



## Manual

### Electric band heater Type PR-HEI-EX-SSH

#### 1. The object



The electric band heater type PR-HEI-EX-SSH is a resistance heating element with a protective braid and outer sheath made of silicone. It is suitable for preventing condensation and frost damage at standstill of electric motors, generators and transformers in a cold environment as well as for the keeping temperature constant in tanks, pipes or valves.

#### 2. Manufacturing and sales

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#### 3. Applied standards

- ▲ DIN EN 60079-0:2019-09 Explosive atmospheres- Part0: Equipment- General requirements (IEC60079-0:2017);
- ▲ DIN EN 60079-7:2016-08 Explosive atmospheres- Part7: Equipment protection by increased safety "e" (IEC 60079-7:2015).

#### 4. Label

The marking contains according to DIN EN 60079-0 paragraph 29 the following information:

 0637	II-2G-Ex-eb-IIC-Gb → IBEExU-20-ATEX-1014-U → → → IECEx-IBE-20.0001-U	 <b>Ephy-Mess-GmbH</b> <b>Berta-Cramer-Ring-1</b> <b>65205-Wiesbaden</b> <b>Germany</b>
	PR-SPA-HEI-SSH $P_n \leq [W] \cdot U_{max} \leq [V] \cdot I_{max} \leq [mA]$	

#### 5. Construction

The heating element consists of a glass fibre carrier body, which is spirally wrapped around the heating conductor. It is covered with a silicone protective coating to ensure adequate moisture protection. The cold lead ends are protected against moisture by means of an inner adhesive shrink tube and a silicone coating. The heating element is fixed connected to the supply line and can optionally be covered with a layer of glass fibre tube as a mechanical protective insulation. The single resistor wires are connected by the cold lead ends and thereby connected in series.



## 6. Installation

- ▲ Electric band heaters PR-HEI-EX-SSH have been specially developed for installation on the winding heads of electric motors (generators, transformers). The provided construction, shape and thickness of the electric band heater allow it to be fixed mounted on the winding coils of the electrical equipment.
- ▲ Electric band heater and the heated object must be thermally well coupled, e. g. by impregnating resins with high thermal conductivity.
- ▲ The electric band heater PR-HEI-EX-SSH must be installed so that optimum heat dissipation to the heated object is ensured.
- ▲ The silicone insulation of the heating conductor is only partly resistant to certain chemical compounds, such as those used in the VPI impregnation process. The user has to prove the suitability with own tests for the own VPI process.
- ▲ The user must ensure by testing or suitable regulation that the specified permissible operating temperature is not exceeded for his installation situation, taking into consideration of voltage tolerances and existing external heat sources.
- ▲ The electric band heater PR-HEI-EX-SSH should only be switched on at ambient temperatures of  $<10^{\circ}\text{C}$  and after the motor has cooled down.
- ▲ The electric band heater must be installed parallel to the windings. It must not be crossed, overlapped or stacked (hotspots).
- ▲ When installing the electric band heater PR-HEI-EX-SSH, make sure that cable and insulation are not damaged. Avoid extreme bending loads and punctual mechanical loads on the electric band heaters during assembly and operation.
- ▲ The supply line (connection cable) must be laid strain-relieved.
- ▲ The resistance conductor has no polarity.
- ▲ The special conditions listed in the corresponding EC type examination certificate must be observed.
- ▲ Only qualified personnel may install the product or the installation must be carried out under the supervision of a qualified person.
- ▲ The electric circuits to which the electric band heaters are connected must have a residual current circuit breaker (RCCB).
- ▲ The Electric Band Heater PR-HEI-EX-SSH must be installed in a housing with a protection level of min. IP54 according to IEC 60079-0.

## 7. Connection

- ▲ The connection ends must be fixed connected to suitable clamps.
- ▲ The electrical operating values must be observed (see 8. technical data).
- ▲ All electrical circuits must be switched off before installation and maintenance. The ends of the supply line must be kept dry before and during installation.
- ▲ If the device is operated in an Ex-zone, the connection may only be carried out in a connection area which is also approved according to the valid standards or outside the hazardous atmosphere.
- ▲ Connection, installation or use of the electric band heaters PR-HEI-EX-SSH in any other way than described in points 6. and 7. is not permitted.



## 8. Technical data

Description	Electric band heater PR-HEI-EX-SSH
Approval	IBExU 20 ATEX 1014 U IECEX IBE 20.0001 U
Ignition protection type	II 2G Ex eb IIC Gb Ex eb IIC Gb

### Electrical values

Operating voltage	115 V / 230 V
Heating capacity	8 W ... 200 W (is determined depending on the variant)
Heating capacity per wire	≤ 25 W/m (is determined depending on the variant)
Operating temperature	-60°C ... +180°C
* Sum of max. ambient temperature, self-heating and external heat	
Isolation test	(1000+2U <sub>n</sub> ) +5% V AC
Dielectric strength	min. 2.0 kV AC, 50 Hz / 1 min.
Max. permitted current	is determined depending on the version

### Mechanical values

Min. bending radius of heat conductor	≥10 mm (not valid for end parts)
Tensile strength (stranded wire/ heating cord)	≤25 N

### Dimensions

Electric band heater	height	min. 9.5 mm
	width	min. 2.5 mm
	length	depending on capacity and customer requirements

### Supply line

version:	single leads, flat band or – hose line
construction / isolation:	Cu- tin-plated - FEP
cross section:	≥ 1 mm <sup>2</sup>



### General instructions:

The electric band heater PR-HEI-EX-SSH is maintenance-free and requires no special maintenance during normal operation.

The standstill heater should be controlled for a correct function at regular intervals.

Repair of a mounted electric band heater cannot be carried out, since removal is not possible without damage.

For recycling, the valid national regulations must be observed.

Connection, installation or use of the electric band heaters PR-HEI-EX-SSH in any other way than described in points 6. and 7. are not permitted.

The special safety instructions for installation with regard to the ATEX approval are contained in the approval described above. The approval certificate can be obtained directly from EPHY-MESS GmbH or from our website [www.ephy-mess.de](http://www.ephy-mess.de).



9. Type description

Product	<b>PR</b>	<b>HEI</b>	<b>EX</b>	<b>SSH</b>
			EX-approval	Electric band heater
		Heat conductor		

Version description

BA: basic	<b>Version</b>	<b>Electrical values</b>	<b>Dimensions in mm</b>	<b>Ex e</b>	<b>Supply line</b>
			Thickness x Width x Length	Information about Explosion protection	Information about supply line
		Capacity in W / Supply voltage in V			

Wiesbaden, October 18<sup>th</sup>, 2017