



Electrical Safety

04





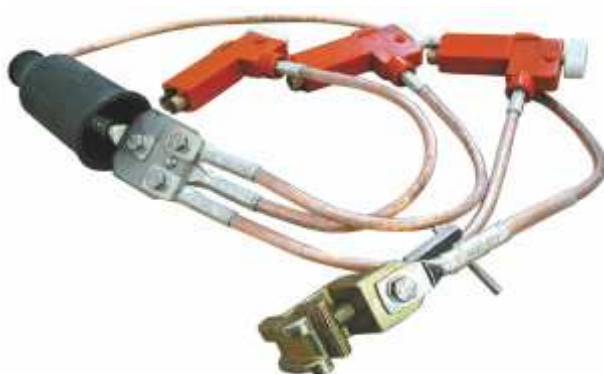
This chapter has been expanded with additional articles and technical information to reflect the continuous changes taking place in an ever more competitive market.

EARTHING EQUIPMENT

TL3853

Icc. 4 kA eff / 1 s

Earthing and short circuit kit for unenergised low voltage boards. Complies with CEI EN 61230.



Kit made up of:

- 3 insulated contact clips for M5 to M12 hex heads, equivalent to 10 - 19 mm between flats.
- 3 extra-flexible copper cables with transparent covers to link the three clips to the 3-way connector. Section 25 mm², length 0,4 m.
- 1 x 3-way connector.
- 1 extra-flexible copper cable with transparent jacket to connect the 3-way connector to the earth clamp, section 25 mm², length 1 m.
- 1 earth clamp, maximum grip 22 mm
- 1 PVC carrying case.

NOTE

Check/refer to different configurations

TLB166

Icc. 4 kA eff / 1 s

Equipment consists of:

- 1 set of short circuit cable in CU section 16mm², consisting of two cables of 0.50m and two cables of 0.40m length. The cables include 4 copper terminals adapted for attachment to the blades. It has a rubberized center connector that allows the connection by a cable of section 16mm² and 1mts length to the ground clamp MT22
- 4 blades for attachment to fuse-holder bases type 00.
- 4 blades for attachment to fuse-holder bases type 1-3
- 1 Insulating pole code PH/35-CH17/M10 to fit and remove the blades from the fuse-holder bases, and to fit and remove the short circuit cables from the blades.
- 1 plastic box for transport.



NOTE

Check/refer to different configurations.

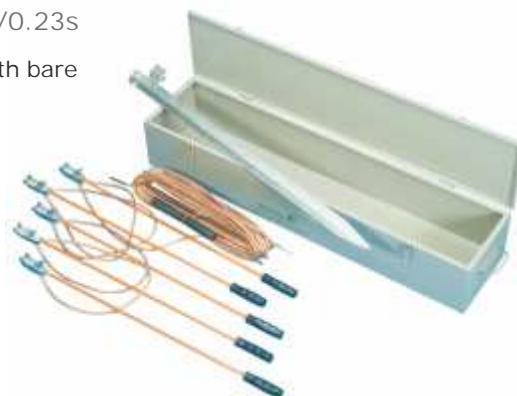
TL3856

Icc. 8 kA/0.23s

Earthing and short circuit device for low voltage overhead lines with bare conductor using pressure contact clamp.

Kit made up of:

- 4 contact clips for conductors of 2 - 18 mm, fixed to 0.8 m hot-line sticks.
- 3 lengths of extra flexible braided copper cable, section 16 mm² length 0,70 m.
- 1 metal reel with 16 m of extra flexible copper cable, section 16 mm.
- 1 earth spike.
- 1 metal carrying case.



TL3869

△ Icc. 12.4 kA/1 s

Earthing kit for cabins, transformer centres and medium voltage electrical installations. Complies with CEI EN 61230.

Kit made up of:

- 3 universal contact clips, model TL3894, for bars of up to 40 x 60 mm, edge bars up to 12x60 mm and for conductors of 5 - 40 mm diameter.
- 3 lengths of extra flexible braided copper cable, section 50 mm², length 0.75 m.
- 1 x 3-way connector.
- 1 length of extra flexible braided copper cable, section 25 mm² length 2 m.
- 1 earthing connector clamp, capacity 22 mm
- 1 hot-line stick model TL3897, length 1,35 m, in two sections. Complies with CEI EN 61235.
- 1 metal carrying case.



