Cartridge Heaters

Lead Wire Protection / Internal Connection

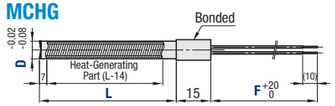
Cartridge Heaters – Lead Wire Protection / Internal Connection

RoHS 10

Straight No Flange

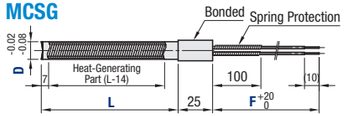
No Protective Spring

MCHG



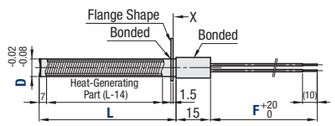
With Protective Spring

MCSG

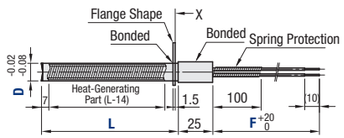


Straight With Flange

MCHGA Flange Shape A
MCHGB Flange Shape B

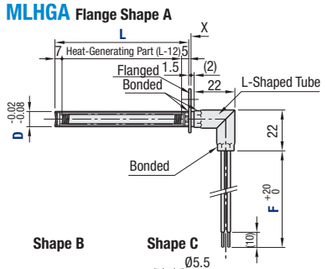


MCSGC Flange Shape C

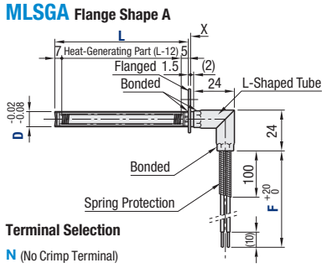


L-Shaped With Flange

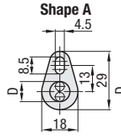
MLHGA Flange Shape A



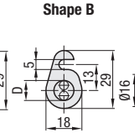
MLSGA Flange Shape A



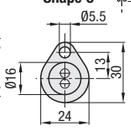
Shape A



Shape B



Shape C



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 1 mm Increment	V (Voltage) Selection	W (Electrical Power) 10 W Increment	F (Lead Wire Length) 10 mm Increment	Terminal Selection
No Protective Spring MCHG / With Protective Spring MCSG	8	50–400	100 110 200 220	50–500	300–1000	N M Y
				50–1100		
	10		100 110 200 220	50–600		
				50–1600		
	12		100 110 200 220	50–900		
				50–1800		
	16		100 110 200 220	50–1000		
				50–2000		

Part Number Type	D	L 1 mm Increment	V (Voltage) Selection	W (Electrical Power) 10 W Increment	F (Lead Wire Length) 10 mm Increment	Terminal Selection
No Protective Spring MCHGA MCHGB MLHGA / With Protective Spring MLSGA	8	50–400	100 110 200 220	50–500	300–1000	N M Y
				50–1100		
	10		100 110 200 220	50–600		
				50–1600		
	12		100 110 200 220	50–900		
				50–1800		
With Protective Spring MCSGC	16		100 110 200 220	50–1000		
				50–2000		

! 2≤W/cm²≤15 W/cm²=W/{Dπ(L-14) *⁄100} *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.

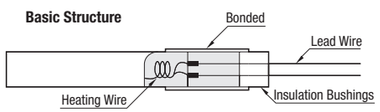
Type of Terminal

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



MiSUMi

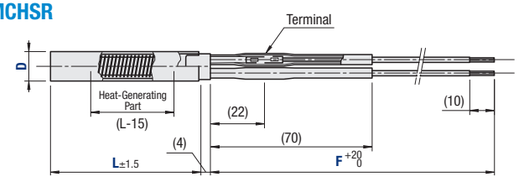
Cartridge Heaters

Configurable L, W & F

Cartridge Heaters – Configurable L, W & F

RoHS 10

MCHSR



D Tolerance

D	Tolerance
6 8 10 12 14 16 18	-0.02 -0.08
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) Lead Wire Type	F (Lead Wire) 10mm Increment	Electrical Power Density (W/cm²)
MCHSR	6	50–250	100	50–500	G Silicon Rubber Wire	100–1000	! 2≤W/cm²≤15 W/cm²= W/{Dπ(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			
	6.25 1/4 inch		100	50–500			
			110	50–500			
			200	60–600			
			220	80–600			
	8	50–400	100	50–600			
			110	50–600			
			200	50–1200			
			220	70–1200			
	9.42 3/8 inch		100	50–600			
			110	50–600			
			200	50–1200			
			220	70–1200			
	10		100	50–600			
			110	50–600			
			200	50–1200			
			220	70–1200			
	12		100	50–800			
			110	50–800			
			200	50–1600			
			220	70–1600	T Teflon Wire		
	12.6 1/2 inch		100	50–800			
			110	50–800			
			200	50–1600			
			220	70–1600			
	14		100	50–800			
			110	50–800			
			200	60–1600			
		50–600	220	80–1600			
	15.77 5/8 inch		100	50–800			
			110	60–800			
			200	70–1600			
			220	90–1600	*M Silica Wire		
	16		100	50–800			
			110	50–800			
			200	60–1600			
			220	90–1600			
	18		100	50–800			
			110	60–800			
			200	100–1600			
			220	130–1600			
	18.95 3/4 inch		100	50–800			
			110	60–800			
			200	100–1600			
			220	130–1600			

! 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: Lead Wire Type	F Lead Wire: Length
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.