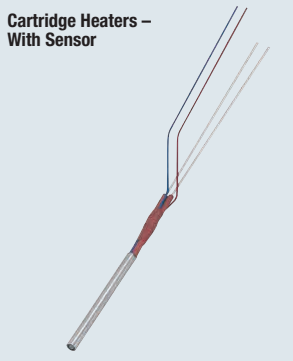


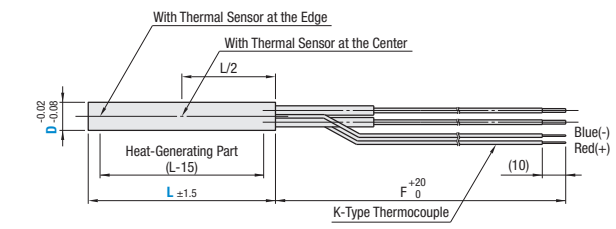
Cartridge Heaters

With Sensor

Cartridge Heaters – With Sensor



MCHSSS With Thermal Sensor at the Edge
MCHSSC With Thermal Sensor at the Center



Material: Heater : 321 Stainless Steel
Terminal : Copper
Lead Wire : Nickel (Ni)
Lead Wire Film : Glass Braid
Lead Wire Heat Resistance Temperature: 180°C
K-Type Thermocouple Film: Glass Braid
Thermocouple Heat Resistant Temperature: 180°C
Temperature Measurement Range: 0–600°C

① Maximum Operating Temperature: 600°C
② Maximum Operating Temperature means value at the sheath part. Please pay attention to Lead Wire Heat Resistance Temperature and be sure to put the lead wire out of the mounting hole.

RoHS 10

Configurable L & W with Sensor

Part Number Type	D	L 1 mm Increment	V (Voltage)	W (Electrical Power) 10W Increment	F (Lead Wire Length)	Electrical Power Density (W/cm ²)
MCHSSS With Thermal Sensor at the Edge	8	50–300	100	50–600	250	2≤W/cm ² ≤15 W/cm ² =W/(Dπ(L-15)/100) Calculate with the electrical power density of heat- generating part, not with the overall length.
			110	50–600		
			200	70–1000		
			220	90–1000		
MCHSSC With Thermal Sensor at the Center	10	50–300	100	50–600	250	2≤W/cm ² ≤15 W/cm ² =W/(Dπ(L-15)/100) Calculate with the electrical power density of heat- generating part, not with the overall length.
			110	50–600		
			200	110–1200		
			220	130–1200		
	12	50–300	100	50–800	250	2≤W/cm ² ≤15 W/cm ² =W/(Dπ(L-15)/100) Calculate with the electrical power density of heat- generating part, not with the overall length.
			110	50–800		
			200	140–1500		
			220	160–1500		

① Please refer to "Precautions for Use" in the Cartridge Heaters Overview on P.3704.

Part Number Example

Part Number - L - V - W

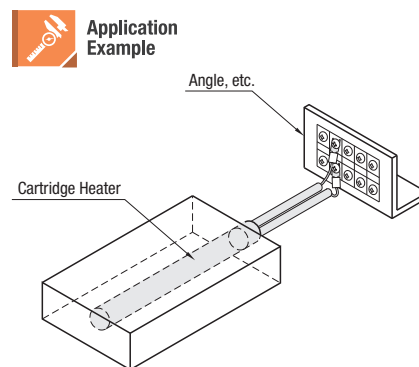
MCHSSC10 - 170 - V200 - W450

Features

- This unit contains the Cartridge Heater with built-in K Type Thermocouple.
- As the temperature sensor is integrated into the heater, the heater can be used in smaller space.
- The heater has a function to prevent the rise in temperature of the heater itself. Accurate temperature control of the heater can be made.

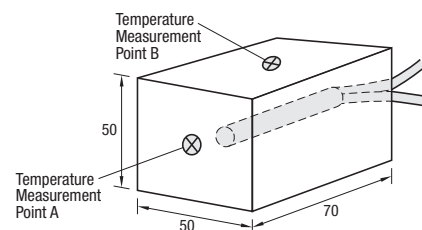
Precautions for Use

- ① Do not let heater run idle in the atmosphere. Operating the heater with the heat-generating part out of heated products may cause the wire to break or ignite due to abnormal heating.
- ② The temperature measured by the Thermocouple is the temperature of the Heater.
- ③ To measure the temperature of the heated object, separate sensor needs to be installed.

