Cartridge Heat Exchanger

A Heater in a Jacket for heat-on-demand.

A compact heater designed for corrosion resistance and easy maintenance.

Engineered to quickly and safely heat liquids, oils and gases, Heatron's heat exchanger provides faster, more efficient heat transfer.

This compact cartridge design provides higher watt density and dielectric strength compared to tubular versions. Couple this with internal controls for exceptional thermal response, efficiency and precisely applied heat.

Agency Approvals

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

UL E91597 (UL 499)

CSA LR66355-1 (CSA-C22.2)

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

*This approval gives Heatron the option of CE marking.

HEATRON
ISO 9001:2008 Registered

DESIGN GUIDE

Construction Options

Ports located and configured to customer fittings in any location and can be flared to ensure secure clamped connections

Ground wire can be internally connected in heater or a ground lug welded to the heat exchanger

Thermal wells with fittings for mounting thermocouples, thermistors, RTDs or other temperature controlling devices

Mounting pads for disc thermostats or other thermostats welded to the heat exchanger

Mounting brackets designed to customer specifications, including over-the-side design for non-pressurized systems

See Design Guide on back page for common options

Performance Options:

Low leakage current
Dual voltage
Ground wires
Three phase power
Internal thermocouple
Over temperature control
Electropolish or passivation
Special marks

APPLICATIONS

Oil and Gas

Oil heaters
Engine pre-heating

Medical and Life Science

Fluid warming
Laboratory equipment

Industrial

Water, chemical or oil immersion applications
Air and gas systems
Emergency generators

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Construction Options

Sheath	Lead Exit	Lead Wire	Outer Jacket	End Seal	Fittings
304 Stainless Steel	Straight	Fiberglass	SS Braid	Mica	Flange
316L Stainless Steel	Right Angle	Silicone	SS Cable	Epoxy	UL Listed Plug
Incoloy	Elbow	Teflon	Strain Relief Spring	Ceramic	
		Straight Pins	Silicone	Silicone	
			Fiberglass	Teflon	

Lead Options: Crimped On, Swaged In
Insulation and heater materials available with UL, CSA or Mil Spec recognition.

Design Guide

Nominal Diameter	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 ½"	2"
1/4"	4.4	240	525	1,050				100	55	40
3/8"	7.2	480	800	1,600				65	35	25
1/2"	9.7	480	1,160	2,320				40	25	20
5/8"	23.0	480	2,760	5,520	11,000			35	20	15
3/4"	23.0	480	2,760	5,520	11,000	9,550	19,100	30	15	10

Nominal Diameter	Maximum Amps*	Maximum Volts	Maximum Watts**		Minimum Watts (220V)***		
			220V	380V	25.4 mm	38.1 mm	50.8 mm
8.0mm	4.4	240	965		340	185	135
10.0mm	7.2	480	1,580		220	120	85
12.5mm	9.7	480	2,130		135	85	70
16.0mm	23.0	480	5,060	8,740	120	70	50
20.0mm	23.0	480	5,060	8,740	100	50	35

* 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 Dimensions

Diameter		Length	
Nominal	Actual	Minimum	Maximum*
	Inches	Inches	Inches
1/4"	.245	7/8	36
3/8"	.371	7/8	48
1/2"	.495	7/8	60
5/8"	.621	1.0	72
3/4"	.745	1.0	72

Metric Size Dimensions

Diameter		Length	
Nominal	Actual	Minimum	Maximum*
	mm	mm	mm
8.0mm	6.2	22.2	915
10.0mm	9.42	22.2	1,220
12.5mm	12.57	22.2	1,520
16.0mm	15.77	25.4	1,830
20.0mm	18.92	25.4	1,830

* Recommended maximum length; longer lengths available.

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

Metric Size Tolerances

Diameter*	± 0.07 mm
Length*	± 3%
Camber	≤ 150mm length: 0.16mm > 150mm length: 0.25mm per 300mm
Wattage	+5%, -10% per NEMA Standard
Resistance	+10%, -5% per NEMA Standard
No Heat	6 mm on disc end Minimum 6 mm on lead end

* Tighter tolerances available.

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