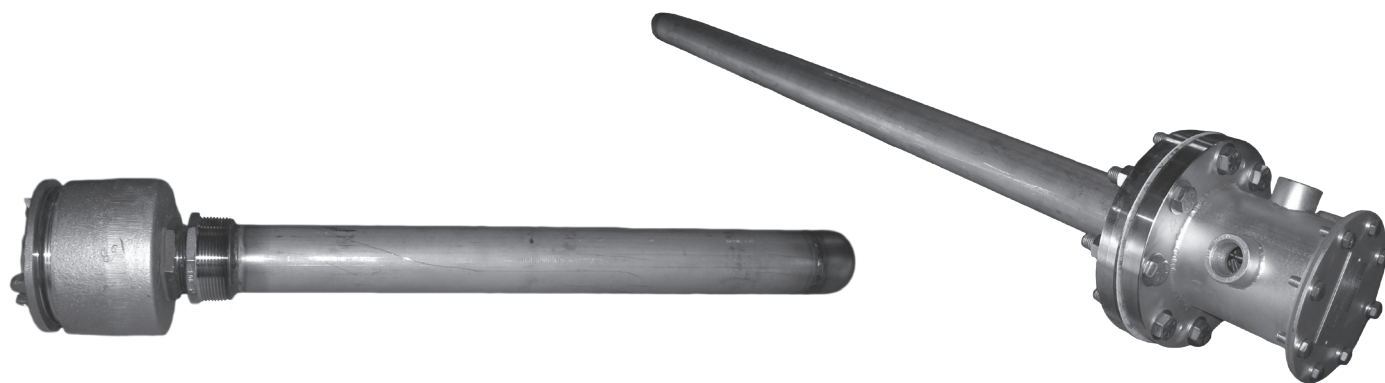


## DRY WELL (PIPE INSERT) HEATERS

Removal of a screw plug or flange immersion heater from a tank for servicing or replacement requires that the tank be drained. When this is impractical, an alternative is to install the immersion heater in a pipe insert or “dry well” arrangement. The immersion heater is fitted with a pressure-tight bayonet pipe or closed end protection tube. This assembly is then mated to a coupling or flanged nozzle connection in the storage tank. This isolates the immersion heater from tank contents thereby facilitating easy heater removal without draining the tank. Low heater element watt densities are used to ensure long heater life.



### Design Features

#### Low watt density heater elements

- Reliable performance and long life

#### High Alloy Incoloy® 840 heater element sheath

- Prevents premature heater failure

#### Standard and hazardous location certified enclosures

- Ensures safe, effective site installation and operation

#### ANSI standard flanges as well as custom plate flanges are available

- Flexibility to meet system needs

#### Steel, 304SS and 316SS pipe insert (vessel) materials

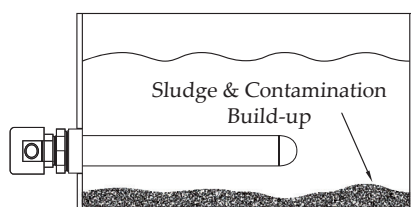
- Proper material compatibility with wide range of fluids

#### Welded construction throughout

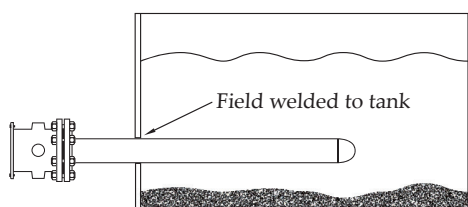
- Ensures system integrity and pressure-tight performance

### Applications

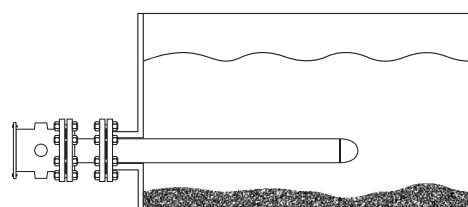
- Large Storage Tanks
- Water Tanks
- Fuel Oil Storage Tanks
- Tanks Farms
- Asphalt & Tar Tanks
- Molasses & Syrup Tanks
- Chemical Mixers & Reactors
- Degreasing Tanks
- Corrosive Liquids Heating
- Caustic Solutions Heating



Screw Plug Dry Well Heater  
installed in a tank coupling



Flange Dry Well Heater  
installed in a tank



Flange Dry Well Heater installed  
into mating tank connection



*closing the loop on thermal solutions*

# Immersion Heaters

## **DRY WELL (PIPE INSERT) HEATERS**

### **Heater Specifications**

Refer to the Screw Plug Immersion (page 3) or Flange Immersion heater (page 15) sections for heater descriptions, technical and ordering information. Heater watt densities are limited to 8 W/in<sup>2</sup> for standard designs, however, other watt densities may be recommended based on application requirements.

### **Mounting & Installation Orientation**

Dry well heaters are usually horizontally mounted into the side of a tank. Due to space or access limitations, dry well heaters can be installed vertically as well. If vertical installation is likely required, please contact Durex to discuss the specific application and design requirements prior to ordering.

### **Control & Temperature Sensing Options**

Dry well heaters are typically remotely controlled by either a thermostat or thermocouple (or RTD) mounted in the tank. However, Durex always recommends the use of a high limit heater element thermocouple to monitor internal temperatures to ensure long heater life and also to provide possible early detection of system upset.

### **Construction Options**

#### **Voltage and Power Rating**

Screw plug dry well heaters are typically rated up to around 5kW or so maximum. A tank needing 15kW would use three 5kW heaters. Larger power requirements will need flanged dry heaters in order to provide the necessary kW.

#### **Mounting Fitting and Configuration**

As illustrated on the previous page, the dry well (also called pipe insert or bayonet pipe) is either directly welded to a hole in a tank or mounted to a threaded coupling or flanged fitting. Tank fittings on dry well heaters are generally one size larger than the heater size. For example, if a tank has a 2" half-coupling welded to tank, then the dry well is supplied with a 2-1/2" to 2" NPT reducer pipe coupling. This enables the dry well to be screwed into the tank and the 2" NPT screw plug heater to be screwed into the dry well.

#### **Dry Well Pipe Materials**

Standard dry well material is carbon steel. Other materials such as 304SS, 316SS and Inconel® 600 are available.

#### **Dry Well Exterior Surface Treatment and Finish**

Passivation or electropolish of wetted dry well surfaces can be performed to provide the necessary surface conditions. Passivation removes free iron and "passivates" the sheath by forming an oxide layer on the surface. Electropolish is essentially a chemical milling process that reduces surface roughness considerably and is associated with "bright shine" finishes.

**How To Order** To place an order, or get a quotation, please provide the information itemized below. Contact Durex Industries for further assistance.

- **Electrical Rating**.....Voltage, phase, Wattage
- **Type of Dry Well Heater**.....Weld-dry-well-to-tank type, screw plug type or flanged connection type
- **Fitting Size and Material**.....NPT screw plug size or ANSI flange size and rating as well as material (steel, 304SS, 316SS, etc.)
- **Element Diameter and Quantity**.....Provide element diameter and quantity (or indicate Durex should advise).
- **Dry Well Watt Density**.....Provide maximum allowable for the liquid being heated if known.
- **Dry Well Immersion Length**.....Provide desired immersion length or max. allowable length
- **Seal Options**.....Silicone conformal coating (standard), RTV or epoxy.
- **Electrical Enclosure**.....NEMA 1(standard), NEMA 4, NEMA 7, NEMA 4/7 or CSA Certified  
Please designate hazardous location info. if a certified enclosure is required.
- **Sensing & Control**.....None (standard) or high limit sensor – provide thermocouple or RTD type