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Heating circuits

Type: QC-...-...-.../....

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1 Safety information

Heating circuits are allowed only for permitted applications.

Ex-protection is only guaranteed in original condition.

Electrical heating circuits are only allowed to be used and operated if undamaged.

Ex protection is NOT or even no more granted under following circumstances:

- Damaged or carved insulation layers of supply or heating cable.
- Power supply or end termination is carved or cracked.
- If the termination kit is mechanically damaged.
- If the monitoring device is damaged.
- If the „hot-spot“ has not been conducted as shown in this manual.

2 Technical data

Approval: EPS 10 ATEX 1304 X

Marking:  II 2 GD Ex eb II C T6 bis T1

Rated Voltage: max. 1000 V (after concerned heating cable approval)

Rated Current: max. 200 A (after concerned heating cable approval)

Ambient temperatures:

Max. -60°C to +260 °C Single core plastic heating cables (ISK)

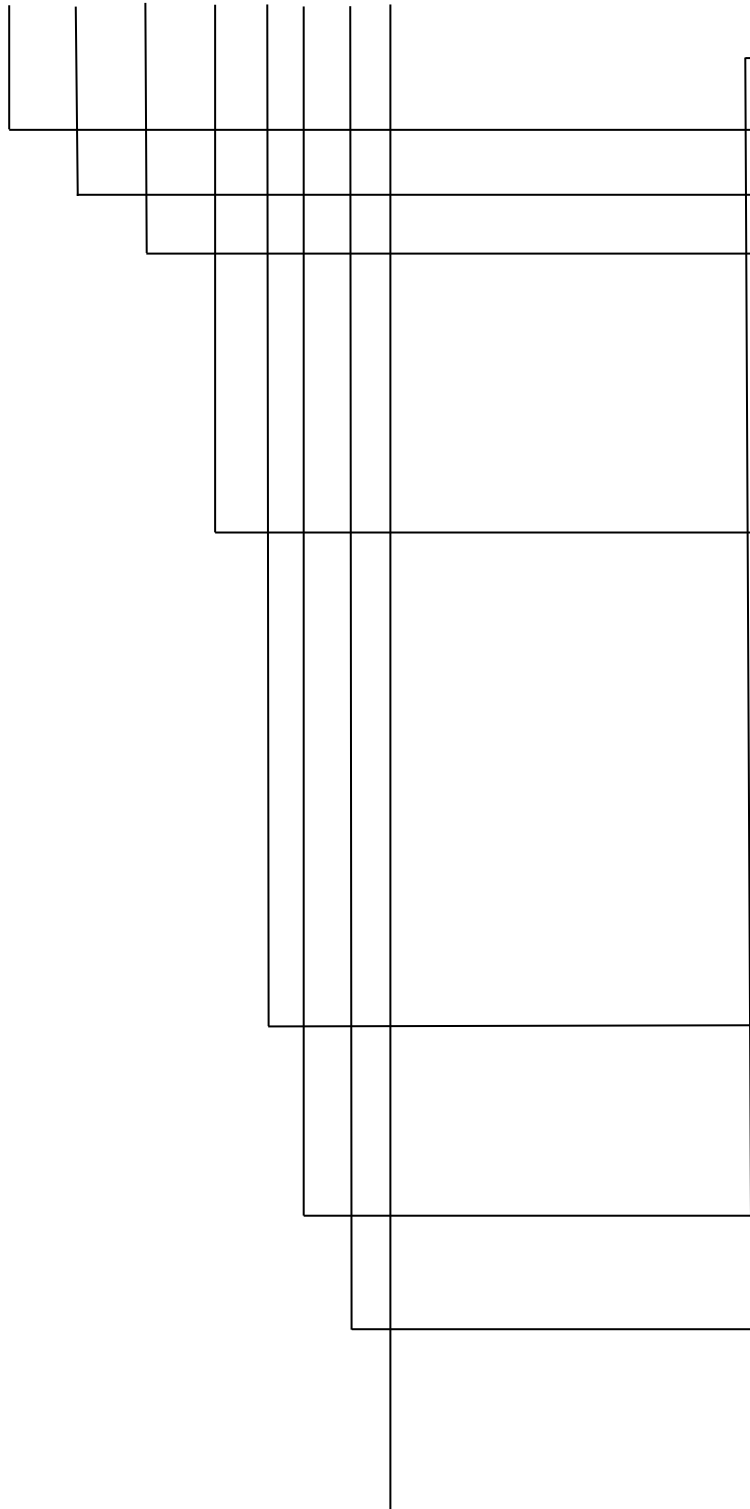
Max. -60°C to +800°C Mineral insulated heating cables (ISM)

