

Compacted high performance cartridge heaters with metallic protection tube



Typical Applications

- The design of these heating elements enables their use in very different operating conditions.
- High performance cartridge heaters are suitable to heat up liquid and gaseous media as well as solids.

Characteristics

- Metallic protection tube made of stainless steel 1.4301
- The outer surface of the cartridge heaters may heat up to more than 500°C.
- Cartridge bottom welded to be gas-tight and fluid-tight
- Connections made of fiberglass insulated pure nickel leads
- Core and insulation out of highly compacted magnesium oxide
- Heat wire out of heat resistant alloy NiCr 80/20
- Well suited for use in vibrating environments. This should be analyzed individually for each application.

Technical Specifications

Standard module:

Voltage	230 V
Output	100 W – 2500 W
Dimensions and tolerances	Standard diameter in mm Ø 6,5 8 10 12,5 16 20 Tol.: -0,02 up to -0,06
Max. surface temperature	approx. 500°C
Quality characteristics	
• Insulation resistance:	minimum 5 MΩ at 500 V DC in cold condition
• Dielectric strength:	1500 V AC, 1 second, 5 mA triggering current
• Output tolerance:	+5% / -10%

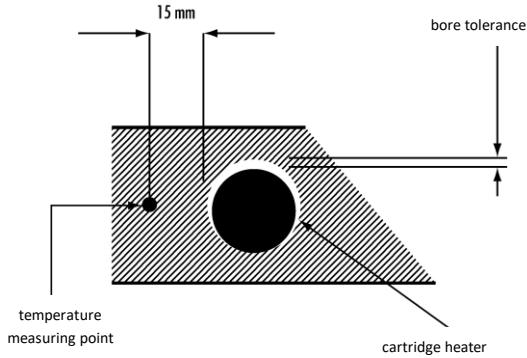
Instructions for correct assembly

The precise fit of the cartridge heater is very important for good function and performance.
The bore should be done with a tolerance acc. to the table below.

Ø from	Ø to	bore tolerance	
3	6	0	+ 0,012
6	10	0	+ 0,015
10	18	0	+ 0,018
18	30	0	+ 0,021



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A temperature control is indispensable. We recommend that the temperature measuring point is located at a distance of less than 15 mm to the cartridge heater.

Variations:

Power

see separate spreadsheet

Connections

Standard lead length (without thermocouple): 250 mm

Standard lead length (with integrated thermocouple Fe-CuNi): 1000 mm

Thermocouples

Type J (Fe-CuNi) or Type K (NiCr-Ni)

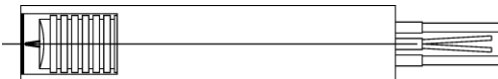
As a rule the thermocouple is mounted potential-free, insulated from the metallic protection tube to avoid problems with control devices.



1. Thermocouple at cartridge bottom, insulated from metallic protection tube

Standard assembly of thermocouple.

Recommended version to prevent inaccurate measurements with very sensitive control devices.

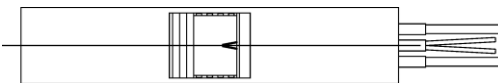


2. Thermocouple at cartridge bottom, connected with metallic protection tube

This version is appropriate where a fast temperature measurement is needed.

Note:

This version cannot be used for applications with a very sensitive control.



3. Thermocouple in the center, insulated from metallic protection tube

This version is possible for elements \varnothing 10 mm and larger diameters.

