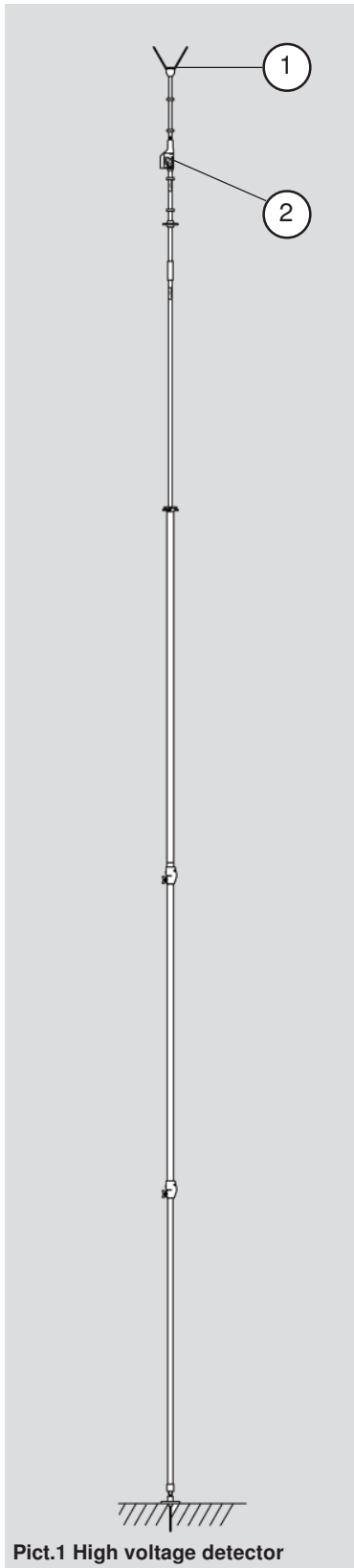




Instruction for Use

High voltage detector and earthing and short-circuiting device for medium voltage overhead lines

GA74GB-11.10



Pict.1 High voltage detector

1. High voltage detector

1.1 General

This high voltage detector is used to determine absence of voltage on medium voltage overhead lines, to which afterwards an earthing and short-circuiting device will be clamped.

The maximum accessible conductor height is approximately 11 m.



1.2 Safety hints

- Relevant standards, such as EN 50110-1, and standardised safety rules of the respective country are to be observed !
- Operation and maintenance of the high voltage detector are to be carried out by electricians or specially trained personnel in conformance with EN 50110-1 only. One has to secure that all operating personnel was trained for the task before beginning work !
- Before use of the high voltage detector, you are requested to completely read the instruction for use which comes with the detector, in order to operate it professionally !
- The high voltage detector is to be used only for the nominal voltage and nominal frequency which is stated on the housing (2) !
- The threaded fork contact (1) which is supplied separately is allowed for use only when testing absence of voltage on medium voltage overhead lines !
- Testing absence of voltage from the ground is possible to be handled by one person. In case of strong wind or gusts of wind we recommend to carry out work with two persons !

1.3 Storage, maintenance and periodic testing

The high voltage detector is to be stored in clean and dry condition.

Please make sure that during transport the high voltage detector is protected against vibration, impact, and surface damages!

For cleaning use a watered cloth. Mind that the device is totally dry before use !

Periodic testing to IEC 61243-1 is to be carried out latest after 6 years.

The nearest date for periodic testing can be found on the detector label.



1.4 Before each use

Before each use, the high voltage detector is to be examined by a trained person for visible damages and soiling.

In case some part is damaged, the function affected, or labels are illegible, withdraw the high voltage detector from further use! Before each use, examine all detachable joints for their tight connection !



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1.5 Assembly

Depending on height of overhead line, this high voltage detector can be assembled individually (see picture 2). Our range of parts can be found in chapter 1.7 "Individual components".

When assembling the high voltage detector, mind that all components are free of damages and soiling.

1.6 Usage

- In order to erect the high voltage detector we recommend to take position on an easily accessible and even area underneath the overhead line.
- Most appropriate is a point between two pylons, in which the conductor height is reduced by the slack of the overhead line.

