French edition under request.

## Mod. ST-74

### Hangings signs

Code	Length	Ref.
750140	1.20 mts	ST-74

English and French edition under request.

## Mod. ST-75

### Hangings signs

Code	Length	Ref.
750150	1.20 mts	ST-75

English and French edition under request.

## Mod. VS-80

### Extending barriers

Iron extending barrier with 3,5 m reflective band.

Code	Ref.
755100	VS-80

# INSULATED FIBREGLASS LADDER WITH ALUMINIUM RUNGS

LADDERS

## Mod. COMPACT

Step ladder with platform and wide aluminium steps



- ✓ Cone-shaped manufacture to increase support at base.
- ✓ Polyester side rails with fibreglass reinforcement and aluminium steps with 80mm tread. Aluminium support section.
- ✓ Reinforced non-slip polypropylene platform.
- ✓ Tool tidy top tray.
- ✓ Locking spreader bars and anti-bend reinforcements on the steps.

Code	Ref	Height (mm)		Steps	Weight
		Total	Platform		
505100	COMPACT 1,39/0,68	1390	680	3	6
505110	COMPACT 1,64/0,91	1640	910	4	7
505120	COMPACT 1,89/1,14	1890	1140	5	8
505130	COMPACT 2,14/1,37	2140	1370	6	9
505140	COMPACT 2,39/1,60	2390	1600	7	11



EN 131

EN-50528, electrical insulation tested between rungs - 30 kV

# FIBREGLASS LADDERS

## LADDERS

### Mod. EF/T

#### Two-sided step ladder

- ✓ Rails and rungs entirely in fibreglass.
- ✓ Includes two spreader locks between the two sections of the ladder to prevent it opening up.
- ✓ 72° opening of each section in relation to ground.
- ✓ Rung marked in red as per EN-131 standard to indicate highest rung limit.

Code	Ref.	Height (mm)	Width [mm]		Steps	Weight
			Ladder	Base		
						
510000	EF/T-1505	1490	400	580	2x5	9
510010	EF/T-2007	2050	400	620	2x7	12
510020	EF/T-2709	2660	400	680	2x9	15
510035	EF/T-3512	3500	400	770	2x12	19
510055	EF/T-4516	4620	400	890	2x16	29



EN 131  
UNE-EN 50528  
UNE-EN 61478, electrical insulation tested between rungs - 100 kV

# FIBREGLASS LADDERS

## LADDERS

### Mod. EF/3

Step ladder with extendable section



- ✓ Rails and rungs entirely in fibreglass.
- ✓ Two-sided step ladder with third extendable section.
- ✓ The extra section can be used separately, and is fitted with a blocking system.
- ✓ Rung marked in red as per EN-131 standard to indicate highest rung limit and not for use.

Code	Ref.	Height [mm]		Width [mm]		Steps	Weight
		Scissor format	Extended	Ladder	Base		
527000	EF/3-2505	1490	2395	400	650	(2x5)+5	14
527015	EF/3-3808	2330	3795	400	740	(2x8)+8	20
527025	EF/3-5010	2940	4960	400	800	(2x10)+10	24



EN 131  
UNE-EN 50528  
UNE-EN 61478, electrical insulation tested between rungs - 100 kV

# FIBREGLASS LADDERS

## LADDERS

### Mod. EF/S

Single-section ladder



- ✓ Rails and rungs entirely in fibreglass.
- ✓ Swivel feet as added safety element.
- ✓ Rung marked in red as per EN-131 standard to indicate highest rung limit and not for use.

Code	Ref.	Height [mm]	Width [mm]	Steps	Weight
515000	EF/S-1505	1545	400	5	5,5
515015	EF/S-2408	2385	400	8	7
515025	EF/S-3010	2990	400	10	8,5
515035	EF/S-3512	3550	400	12	10,5
515045	EF/S-4114	4110	400	14	12
515060	EF/S-4917	4950	450	17	15
515080	EF/S-6021	6070	450	21	19



EN 131  
UNE-EN 50528  
UNE-EN 61478, electrical insulation tested between rungs - 100 kV

# FIBREGLASS LADDERS

## LADDERS

### Mod. EF/E

Manually extendable two-section ladder



- ✓ Rails and rungs entirely in fibreglass.
- ✓ With top wheels for ease of movement.
- ✓ The two sections can be used separately.
- ✓ Swivel feet as added safety element.
- ✓ Solid rungs for those most susceptible to wear and tear, increasing ladder's durability (first section of base part and last section of extendable part).
- ✓ Rung marked in red as per EN-131 standard to indicate highest rung limit and not for use.

Code	Ref.	Height [mm]		Width [mm]	Steps	Weight
		Folded	Extended			
520000	EF/E-3006	1880	3000	450	2x6	14
520010	EF/E-4108	2440	4120	450	2x8	17
520020	EF/E-5010	3000	4960	450	2x10	21
520030	EF/E-6012	3560	6080	450	2x12	24
520040	EF/E-7014	4120	7200	450	2x14	27



EN 131  
UNE-EN 50528  
UNE-EN 61478, electrical insulation tested between rungs - 100 kV

# FIBREGLASS LADDERS

## LADDERS

### EF/C

Two-section extension ladder using a cord



- ✓ Rope-extendable two-section fibreglass ladder
- ✓ Rails and rungs entirely in fibreglass.
- ✓ System actuated by rope and pulley to deploy the second section, for ease of use by operator.
- ✓ With top wheels for ease of movement.
- ✓ Swivel feet as added safety element.
- ✓ Solid rungs for those most susceptible to wear and tear, increasing ladder's durability (first section of base part and last section of extendable part).
- ✓ Rung marked in red as per EN-131 standard to indicate highest rung limit and not for use.

Code	Ref.	Height (mm)		Width (mm)	Steps	Weight
		Folded	Extended			
525000	EF/C-5010	3000	4960	450	2x10	24
525010	EF/C-6012	3560	6080	450	2x12	27
525020	EF/C-7014	4120	7200	450	2x14	30
525030	EF/C-8016	4680	8320	500	2x16	40
525035	EF/C-9017	4960	8880	500	2x17	42
525045	EF/C-1019	5520	10000	500	2x19	46



EN 131  
UNE-EN 50528  
UNE-EN 61478, electrical insulation tested between rungs - 100 kV

# FIBREGLASS LADDERS

## LADDERS

### Mod. EF/M

Combined fibreglass ladder



- ✓ Rails and rungs entirely in fibreglass.
- ✓ Ladder with different possible applications, such as scissor, extendable in two separate sections.
- ✓ Features two locking spreader tapes between the two sections of the ladder to prevent it opening up when used in scissor format.
- ✓ With top wheels for ease of movement.
- ✓ Solid rungs for those most susceptible to wear and tear, increasing ladder's durability (first section of base part and last section of extendable part).
- ✓ Rung marked in red as per EN-131 standard to indicate highest rung limit and not for use.

Code	Ref.	Height (mm)		Width (mm)		Steps	Weight
		Scissor format	Extended	Ladder	Base		
526000	EF/M-3006	1780	3000	450	645	2x6	15
526010	EF/M-4008	2340	4120	450	735	2x8	18
526020	EF/M-5010	2940	4960	450	825	2x10	21
526030	EF/M-6012	3500	6080	450	915	2x12	24



EN 131  
UNE-EN 50528  
UNE-EN 61478, electrical insulation tested between rungs - 100 kV



1,000V AC / 1,500V DC  
INSULATION TESTED TO:  
AS PER UNE-EN 61478 STANDARD



**cosmos®**  
lossless power transmission