

SCREWPLUG HEATERS

immersion heaters

OVERVIEW

WATTCO™ screwplug heaters are comprised of hairpin tubular elements that are brazed or welded into a machined pipe thread fitting, which are then screwed directly through a threaded coupling in the tank wall or vessel, or installed in pipe.

WATTCO™ screwplug heaters are used for heating gases and liquids in tanks or vessels. It is strongly advised, for safety and reliability reasons, to immerse the heated section of the elements in the liquid, which will then be heated through natural convection currents that the elements create.

KEY FEATURES

- » NPT screwplugs: 1", 1¼", 1½", 2", 2½" and 3"
- » Stainless steel, brass or steel screwplugs
- » 0.260", 0.315", 0.375", 0.430" and 0.475" diameters available
- » Sheath materials:
 - Copper
 - Steel
 - Incoloy®
 - Stainless steel
 - Titanium
- » Broad range of standard and custom designs in different sizes, wattage, materials, junction box types, terminal housings and thermostats (including built-in thermostats).
- » Available explosion and/or moisture resistant terminal enclosures upon request.

BENEFITS

- » Energy efficient
- » Easy to install or remove
- » Built solidly
- » Compact
- » CSA™ approved
- » Easy to regulate
- » Easy to maintain
- » Custom-designed
- » Designed and built for safety

SELECTING

WATTCO™ SCREWPLUG HEATER

The following recommendations will help you select the appropriate WATTCO™ screwplug heater that will meet the requirements of your application.

- » Select appropriate screwplug heaters in order to maximize service life.
- » Establish wattage requirement, heater voltage and phase
- » Establish typical temperature range to be reached with the heater.
- » Establish type of solution to be heated (chemical and thermal properties).
- » Establish type of mounting required.
- » Select corrosion-resistant construction materials that will not deteriorate or pollute the liquid.

Please note that heaters are not guaranteed against corrosion or extraordinary working conditions, as liquid types, concentrations, and solution temperatures cannot be controlled. High heat-up time requirements will result in higher equipment and operating costs.

Screwplug immersion heaters are just a component of a larger system. Proper controls should be included to assure the proper functioning and life longevity of the screwplug immersion heaters. These include high limit cutouts, temperature controls as well as level controls that could influence warranty issues.

WARNING – RISKS OF FIRE AND EXPLOSION

If used around explosive or combustible materials, screwplug heaters can sometimes be defective during normal use and can start a fire. Please follow these instructions to prevent risks of explosion and fire:

- » **Do not use** with explosive or combustible materials
- » Follow fire prevention precautions
- » Call us at **1.800.492.8826** to get appropriate installation instructions

Thermostat serves as temperature controls. Verify the temperature and/or pressure safety control to ensure safe operation.

Above warnings are included on all WATTCO™ assembled products that contain these elements and thermostats.



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FACTORS

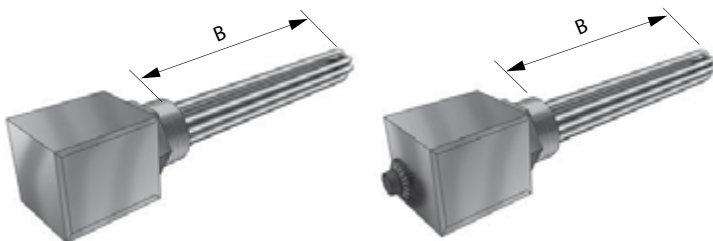
Please consider the following factors in order to select the proper screwplug heater:

- » Desired operating temperature
- » Ambient temperature
- » Vessel insulation
- » Heating element watt density
- » Available length within your tank
- » Sheath material (corrosive or non corrosive)
 - Temperature of the corrodent
 - Degree of aeration of exposed corrodent
 - Velocity of the corrodent

HOW TO INSTALL THE SCREWPLUG HEATER:

- » Pass it through a threaded half coupling in the tank wall, below the minimum liquid level.
- » Place it right above the bottom to avoid sludge build-up.

Horizontal installation is advised even if the heater replacement needs the tank to be drained. Vertical installation is also a possible option with special consideration given to the element's specific watt density as well as the level of the liquid to be heated. Please call us at **1.800.4WATTCO (1.800.492.8826)** for more information before placing your order.



HOW TO OPERATE:

To transfer heat with a screwplug immersion heater, consideration should be given to the following:

- » To determine the proper heat transfer from the elements to the liquids.
- » Special care should be given to viscous materials (ie. Molasses, Asphalt, Oil etc...).
- » Determination of various factors should be made prior to ordering the immersion heaters, to avoid overheating and carbonization of the materials being heated.

Heaters that are immersed in liquids (high-calcium water, magnesium content, phosphates or eluate solutions) tend to leave deposits on the sheath of the elements during the heating process. It is highly suggested to clean heaters regularly in order to remove scale build up, which may cause thermal insulation of the elements, reduce service life longevity and premature failure. For further assistance call us at **1.800.4-WATTCO (1.800.492.8826)** for more information before placing your order.



SELECTING YOUR WATTCO™ SCREWPLUG HEATER

GENERAL RECOMMENDATIONS - SCREWPLUG HEATERS - 1" NPT 1 1/4" NPT 2" NPT 2 1/2" NPT 3" NPT

APPLICATIONS	SHEATH MATERIAL	PLUG MATERIAL	HEATER TYPE
Water, Freeze protection, Hot water storage, Boiler and water heaters, Cooling towers, Solution not corrosive to copper, Food equipment	Copper	Brass	WHC
Oil, Heavy and non-circulated oils, Solution water, Corrosive solutions, Steam super heating, Air, Gas	Incoloy®	Steel	Low watt density WHI
Light oils, In forced oil circulation loops	Incoloy®	Steel	WHI
Mildly corrosive solutions	High density incoloy®	Stainless	WHI
Fluid heat transfer media, Tar, High to low viscosity petroleum oils, Asphalt, Wax, Paraffin, Degreasing solvents, Alcohol, Molten salt, Solutions not corrosive to steel	Steel	Steel	WHO
Process water, Soap and detergent solutions, Soluble cutting oils, Demineralized or deionized water (passivation advised)	Stainless	Steel	WHI

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PLEASE CONSULT CORROSION GUIDE RECOMMENDATIONS.