

Ceramic micro-heater CMH-7019, CMH-7022

1. Introduction

The Ceramic-heater is useful for optical fiber processing, especially fiber coupler fabrication because this heater is able to be heated up to 1600 degree C. This heater is operated directly by electric power and so its temperature is controlled precisely by electric current.

2. Ceramic micro-heater configuration

The Ceramic micro-heater configuration is shown in figure 1. Please connect the leads to a power supplier. The electrode is non-polarity.

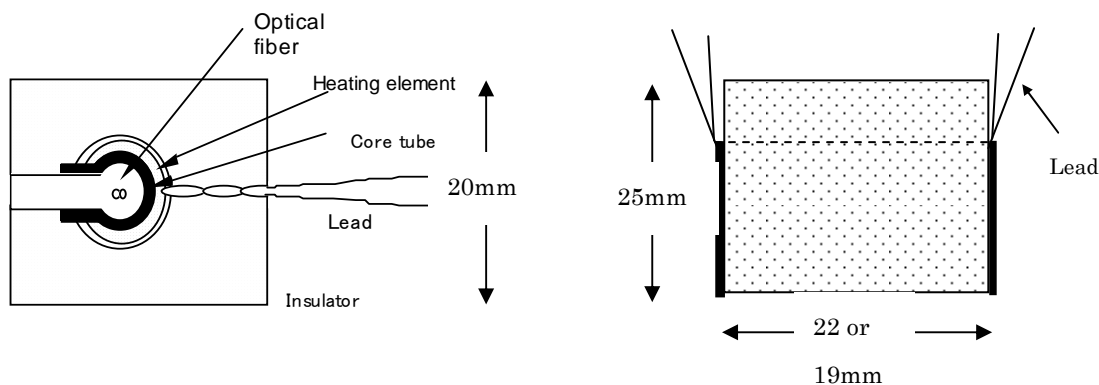


Fig. 1 Ceramic Micro-heater

3. Cautions regarding the micro-heater

- 1) The heater is composed of ceramic, so it is fragile. You should not drop or strike it.
- 2) The heat insulating material (external porous material) for fireproofing is very brittle, and the lead is easily damaged by twisting or bending. Handle the heaters with extreme care.
- 3) If you apply sudden current changes to the heater, it would be damaged and its life would be reduced. So you should apply the suitable current change to the heater.
- 4) If the micro-heater has been replaced or left unused for a long time, you should not raise it up suddenly to the target temperature. Heat it to a suitable temperature at first, and gradually raise to the target temperature according to the suitable current as described #5.
- 5) You should not insert combustible material into the ceramic micro heater. The heater would be damaged.

You should not use the ceramic heater near a location where flammable gas is used.

4. How to connect the heater and power supply

Please connect the wire as follows.

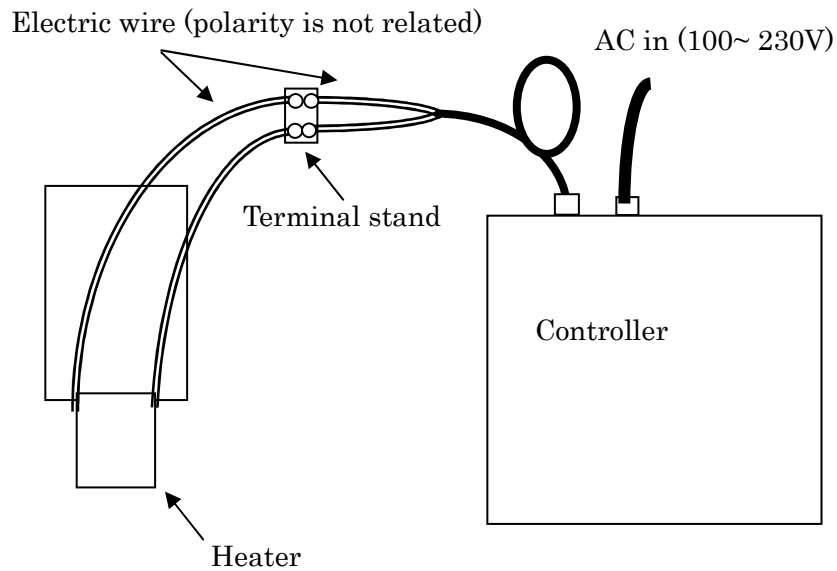


Fig.2 Wiring Diagram

[Recommended power supply specifications]

Voltage:25V

Current: 8-10A

Output waveform: 50Hz

Duty 50%

AC

*When you use the heater, we recommend using a heat-insulating board under the heater to prevent the fire.

The heater wouldn't move easily when you fix the electric wires.

5. Heater control

In order to set up the temperature of this heater, please turn up the temperature to 1000 $^{\circ}\text{C}$, the raise at a rate of 50 $^{\circ}\text{C}/\text{min}$. When turning off the heater, please lower the temperature at the same rate.