NOTE

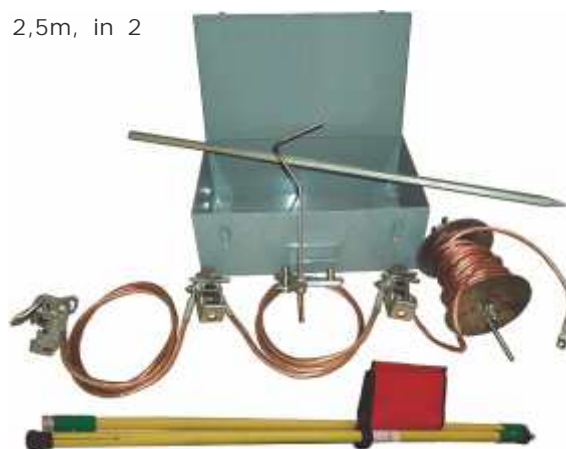
Specify Ref: TL3870 to order the equipment with 95 mm² braided cable. Icc. 24 kA/0.5 s.

TL3949

△ Icc. 13,77 kA/0,25 s

Earthing and short circuit kit for overhead medium voltage lines up to 66 Kv. Clip capacity 3 - 20 mm. Complies with CEI EN 61230

- 3 contact clips model PC332, in aluminum alloy with closure spring.
- Closure capacity: conductors of diameter 3-32mm.
- The clips are equipped with a special mechanical system to be detached from the clip holder only when it is firmly held with the line of conductors, in order to avoid accidental release of fall.
- 1 clip holder for 3 clips model TPP 332/G in aluminum alloy.
- 2 lengths of extra flexible braided copper short circuit cable, for connection between clips, section 25 mm² length 2,5m, and completed at the ends with tinned copper terminals
- 1 metal reel with earth clamp with 16m of braided copper, section 16 mm
- 1 earth spike in galvanized steel, 1 m long
- 1 insulating hot-line stick mod. PE2/250FA, total length 2,5m, in 2 sections. Complies with CEI EN 61235
- 1 metal carrying case
- 1 reinforced case for the hot-line stick and spike



TL3950

△ Icc. 8,05 kA/ 1 s

Identical to model TL3949, except that the lengths of braided copper cable are 35 mm². Complies with CEI EN 61230.

TL9228 Icc. 15,1 kA/1 s

Earthing kit for high voltage overhead lines, 132 and 220 KV. The braided copper cable can optionally be supplied in 10 m lengths.

Kit made up of:

- 3 contact clips for high voltage overhead lines, model TL3892, capacity 5 - 60 mm diameter.
- 3 lengths of extra flexible, braided copper cable, length 7 m, section 70 mm².
- 3 earthing connector clamps, model TL3867, capacity 33 mm.
- 1 insulating hot-line stick model TL3905, total length 4 m, in 2 sections. Complies with CEI EN 61235.
- 1 metal carrying case.
- 1 reinforced case for the hot-line stick.



TL9229 Icc. 23,9 kA/1 s

Earthing kit for high voltage overhead lines, 380 KV. The braided copper cable can optionally be supplied in 10 m lengths.

Kit made up of:

- 3 contact clips for high voltage overhead lines, model TL3892, capacity 5 - 60 mm diameter.
- 3 lengths of braided copper cable, length 7 m, section 95 mm².
- 3 earthing connector clamps, model TL3867, capacity 33 mm.
- 1 insulating hot-line stick model TL3913, total length 6 m, in 3 sections. Complies with CEI EN 61235.
- 1 metal carrying case.
- 1 reinforced case for the hot-line stick.



NOTE

The EPAT clips for HT overhead lines can be supplied with other types of connector: bayonet, hexagonal, etc.

TL3822 Icc. 16,7 kA/1 s

Earthing kit for distribution lines, clip capacity 15 - 60 mm².

Kit made up of:

- 3 contact clips for high voltage lines, model TL3889, can be manoeuvred with insulated rope. Clip capacity 15 - 60 mm
- 3 x lengths of 10 mm diameter insulated rope.
- 3 lengths of braided copper cable, length 7 m, section 70 mm².
- 3 TL3867 clamps, capacity 33 mm.
- 1 insulated fibreglass hot stick, with reel ejector at one end.
- 1 metal carrying case.
- 1 reinforced case for the hot-line stick.



TL3956

Icc. 3,5 kA/0,5 s

Mobile earthing kit, for laying and repairing low and medium voltage overhead lines. Supplied with 5 lengths of braided copper cable, section 16 mm². Capacity 3 - 20 mm.



TL3954

Mobile earthing kit, for laying and repairing high voltage overhead lines. Supplied with 5 lengths of braided copper cable, section 50 mm². Capacity 5 - 40 mm

TL3859

Short circuit device for 3 KV dc contact lines. Supplied with carrying bag.

