Product Catalogue

8

SAFETY EQUIPMENT

for Railway Systems

ARCUS ELEKTROTECHNIK
ALOIS SCHIFFMANN GMBH

Availability by phone:

For queries concerning products and delivery time, and to place an order by phone, we are available as follows:

+49 89 43604-0

Monday - Thursday:

8:00 am-12:00 noon and 12:30 pm-16:00 pm

Friday:

8:00 am-12:00 noon

Information concerning this catalogue:

 All dimensions and pictures are not binding. We permanently strive to improve products and reserve the right to change design, dimensions or material.

Contents

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Underground Railway Systems

List of Type Numbers

Work in or at electric railway installations requires a number of safety steps to minimise or eliminate dangers caused by moving rail vehicles or by electric current. Such safety steps are not always carried out by employees of the railway company, but in emergency cases also by fire brigades or other rescue workers.

Clear marking and visibility of working limits

Special importance is given to the clear marking of working limits, as well as a permanently secured absence of voltage within these working limits. Specially in train stations with unclear criss-crossing of lines, or on open railtrack with a number of lines running in parallel over long distances and influencing each other, securing the working place is essential.

Also the subject of visibility has importance as in many cases an earthing device at the same time marks the working limit. Under any circumstance this working limit needs to be clearly visible, not only at daylight, but also at night, in tunnels, or when a number of pylons and lines in the background make recognition of an earthing rod difficult.

Frequently work needs to be carried out during train operation hours, in often very short intervalls without trains, so handling of material is rough. Material will be more strained than from similar operations in utility networks, wear is considerable, and at the same time concessions towards reliability are to be excluded.

High voltage detectors in the railway sector

High voltage detectors which are to be handled with care as a safety-relevant measuring device, have to withstand many downfalls into the stony roadbed. Earthing material which needs to be carried to the working place over long distances may already suffer superficial damages, but these must not compromise its usage.

In order to meet these special requirements, railway material in most cases has its own standards. One example among others is the standard for high voltage detectors for catenary wires (contact wire detector), or the fact that for earthing material higher final temperatures in case of a short circuit are admissible. This way cross-sections of copper leads can be restricted, to make an earthing device portable even over longer distances.

Long-term cooperation with European rail companies

In the course of many years a multitude of different products for testing absence of voltage, earthing and short-circuiting, potential equation, and for marking working limits were developed in cooperation with German Railway DB, Austrian National Railways ÖBB, Swiss National Railways SBB, Belgian Railway SNCB, and other European rail companies.

Before a product may be named “railway material“, it has to fulfill requirements demanded by the user, and in many cases pass a practical test over several weeks, to finally pass a formal approval procedure by the customer.

This catalogue will give you an overview about our programme of safety equipment for railway systems. We have arranged these products in different groups to facilitate identification.All important details are listed in a table and supported by pictures.

In case of uncertainties how to find a product or how to select a suitable one, please contact us.You will find our contact details on the backside of this catalogue.

We offer you not only a vast range of safety equipment for railway systems

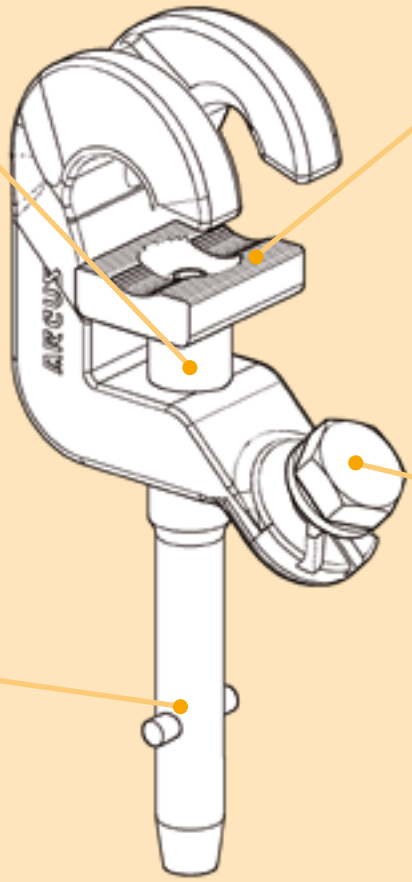
Furthermore we will be pleased to support you in selecting the suitable products.

This service is a matter of course for us!

Phase clamps

Simple and safe clamping to conductor by fastening with screw thread method.

Construction of phase clamps enables removal of foreign layers (soiling, corrosion) from contact areas.



Spindle shaft according to DIN 48 087.

With connection screw for earthing and short circuiting cable.

Phase clamp	Type Number 507 086
with test strip to determine absence of voltage	
Clamping range:	Round Ø 5-35 mm
Connection screw for earthing and short circuiting cable:	M12
Cable cross section of the earthing and short circuiting cable:	Max. 150 mm²
Material (contact parts):	
- Strap:	Aluminium alloy
- Pressure piece:	Aluminium alloy
- Test strip:	Galvanised steel
Rated voltage/rated time/ peak factor:	42 kA – 0.5 s – 2.5

Phase clamps

Phase clamp	Type Number 507 040
Clamping range:	Round Ø 10-65 mm
Connection screw for earthing and short circuiting cable:	M12
Cable cross section of the earthing and short circuiting cable:	Max. 150 mm²
Material (contact parts):	
- Strap:	Aluminium alloy
- Pressure piece:	Aluminium alloy
Rated voltage/rated time/ peak factor:	42 kA – 0.5 s – 2.5

Phase clamp	Type Number 507 043
Clamping range:	Round Ø 9-22 mm ball point connector Ø 25 mm t-bolt 20 mm flat up to 20 mm
Connection screw for earthing and short circuiting cable:	M12
Cable cross section of the earthing and short circuiting cable:	
- T-bolt:	Max. 120 mm²
- Ball point connectors, round- and flat conductors:	Max. 150 mm²
Material (contact parts):	
- Strap:	Copper alloy, tin-plated
- Pressure piece:	Copper alloy, tin-plated
Rated voltage/rated time/ peak factor:	
- max. 120 mm²	33.5 kA – 0.5 s – 2.5
- max. 150 mm²	42 kA – 0.5 s – 2.5

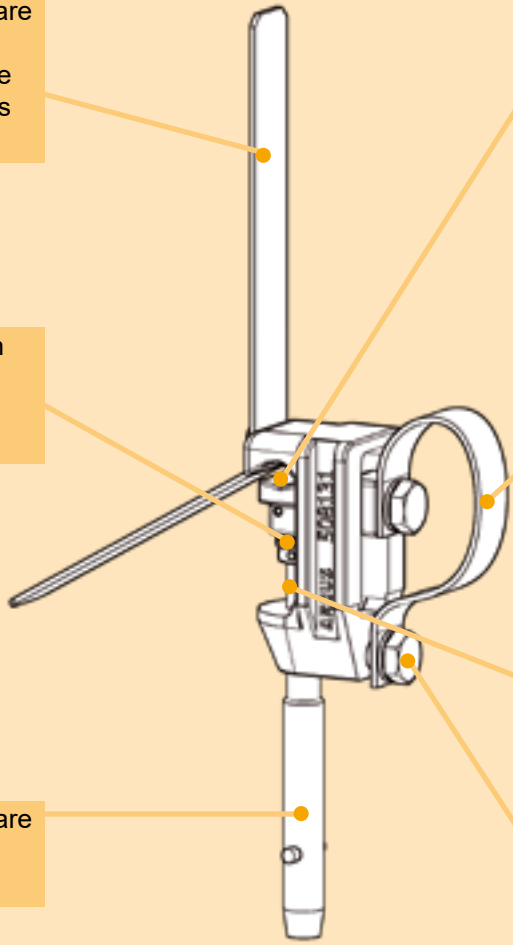
Clamps for contact wires

All clamps for contact wires are provided with a test strip to determine absence of voltage and a catch device for use as installation aid.

Construction of clamps for contact wires enables removal of foreign layers (soiling, corrosion) from contact areas of contact wire.

A disc spring package (not in type no. 597 506) secures a constant, high and vibration-proof contact force.

A separate electric connection of the pressure piece secures optimum current tapping from contact wire.



Simple and safe installation on contact wire by screw thread method.

All clamps for contact wires are provided with a spindle shaft according to DIN 48 087.

With connection screw for earthing and short circuiting cable.

