



Thermal and Cable Solutions

ISO 9001-2015



CCOE



# COIL HEATER



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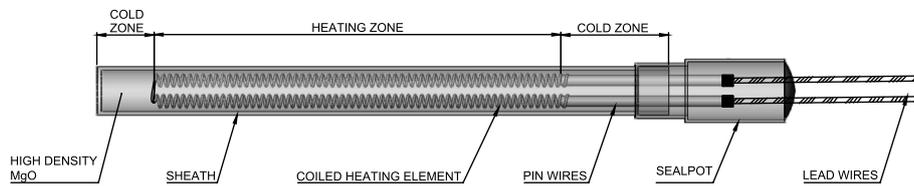
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Coil heaters are an advance concept of thermal engineering temperature control and quick response. Thermocouple can and are also known as high performance tubular heaters or be of type 'J' and type 'K', and can be terminated anywhere cable heaters. Coil heaters offers high heating profile and within the coil section.

high performance in compact spaces up to temperatures as Available with variety of wattages, surface loads, high as 750°C. Available in Various cross sections and sizes,

customized heat distribution, wall thickness and mounting coil heaters are not only straight and coil form but can be options coil heaters found its applications in variety of formed into almost in any geometrical shape. Coil heaters industries and are economically feasible one. Coil heaters can be closely wound to provide concentrated heat or can be are also available with various exit styles and configurations stretched to fulfil distributed wattage needs. Coil heaters to suit the requirement of the application.

### Construction

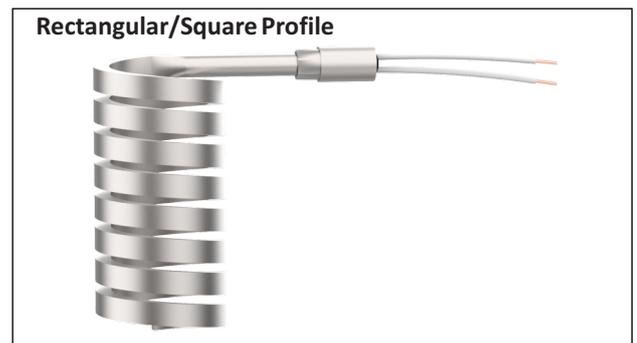
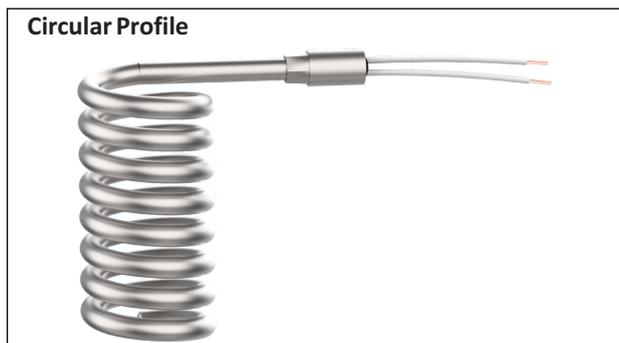


1. Nickel Chromium Resistance wire for maximum life.
2. High Purity magnesium oxide fill selected for maximum dielectric strength and thermal conductivity, highly compacted for maximum heat transfer.
3. Stainless steel sheath / Inconel sheath for oxidation and

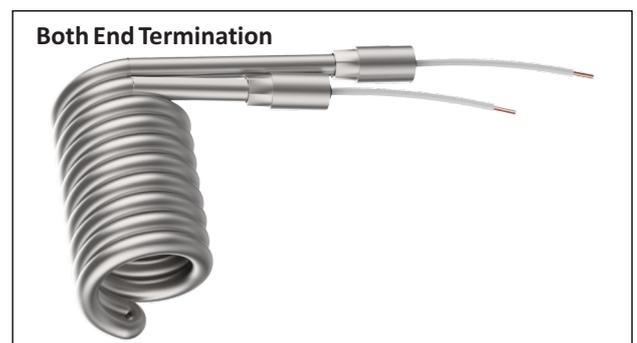
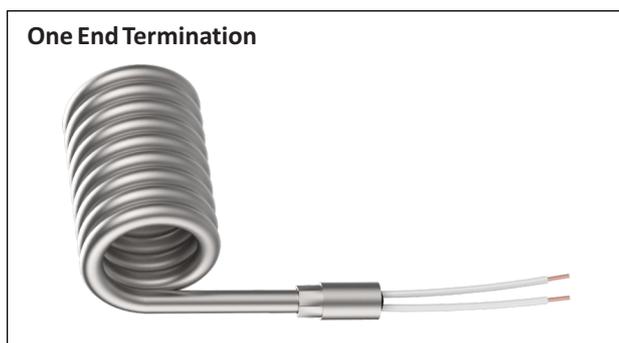
corrosion resistance in wide variety of environment.

4. Thermocouple for precise temperature control (type 'J' and type 'K' thermocouple Coil heaters are available in various termination options, coil configuration, exit styles and clamping options.