Kit made up of:

- 1 reinforced fibreglass base section, length 2.50 m. Complies with CEI EN 61235. With hand guard and female connector for connecting to the metal upper section.
- 1 metal upper section (AL) with aluminium alloy strip for connection of the copper braid and the contact clip. The lower end has a male connector for connection to the fibre section, with an aluminium adapter at the top end for connecting the contact clip.
- 1 bronze/aluminium contact clip.
- 1 length of extra flexible, braided copper cable, section 95 mm² length 4.95 m.
- 1 bronze earthing clamp.



NOTE

This equipment is configured as required by the rail network.

EARTHING EQUIPMENT ITEMS

TL3884

Icc 6 kA/1 s

Contact clip for TL3947 earthing equipment with closure spring. Capacity 3 - 20 mm (for P.A.T. WIWIW322 equipment).



TL3891

Icc 8 kA/1 s

Contact clip for TL3949 earthing equipment with closure spring. Capacity 3 - 20 mm



TL3894

Icc 20 kA/1 s

Contact clip, for TL3869 earthing equipment for M.V. cabins and electrical installations. Round, 5 - 40 mm Bar 40 x 60 mm Edge bar 12 x 60 mm



TL3889

Icc 17,1 kA/ 0.5 s

Contact clip for model TL3822 distribution line equipment.
Capacity 15 - 60 mm.



TL3892

Icc. 41 kA/1 s

Contact clip for high voltage lines,
capacity 5 - 60 mm diameter.



TL3887

Icc. 35 kA/1 s

Contact clip for cabins and high voltage transformer centres.
Capacity 10 - 80 mm Bayonet fitting.



TL3886

Icc. 30.5 kA/1 s

Contact clip for cabins and high voltage transformer centres.
Capacity flat bar 100 x 80 mm Bayonet fitting.



TL3890

Icc. 13.5 kA/1 s

Swivel contact clip for earthing equipment with hexagonal connector.
Capacity 6 - 35 mm



TL3916

Icc. 30,9 kA/1 s

Contact clip for fixed point with round head
diameter 20, for round conductor and 22 mm bar.
Hexagonal connectors.

NOTE

Available as fixed point clip
with 25 mm round head.



TL3940

Clip holder for three clips for TL3947 earthing kits.



TL3941

Clip holder for three clips for TL3949 earthing kits.



TL3866

Icc. 30.9 kA/1 s

Earthing clamp. Bar capacity up to 22 mm.
Steel closure screw, protected with anti-corrosion treatment.



TL3867

Icc. 40 kA/1 s

Earthing clamp. Bar capacity up to 33 mm.
Steel closure screw, protected with anti-corrosion treatment.



EARTHING EQUIPMENT ITEMS

TL5876

Earthing clamp for fixed point with round head diameter 20, for round conductor and 22 mm bar. Steel closure screw, protected with anti-corrosion treatment.

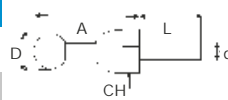
Icc. 30,6 kA/1 s



TL5877

Round head fixed point. Supplied with M-12 threaded shaft.

REFERENCE	ICC.	A	B	D	d	CH
TL5877	21.1 kA/1 s	60	25	20	M-12	22
TL5878	30.9 kA/1 s	60	25	25	M-12	22



TL5879

Fixed point clip for aluminium conductor, maximum diameter 40 mm. Made from high current intensity aluminium alloy. Stainless steel fittings. Dimensions: A = 70 mm B = 119 mm C = 25 mm

Icc. 30,4 kA/0,5 s



TL5880

Fixed point clip for 2 aluminium conductors, maximum diameter 36 mm. Made from high current intensity aluminium alloy. Stainless steel fittings. Dimensions: A = 75 mm B = 115 mm C = 25 mm

Icc. 54,9 kA/1 s

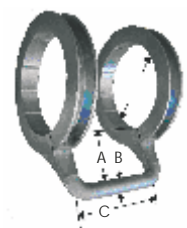


NOTE: Order Ref. TL5881 for 3 conductors.

TL5882

Fixed point for aluminium tube conductor. Made from high current intensity aluminium alloy. Stainless steel fittings.

REFERENCE	ICC.	Ø TUBE (mm)	A (mm)	B (mm)	C (mm)
TL5882	50 kA/0,5 s	100	85	25	200
TL5883	54 kA/1 s	150	110	35	190
TL5884	53,3 kA/1 s	220	110	35	190
TL5885	50 kA/1 s	250	110	35	190



INSULATED STICKS

TL3873

Single section stick

Single section insulating sticks, manufactured from fibreglass-reinforced polyester resin. Used in high voltage facilities, for opening sectioners, etc.



