Operating Instructions

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Ground Clamps Series 70
Cable Rewinder Series 601KR

for active grounding with the TUE30 Terra-Control ground monitoring system and for passive grounding

BA-en-4007-1709

elltex
electrostatic innovations

List of contents

Dear Customer,

The active Eltex ground clamps series 70 are designed for making and - in connection with Eltex TUE30 Terra-Control Ground Monitoring System - for monitoring ground connections.
Special ground monitoring systems operating with two ground clamps are capable of monitoring the correct grounding of conductive Big Bags by measuring the electric resistance between two opposing grounding flags.

The passive Eltex Ground Clamps Series 70 are designed for making ground connections for discharging static charges.

The appliances are used in areas where potentially explosive materials and substances are loaded, discharged, refilled or transported. Any developing static charges are safely and effectively eliminated and led to ground. This means that the risk of ignition caused by static discharges is eliminated at source.
Different design variants and sizes of ground clamps are available for active, passive and Big Bag grounding and for use in potentially explosive atmospheres.

The Eltex cable rewinders of series 601KR ensure that the ground cable is safely reeled back after use, protecting it from damage and dirt.
The aluminum cable rewinder is made of impact-proof aluminum and is mounted with an assembly bracket. This allows the cable rewinder to be turned into the direction of the cable run making unwinding and rewinding easy. At type 601KR/AW the rubber cable outlet prevents moisture and dirt from penetrating the housing. The built-in cable stop mechanism allows the cable to be locked in place and released as required.
The plastic cable rewinder is encased in a robust and sturdy plastic housing. The cable outlet is fitted with four cable guide rollers for easy cable guidance.
The cable rewinders and the clamp holder are designed for wall mounting and may be used in zones with potentially explosive atmospheres.

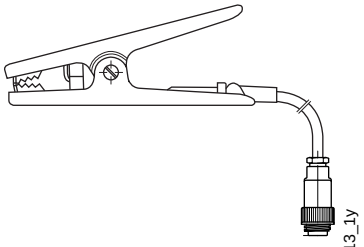
Please read the operating instructions carefully before starting the instrument. This will help you prevent personal injuries and damage to property.

Please give us a call if you have any suggestions, proposals or ideas for improvements. We greatly appreciate the feedback from the users of our appliances.

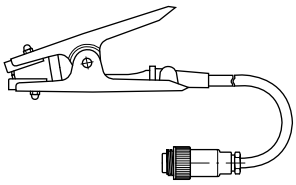
1. Overview

Active ground clamps

70AG



70AK



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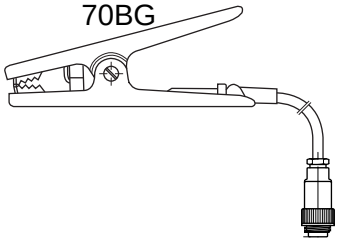
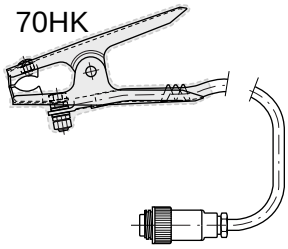
Active ground clamps for Big-Bag

70BG

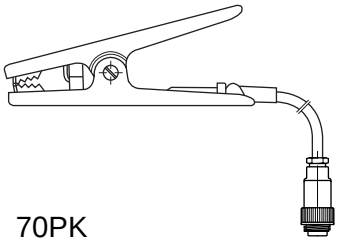


70HK

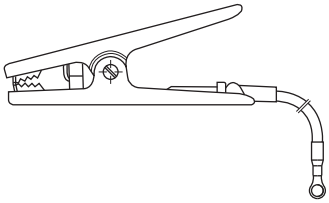


Passive ground clamps

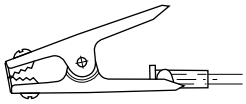
70SG



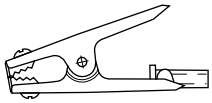
70PG



70PK



70OK



70OK/020

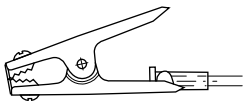


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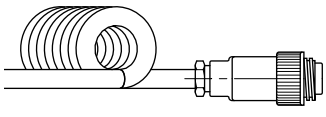
Fig. 1: Ground clamps series 70

Cable

helix ground cable



ground cable

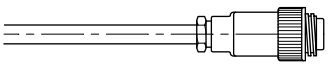


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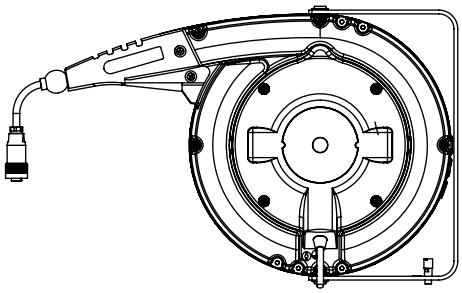
Fig. 2: Cables

Cable rewinders

Aluminium
601KR/AW (active)



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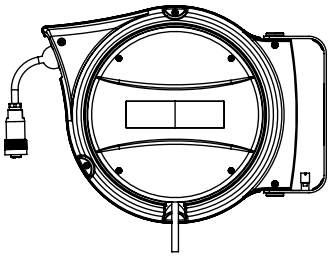
Aluminium
601KR/DW (active) / 601KR/EW (passive)



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Plastic
601KR/KW (active) / 601KR/BW (passive)

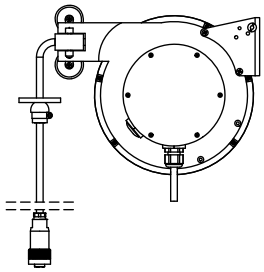

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Fig. 3:
Cable rewinders series 601KR

Accessory

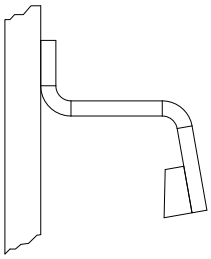

Fig. 4:
Clamp holder

Design Variants

Active ground clamps for use with the components of the Terra-Control ground monitoring system

70AG: Ground clamp, large
length of connecting lead 300 mm ± 50mm, cable color: light blue
with coupling connector or variable without connector and cable length of 3, 6, 9, 12, 15 or 18 m (specify lenght)

70AK: Ground clamp, small
length of connecting lead 300 mm ± 50mm, cable color: light blue
with coupling connector or variable without connector and cable length of 3, 6, 9, 12, 15 or 18 m (specify lenght)

Active ground clamps for Big Bags:

70BG: Ground clamp, large
length of connecting lead 300 mm ± 50mm, cable color: light blue
with coupling connector or variable without connector and cable length of 3, 6, 9, 12, 15 or 18 m (specify lenght)

70HK: Ground clamp, small
length of connecting lead 300 mm ± 50mm, cable color: light blue
with coupling connector or variable without connector and cable length of 3, 6, 9, 12, 15 or 18 m (specify lenght)
(always use two clamps)

Passive ground clamps for use without ground monitoring systems:

70SG: Ground clamp, large
with current limiting resistor
length of connecting lead 300 mm ± 50mm,
cable color: orange
with coupling connector or variable without connector and cable length of 3, 6, 9, 12, 15 or 18 m (specify lenght)

70PG: Ground clamp, large
with current limiting resistor
variable length of connecting lead, cable color: orange
connection via cable lug 10.5 mm diameter

70OK: Ground clamp, small
straight design with anti-kink protection
connection by the user

70OK/020 Ground clamp, small
length of connecting lead 2 m, cable color: orange

70PK: Ground clamp, small
length of connecting lead 300 mm ± 50mm,
cable color: orange
with coupling connector

Cable rewinders for active grounding:

601KR/AW: Cable rewinder in impact-proof aluminum housing
IP43
assembly bracket for wall mounting, swivel-type
stop mechanism for ground cable
2.5 meters connecting cable
20 meters ground cable, cable color: light blue
ground clamp connection via coupling connector

601KR/DW: Cable rewinder in impact-proof aluminum housing
IP42
assembly bracket for wall mounting, swivel-type
stop mechanism for ground cable
2.5 meters connecting cable
12 meters ground cable, cable color: light blue
ground clamp connection via coupling connector

601KR/KW: Cable rewinder in plastic housing
IP42
assembly plate for wall mounting
2.5 meters connecting cable
9 meters ground cable, cable color: light blue
ground clamp connection via coupling connector

Cable rewinders for passive grounding:

601KR/EW: Cable rewinder in impact-proof aluminum housing
IP42
assembly bracket for wall mounting, swivel-type
stop mechanism for ground cable
2.5 meters connecting cable
12 meters ground cable, cable color: orange
ground clamp connection via coupling connector

601KR/BW: Cable rewinder in plastic housing
IP42
assembly plate for wall mounting
2.5 meters connecting cable
9 meters ground cable, cable color: orange
ground clamp connection via coupling connector

Cable for active grounding:

KG/BSA050: helix ground cable with plug and wire end sleeve,
cable color: light blue,
extensible 1 to 5 m

KG/BNA___: ground cable with plug and wire end sleeve
cable color: light blue
5, 10 or 15 m (specify length)

KG/BNB___: ground cable with plug and socket
cable color: light blue
5, 10 or 15 m (specify length)

Cable for passive grounding:

KG/GSA050: helix ground cable with plug and wire end sleeve
cable color: orange,
extensible 1 to 5 m

KG/GNA___: ground cable with plug and wire end sleeve
cable color: orange
5, 10 or 15 m (specify length)

KG/GNB___: ground cable with plug and socket,
cable color: orange
5, 10 or 15 m (specify length)

Clamp holder:

113112: available as accessory,
dimensions see Fig. 36

2. Safety

The units have been designed, built and tested using state-of-the-art engineering, and have left the factory in a technically and operationally safe condition. If used improperly, the units may nevertheless be hazardous to personnel and may cause injury or damage. Read the operating instructions carefully and observe the safety instructions.

