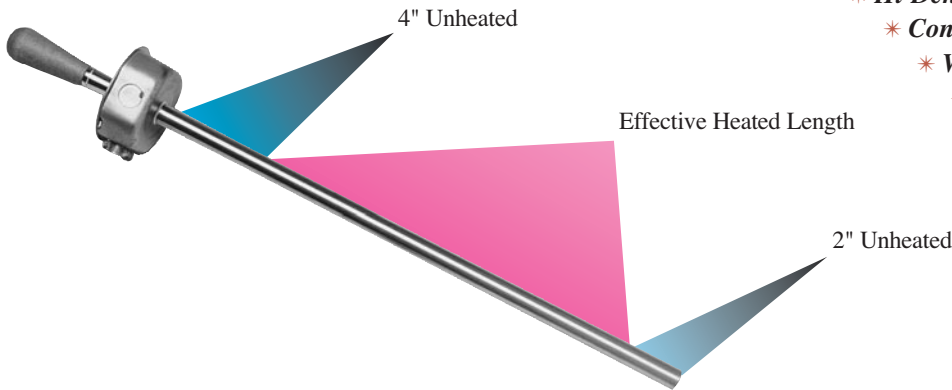


# BOLT HEATERS



**TEMPCO Bolt Heaters** are used as an aid to tighten large bolts in heavy machinery and equipment. Heaters are sized for easy insertion into a hollow bolt. The rapid heating of the bolt expands it, allowing further tightening of the nut. The heater is then de-energized and removed. As the bolt cools, its contraction back to original size provides a tight fit.

Tempco Bolt Heaters are constructed with one of the industry's most efficient and highest quality heating elements—Tempco Hi-Density (swaged) Cartridge Heaters; with close tolerance fits, watt densities of 100 watts per square inch are obtainable—65% higher than standard cartridge or tubular heating elements can deliver. The higher wattage on Hi-Density Bolt Heaters means quicker heat-up time and minimum heat loss to the area surrounding the bolt.

### Design Features

- \* **Hi-Density Construction**
- \* **Conduit Box with Knockouts**
- \* **Wooden Handle**
- \* **High Temperature Lead Wires—250°C (482°F)**
- \* **Optional SJO Cord or Post Terminals**
- \* **Optional Quick Disconnect Plugs**

### Typical Industries

- **Power Plants**
- **Shipyards**
- **Large Machine and Die Manufacturers**
- **Construction**
- **Boiler Manufacturers**

### Typical Applications

- **Large Compressors**
- **Turbines**
- **Die Blocks**
- **Large Cylinders**
- **Engine Heads**
- **Pressure Vessels**

## Bolt Heaters Standard Specifications and Tolerances

### DIMENSIONAL SPECIFICATIONS

|                      |      |      |      |      |      |      |      |      |      |
|----------------------|------|------|------|------|------|------|------|------|------|
| Actual Diameter (in) | .438 | .496 | .553 | .580 | .621 | .710 | .745 | .813 | .993 |
| Actual Diameter (mm) | 11.1 | 12.6 | 14.0 | 14.7 | 15.8 | 18.0 | 18.9 | 20.7 | 25.2 |

Diameter Tolerance:  $\pm .005$  (.127 mm)

Length Tolerance:  $\pm 2\%$  of sheath length

Camber Tolerance: 0.020" (0.508 mm) per foot of length (0.020 x (length in feet)<sup>2</sup>)

### ELECTRICAL SPECIFICATIONS

|                  |      |      |      |      |      |      |      |      |      |
|------------------|------|------|------|------|------|------|------|------|------|
| Diameter (in)    | .438 | .496 | .553 | .580 | .621 | .710 | .745 | .813 | .993 |
| Maximum Voltage  | 240  | 240  | 240  | 240  | 480  | 480  | 480  | 480  | 480  |
| Maximum Amperage | 6.7  | 10.5 | 10.5 | 23   | 25   | 25   | 25   | 25   | 25   |

If tighter tolerances are required, consult Tempco.

**CONTINUED**

### Standard (Non-Stock) Bolt Heaters

Continued from previous page...

