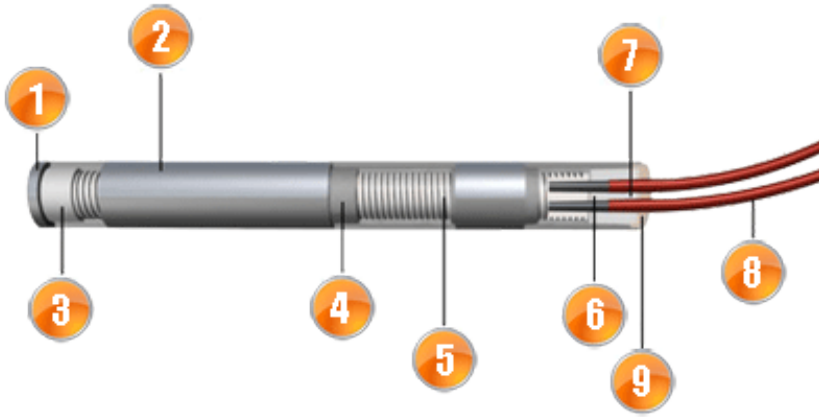
IMMERSION CARTRIDGE HEATERS

CONSTRUCTION



1. WELDED DISC
2. STAINLESS STEEL TUBE IN 304/316/321/ INCOLOY
3. CERAMIC DISC INSULATOR
4. PURE MAGNESIUM OXIDE
5. NICKEL-CHROME 80/20 HEATER WIRE
6. CERAMIC CORE
7. HARD CERAMIC HEAD
8. LEAD WIRE
9. OPTIONAL POTTING COMPOUND

INFORMATION

MPI Morheat has an extensive Stock List of Cartridge heaters available for same day shipment. MPI Morheat also manufactures custom cartridge heaters and can expedite production if needed.

Cartridge heaters are most frequently used for heating metal parts through insertion into drilled holes. For easy installation, the heaters are made slightly undersized relative to their nominal diameter. The majority of applications do not require maximum watt/in². Using as little wattage as possible to meet process requirements will ensure maximum heater life.

Holes should be drilled and reamed, rather than drilled to the final diameter with a general purpose drill. At high watt densities, a close fit is important. The fit is the difference between the minimum diameter of the heater and maximum diameter of the hole.

DIAMETERS

We can also manufacture heaters to exact diameters – ex. 0.496″ Diameter Heaters

Diameter Sizes Available and Tolerances

SIZES – ROUND					SIZES – SQUARE			
Nom Dia	Min Dia	Max Dia	Max Amps	Max Volts	Nom Size	Min Size	Max Size	Max Amps
1/8”	0.119	0.124	3.6	240	3/8”x3/8”	0.369	0.374	9
1/4”	0.244	0.249	9	30	1/2”x1/2”	0.494	0.499	9
6.5mm	0.25	0.255	9	300	5/8”x5/8”	0.619	0.624	15
8mm	0.309	0.314	9	300	SIZES – RECTANGLE			
/8″	0.369	0.374	9	480	Nom Size	Max Width	Max Depth	Min Watts
10mm	0.388	0.393	15	480	1/8″x1/4″	0.124	0.249	10
7/16″	0.432	0.437	15	600	1/8″x3/8″	0.124	0.374	10
12mm	0.466	0.471	15	600	1/4″x5/8″	0.249	0.624	10
12.5mm	0.486	0.491	15	600	1/4″x1″	0.249	0.999	10
1/2″	0.494	0.499	15	600				
13mm	0.506	0.511	15	600				
17/32″	0.525	0.53	15	600				
14mm	0.545	0.55	26	600				
5/8″	0.619	0.624	26	600				
16mm	0.624	0.629	26	600				
17mm	0.663	0.668	26	600				
11/16″	0.682	0.687	26	600				
19mm	0.742	0.747	26	600				
3/4″	0.744	0.749	26	600				
20mm	0.782	0.786	26	600				
25mm	0.978	0.983	26	600				
1″	0.994	0.999	26	600				