2.1 Identification of risks and hazards

Possible risks and hazards resulting from the use of the units are referred to in these operating instructions by the following symbols:

Warning!
This symbol appearing in the operating instructions refers to operations which, if carried out improperly, may result in serious personal injuries.

Caution!
This symbol appearing in the operating instructions refers to operations which, if carried out improperly, may result in damage to property.

Ex Warning!
Only for units with Ex approval.
This symbol denotes the special conditions which must be observed when operating the units in explosion hazard areas as specified in the approvals.

2.2 Technical advance

The manufacturer reserves the right to make changes to the technical specifications without prior notice in order to adapt the units to state-of-the-art engineering. Eltex will provide the latest information on any changes or modifications in the operating instructions on request.

2.3 Proper use

Active grounding
The active ground clamps series 70 and the accessories helix ground cable series KG and cable rewinder series 601KR must be used only for static grounding and must be connected to the appropriate Eltex ground monitoring systems.

The application area are for example: refilling and filling stations, agitators or dryers for liquid or powdery substances, and in conveyor and transportation equipment with potentially explosive atmosphere.

The purpose of the ground clamps is to leak off or discharge static charges from these plants and equipment to ground.

The Eltex avtive ground clamps generate a transitory electric connection between the plant and equipment in use and the equipotential bonding (PA). They are fitted with internal suppresser circuits and provide maximum safety. Together with the cable rewinders 601KR and the TUE30 Terra-Control ground monitoring system, this configuration provides the ultimate grounding effect for static charges.

Passive grounding

The passive Eltex ground clamps series 70 and the accessories helix ground cable series KG and cable rewinders 601KR must be used only for “static grounding” in refilling and filling stations, agitators or dryers for liquid or powdery substances, and in conveyor and transportation equipment with potentially explosive atmosphere.
The passive Eltex ground clamps generate a transitory electric connection between the plant and equipment in use and the equipotential bonding (PA). The purpose of the ground clamps is to leak off or discharge static charges from these plants and equipment to ground. The passive ground clamps must not be connected to analyzing devices.

The 70OK and the 70PK ground clamps generate a low-resistance connection to the PA. The 70SG and 70PG ground clamps (with an internal resistance of >200 kOhm) can also be connected to systems linked to the protective circuit. With this protective suppressor circuit, no explosive sparking can occur between the PA and the equipment connected to the protective circuit system in the event of potential differences of <120 V.
The accessory cable rewinder serves as extension between the passive ground clamp 70SG with internal suppressor circuit and the equipotential bonding (PA).

The cable rewinders series 601KR are not suitable for use in a saline environment (e.g. sea ports).

The manufacturers will not assume any liability and warranty if the units are used improperly or used outside the intended purpose.

Modifications or changes made to the devices are not permitted.

Use only original Eltex spare parts and equipment.

2.4 Work and operational safety

Warning!
Carefully observe the following notes!

- The local standards, rules and regulations relating to the installation and operation of electrical appliances in potentially explosive atmospheres must be observed.
- Appliances designed for use in potentially explosive atmospheres must not be modified. The technical specifications for ambient conditions and operation must be maintained and observed.
- The devices must be installed and connected only by technical personnel with special training for work in potentially explosive zones.
- A „Connect/Disconnect Approval“ by the plant operator must be obtained before carrying out any installation, assembly, service, repair or maintenance work in potentially explosive atmospheres. Make sure that there is no potentially explosive atmosphere prevailing in the working area. Ensure adequate ventilation and/or screening.
- Electrical systems in potentially explosive atmospheres must always be in perfect technical condition. Defects must be rectified immediately.
- **Before starting the plant in use, connect the clamps to the equipment and make sure that no potentially explosive atmosphere exists in the working area.**
  The clamp connection of the ground clamp must make good and secure contact throughout the whole time the plant is in operation.
- The equipotential bonding line to the housing of the cable rewinders must be connected permanently according to the universal rules of electrical engineering. The terminal cross-section must equal at least the cross-section of the power supply of the ground testing device. For clamps of the type 70OK, the connecting cable for equipotential bonding must have a cross-section of at least 4 mm².
- The ground clamps must not be clamped under tensile in order to avoid an uncontrolled retraction of the cable with ground clamps. For this purpose, the cable rewinders are equipped with a stop mechanism. After use, the cable must be rolled up in a controlled manner in order to avoid an uncontrolled retraction.
- The housing may not be opened; the internal, pre-tensioned spring represents a significant risk. Only the cap may be removed to configure the stop mechanism; see Chapter 3.1.

2.5 Special conditions according to the certificate of conformity

Active Eltex ground clamps:

- Equipotential bonding must be provided along the entire length of the measuring circuit.

Passive Eltex ground clamps:

- The use of the ground clamps is strictly limited to leading potentially hazardous static charges to ground.
- Before connecting the ground clamps, make sure that no potentially explosive atmosphere exists in the working area.
- The use of the clamps in areas requiring Category 1 is not permitted for Explosion Class IIC.

3. Installation and assembly

When installing the systems in potentially explosive zones, every possible precaution must be taken to ensure that no explosive atmosphere prevails!

3.1 Aluminum cable rewinder

The aluminum cable rewinder is attached to a wall, column or ceiling via the installation bracket as shown in Fig. 5. Roofing must be provided when installing the unit outside. Select a suitable installation height to make sure that the ground clamp is within easy reach and does not make contact with the floor. The cable rewinder type 601KR/AW may be turned by 320° and types 601KR/DW and 601KR/EW by 170° around its installation axis.

The cable rewinder is suitable for hazardous location area.

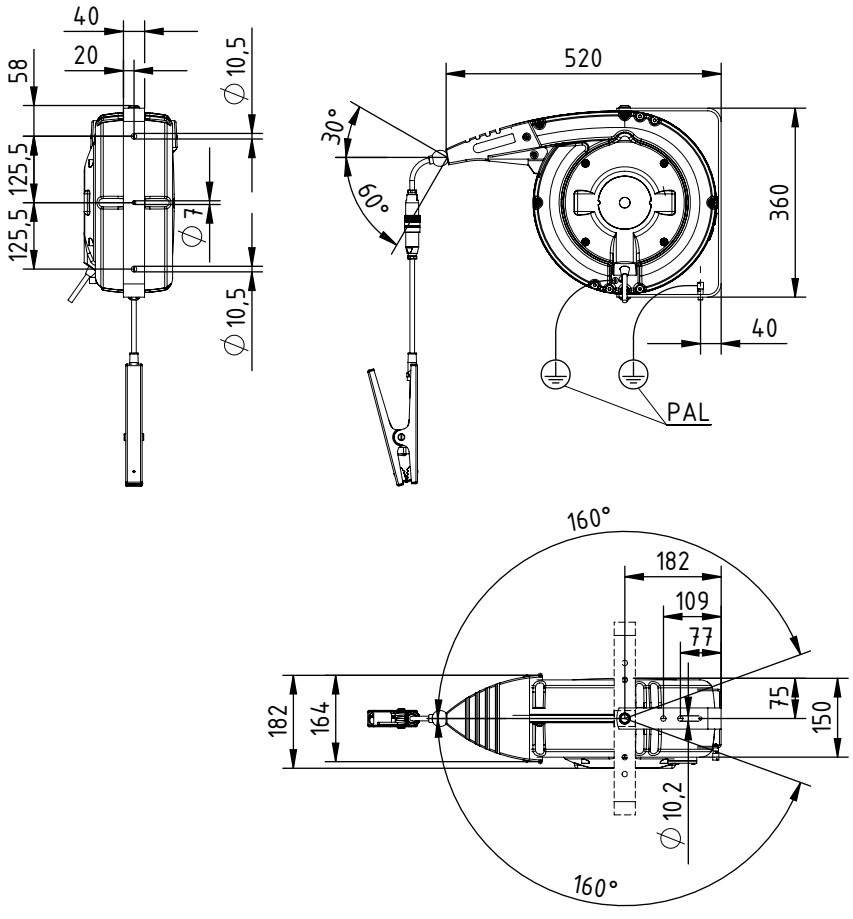

Fig. 5: Assembly of the aluminum cable rewinder 601KR/AW

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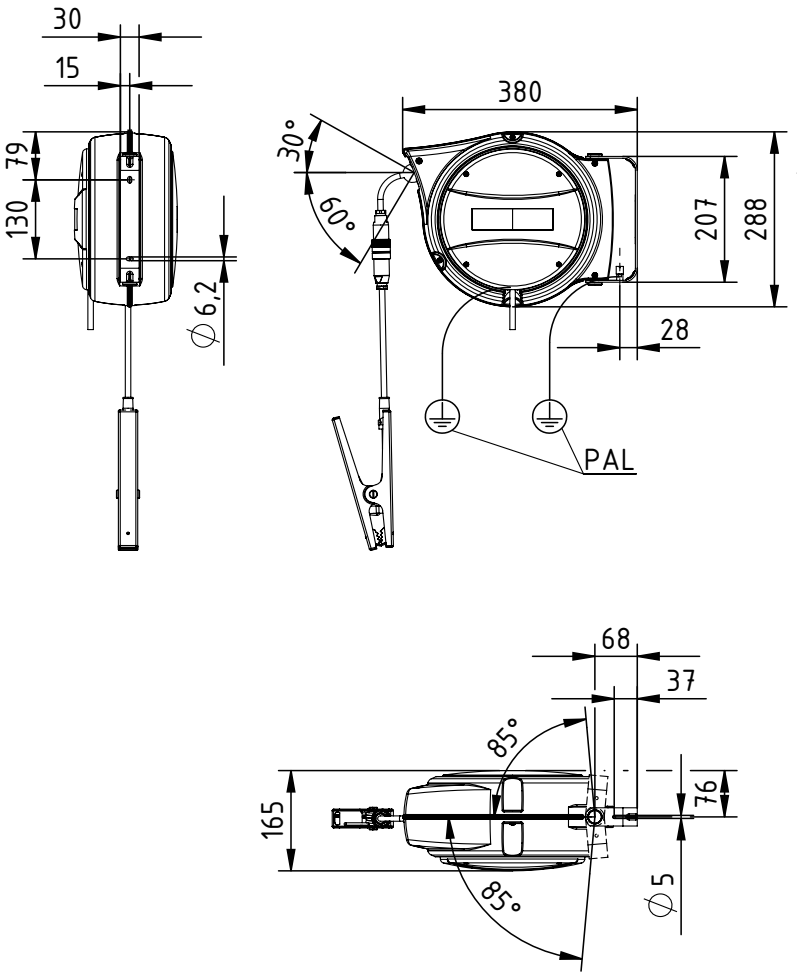

Fig. 6:
Assembly of the aluminum cable rewinder
601KR/DW
601KR/EW

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Stop mechanism, aluminum cable rewinder 601KR/AW

Enabling the stop mechanism:

- Remove the four bolts (1) and take off the side cover (see Fig. 7).
- Take the spring (4) off bolt (5) and hook into bolt (6).
- Remove the screw (2) to make sure that the locking mechanism (3) is free.
- Replace the side cover.

