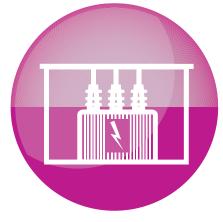
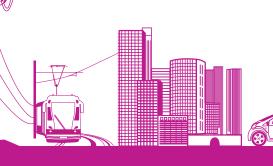


MV Substation equipment

Safety equipment	100
Substation equipment	101
Voltage detectors and short-circuiting system for substations with bare conductors	s 102
Voltage detectors	103
Phase comparators	104
Two-pole phase comparator and permanent indicator	t 105
IEC short-circuiting and earthing systems for MV substations	106
Clamps for MV installations and substations	108
Short-circuiting and earthing systems	109
VPIS and VDS systems for M.V. cubicles	112
Complementary safety equipment	113
Life saving kits	114





Safety Equipment

Keep your substations in compliance

Special regulatory signaling

The standard recommends the following signaling in substations:

- A substation poster,

- Two posters about what to do in the event of an indoor or outdoor electrical emergency,

- A poster displays the service rules.

All of these posters comes in kits that were specially designed by CATU to get your substations in compliance.



Safety Equipment

The standard recommends the following service equipment:

- An insulating platform or an insulated mat,

- A rescue pole,

- A pair of insulating gloves adjusted to the sub-station's rated voltage,

- A voltage detector (see below for information)

 A grounding and short circuit device (see below for information)

- A glove box,
- A fuse holder.

CATU has assembled all of the service equipment into kits to simplify your selection and to bring your facilities into compliance right away. This equipment must include a suitable voltage detector.





Substation equipment





Intervention kits

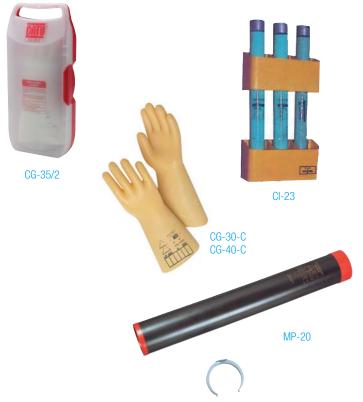
CE

CS-45

Reference	Characteristics		
KIT-01	Intervention kit with insulating platform		
KIT-02	Intervention kit with insulating platform		
KIT-10	Intervention kit with insulating mat delivered with a protective P.V.C. container		

Reference		Character	viotico	**		
KIT-01	KIT-02	KIT-10	Composition of kits	Characteristics		mm
•	-	•	CG-30-C	Insulating rubber gloves Classe III	•	
-	•	-	CG-40-C	Insulating rubber 36 000 V max gloves Classe IV		Size C (10)
•	•	•	CG-35/2 *	Rubber gloves box	loves box –	
•	•	•	CI-23 *	Fuse holder	Fuse holder Ø maxi 85 mm	
•	•	•	CS-45 **	Rescue stick 45 000 V max		Long. 1.65 m
•	•	•	CI-06-D	Wall mounted supports Delivered with CS-45		_
•	•	_	CT-7-25/1	Insulating platform 24 000 V max		500 x 500 x 220
-	_	_	CT-7-40/1	Insulating platform	Insulating platform 40 000 V max	
_	•	•	MP-42/16	Insulating MAT Class III - 26.5 kV		0.6 m x 1 m
_	_	•	MP-20	Mat storage		Ø 10 cm x 1 m







CT-7-25/1 CT-7-40/1





The KIT-01 is complemented by an appropriate detector: see pages 103, 118, and 119.





_____Voltage detectors and short-circuiting systems for substations with bare conductors

IEC electronic Voltage Detectors, "Compact serie" for indoor and outdoor use

IEC 61243-1 C €

Ultimate technology of voltage detector "Head Capacitive Technology"

Compact and light, it offers a wide band (10/36 kV).

Operating check:

By pressing the TEST button:

- a red LED flashes on
- powerful rated audible signal > 60 dB(A)/2 m
- when loosening the button, the timed green LED lights up. While remaining on, it indicates the good working order of the detector

Characteristics:

- Precise and stable operating threshold
- High environmental resistance (impacts, vibrations, moisture)
- Temperature conditions: class N (IEC -61243-1 standard)
- Use from 50 to 60 Hz.