Clamp for contact wires	Type Number 598 917
with rigid bayonet spindle	
Contact wire:	Ri 80-120 (DIN 43 141); Ø 10.6 - 13.2 mm
Connection screw for earhing and short circuiting cable:	M10
Cable cross section of the earthing and short circuiting cable:	Max. 50 mm²
Material (contact parts):	
- Strap:	Copper alloy, tin-plated
- Pressure piece:	Copper alloy, tin-plated
- Test strip/catch device:	Hot-dip galvanised steel
Rated voltage/rated time/ peak factor:	14 kA – 0.5 s – 2.0

Clamps for contact wires

Clamp for contact wires	Type Number 597 490
with compact test strip and catch device	
Contact wire:	Ri 80-120 (DIN 43 141); Ø 10.6 - 13.2 mm
Connection screw for earhing and short circuiting cable:	M10
Cable cross section of the earthing and short circuiting cable:	Max. 50 mm²
Material (contact parts):	
- Strap:	Copper alloy, tin-plated
- Pressure piece:	Copper alloy, tin-plated
- Test strip/catch device:	Stainless steel
Rated voltage/rated time/ peak factor:	14 kA – 0.5 s – 2.0

Clamp for contact wires	Type Number 508 131
with elongated and flexible bayonet spindle	
Contact wire:	Ri 80-120 (DIN 43 141); Ø 10.6 - 13.2 mm
Connection screw for earhing and short circuiting cable:	M10
Cable cross section of the earthing and short circuiting cable:	Max. 50 mm²
Material (contact parts):	
- Strap:	Copper alloy, tin-plated
- Pressure piece:	Copper alloy, tin-plated
- Test strip/catch device:	Hot-dip galvanised steel
Rated voltage/rated time/ peak factor:	14 kA – 0.5 s – 2.0

Clamps for contact wires

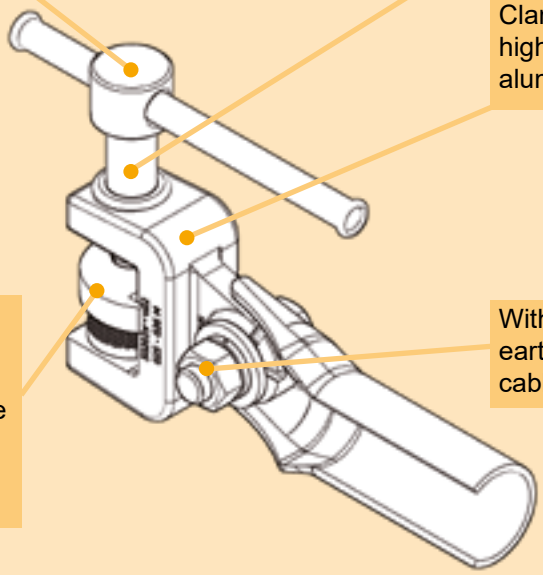
Clamp for contact wires	Type Number 597 506
Model SNCB	
Contact wire:	Single and double contact wire SNCB
Connection screw for earhing and short circuiting cable:	M12
Cable cross section of the earthing and short circuiting cable:	Max. 50 mm²
Material (contact parts):	
- Strap:	Copper alloy, tin-plated
- Pressure piece:	Copper alloy, tin-plated
- Test strip:	Stainless steel
- catch device:	Hot-dip galvanised steel
Rated voltage/rated time/ peak factor:	50 kA – 0.02 s – 1.4

Earthing clamps

ARCUS earthing clamps are suitable for a multitude of pylon constructions.

Simple and safe installation by screw thread method.

Clamp bodies are made of high-strength copper alloy or aluminium alloy.



All earthing clamps are provided with conical top or serrated surface made of tempered material (except type no. 507 057) to cut through foreign layers (soiling, corrosion, varnish).

With connection screw for earthing and short circuiting cable.

Earthing clamp	Type Number 502 026
With hand screw for simple and safe installation, and anti-twist groove on cable lug connection.	
Clamping range:	Flat up to 24 mm
Connection screw for earthing and short circuiting cable:	M12
Cable cross section of the earthing and short circuiting cable:	Max. 120 mm²
Material (contact parts):	
- Contact plate:	Tempered steel, tin-plated
- Pressure piece:	Tempered steel, tin-plated
Rated voltage/rated time/peak factor:	33.5 kA – 0.5 s – 2.5

Earthing clamps

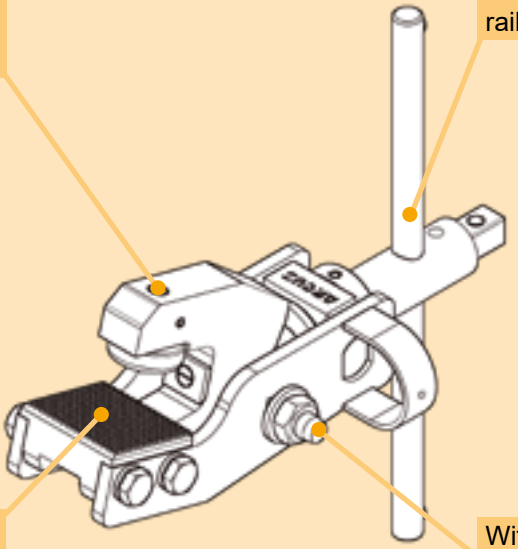
Earthing clamp	Type Number 502 069
With grooved circular top for optimum piercing through foreign layers.	
Clamping range:	Flat up to 40 mm
Connection screw for earthing and short circuiting cable:	M12
Cable cross section of the earthing and short circuiting cable:	Max. 95 mm²
Material (contact parts):	
- Grooved top	Stainless steel
- Centring tip:	Stainless steel
Rated voltage/rated time/peak factor:	26.5 kA – 0.5 s – 2.5

Earthing clamp	Type Number 507 057
With plastic handle for simple and safe installation, and anti-twist groove on cable lug connection.	
Clamping range:	Flat up to 20 mm, round Ø 9-22 mm, t-bolt 20 mm, ball point connectors Ø 25 mm
Connection screw for earthing and short circuiting cable:	M12
Cable cross section of the earthing and short circuiting cable:	Max. 120 mm², max. 150 mm² (ball point connectors)
Material (contact parts):	
- Strap:	Copper alloy, tin-plated
- Pressure piece:	Copper alloy, tin-plated
Rated voltage/rated time/peak factor:	
- max. 120 mm²	33.5 kA – 0.5 s – 2.5
- max. 150 mm²	42 kA – 0.5 s – 2.5

Rail earthing clamps

ARCUS rail earthing clamps are suitable for a number of different rail profiles.

Simple and safe installation on rails.



Based on the construction of the rail earthing clamps, foreign layers and especially corrosion are pierced or part-removed from rail foot or rail head, so that an optimum mechanic and electric contact is obtained.

With connection screw for earthing and short circuiting cable.

Rail foot earthing clamps (profile-free earthing)

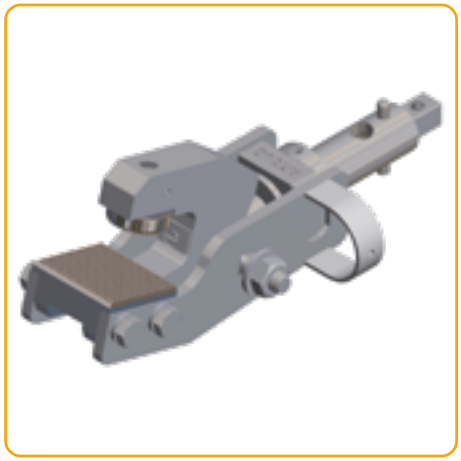
Rail foot earthing clamp Type Number 502 050

With hand screw for simple and safe installation.

Rail profile:	S 49, S 54, S 64, UIC 60
Connection screw for earthing and short circuiting cable:	M10
Cable cross section of the earthing and short circuiting cable:	Max. 50 mm²
Material (contact parts):	
- Centring tip:	Steel, ceramic-plated
- Pressure piece:	Steel, surface coated
Rated voltage/rated time/peak factor:	32.1 kA – 0.1 s – 2.0

Rail earthing clamps

Rail foot earthing clamp	Type Number 502 059
With undetachable ratchet for comfortable and safe installation.	
Rail profile:	S 49, S 54, S 64, UIC 60
Connection screw for earthing and short circuiting cable:	M10
Cable cross section of the earthing and short circuiting cable:	Max. 50 mm²
Material (contact parts):	
- Centring tip:	Steel, ceramic-plated
- Pressure piece:	Steel, surface coated
Rated voltage/rated time/ peak factor:	32.1 kA – 0.1 s – 2.0



Rail foot earthing clamp	Type Number 597 428
With connection to ratchet 1/2“ square-end.	
Rail profile:	S 49, S 54, S 64, UIC 60
Connection screw for earthing and short circuiting cable:	M10
Cable cross section of the earthing and short circuiting cable:	Max. 50 mm²
Material (contact parts):	
- Centring tip:	Steel, ceramic-plated
- Pressure piece:	Steel, surface coated
Rated voltage/rated time/ peak factor:	32.1 kA – 0.1 s – 2.0

Rail earthing clamps

Rail foot earthing clamps	Type Number 502 061
With hand grip, for rail to concrete distance of max. 20 mm	
Rail profile:	UIC 60
Connection screw for earthing and short circuiting cable:	M12
Cable cross section of the earthing and short circuiting cable:	Max. 50 mm²
Material (contact parts):	
- Centring tip:	Steel, ceramic-plated
- Pressure piece:	Steel, surface coated
Rated voltage/rated time/alternating currents:	70 kA - 0.03 s

Rail head earthing clamps (non profile-free earthing)

Rail head earthing clamp	Type Number 502 062
With hand screw for simple and safe installation.	
Rail profile:	SBB6 (UIC 60), SBB4 (similar to S 54), SBB1, SBB5
Connection screw for earthing and short circuiting cable:	M10 (special cable connection)
Cable cross section of the earthing and short circuiting cable:	Max. 50 mm²
Material (contact parts):	
- Top pressure piece:	Copper alloy, tin-plated
- Bottom pressure piece:	Laminated fabric with glassfibres
Rated voltage/rated time/peak factor:	33.3 kA – 0.12 s – 2.0

Earthing and short-circuiting cables

504 068

All earthing cables meet the required tension test values of IEC 61230.

