



## Hi-Density Miniature

### Hi-Density 1/8" Diameter Miniature Cartridge Heaters

#### 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.

**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"	
	in	(mm)
Actual Diameter	.122	(3.10)
Diameter Tolerance	±.002	(.051)
Minimum Length	1.25	(31.8)
Maximum Length	12	(305)
Length Tolerance Heaters up to 5" (127 mm) long	±3/32 (2.4)	
Length Tolerance Heaters over 5" (127 mm) long	±2% of Sheath Length	

#### SHEATH MATERIAL

Type 304 Stainless Steel

#### ELECTRICAL SPECIFICATIONS

Nominal Diameter	1/8"
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%

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

Sheath Length		Watts	Watt Density		Part Number	
in	mm		W/in <sup>2</sup>	W/cm <sup>2</sup>	120V	240V
1¼	31.8	25	90	14	HDC19100	—
1¼	31.8	35	126	20	HDC19101	—
1½	31.8	50	180	28	HDC19102	—
1½	38.1	30	80	12	HDC19103	—
1½	38.1	60	160	25	HDC19104	—
2	50.8	40	70	11	HDC19105	—

Sheath Length		Watts	Watt Density		Part Number	
in	mm		W/in <sup>2</sup>	W/cm <sup>2</sup>	120V	240V
2	50.8	50	87	13	HDC19106	HDC19112
2	50.8	100	175	27	HDC19107	HDC19113
2½	63.5	50	68	11	HDC19108	—
3	76.2	60	64	10	HDC19109	—
3½	88.9	70	62	10	HDC19110	—
4	101.6	80	60	9	HDC19111	HDC19114



**Note:** 1/8" Diameter Hi-Density Cartridge Heaters are made-to-order only.  
**Standard lead time is 3 weeks.**

### Custom Engineered/Manufactured 1/8" Hi-Density Cartridge Heaters

(Refer to pages 2-2 through 2-9)

Because cartridge heaters can be very application specific, consult Tempco with your special requirements. For sizes, electrical ratings and any other design features required but not listed in the catalog, Tempco will custom engineer and manufacture to your specifications.

*Consult Us with Your Requirements. We Welcome Your Inquiries.*

**Custom  
Manufactured**





### 1/8" Diameter Cartridge Heaters Termination Types

#### Type N External Pins with Leads (Standard Termination)

- Minimum 1/4" cold section at lead end is required
- 24 ga ultralead leads temperature rating: 482°F (250°C)
- Leads externally crimped to nickel pins
- **Standard** 10" (254 mm) leads. Specify longer leads.



#### Type F Internally Connected Flexible Leads

- Minimum 1/2" cold section at lead end is required
- High temperature fiberglass leads temperature rating: 842°F (450°C)
- Maximum Voltage: 120V
- **Standard** 10" (254 mm) leads. Specify longer leads.



#### Type M3 Teflon® End Plug Seal with Teflon® Leads

- Minimum 1/2" cold section at lead end is required
- 24 ga Teflon® insulated leads temperature rating: 392°F (200°C)
- Moisture resistant swaged Teflon® seal
- **Standard** 10" (254 mm) leads. Specify longer leads.



#### Type C1B SS Cable, Mechanically Fastened

- Minimum 1/4" cold section is required
- Provides maximum protection for abrasive environment
- Maximum Voltage: 120V
- **Standard** 10" (254 mm) cable over 12" (305 mm) leads. Specify longer leads or cable.



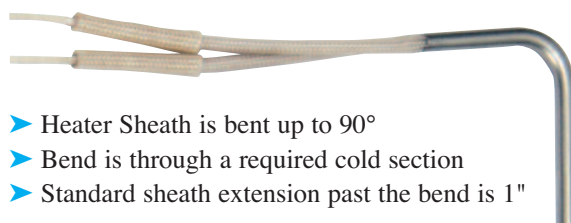
#### Type W SS Braid, Mechanically Fastened

- Minimum 1/4" cold section is required
- Offers sharp bending and abrasion protection
- Maximum Voltage: 120V
- **Standard** 10" (254 mm) cable over 12" (305 mm) leads. Specify longer leads or cable.



### 1/8" Diameter Cartridge Heaters Mounting Options

#### Type R4 Bent Cartridge



- Heater Sheath is bent up to 90°
- Bend is through a required cold section
- Standard sheath extension past the bend is 1"

#### Type MFR Mounting Flange

- 1" diameter; 2 × 9/64" mounting holes are standard
- Other sizes available