Disabling the stop mechanism:

- Remove the four bolts (1) and take off the side cover (see Fig. 7).
- Take the spring (4) off bolt (6) and hook into bolt (5).
- Turn the locking mechanism (3) by 120° in clockwise direction and turn in the screw (2) fully to make sure that the locking mechanism is disabled.
- Replace the side cover.

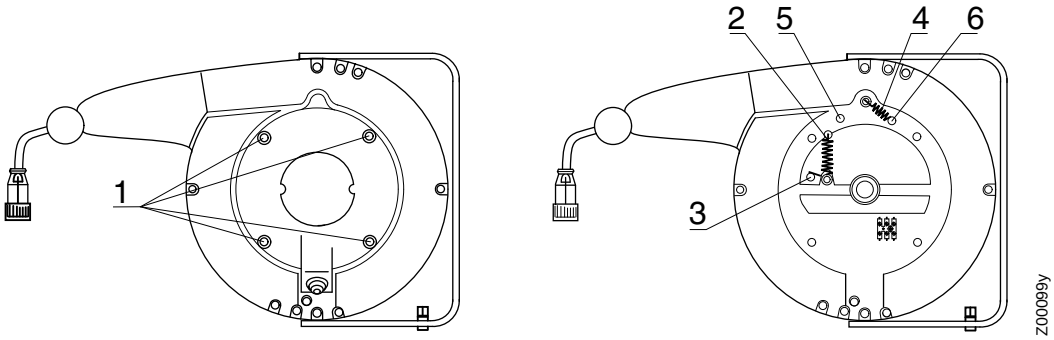

Fig. 7: Locking mechanism of the aluminum cable rewinder for type 601KR/AW

Type 601KR/DW and Type 601KR/EW

Enabling / Disabling the stop mechanism

- Remove the four bolts (1) and take off the side cover (see Fig. 8).
- Take the spring and hook into according position 2 resp. 3.
- Replace the side cover.

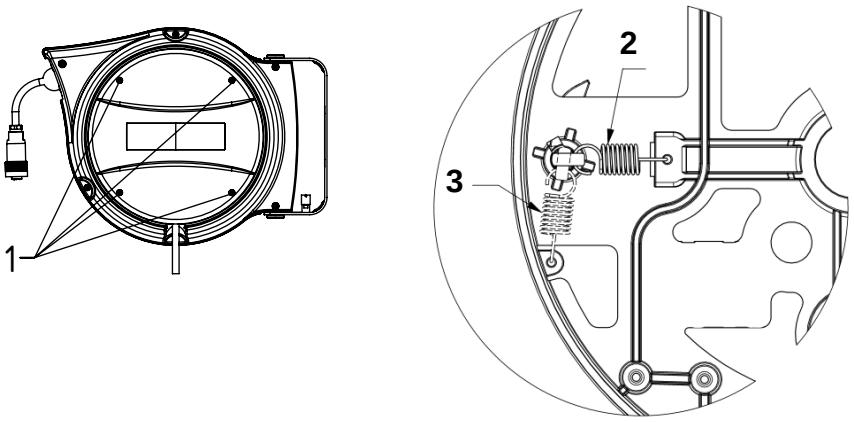

Fig. 8: Locking mechanism of the aluminum cable rewinder for type 601KR/DW and 601KR/EW

2 = enabled stop mechanism
3 = disabled stop mechanism

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3.2 Plastic cable rewinder

The cable rewinder made of weather-resistant plastic is designed for wall mounting. It can be installed in the explosion hazard zone.

The cable rewinder is attached to a wall, column or ceiling via the installation bracket as shown in Fig. 9. Roofing must be provided when installing the unit outside. Select a suitable installation height to make sure that the ground clamp is within easy reach and does not make contact with the floor.

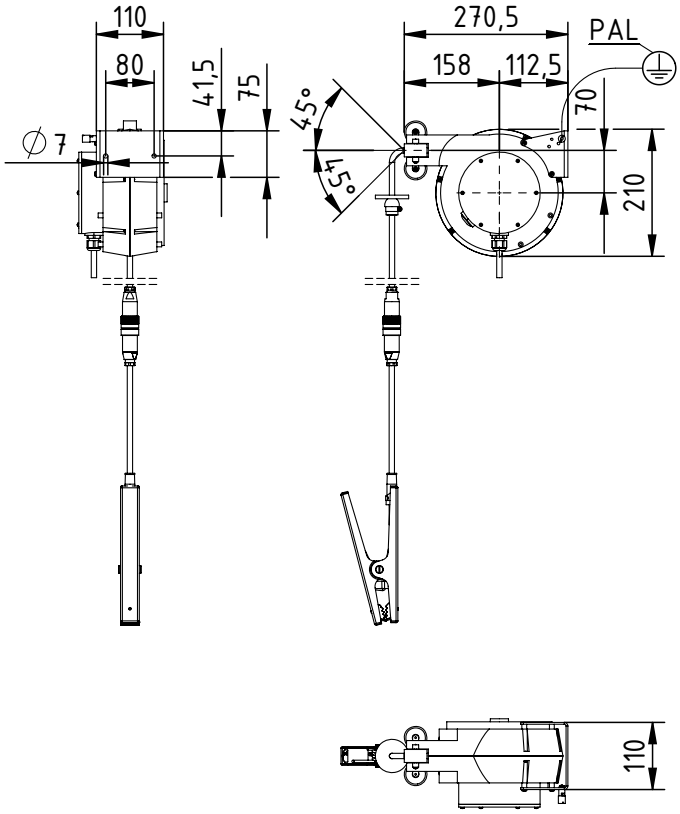


Fig. 9: Assembly of the plastic cable rewinder type 601KR/KW and 601KR/BW

3.3 Electrical connection of the ground clamps

When installing the systems in potentially explosive zones, every possible precaution must be taken to ensure that no explosive atmosphere prevails!

Active ground clamps

Notes for use in atmospheres with potential gas explosion hazard!
In areas in which gas can generate a potentially hazardous and explosive atmosphere, simple power equipment such as the Eltex ground clamps and cable rewinders can be connected to the measuring circuit of the ground monitoring devices. Simple power equipment must comply with the appropriate requirements of EN 60079-11, but no certification and marking is required. Under DIN EN 60079-14, temperature class T6 can be assigned to the ground clamps.

The active Eltex ground clamps are connected to the cable of the rewinder or to the cable of the ground monitoring system in use via a coupling connector (IP67).
All active grounding components have a light blue cable.
For the terminal assignment of the ground monitoring unit, please refer to the appropriate operating instructions.

Warning!
The maximum cable length in the intrinsically safe circuit must not exceed the maximum rated capacitance and inductance (see the operating instructions of the ground monitoring unit). The ground monitoring unit must always be connected to the equipotential bonding!

Passive ground clamps

The passive Eltex ground clamp 70SG is equipped either with a coupling connector for connection to the cable rewinder, or with a wire end ferrule for connecting the clamp directly to the equipotential bonding,
the cable is to be connected and strain reliefed by the user.

The clamp type 70PG is connected to the equipotential bonding with a cable lug, the cable is to be connected and strain reliefed by the user.

Type 70OK is supplied without connecting cable; the cable is to be connected to the clamp by the user.

Type 70OK/020 is provided with a 2 m connection cable.

Type 70PK is connected to the cable of the rewinder via a coupling connector (IP67).

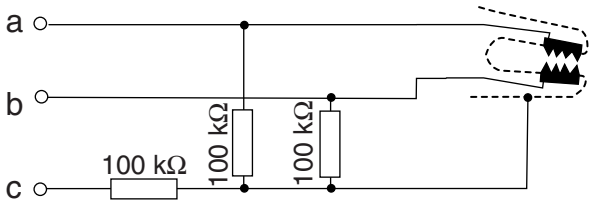
All passive grounding components have an orange cable.

3.4 Wiring diagram of the ground clamps

For the types 70AG, 70AK, 70BG, 70SG and 70PG the resistance circuitry is encapsulated in the clamp.