1.7 Individual components

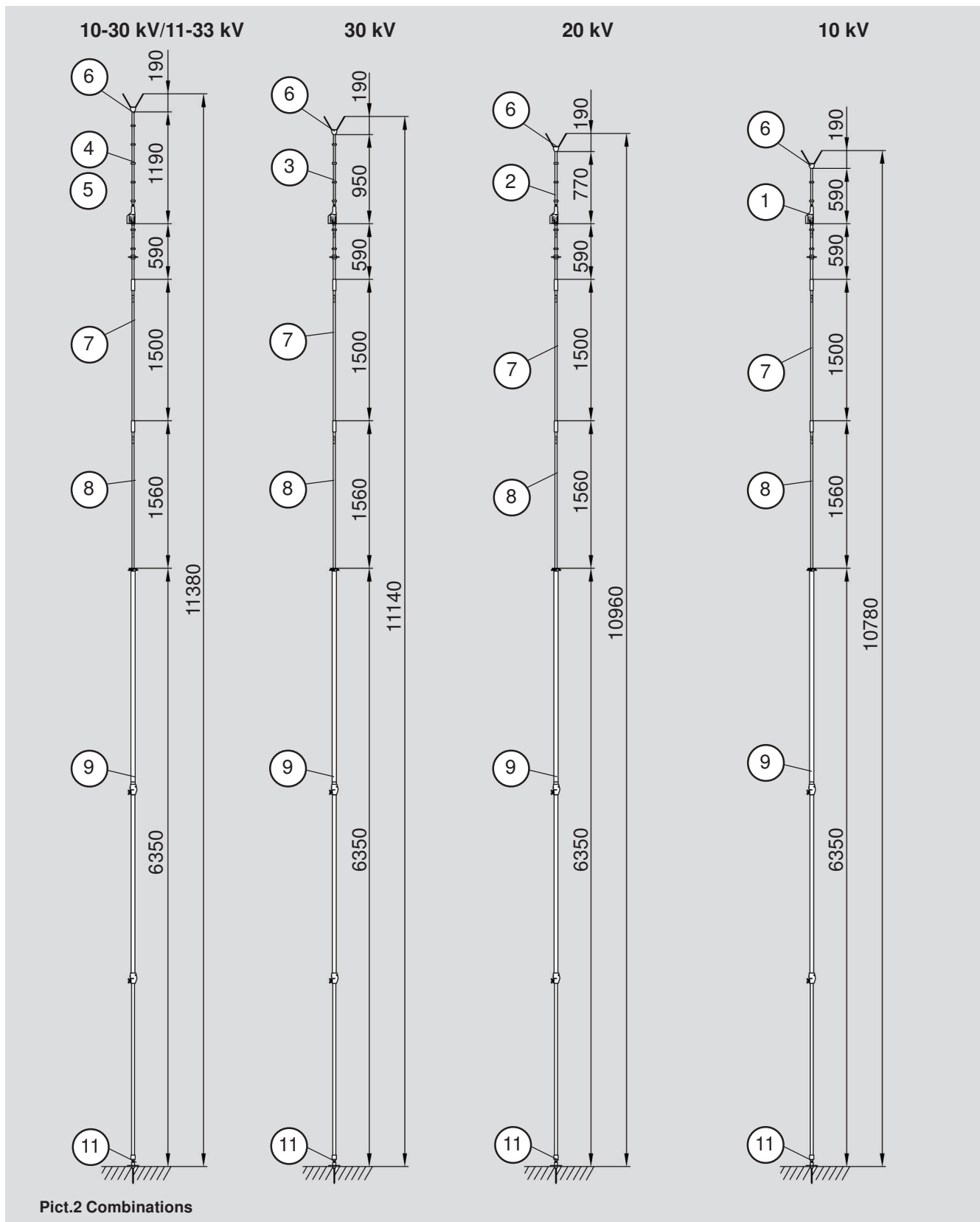
Item (pict.2)	Product name	Description	Type no.
1	High voltage detector	Nominal voltage: 10 kV Nominal frequency: 50 Hz Tested to IEC 61243-1 Audible and visual indication Built-in self-testing device including extension electrode 2-part model	610 226
2	High voltage detector	Nominal voltage: 20 kV Nominal frequency: 50 Hz Tested to IEC 61243-1 Audible and visual indication Built-in self-testing device including extension electrode 2-part model	610 227
3	High voltage detector	Nominal voltage: 30 kV Nominal frequency: 50 Hz Tested to IEC 61243-1 Audible and visual indication Built-in self-testing device including extension electrode 2-part model	610 228
4	High voltage detector	Nominal voltage: 10-30 kV Nominal frequency: 50 Hz Tested to IEC 61243-1 Audible and visual indication Built-in self-testing device including extension electrode 2-part model	697 012
5	High voltage detector	Nominal voltage: 11-33 kV Nominal frequency: 50 Hz Tested to IEC 61243-1 Audible and visual indication Built-in self-testing device including extension electrode 2-part model	697 035
6	Fork contact	With threaded connection	697 040
7	Mid part		697 041
8	Mid part		697 042
9	Telescopic earthing rod	See page 7 (item 1.3)	512 238 12
10	Ground plate	See page 7 (item 1.4)	512 238 05
11	Step plate	See page 7 (item 1.5)	512 238 63
12	Step bracket	See page 7 (item 1.6)	512 238 61