- Earthing cables are made of highly-flexible copper lead with PVC-coating.
- For better visibility in the track area, some of these earthing and short-circuiting cables are provided with red flags.
- Transitions from cable lug to lead coating are enclosed by a stabilising, tenacious elastic transparent sleeve. This mechanic kinking protection guarantees a reliable sealing against moisture ingress.
- Transparency of insulation enables visibility of copper leads up to the copper cable lug barrel, so that damages of strands caused by ageing can be identified early.
- Rated voltage/rated time/peak factor: 14 kA – 0,5 s – 2,5

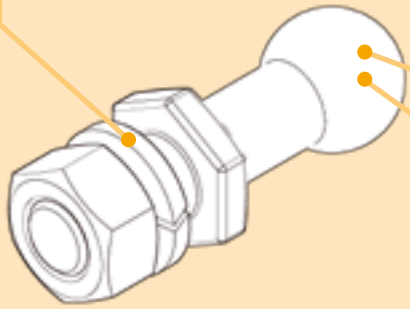
Carrying bag page 35 and following.

Earthing and Short-Circuiting Cables					
Cable Length [mm]	Lead Cross Section [mm²]	Palm Hole		Red Flags	Type Number
		d1 [mm]	d2 [mm]		
8500	50	10	12	3	504 153
12000	50	10	12	3	504 068
14000	50	10	12	3	504 177
4000	50	12	12		504 126
12000	50	12	12		512 202 03

Further models available upon request.

Ball point connectors

Safe usage on numerous established pylon constructions of electric railways.



Ball point connectors made of high-strength copper, tin-plated, nuts and washers made of galvanised steel.

Ball point connectors according to DIN 48088-1.

515 134

Earthing bar **Type Number 515 130**

Earthing bar made of copper with 2 ball point connectors Ø 25 mm, firmly connected to an earthing clamp for ball point connectors Ø 25 mm.

Rated voltage/rated time/peak factor: 33.5 kA – 0.5 s – 2.5

Earthing bar **Type Number 515 134**

Earthing bar made of copper with 3 ball point connectors Ø 25 mm, firmly connected to an earthing clamp for ball point connectors Ø 25 mm.

Rated voltage/rated time/peak factor: 33.5 kA – 0.5 s – 2.5

598 389

Ball point connector **Type Number 598 239**

Ball point connector Ø 25 mm, thread: M16x47 mm

Rated voltage/rated time/peak factor: 42 kA – 0.5 s – 2.5

Ball point connector **Type Number 598 389**

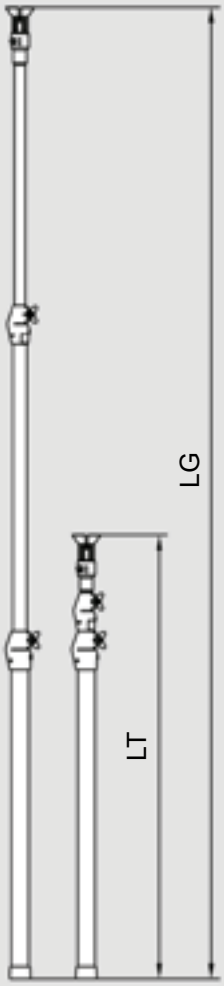
Ball point connector Ø 25 mm, thread: M16x27 mm

Rated voltage/rated time/peak factor: 42 kA – 0.5 s – 2.5

Further models available upon request.

Telescopic earthing rods

511 188



All extendable earthing rods are designed for the requirements of earthing and short-circuiting electric contact wires. They are used to guide one-polar devices to catenaries, feeders, and traction power lines.

- Depending on requirements on trans-port length, these earthing rods are available in 2- or 3-section versions.
- For better visibility in the track area, some of these earthing rods are provided with red marks on the lower rod part.
- Coupling heads are suitable to take up phase clamps (page 9 ff) and clamps for contact wires (page 11 ff) which have a spindle shaft to DIN 48 087.
- The earthing rods are equipped with telescopic connections. This enables varied usage lengths until stop at full extension.

Carrying bags, cases and wall holders, see page 35 and following.

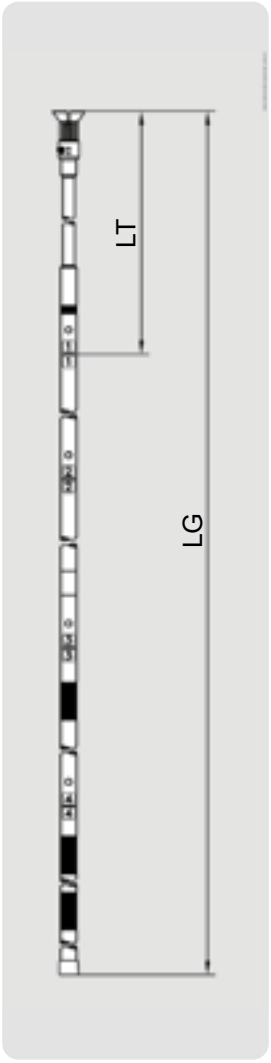
Telescopic Earthing Rods				
LG [mm]	**LT [mm]**	**Coupling Head**	**N-Parts**	**Type Number**
3500	1900	Safety bayonet head	2	511 167
4000	2220	Safety bayonet head with locking function	2	598 811
5000	2950	Safety bayonet head with locking function	2	511 188
5000	1990	Aluminium bayonet	3	597 439
5004	2022	Safety bayonet head with locking function	3	597 586
5080	2130	Safety bayonet head with locking function	3	511 130
5080	2130	Safety bayonet head with locking function	3	597 549[1)]

1) Model with hand protection disk.

Further models available upon request.

Earthing rods with plug-in connections

511 189



All earthing rods with plug-in connections are designed for the requirements of earthing and short-circuiting electric contact wires.

They are used to guide one-polar devices to catenaries, feeders, and traction power lines.

- Due to short transport length especially suitable for traction vehicles, technical emergency services, and fire brigades.
- Depending on the total length required, these earthing rods consist of 5 or 7 parts.
- For better visibility in the track area, these earthing rods are provided with red marks on the lower rod part.
- Compact coupling heads are suitable to take up phase clamps (page 9 ff) and clamps for contact wires (page 11 ff) which have a spindle shaft to DIN 48 087.
- These earthing rods are equipped with very robust couplings.

Carrying bags, cases and wall holders, see page 35 and following.

Plug-In Earthing Rod					
LG [mm]	**LT [mm]**	**Bag**	**Coupling Head**	**N-Parts**	**Type Number**
4800	1050		Safety bayonet head with locking function	5	511 189
4800	1050	●	Safety bayonet head with locking function	5	511 193
4800	1050		Safety bayonet head with locking function[1)]	5	540 001 162
6675	1050		Safety bayonet head with locking function	7	597 630

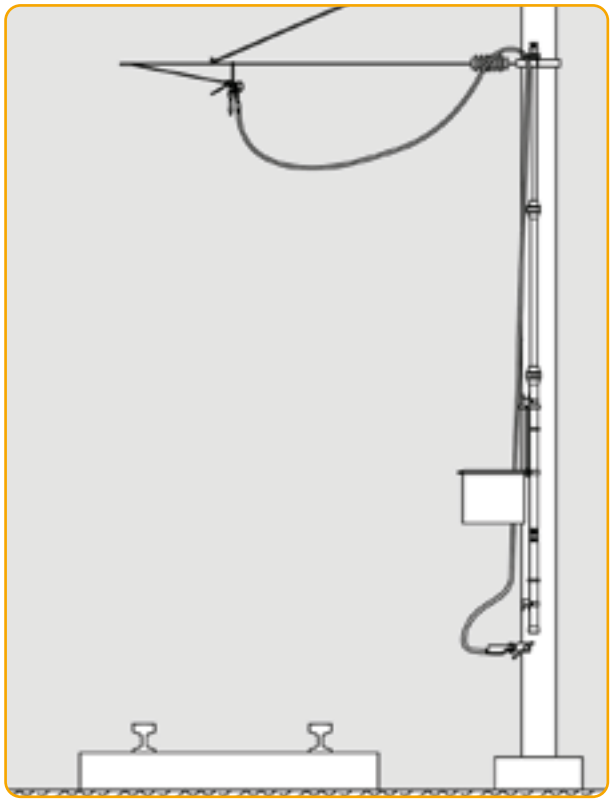
1) Clamp for contact wires, Type Number 598 917 (page 11)

Further models available upon request.