Active ground clamps

70AG / 70AK



a = blue
b = brown
c = green/yellow

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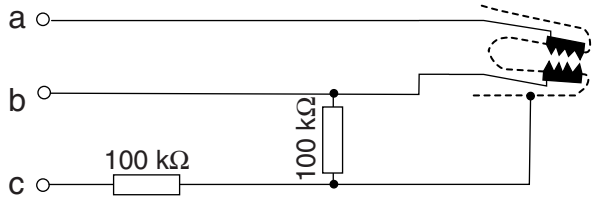
Fig. 10:
Type 70AG, 70AK, connecting cable 3 x 1.5 mm²

70BG



a = blue
b = brown
c = green/yellow

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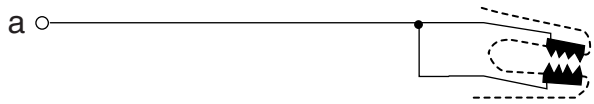
Fig. 11:
Type 70BG, connecting cable 3 x 1.5 mm²

70HK



a = blue

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Fig. 12:
Type 70HK connecting cable 3 x 1.5 mm²

Passive ground clamps

Fig. 13:
Type 70SG
connecting cable
3 x 1.5 mm²

70SG

c = brown + green/yellow

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Fig. 14:
Type 70PG
connecting cable
3 x 1.5 mm²

70PG

d = cable lug

Z00105y

Fig. 15:
Type 70OK
w/o connecting
cable

70OK

Z00104y

Fig. 16:
Type 70OK/020
with connecting
cable

70OK/020

Z00575y

Fig. 17:
Type 70PK
with connecting
cable

70PK

Z00104ay

3.5 Electrical connection of the cable rewinder

Active grounding

The cable rewinder in connection with the active ground clamps is connected to the Eltex ground monitoring system via the terminal box of the cable rewinder. The cable rewinder must be permanently connected to an equipotential bonding lead.
The ground clamps are connected via the existing coupling connector.

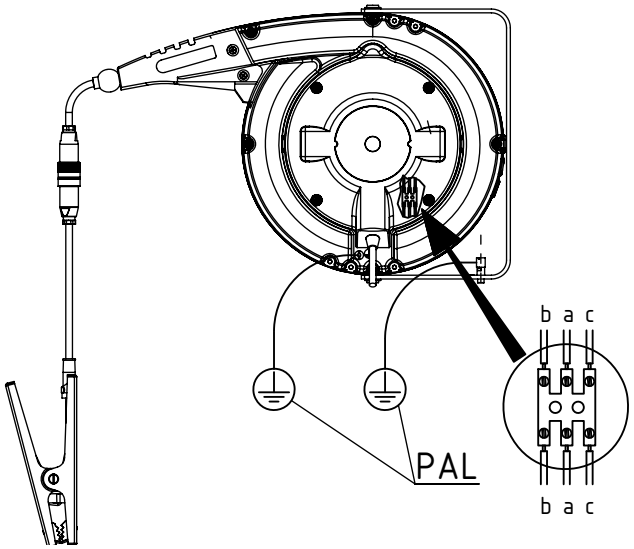

Fig. 18: Connecting the aluminum cable rewinder 601KR/AW

a = blue
b = brown
c = green/yellow

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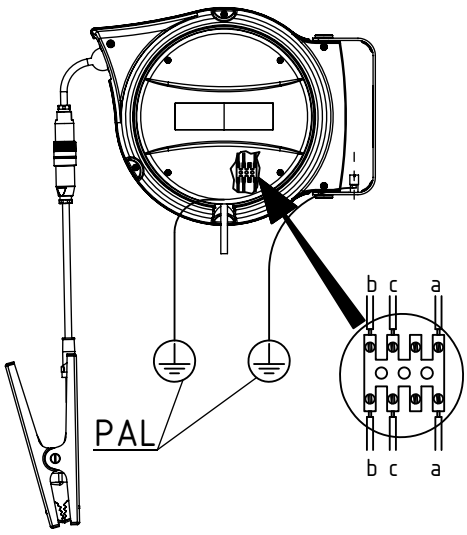

Fig. 19: Connecting the aluminum cable rewinder 601KR/DW

a = blue
b = brown
c = green/yellow

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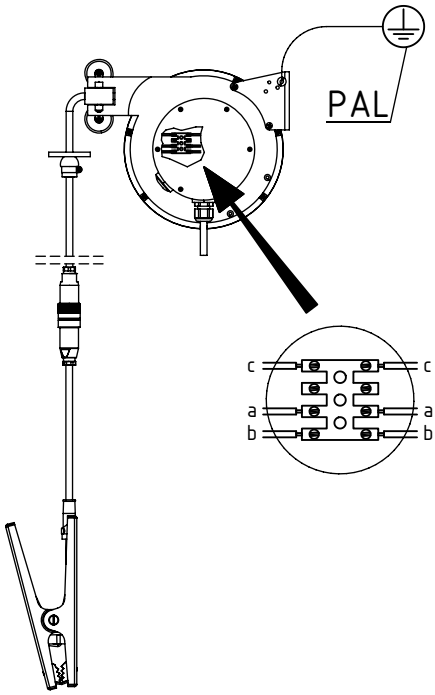


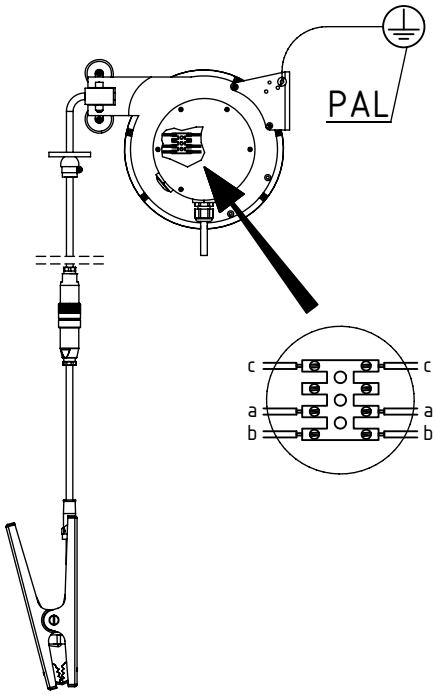
a = blue
b = brown
c = green/yellow

Fig. 20: Connecting the plastic cable rewinder 601KR/KW

Z-114868y_6

Passive grounding

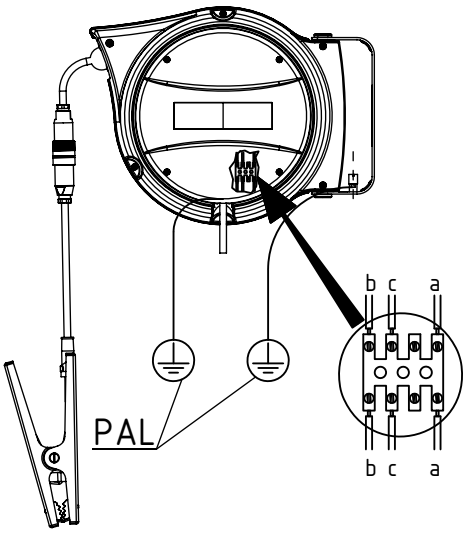
The cable rewinder in connection with the 70SG passive ground clamps is connected to the equipotential bonding via the terminal box of the cable rewinder. The cable rewinder must be permanently connected to the equipotential bonding via the three-wire connecting cable. All three wires must be connected to the equipotential bonding.



All three wires must be permanently connected to the PAL

Fig. 21: Connecting the plastic cable rewinder 601KR/BW

Z-114868y_6



All three wires must be permanently connected to the PAL

Fig. 22: Connecting the aluminum cable rewinder 601KR/EW

Z-114868y_5

3.6 Pin assignment of the coupling connector

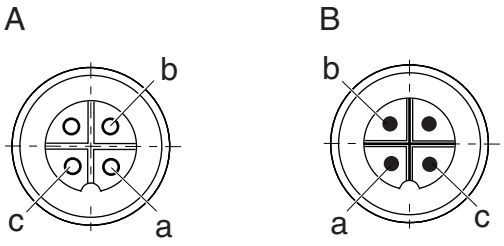


Fig. 23:
Pin assignment of the coupling connector

a = blue
b = brown
c = green/yellow

A = socket
B = plug

Z00108y

3.7 Cable specifications

- three-core 3 x 1.5 mm^2
- wire color blue, brown, green/yellow, light blue-sheathed for active grounding, orange-sheathed for passive grounding.
- oil and gasoline resistant

4. Operation

Electrical systems used in explosion hazard areas must at all times be in a technically faultless condition. Any defects must be repaired or remedied immediately.

Caution!
Observe the connection ratings (supply voltage) of the units.

4.1 Start-up

Active ground clamps

If all connections (supply voltage, ground clamp, etc.) have been made correctly, the system is operational and the supply voltage may be activated.
The units are operational now.

Passive ground clamps:

Once the clamps are properly connected to the equipotential bonding, they can be used for grounding.

5. Maintenance

When maintaining or servicing the systems in potentially explosive zones, every possible precaution must be taken to ensure that no explosive atmosphere prevails!

Warning!
Maintenance and repair work must be carried out only by qualified personnel trained in working in potentially explosive areas.

Cables and clamps must not be damaged. Damaged cables and clamps must be replaced with new parts.

Checking the resistance to earth

Active clamps:

To measure the earthing resistance between clamp jaw and ground (PAL) the supply voltage to the ground control unit must be disconnected.

When using 601KR/BW/TCO030 standard version with ground clamp 70AG or 70AK the resistance value is (denpending on the measuring voltage of the measuring device):

between ground and clamp jaw 1: 15 - 60 kOhm
between ground and clamp jaw 2: 14 kOhm, ±20%

When using 601KR/BW/TCO030 BIG-BAG version with ground clamp 70BG or 70HK the resistance value is:

between ground and connected clamp jaws: 14 kOhm, ±20%

Passive clamps:

Measurement of the earthing resistance between clamp jaw and ground (PAL):

ground clamp 70SG or 70PG:

earthing resistance: 235 kOhm, ±10%
clamping force: 140 N, ±20%

ground clamp 70OK or 70PK:

earthing resistance: 1 Ohm
clamping force: 100 N, ±10%

Ground clamps

To make sure that the proper ground connection exists with the equipotential bonding and that no malfunctions occur in active clamps, the ground clamp must be cleaned when dirty.