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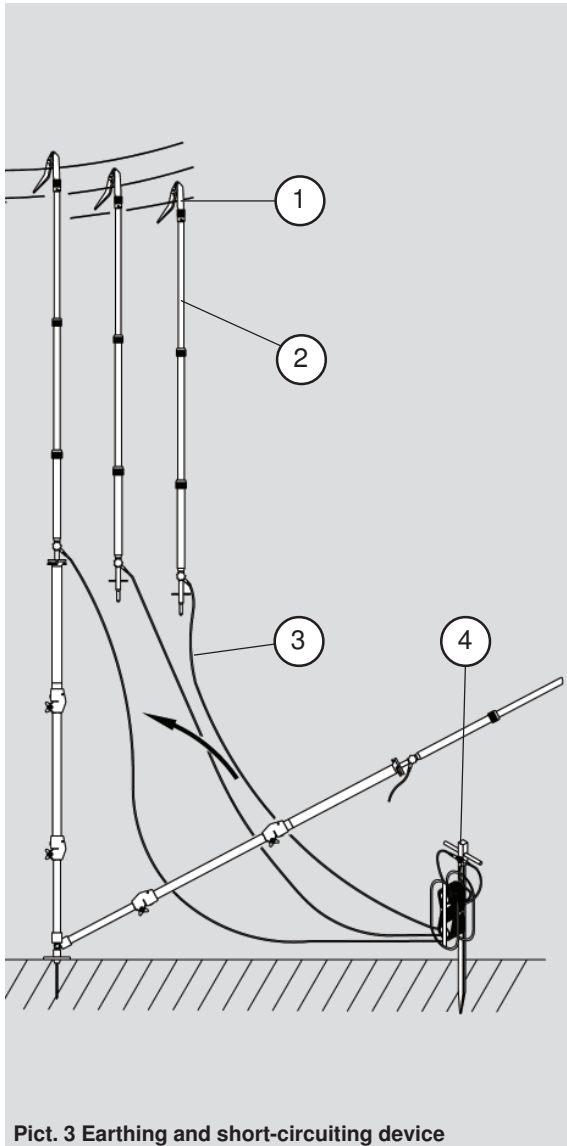
Pict.2 Combinations



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Pict. 3 Earthing and short-circuiting device

2. Earthing and short-circuiting devices

2.1 General

This earthing and short-circuiting device (earth.& sh.-c.device) is suitable as secondary earth, to earth and short-circuit medium voltage overhead lines. The maximum accessible conductor height is approximately 12 metres.



2.2 Safety hints

- For usage of earthing and short-circuiting devices EN 50110-1 and local accident prevention regulations are to be considered in order to prevent dangers !
 - Earth.&sh.-c.devices must be used only in relation to the 5 Safety Rules !
 - This earth.&sh.-c. device must only be used on electric equipment with short-circuit proof earthing !
 - Earth.&sh.-c.devices must not be used for power transmission !
 - Phase clamps (1) must only be directed and clamped to the phase conductor by using earthing rods or other suitable insulated means !
- After earth.&sh.-c.devices have been charged with a short circuit, they must not be used any further !
- Earthing and short-circuiting from the ground is possible to be handled by one person. In case of strong wind or gusts of wind we recommend to carry out work with two persons!