Circuit length: max. 1500 m

For minimum and maximum temperature values, the lowest value of all components of the certificates must be used for the label.

3 Type code

QX – SH - ___ / ___ - - - - -



Quintex monitored construction

Serial heating circuit

Type heating cable

K4 = Single-core plastic 4J

K7 = Single-core plastic 7J

MC = Mineral insulated
with CuNi-sheath

MS = Mineral insulated
with VA-sheath

Resistance of heating cable, e.g.

2-place:

010 = 10 Ohm/km

4R4 = 4,4 Ohm/km

3-place:

280 = 280 Ohm/km

600 = 600 Ohm/km

4-place:

1K6 = 1.600 Ohm/km

6K3 = 6.300 Ohm/km

5-place:

10K = 10.000 Ohm/km

Type connection sleeve

A = IAK1EG1 Quintex

B = IAK1EG2 Quintex

C = IAK2EG1

D = IAK2EG2

E = IAK8EK

Z = different brand

Type cold end

1 = 2,5mm²

2 = 4,0mm²

3 = 6,0mm²

Type temperature limiter

02 = 0°C...+200°C

11 = +130°C...+190°C

53 = +50°C...+300°C

25 = +20°C...+500°C

00 = anderer Bereich

Type supply voltage

1 = 1-phase 230 V

2 = 2-phase 400 V

S = 3-phase star

D = 3-phase delta

4 Application

Heating circuit type Qx-SH is used for electric trace heating on pipes, tanks, enclosures, electrical motors etc. to realize frost protection for sensible products and equipment and to maintain specific temperatures of these products or for anti-condensate heating.

Compliance of temperature class is ensured by the temperature-limiter device. The heating circuit Qx-SH is factory assembled or even can be assembled on site. werden.

5 Advices for installation and operation:

The installation and operating instructions of the manufacturer of the heating cable, connection kits as well as the monitoring device must be observed!

6 Special conditions

The construction and assembly of data acquisition for the monitoring device must be manufactured according to the operating instructions.

In order to achieve a sufficient security for the data acquisition a “hot spot” must be created according to drawing (picture 1). The data acquisition must be connected to this “hot spot” by using a temperature sensor.

The cable and the limiter sensor is coupled with a highly conductive heat-resistant foil. (e.g. ALK 150)