IEC Voltage detector

In compliance with IEC-61243-1.

CC-875 high environmental resistance: impacts, vibrations, moisture. Recommanded stick CE-4-21-C.

Reference	Characteristic	~	mm	ĝ
CC-875-10/36-(*)	Voltage detector	12/36 kV	390 x 90 x 90	500
	in storage box			
CC-875-11/33-(*)	Voltage detector	11/22 kV	390 x 90 x 90	500
	in storage box			
	(e of mounting when or For other voltage rang	
IEC Insulating Detector	g stick for Vo	ltage		
Stick in compliance	with IEC 61225			

Stick in compliance with IEC 61235.

Reference	\sim	m
CE-4-21-C	90 kV	2
		_







Pivoting contact electrode

Sturdy thermo-plastic moulded case providing.

enabling wire contact at any angle.

Voltage detectors



C-18-311

CE



Built-in device for checking operation of the led's indicator via a piezo-electric generator. High-brightness led's indicator.

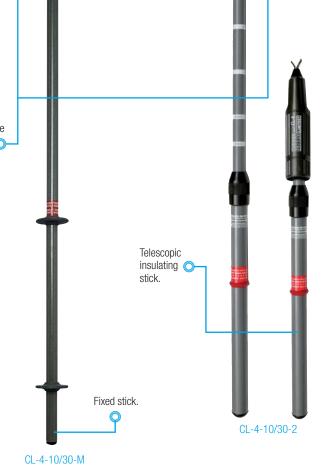
Reference	~	Folded up		ĝ
CL-4-10/30-M *	10-30 kV	_	1.35	1 000
CL-4-10/30-2 **	10-30 kV	0.85	1.26	950

/30-M * 10-30 kV - 1.35 1 000
/30-2 ** 10-30 kV 0.85 1.26 950

* Delivered in vinyl sheath with wall brackets Cl-06-D.
** Delivered in canvas, waterproofed with ramp.

Ø 58.5 mm





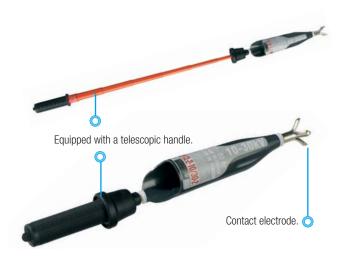
Voltage detector with leds for indoor use (Compact serie) without batteries

For indoor use. This compact serie voltage detector is designed to be carried easily by operators. Voltage presence is indicated by a high-brightness LED's indicator. Built-in device for checking of the LED's indicator by a piezotest generator.

Reference	~	Folded up		ĝ
CL-2-5/36-2	5-36 kV	0.33	0.9	400
CL-2-10/30-2	10-30 kV	0.33	0.9	400

Other models fixed or telescopic, please contact us.

Delivered in holster.









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Two-pole phase comparators for indoor use

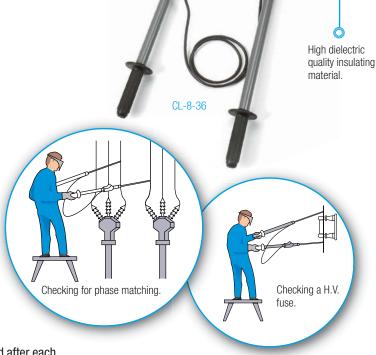
The **DETEX CL-8-36** detects differences in voltage between any two points of an installation indicated by LED's. It also enables assessment of the order of magnitude of the residual voltage induced by nearby live lines or circuits, and thus differentiates it from the one provided directly from a high voltage source.

Reference	Reference		aerial		
	. 0	assembled	dismantled	g	
CL-8-36	2 to 36 kV	1.25 m	0.62 m	1 100	
CL-8-36/1 *	2 to 36 kV	1.25 m	0.62 m	1 300	

* As CL-8-36 tester with 2 probes exenders 0.550 m. Câble 1.5 m for CL-8-36 and 3 m for CL-8-36/1. Delivered in plastic case.

Accessories

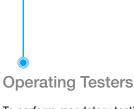
Reference	Characteristics		
C-92-20	Spare probe 0.550 m		
CL-8-05	Probe extenders 0.550 m		



Two 1.25 m elements with removable probes,

connected via a high-

insulation lead.