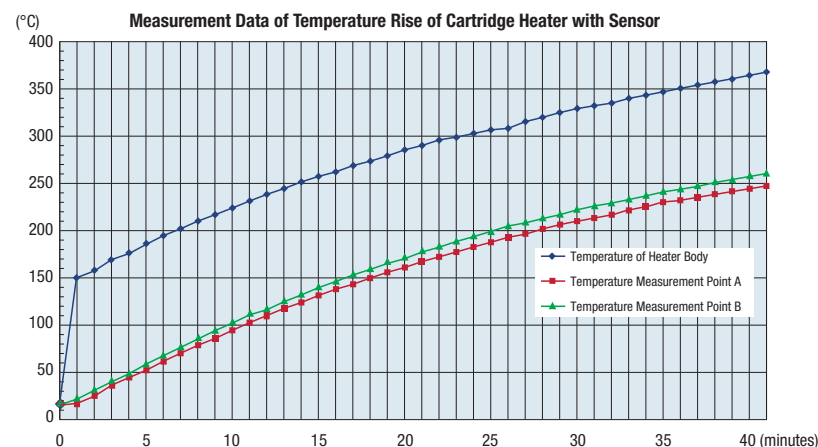


Application Example

Measurement Data of Temperature Rise of Cartridge Heater with Sensor



Heater Used : MCHSSS8-60-V100-W130
(Electrical Power Density 10 W/cm²)
Heated Object : 1018 Carbon Steel (50 x 50 x 70)
Point of temperature measurement : Center part of each surface of block

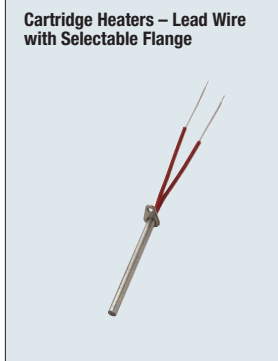


* The data above shows the difference of temperature between the heater body and the heated object.

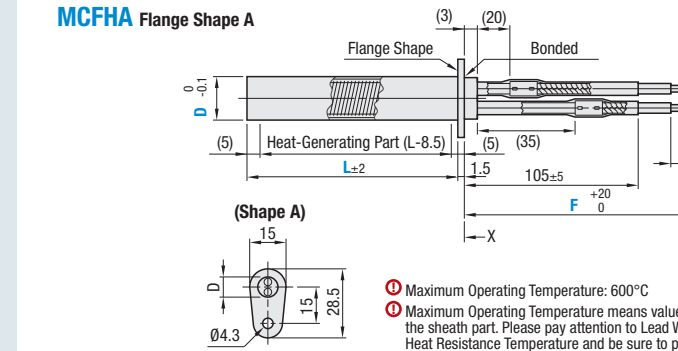
Cartridge Heaters

Lead Wire with Selectable Flange

Cartridge Heaters – Lead Wire with Selectable Flange



MCFHA Flange Shape A



Terminal Selection

- N No Crimp Terminal
- M With Round Crimp Terminal
- Y With Y-Shaped Crimp Terminal

Material: Heater: 304 Stainless Steel
Lead Wire: See below
Terminal: Copper (Tin Plating)
Flange: Stainless Steel

① Maximum Operating Temperature: 600°C
② Maximum Operating Temperature means value at the sheath part. Please pay attention to Lead Wire Heat Resistance Temperature and be sure to put the lead wire out of the mounting hole.

RoHS 10

Lead Wire with Selectable Flange

Part Number Type	D	L 1mm Increment	V (Voltage)	W (Electrical Power) 10 W Increment	F (Lead Wire Length)		Terminal	Electrical Power Density (W/cm ²)
					Lead Wire Type	10 mm Increment		
MCFHA	8	50–400	100	50–600	B G T M	100–1000	N M Y	2≤W/cm ² ≤15 W/cm ² =W/(Dπ(L-8.5)/100) Calculate with the electrical power density of heat-generating part, not with the overall length.
			200	50–1200				
			100	50–600				
			200	50–1200				
	10	50–600	100	50–600	B G T M	100–1000	N M Y	2≤W/cm ² ≤15 W/cm ² =W/(Dπ(L-8.5)/100) Calculate with the electrical power density of heat-generating part, not with the overall length.
			200	50–1200				
			100	50–800				
			200	50–1600				

① MCFHA is not available from L401-L600 for D8

Lead Wire Type

Symbols	Lead Wire Type	Heat Resistance Temperature	Features
B	Tin Plated Annealed Copper Fiber Glass Braided Wire	180°C	General Use
G	Silicon Rubber + Tin Plated Annealed Copper Wire	180°C	For chemical and water resistant items
T	Teflon + Nickel Plated Annealing Copper Wire	260°C	For chemical, water and weather resistant items
M	Mica Polyimide-Wound Silica + Nickel Coated Copper Wire	400°C	For heat resistant items

① Please refer to "Precautions for Use" in the Cartridge Heaters Overview on P.3704.

Part Number Example

Part Number - L - V - W - F Lead Wire - Terminal

MCFHA12 - 300 - V100 - W350 - M 1000 - Y

Precautions for Use

- ① Do not let heater run exposed in the atmosphere. Operating the heater when heat-generating part is out of heated products, the wire may break or ignite due to abnormal heating.
- ② Keep the temperature around the flange at 180°C or below.
- ③ Keep the temperature around the lead wire exit at 130°C or less.

Type of Terminal

Symbols	Type of Terminal	Nominal Size of Screw
N	No Crimp Terminal	—
M	Crimp Terminal – Round Type	M4
Y	Crimp Terminal – Y-Shaped	M4