Made in USA

Hi-Density Cartridge Heater Specifications

PERFORMANCE RATINGS

Max. Temperature: ❖1400°F (760°C)

Max. Watt Density: 100-300 W/in² (15.5-46.5 W/cm²) depending on heater size & operating temperature.

NOTE: The maximum operating temperature and the life expectancy of a cartridge heater is dependent on two main factors:

1. The maximum recommended sheath temperature **(❖1200°F for a standard heater)**
2. The maximum ambient temperature for the termination selected.

Consult Tempco if you require a recommendation for your application.

DIMENSIONAL SPECIFICATIONS

Nominal Diameter	1/4"		5/16"		3/8"		1/2		5/8"		3/4"		1"	
	in	(mm)	in	(mm)	in	(mm)	in	(mm)	in	(mm)	in	(mm)	in	(mm)
Actual Diameter	.246	(6.25)	.308	(7.82)	.371	(9.42)	.496	(12.60)	.621	(15.77)	.746	(18.95)	.996	(25.30)
Diameter Tolerance	±.002	(.051)	±.002	(.051)	±.002	(.051)	±.002	(.051)	±.002	(.051)	±.003	(.076)	±.003	(.076)
Minimum Length	1	(25.40)	1	(25.40)	1	(25.40)	1	(25.40)	1	(25.40)	1-1/4	(31.75)	1-3/4	(44.45)
Maximum Length	36	(914)	36	(914)	48	(1219)	60	(1524)	72	(1829)	72	(1829)	72	(1829)
Length Tolerance	±3/32	(2.4)	±3/32	(2.4)	±3/32	(2.4)	±3/32	(2.4)	±3/32	(2.4)	±1/8	(3.2)	±1/8	(3.2)
	Heaters up to 5" (127 mm)													
	±2% of Sheath Length Heaters over 5" (127 mm)													
Camber Tolerance Heaters up to 6" (152 mm) long	0.005" (0.127 mm)													
Camber Tolerance Heaters over 6" (152 mm) long	0.020" (0.508 mm) per foot of length (0.020 x (length in feet)²)													

A certain amount of Camber is unavoidable.
With a slight force, Hi-Density Cartridge Heaters will flex enough to fit into a straight reamed hole.

ELECTRICAL SPECIFICATIONS

Nominal Diameter	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"
Maximum Voltage	240	240	240	240	480*	480*	480*
Maximum Amperage (see next line for exceptions)	4.4	4.5	6.7	10.5	23	23	23
†Maximum Amperage for Types C1C, C1D, C2C, C2D, CS, F, M3, R1B, S1, S2, SA, W & W3 Terminations	3.0	3.0	5.5	7.6	9.7	9.7	9.7
Minimum Wattage at 120V on a 1" long Heater	50	45	45	50	50	—	—
Minimum Wattage at 120V on a 2" long Heater	20	20	20	20	20	20	20
Maximum Wattage at 120V	525	540	800	1260	2760	2760	2760
Maximum Wattage at 240V	1050	1080	1600	2520	5520	5520	5520
Maximum Wattage at 480V	—	—	—	—	11,000	11,000	11,000
Wattage Tolerance	Plus 5%, Minus 10%						
Resistance Tolerance	Plus 10%, Minus 5%						

†Current carrying capacities are for ambient temperatures up to 482°F (250°C) with mica insulated lead wires.
*480V when applicable. Consult Tempco.

LENGTH TOLERANCE FOR:
– LEAD WIRES
– WIRE BRAID LEADS
– ARMOR CABLE LEADS

Up to 36": -1/2", +1" (-12.7 mm, +25.4 mm)
36" to 72": -1", +2" (25.4 mm, +50.8 mm)
Above 72": ±4" (101.6 mm)

Note: Specifications detailed on this page are standard. Consult Tempco if your application requires tighter tolerances or has other special requirements.

TEMPERATURE COEFFICIENT OF RESISTANCE

The electrical resistance (ohms) of the heater resistance wire increases with temperature rise.

Tempco standard Hi-Density Cartridge Heaters are manufactured with ohms (cold ohms) 3.3% lower than the actual calculated ohms (hot ohms) to compensate for this increase.

Note: **For Miniature Cartridge Heater Specifications in 1/8", 5/32" and 3/16" diameters, see page 2-10.**

AVAILABLE ELECTRICAL FEATURES

Diameter	Dual Volts	3-Phase	Dual Circuits	Multiple Heat Zones (maximum 3 zones)
1/4"	No	No	No	No
5/16"	No	No	No	No
3/8"	Yes*	No	No	Yes*
1/2"	Yes*	Yes	Yes	Yes*
5/8"	Yes	Yes	Yes	Yes
3/4"	Yes	Yes	Yes	Yes
1"	Yes	Yes	Yes	Yes

Consult factory for maximum wattages and voltages.
*** Heaters may require a larger diameter transition area at lead end.**

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