2.3 Storage, maintenance, and inspection

Earthing and short-circuiting devices serve as your protection and safety. For this reason they are to be treated with care. Store earthing and short-circuiting devices in dry and clean rooms.

Examine earthing and short-circuiting devices regularly for their faultless condition.

Frequency and procedure of examination depend on specific application and storage conditions.

As guideline for such examination please note paragraph 2.4 "Before each use".

We recommend to carry out such examinations annually, until collected experience permit longer intervals.

In case individual components need to be exchanged, we recommend to contact us.



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2.4 Before each use (see pict.3)

Examine the earthing and short-circuiting device for faultless condition before each use.

Special attention needs to be turned to the following points:

Visual inspection: Examine

- the device for completeness
- phase clamps (1), telescopic aluminium rods (2) and earthing spike (4) for damages
- contact areas of phase clamps (1) for cleanness
- short-circuiting cables for corrosion and broken strands
- lead insulation for fissures or discolouring caused by overheating
- labels, specially information about cross section

Manual examination: Make sure

- that all movable parts can be easily moved

Attention: In case a fault can be found in any of these examination steps, withdraw the device from further usage for the time being.

2.5 Assembly

Mind that all components are free of damages and soiling!

Before each use, examine all detachable joints for their tight connection!

2.6 Intended use

- Phase clamps are only to be clamped to shape and dimensions of overhead lines for which they have been clearly designed. (see paragraph 2.7 "*Individual components*").
- To earth and short circuit, first connect to the earthing spike. For unearthing, the connection to the earthing spike must only be removed after all phase clamps have been disconnected from the network.
- Full current carrying capacity of the earthing and short-circuiting device is only secured when all contact areas are metallic bright.
- Short-circuit cables on conductive components are to hang free to the ground, as the weight of the cables influences the closing force of the phase clamps.
- In order to reach full current carrying capacity, all connections within the earthing and short-circuiting device (knurled nut of the phase clamp, clamp coupling and star-shaped handle of the short-circuiting cables) are to be connected at least with handtight force.
- Push the earthing spike into the ground as deep as possible, if available in a wet area.

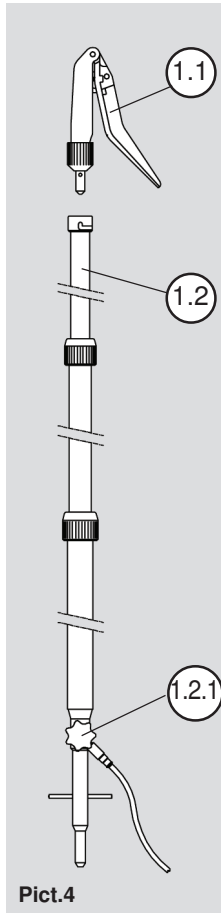


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2.7 Individual components



Item 1:

Earthing and short-circuiting device for medium voltage overhead lines

Type no. 512 238

Item 1.1 (pict.4):

Phase clamp for overhead lines

- Clamping range: 35-150 mm²
- Bayonet bolt with knurled nut

Type no. 507 132

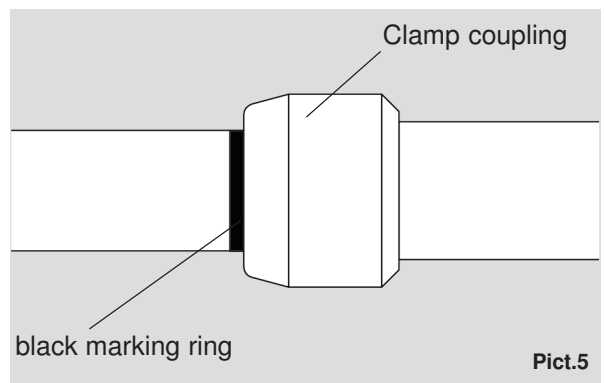
Item 1.2 (pict.4):

Rod made of aluminium alloy

- Construction: 3-part, telescopic
- Total length: 6600 mm; transport length: 2700 mm
- Top rod connection: Metal bayonet to take up the phase clamp (item 1.1)
- Lower rod connection: Bayonet spindle to take up the earthing rod (item 1.3)
- Connection to short-circuiting cables: Screw thread on bayonet spindle (item 1.2.1)

The length has a stepless adjustment by means of clamp couplings. In this procedure make sure that tubes are extended only until the black marking ring is visible. (see pict.5).

