

Cartridge Heaters

Lead Wire Protection / Internal Connection

Cartridge Heaters – Lead Wire Protection / Internal Connection

No Protective Spring
MCHG Straight No Flange
MCHGA Flange Shape A
MCHGB Flange Shape B
MLHGA Flange Shape A
MLSGA Flange Shape A

With Protective Spring
MCSG Straight No Flange
MCSGC Flange Shape C
MLSGA 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 Flange: 304 Stainless Steel
 Lead Wire: Glass Fiber Coating
 Lead Wire Heat Resistance Temperature: 180°C
 Maximum Operating Temperature: 600°C

Ⓢ Applicable only when D=16 is selected.

| Part Number | Type | D | L | V (Voltage) | W (Electrical Power) | F (Lead Wire Length) | Terminal Selection |
|---------------------------------------|------|----------------|--------|----------------|----------------------|----------------------|--------------------|
| | | 1 mm Increment | | 10 W Increment | | 10 mm Increment | |
| No Protective Spring MCHG | 8 | 10 | 50-400 | 100 | 110 | 300-1000 | N M Y |
| | | | | 200 | 220 | | |
| | 100 | 110 | | | | | |
| | 200 | 220 | | | | | |
| With Protective Spring MCSG | 12 | 16 | 100 | 110 | 300-1000 | N M Y | |
| | | | 200 | 220 | | | |
| | 100 | 110 | | | | | |
| | 200 | 220 | | | | | |

| Part Number | Type | D | L | V (Voltage) | W (Electrical Power) | F (Lead Wire Length) | Terminal Selection |
|--|------|----------------|--------|----------------|----------------------|----------------------|--------------------|
| | | 1 mm Increment | | 10 W Increment | | 10 mm Increment | |
| No Protective Spring MCHGA MCHGB MLHGA | 8 | 10 | 50-400 | 100 | 110 | 300-1000 | N M Y |
| | | | | 200 | 220 | | |
| | 100 | 110 | | | | | |
| | 200 | 220 | | | | | |
| With Protective Spring MCSGC | 16 | 20 | 100 | 110 | 300-1000 | N M Y | |
| | | | 200 | 220 | | | |

Ⓢ $2 \leq W/cm^2 \leq 15 W/cm^2 = W/(D \times (L-14) \times 100) \times L-12$ for Shape L
 (Calculate with the electrical power density of heat-generating part, not with the full length.)

Part Number Example

Part Number - L - V - W - F - Terminal
MCHGA8 - 150 - V200 - W250 - F500 - N

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

Precautions for Use

- Do not let heater run idle in the atmosphere. Operating the heater when heat-generating part is out of heated products, the wire may break due to abnormal heating.
- Keep the temperature around the lead wire exit at 180°C or less.
- Cartridge Heater with protective spring is recommended for a use at a moving part.

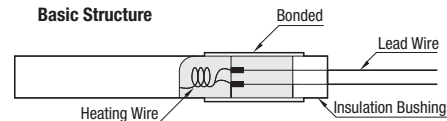
Type of Terminal

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

Features

- Heat generating wire and lead wire are connected in stainless steel sheath.
- Since crimp terminal is not exposed, it has stronger structure against breakage due to bending and vibration.

Basic Structure



Cartridge Heaters

Configurable L, W & F

Cartridge Heaters – Configurable L, W & F

MCHSR

D Tolerance

| D | Tolerance |
|----------------------------|-----------|
| 6 8 10 12 14 16 18 | -0.02 |
| 6.25 9.42 12.6 15.77 18.95 | +0.05 |
| | 0 |

Material: 304 Stainless Steel Equivalent
 Terminal: Copper
 Lead Wire: Refer to below.
 Insulation Tube Heat Resistance Temperature: 180°C

Ⓢ For D6, 6.25, 8, 9.42, the position of the terminal (22) is 17 and 37 with shifting two terminals.
 Ⓢ Maximum Operating Temperature: 600°C
 Ⓢ 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.

