



A worker in a green uniform and yellow helmet is seen from behind, working on a high-voltage power line tower. The worker is wearing a safety harness and is positioned on a metal structure. The background is a clear blue sky. The overall scene is industrial and safety-oriented.

SAFETY

EARTHING AND SHORT-CIRCUIT EQUIPMENT

SAFETY

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The best protection equipment for professionals

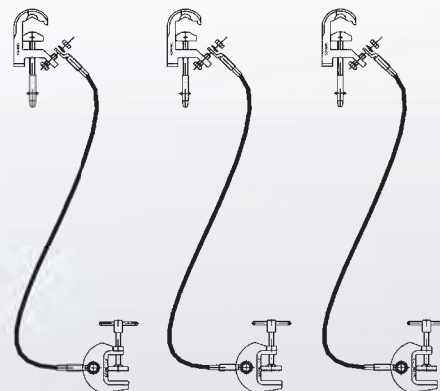
EARTHING AND SHORT - CIRCUIT EQUIPMENT HIGH VOLTAGE OVERHEAD LINES AND SUBSTATIONS



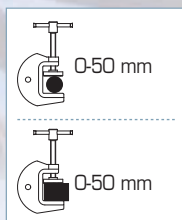
Mod. PAT-MPL

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.



LIGHT CLAMPS



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

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.

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

IEC 61230

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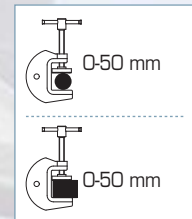
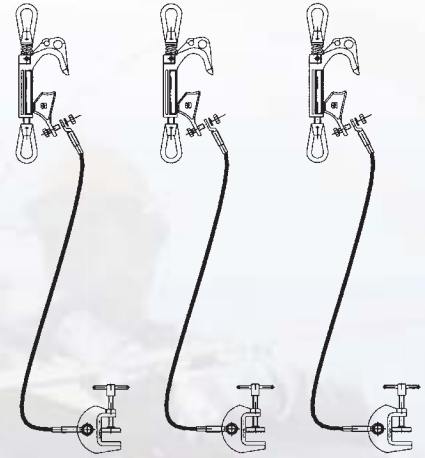
EARTHING AND SHORT - CIRCUIT EQUIPMENT HIGH VOLTAGE OVERHEAD LINES



Mod. PATL-TML

High voltage overhead lines

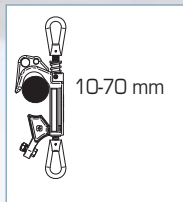
Phase earthing and short-circuit equipment for high voltage overhead lines. The main aim for its installation is operator's protection against an accidental commissioning or possible voltage return during repair operations. According to IEC 61230 standard.



Cod. 630116
Operating hook.
Not included in the equipment.

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.



IEC 61230

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

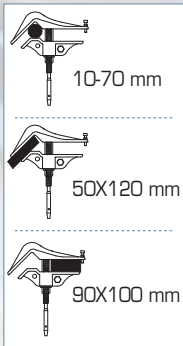
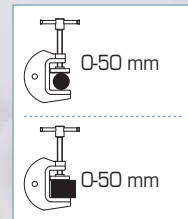
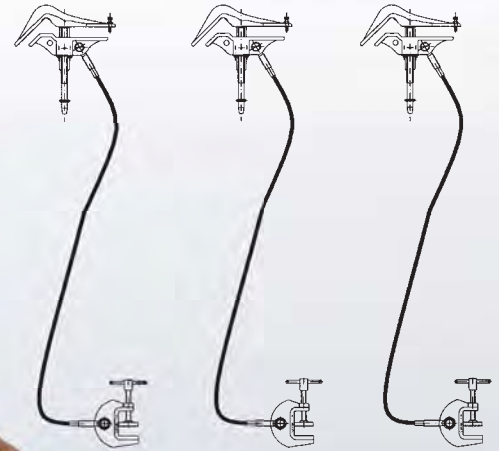
EARTHING AND SHORT - CIRCUIT EQUIPMENT HIGH VOLTAGE SUBSTATIONS



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

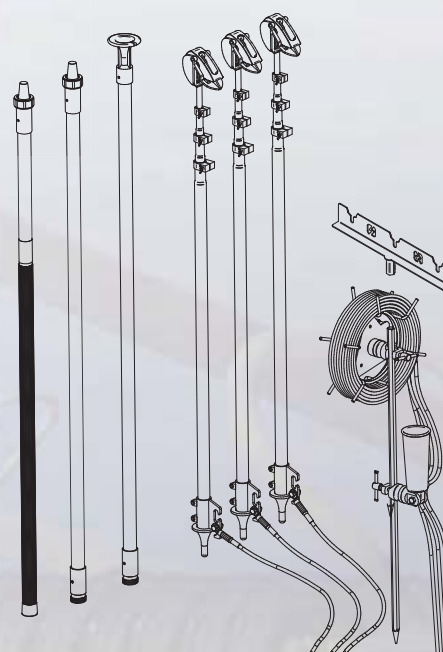


*The most effective
one for working at heights*

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Mod. ERLAIN

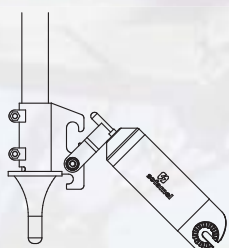
Earthing equipment for overhead lines



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 mm² section and 10 m length
- 1 galvanised steel earthing rod with hexagonal section of 1 m
- 1 carrying bag