Type no. 512 238 99

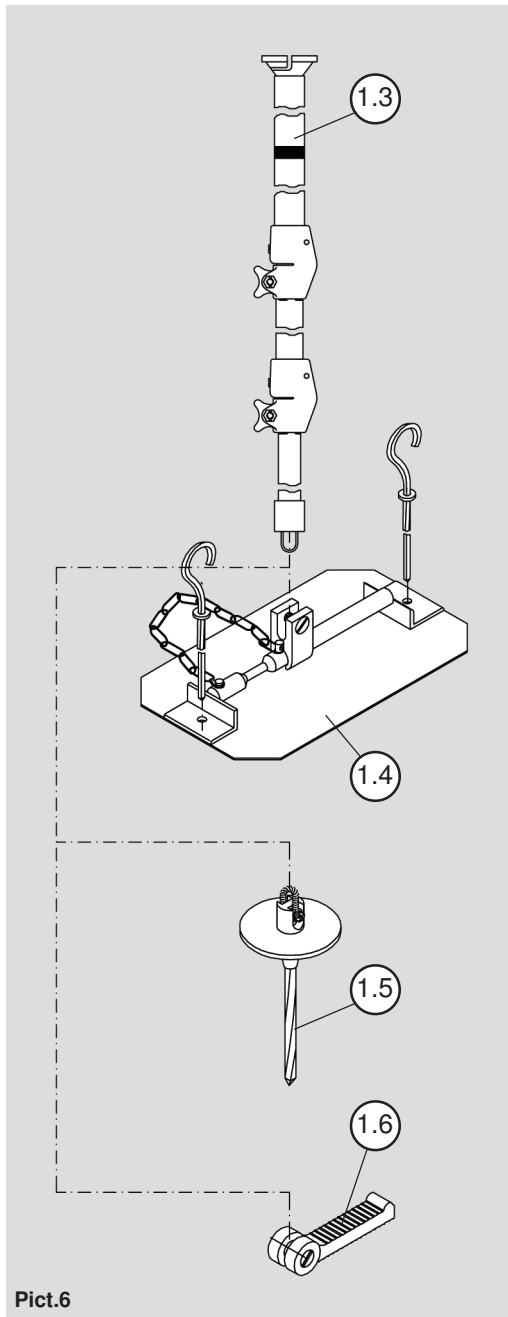




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Pict.6

Item 1.3 (pict. 6):

Earthing rod made of glassfibre-reinforced epoxy resin tube

- Construction: 3-part, telescopic
- Total length: 6400 mm; transport length: 2650 mm
- Length with stepless adjustment by means of slotted joints
- Top rod end: Large bayonet head to take up the aluminium rod (item 1.2)
- Lower rod end: Eye for pivot connection to ground plate (item 1.4), step plate (item 1.5) or step bracket (item 1.6)

Type no. 512 238 12

Item 1.4 (pict. 6):

Ground plate

- Plate with joint and two spikes made of hot-dip galvanised steel
- For wet soil with reduced carrying capacity

Type no. 512 238 05

Item 1.5 (pict. 6):

Step plate

- Step plate with large surface and joint eye made of aluminium alloy with hot-dip galvanised steel spike
- For dry and compact soil

Type no. 512 238 63

Item 1.6 (pict. 6):

Step bracket

- Made of aluminium alloy
- For dry and compact soil

The bracket is held on the ground by stepping on it.