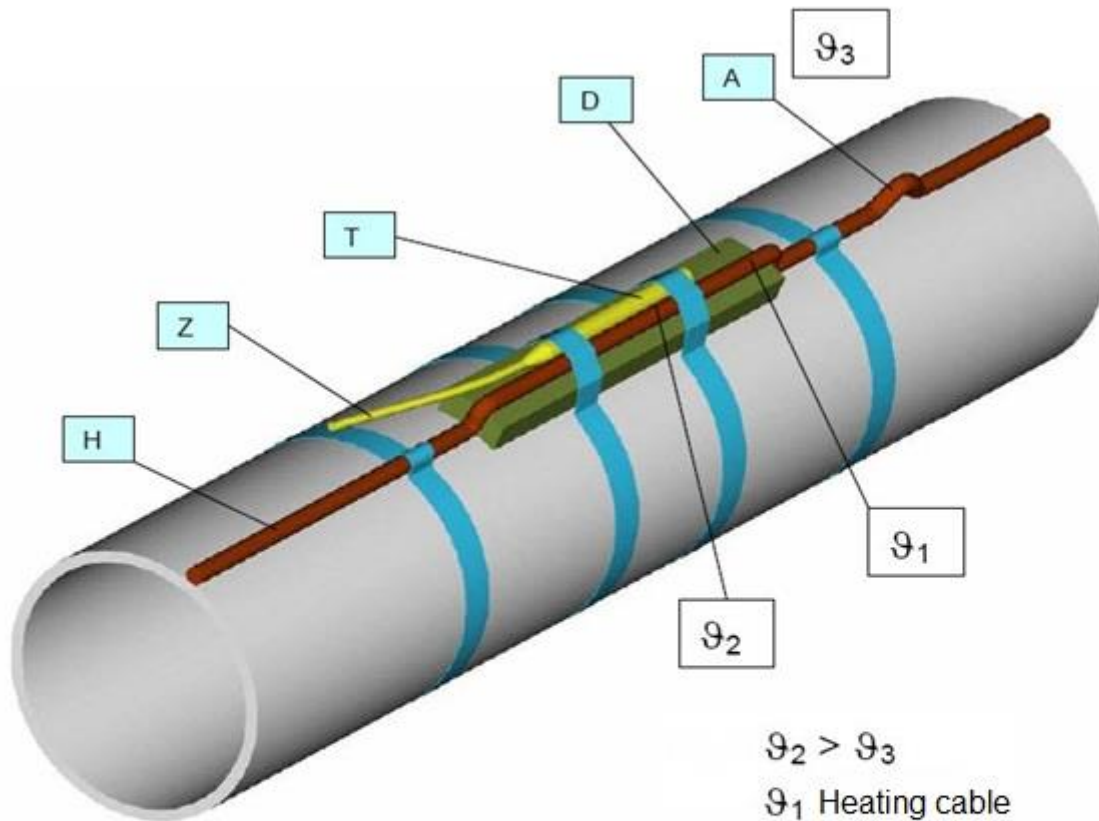
To ensure that the temperature which is located at the hot spot is definitely higher than the heating cable in locations with poor thermal coupling, this hot spot must be at least three times the length of the sensor "T".(see testing protocol).

The construction of the hot spot has to be documented (possibly also with photo) and add to the heating circuit documentation and also to the explosion protection document.

The label of the heating circuit must be carried out according to the type code and install an appropriate place. The monitoring device (temperature limiter) is set at temperature class T6, T5 to -5K or less according to the EN 60079 specified temperature limit. For the temperature class T3, a distance of at least 10K to limit temperature must be maintained.

The manufacturer and type as well as the set point of the monitoring device used must be documented in the testing protocol of the heating circuit. The Quintex GmbH creates a serial number for each circuit that is included on the label.

Picture 1:



- H Heating cable
- T Temperature sensor
- Z Supply cable for temperature sensor
- A Location with poor thermal coupling
- D Thermal insulation between heating cable and surface to be heated

7 Operation and maintenance

The operators of electrical installations in hazardous environment has to maintain the equipment in proper condition, to operate properly, to monitor and perform maintenance and repair work (see EN 60079-17).

Servicing and maintenance work on this equipment must only be performed by trained specialist staff. During maintenance and / or repair the specified safety regulations must be strictly adhered. For maintenance and repair only original parts from the manufacturer are allowed to use.

Changes to the heating circuit and particular heating cable cut down / connections must be verified by Quintex.

