IMMERSION CARTRIDGE HEATING ELEMENTS

Pack more heat in tighter spaces

Immersion heaters are ideal for heating water, water soluble solutions and low viscosity liquids.

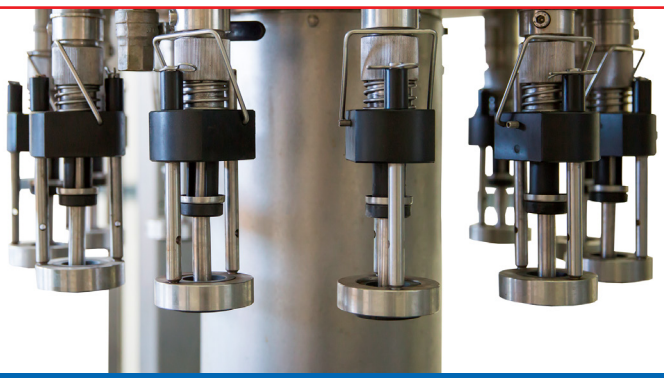
This compact heater with an integral fitting offers versatility in product design, minimum assembly time and ease of service. With smaller fittings than tubular versions, cartridge immersion heaters are ideal for tight spaces.

Heatron engineers design to the application at hand, incorporating factors such as liquid type, temperature requirements, flow rates and scale build up. Watt densities of up to 300 W/in2 allows the designer to minimize space without sacrificing performance.

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.



DESIGN GUIDE

Construction Options

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
- Over temperature control
- Electropolish or passivation
- Special marks

APPLICATIONS

Medical and Life Science

- Fluid warming
- Chemical processing
- Laboratory equipment

Industrial

- Plastics processing
- Food processing
- Water treatment
- Preheat equipment

Construction Options					
Sheath	**Lead Exit**	**Lead Wire**	**Outer Jacket**	**End Seal**	**Mounting**
304 Stainless Steel	Straight	Fiberglass	SS Braid	Mica	Threaded Fitting
316L Stainless Steel	Right Angle	Silicone	SS Cable	Epoxy	Flange
Incoloy	Elbow	Teflon	Strain Relief Spring	Ceramic	
	Bent Radius Sheath	Straight Pins	Silicone	Silicone	
			Fiberglass	Teflon	

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

Design Guide										
Nominal Diameter	**Maximum Amps***	**Maximum Volts**	**Maximum Volts****					**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 Volts****					**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.