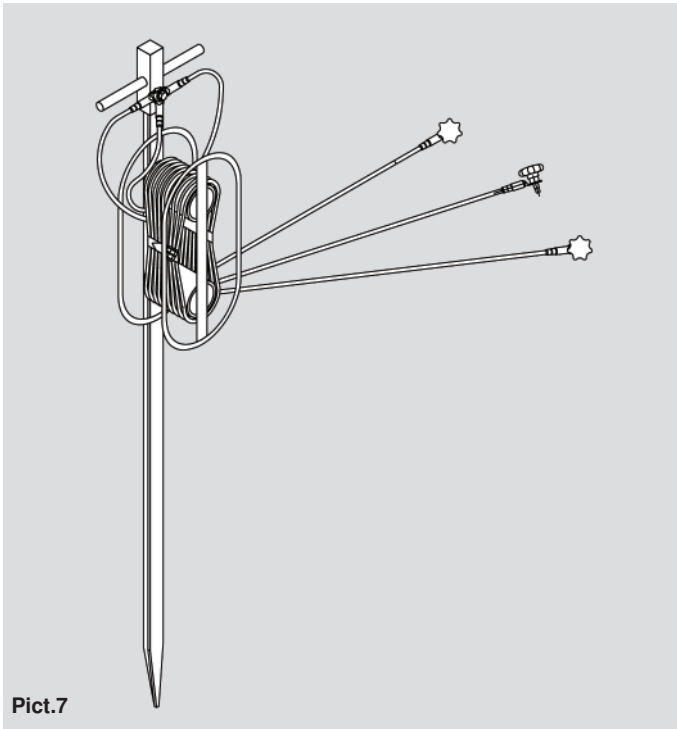
Type no. 512 238 61



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Item 2 (pict. 7):

Earthing spike made of hot-dip galvanised steel

- Length: 1300 mm
- With take-up device and leather straps for short-circuiting cables
- With 3 short-circuiting cables, each 9 m long
- Safe and fast assembly of short-circuiting cables by means of star-shaped handles and threaded bolt
- With impact area for heavy hammer

Earthing spike and short-circuiting cables 25 mm²

Type no. 512 238 37

Earthing spike and short-circuiting cables 35 mm²

Type no. 512 238 40

Earthing spike and short-circuiting cables 50 mm²

Type no. 512 238 43

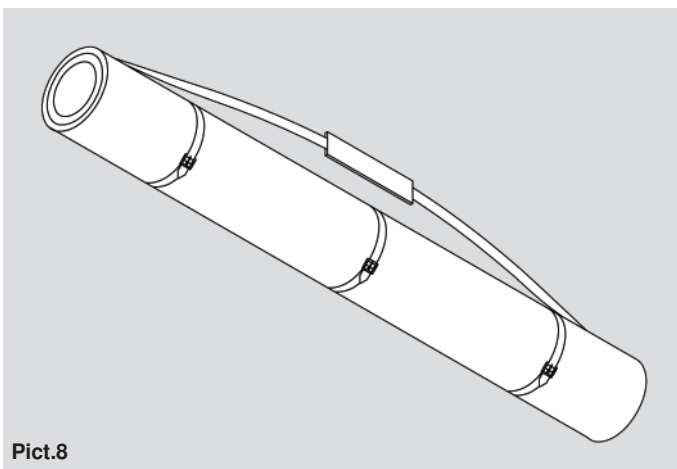
Item 3 (pict. 8):

Transport and storage bag for:

- 3x Phase clamp (type no. 507 132)
- 3x Aluminium rod (type no. 512 238 99)
- 1x Earthing rod (type no. 512 238 12)
- 1 Ground plate / step plate / step bracket
- 1 High voltage detector

Construction:

- Tarpaulin
- 1x Belt strap colour black
- With belt closure
- With transparent pocket inside for instruction for use



3. Waste disposal

Observe local regulations for disposal of the earthing and short-circuiting device and high voltage detector. ARCUS Schiffmann will not be reliable for unsuitable disposal.

For queries concerning used materials please contact ARCUS Schiffmann.

4. Product liability and guarantee

This instruction for use was written with greatest care and examined before publishing.

Basis for guarantee is the proven observation of this instruction for use for storage, assembly, operation, maintenance and care.

Valid are the „General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry“.