

Cartridge Heaters



Hi-Density Miniature

Hi-Density Miniature Cartridge Heaters

PERFORMANCE RATINGS

Max. Temperature: 1200°F (649°C)
Max. Watt Density: 100-200 W/in² (15.5-31 W/cm²)
 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 ² | W/cm ² | 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 ² | W/cm ² | 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 ² | W/cm ² | 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 ² | W/cm ² | 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 ² | W/cm ² | 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 ² | W/cm ² | 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.