Store the ground clamp such that it cannot be damaged. Replace damaged cables and clamps with new parts. Whenever possible, the ground clamp should either be hung up freely or be clamped to a non-conductive object.

Cable rewinders

Perform regular checks to ensure that the cable and the insulation show no tears or abrasion that could impair the cable's insulation or functioning. Clean the cable with a cloth soaked in warm water to remove dirt or incrustations and ensure perfect unwinding.

Defective devices must be sent in for repair.

6. Warranty

The units are warranted for a period of 12 months provided that the operating conditions have been maintained, that the units have not been tampered with and that the units show no mechanical damage.

The warranty applies only if the operating and assembly instructions specified by Eltex have been observed. The warranty period begins on the date of delivery.

In the event of defects occurring during the warranty period, the units or defective components will be repaired at Eltex. Defective components will be replaced and installed free of charge.

If repairs are required at the customer's premises, the costs for sending a technician (travel, travel time, expenses) will be charged to the customer.

7. Technical specifications

The current approval with all supplements can be found on our servicesite at http://service.eltex.de.

7.1 Active Ground clamps

as shown on appliance marking:

Types 70AG, 70BG	
Clamp material	Stainless steel
Operating ambient temperature	–20...+70°C (–4...+158°F)
Ground cable	oil and gasoline resistant control lead, 3 x 1.5 mm^2, color: light blue temperature range –40...+90°C (–40...+194°F), connected 4-pin plug IP67
Dimensions	see Fig. 24
Weight	approx. 0.6 kg
Approval / Identification marking	ATEX: DMT 00 ATEX E 068 X
	Ex II 2D Ex ia IIIC T135°C Db, II 2G Ex ia IIC T6 Gb
	IECEx: BVS 16.0016X, NEPSI: GYJ14.1367X
	Ex ia IIIC T135°C Db, Ex ia IIC T6 Gb

as shown on appliance marking:

Types 70AK, 70HK	
Clamp material	70AK: Stainless steel 70HK: galvanized sheet steel, plastic covered
Operating ambient temperature	–20...+70°C (–4...+158°F)
Ground cable	oil and gasoline resistant control lead, 3 x 1.5 mm^2, color: light blue temperature range –40...+90°C (–40...+194°F), connected 4-pin plug IP67
Dimensions	see Fig. 27, Fig. 28
Weight	70AK: approx. 0.3 kg; 70HK: approx. 0.25 kg
Approval / Identification marking	ATEX: DMT 00 ATEX E 068 X
	Ex II 2D Ex ia IIIC T135°C Db, II 2G Ex ia IIC T6 Gb
	IECEx: BVS 16.0016X, NEPSI: GYJ14.1367X
	Ex ia IIIC T135°C Db, Ex ia IIC T6 Gb

7.2 Passive Ground clamps

Types 70SG, 70PG	
Clamp material	Stainless steel
Operating ambient temperature	–20...+70°C (–4...+158 °F)
Ground cable	oil and gasoline resistant control lead, H07BQ-F, conductor cross section 3 x 1.5 mm^2, acolor:orange temperature range –40...+90 °C (–40...+194°F), with fixed wire end ferrule for 70SG, with fixed cable lug for 70PG
Dimensions	see Fig. 25, Fig. 26
Weight	approx. 0.6 kg
Clamping width	35 mm
Clamping force	140 N ±20%
Earth leakage resistance	235 kOhm ±10%
Max discharge voltage	120 V
Chemical resistance	oil and gasoline
Approval	ZELM 04ATEX 0229 X
Identification marking	⟨Ex⟩ II 1G IIB T6, II 2G IIC T6, II 1D T80°C

Type 70OK	
Clamp material	Stainless steel
Operating ambient temperature	–20...+70°C (–4...+158°F)
Ground cable	without cable min. conductor cross section 4 mm^2; max. 10 mm^2
Tightening torque	terminal screw for the cable lug: 9 Nm
Dimensions	see Fig. 29
Weight	approx. 0.22 kg
Clamping width	35 mm
Clamping force	100 N ±20%
Earth leakage resistance	<1 Ohm
Chemical resistance	oil and gasoline
Approval	ZELM 04 ATEX 0229 X
Identification marking	⟨Ex⟩ II 1G IIB T6, II 2G IIC T6, II 1D T80°C

Typ 70PK	
Clamp material	Stainless steel
Operating ambient temperature	–20…+70°C (–4…+158°F)
Ground cable	oil and gasoline resistant control lead, 3 x 1.5 mm^2, color: orange temperature range –40... +90°C (–40...+194°F), connected 4-pin plug IP67
Dimensions	see Fig. 31
Weight	approx. 0.29 kg
Clamping width	35 mm
Clamping forth	100 N ±20%
Earth leakage resistance	< 1 Ohm
Approval	ZELM 04 ATEX 0229 X
Identification marking	Ex II 1G IIB T6 Ga, II 2G IIC T6 Gb, II 1D T80°C Da

7.3 Cable rewinder for active grounding

as shown on appliance marking:

Type 601KR/AW	
Enclosure	ribbed and reinforced aluminum, protected cable inlet aperture with stopper
Rewind mechanism	automatic, special spring, on-off function
Protection class	IP43, EN 60529
Operating ambient temperature	–40...+70 °C (–40...+158 °F)
Attachment	wall assembly via assembly bracket
Ground cable	20 m oil and gasoline resistant control lead, 3 x 1.5 mm^2, color: light blue temperature range –40...+90 °C (–40...+194 °F), connected 4-pin socket IP67
Connecting lead	2.5 m, connecting cable 3 x 1.5 mm^2
Dimensions	see Fig. 33
Weight	approx. 14 kg with 20 m ground cable
Inductance	approx. 0.1 mH
Capacitance	approx. 2.3 nF
Approval / Identification marking	ATEX: DMT 00 ATEX E 068 X Ⓔx II 2D Ex ia IIIC T135°C Db, II 2G Ex ia IIC T6 Gb IECEx: BVS 16.0016, NEPSI: GYJ14.1367X (-20°C/-4°F) Ex ia IIIC T135°C Db, Ex ia IIC T6 Gb

as shown on applicance marking:

Typ 601KR/DW	
Enclosure	Aluminium with rollers and stopper
Rewind mechanism	automatic, stop mechanism with on/off function
Protection class	IP42 according to EN 60529
Operating ambient temperature	–40...+70°C (–40...+158°F)
Attachment	wall assembly via assembly bracket
Ground cable	12 m oil and gasoline resistant control lead 3 x 1.5 mm^2, color: light blue temperature range –40...+90°C (–40...+194°F), connected 4-pin socket IP67
Connecting lead	2.5 Meter, connecting cable 3 x 1.5 mm^2, color: light blue
Dimensions	see Fig. 34
Weight	approx. 5.7 kg with 12 m ground cable
Inductance	approx. 0,07 mH
Capacitance	approx. 1.6 nF
Aproval / Identification marking	ATEX: DMT 00 ATEX E 068 X Ⓔx II 2D Ex ia IIIC T135°C Db, II 2G Ex ia IIC T6 Gb IECEx: BVS 16.0016X Ex ia IIIC T135°C Db, Ex ia IIC T6 Gb

as shown on appliance marking:

Type 601KR/KW	
Enclosure	plastic, cable inlet aperture with rollers
Protection class	IP42 according to EN 60529
Operating ambient temperature	–20...+70°C (–4...+158°F)
Attachment	wall assembly via metal assembly plate
Ground cable	9 m oil and gasoline resistant control lead, 3 x 1.5 mm^2, color: light blue temperature range –40...+90°C (–40...+194°F), connected 4-pin socket IP67
Connecting lead	2.5 m, connecting cable 3 x 1.5 mm^2, color: light blue
Dimensions	see Fig. 35
Weight	approx. 4 kg with 9 m ground cable
Inductance	approx. 0.05 mH
Capacitance	approx. 1.20 nF
Approval /	DMT 00 ATEX E 068 X
Identification marking	ATEX: DMT 00 ATEX E 068 X Ex II 2D Ex ia IIIC T135°C Db, II 2G Ex ia IIC T6 Gb IECEx: BVS 16.0016X, NEPSI: GYJ14.1367X Ex ia IIIC T135°C Db, Ex ia IIC T6 Gb

7.4 Cable rewinder for passive grounding

Typ 601KR/EW	
Enclosure	Aluminium with rollers and stopper
Rewind mechanism	automatic, stop mechanism with on/off function
Protection class	IP42 according to EN 60529
Operating ambient temperature	–40...+70°C (–40...+158°F)
Attachment	wall assembly via assembly bracket
Ground cable	12 m oil and gasoline resistant control lead 3 x 1.5 mm^2, color: orange temperature range –40...+90°C (–40...+194°F), connected 4-pin socket IP67
Connecting lead	2.5 Meter, connecting cable 3 x 1.5 mm^2, color: orange
Dimensions	see Fig. 34
Weight	approx. 5.7 kg with 12 m ground cable
Inductance	approx. 0,07 mH
Capacitance	approx. 1.6 nF
Aproval / Identification marking	PTB: 05ATEXD121-1 ⟨Ex⟩ II 2D c T80°C, II 2G c T6

Type 601KR/BW	
Enclosure	plastic, cable inlet aperture with rollers
Protection class	IP42, EN 60529
Operating ambient temperature	–20...+70°C (–4...+158°F)
Attachment	wall assembly via metal assembly plate
Ground cable	9 m oil and gasoline resistant control lead, 3 x 1.5 mm^2, color: orange temperature range –40...+90°C (–40...+194°F), connected 4-pin socket IP67
Connecting lead	2.5 m, connecting cable 3 x 1.5 mm^2, color: orange
Dimensions	see Fig. 35
Weight	approx. 4 kg with 9 m ground cable
Inductance	approx. 0.05 mH
Capacitance	approx. 1.20 nF
Approval / Identification marking	PTB: 05ATEXD121-1 ⟨Ex⟩ II 2D c T80°C, II 2G c T6