To perform mandatory testing on the controllers before and after each use

Reference	Characteristic		mm	ĝ
CL-1-06	Delivered in case with lead	Adjustable 10, 20, 30 kV	190 x 32 x 65	320



Unlike single-core voltage testers, dual core testers can recognize potential differences between any two points in an MV installation. Primarily reserved for conductors of the same phase (matching), they can also be used for dual core detection and for testing MV fuses.











Two-pole phase comparator and permanent indicator



 ϵ

Contact

electrode



Two-pole phase comparator for indoor and outdoor use

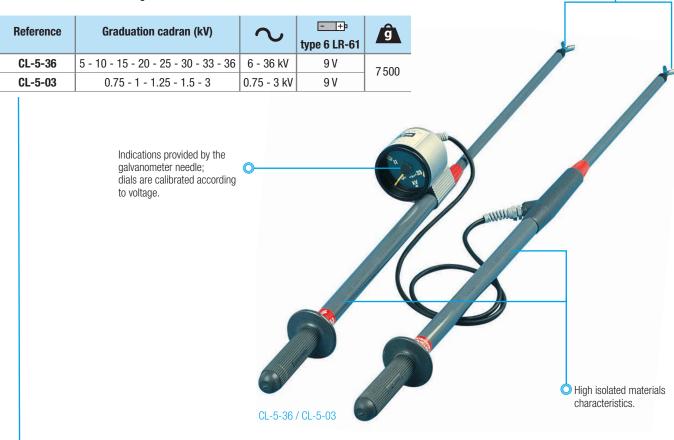
 $Complete \ function \ testing: built-in, with \ TEST \ push-button \ (battery \ supplied).$

Consists of two elements connected by a high-insulation lead.

Removable handles.

Device delivered in metal case.

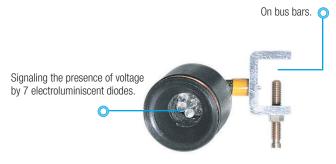
140 x 250 x 850 mm - 7.5 kg.



Permanent luminous indicator for indoor use

Single-pole 5 to 75 kV indicator.

Reference	
CL-40010	Sold in box of 3 units



CL-40010







IEC short-circuiting and earthing systems for MV substations

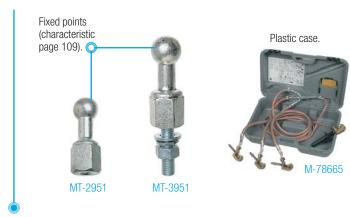
Installation on permanent fixed points

Reference	Rating (kA/1 s)	Installation on fixed points	Composition	Connection set
MT-1910	20	Ø 20 mm MT-2951range	3 clamps MT-1911-E 1 MT-1911	3 cables 95 mm ² 1 earth cable 35 mm ²
MT-1920	30	Ø 25 mm MT-3951range	3 clamps MT-1921-E 1 MT-1921	3 cables 150 mm ² 1 earth cable 50 mm ²





Reference	Characteristics				
MT-890	Clamps 3 claws				
MT-891	Earth clamp fixation				
MT-893	Cable tensioner				
MT-895	Cable kit support				
CI-10-D	Wall mounted support				
M-78665	Fixed points MT-1910 or MT-1920				

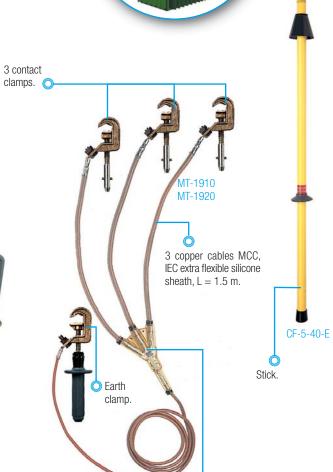




Claw for "T" or round fixed points for round conductors.

Reference	Characteristic	Rating (kA/1 s)	g	
MT-1911-E	Claw for "T" fixed points MT-1951 Ø 20 mm MT-2951 round fixed points Ø 8 à 18 mm	20	580	
MT-1921-E	Claw for "T" fixed points MT-1951 round fixed points Ø 25 mm MT-3951 round conductors Ø 10 à 25 mm	30	690	
MT-1911	Same characteristics with hande MT-1911-E	20	_	
MT-1921	MT-1921 Same characteristics with hande MT-1921-E			

Delivered with screws M 12.