NOTE

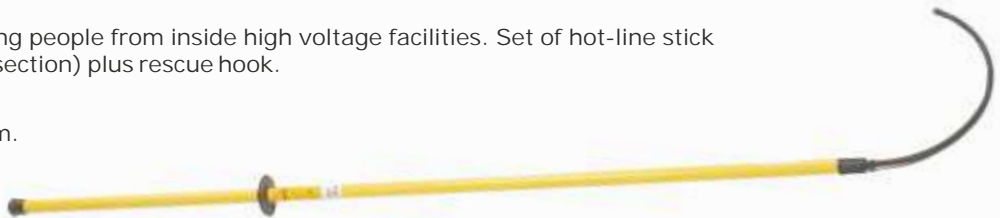
These sticks are supplied with fixed hooks or EF connectors (hexagonal/M-10).

REFERENCE	LENGTH		HOODS
	(mm)		
TL3873	2		No
TL3874	2		Si
TL3877	3		No
TL3878	3		Si

TL9070 Rescue stick

Rescue stick for rescuing people from inside high voltage facilities. Set of hot-line stick (either single or multi-section) plus rescue hook.

- TL9070 Length 1,5 m.
- TL6584 Length 2 m.



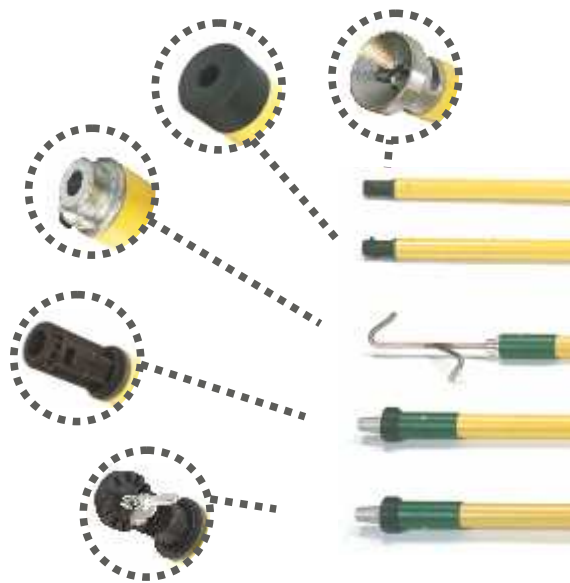
TL3901 Sectional Sticks

Insulated hot stick sections, manufactured from fibreglass reinforced epoxy resin tube complying with CEI EN 61235. A base section with a male connector to which different sections can be attached to obtain the required height. The final section is fitted with different couplings, depending on the work to be carried out.

REFERENCE	LENGTH	ELEMENTS	HEAD	TENSION (Kv)
	(metres)		BY WORK	
TL3901	2.5	2	EF	66
TL3903	4	2	EF	220
TL3905	4	2	G	220
TL3912	6	3	EF	380
TL3913	6	3	G	380

NOTE

PVR sticks are manufactured from fibreglass tube filled with expanded polyurethane foam, in compliance with CEI EN 60855.



TL4129 Telescopic Sticks

Manufactured from fibreglass tube with universal head. The triangular design means that each section can lock in automatically without having to twist the sections. The top section is fluorescent and filled with polyurethane foam. Easy to take apart, simply by pressing the locking button and sliding out the required sections.



Operating hook



Universal connector

REFERENCE	LENGTH (m)		WEIGHT(Kg)
	SPREAD	RETREAT	
TL4129	3.80	1.48	1.66
TL4130	5	1.53	2.26
TL4131	6.43	1.58	2.92
TL4132	7.8	1.63	3.68
TL4133	9.21	1.68	4.55
TL4134	10.6	1.72	5.5
TL4135	12	1.75	6.5

TL3860

Fuse extraction stick



For extracting medium voltage fuses. Manufactured from fibreglass reinforced epoxy resin tube complying with CEI EN 61235. Equipped with jaws for handling APR fuses from 30 mm to 90 mm diameter. Adjustment is made by rotating the lower end. The jaw is angled to facilitate insertion and extraction of fuses. Total length 1.5 metres. Supplied with reinforced carrying case.

TL3895

Cable perforator for underground networks

For use on single and three pole cables, maximum diameter 100 mm and maximum voltage 45 kV. Helicoidal bit perforation system.

Kit made up of:

- Insulated fibreglass hot stick.
- Operating handle.
- Head with perforator.
- Braided copper cable, 25 mm section, length 5 m.
- 33 mm earth clamp.
- Metal carrying case.

NOTE

It is essential to regulate the drilling depth.
Always use basic safety equipment, such as helmet, gloves, mat, etc.



TL4091

Cutting stick

Manual lever-operated cutting sticks, supplied with the type of head required, either for ACSR or aluminium and copper cables. The blades are interchangeable and cut cleanly with no crushing.



ACSR
cable cutter
TL4091



Copper and
aluminium cables
TL5308



TL5886 Pruning stick

Highly insulated equipment for cutting branches near to electrical conductors.