8. Dimensions

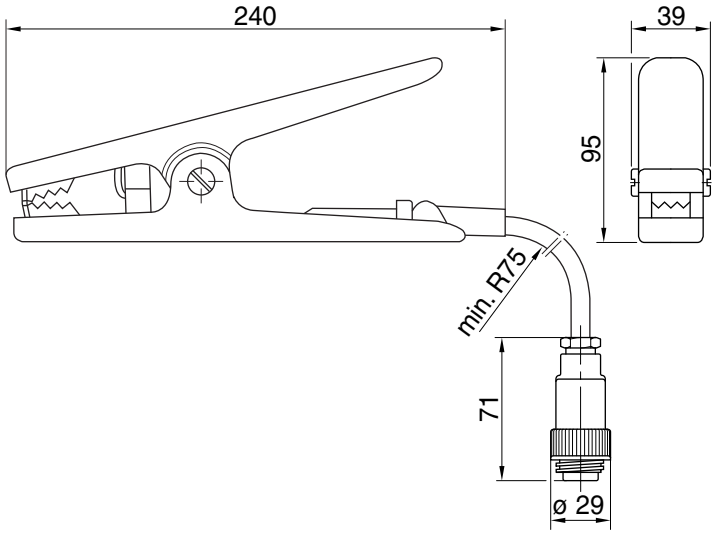


Fig. 24:
Types 70AG, 70BG, 70SG with coupling connector; maximum clamp opening 35 mm