### Coiling Option



### Termination Option



Coil Configurations



Coiled with Distributed wattage



Coiled Together



Conical



Spiral



Meander

Exit Styles



Tangential



Axial



Radial



Central

Clamping and Other Option



Metal Sleeve

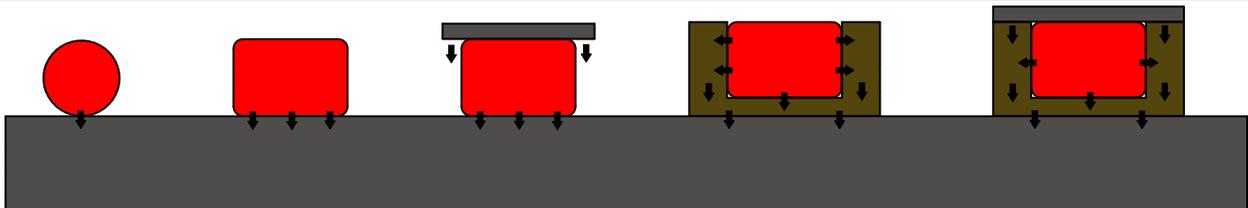


Axial Clamping



Tangential Clamping

Permissible Watt Density



ROUND  
6W/cm<sup>2</sup>  
39W/inch

FLAT  
7.5W/cm<sup>2</sup>  
48W/inch

FLAT+  
RADIANT  
7.5W/cm<sup>2</sup>  
48W/inch

PRESSED  
12.5W/cm<sup>2</sup>  
81W/inch<sup>2</sup>

PRESSED +  
RADIANT  
15W/cm<sup>2</sup>  
97W/inch<sup>2</sup>

## Technical Specifications

Heater	FCH-FT-1 x 1.6	FCH-FT-1.3 x 2.3	FCH-FT-1.8 x 3.2	FCH-FT-2.5 x 4.3	FCH-FT-3.4 x 3.4	FCH-RD-1.8	FCH-RD-2.7	FCH-RD-3.5	FCH-RD-4.5	FCH-RD-5.7	FCH-FT-4.1 x 6.7
Sizes (mm)	1.0 x 1.6	1.3 x 2.3	1.8 x 3.2	2.5 x 4.3	3.4 x 3.4	1.8	2.7	3.5	4.5	5.7	4.1 x 6.7
Specification	Flat					Round					Flat
Sheath Material	Stainless Steel / Incoloy										
Maximum Sheath temperature	Max 750°C										
Maximum Wattage (W)	200	450	600	1000	1000	450	600	700	800	2000	2000
Maximum Voltage	230 V									415 V	
Wattage tolerance	± 10%										
Resistance Tolerance	± 10%										
Length tolerance	± 5%										
Minimum Bending Radius	Twice the Sheath Diameter/Width										
Inner diameter Tolerance Ø<12 mm	-0.05 to -0.2										
Inner diameter Tolerance Ø<30 mm	-0.1 to -0.3										
Inner diameter Tolerance Ø<40 mm	-0.2 to -0.4										
Unheated Zone Length	10 mm on bottom end, 50 mm at the terminal end. Larger lengths available on request.										

## Availability (△)

Sizes (mm)	1.0 x 1.6	1.3 x 2.3	1.8 x 3.2	2.5 x 4.3	3.4 x 3.4	4.1 x 6.7	1.8	2.7	3.5	4.5	5.7
Thermocouple ( Type J/ Type K)	External	External	Internal	Internal	Internal	Internal	External	Internal	Internal	Internal	Internal
Tangential Clamping	△	△	△	△	△	△	△	△	△	△	△
Axial Clamping		△									
Metal sleeve	△	△	△	△	△	△	△	△	△	△	△

**Note** : All heaters can be designed for various lengths in accordance with various wattages up to maximum specified wattage limit.

## Lead wire options

Wire Type	Temperature Rating	Maximum Recommended Temperature	Comments
Ultralead	250°C	450°C	Excellent, durable wire, good for high temperature application
Teflon	250°C	250°C	Good dielectric strength
Silicon Rubber	200°C	200°C	Good moisture resistance
Braided Silicon rubber	200°C	200°C	Inexpensive wire good for non abrasive applications.
Fibre Glass	400°C	400°C	Excellent resistance to heat, flame, abrasion, oil, and chemicals. Excellent dielectric properties.

### Lead Wire Protection Termination-

- **Stainless Steel Braid** -stainless steel braid provides excellent abrasion protection while allowing the leads to bent in a tight radius
- **Stainless Steel Flexible Conduit**-Flexible conduit provides maximum protection to leads from abrasion but cannot bent as sharply as stainless steel braid.
- **Fiberglass Sleeving**- Good for lead protection against abrasion and allow more flexibility of lead wires.

### Application

- Zinc Die Casting Machine
- Packaging Machines- Sealing bar and jaws
- Plastics and die casting industries -Machine nozzles
- Hot runner system - Nozzles, Bushings & Distribution plates
- Tube Extrusion
- Pipe Forming
- Small Manifold heating
- Hot Metal forming dies and punches
- Semiconductor manufacturing and wafer processing

### End Seal Options

- **Teflon Seal** : Teflon seal is used where an effective sealing is required against moisture and oil contamination. Teflon lead wire is used in conjunction with teflon seal to provide an effective barrier.
- **Silicon Rubber Seal** : High temperature silicon rubber seal in conjunction with silicon rubber lead wires provides an effective moisture seal up to 400°F (200°C). It is the most impervious seal of all the other moisture seals.
- **Epoxy Seal** : Epoxy potting forms a good moisture seal with more mechanical strength than a silicon rubber seal. Regular Epoxy is rated at 260°C and epoxy lite is rated at 350°C.
- **Cement Potting** : rovides protection against some thicker liquids and dust, however it is not waterproof. It is also somewhat brittle and subject to cracking in high impact or high vibration applications. Used for temperatures upto 1425°C.
- **Glass Seal** : Glass seal provides effective sealing against moisture and oil contamination and can be used upto tempertures as high as 1200°C.

### Advantages

- High heating profile in compact spaces
- High performance and economical
- Precise Temperature control
- Fast response time
- Integrated Thermocouple
- Available in variety of coiling and exit styles