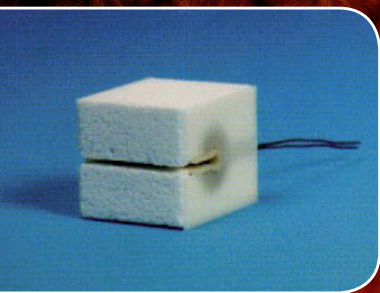
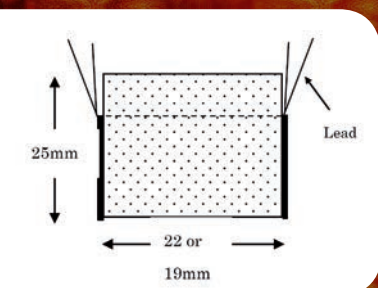
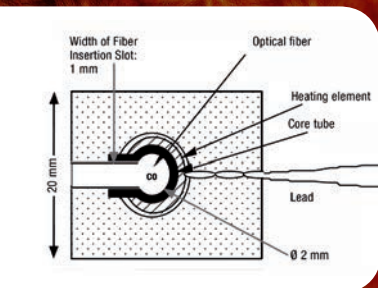


ceramic micro heaters

up to +1,600 °C in a small, cylindrical volume

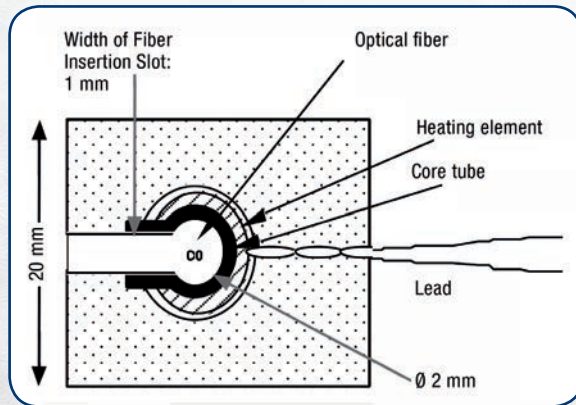


- ☀ ideal for heating-up optical fibers to produce
 - tapered optical fibers
 - optical fiber couplers
- ☀ operated by electric current
- ☀ temperatures of up to +1,600 °C can be generated
- ☀ precise temperature control
- ☀ heating element inner diameter: 2 mm
- ☀ two lengths available: 19 and 22 mm



up to +1,600 °C in a small, cylindrical volume

The CMH series of ceramic micro heaters provides temperatures of up to +1,600 °C in a very small, cylindrical volume. Powered by AC current with a power of approximately 100 W, a tubular ceramic micro-heating element with an internal diameter of

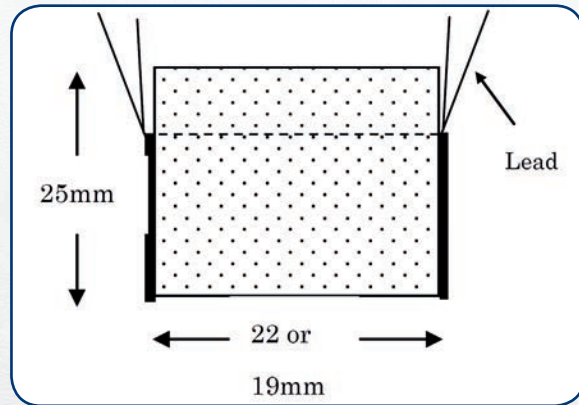


In order to focus the heating energy in this small volume and to minimize the losses to the environment, the actual heating element is enclosed in a very high heat resistant ceramic

main applications

The main application of ceramic micro heaters is the processing of optical fibers, which can be inserted into the ceramic micro heater through the lateral gap. Tapering of optical fibers, for example, involves heating a small area of the fiber to a high temperature while the fiber is gently stretched as

2 mm generates these high temperatures over a length of 19 or 25 mm. Due to the design, the highest temperatures occur in the middle of the heater, while the heat decreases towards the edges.



material. An approx. 1 mm wide gap in this material on one side makes the laterally open, tubular heating element accessible from the outside.

evenly as possible. This procedure reduces the diameter of fiber and core in the heated area, resulting in a tapered fiber. Another application of ceramic micro heaters is the production of fiber couplers.

Technical Data

Ceramic Micro Heater	CMH-7019	CMH-7022
Dimensions		
Length	19 mm	22 mm
Width	25 mm	
Height	20 mm	
Internal Diameter of Heat Core	approx. Ø 2 mm	
Width of Fiber Insertion Slot	approx. 1 mm	
Characteristic Values @+1,550 °C		
AC Current	approx. 7.0 A eff	approx. 5.8 A eff
AC Voltage	approx. 15 V eff	approx. 19 V eff
Power Source to Heater		
Input	AC	
Frequency	approx. 50 Hz	
Duty	approx. 50%	

notes on the operation of the ceramic micro heaters

- 1) Fireproof base:**
To prevent possible fire hazard, we recommend operating the ceramic micro heater on a fireproof base.
 - 2) Slow heating and cooling:**
Sudden changes in supply current may damage the ceramic micro heater or reduce its lifetime. Especially if the heater has been replaced or has not been used for a long period of time, it should not be brought to the target temperature immediately. Allow the heater to warm up slowly in increments of 50 °C per minute until the desired target temperature is reached. After use, reduce the temperature of the heater at the same rate.
 - 3) Risk of cracks and breakage:**
The ceramic used in the heater is fragile – please do not drop the heater and protect it from any mechanical impact. The material used for heat insulation is also very brittle and fragile, and the connecting wires can be damaged by twisting or bending.
 - 4) Keep flammable or explosive materials away:** Do not insert flammable materials into the ceramic micro heater – besides the fire hazard, the heater may be damaged.
- Caution: Do not use the heater near places where flammable gas is present.