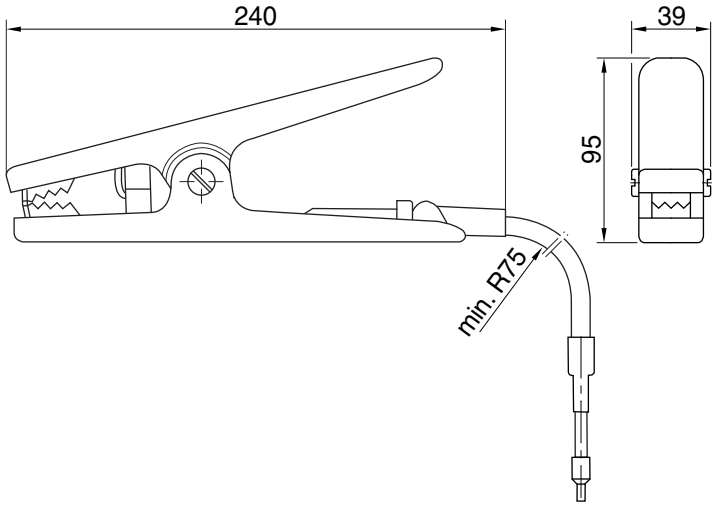


Fig. 25:
Type 70SG with wire end ferrule; maximum clamp opening 35 mm

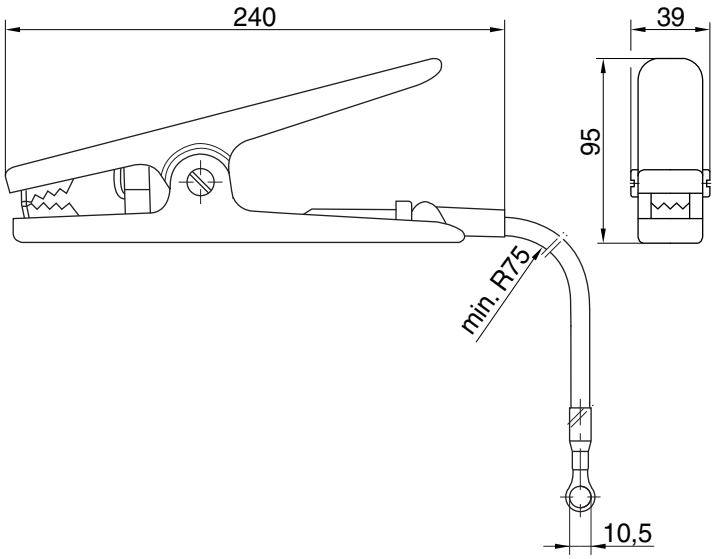


Fig. 26:
Type 70PG;
maximum clamp opening 35 mm

Z00112y

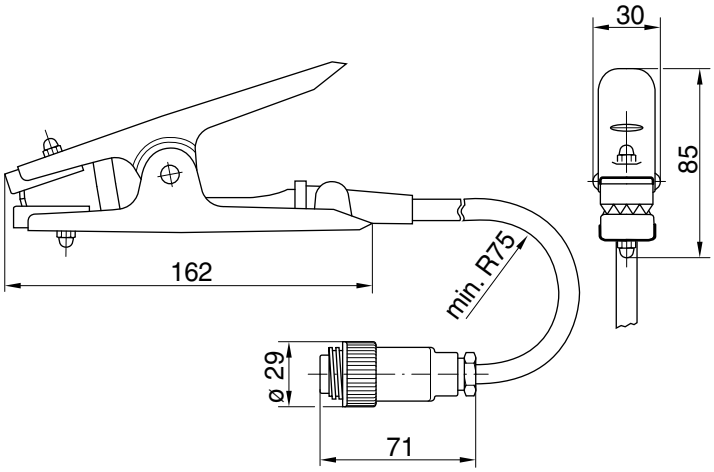


Fig. 27:
Type 70AK;
maximum clamp opening 35 mm

Z00113y

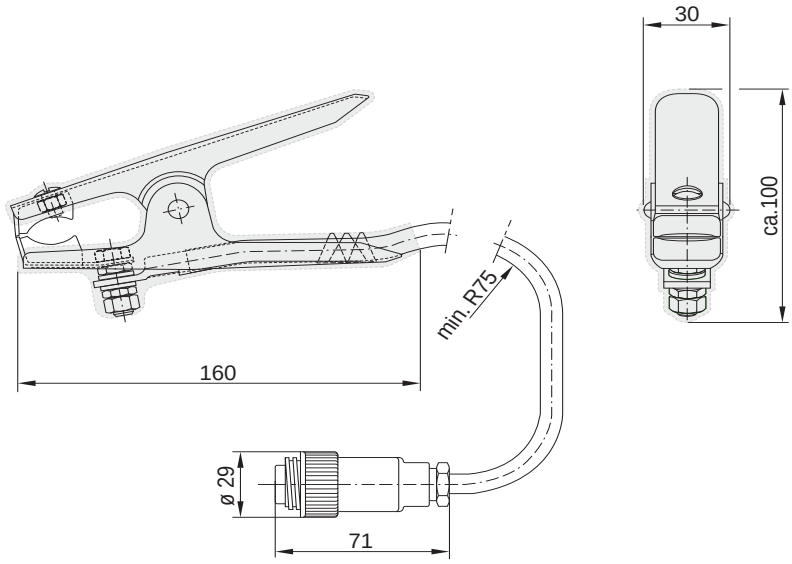


Fig. 28:
Type 70HK;
maximum clamp opening 35 mm

Z00205y

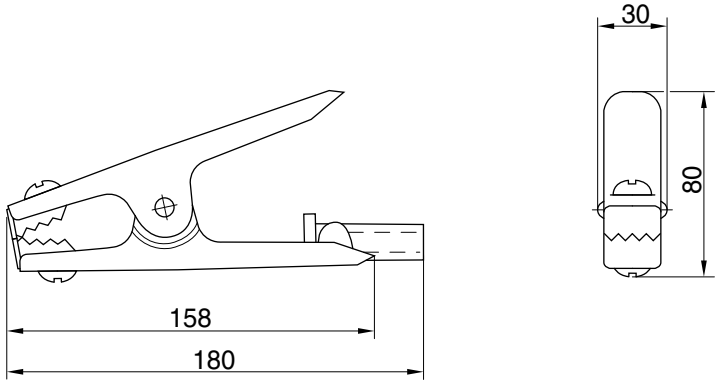


Fig. 29:
Type 70OK;
maximum clamp opening 35 mm

Z00115y

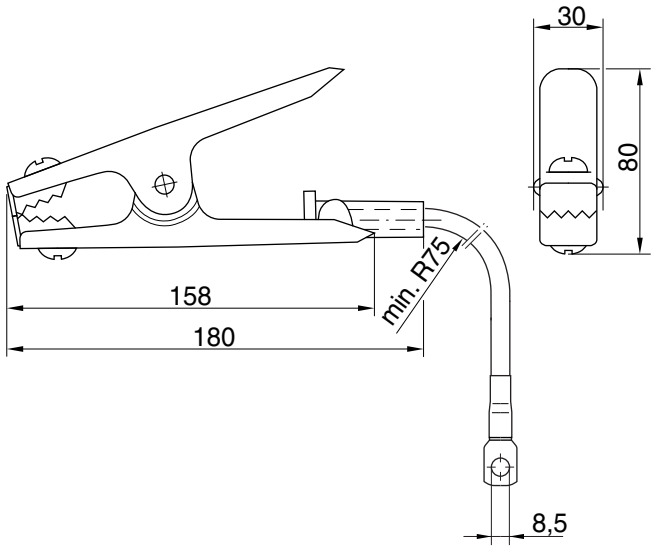


Fig. 30:
Type 70OK/020;
maximum clamp opening 35 mm

Z00576y

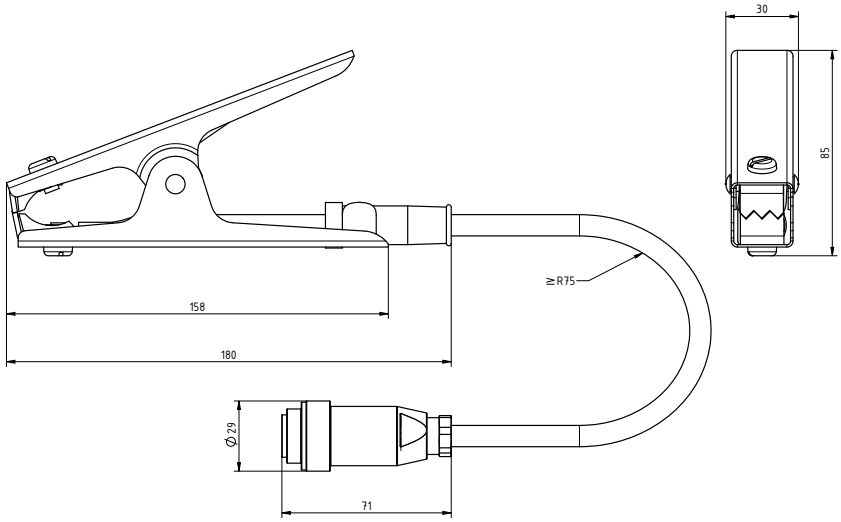


Fig. 31:
Type 70PK;
maximum clamp
opening 35 mm

Z-114761y

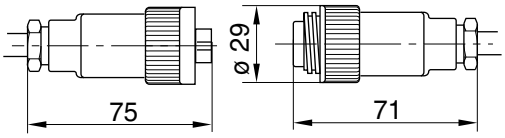
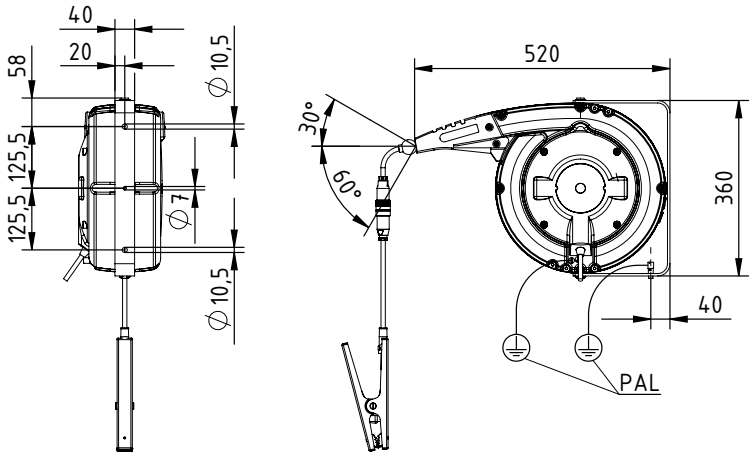


Fig. 32:
Coupling
connector

Z00116y



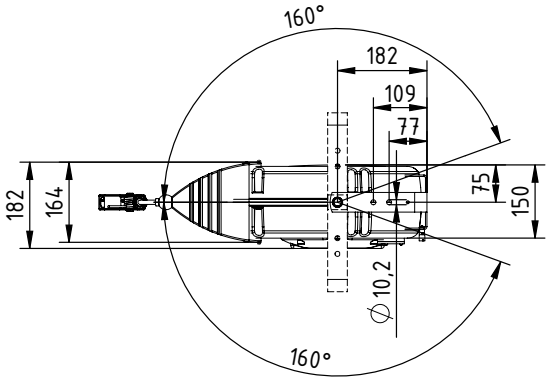


Fig. 33:
Aluminum
cable rewinder
type 601KR/AW

Z-114868y_1

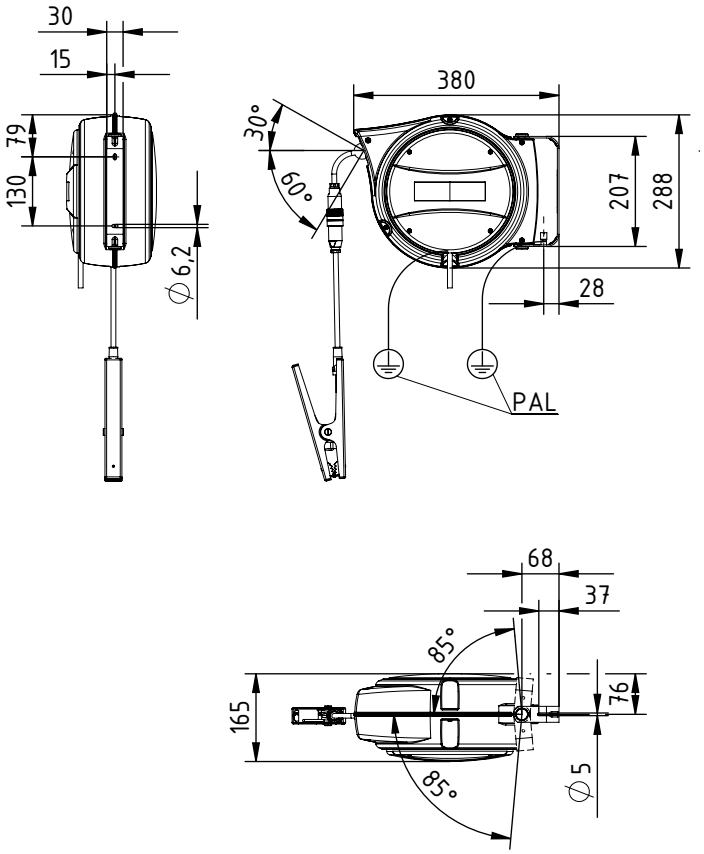


Fig. 34:
Aluminum
cable rewinder
type 601KR/DW
type 601KR/EW

Z-114868y_2

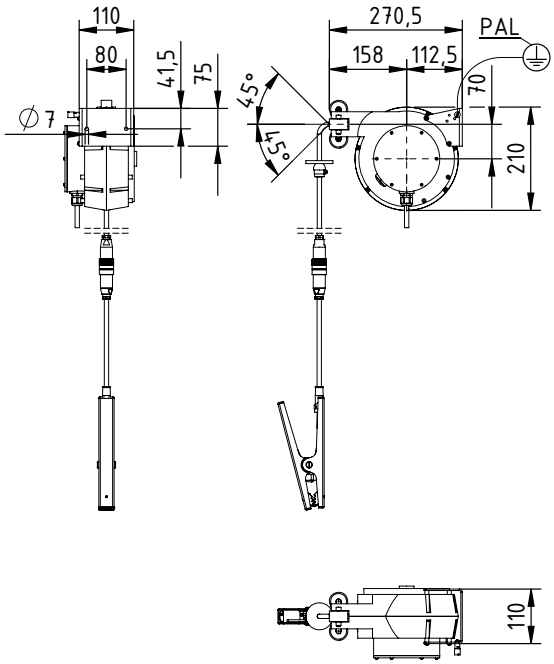


Fig. 35:
Plastic
cable rewinder
type 601KR/KW
type 601KR/BW

Z-114868y_3

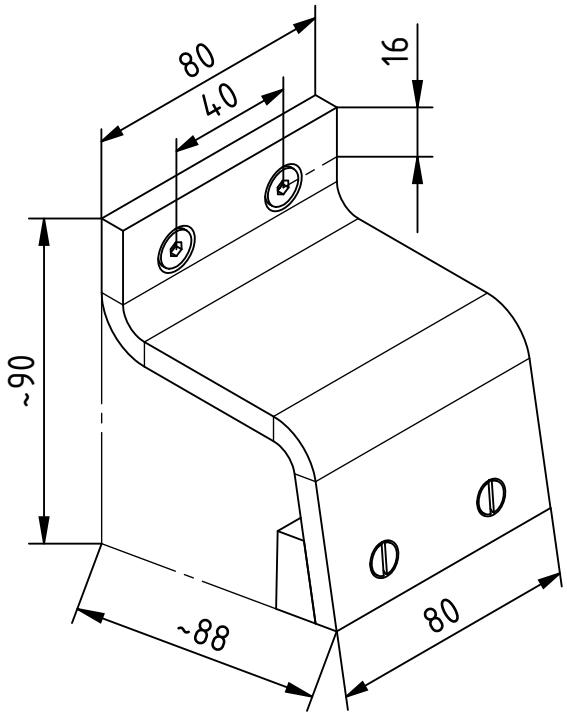


Fig. 36:
Clamp holder

Z-113113_2y

9. Spare parts and accessories

Article	Article No.
Active grounding	
Cable rewinder, aluminum, for active grounding, 2.5 meters connecting cable and 20 meters ground cable with coupling IP67 for connecting ground clamps with plug	601KR/AW
Cable rewinder, aluminum, for active grounding, 2.5 meters connecting cable and 12 meters ground cable with coupling IP67 for connecting ground clamps with plug	601KR/DW
Cable rewinder, plastic, for active grounding, 2.5 meters connecting cable and 9 meters ground cable with coupling IP67 for connecting ground clamps with plug	601KR/KW
Active ground clamp, large, with plug IP67 and 300 mm ± 50mm connecting lead or without plug and cable length as specified (3, 6, 9, 12, 15 or 18 m)	70AG
Active ground clamp, large, for Big Bag grounding with plug IP67 and 300 mm ± 50mm connecting lead or without plug and cable length as specified (3, 6, 9, 12, 15 or 18 m)	70BG
Active ground clamp, small, with plug IP67 and 300 mm ± 50mm connecting lead or without plug and cable length as specified (3, 6, 9, 12, 15 or 18 m)	70AK
Active ground clamp, small, for Big Bag grounding with plug IP67 and 300 mm ± 50mm connecting lead or without plug and cable length as specified (3, 6, 9, 12, 15 or 18 m)	70HK
Active helix ground cable, 3-pin with coupling IP67 for connecting ground clamps with plug, cable color: light blue, extensible 1 to 5 m	KG/BSA050
Active ground cable, 3-pin with coupling IP67 for connecting ground clamps with plug and wire end ferrule, cable color: light blue; 5, 10 or 15 m (specify cable length)	KG/BNA___
Active ground cable, 3-pin with coupling IP67 for connecting ground clamps with plug and socket, cable color: light blue, 5, 10 or 15 m (specify cable length)	KG/BNB___

