Flange Immersion Heater

MALTEC-H

Flanges immersion heater consist of hairpin bent tubular elements welded or brazed into a flange and provided with wiring boxes for electrical connections. Flange heaters are installed by bolting to a matching flange welded to the tank wall or nozzle. A wide selection of flange sizes, Kilowatt ratings, voltages, terminal enclosures and sheath materials make these heaters ideal for all types of heating applications. The goal of a flanged immersion heater design is to optimize the heater to increase an application's life, while minimizing the overall product application and its life cycle costs. These heaters can easily be installed in applications and maintained to keep providing heat in different applications. Flange immersion heaters are typically inserted horizontally into a tank or vessel for direct heating of liquids, allowing the fluid to quickly reach the desired temperature and ensure optimized high-performance results. Flange immersion heater providing economical and reliable heating for large volume, high power and/or high-pressure applications and for use in smaller pieces of equipment such as boilers and chillers. Flange immersion heaters can be designed with any element length, wattage and voltage. High purity compacted MgO powder provides maximum heat conductivity and optimum dielectric strength. Bends are recompaced to restore MgO density. Thermocouple can be installed for high limit temperature control. Spacers installed on elements to assist flow distribution. Elements are terminated with #10-32 screw terminals that provides easy wiring. A fixed conduit support bracket allows the supply conduit not be disturbed when the cover is off.

Application

Flanges immersion heaters are one of the most widely used methods for heating gases and liquids (such as water, oil heat transfer fluid and corrosion solution). Designed for use in tanks and pressurized vessels, they are easy to install and maintain to provide heat for many processes. The direct immersion method is energy efficient and easily monitored and controlled.

- Process Air & Gases
- Rinse Tank Heating
- Storage Tanks
- Hydraulic and Heat Transfer Oils
- Parts Cleaning Solutions
- Boilers and Water Heating
- Process Chemical Reactors
- Lube Oil & Fuel Oil Heating
- Caustic Solution Heating
- Plating & Finishing Chemicals
- Freeze Protection & Winterizing
- Water-Glycol Solution Heating
- Waste Oil

Flange Immersion Heater

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Material Sheath Selection

Copper Sheath

Clean water, freeze protection, hot water storage, boiler and water heaters, cooling towers, heating of solutions not corrosive to copper

Stainless Steel Sheath

Process water, soap and detergent solutions, soluble cutting oils, demineralized or deionized water (passivation recommended)

Incoloy Sheath

Solution water, corrosive solutions, air, gas, steam super heating. Be certain that the sheath material and watt density selected are compatible with the material being heated and the operating temperature.

Standard Element Sheath Materials

Incoloy 800
A Nickel (30-35%), Chromium (19-23%), Iron alloy. The high nickel content of this alloy contributes to its resistance to scaling and corrosion. Used in air heating (also see Incoloy 840) and immersion heating of potable water and other liquids that are not corrosive to an Incoloy 800 sheath.

Low Carbon Steel

Applications include fluid heat transfer media, tar, high to low viscosity petroleum oils, asphalt, wax, molten salt, and other solutions not corrosive to a steel sheath.

316 Stainless Steel
A Chromium (16-18%), Nickel (11-14%), Iron Alloy with Molybdenum (2-3%) added to improve corrosion resistance in certain environments, especially those that would tend to cause pitting due to the presence of chlorides. Applications include deionized water.

Copper
Mainly used in clean water heating for washrooms, showers, rinse tanks and freeze protection of storage tanks.

Optional Element Sheath Materials

304 Stainless Steel
A Chromium (18-20%), Nickel (8-11%), Iron Alloy used in the food industry, sterilizing solutions, air heating and many organic and inorganic chemicals.

321 Stainless Steel
A Chromium (17-20%), Nickel (9-13%), Iron Alloy modified with the addition of titanium to prevent carbide precipitation and the resulting intergranular corrosion that can take place in certain mediums when operating in the 800-1200°F (427-649°C) temperature range.

Incoloy 840
A Nickel (18-20%), Chromium (18-22%), Iron alloy. Incoloy 840 has about 10% less nickel than Incoloy 800. Used in many air heating applications where it has exhibited superior oxidation resistance at less cost than Incoloy 800.