Earthing systems for contact wires (profile-free devices)

- Safe usage on numerous established pylon constructions of electric railways.
- Easy to maintain and repair.
- Warning flag or other colour markings for clear visibility of device.
- Transparency of insulation enables visibility of copper leads up to the copper cable lug barrel, so that damages of strands caused by ageing can be identified early.

Carrying bags, cases and wall holders, see page 35 and following.



Further models available upon request.

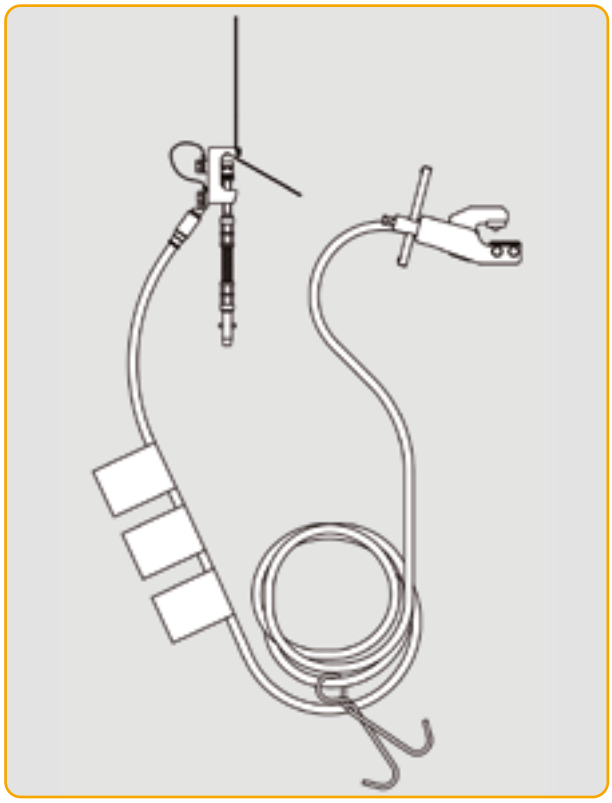
Type Number 597 478

- Telescopic earthing rod (3-section) with safety rod head and take-up devices for cable and earthing clam With warning flag for clear visibility of earthing device.
  Total length: 5770 mm;
  Transport length: 2320 mm
- Earthing and short-circuiting cable, 50 mm², 10000 mm long
- Clamp for contact wires
  Type Number 597 490 (page 12)
- Earthing clamp
  Type Number 502 026 (page 14)
- Suspension hook and cable guidance for installation on pylon
  Type Number 597 480 (page 38)
- Rated voltage/rated time/peak factor:
  14 kA – 0.5 s – 2.0

Device suitable for:

Contact wire: Ri 80-120 (DIN 43 141);
Ø 10.6-13.2 mm
Earth connection: Flat up to 24 mm

Earthing systems for contact wires (profile-free devices)

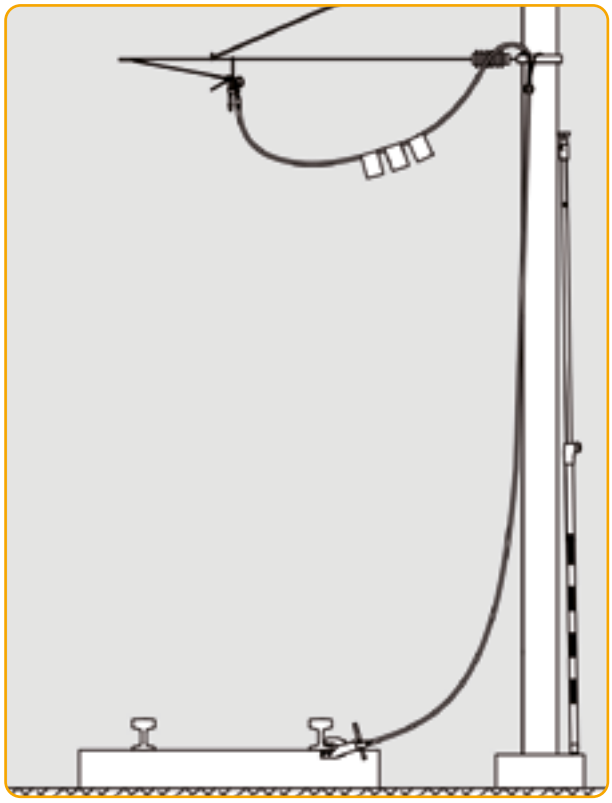


Type Number 512 055

- Earthing and short-circuiting cables with 3 red flags, 50 mm², 12000 mm long
  Type Number 504 068 (page 19)
- Clamp for contact wires
  Type Number 508 131 (page 12)
- Rail foot earthing clamp
  Type Number 502 050 (page 16)
- Suspension hook and cable guidance for installation on pylon
  Type Number 504 063 (page 39)
- Rated voltage/rated time/peak factor:
  14 kA – 0.5 s – 2.0

Device suitable for:

Contact wire: Ri 80-120 (DIN 43 141);
Ø 10.6-13.2 mm
Rail: S 49, S 54, S 64, UIC 60



Type Number 512 036

- Telescopic earthing rod (2-section) with safety rod head Type Number 511 188 (page 22)
- Earthing and short-circuiting device
  Type Number 512 055 (page 24)
- Rated voltage/rated time/peak factor:
  14 kA – 0.5 s – 2.0

Device suitable for:

Contact wire: Ri 80-120 (DIN 43 141);
Ø 10.6-13.2 mm
Rail: S 49, S 54, S 64, UIC 60

Further models available upon request.

Earthing systems for contact wires (non profile-free devices)

- Safe usage.
- Easy to maintain and repair.
- Warning flag or other coloured markings for clear visibility of device.
- Transparency of insulation enables visibility of copper leads up to the copper cable lug barrel, so that damages of strands caused by ageing can be identified early.

Carrying bags, cases and wall holders, see page 35 and following.

Type Number 512 250

- Pluggable earthing rod (5-part) with safety rod head and tubular bag.
  Due to favourable transport length especially suitable for traction vehicles, technical emergency services, and fire brigades.
  Type Number 511 193 (page 22)
- Earthing and short-circuiting device with carrying bag for earthing cables.
  Type Number 512 242 (page 26)
- Rated voltage/rated time/peak factor:
  14 kA – 0.5 s – 2.0

Device suitable for:

Contact wire:	Ri 80-120 (DIN 43 141); Ø 10.6-13.2 mm
Rail:	S 49, S 54, S 64, UIC 60

Further models available upon request.

Earthing systems for contact wires (non profile-free devices)

Type Number 512 242

- 2x Earthing and short-circuiting cables with 3 red flags, 50 mm², 8500 mm long
  Type Number 504 153 (page 19)
- 2x Clamp for contact wire
  Type Number 508 131 (page 12)
- 2x Rail foot earthing clamp
  Type Number 502 050 (page 16)
- Carrying bag for cable
  Type Number 615 099 (page 36)
- Rated voltage/rated time/peak factor:
  14 kA – 0.5 s – 2.0

Device suitable for:

Contact wire: Ri 80-120 (DIN 43 141);
Ø 10.6-13.2 mm
Rail: S 49, S 54, S 64, UIC 60

Type Number 512 056

- Earthing and short-circuiting cable with 3 red flags, 50 mm², 8500 mm long
  Type Number 504 153 (page 19)
- Clamp for contact wires
  Type Number 508 131 (page 12)
- Rail foot earthing clamp
  Type Number 502 050 (page 16)
- Rated voltage/rated time/peak factor:
  14 kA – 0.5 s – 2.0

Device suitable for:

Contact wire: Ri 80-120 (DIN 43 141);
Ø 10.6-13.2 mm
Rail: S 49, S 54, S 64, UIC 60

Further models available upon request.