1 trifurcation connector earthed by an extra-flexible copper cable with silicone sheath, L = 2.5 m.

MT-1911 MT-1921





IEC short-circuiting and earthing systems for MV substations

Installation on bare conductors



Contact clamps.

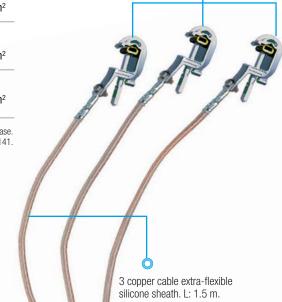


Reference	Rating (kA/1 s)	Installation on fixed points	Composition	Connection set
MT-5805	20	• Ø 5-35 • 16-40 • 5-40	3 clamps MT-815-C 1 MT-840/1	3 cables 95 mm ² 1 earth cable 35 mm ²
MT-8408	12,5	• Ø 18-33 - – – – – – – – – – – – – – – – – – – –	3 clamps MT-814/3 1 MT-840/1	3 cables 70 mm ² 1 earth cable 35 mm ²
MT-9801	10	Ø 5-16O-16Ø 5-28	3 clamps MT-817-C 3 clamps MT-814/2 1 MT-840/1	3 cables 50 mm ² 1 earth cable 25 mm ²

Delivered in case. Clamp characteristics : see page 141.

Earth clamp.





Installation on permanent fixed points

Reference	Characteristics	
MT-890	Clamps 3 claws	
MT-891	91 Earth clamp fixation	
MT-893	Cable tensioner	
MT-895	Cable kit support	
CI-06-D Wall mounted suppo		

Bare conductors.



Extra-flexible cable silicone sheath. L: 2.5 m.

1 trifurcation connector earthed by an extra-flexible copper cable with silicone sheath, L = 2.5 m.





M-78665 Plastic case included.



CE-4-21-C



Clamps for installation on bare conductors

Attachment (C-Type)

Hexagonal end-fitting. A circumferential braking system prevents the clamp from turning under the weight of the cable. Separate by simple pulling.

Earth cable connection.

With a crimped lug (12 mm Ø hole).

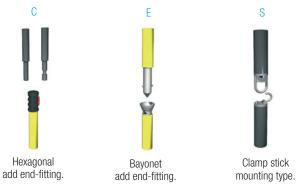
Material

Aluminium alloy except MT-814/2 and MT-814/3: copper-aluminium bronze.

Reference	Rating (kA/1 s)	mm	<i>©</i> conductor	ĝ
MT-811-C	21	35 x 77 x 157	• Ø 5-16	330
MT-812-C	21	35 x 79 x 143	• Ø 5-16 • 0-16	320
MT-813-C	21	35 x 79 x 169	40 x 16	330
MT-814/2	14.5	85 x 56 x 192	• Ø 5-28	660
MT-817-C	21	30 x 90 x 140	• Ø 5-16 40 x 16	330
MT-814/3	14.5	85 x 56 x 195	• Ø 18-33	620
MT-815-C	30	44 x 100 x 180	• Ø 5-35	650
MT-815-E	30	44 x 100 x 180	— 16-40	650
MT-815-S	30	44 x 100 x 180	5-40	650
MT-815-S1	30	44 x 100 x 180		650



Recommended stick: CE-4-21-C / CF-5-90-E / MG-115-S.









MT-812-C



MT-813-C



MT-814/2 MT-814/3



MT-815-C



MT-817-C

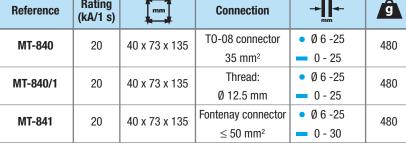


MT-818-C

Earth clamps

Copper aluminium bronze earth clamps. Earth cable connection by connector, lug, TO- system...

