

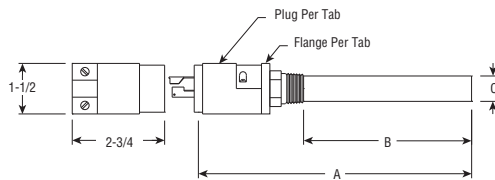
Chromalox®

Installation and OPERATING INSTRUCTIONS

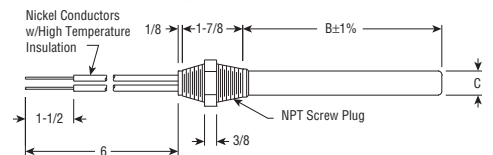
SERVICE REFERENCE

DIVISION 4	SECTION RI
SALES REFERENCE (Supersedes PD440)	PD440-1
	161-302591-001
DATE	MAY, 1999

Type RI, RIO, RIN, RINO, RIS and RIH Small Tank Immersion Heaters



Type RI, RIO, RIS and RIH



Type RIN and RINO

Dimensions (In.)			
C	D	E	H
5/8	1/2	9/16	1/2
3/4	5/8	3/4	3/4

Note: See Catalog P130 for Dimensional Data

GENERAL

WARNING: Hazard of Fire. Type RI immersion heaters must not be installed in plastic tanks or systems. Contact your local Chromalox sales representative for recommendations.

WARNING: It is the responsibility of the purchaser of the heater to make the ultimate choice of sheath material based upon his knowledge of the chemical composition of the corrosive solution, character of the materials entering the solution, and controls

which he maintains on the process. Chromalox cannot warrant any electric immersion heater against failure by sheath corrosion if such failure is the result of operating conditions beyond our control.

WARNING: Users should install adequate back-up controls and safety devices with their electric heating equipment. Where the consequences of failure may be severe, back-up controls are essential. Although the safety of the installation is the responsibility of the user, Chromalox will be glad to make equipment recommendations.

INSTALLATION

WARNING: Hazard of Shock. Disconnect all power before installing heater.

- Before installing, check your type RI immersion heater for any damage that may have occurred during shipment.
- Check to insure that the line voltage is the same as that stamped on the nameplate.
- Do not bend the heating elements.
- WARNING:** Mount heater in a metallic tank so that a minimum of 2" of the liquid level will be maintained above the effective heated portion of the heater. *If the heater is not properly submerged, it will create a possible fire hazard due to excessive sheath temperatures and damage the heating elements.*
- Where work will pass over or near equipment, additional protection, such as a metal guard, may be needed.
- Heater must not be operated in sludge.
- Install the heater using a high quality pipe sealing compound on the threads. Screw the heater into the opening. Tighten sufficiently with wrench applied on the hex portion of the screwplug.
- CLOSED METALLIC TANK INSTALLATION**

WARNING: When heating in closed metallic vessels, controls and back-up controls must be used to prevent

build-up of temperature and/or pressure.

- Place heater at an elevation so that natural circulation can take place.
 - Position outlet and inlet in a vertical plane, facing upward to prevent air pockets. Be sure all trapped air is removed from the closed tank. Bleed the air out of the liquid piping system prior to operation.
 - IMPORTANT:** Heater should never be located at the highest point in the water system.
 - Provide expansion tank, if necessary.
- A drip loop is recommended to minimize passage of moisture along wiring into heater connections.
 - DANGER: Hazard of Fire. Since the heaters are capable of developing high temperatures, extreme care should be taken to:**
 - Avoid mounting heaters in an atmosphere containing combustible gases and vapors.
 - Avoid contact between heaters and combustible materials.
 - Keep combustible materials far enough away to be free of the effects of high temperatures.

WIRING

WARNING: Hazard of Shock. Any installation involving electric heaters must be effectively grounded to earth in accordance with the National Electrical Code to eliminate shock hazard.

1. Electric wiring to heating elements must be installed in accordance with National Electrical Codes and Local Codes by a qualified person as defined in the NEC. Do not use aluminum conductors.
2. Wire specs.
 - A. For RI, RIO, RIS or RIH heaters, use a #14 gage, 3 conductor cord rated 300V, 105°C (221°F), Carol Cable type SJOW-A or equivalent.
 - B. For RIN and RINO heaters, use #14 gage insulated wire rated 300V, 105°C (221°F).
3. When element wattages are not equal, heaters must not be connected in series.

OPERATION

1. Do not operate heaters at voltages in excess of that stamped on the heater since excess voltage will shorten heater life.
2. Always maintain a minimum of 2" of water above the heated portion of the element to prevent exposure of the effective heated length. If the heater is not properly submerged, it may overheat and shorten heater life. **DO NOT OPERATE HEATER IF DRY.**
3. Be sure all trapped air is removed from a closed tank. Bleed the air out of the liquid piping system and heater housing prior to energizing.
Note: The tank or heating chamber in closed tank systems must be kept filled with liquid at all times.
4. Keep heating elements above sediment deposits.
5. **Low Megohm Condition** - The refractory material used in electric heaters may absorb moisture during transit or when subject to a humid environment. This moisture absorption results in a cold insulation resistance of less than twenty megohms. Normally, this megohm value corrects itself after heatup and does not affect heater efficiency or life.
A low megohm condition can easily be corrected by energizing the heaters at low voltage until the megohm reading returns to normal. When energizing heaters in air, the sheath temperatures should not exceed 400°F for copper and 750°F for steel and stainless steel.

MAINTENANCE

WARNING: Hazard of Shock. Disconnect all power to heater before servicing or replacing heaters.

1. Heaters should be checked periodically for coatings and corrosion and cleaned if necessary.
2. The tank should be checked regularly for sediment around the heater as sediment can act as an insulator and shorten heater life.
3. Remove any accumulated sludge deposits from heater and from tank.
4. Check for loose wiring connections and tighten if necessary.

Limited Warranty:

Please refer to the Chromalox limited warranty applicable to this product at http://www.chromalox.com/customer-service/policies/terms_of_sale.aspx.

Chromalox[®]
PRECISION HEAT AND CONTROL

2150 N. RULON WHITE BLVD., OGDEN, UT 84404
Phone: 1-800-368-2493 www.chromalox.com