- LENGTH TOLERANCE is +/- 3% or +/- 3/32, whichever is greater (*excludes disc and lead end varied formation lengths)
- CAMBER TOLERANCE is .025″ per foot of length. Slight camber is normally not a problem since the heater will flex enough to enter a clean hole.
- WATTAGE TOLERANCE is +5%, -10%

LEAD WIRE OPTIONS

Picture	Type	Max Temp	Notes
	MGT 1000°C	**1832°F / 1000°C**	Flexible, Not Waterproof
	MGT 750°C	**1382°F / 750°C**	Flexible, Not Waterproof
	Duraflex	**1022°F / 550°C**	Flexible, Not Waterproof
	MGT	**842°F / 450°C**	Flexible, Not Waterproof
	TGGT	**482°F / 250°C**	Durable, Flexible, Not Waterproof
	Teflon	**500°F / 260°C**	Abrasion Resistant, Small OD, Waterproof
	Silicone Rubber	**355°F / 180°C**	Very Flexible, Waterproof, Easy to Nick
	SEW2	**392°F / 200°C**	Very Flexible, Fair Abrasion Resist, Waterproof

END SEAL OPTIONS

Type	Max Temp	Moisture Protection	Contaminant Protection	Mech. Strength	Vibration Resist.
Ceramic	2500°F 1371°C	Poor	Poor	Excellent	Excellent
Teflon	300°F 149°C	Excellent	Excellent	Very Good	Excellent
Lava	3000°F 1649°C	Poor	Good	Good	Poor

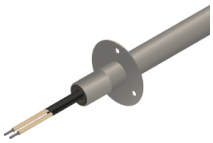
Cement Potting	1800°F 982°C	Poor	Fair	Good	Poor
Epoxylite Potting	650°F 343°C	Fair	Very Good	Very Good	Excellent
Epoxy Potting	265°F 129°C	Good	Good	Excellent	Excellent
Silicone Rubber	500°F 260°C	Excellent	Excellent	Fair	Excellent

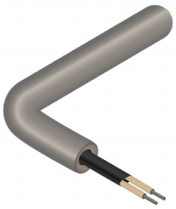
TERMINATIONS

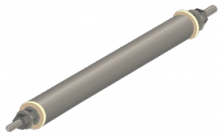
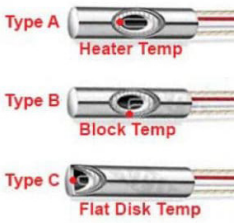
Common Termination Styles	Picture
High Temperature Swaged in Leads	
High Temperature Leads w/ 90° Exit	
High Temperature Crimped on S/S Braid	
High Temperature Swaged in S/S Braid	
High Temperature Leads w/ 90° Exit & S/S Braid	
High Temperature Leads w/ 90° Exit & S/S Armor	
High Temperature Leads w/ S/S Armor	

Post Terminals	

OPTIONS

Add Ons Features		
Picture	**Type**	**Notes**
	Stainless Steel Fittings	Single or Double-ended : 1/8″, 1/4″, 3/8″NPT 1/2″, 3/4″, 1″NPT
	Brass Fittings	Single or Double-ended : 1/8″, 1/4″, 3/8″NPT 1/2″, 3/4″, 1″NPT
	Flanges	Standard Stainless Steel. Flanges can be round or irregularly shaped.
	Strain Relief	Provides extra support for leads. Great for Flexing applica-tions

Special Constructions		
Picture	**Type**	**Notes**
	Bent Heater	Must be bent in an unheat-ed section
	MultiZone or Distributed Watts	Multi Zone – Up to 3 zones Distributed Wattage – cus-tom

	Double Ended	Electrical Termination on Both Sides – either Lead Wires, Post terminals
	Internal T/C	(J/K)Type A – Center Core – Heater Temperature Type B – Middle – Block Temperature Type C – End – Disk End Temperature Flat Bottom