Configurable L, W & F

| Part Number | Type | D | L 5mm Increments | V (Voltage) | W (Electric Power) 10W Increment | F (Lead Wire) | | Electrical Power Density (W/cm ²) | |
|-------------------|------------------|-------|------------------|-------------|----------------------------------|---------------------------------|----------------|---|---------|
| | | | | | | Lead Wire Type | 10mm Increment | | |
| MCHSR | 6 | 6 | 50-250 | 100 | 50-500 | G Silicon Rubber Wire | 100-1000 | $2 \leq W/cm^2 \leq 15 W/cm^2 = W/(D \times (L-15)/100)$ Calculate with the electrical power density of heat-generating part, not with the overall length. | |
| | | | | 110 | 50-500 | | | | |
| | | | | 200 | 60-600 | | | | |
| | | | | 220 | 80-600 | | | | |
| | | | | 100 | 50-500 | | | | |
| | | | | 110 | 50-500 | | | | |
| | 6.25 1/4 inch | 6.25 | 6.25 | 50-250 | 100 | | | | 50-500 |
| | | | | | 110 | | | | 50-500 |
| | | | | | 200 | | | | 60-600 |
| | | | | | 220 | | | | 80-600 |
| | | | | | 100 | | | | 50-500 |
| | | | | | 110 | | | | 50-500 |
| | 8 | 8 | 8 | 50-400 | 100 | | | | 50-600 |
| | | | | | 110 | | | | 50-600 |
| | | | | | 200 | | | | 50-1200 |
| | | | | | 220 | | | | 70-1200 |
| | | | | | 100 | | | | 50-600 |
| | | | | | 110 | | | | 50-600 |
| | 9.42 3/8 inch | 9.42 | 9.42 | 50-400 | 100 | | | | 50-600 |
| | | | | | 110 | | | | 50-600 |
| | | | | | 200 | | | | 50-1200 |
| | | | | | 220 | | | | 70-1200 |
| | | | | | 100 | | | | 50-600 |
| | | | | | 110 | | | | 50-600 |
| 10 | 10 | 10 | 50-600 | 100 | 50-600 | | | | |
| | | | | 110 | 50-600 | | | | |
| | | | | 200 | 50-1200 | | | | |
| | | | | 220 | 70-1200 | | | | |
| | | | | 100 | 50-600 | | | | |
| | | | | 110 | 50-600 | | | | |
| 12 | 12 | 12 | 50-600 | 100 | 50-800 | | | | |
| | | | | 110 | 50-800 | | | | |
| | | | | 200 | 50-1600 | | | | |
| | | | | 220 | 70-1600 | | | | |
| | | | | 100 | 50-800 | | | | |
| | | | | 110 | 50-800 | | | | |
| 12.6 1/2 inch | 12.6 | 12.6 | 50-600 | 100 | 50-800 | | | | |
| | | | | 110 | 50-800 | | | | |
| | | | | 200 | 50-1600 | | | | |
| | | | | 220 | 70-1600 | | | | |
| | | | | 100 | 50-800 | | | | |
| | | | | 110 | 50-800 | | | | |
| 14 | 14 | 14 | 50-600 | 100 | 50-800 | | | | |
| | | | | 110 | 50-800 | | | | |
| | | | | 200 | 60-1600 | | | | |
| | | | | 220 | 80-1600 | | | | |
| | | | | 100 | 50-800 | | | | |
| | | | | 110 | 50-800 | | | | |
| 15.77 5/8 inch | 15.77 | 15.77 | 50-600 | 100 | 50-800 | | | | |
| | | | | 110 | 60-800 | | | | |
| | | | | 200 | 70-1600 | | | | |
| | | | | 220 | 90-1600 | | | | |
| | | | | 100 | 50-800 | | | | |
| | | | | 110 | 50-800 | | | | |
| 16 | 16 | 16 | 50-600 | 100 | 50-800 | | | | |
| | | | | 110 | 50-800 | | | | |
| | | | | 200 | 60-1600 | | | | |
| | | | | 220 | 90-1600 | | | | |
| | | | | 100 | 50-800 | | | | |
| | | | | 110 | 50-800 | | | | |
| 18 | 18 | 18 | 50-600 | 100 | 50-800 | | | | |
| | | | | 110 | 60-800 | | | | |
| | | | | 200 | 100-1600 | | | | |
| | | | | 220 | 130-1600 | | | | |
| | | | | 100 | 50-800 | | | | |
| | | | | 110 | 60-800 | | | | |
| 18.95 3/4 inch | 18.95 | 18.95 | 50-600 | 100 | 50-800 | | | | |
| | | | | 110 | 60-800 | | | | |
| | | | | 200 | 100-1600 | | | | |
| | | | | 220 | 130-1600 | | | | |
| | | | | 100 | 50-800 | | | | |
| | | | | 110 | 60-800 | | | | |

- Ⓢ The specified increment for the L dimension has been changed to a 5 mm increment.
- Ⓢ MCHSR is not available between L301-L600 for D6 and D6.25, and between L401-600 for D8 and D9.42.
- Ⓢ 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
MCHSR12.6 - 60 - V200 - W80 - T 500

Lead Wire Type

| Symbol | Lead Wire Type | Heat Resistance Temperature | Features |
|--------|---|-----------------------------|---|
| 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 |

Application Example

Precautions for Use

- 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.
- Pay attention to insulation tube as it is easy to fall off.
- Keep the temperature around the lead wire exit at 130°C or less.

