



Deep Drawn Cartridge Heaters

The Seamless Metal Jacket... when heater integrity is an absolute must.

Deep Drawn cartridge heaters keep vital equipment operating in aerospace, corrosive or critical care environments.

A seamless sheath construction eliminates the welded end disk to provide superior sheath integrity. As welds are subject to imperfections that can cause failure, Heatron designed a cartridge heater encased in deep drawn seamless metal to remove weld issues completely.

Deep Drawing refers to the process of repeatedly pulling a flat metal blank over a die and into a cavity, progressively forming a closed cylinder. This precision metal forming is ideal when the reliability of the equipment is of vital concern.

Agency Approvals

Heatron offers an extensive UL option list and builds to UL 60601/IEC-60601.

UL E91597 (UL 499)

CSA LR66355-1 (CSA-22.2)

TUV* EN60335-1/A11 and EN61010-1A2

*This approval gives Heatron the option of CE marking.



APPLICATIONS

Aviation:

- Galley equipment
- Water heaters

Medical and Life Science

- Fluid warming
- Vaporization
- Laboratory equipment

Industrial

- Water, chemical or oil immersion applications
- Plastic reclamation

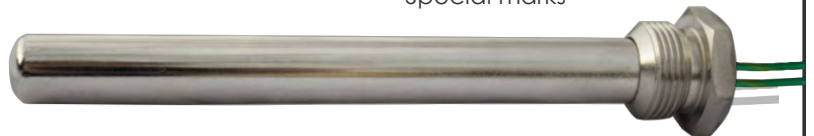
DESIGN GUIDE

Construction Options:

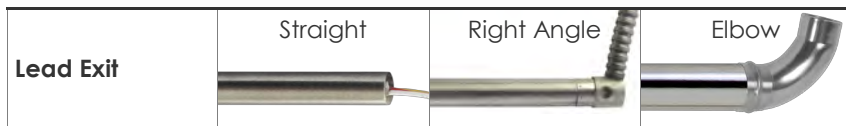
- 304 or 316L stainless steel sheath
- ½" and ¾" diameters
- Lengths up to 7½"
- See Design Guide on back page for common options

Performance Options:

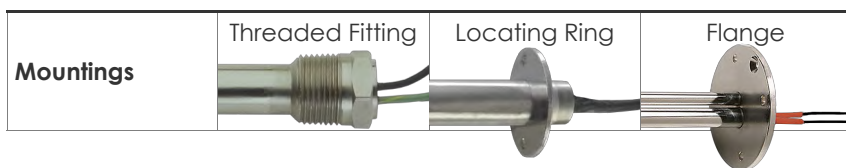
- Low leakage current
- Dual voltage
- Dual wattage
- Ground wires
- Three phase power
- Controlled heat profile
- Internal thermocouple
- Electropolish or passivation
- Special marks



Design Guide



Lead Options: Crimped On, Swaged In, No-Heat Extension
Insulation and heater materials available with UL, CSA or Mil Spec recognition.



Specifications

Nominal Diameter	Maximum Length	Maximum Amps*	Maximum Volts	Maximum Watts**					Minimum Watts (120V)***		
				120V 1 Phase	240V 1 Phase	480V 1 Phase	240V 3 Phase	480V 3 Phase	Length		
									1"	1 1/2"	2"
1/2"	7 1/2"	9.7	480	1,160	2,320				40	25	20
3/4"	7 1/2"	23.0	480	2,760	5,520	11,000	9,550	19,100	30	15	10

* Data determined by current capability or internal parts and lead wire. Consult Heatron for higher AMPS.

** Higher wattages available with design additions. Consult Heatron for higher wattage requirements.

*** Data based on space limits for resistance windings internal to the heater. For minimums at 240 volts, multiply listed wattage by 4. Consult Heatron for lower wattage requirements.

US Size Tolerances

Diameter*	± 0.003 inches
Length*	± 3%
Camber	≤ 6 Inches in length: 0.006 inches > 6 inches in length: 0.02 inches per foot
Wattage	+5%, -10% per NEMA Standard
Resistance	+10%, -5% per NEMA Standard
No Heat	1/4 inches on disc end Minimum 1/4 inches on lead end

* Tighter tolerances available.

With thousands of possible configurations, contact Heatron Engineering for optimal design and construction ratings.