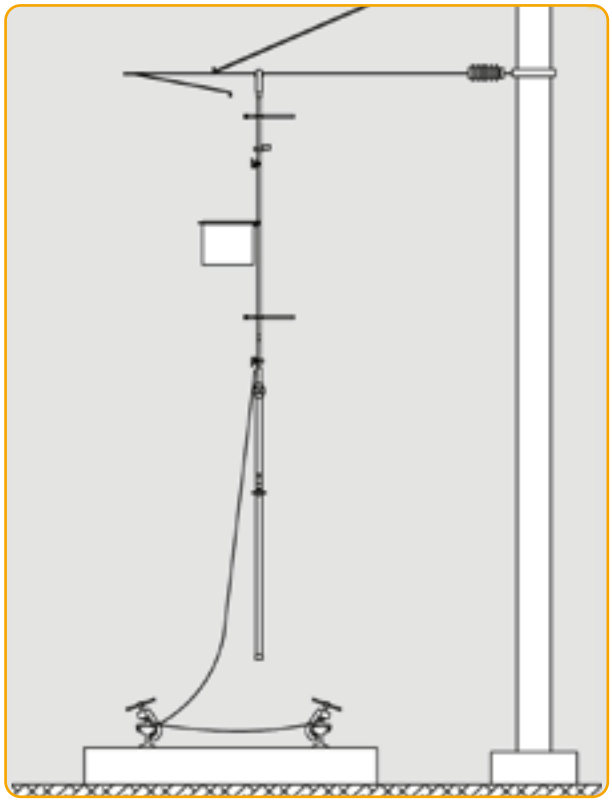
Earthing systems for contact wires (non profile-free devices)

Type Number 512 034

- Telescopic earthing rod (2-section) with safety rod head
  Type Number 511 188 (page 21)
- Earthing and short-circuiting device
  Type Number 512 056 (page 26)
- Rated voltage/rated time/peak factor:
  14 kA - 0.5 s - 2.0

Device suitable for:

Contact wire: Ri 80-120 (DIN 43 141);
Ø 10.6-13.2 mm
Rail: S 49, S 54, S 64, UIC 60



Type Number 597 505

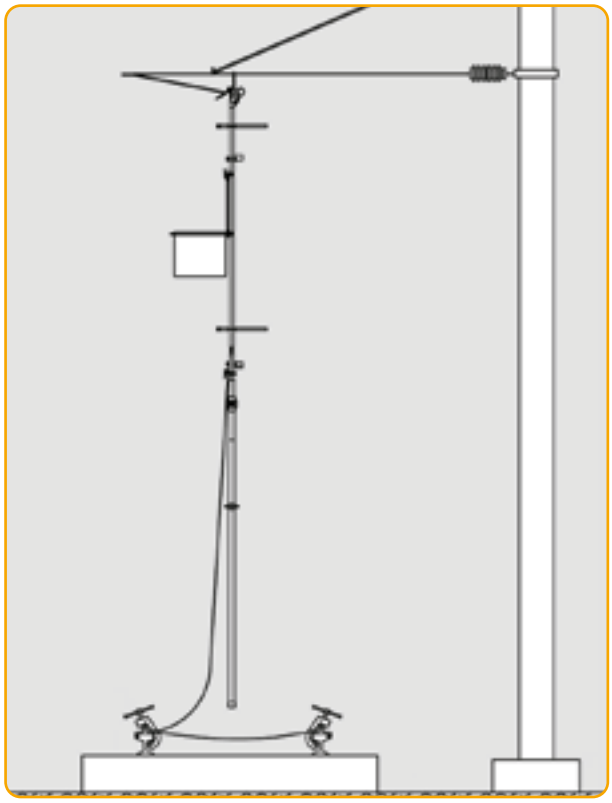
- Pluggable earthing rod (2-part)
  with fixed phase clamp similar to
  Type Number 507 040 (page 10) and take-up devices for cable and earthing clamp
  Total length: 4600 mm;
  Transport length: 2600 mm
- Earthing and short-circuiting cable, 95 mm², 4700 mm long.
- Earthing and short-circuiting cable, 95 mm², 1550 mm long.
- 2x Rail head earthing clamp
  Type Number 502 062 (page 18)
- Warning flag for clear visibility of earthing device.
- Rated voltage/rated time/peak factor:
  16.3 kA – 0.5 s – 2.0

Device suitable for:

Conductor: Round Ø 10-65 mm
Rail: SBB6 (UIC 60), SBB4 (similar to S 54), SBB1, SBB5

Further models available upon request.

Earthing systems for contact wires (non profile-free devices)



Type Number 511 194

- Pluggable earthing rod (2-part) with fixed clamp for contact wire similar to Type Number 508 131 (page 12) and take-up device for cable and earthing clamp
  Total length: 4600 mm;
  Transport length: 2600 mm
- Earthing and short-circuiting cable, 95 mm², 4700 mm long.
- Earthing and short-circuiting cable, 95 mm², 1550 mm long.
- 2x Rail head earthing clamp
  Type Number 502 062 (page 18)
- Warning flag for clear visibility of earthing device.
- Rated voltage/rated time/peak factor:
  29.3 kA - 0.08 s - 2.0

Device suitable for:

Contact wire: Ri 80-120 (DIN 43 141);
Ø 10.6-13.2 mm
Rail: SBB6 (UIC 60), SBB4 (similar to S 54), SBB1, SBB5

Type Number 512 042

- Telescopic earthing rod (3-section) with safety rod head.
  Due to favourable transport length especially suitable for traction vehicles, technical emergency services, and fire brigades.
  Type Number 511 130 (page 21)
- Earthing and short-circuiting device.
  Type Number 512 056 (page 26)
- Rated voltage/rated time/peak factor:
  14 kA - 0.5 s - 2.0

Device suitable for:

Contact wire: Ri 80-120 (DIN 43 141);
Ø 10.6-13.2 mm
Rail: S 49, S 54, S 64, UIC 60

Further models available upon request.

Earthing system for feeder lines

Carrying bags see page 35 and following.

Type Number 512 197

- Earthing and short-circuiting cable, 50 mm², 4000 mm long,
  Type Number 504 126 (page 19)
- Phase clamp
  Type Number 507 086 (page 9)
- Earthing clamp
  Type Number 507 057 (page 15)
- Rated voltage/rated time/peak factor:
  14 kA – 0.5 s – 2.5

Device suitable for:

Conductor:	Ø 6 - 35 mm
Earth connection:	Ball point connector Ø 25 mm, T-bolt 20 mm, Flat up to 20 mm, Round Ø 9-22 mm

Further models available upon request.

Protective earth for construction machinery.

Carrying bag page 35 and following.

Type Number 512 202

- Earthing and short-circuiting cable, 50 mm², 12000 mm long
  Type Number 512 202 03 (page 19)
- Rail foot earthing clamp
  Type Number 502 050 (page 16)
- Earthing clamp
  Type Number 507 057 (page 15)

Device suitable for:

Rail: S 49, S 54, S 64, UIC 60
Earth connection: Flat up to 20 mm,
round Ø 9-22 mm,
t-bolt 20 mm,
ball point connector Ø 25 mm

Type Number 597 656

- Earthing and short-circuiting cable, 50 mm², 20000 mm long
- Rail foot earthing clamp
  Type Number 502 050 (page 16)
- Earthing clamp
  Type Number 507 057 (page 15)

Device suitable for:

Rail: S 49, S 54, S 64, UIC 60
Earth connection: Flat up to 20 mm,
round Ø 9-22 mm,
t-bolt 20 mm,
ball point connector Ø 25 mm

Further models available upon request.

Earthing device for bridging running rails (potential equalisation)

Carrying bags see page 35 and following.

Type Number 598 773

- Earthing and short-circuiting cable, 95 mm², 1500 mm long.
- 2x Rail foot earthing clamp Type Number 502 050 (page 16)

Device suitable for:

Rail: S 49, S 54, S 64, UIC 60

Type Number 598 774

- Earthing and short-circuiting cable, 95 mm², 24000 mm long.
- 2x Rail foot earthing clamp Type Number 502 050 (page 16)

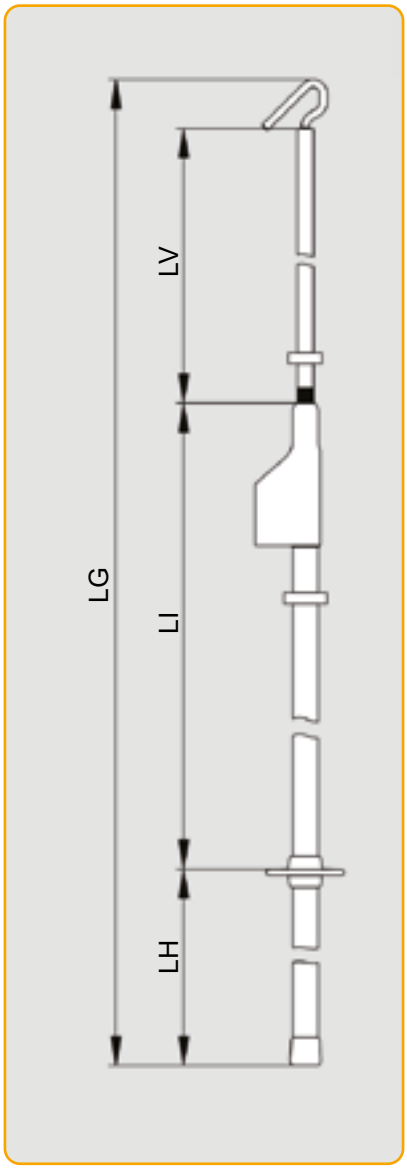
Device suitable for:

Rail: S 49, S 54, S 64, UIC 60

Further models available upon request.

