

# EX GH .. ALAT

Connection fitting



### Characteristics

- Connecting sleeve for all common types of heat conductors
- Easy installation
- No heating necessary
- In use since more than 20 years
- Ready-made grout
- Screw or clamp fixing with M24 nut

The Connection fittings described following are used to connect different types of heat conductors with energy supply in explosive areas. Depending on the type of heating cable one of the following

variants is eligible:

1. **Type GH** for mineral isolated (MI) heating cables
2. **Type GHT** for PTFE isolated heating cables
3. **Type GHP** for parallel heating cables including termination fitting

All variants are equipped with 3-wire connection cable, although these are delivered with EVA-insulation as standard, 1,2 m length and 1,5 mm<sup>2</sup> cross-section. For special requirements both, silicone and PTFE insulation, are available. All modifications are also available with a protective tube made of stainless steel. If desired, other lengths, as well as a larger cable cross-section of 2,5 mm<sup>2</sup> are available, if the power to be connected shall exceed 3,6 kW. To ensure a durable and moisture-proof encapsulation, the armature is filled with a special two component polymer sealant, which must be ordered separately. For the fixation to a lever iron or similar the GH is equipped with a M24 tap and nut. Alternatively a connection box made of polyester can be ordered.

The connection armatures are supplied partially made up. The power cable is firmly connected to the terminal insert and poured in the armature. The connection fitting is suitable for all mineral isolated resistance heat conductors with coaxial structure, which meet the requirements of the EN 60079-7 or the EN 60079-30-1 and comply with this manual. The complete connection is preferably attached directly as a loop outside the insulation or under the insulation on the pipeline. In this connection the maximum ambient temperatures of the EC-type examination certificate as well as the instructions in this operating manual are to be noted.

### GENERAL TECHNICAL DATA

Cable diameter	3,0 mm to 5,8 mm	
Max. power dissipation per m heating cable: cast resin armature (GH/GHP) (GHT)	22 W/m (at +40°C ambient temperature) 15 W/m (at +40°C ambient temperature)	
Current type	DC or AC voltage	
Supply voltage of the connector	230/ 400 V	
Max. admissible current	18 A	
Connecting cable	1,5 mm <sup>2</sup> or 2,5 mm <sup>2</sup> EVA (only up to 110°C) PTFE or silicone	
Degree of protection	IP65/ DIN 40 0 50	
Dimensions: GH/ GHP GHT	85 x 32 mm 100 x 32 mm	
Mounting hole	26 mm	
Temperature at the connection fitting GH	max. 70°C (applies at max. admissible power dissipation at the inlet of the heat connector into the resin)	
Ambient temperature	-20°C bis +40°C (+60°C at accordingly adapted heat output)	
EC-type examination certificate	ZELM 03 ATEX 0169 U	
Type of protection (gas)	Ex em II	
Type of protection (dust)	Ex mbD 21	
Identification	0344	II 2G Ex em II II 2D Ex mbD 21

### TYPE CODE

ExGH 

1

 ALAT 

2	3	4	5	6	

1	-	for mineral insulated heating cable
	T	for PTFE insulated heating cable
	P	for parallel heating elements
2	-	Standard connection cable 1,5 mm <sup>2</sup> 230 V
	400	Connection cable 2,5 mm <sup>2</sup> 400 V
3	-	Standard version
	S	with protective hose stainless steel A2
	M	Single connector (sleeve)
	PE	Terminal box polyester
	VM	Connecting sleeve with 2 connection tubes
4	-	Standard connection cable (EVA) up to 110°C 1,5 mm <sup>2</sup>
	P	Connection cable PTFE 1,5 mm <sup>2</sup>
	P 2,5	Connection cable PTFE 2,5 mm <sup>2</sup>
	S	Connection cable silicone 1,5 mm <sup>2</sup>
	S 2,5	Connection cable silicone 2,5 mm <sup>2</sup>
5	-	Standard
	va	Execution "stainless steel"
6	-	Standard length connection cable: 1,2 m
	...	Length in plain text, (available lengths: 0,5 - 5 m)

Example: Device GHT with PTFE-insulated heating cable, standard connection 1,5 mm<sup>2</sup>, connection cable PTFE, execution „stainless steel“, length of the connection cable: 1,2 m:

ExGH 

T
1

 ALAT 

2	3	4	5	6	

P

VA

6



Attention! The casting resin must be ordered separately, see ordering indications on the datasheet resin.

## PRODUCTION NUMBER

xxxx / 03.03

Year
Month
Serial number

## NECESSARY ACCESSORIES FOR THE CAST RESIN FOR CONNECTION ARMATURE (GH/ GHT/ GHP)

Cast resin 2855-T125. This is subject to a shelf-life and must be ordered accordingly with a separate article number. It is mandatory to be used, otherwise the comprehension of the certificate extinguishes. After being ordered the resin must be used within 3 months. The instructions for the preparation must be considered. The authorization is only valid when the above mentioned resins are used as intended properly fitted. The cast resin 2855-T125 is only suitable for up to 22 W/m and a maximum surface temperature of 70 °C.