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Flange Sizes : 3", 5", 6", 8", 10",12", 14"
FlangeMaterial : Steel, Stainless Steel
Element Material : Incoloy, Stainless Steel, Steel Copper
Housings : NEMA 1, 4, 7

Flange Immersion heaters can be designed with any element length, wattage and voltage. High purity compacted Mg0 powder provides maximum heat conductivity and optimum dielectric strength. Bends are recompaced to restore Mg0 density. Thermocouples can be installed for high limit temperature control. Spacers installed on elements to assist flow distribution. Elements are terminated with #10-32 screw terminals that provides easy wiring. A fixed conduit support bracket allows the supply conduit to not be disturbed when the cover is off.

Application : Flanged Immersion Heaters

Flange in high temperature process

- 0.625" diameter elements to lower watt density or increase wattage
- ASME Certification

Flange Size	Standard No. of Tubular Elements	Can be increased to:	Number of Mighty-Blade Elements
3	3	6	–
4	6	–	6
5	6	12	–
6	12	15	15
8	18	27	–
10	27	36	–
12	36	48	–
14	45	60	–

By adding to the standard number of elements as shown, the watt density can be lowered or the wattage increased.

3" 150lb. ASA FLANGE - 3 elements

Fig. 1: M1 General Purpose Terminal Enclosure

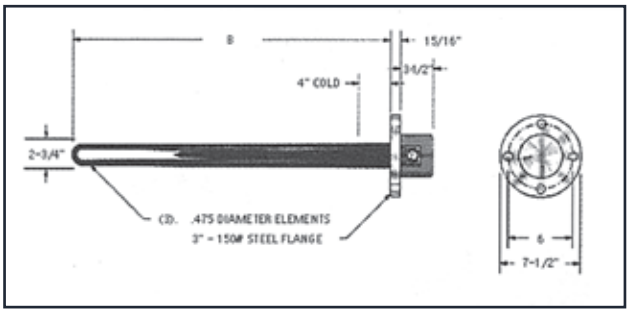
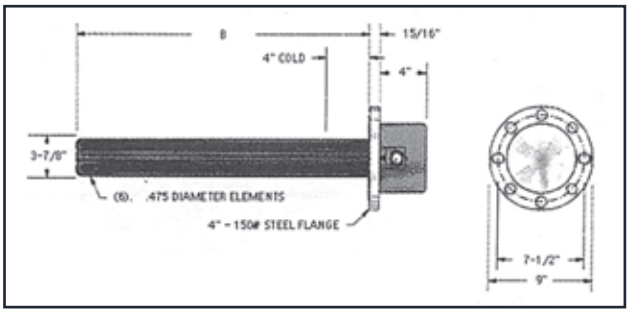


Fig. 2: M7 Moisture Terminal Enclosure



4" 150lb. ASA FLANGE - 6 elements

Fig. 3: M1 General Purpose Terminal Enclosure

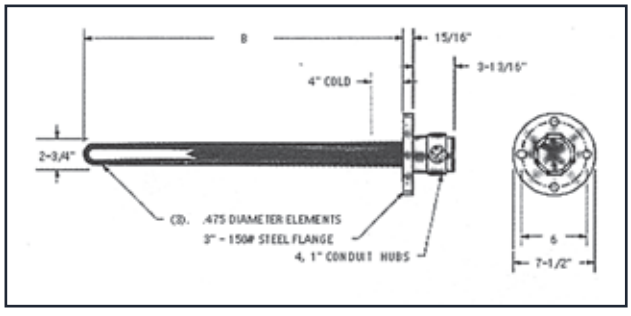
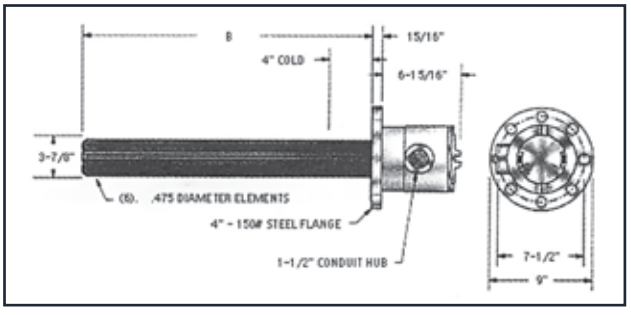