Code	Ref.	Extended length metal pole	Folded Length metal pole	N° 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

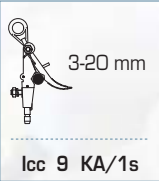
EARTHING AND SHORT - CIRCUIT EQUIPMENT CLAMPS' INFORMATION



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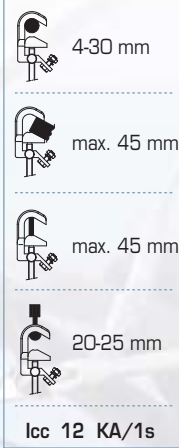
MC

Code 671120



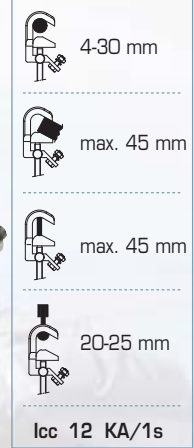
MPUP

Code 671116



MPUB

Code 671115



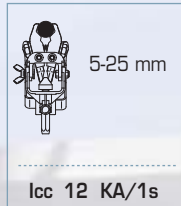
MPUH

Code 671110



5014H

Code 671100



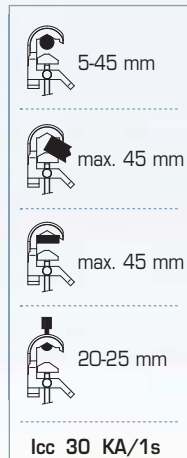
MPUBT

Code 659001P



MPLP

Code 671158



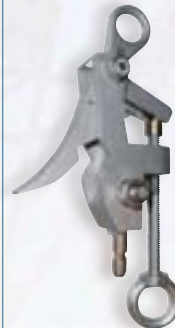
PP15

Code 671166



PCA-25

Code 671171

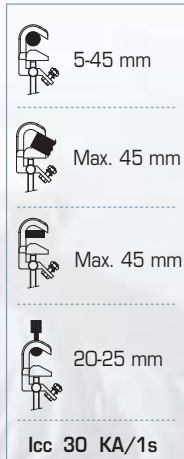


EARTHING AND SHORT - CIRCUIT EQUIPMENT CLAMPS' INFORMATION



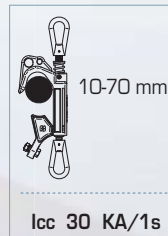
MPL

Code 671157



TML

Code 670100P



TMC

Code 675100P



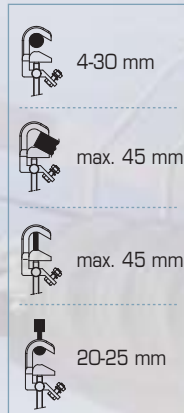
PP-3

Code 671126



MPUE

Code 671112



EMP

Code 659001E



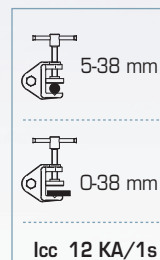
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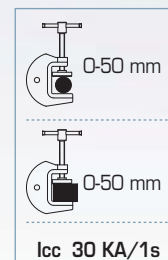
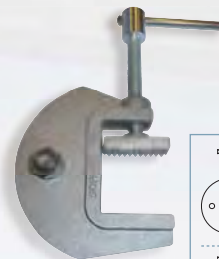
TT38A

Code 671141



TT50

Code 671151



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EARTHING AND SHORT - CIRCUIT EQUIPMENT ACCESSORIES AND CABLES FOR EARTHING EQUIPMENT



Mod. FE

Bag for earthing equipment

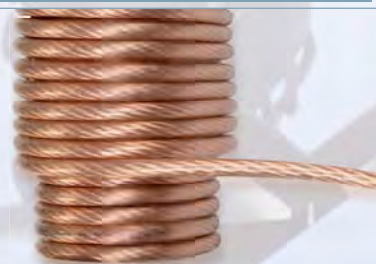


Nylon bag to store and transport earthing equipment.