Reference	Rating (kA/1 s)	mm	Connection	→ II ←	ĝ
MT-840	20	40 x 73 x 135	TO-08 connector	• Ø 6 -25	480
20 10 470 4 100		35 mm ²	- 0 - 25	100	
MT-840/1	20	40 x 73 x 135	Thread:	• Ø 6 -25	480
MII-040/1 20 40 X / 3 X I		10 % 70 % 100	Ø 12.5 mm	— 0 - 25	100
MT-841	20 40 x 73 x 135		Fontenay connector	• Ø 6 -25	480
		10 % 70 % 100	≤ 50 mm ²	— 0 - 30	100











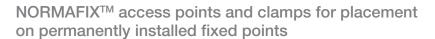






Short-circuiting and earthing systems (installations)





The advantages of grounding and short circuiting using permanently installed fixed points on existing conductors include:

- Using the same grounding and short circuiting equipment regardless of the conductor shape, section, or configuration
- Accessibility from variable angles
- Eliminating the risk of errors because grounding locations appear at first glance.

Reference	Rating (kA/1 s)	Sphere dimension Ø	Fixing	Conductors (mm)	ĝ
MT-951/1			Bolt: M 10 - L = 25 mm		90
MT-951/2			Bolt: M 10 - L = 35 mm		100
MT-951/3			Bolt: M 10 - L = 45 mm	Flat conductors	107
MT-952/1			Bolt: M 10 - L = 25 mm		110
MT-952/2			Bolt: M 10 - L = 35 mm		120
MT-952/3	10	18 mm	Bolt: M 10 - L = 45 mm		130
MT-953/08			Ø 6-8		130
MT-953/12			Ø 10-12	Round conductors	185
MT-955/08			Ø 6-8		150
MT-955/12			Ø 10-12		200
MT-956			Thread: Ø 12.5 mm	Terminal fitting	75
MT-2951	IEC-6	 1230 ∕\	Bolt: M 12		130
MT-2951/1	20	20 mm	Bolt: M 12 - L = 35 mm	_	180
MT-2951/2		20 111111	Bolt: M 12 - L = 45 mm		200
MT-2950/35			Bolt: M 12 - L = 35 mm		247
MT-3951			Bolt: M 12		240
MT-3952			Bolt: M 16		240
MT-3951/1	30	25 mm	Bolt: M 12 - L = 45 mm	_	300
MT-3952/1			Bolt: M 16 - L = 45 mm		350
MT-3950/35			Bolt: M 12 - L = 35 mm		300







MT-953...

MT-955...









MT-2951 MT-3951 MT-3952

MT-2950/35 MT-3950/35

MT-2951/1 MT-2951/2 MT-3951/1 MT-3952/1

Access points

To be used with clamps type MT-1911, MT-1921(see page 106).

Reference	Rating (kA/1 s)	Fixing	ĝ
MT-1951/10 20		Bolt: M 10 - L = 35 mm	125
MT-1951/12 20		Bolt: 12 - L = 35 mm	125

Clamps

Reference	Rating (kA/1 s)	Fixing	ĝ
MT-920-E 20		For fixed points Ø 20 mm	350
MT-925-E 20		For fixed points Ø 25 mm	400



MT-1951/10 MT-1951/12



MT-920-E





Short-circuiting and earthing systems (installations)



Insulating sticks for substation use

Telescopic sticks for voltage detectors and earthing systems for use in dry and wet conditions.

Reference	~	Ø	Folded		ĝ
CE-4-21-(*)	90 kV	41/32	1.15	2	1 500
CM-7-10-A	Extension*	36	-	1	1 000
CE-75-(*)	75 kV	41/32	1.15	2	1 200

(*) Specify type of mounting when ordering: C or K.

Delivered with wall mounted support CI-10-D.

* For CE-4-21.

Standard sticks

For short circuiting and earthing system. For use in dry conditions.

Reference	~	Ø		ĝ
CE-3-72-(*)	72.5 kV	36	1.50	880
CE-3-90-(*)	90 kV	36	2	1 060

(*) Specify type of mounting when ordering: C, K or E. Delivered with wall mounted support CI-10-D.



For short circuiting and earthing system. For use in dry conditions.