Article	Article No.
Passive grounding	
Cable rewinder, plastic, for passive grounding, 2.5 meters connecting cable and 12 meters ground cable with coupling IP67 for connecting ground clamps with plug	601KR/EW
Cable rewinder, plastic, for passive grounding, 2.5 meters connecting cable and 9 meters ground cable with coupling IP67 for connecting ground clamps with plug	601KR/BW
Passive ground clamp, large, with plug IP67 and 300 mm ± 50mm connecting lead or without plug and cable length as specified (3, 6, 9, 12, 15 or 18 m)	70SG
Passive ground clamp, large, with cable lug connection, cable length as specified (3, 6, 9, 12, 15 or 18 m)	70PG
Passive ground clamp, small, without connecting cable	70OK
Passive ground clamp, small, with mit 300 mm ± 50mm connecting lead and plug	70PK
Passive helix ground cable, 3-pin with coupling IP67 for connecting ground clamps with plug and wire end sleeve, cable color: orange, extensible 1 to 5 m	KG/GSA050
Passive ground cable, 3-pin with coupling IP67 for connecting ground clamps with plug and wire end sleeve, cable color: orange, 5, 10 or 15 m (specify cable length)	KG/GNA___
Passive ground cable, 3-pin with coupling IP67 for connecting ground clamps with plug and socket, cable color: orange, 5, 10 or 15 m (specify cable length)	KG/GNB___
Accessories	
Clamp holder	113112
3-pin ground cable for active grounding (specify length)	LEI00009
3-pin ground cable for passive grounding (specify length)	LEI00297
Coupling socket, 4-pin, IP67	ELM00714
Coupling plug, 4-pin, IP67	ELM00713
Ring tongue for 70PG	ELM00099
Ring tongue for 70PK	110460
Transparent wire for 70OK (specify length)	LEI00281
Cable socket for 70OK	101067
Operating Instructions (specify language)	BA-xx-4007

Please specify the article number when ordering.

A. Annex

A.1 Grounding with ground monitoring unit (active grounding)

Gas explosion hazard zone (Zone 1 and 2):

The Eltex ground clamps Type 70__ and cable rewinders Type 601KR/_W are passive components defined under DIN EN 60079-11 as simple electrical apparatus. These must comply with all applicable requirements of this norm, without the need to be certified, however.
In compliance with EC-Type Examination Certificate PTB99ATEX2188X 1st supplement (TCO/TCA) and PTB00ATEX2174X 2nd supplement (TCB), the clamps and cable rewinders may be used in the gas explosion hazard zone with the following intrinsically safe ground monitoring units:

- Terracompact II Type TCO030S and TCO030B,
- Terracard II Type TCA030S and TCA030B,
- Terrabox Type TCB030/___.

Dust explosion hazard zone (Zone 21 and 22):

In the dust explosion hazard zone, only equipment marked “D” may be connected to the Eltex ground monitoring systems units.
The following Eltex clamps and cable rewinders have been specially tested for the dust explosion hazard zone and carry the EC-Type Examination Certificate DMT00ATEXE068X:

- Clamp Type 70AG, 70AK, 70BG, 70HK,
- Cable rewinders Type 601KR/AW, 601KR/DW, 601KR/KW.

The maximum connectable total cable length to the grounding system TUE30 is 200 m.

A.2 Grounding without ground monitoring unit (passive grounding)

Ground clamps (Zone 0, 1, 2, 20, 21, 22):

The Eltex ground clamps Type 70OK, 70PK, 70SG, 70PG are approved in compliance with EC-Type Examination Certificate ZELM04ATEX0229X.

Cable rewinders (Zone 1, 2, 21, 22):

The Eltex cable rewinders Type 601KR/CW, 601KR/EW and 601KR/BW may be classified as non-electrical devices in compliance with RL 94/9/EC and are therefore not subject to certification by a notified body. Instead, they can be internally certified under the conformity evaluation procedure. This is done by Eltex, and Eltex confirm with the declaration of conformity that the units comply with the appropriate directives, norms and standards. The technical documentation must be deposited with a notified body, but it does not need to be tested and reviewed by that body. Eltex has deposited the data with the PTB under number 05ATEXD121-1.

A.3 Overview

Approval No.	Units	File name
PTB99ATEX2188X	Terracompact II Type TCO030S, TCO030B Terracompact II Type TCA030S, TCA030B	TCAII+TCOII-ATEX-en.pdf
PTB00ATEX2174X	Terrabox Type TCB030/___	TCB-ATEX-en.pdf
DMT00ATEXE068X	Clamp Type 70AG, 70AK, 70BG, 70HK Cable rewinders Type 601KR/AW, 601KR/DW, 601KR/KW	601KR+Zangen-aktiv-ATEX-en.pdf
ZELM04ATEX0229X	Clamp Type 70OK, 70PK, 70SG, 70PG	70-Zangen-passiv-ATEX-en.pdf
PTB 05ATEXD121-1	Cable rewinders Type 601KR/BW, 601KR/CW, 601KR/EW	601KR-passiv-Selbst-bescheinigung.pdf
NEPSI GYJ14.1366X NEPSI GYJ14.1367X	Terrabox Typ TCB030/___ Clamps Typ 70AG, 70AK, 70BG, 70HK Cable rewinders Typ 601KR/AW, 601KR/KW	TCB030-Nepsi-en.pdf 601KR+Zangen-aktiv-Nepsi-en.pdf
IECEx BVS 16.0016X	Clamps 70** Cable rewinders 601KR/*W	IECEx_BVS_160016x.pdf

The current approval with all supplements can be found on our servicesite at http://service.eltex.de.

EU-Declaration of Conformity

C-4007-en-1708_aktiv

CE

Eltex-Elektrostatik-Gesellschaft mbH
Blauenstraße 67 - 69
D-79576 Weil am Rhein

declares in its sole responsibility that the product

Ground clamp type 70AG, 70HK, 70AK, 70BG, 70CG, 70CK and Cable rewinder type 601KR/AW; 601KR/DW; 601KR/KW

Identification:	Ⓔx II 2D Ex ia IIIC T135°C Db resp. II 2G Ex ia IIC T6 Gb
Certification-no.:	DMT 00 ATEX E 068 X, latest supplement no. 5 issud 9th December 2015
Notified body:	Baseefa 1180 Buxton UK, No. Baseefa ATEX 0350

complies with the following directives and standards.

Relevant EU-Directive:

2014/34/EU	Directive: Equipment or Protective System intended for use in potentially explosive Atmospheres

Harmonized standards applied:

EN 60079-0:2012 + A11:2013	Explosive atmospheres – Equipment – General requirements
EN 60079-1:2012	Explosive atmospheres – Equipment protection by intrinsic safety "i"

Relevant EU-Directive:

2011/65/EU	RoHS Directive

in the version effective at the time of delivery.

Eltex-Elektrostatik-Gesellschaft mbH keep the following documents for inspection:

- proper operating instructions
- plans
- other technical documentation

Weil am Rhein, 30.08.2017
Place/Date

Lukas Hahne, Managing Director

EU-Declaration of Conformity

C-4007-en-1708_pasZ

CE

Eltex-Elektrostatik-Gesellschaft mbH
Blauenstraße 67 - 69
D-79576 Weil am Rhein

declares in its sole responsibility that the product

Ground clamp type 70OK, 70PK, 70PG, 70SG

Identification:	Ⓔx II 1G IIB T6 Ga resp. II 2G IIC T6 Gb resp. II 1D T80°C Da
Certification-no.:	ZELM 04 ATEX 0229 X, latest supplement no. 3 issud September 17, 2015
Notified body:	Baseefa 1180 Buxton UK, No. Baseefa ATEX 0350

complies with the following directives and standards.

Relevant EU-Directive:

2014/34/EU	Directive: Equipment or Protective System intended for use in potentially explosive Atmospheres

Harmonized standards applied:

EN 60079-0:2012 + A11:2013	Explosive atmospheres – Equipment – General requirements
EN 13463-1:2009	Non-electrical equipment for potentially explosive atmospheres – Basic method and requirements

Relevant EU-Directive:

2011/65/EU	RoHS Directive

in the version effective at the time of delivery.

Eltex-Elektrostatik-Gesellschaft mbH keep the following documents for inspection:

- proper operating instructions
- plans
- other technical documentation

Weil am Rhein, 30.08.2017
Place/Date

Lukas Hahne, Managing Director

EU-Declaration of Conformity

C-4007-en-1708_pasR

CE

Eltex-Elektrostatik-Gesellschaft mbH
Blauenstraße 67 - 69
D-79576 Weil am Rhein

declares in its sole responsibility that the product

Cable rewinder type 601KR/BW, 601KR/CW, 601KR/EW

Identification: ⟨Ex⟩ II 2D c T80°C, ⟨Ex⟩ II 2G c T6
Registration-no.: PTB 05 ATEX D121-1

complies with the following directives and standards.

Relevant EU-Directive:

2014/34/EU	Directive: Equipment or Protective System intended for use in potentially explosive Atmospheres

Harmonized standards applied:

EN 13463-1:2009	Non-electrical equipment for potentially explosive atmospheres – Basic method and requirements
EN 13463-5:2011	Non-electrical equipment for potentially explosive atmospheres – Protection by constructional safety "c"

Relevant EU-Directive:

2011/65/EU	RoHS Directive

in the version effective at the time of delivery.

Eltex-Elektrostatik-Gesellschaft mbH keep the following documents for inspection:

- proper operating instructions
- plans
- other technical documentation

Weil am Rhein, 30.08.2017
Place/Date

Lukas Hahne, Managing Director

Eltex offices and agencies

The addresses of all Eltex agencies can be found on our website at www.eltex.com

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