## TEMPERATURES AT THE HEAT CONDUCTOR

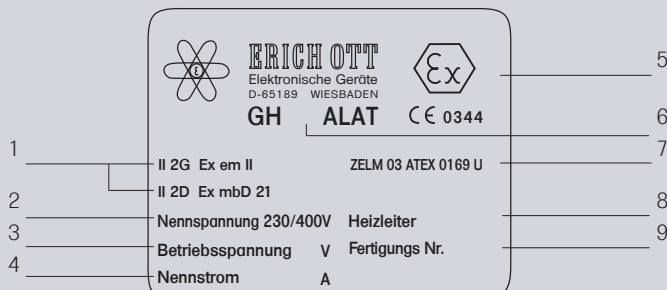
### GH and GHT

The temperatures at the heating conductor are not defined by the cable connector but by the power loss of the connected heating cable and its diameter. Accordingly the installation site of the cable connector must be chosen in dependence of the application. It must be considered that the max. surface temperature at a given heating power is depending on the heat conduction of the environment. Under an isolation, at a given heat flow, accordingly considerable surface temperatures are reached as at free convection, which can usually be found at the heating cable. Safety relevant is the max. surface temperature of 70°C. For open air installations results due to that from experience a load of 22 W/m. These indications refer to an ambient temperature of +40°C. At higher ambient temperatures care must be taken to ensure that the maximum temperature of 70°C at the cable connector is not exceeded. If higher ambient temperatures are present, the maximum length specific power must be accordingly reduced. Some typical surface temperatures at a given heating cable diameter and heating power must be obtained from the EC-Type examination certificate EG-Baumusterprüfbescheinigung ZELM 03 ATEX 0169 U.

### GHP

The maximum surface temperature of the heat conductor is in this case directly defined by the used type. The design determines a self regulating maximum surface temperature, which is independent from the max. transient power consumption. In contrary to coaxial heat conductors at self regulating heating conductors a failure in the heating conductor can not be detected via a fault circuit interrupter, a suitable back-up fuse or a temperature sensor. That means that a safety-related evaluation and operation of the facility is only possible during normal operation. If the heating cable is locally damaged, but not interrupted, any errors can occur. We recommend the use of this type of heating cable only in hazardous areas of zone 2 or 22.

## NAMEPLATE



1-	Schutzart	5-	Ex- Kennzeichnung
2-	Nennspannung	6-	Typenbezeichnung
3-	Betriebsspannung	7-	Prüfstelle/ - bescheinigung
4-	Nennstrom	8-	Heizleiter
		9-	lfd. Gerätenummer

## ASSEMBLY INSTRUCTIONS FOR MINERAL ISOLATED HEATING CABLE GH

**Step 1:** The strain relief has two semi-circle cut outs which, if not ordered differently, are suitable for heating cables with a diameter of up to 3,3 mm. For larger diameters the cut out must be accordingly adapted.

**Step 2:** Shorten both ends of the heating cable by 200 mm and clean at a length of 50 mm by use of emery cloth, strip 16 mm. Remove burr formation by use of a scribing iron.

**Schritt 3:** Trap both ends in the strain relief so that 2 mm of the jacket are still visible. The strain relief realizes the PE-connection of the MI-cable with the connection cable and the cabinet.

**Step 4:** Move the sleeve with thread in direction of hose line over the heating cable.

**Step 5:** Connect the circuit and the strain relief in the terminal block. (The conductor ends must be visible through the control bore).

**Step 6:** Screw the sleeve on feedthrough bolt.

**Step 7:** Check, if there is no short-circuit between the conductors or between conductor and shield. The requirements of the corresponding standards concerning isolation resistance or dielectric strength must be checked after the installation (to preclude damages at the heating cable after the installation).

**Step 8:** Mix resin 2855-T125. Observe the processing instructions of the resin. It is important to consider the processing temperature and the hints for max. humidity.

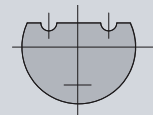
**Step 9:** Fill resin into the sleeve.

**Step 10:** Complete the data of the nameplate:

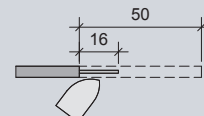
- The nominal voltage\* only refers to the terminal connection and has to be calculated\*
- Nominal current (Operating current)
- Type of heating cable\*\*

\* It should be kept in mind that, depending on the length of the heating cable, measurable inductivities and capacities can result. The type of installation can also lead to influences. The consequence is, that the effective capacity is lower than the nominal capacity. Safety relevant is the nominal voltage, whereas concerning the design, the effective voltage must be applied for the power determination.

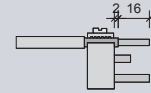
\*\* The type designation must indicate length specific resistance and real length.



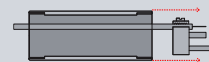
Picture 1 for Step 1: Strain relief hollow



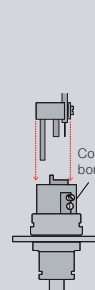
Picture 2 for Step 2: Shortening of the heat conductor



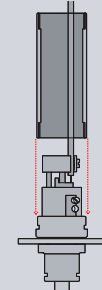
Picture 3 for Step 3: Strain relief



Picture 4 for Step 4: Sleeve



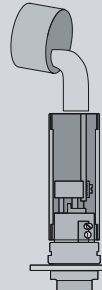
Picture 5 for Step 5: Terminal block



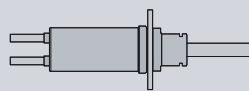
Picture 6 for Step 6: Connector with cabinet



Picture 7 for Step 8: Resin



Picture 8 for Step 9: Pour in



Picture 9: Ready mounted device

## SCOPE OF DELIVERY

### Connection fitting

1. Terminal block with preassembled connection cable
2. Sleeve
3. Strain relief with tooth lock washer
4. Screws and loss protection
5. O-ring und nut M24x1,5
6. Nameplate
7. Hose clamp with protective hose (2-fold) (only GHT and GHP)

Please take the installation instruction for GHT and GHP, as well as further data and safety guidelines from the Operating manual. Download on [www.erich-ott.de](http://www.erich-ott.de)