

Experience Our Value-Added Services that are Second to None

Minimum Casting Thickness vs. Heating Element and/or Cooling Tube Diameters

Casting Thickness	Maximum Available Element Diameter Heat Only	Maximum Available Cooling Tube Diameter Cool Only	Maximum Element and Cooling Tube Combination Heat and Cool
5/8" (15.9 mm)	.260	1/4	—
3/4" (19.1 mm)	.375	3/8	—
1" (25.4 mm)	.430	1/2	—
1-1/4" (31.8 mm)	.430	1/2	.260 and 3/8
1-3/8" (34.9 mm)	.430	1/2	.315 and 1/2
1-1/2" (38.1 mm)	.430	1/2	.430 and 1/2
1-5/8" (41.3 mm)	.430	1/2	.430 and 1/2
1-3/4" (44.5 mm)	.430	1/2	.430 and 1/2
Finned Casting			
3/4" (19.1 mm)	.375	—	—
7/8" (22.2 mm)	.430	—	—
1" (25.4 mm)	.430	—	—
1-3/4" (44.5 mm)	.430	—	—

Casting Size & Weight Limitations

	Cylindrical	Platen
Minimum Inside Diameter:	1" (25.4 mm)	—
Maximum Inside Diameter:	48" (1219 mm)	—
Minimum Width:	—	1-1/2" (38.1 mm)
Maximum Width:	—	60" (1524 mm)
Minimum Length:	1-3/4" (44.5 mm)	4" (102 mm)
Maximum Length:	40" (1016 mm)	72" (1829 mm)
Finish:	125 RMS Standard or to customer spec.	
Gap (two-piece cylindrical cast-in band heaters):	1/4" (6.4 mm) top and bottom or to customer specification	
Maximum Weight:	Aluminum— 600 pounds Bronze & Brass— 300 pounds	

NOTES: Cylindrical heaters are made with two half-round heaters. Cast-In thermal components can be made in any practical size, weight and geometric shape.

CNC Machining

There are certain dimensional and/or finish tolerances or geometry that cannot be produced as cast and must be machined. Tempco offers a full service state-of-the-art machine shop featuring various types of CNC machine tools to perform all of the precision machining required—from simple to complex contour geometrics, including turning and/or boring, with repeatable accuracy from one machined casting to the next. Machinists also build and maintain permanent mold tooling for the low pressure and tilt-pour gravity feed casting processes.

Heating Element Electrical Specifications

Tubular Heater Diameter	.260"	.315"	.375"	.430"
Maximum Volts	240	277	480	600
Maximum Amps Per Element	15	30	40	40
Maximum Watt Density:	Aluminum Alloy—35 W/in ² on the element Bronze or Brass—45 W/in ² on the element			
Resistance Tolerance:	+10%, -5%			
Wattage Tolerance:	+5%, -10%			
Three Phase available depending on casting size. Ground Studs can be added to most cast-ins.				



Note: Tempco-Pak mineral insulated cable heaters can be used in place of tubular heating elements to fit physical constraints not possible with conventional heating elements. See catalog Section 5 for more details.

Maximum Alloy Surface Temperatures

Material	Max. Surface Temperature °F (°C)
Aluminum 319	700 (371)
Aluminum 356	750 (399)
Bronze	1350 (732)
Yellow Brass	1200 (649)

Cooling Tube Materials for Castings with Liquid Cooling

Tube Material	Tube OD and Wall Thickness
Stainless Steel (Standard)	1/4" O.D. × .028 wall
Stainless Steel (Standard)	3/8" O.D. × .035 wall
Stainless Steel (Standard)	1/2" O.D. × .049 wall
Stainless Steel (Optional)	5/8" O.D. × .049 wall
Incoloy® 840 (Optional)	1/2" O.D. × .049 wall
Tubing with heavier wall thickness is available upon request.	



Agency  US  Approvals

Cast-In Heater Elements are UL recognized under
UL File Number E90771 and CSA File 043099.

If you require UL Agency Approval, please specify when ordering.