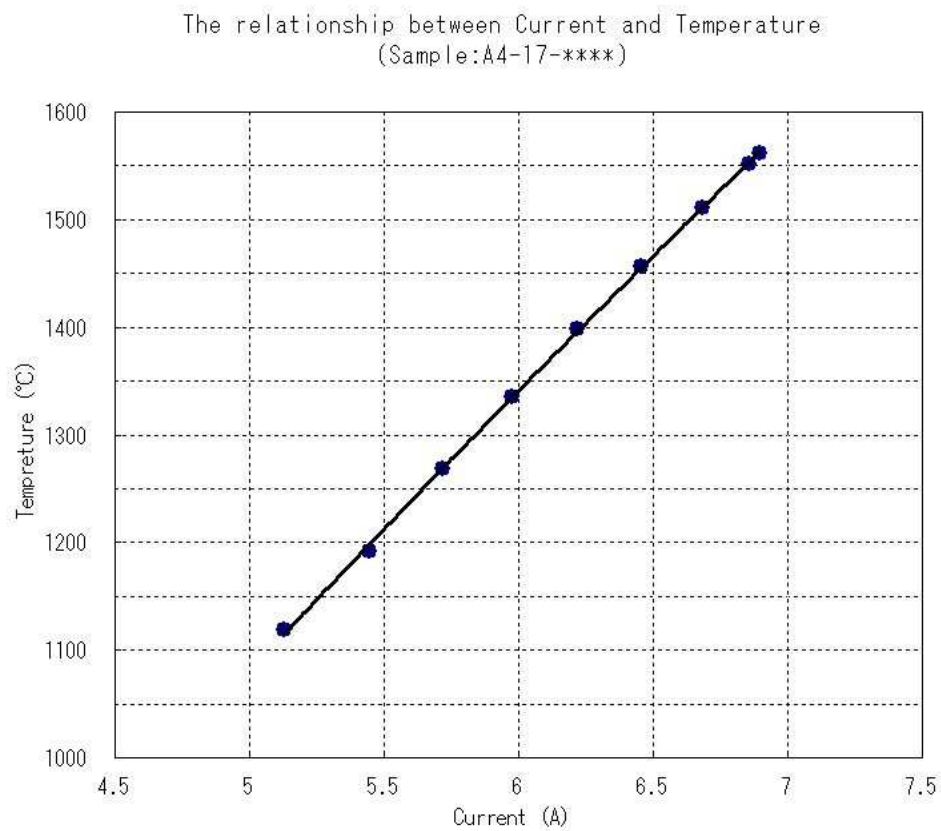


Fig.3 Relation between Current and Temperature

For temperature calibration, please use a thermocouple 0.3 ϕ , B type, ceramic capillary and thermometer. Regarding test instruments, please use a measuring instrument available on the market.

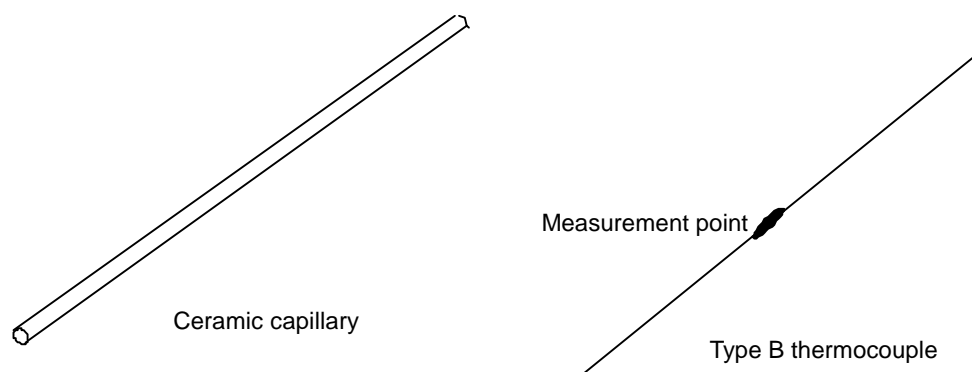


Fig.4 Thermocouple

- 1) The required conditions for temperature may be shifted gradually as the heater begins to be degraded. Therefore, temperature calibration using a thermocouple once a month is recommended.
- (2) Put the thermocouple into the ceramic capillary, and position the thermocouple joint (measuring point) to the center of the capillary to avoid damage to the thermocouple and obtain the precise temperature. You need to insert the thermocouple with the ceramic capillary into the heater from one side and measure the temperature by using the thermometer.

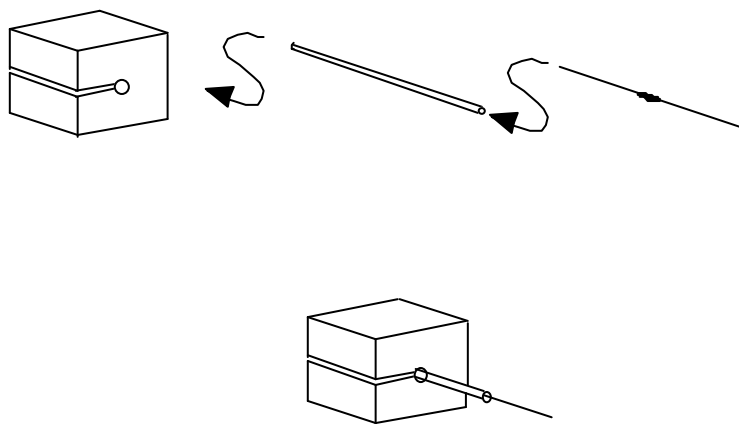


Fig.5 Thermocouple Setting

If you have any further questions, please feel free to contact us.

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