| Heater Diameter<br>in (mm) | Inserted Length |     | Heated Length |     | Watts | Watt Density      |                   | Part Number<br>240V |
|----------------------------|-----------------|-----|---------------|-----|-------|-------------------|-------------------|---------------------|
|                            | in              | mm  | in            | mm  |       | W/in <sup>2</sup> | W/cm <sup>2</sup> |                     |
| <b>.438 (11.1)</b>         | 18              | 457 | 12            | 305 | 1000  | 60.6              | 9.4               | HDB00001            |
|                            | 24              | 610 | 18            | 457 | 1500  | 60.6              | 9.4               | HDB00002            |
| <b>.496 (12.6)</b>         | 18              | 457 | 12            | 305 | 1900  | 101.6             | 15.8              | HDB00003            |
|                            | 24              | 610 | 18            | 457 | 2300  | 82.0              | 12.7              | HDB00004            |
|                            | 30              | 762 | 24            | 610 | 2300  | 61.5              | 9.5               | HDB00005            |
|                            | 36              | 914 | 30            | 762 | 2300  | 49.2              | 7.6               | HDB00006            |
| <b>.553 (14.0)</b>         | 18              | 457 | 12            | 305 | 1200  | 57.6              | 8.9               | HDB00007            |
|                            | 24              | 610 | 18            | 457 | 1700  | 54.4              | 8.4               | HDB00008            |
|                            | 30              | 762 | 24            | 610 | 2500  | 60.0              | 9.3               | HDB00009            |
|                            | 36              | 914 | 30            | 762 | 3200  | 61.4              | 9.5               | HDB00010            |
| <b>.580 (14.7)</b>         | 18              | 457 | 12            | 305 | 2200  | 100.6             | 15.6              | HDB00011            |
|                            | 24              | 610 | 18            | 457 | 3300  | 100.6             | 15.6              | HDB00012            |
|                            | 30              | 762 | 24            | 610 | 4350  | 99.5              | 15.4              | HDB00013            |
|                            | 36              | 914 | 30            | 762 | 5450  | 99.7              | 15.5              | HDB00014            |
| <b>.621 (15.8)</b>         | 18              | 457 | 12            | 305 | 2350  | 100.4             | 15.6              | HDB00015            |
|                            | 24              | 610 | 18            | 457 | 3500  | 99.7              | 15.4              | HDB00016            |
|                            | 30              | 762 | 24            | 610 | 4700  | 100.4             | 15.6              | HDB00017            |
|                            | 36              | 914 | 30            | 762 | 5500  | 94.0              | 14.6              | HDB00018            |
| <b>.710 (18.0)</b>         | 18              | 457 | 12            | 305 | 2700  | 100.9             | 15.6              | HDB00023            |
|                            | 24              | 610 | 18            | 457 | 4000  | 99.7              | 15.4              | HDB00024            |
|                            | 30              | 762 | 24            | 610 | 5350  | 100.0             | 15.5              | HDB00025            |
|                            | 36              | 914 | 30            | 762 | 5500  | 82.2              | 12.7              | HDB00026            |
| <b>.745 (18.9)</b>         | 18              | 457 | 12            | 305 | 2800  | 99.7              | 15.5              | HDB00027            |
|                            | 24              | 610 | 18            | 457 | 4200  | 99.7              | 15.5              | HDB00028            |
|                            | 30              | 762 | 24            | 610 | 5500  | 97.9              | 15.2              | HDB00029            |
|                            | 36              | 914 | 30            | 762 | 5500  | 78.3              | 12.1              | HDB00030            |
| <b>.813 (20.7)</b>         | 18              | 457 | 12            | 305 | 1800  | 58.7              | 9.1               | HDB00031            |
|                            | 24              | 610 | 18            | 457 | 2500  | 54.4              | 8.4               | HDB00032            |
|                            | 30              | 762 | 24            | 610 | 3500  | 57.1              | 8.6               | HDB00033            |
|                            | 36              | 914 | 30            | 762 | 4200  | 54.8              | 8.5               | HDB00034            |
| <b>.993 (25.2)</b>         | 18              | 457 | 12            | 305 | 3750  | 100.2             | 15.5              | HDB00035            |
|                            | 24              | 610 | 18            | 457 | 5500  | 97.9              | 15.2              | HDB00036            |
|                            | 30              | 762 | 24            | 610 | 5500  | 73.5              | 11.4              | HDB00037            |
|                            | 36              | 914 | 30            | 762 | 5500  | 58.8              | 9.1               | HDB00038            |



**Note:** Part Numbers shown are for heaters with standard 10" long leads and a conduit box with wooden handle.

Hi-Density Bolt Heaters are made-to-order only.

### Ordering Information

#### Catalog Heaters

Order by Catalog Part Number from the Standard Sizes and Ratings List.

Note that Part Numbers shown are for heaters with 10" long, 428°F (250°C) stranded flexible lead wires inside the conduit box.

**Standard lead time is 3 weeks.**

#### Custom Engineered/Manufactured Heaters

Because an electric heater can be very application specific, for sizes and ratings not listed, **TEMPCO** will design and manufacture a Bolt Heater to meet your requirements. **Standard lead time is 3 weeks.**

**Please Specify** the following:

- |  |  |
|--|--|
| <input type="checkbox"/> Diameter                      | <input type="checkbox"/> Voltage                       |
| <input type="checkbox"/> Insertion Length              | <input type="checkbox"/> Lead Length or Post Terminals |
| <input type="checkbox"/> Cold Section (top and bottom) | <input type="checkbox"/> Optional Cord or Plug         |
| <input type="checkbox"/> Wattage                       | <input type="checkbox"/> Special Features              |

**WARNING:** Cancer and Reproductive Harm - [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).