Consists of:

- Fibreglass-reinforced polyester resin insulated sticks, diameter 40 mm, with 3 x 2-metre sections for a total length of 6 m.
- Cutter for thick branches.
Cutter for thin branches.
Insulated polypropylene rope.

NOTE

Supplied with reinforced carrying case.



TL4113 Hot-stick tester

Portable, easy to use device for checking hot sticks, wet or dry. Output voltage 2500 V. The tester is calibrated to show the leakage current applying 7 KVAC for wet tests and 100 KVAC for dry tests.



NOTE

Reinforced PVC carrying case.

TL4078 Hot-stick cleaning kit

Special kit for cleaning and maintaining fibreglass hot sticks.



EXAMPLES OF HOT STICK ACCESSORIES

TL4083

Universal disconnection hook.



TL4082

Spiral disconnection hook.



TL4085

Fuse extractor.



TL4079

Aerosol lubricant holder.



DETECTORS AND TESTERS

TL3934

Optical electronic voltage tester

Optical electronic voltage tester, including self-check device. Operational voltage 3 to 36 KV. Supplied in metal case.



TL3933

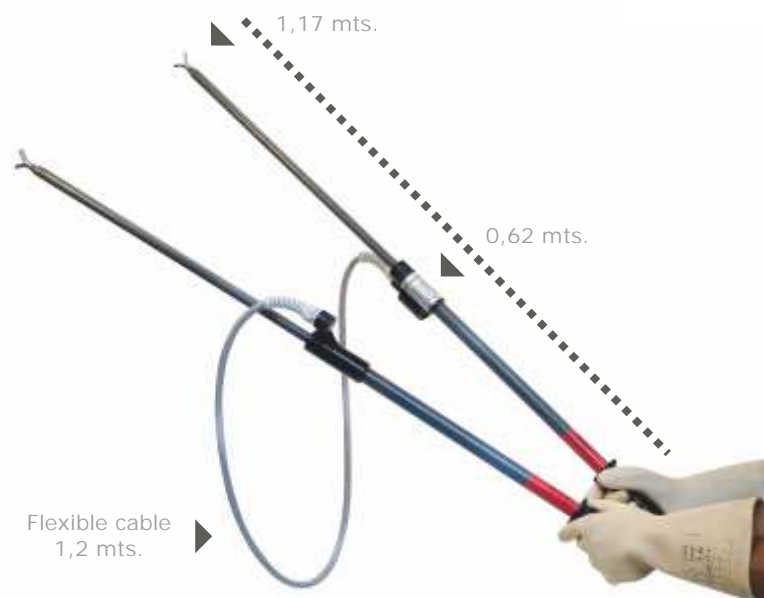
Bipolar voltage indicator

Electronic bipolar voltage indicator with light, for checking phases.

- Includes 2 wands linked by flexible 1,2 metre cable.
- Operational voltage 5 to 36 kV.
- Length of wands without antennas 0,62 metres.
- Total length with antennas 1,17 metres.
- Supplied in metal carrying case.

NOTE

Can be used as a MV fuse tester.



TL3935

Electronic testers

Bipolar electronic testers of presence/absence of direct current, with acoustic and luminous warning, for Tram, underground and railway lines. Operational voltage: 600 to 3600 V dc. Self check device included. Supplied with a 4,5 m long stick.

- Powered by a 9v. alkaline batter.
- Supplied in transport box, with bag for the host stich.



NOTE

Optionally available with magnetic clamp

TL5849

Electronic tester

Bipolar electronic testers of presence/absence of direct current, with acoustic and luminous warning, for railway lines. Operational voltage: 385 to 1,800 Vac. Self check device included.

- Two 4-metre fibreglass-reinforced polyester resin insulated sticks, one with a metal hook, the other with an adapter for the voltage tester.



TL3812

Electronic testers

Electronic current testers, with audible/visible alarm, including self-check device. Certified in accordance with international standard CEI EN 61243-1:2003 ed.2 for voltages up to 52 Kv. The nominal voltage range will be defined as a function of the usage voltage.

- Testers are supplied with universal connector.
- Powered by a 9 v alkaline battery.
- Supplied in metal case.

How to change the battery



REFERENCE	RANGE
TL3810	5-6.5
TL5050	6-12
TL3811	9.5-15
TL3812	10-30
TL5047	15-30
TL3813	14-25

NOTE

The contact point can optionally be exchanged for a hook.



TL3829

Electronic testers

Electronic current testers, with audible/visible alarm, including self-check device. Certified in accordance with international standard CEI EN 61243-1:2003 ed.2 for voltages up to 400 Kv. The nominal voltage range will be defined as a function of the usage voltage.