Fig. 4: M7 Moisture Terminal Enclosure



Dpstar Group

5" 150lb. ASA FLANGE - 6 elements

Fig. 5: M1 General Purpose Terminal Enclosure

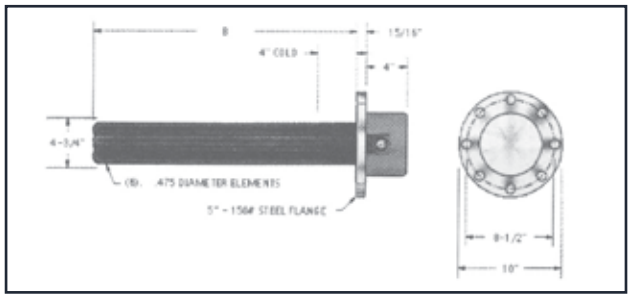
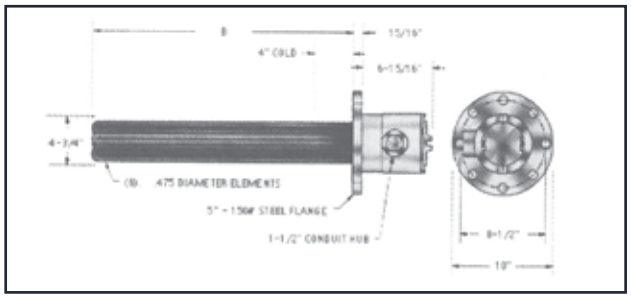


Fig. 6: M7 Moisture Terminal Enclosure



6" 150lb. ASA FLANGE - 12 elements

Fig. 7: M1 General Purpose Terminal Enclosure

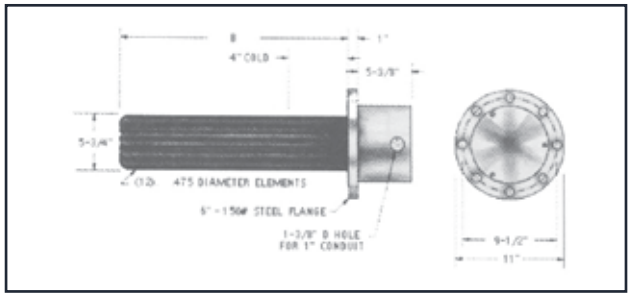
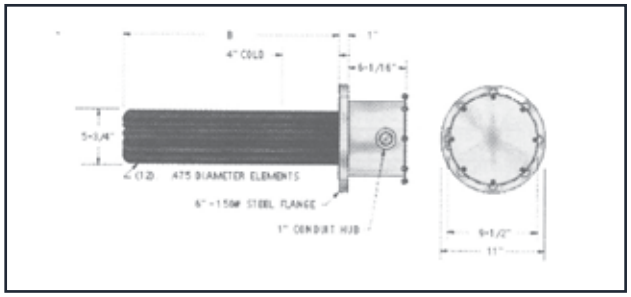


Fig. 8: M5 Moisture Resistance Terminal Enclosure



8" 150lb. ASA FLANGE - 18 elements

Fig. 10: M1 General Purpose Terminal Enclosure

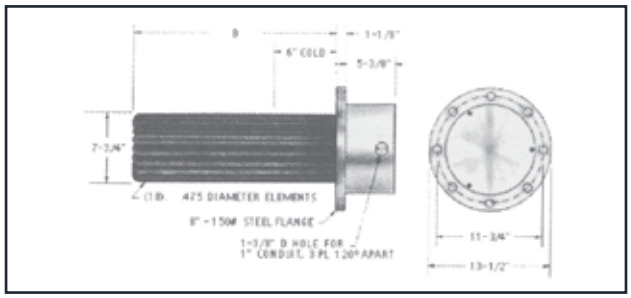
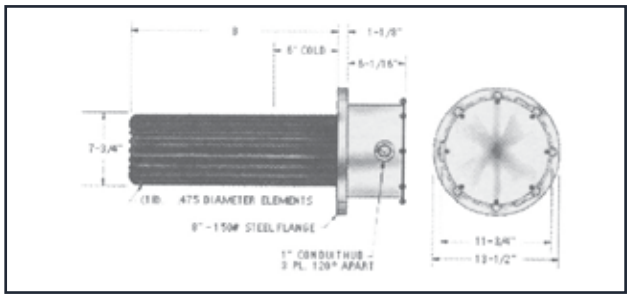


