

# Duct Heaters

## Easily Adapted to Many Non-Pressurized HVAC Systems

Watlow® LDH SERIES and D SERIES duct heaters are 100 percent energy efficient and are designed with Incoloy® sheath protected resistance coils. The LDH SERIES and D SERIES duct heaters can also be easily installed in applications requiring a wide range of temperatures. Constructed of 0.430 in. (11 mm) diameter WATROD™ heating elements mounted to a ¼ in. (6 mm) thick steel flange, the LDH SERIES and D SERIES duct heaters are easily adapted to many non-pressurized, air-heating systems such as HVAC.

### Performance Capabilities

- Watt densities to 40 W/in<sup>2</sup> (6.2 W/cm<sup>2</sup>)
- Recommended process temperatures from -20 to 1200°F (-29 to 650°C)
- Catalog P/N wattages to 225kW
- Voltages to 600VAC
- Wattages to 2.2 megawatt

### Features and Benefits

#### Long life Incoloy® sheath

- Resists corrosion/oxidation while protecting resistance coils against contamination

#### MgO insulation filled elements compacted to rock hard density

- Maximizes dielectric strength, heat transfer and life

#### Field replaceable heating elements

- Permits easy service and reduces downtime. Element change-out is made simple by a single screw clamp (D SERIES only)

#### 3½ in. (90 mm) thick mineral insulation

- Keeps wiring cooler and reduces heat loss

#### Silicone resin seals rated to 221°F (105°C)

- Protects elements against moisture and other contaminants

#### General purpose terminal enclosure

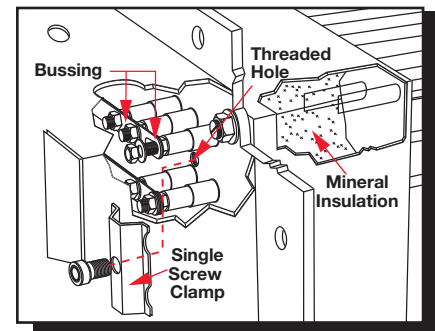
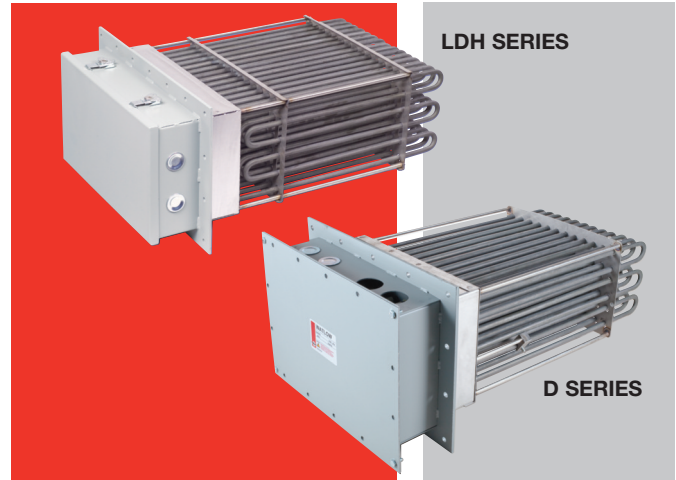
- Offers easy access to wiring

#### ¼ in. (6 mm) inside diameter thermowell

- Accepts an optional Type J or K thermocouple for accurate sheath temperature sensing (D SERIES only)

#### Rigid stainless steel supports

- Prevents element sagging or deformation in various mounting positions



#### ¼ in. (6 mm) thick steel flange with ⅜ in. (9.5 mm) diameter mounting holes

- Easily bolts to the duct wall

#### WATROD hairpins are repressed (recompacted) after bending to assure MgO density

- Eliminates hot spots and electrical insulation voids

#### Stock heaters feature from 3 to 60 elements

- Meets a wide variety of kilowatt demands

#### One or three phase voltages

- Meets local power supplies

#### Maximum 48 amperes per circuit

- Complies with National Electrical Code (NEC)

#### Ceramic fiber insulation available

- Keeps wiring cooler and reduces heat loss

#### Greater than ¼ in. (6 mm) with 304 or 316 stainless steel flange material

- Easily bolts to the duct wall

#### 60 plus element designs available

- Meets a wide variety of kilowatt demands

 **WATLOW®**  
Better Thermal Solutions...*Faster*

HAN-DH-0211

## Typical Applications

- Drying ovens
- Autoclaves
- Furnaces
- Load banks
- Heat treating
- Reheating
- HVAC
- Paint drying

## Options

### Wattages/Voltages

To meet specific application needs, voltage and wattage combinations outside stock product parameters are available. For more information about this option, contact a Watlow representative.

### Terminal Enclosures

In addition to the standard, general purpose (NEMA 1) terminal enclosure, Watlow offers the following optional terminal enclosures to meet specific application requirements:

- Moisture resistant (NEMA 4)
- Stainless steel corrosion resistant (NEMA 4X—contact a Watlow representative)
- Dust resistant (NEMA 12)
- Explosion resistant (NEMA 7—contact a Watlow representative)
- High-temperature stand-off enclosures

### Sheath Material

Watlow duct heaters can be built with the following sheath materials:

- 316 SS
- Alloy 400 and 600
- Laminated Alloy 600 (hi-temp)
- Hastelloy C276

Contact a Watlow representative for details and availability.

### Thermocouples

**Type J** or **K** thermocouples, inserted in the thermowell, accurately sense element sheath temperature for over-temperature conditions.

To eliminate incorrect sensing due to radiant heat, the sensing element should be located downstream from the duct heater.

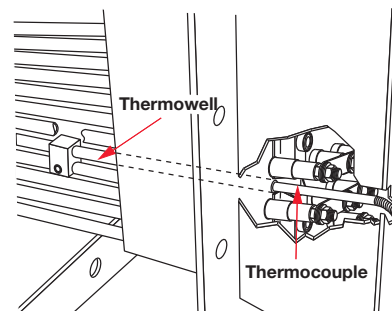
## Agency Approvals

Duct heaters with general purpose enclosures meet UL® and CSA component recognition to 480 and 600VAC maximum respectively—UL® and CSA file numbers are E52951 and 31388

Thermocouples are supplied with 120 in. (3050 mm) leads. Longer lead lengths are available (this applies to “D” SERIES only). Unless otherwise specified, thermocouples are supplied with temperature ranges specified on the Thermocouple Types chart.

Using a thermocouple requires an appropriate temperature and power controller which must be purchased separately. Watlow offers a wide variety of temperature and power controllers to meet virtually all applications. Temperature controllers can also be configured to accept process variable inputs. Contact your Watlow representative for details.

To order a thermocouple, add the appropriate suffix letter to the duct heater’s base code number.



Duct heater thermowell holds thermocouple for sensing sheath temperature.

See Watlow’s heater catalog for additional information about choosing a duct heater, required application, watt density, pressure drop, thermocouple types, application types and ordering information.

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