- Testers are supplied with universal connector.
- Powered by a 9 v alkaline battery.
- Supplied in metal case.



NOTE

This model is always supplied with a hook-shaped contact.

REFERENCE	RANGE
TL3814	24-72,5
TL3829	45-135
TL5873	60-90
TL3825	63-150
TL5874	90-150
TL3826	70-220
TL3828	110-380
TL3827	200-420

PROTECTION AND INSULATION

TL3583 Insulating Gloves

Made of natural latex, these gloves are classified according to the test voltage they must withstand. Complies with EN60903.

REFERENCE	KIND	TENSION E (V)	TENSION U (V)
TL3583	00	2500	500
TL3584	0	5000	1000
TL3585	2	20000	17000
TL3586	3	30000	26500

NOTE

TL3932 The box is optional.



TL3838 Protective Gloves

Protective gloves for use over dielectric gloves, to protect against cuts and scrapes.



TL3837 Fireproof gloves

Fireproof thermal protection gloves. Knitted. Protection from burns caused by melting of the insulating glove. Their use is mandatory with low voltage protective gloves.



TL3786 Fuse Holder Mitten

Fuseholder mitten, allows insertion and extraction of LV fuses. Composed of sleeve of insulating material and insulating pincer, securely bonded together.



TL3945 Pneumatic tester

Pneumatic insulated glove tester, mandatory for the periodic testing of gloves. Made of thermoplastic material.



TL3831 Insulated Mats

Insulating mats made of rubber sheet, 3 and 6 mm thick, colour grey. Complies with CEI IEC 1111 (Class 3). Length: As required. Width 1 m.

REFERENCE	MEASURES	THICKNESS	TENSION (Kv)	
	(mts)	(mm)	TEST	USES
TL3831	1x1	3	30	26.5
TL3832	1x10	3	30	26.5
TL3841	1x1	6	40	36
TL3842	1x10	6	40	36



TL2819 Insulating bench

Insulating high-impact polyethylene bench, anti-slip platform. Complies with UNE204001. Supplied with rubber protective feet for improved grip. Platform size 500 x 500 mm

REFERENCE	TENSION (Kv)
TL2819	45



TL3824 Vinyl sheet

Vinyl sheet, 0,3 mm thick. Use to insulate low voltage items from accidental contact during installation work

- Transparent.
- Extremely flexible material.
- Test voltage 5 Kv.
- Supplied in 25 m rolls.
- Width 1,30 m.

▶ TL3917

Insulating clips for vinyl sheet.

▶ TL3846

800 x 1000 mm vinyl sheet, with eyes.

▶ TL3809

Insulated hook for the 800 x 1000 mm. vinyl sheet. Reference TL3846.



TL4209 Artificial respiration mouthpiece

Artificial respiration mouthpiece, 'mouth to mouth' type, avoids direct contact.



TL2693 Treated rope

Polypropylene rope designed for work where the highest insulation protection is required. Repels moisture and has longer duration due to additives.

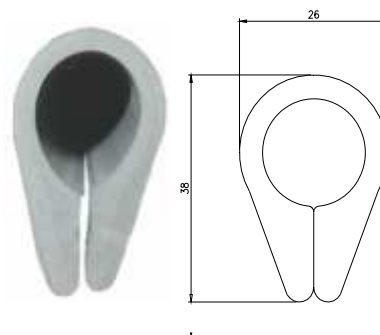
REFERENCE	DIAMETER (mm)	BREAKING S. (Kg)
TL2693	6	516
TL2694	8	893
TL2695	10	1366
TL2696	12	2030
TL2697	14	2790
TL2698	16	3348
TL2699	18	4450

Supplied in 200 m rolls.



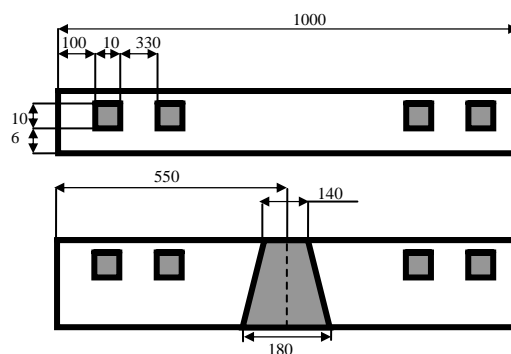
■ TL5888 MV rubber sleeve.

Protective grey insulating rubber sleeve, ideal for rapid, easy installation on overhead lines, maximum diameter 18 mm.



■ TL5889 Standard sleeve with 4 holes for fixing to the line with plastic ties.

Standard sleeve with 4 holes for fixing to the line with plastic ties.



■ TL5890 With centre hole, 140 x 180 mm, for the insulator.

With centre hole, 140 x 180 mm, for the insulator.