Fig. 11: M5 Moisture Resistance Terminal Enclosure



10" 150lb. ASA FLANGE - 27 elements

Fig. 13: M1 General Purpose Terminal Enclosure (NEMA 1)

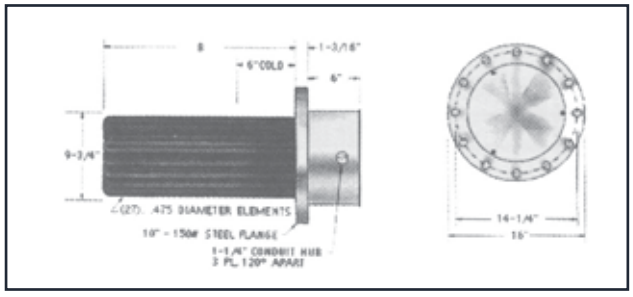
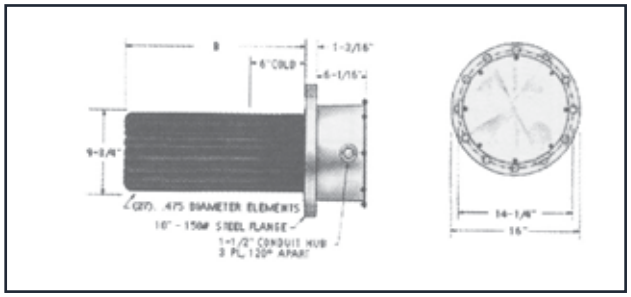


Fig. 14: M5 Moisture Resistance Terminal Enclosure



12" 150lb. ASA FLANGE - 36 elements

Fig. 16: M1 General Purpose Terminal Enclosure (NEMA 1)

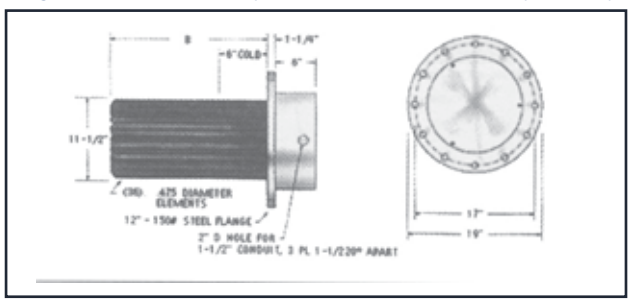
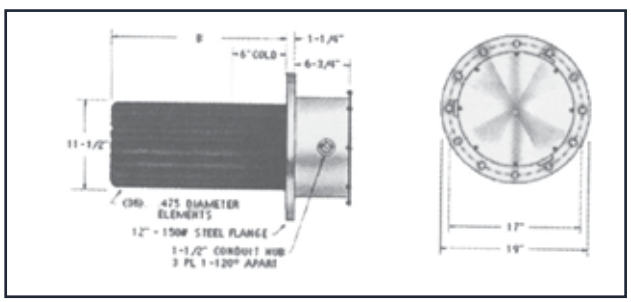


Fig. 17: M5 Moisture Resistance Terminal Enclosure



Customised Design And Engineering For Flange Immersion Heater

MALTEC-H

Compact

Easy to install & Maintain

Design and built for safety

Applications

- Boiler Equipment
- Open storage Tank

Our Clients

PETRONAS · IOI GROUP · TENAGA NASIONAL Better. Brighter · Nestlé · AJINOMOTO · FN · Gardenia · eTika · CCM CHEMICALS DIVISION · KUALA LUMPUR KEPONG BERHAD

Dpstar Group