Reference	~	Ø		ĝ
CF-5-40-(*)	40 kV	36	1.50	1 550
CF-5-90-(*)	90 kV	36	2	1 550

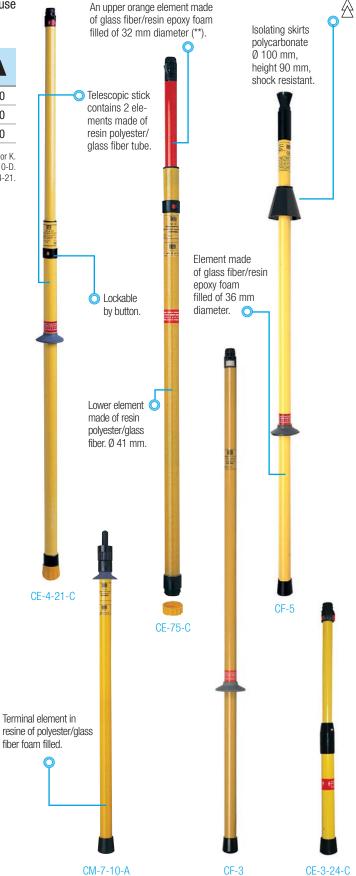
(*) Specify type of mounting when ordering: C, K or E.



Short length stick

For MV telescopic sticks.

Reference	m	ĝ
CE-3-24-C	Insulating Length = 0.52 Overall Length = 0.80	370
	Folded Length = 0.56	



IEC-61235

**IEC-60855





VPIS and VDS systems for M.V. cubicles



We can deliver complete set with foot capacitance, head capacitance and wirings to your own specifications. Please consult us.

* IEC 61958 ** IEC-61243-5





Integrated voltage presence indicating system (V.P.I.S)

Indicates the voltage presence on M.V. cubicles by being installed on the capacitive dividers. Voltage of use behind capacitive dividers: V < 1 000 V. Light threshold: 90 V. Signaling: 3 neons. Attachment: male/female plugs.

The second of th			
Reference	Characteristics	mm	ĝ
CL-495-3 *	Delivered complete with connector assembly	130 x 30	85
	connector assembly	l	I





Integrated voltage detecting system (V.D.S)

Indicates the voltage presence on M.V cubicles by being installed on the capacitive dividers. Voltage of use behind capacitive dividers: 1 000 V (beetwen phase and earth). Light threshold: 70/90 V. Input impedance: 36 M Ω . Signalling by 3 red diodes.

Reference	Characteristics	mm	ĝ
CL-497-00 **	Delivered complete with	146 x 30	90
GL-497-00 **	connector assembly	140 % 00	30





Sound phase comparator

The MX-404 sound phase comparator checks

the concordance between 2 phases.

The comparator's operation is indicated by:

Emission of an audible signal when there is discrepancy between the two phases. Absence of an audible signal when there is no discrepancy between the two phases. Power supply: 9V type 6LR battery.

Reference	Characteristics	mm	- +: type 6 LR-61
MX-404 **	Delivered with case	145 x 80	9 V













Interface for integrated voltage detecting system (V.D.S)

Indicates the voltage presence on M.V cubicles by being installed on the capacitive dividers. For High impedance detecting systems Input impedance: 36/43 $M\Omega.$ Voltage indication by 4 mm standard sockets on the front of the indicator.

Reference	Characteristics	mm	ĝ
CL-498-00	Delivered with	146 x 30 90	
	connection set	110 x 00	



IEC-61243-5

CE



Separable voltage detecting system (V.D.S)

This device enables to check the absence or presence of voltage on three phases (L1, L2, L3). HR high impedance.

Voltage max: 1 080 V rms. 50/60 Hz.

Voltage presence: red flashing LED > 1 Hz.

Fits in CL-498 devices.

Reference	Characteristics	mm	+b type 6 LR-61
CL-499/101	Delivered in plastic bag	145 x 80	9 V



Voltage tester for M.V. separable connectors



Voltage detectors and indicators



Voltage tester for M.V. separable connectors

Checks the absence of voltage on the capacitive terminals of plug-in M.V. bushings.

Sensor in the form of a bent finger enabling removal and reinstallation of the terminal insulating cover.

Signal via beeping and bright red flashing of electro-luminescent diodes. Built-in function test via the "TEST" button which covers the entire device. Permanent stand-by state.

Power supply: four 1.5 V, R-6 batteries.

Mounting on insulating stick via a universal end.