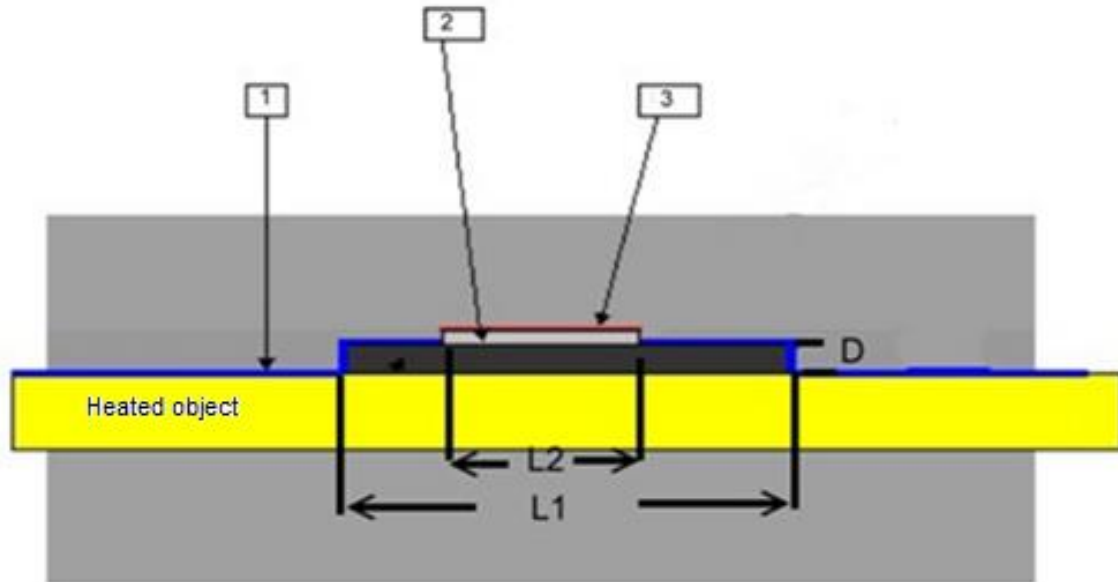
8 Maintenance advice

A regular inspection of the proper condition must be carried out.
(see EN 60079-17).

Damaged heating circuits must be replaced.

Acceptance certificate „hot spot“ for monitored construction

Heating circuit number: _____



- 1 Heating cable
- 2 Sensor / Capillary
- 3 Thermal coupling (heating cable → sensor with aluminium foil)

- L1 length of hot spot
- L2 length of sensor/capillary
- D Thickness of hot-spot insulation

Observe strictly the thermal coupling (heating cable to sensor)

Type of hot-spot insulation: _____

Length of temperature sensor: _____

Length of hot-spot insulation:
(min. 3x length of sensor) _____

Diameter of temperature sensor: _____

Thickness of hot-spot insulation:
(min. 3x sensor diameter) _____

Material for thermal coupling: _____

9 List of components

Heating circuit number: _____

1) Type heating cable: _____ Resistance /m: _____ Manufacturer: _____

Length: _____ m Output W/m: _____, Operating current: _____ A,

ATEX approval available? Yes No

Heating circuit design available? Yes No

2) Type of connection sleeve (heating cable/cold lead): _____

Manufacturer of connection sleeve: _____

Max. allowed operating current: _____ A, Type of cold lead: _____

Manufacturer of cold lead: _____ Cross-section of cold lead: _____ mm²

ATEX approval available? Yes No

3) Junction box type: _____ Manufacturer: _____

ATEX approval available? Yes No

4) Limiter mechanical electronical Type: _____ Manufacturer: _____

Temperature adjusted to: _____ °C

ATEX approval available? Yes No

Setting temperature of limiter examined: Yes No

Setting temperature: _____ °C

5) Limiter sensor: Capillary PT100 Type: _____ Manufacturer: _____

ATEX approval available? Yes No

Installation examined?: Yes No , Documentation with picture? , Protocol?

6) Controller mechanical Electronical Type: _____ Manufacturer _____

ATEX approval available? Yes No

Setting temperature of controller examined?: Yes No Setting temperature: _____ °C

7) Controller sensor: Capillary PT100 Type: _____ Manufacturer: _____

ATEX approval available? Yes No

10 Label and documentation

Label:

Documentation:

Documentation must contain the following documents:

- Data sheet of all components
- Ex-approval or Declaration of EC Compliance
- Heating circuit design / calculations
- Testing protocol of all heating circuits