

# Cartridge Heaters



## Hi-Density Miniature

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#### PERFORMANCE RATINGS

**Max. Temperature:** 1200°F (649°C)  
**Max. Watt Density:** 100-200 W/in<sup>2</sup> (15.5-31 W/cm<sup>2</sup>)  
 depending on operating temperature.

#### SHEATH MATERIAL

**Standard:** Type 304 Stainless Steel  
**Optional (1/8" Heaters Only):** Inconel 600

#### ELECTRICAL SPECIFICATIONS

Nominal Diameter	1/8"	5/32"	3/16"
Maximum Voltage		240	
Maximum Amperage		3.0	
Maximum Wattage at 120V		360	
Maximum Wattage at 240V		720	
Wattage Tolerance		+10,-15%	
Resistance Tolerance		+15,-10%	

**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
  2. The maximum ambient temperature for the termination selected
- Consult Tempco if you require a recommendation for your application.

#### DIMENSIONAL SPECIFICATIONS

Nominal Diameter	1/8"		5/32"		3/16"	
	in	(mm)	in	(mm)	in	(mm)
Actual Diameter	0.122	(3.10)	0.153	3.89	0.184	4.67
Diameter Tolerance	±.002 (.051)					
Minimum Length	1.25 (31.8)					
Maximum Length	12 (305)					
Length Tolerance: Heaters up to 3.5" (89 mm) long	±3/32 (2.4)					
Length Tolerance: Heaters over 3.5" (89 mm) long	±3% of Sheath Length					

### Standard (Non-Stock) Hi-Density Miniature Cartridge Heaters

#### 1/8" Actual .122" (3.10 mm) Dia. Hi-Density Cartridge Heaters with Type M3 Termination (10" leads)

Sheath Length	in	mm	Voltage	Watts	Watt Density	W/in <sup>2</sup>	W/cm <sup>2</sup>	Part Number
1	25.4	24	15	78	12			HDC34987
1	25.4	24	20	104	16			HDC34988
1	25.4	24	25	130	20			HDC34989
1	25.4	24	30	157	24			HDC34990
1	25.4	48	20	104	16			HDC34991
1	25.4	48	35	183	28			HDC34992
1 1/4	31.8	120	25	87	13			HDC34993
1 1/4	31.8	120	35	122	19			HDC34994

Sheath Length	in	mm	Voltage	Watts	Watt Density	W/in <sup>2</sup>	W/cm <sup>2</sup>	Part Number
1 1/4	31.8	120	50	174	27			HDC34995
1 1/2	38.1	120	30	78	12			HDC34996
1 1/2	38.1	120	60	157	24			HDC34997
2	50.8	120	50	87	13			HDC34998
2	50.8	120	100	174	27			HDC34999
2	50.8	240	50	87	13			HDC35000
2	50.8	240	100	174	27			HDC35001

#### 5/32" Actual .153" (3.89 mm) Dia. Hi-Density Cartridge Heaters with Type M3 Termination (10" leads)

Sheath Length	in	mm	Voltage	Watts	Watt Density	W/in <sup>2</sup>	W/cm <sup>2</sup>	Part Number
1 1/4	31.8	24	25	69	11			HDC35002
1 1/4	31.8	48	25	69	11			HDC35003
1 1/4	31.8	48	50	139	21			HDC35004
1 1/4	31.8	120	30	83	13			HDC35005
1 1/4	31.8	120	45	125	19			HDC35006
1 1/4	31.8	120	60	166	26			HDC35007
1 1/2	38.1	120	40	83	13			HDC35008

Sheath Length	in	mm	Voltage	Watts	Watt Density	W/in <sup>2</sup>	W/cm <sup>2</sup>	Part Number
1 1/2	38.1	120	60	125	19			HDC35009
2	50.8	120	50	69	11			HDC35010
2	50.8	120	100	139	21			HDC35011
2	50.8	240	50	69	11			HDC35012
2	50.8	240	100	139	21			HDC35013
3	76.2	120	150	125	19			HDC35014
4	101.6	120	200	119	18			HDC35015

#### 3/16" Actual .184" (4.67 mm) Dia. Hi-Density Cartridge Heaters with Type M3 Termination (10" leads)

Sheath Length	in	mm	Voltage	Watts	Watt Density	W/in <sup>2</sup>	W/cm <sup>2</sup>	Part Number
1 1/4	31.8	24	25	58	9			HDC35016
1 1/4	31.8	48	25	58	9			HDC35017
1 1/4	31.8	48	50	115	18			HDC35018
1 1/4	31.8	120	30	69	11			HDC35019
1 1/4	31.8	120	45	104	16			HDC35020
1 1/4	31.8	120	60	138	21			HDC35021
1 1/2	38.1	120	50	86	13			HDC35022

Sheath Length	in	mm	Voltage	Watts	Watt Density	W/in <sup>2</sup>	W/cm <sup>2</sup>	Part Number
1 1/2	38.1	120	75	130	20			HDC35023
2	50.8	120	50	58	9			HDC35024
2	50.8	120	100	115	18			HDC35025
2	50.8	240	50	58	9			HDC35026
2	50.8	240	100	115	18			HDC35027
3	76.2	120	150	104	16			HDC35028
4	101.6	120	200	99	15			HDC35029



**Note:** Miniature Hi-Density Cartridge Heaters are *made-to-order only*. **Standard lead time is 3 weeks.** Cartridge heaters can be very application specific. Consult Tempco with your special requirements. For sizes, ratings & design features required but not listed in the catalog, Tempco will custom engineer and manufacture to your specifications.