Reference	Characteristics	- +-	ĝ
CC-151-K	Tester in rigid case with batteries 70 x 100 x 165 mm	4 x type LR-6	700
CC-45-K	CC-45-K Special 45 kV insulating stick 70 x 100 x 165 mm		600









Extra safety equipment





Reference	Characteristics	mm	ĝ
CD-122	Automatic switch on in case of power break Adjustable flood beam - power beam: 5.5 W Operates: 3 hours - IP40 Classe II	240 x 120 x 128	1 800
CD-124	Delivered with a wall mounted support. Operates: 1 hour (12 W), 2 hours (6 W) Rechargeable on 230 V 50/60 Hz	100 x 190 x 220	1 900





Aperture Housing

Compatible with NF C 13-100.

Moulded plastic. Installed outside by tightening three screws on a steel clamp.

Reference	ĝ
CI-70	140

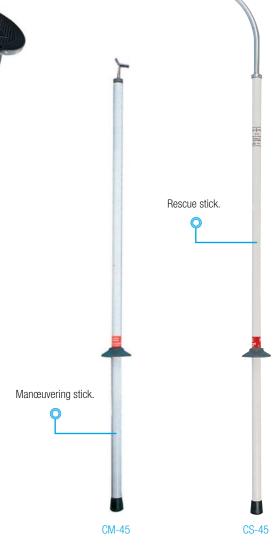




White resin polyester/glass fiber foam filled tube.

Reference	~		ĝ
CM-45	45 kV	1,50	7500
CS-45 *	45 kV	2	1 000
CM-90	90 kV	1.85	800
CS-90 *	90 kV	2.05	1100
CM-225	225 kV	2.25	850
CS-225 *	225 kV	2.45	1 350

^{*} Delivered with wall mounted supports.











Wall mounted supports

For sticks and voltage detectors. Plastic.

Reference	Ø Top	Ø Bottom
CI-06-D	28-30	36 max.
CI-08	16-20	36 max.
CI-10-D	32-36	58 max.

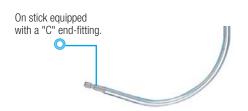






Reference	Characteristics	mm	ĝ
CS-01-C	Adaptor C	345 x 335	350







Compact carrying KIT

This compact kit is designed especially to be carried in a vehicle for safety electrical intervention.

Made in two part (of moulded material: PEHD), the case is also on its red part, an insulating platform.

Reference	Characteristics with instructions in English	~	mm	ĝ
CZ-53-R	With instructions in English	25 kV	710 x 570 x 240	21 000
CZ-53-MR	With instructions in English/Arabic	25 kV	710 x 570 x 240	21 000
CZ-53-R/2	With instructions in English	36 kV	710 x 570 x 240	21 000
CZ-53-MR/2	With instructions in English/Arabic	36 kV	710 x 570 x 240	21 000





Dimensions

30 mm.

_ Life saving kits

Cable cutter with insulated

handles. Forged steel blades. Maximum opening



Wall mounted cabinet.

Insulating platform 24 or 36 kV.

Life saving kits for M.V. substations

Wall mounted kit.

Reference	Characteristics	\sim	Ţmm Ţ	ĝ
CZ-54-R	With instructions in English	24 kV	840 x 754 x 270	21 000
CZ-54-RM	With instructions in English/Arabic	24 kV	840 x 754 x 270	21 000
CZ-55-R	With instructions in English	36 kV	840 x 754 x 270	21 000
CZ-55-RM	With instructions in English/Arabic	36 kV	840 x 754 x 270	21 000



Voltage detector with flexible antenna contact (with autotest).

Close

Safety instructions on the plastic board.

High voltage Insulating gloves, insulating boots and talcum powder can.

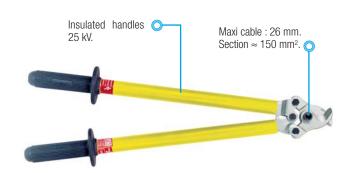




In case of an electrical accident, quick response is essential: seconds gained or lost can decide the life or death of a victim. Our life saving equipment is designed to make all necessary materials immediately available to rescue personnel.

Insulated cable cutter

Reference		ĝ
CZ-60	0.630	2200













Services





Available at www.cofrac.fr





Training

After sales services



Testing laboratory





Plexible workshop

After Sales Services

xavier.ebec@catuelec.com

phone: +33 1 42 31 46 85 - fax: +33 1 42 31 46 45

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phone: +33 1 42 31 46 86 - fax: +33 1 42 31 46 45

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