ARCUSDETECT M - High Voltage Detector for Contact Wires and Feeder Lines

According to VDE 0681 part 6



This high voltage live line detector tests absence of voltage on contact wires with single-phase a.c. of Un=15 kV and nominal frequency of 16.7 Hz.

- Suitable for outdoor use.
- Audible and visual indication.
- Self-test including test electrode.
- Simple battery change.
- Temperature range: -25 °C up to +50 °C
- Humidity: 20-96%

Carrying bag included.

Type Overview

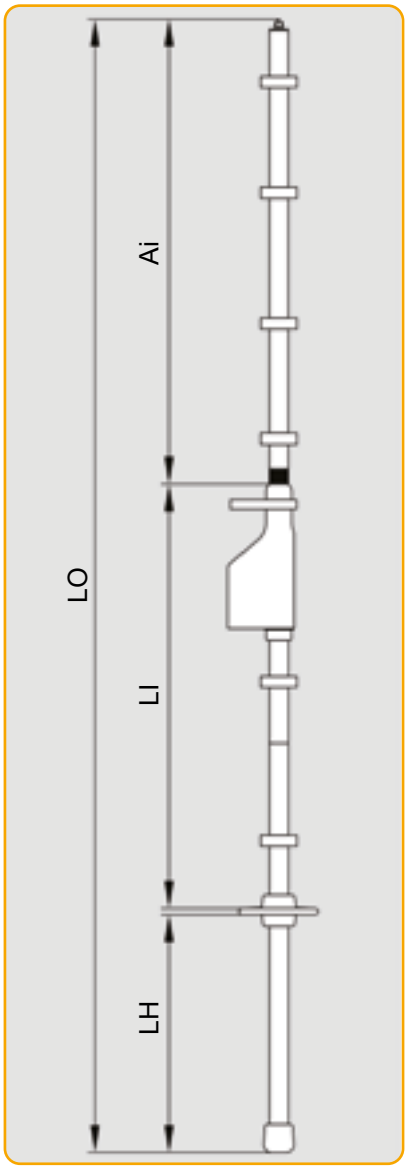
Un [kV]	f [Hz]	Net System	LG [mm]	LV [mm]	LI [mm]	LH [mm]	Transport Length [mm]	N-Parts	Bag	Type Number
15	16.7	⎸	4658	2155	792	1650	2400	2	610 023 26	610 241
15	16.7	⎸	4658	2155	1014	1428	1022	6	615 096	610 330

⎸ effectively single-side isolated 1-phase system

Further information can be found in our Technical Information „Capacitive Voltage Detectors and Voltage Detections Systems“.

ARCUSDETECT M - High Voltage Detector for Railway Networks

Basically to IEC 61243-1 (frequency 16.7 Hz) (and following DIN VDE V 0682-421)



Usage:

This high voltage live line detector tests absence of voltage on railway networks with single-phase a.c. of Un=15 kV and nominal frequency of 16.7 Hz.

- Suitable for outdoor use.
- Visual indication.
- Self-test including test electrode.
- Simple battery change.
- Temperature range: -25 °C up to +50 °C
- Humidity: 20-96%
- Threaded fork contact for overhead lines.
- Transport eye for carabiner.

Carrying bags, cases and wall holders, see page 35 and following.

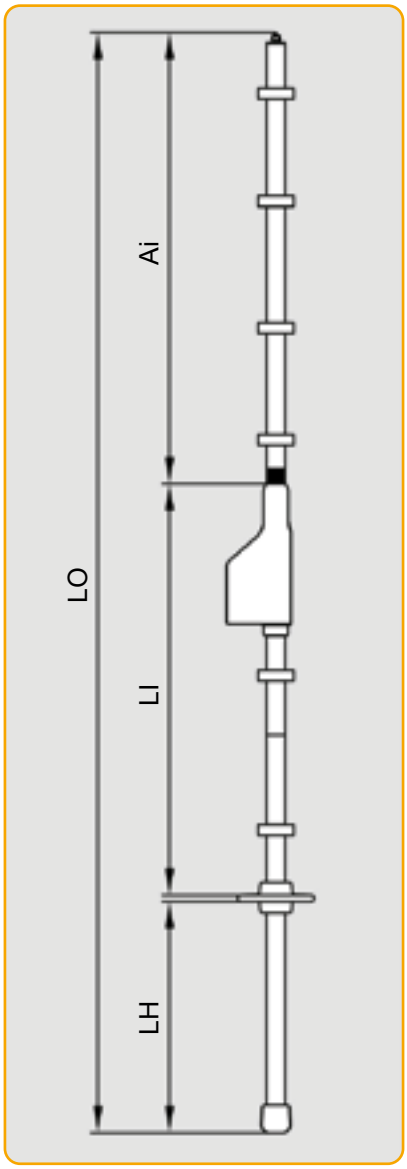
Type Overview

Un [kV]	f [Hz]	Net System	LO [mm]	Ai [mm]	Li [mm]	LH [mm]	Transport Length [mm]	N-Parts	Bag	Type Number
15	16.7	I	1579	736	534	300	920	2	615 096	610 240

I effectively single-side isolated 1-phase system

Further information can be found in our Technical Information „Capacitive Voltage Detectors and Voltage Detections Systems“.

Basically to IEC 61243-1 (frequency 16.7 Hz) (and following DIN VDE V 0682-421)



Usage:

This high voltage live line detector tests absence of voltage in substations with nominal frequency of 16.7 Hz.

- Suitable for outdoor use.
- Audible and visual indication.
- Self-test including test electrode.
- Simple battery change.
- Temperature range: -25 °C up to +50 °C
- Humidity: 20-96%

Carrying bags, cases and wall holders, see page 35 and following.

Type Overview										
Un [kV]	f [Hz]	Net System	LO [mm]	Ai [mm]	Li [mm]	LH [mm]	Transport Length [mm]	N-Parts	Bag[1)]	Type Number
Single voltage detectors										
15	16.7	I	1399	556	534	300	740	2	615 092	697 013
33	16.7	I	1579	736	534	300	920	2	615 096	697 063
Voltage range detectors										
10.5-15	16.7	I	1879	736	834	300	1000	2	615 096	697 010
15-33	16.7	I	1819	976	534	300	1160	2	615 095	697 076

1) not included in the delivery

I effectively single-side isolated 1-phase system

Further information can be found in our Technical Information „Capacitive Voltage Detectors and Voltage Detections Systems“.

Carrying bags

615 092

Tubular bags

Design:

- Polyester, royal blue
- 2x belt strap black
- 1x shoulder strap
- Lid with zipper
- Inside with transparent pocket for instruction for use

Dimensions [mm]	Type Number
Ø 150x820 long	615 092
Ø 150x1020 long	615 096
Ø 150x1120 long	615 041
Ø 150x1220 long	615 095
Ø 150x1320 long	615 097
Ø 150x1420 long	615 093
Ø 150x1520 long	615 103
Ø 150x1620 long	615 102
Ø 150x1720 long	615 100

615 088

Tubular bags

Design:

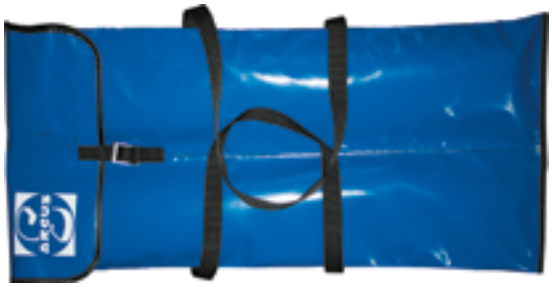
- Cotton cloth, olive coloured
- Anti-fouling, water-repellent
- 2x belt strap black
- 1x shoulder strap
- String closure

Dimensions [mm]	Type Number
Ø 200x1800 long	615 089
Ø 200x2200 long	615 087
Ø 200x2400 long	615 088

Further models available upon request.