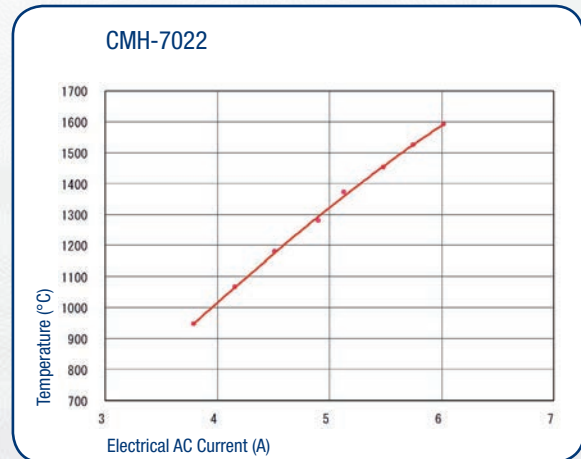
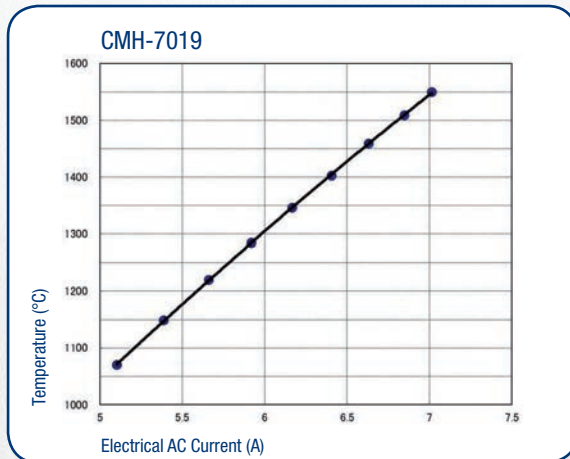


- Optical Technologies
- Power Technologies
- Thermal Management

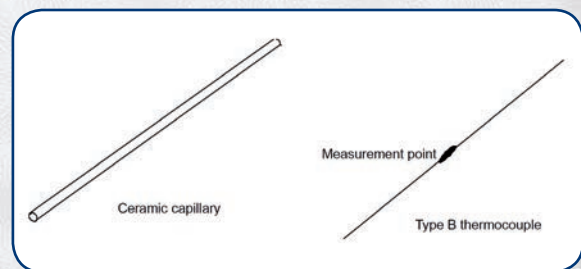
precise temperature control

The CMH ceramic micro heaters are operated with electrical AC current only, so the temperature can be precisely controlled via the input AC current:

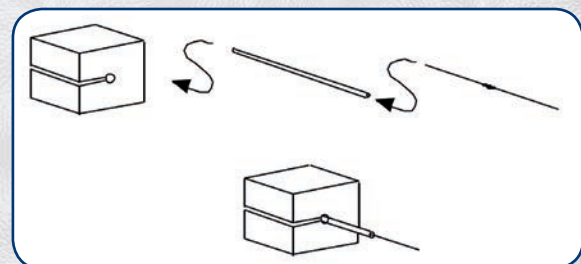
the relationship between current and temperature



The conditions for this relationship between current and temperature may shift gradually during mid- to long-term operation. Therefore, temperature calibration using a 0.3 mm diameter, type B thermocouple is recommended once a month. This thermocouple has to be enclosed in a ceramic capillary to prevent damage caused by the high temperature.



For calibration, put the thermocouple into the ceramic capillary and position the thermocouple joint (measuring point) to the center of the capillary to avoid damage and obtain the precise temperature. Then insert the capillary containing the thermocouple into the heater and measure the temperature with the help of a thermometer device suitable for thermocouples.

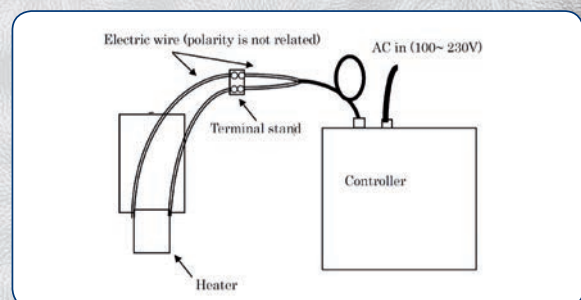


wiring diagram

Please connect the heater and the power supply as follows:

Recommended AC Power Supply Specifications:

- AC Voltage Output: 25 V eff
- AC Current Output: 8 to 10 A eff
- Output Waveform: 50 Hz Sinewave
- Duty: 50%



more questions?

If you have any further questions, please contact the AMS Technologies thermal management experts.