■ TL4704 LV rubber sleeve.

Used for insulating low voltage conductors, easy to install.

- Maximum diameter 18 mm.
- Length 1 m.



■ TL1986 Insulating cap

110 mm rubber insulating cap, slotted to allow the passage of conductors. For the 160 mm use REF. TL1987.



■ TL4698 Cable cap

Insulating rubber cap for cable ends.



■ TL4259 Cable separator



■ TL4706 Insulating wedge



PROTECTION AND INSULATION

TL2458 Extinguishers



A wide range of extinguishers is available, classified by extinguishing agent (water, powder, CO₂, etc.).

REFERENCE	MODEL	EFFECTIVENESS	WEIGHT(Kg)
TL2458	P. Pol.	13A-55B	3
TL2461	P. Pol.	21A-113B	6
TL2457	CO ₂	34B	2
TL2460	CO ₂	89B	5

TL1985 Dielectric boots

Dielectric boots, with excellent grip on any type of ground.



- Height 350 mm.
- Sizes 36 to 47.
- Test voltage 20.000 v.
- Approximate weight 2 kg.

TL4703 Insulating shoes

Insulating shoes, with excellent grip on any type of ground.



TL4705 Fire blanket

Fire blankets are efficient for small fires, particularly when clothing catches fire, and are an alternative to safety showers. Supplied with carrying bag.



REFERENCE	MEASURES (cm)
TL5891	090x100
TL5892	120x120
TL4705	120x180

TL4695 First aid kit

The number of first aid kits, stretchers, etc., will depend on the size of the company, the hazards involved, and the distance to the nearest medical centre.



TL4667

180 x 55 cm stretcher. Carrying bag.



TLB204 Rescue gear

If there is an accident, speedy intervention is of the essence and so all necessary tools and equipment which might aid rescue should be available at a fixed location, properly organised and accessible.

A wooden board with the following items fixed to it:

- 1 Rescue stick.
- 1 Glove box.
- 1 pair Class III gloves.
- 1 Insulated cutters.
- 1 Pipette.
- 1 Insulating stool.
- 1 Bottle of smelling salts.
- 1 First aid panel.
- 1 Instruction panel.



TLB205

Includes the above set of equipment plus:

- 1 current detector
- 1 pair insulated shoes.

SIGNAGE AND BOUNDARY MARKING

TL3658

Electricity danger triangle. Anodised aluminium sign, yellow background, black sign and border. To be placed at access points to stations, substations and transformer centres.

TL3650

Adhesive voltage triangles, yellow background, black sign and border.

Aluminium signs

REFERENCE	DIMENSIONS	REFERENCE	DIMENSIONS
TL3658	105	TL3650	105
TL3659	148	TL3654	148
TL3660	210	TL3655	210
TL3661	297	TL3656	297

* Dimensions in mm.



TL3701

Adhesive voltage triangles, yellow background, black sign and border.

Tension:

- 220 v.
- 380 v.

REFERENCE	TENSION	DIMENSIONS
TL3701	220 V	55
TL3702	220 V	105
TL3703	380 V	55
TL3704	380 V	105

* Dimensions in mm.



TL3666

Triangle indicating high voltage, danger of death. Anodised aluminium sign, yellow background, black sign and border. For placing on electricity pylons.

REFERENCE	MEASURES	DIST.*
TL3666	105	3,09
TL3667	148	4,36
TL3668	210	6,18
TL3669	297	8,74

* Maximum observation distance.



TL3678

"Do not operate" disc. Circular anodised aluminium sign, yellow background, black sign and border. To be placed on circuit breaker apparatus when work is in progress on the relevant installation.



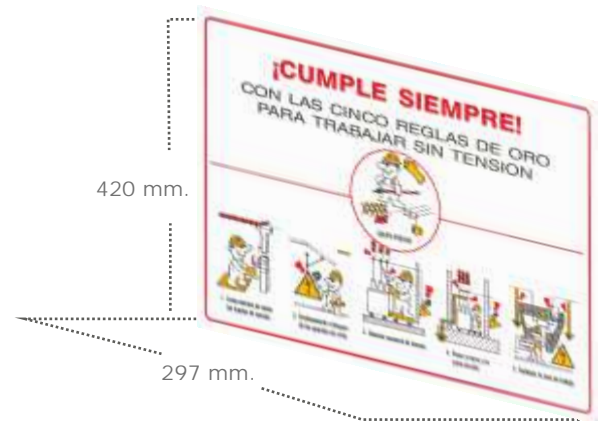
TL3684

First aid poster (artificial respiration). Rectangular anodised aluminium sign, measurements 420 x 297 mm, white and yellow background, figures and text in black.