Carrying bags

615 033



Carrying bag

Design:

- Tarpaulin, royal blue
- 2× belt strap black
- With belt closure
- Inside with transparent pocket for instruction for use
- Suitable for 2-part high voltage detectors

B [mm]	L [mm]	Pockets	Type Number
410	2480	2	610 023 26
410	850	2	615 033

Carrying bag for earthing cables **Type Number 615 099**

Design:

- Tarpaulin, royal blue
- 2x belt strap black
- With zipper
- Inside with transparent pocket for instruction for use
- Dimensions (WxDxH): 420x120x420 mm

698 700

Wrapping bag

Design:

- Tarpaulin
- 1× belt strap black
- With belt closure
- Inside with transparent pocket for instruction for use

B [mm]	L [mm]	Pockets	Colour	Type Number
1100	1250	5	grey	698 700
850	1500	3	royal blue	610 067 39
850	1700	4	royal blue	610 068 16
850	2000	4	royal blue	610 069 17

Further models available upon request.

Carrying cases

615 106

Carrying case for high voltage detectors

- Shell of plastic material, black
- with foamed inlay for high voltage detectors (except Type Number 615 108)

Outside Dimensions			Type Number
H [mm]	B [mm]	T [mm]	
100	230	950	615 106
100	230	1200	615 107
130	320	1300	615 108

Suspension hooks (for profile-free earthing)

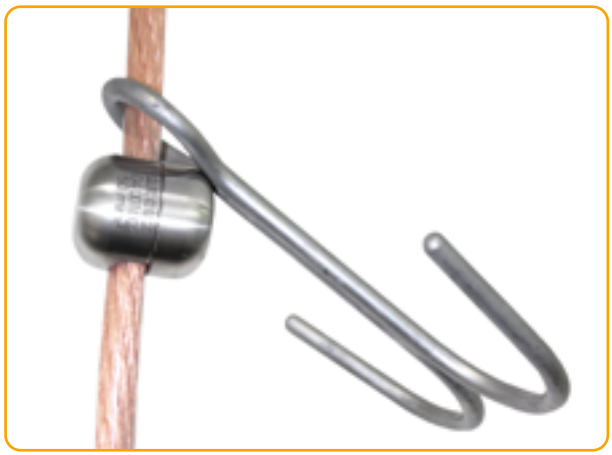
Suspension hook **Type Number 504 063**

For profile-free earthing of catenaries, a suspension hook is required. This way the earthing and short-circuiting cable is fixed at the pylon at a distance from the railtrack (see page 24).

Cable routing with hook **Type Number 597 480**

For profile-free earthing of catenaries, a suspension hook is required. This way the earthing rod is fixed at the pylon at a distance from the railtrack (see page 23).

Stopper for earthing cable



Stopper **Type Number 504 001 002**

Suitable to stop suspension hook

Type Number 504 063 on profile-free earthing devices (e.g. Type Number 512 036 and 512 055 on page 24)

The stopper can be mounted easily and fast.

Wall holders

For storage of high voltage detectors, operating rods and earthing rods.

- Easy and fast installation.
- Wall holders are made of very strong plastic material.

Type Number 611 066

For insulating rods with tube diameter Ø 20-30 mm.

Type Number 611 067

For insulating rods with tube diameter Ø 30-40 mm.

Type Number 611 068

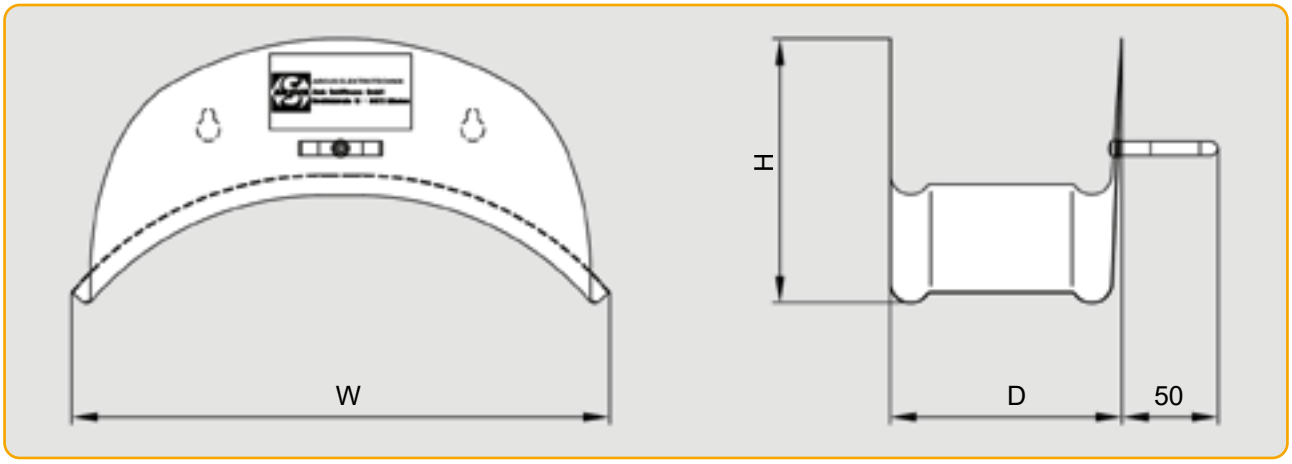
For insulating rods with tube diameter Ø 40-50 mm.

Storage systems

615 009

Technical Informations:

- Storage brackets help to prevent material damage during storage of earthing and short-circuiting device and earthing rods.
- To protect the highly flexible earthing cables, the contact areas of the bracket are rounded.
- Storage brackets are available in two sizes, and alternatively in plastic (colour green) or sheet steel (colour: grey) material.
- A clip made of spring steel takes up one earthing rod (for outside tube diameters of Ø 30-40 mm).



Bracket with clip for earthing rod

H [mm]	W [mm]	D [mm]	Material	Maximum Load [kg]	Type Number
215	273	185	plastic	15	615 057
140	280	127	steel, plastic-coated	30	615 009

Bracket only (no clip)

H [mm]	W [mm]	D [mm]	Material	Maximum Load [kg]	Type Number
215	273	185	plastic	15	615 058
140	280	127	steel, plastic-coated	30	615 014

Short Circuiting Devices

These ARCUS short circuiting devices are suitable for earthing and short circuiting underground railtrack with third rail (current rail) up to 1 kV.

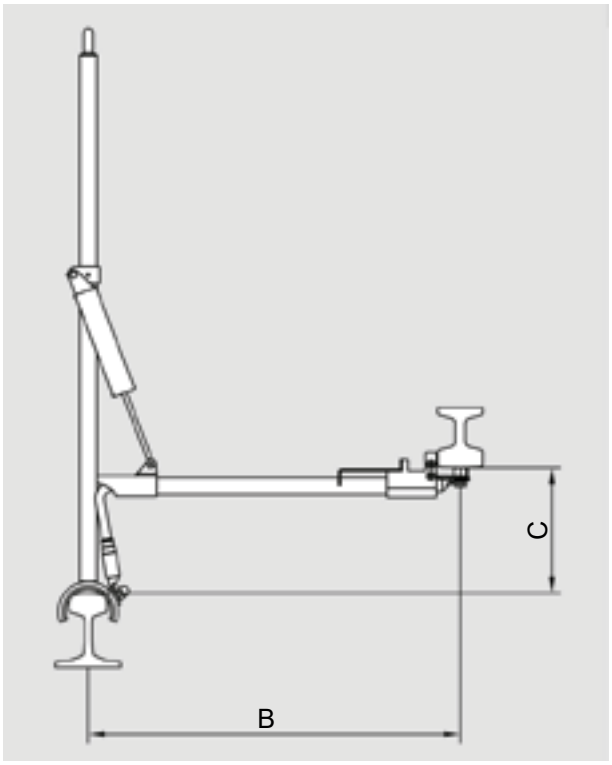
Power supply with current rail contact from bottom side.

Detailed information on construction, functional principles, usage, and short-circuit capacity can be found in our Technical Information "Short-Circuiting Device for Underground Railways".

ARCUS Short-Circuiters are in worldwide use for decades.

On the following pages a selection of our range of short-circuiters can be found.

