

# FLANGE HEATERS

## immersion heaters

### OVERVIEW

WATTCO™ flange heaters are made using hairpin or bugle type tubular elements using incoloy® sheathed elements that are welded or silver-brazed into a pipe or steel flange. Perfectly designed to be mounted in tanks and pressurized vessels, WATTCO™ flange heaters are used for heating liquid mediums or other specific types of liquids, and for heating gases (water, oil, heat transfer fluid, and corrosive solutions).

### KEY FEATURES

- » Standard heaters: ½" to 42" sizes.
- » 0.260", 0.315", 0.375", 0.430" or 0.475", 0.625" diameter copper, steel, stainless steel.
- » 150lb or 300lb forged steel flange
- » Incoloy®, Inconel®, stainless steel, copper or titanium elements.
- » Available explosion and/or moisture resistant terminal enclosures upon request.
- » Available special sizes, wattages, and materials upon request.
- » Heating units are custom-designed to meet your specifications.

### BENEFITS

- » Easy to install
- » Easy to maintain
- » Perfect for higher kilowatt output applications
- » Appropriate heater size provided for the application and fit
- » Designed and built for safety

### FACTORS

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

- » Flange size and pressures
- » Heating element watt density
- » Length of your tank
- » Sheath material (corrosive or non corrosive)
  - Temperature of the corrodent
  - Degree of aeration of exposed corrodent
  - Velocity of the corrodent

The following sections will help you select the best WATTCO™ flange heater that will meet the requirements of your application. Please call us at 1.800.4WATTCO (1.800.492.8826) if you need any further assistance.



### SELECTING YOUR WATTCO™ FLANGE HEATER

GENERAL RECOMMENDATIONS - FLANGE HEATERS - 2 1/2" 3" 4" 5" 6" 8" 10" 12" 14"

APPLICATIONS	SHEATH MATERIAL	FLANGE MATERIAL	HEATER TYPE
Clean water, Freeze protection, Hot water storage, Boiler and water heaters, Cooling towers, Solutions not corrosive to copper	Copper	Steel	FLC
Hot water, Steam boilers, Mildly corrosive solutions (in rinse tanks, spray washers)	Incoloy®	Steel	FLI
Oils, Gases, Mildly corrosive liquids, Stagnant or heavy oils, High temperature, low flow gas heating	Steel	Steel	FLI
Process water, Soap and detergent solutions, Soluble cutting oils, Demineralized or deionized water	Stainless	Steel	FLI
Mildly corrosive solutions	Stainless	Stainless	FLI
Severe corrosive solutions, Demineralized water	Incoloy®	Stainless	FLI
Light oil, Medium oil	Steel	Steel	FLO
Food equipment, Food equipment with cutout	Incoloy®	Stainless	FLI

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EXTRA FEATURES	DESCRIPTION
VOLTAGE	WATTCO™ flange heaters are custom-built and supplied with voltages up to 600V.
WATTAGE	Custom made heaters can be supplied with any requested wattage.
LENGTH	WATTCO™ flange heaters are supplied with immersed lengths of a maximum of 180". When the immersed length exceeds 50", it is recommended to install an internal vessel support.
EXTRA HEAVY WALL SHEATH	Heavy wall sheath (0.049" or 0.065" thickness) is provided in: • Incoloy® • Inconel® • Steel • Stainless steel
FLANGE SIZES AND RATINGS	Refer to the Welding flanges section on <b>page 13</b> and <b>14</b>
PASSIVATION	Available Incoloy® and stainless steel sheathed heaters are supplied with chemically passivated sheaths. Note: Chemically passivated sheaths are highly corrosion resistant in most applications. Passivation process is carried out through electropolishing. WATTCO™ stainless steel flange heaters can come with passivated wetted surfaces (Teflon on top of the sheath). WATTCO™ standard flange heaters are made of elements that are silver-brazed, Tig' or welded to the flange.
WELDED ELEMENTS	Heaters are supplied with welded elements for the following sheath material: • Incoloy® • Stainless steel • Steel • Copper
BUILT-IN THERMOSTAT WELL	Built-in thermostat wells can be installed upon request. When ordering, please provide length and internal diameter.
BUILT-IN HIGH LIMITS AND THERMOSTATS	For process temperature control, built-in high limits and thermostats can be installed upon request. Standard built-in thermostats: One-pole device of a maximum of 240V up to 30 amps.
BUILT-IN THERMOCOUPLES	Thermocouples can be mounted to provide sheath limit protection or temperature control. Configured temperature control and power controls are available to meet the requirements of any application.
VENTED OR STILTED HOUSINGS	Vented or stilted housings prevent the connection wire from overheating in many high temperature applications.
SPECIAL TERMINAL HOUSINGS	Special terminal housings for all types of flange heaters can be made: • Moisture resistant • Explosion resistant When requesting an explosion-proof housing, please provide: • Class • Division or zone • Group • Temperature code for unsafe locations (Refer to Figures 1-4)

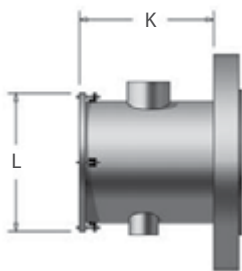


FIG. 1

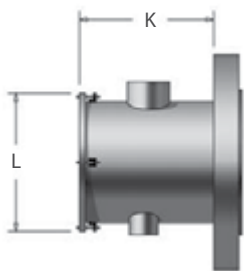


FIG. 2

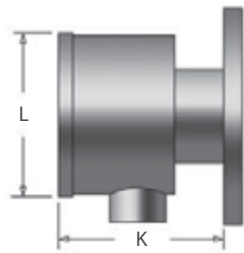


FIG. 3

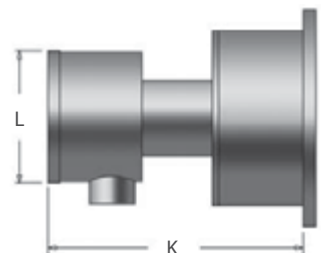


FIG. 4

### MOISTURE RESISTANT

FLG. SIZE	FIG. NO.	NO THERMOSTAT		WITH THERMOSTAT	
		K	L	K	L
2 1/2"	1	4 3/4"	4 1/4"	8 1/2"	4 1/4"
3"	1	4 3/4"	4 1/4"	8 1/2"	4 1/4"
4"	1	5 1/8"	6"	8 1/2"	6"
5"	2	7"	9 1/4"	—	—
6"	2	7"	10 1/8"	—	—
8"	2	9"	12 1/8"	—	—
10"	2	9"	14 3/4"	—	—
12"	2	9"	16 3/4"	—	—
14"	2	9"	18 3/4"	—	—

### EXPLOSION RESISTANT

FLG. SIZE	FIG. NO.	NO THERMOSTAT		WITH THERMOSTAT	
		K	L	K	L
2 1/2"	3	5 3/4"	4"	9 1/4"	4"
3"	3	5 3/4"	4"	9 1/4"	4"
4"	3	6 1/8"	5 5/8"	9 1/4"	5 5/8"
5"	4	7 1/2"	7 1/2"	—	—
6"	4	7 1/2"	9"	—	—
8"	4	8 1/8"	11"	—	—
10"	4	10 1/8"	13 1/2"	—	—
12"	4	10 1/8"	15 1/2"	—	—
14"	4	10 1/8"	17 1/2"	—	—

For S.I. conversion to metric multiply by 25.4