TL3689

Poster with 5 golden rules. Rectangular plastic sign, measurements 420 x 297 mm, white background, figures and text in red, yellow and black.



TL3622

Sign showing prerequisites for working in high voltage electrical facilities.



TL3649



TL3680

REFERENCE	CAPTION
TL3680	Brake Down
TL3682	Land Made
TL3681	Tension Return



TL2871 Warning sphere

Warning sphere, 400 mm, manufactured from fibreglass-reinforced polyester resin. Colour as per required technical specification. Supplied with fixing system which prevents rotation or movement due to vibration.



TL4169 Warning tape



Tape for marking off the work area. Red and white striped.

NOTE
Supplied in 200 m rolls.

TL3636 Cable marking tape



Tape for marking and protecting underground cables. Made in yellow polyethylene, with graphics and legend in black.

NOTE
Supplied in 500 m rolls.

TL5848 Cable protection panels

Protect cables and warn of their presence at the same time. Made of yellow plastic.

■ Length 1 m.



TL2817 Reel of barrier tape



Reel of tape for marking off the work area.

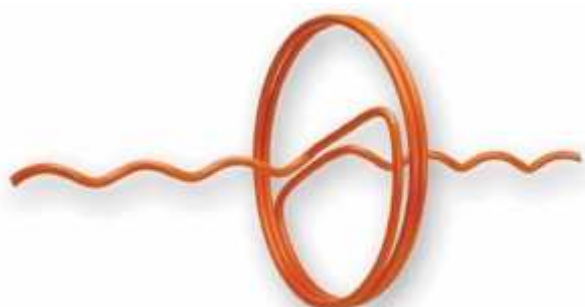
■ Length 20 metres.

NOTE
Also available in 50 m lengths, Ref. TL3675.

TL5723 Bird warning

Double anchor spiral to mark power lines on bird routes.

REFERENCE	LEAST DIAMETER (mm)	MAXIMUM DIAMETER (mm)
TL5723	7	9.50
TL5724	9.51	13.40
TL5725	13.41	17.50
TL5726	17.51	21.80



Unfavourable weather, dirty facilities, dust, residue from lubricants, spiders' webs, etc. can produce supply failures, damage to materials and personal injury from electric arcs in low and medium voltage facilities.

Experience shows that it is necessary to clean indoor facilities and switchboards regularly, approximately every one or two years, depending on the extent and the intensity of the dirt.

Dry vacuum cleaning with cleaning heads and brushes eliminates dust and spiders' webs rapidly and efficiently.

In the case of adhered dust and oil, wet cleaning, using sponges moistened in special insulating fluid, provides the required cleaning action. The combination of both procedures satisfies intensive cleaning requirements. There is special equipment available for live line cleaning from 1000 V up to 36 kV.

TL4640 LV dry cleaning kit

The vacuum dry cleaning kit contains different cleaning heads and brushes, shaft with handle, extenders and adaptors. Each of these items is manufactured from special totally insulated plastic. The different heads and brushes are specially designed and suitable for any kind of installation.

- Based on DIN VDE 0680 part 3.
- Shaft manufactured in accordance with CEI IEC 61235.
- For nominal voltages of up to 1,000 V.
- For indoor and outdoor use.
- Should not be used in the rain or with high humidity.



TL4638 MV dry cleaning kit

The vacuum dry cleaning kit contains different cleaning heads and brushes, shaft with handle, extenders and adaptors. Each of these items is manufactured from special totally insulated plastic. The different heads and brushes are specially designed and suitable for any kind of installation.

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| <ul style="list-style-type: none"> ■ Based on DIN VDE 0682 part 621. ■ For nominal voltages of up to 36 KV. | <ul style="list-style-type: none"> ■ For indoor and outdoor use. ■ Should not be used in the rain or with high humidity. |
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NOTE

An industrial blower/vacuum can be supplied as option TL4639 for models TL4640 and TL4638.

TL4641 MV wet cleaning kit

The wet cleaning kit contains different cleaning heads (flat and curved sponges), insulated hot sticks with grip, and extenders and adaptors. All of these items are totally insulated. The sponges adapt to any surface and can be used in any type of installation. The simple attachment system makes changing heads simple.

- Based on DIN VDE 0682 part 621.
- For nominal voltages of up to 36 KV.
- For indoor and outdoor use.

NOTE

Should not be used in the rain or with high humidity.

Ref. TL4639 includes an industrial blower/vacuum.



APPLICATION

The use of sponges moistened with special fluids makes it possible to clean surfaces and oil residue from transformers.

The insulation of the special fluid used is selected in accordance with the voltage of the system to be cleaned and the environmental conditions.

ACCESSORIES

Semicircular brush



Adjustable angle



Cleaning head



Flat head



Tubular brush