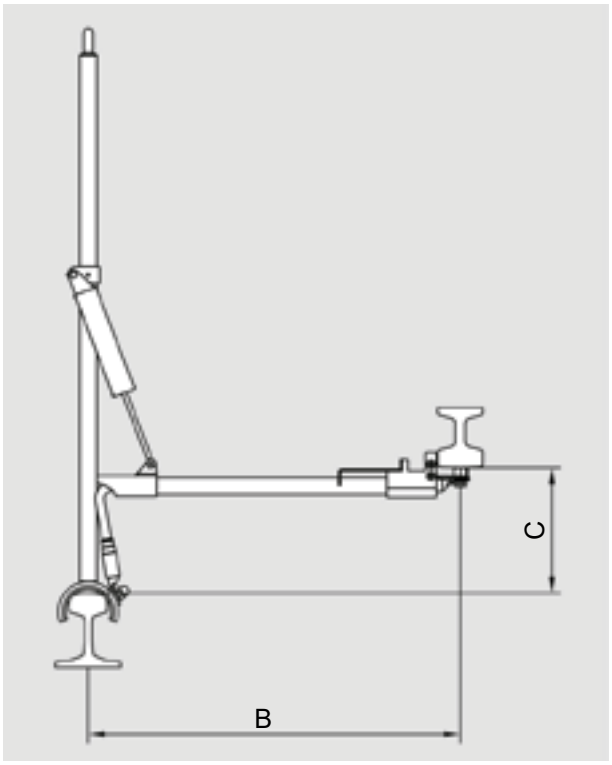
According to customer specification – max. up to 30 kA - 30 ms, with direct current



Type Overview (selection)			
Underground railway system	**B [mm]**	**C [mm]**	**Type Number**
Rotterdam, the Netherlands	452	230	597 571
Berlin, Germany	512	170	598 698
Munich, Germany	594	192	515 105
Vienna, Austria	594	192	597 584
Brussels, Belgium	594	192	597 566
Prague, Czech Republic	655	160	597 155
Amsterdam, the Netherlands	655	222	597 427
Singaporer	664	169	598 739
Helsinki, Finnland	670	235	597 303
Rotem, Korea	726	220	597 457
Bangkok, Thailand	783	240	597 450
Berlin, Germany	818	135	598 651

Further models available upon request.

According to customer specification – max. bis 80 kA - 30 ms, with direct current



Type Overview (selection)			
Underground railway system	**B [mm]**	**C [mm]**	**Type Number**
Hamburg, Germany	449	200	515 001 001
Taipei, Taiwan	564	170	597 519
Munich, Germany	594	192	597 662
Milano, Italy	723	200	597 693
Bangalore, India	725	148	597 701

Further models available upon request.

Current Rail Clamps

598 055

ARCUS current rail clamps are suitable for a number of current rail profiles, on the railtrack of underground train systems up to 1 kV.

The construction of current rail clamps enables piercing of foreign layers on the rail foot or rail head, especially aluminium oxide, or helps to partially remove foreign layers, in order to obtain an optimum mechanic and electric contact.

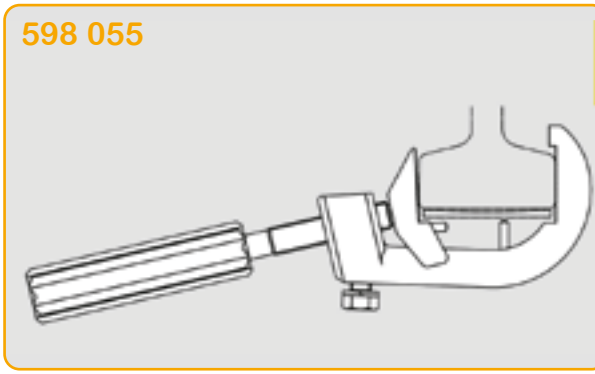
Material (contact parts)

- Strap: Aluminium alloy
- Pressure piece: Aluminium alloy

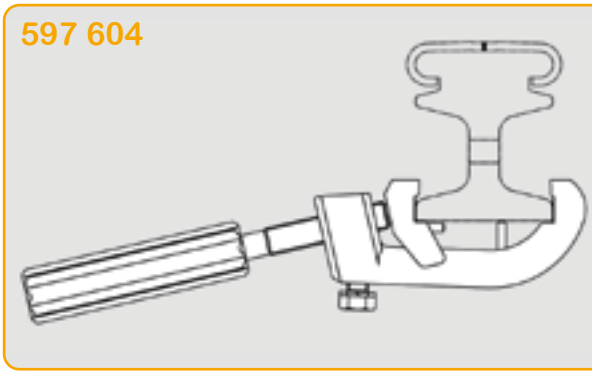
Installation:

Clamp is installed by means of fully-insulated handle.

598 055



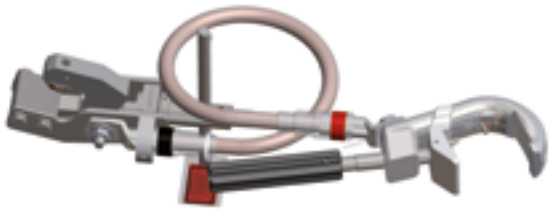
597 604



Current Rail Clamps			
Rail Profile	**Connection Bolt**	Rated voltage/rated time	**Type Number**
DIN 43156 Form A 5100	M12	45 kA – 0.03 s; with direct current	598 055
Rail foot width max. 85 mm	M12	Only for potential equalizing	597 604

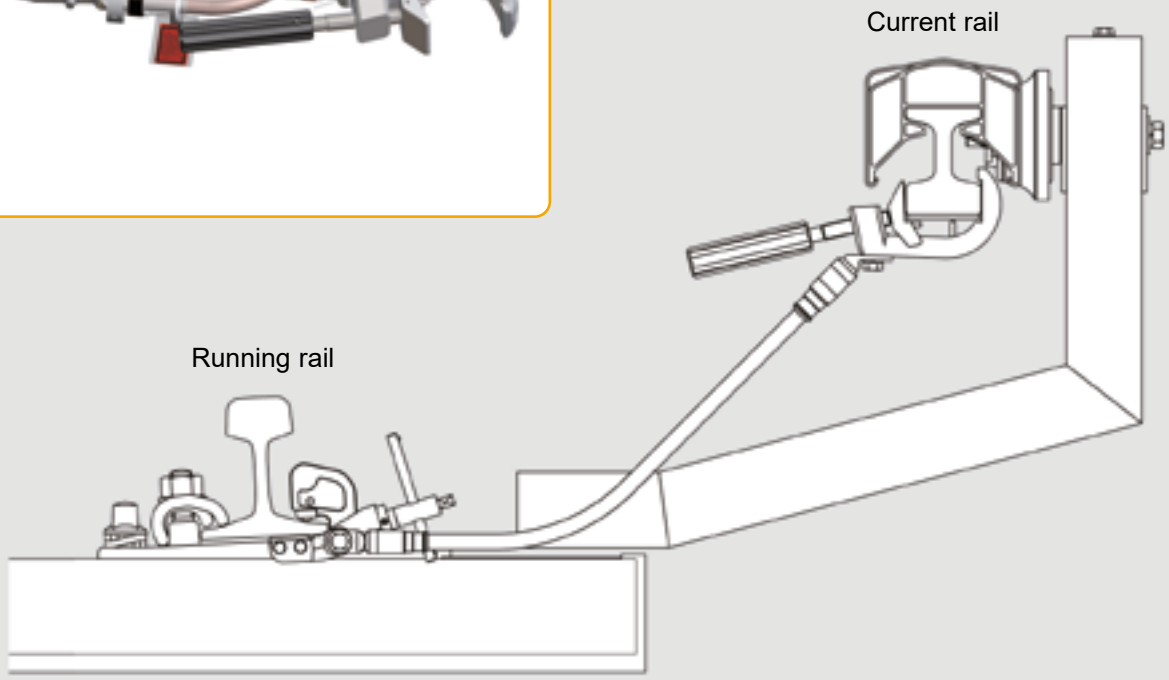
Further models available upon request.

598 775



Device to earth and short-circuit current and running rail.

Carrying bags see page 35 and following.



Type Number 598 775

Device suitable for:

- Current rail: DIN 43156-A5100
- Running rail: S 49, S 54, S 64, UIC 60

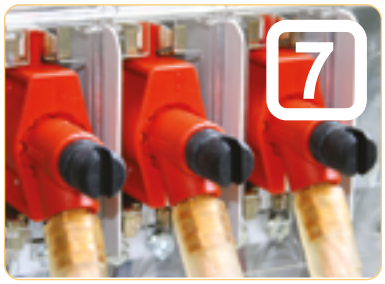
Parts of device:

- Current rail clamp
  Type Number 598 055 (page 44)
- Earthing and short-circuiting cable,
  95 mm², 1100 mm long
- Rail foot earthing clamp:
  Type Number 502 050 (page 16)
- Rated voltage/rated time: 33.3 kA - 0.08 s;
  with direct current

Further models available upon request.

Catalogues “Safety Equipment”

Capacitive Voltage Detectors and Voltage Detection Systems



Fully-Insulated and Part-Insulated Earthing and Short Circuiting Devices for Low Voltage Applications

Safety Equipment for Railway Systems

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