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

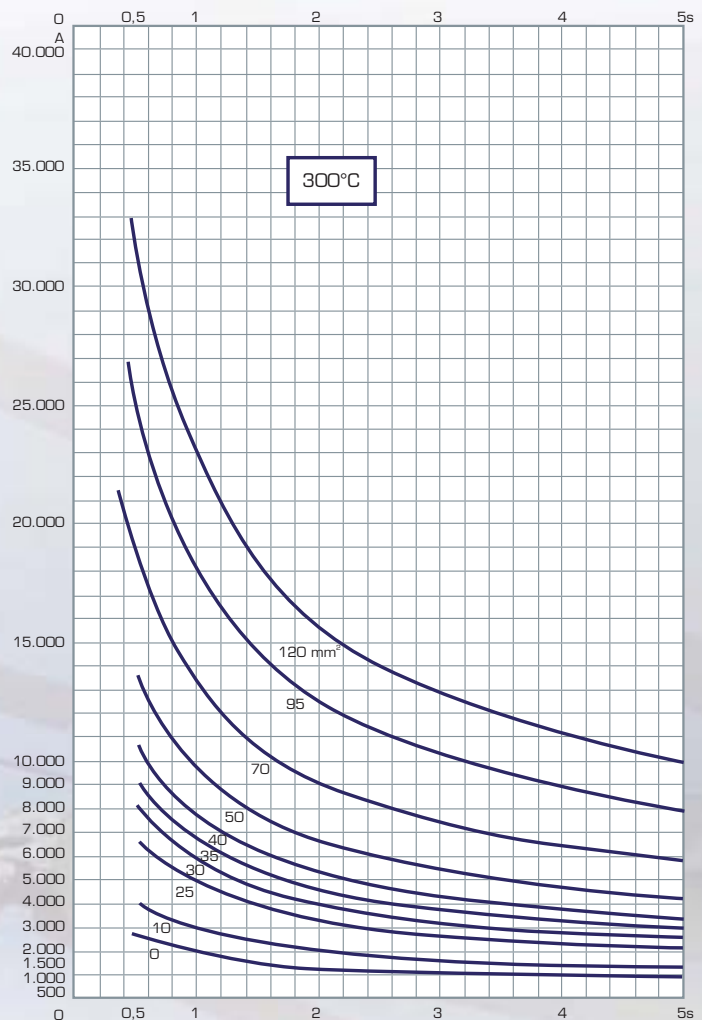
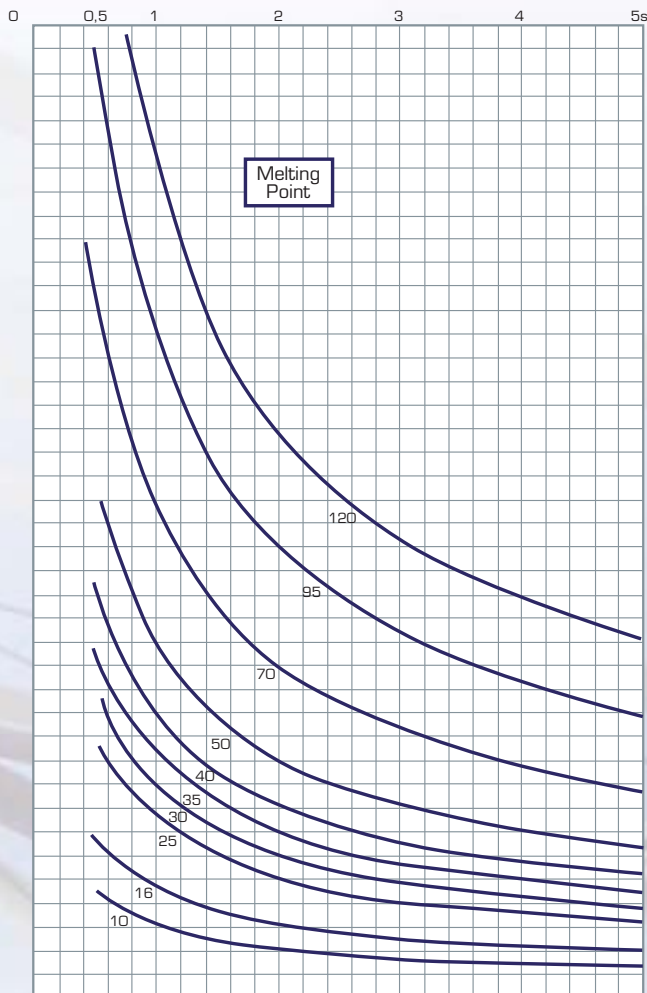
Code	Nominal cross section (mm ²)	Icc (300°C) (kA/s)	Weight (Kg/m)	External Ø (mm)
M-03.015.00	16	4,0	0,18	8,6
M-03.025.00	25	6,9	0,26	10
M-03.035.00	35	9,0	0,36	11,4
M-03.050.00	50	12,0	0,515	13,7
M-03.070.00	70	19,0	0,710	16
M-03.095.00	95	25,0	0,95	18,3
M-03.120.00	120	30,0	1,17	20,1

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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 mm² cable is used for more than 1 sec, cable burn-out will occur. If this is not permissible, a 70 mm² cable must be selected.

Fig. 2 shows if a 70 mm² 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.