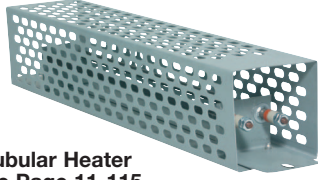


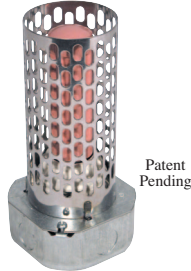
## Enclosure Heaters



**Tubular Heater**  
See Page 11-115



**Silicone Rubber Heater**  
See Page 9-18



**Ceramic Heater**  
See Page 7-41

Patent Pending



**Finned Strip Heater**  
See Page 8-15

## Cabinet Enclosure Heaters

Tempco enclosure heaters are the answer to all your enclosure heater needs. Our heaters are designed to help electric, electronic, pneumatic, hydraulic and mechanical equipment perform at top capacity by protecting them against low temperatures, condensation and corrosion. Tempco offers many different styles of heaters that can be used in enclosure heating applications. Our most popular styles are displayed on the next few pages.

### Typical Applications

- ✦ Traffic Signal Control Boxes
- ✦ Automatic Teller Machines
- ✦ Outdoor Electrical Power Enclosures
- ✦ Control Panels
- ✦ Control Valve Housings
- ✦ Switch Gear
- ✦ Clothing Lockers

### Determining the Minimum Wattage for Your Application

1. Determine the lowest temperature to which the enclosure is expected to be exposed.
2. Determine the operating temperature to which you want the enclosure heated.
3. Subtract the ambient temperature from the enclosure temperature to get the temperature change required.
4. Calculate the surface area of the enclosure. For a rectangular enclosure use the formula:  

$$2 [(Length \times Width) + (Length \times Height) + (Width \times Height)]$$
5. Select the correct table below depending upon whether your box is insulated or non-insulated. Read from the table the wattage required depending upon your calculated temperature change and surface area.
6. Add an additional 50% of the determined wattage if the enclosure is to be located in windy conditions.

### Selecting the Right Heater for Your Application

1. Determine the wattage of heater(s) that you need. See the instructions on this page to determine your wattage requirements.
2. Determine the type of heater that you need. Depending upon conditions, one heater type might be better than others. Items to take into consideration are space constraints inside the enclosure and wattages required.
3. Determine the number of heaters you need. You can combine multiple heaters to achieve your wattage requirements.
4. Determine how you will control the heaters. Will you use built-in thermostats to monitor the temperature? Or will you use a single temperature control to monitor and control the heaters? Tempco manufactures a wide range of temperature control devices and when multiple heaters are required, Tempco can supply you with the temperature controls that will meet your needs.

**Insulated Enclosure Wattage Selection Table**

| Δ Temperature | TOTAL SURFACE AREA ft <sup>2</sup> (m <sup>2</sup> ) |             |             |             |             |               |             |              |              |              |              |              |              |              |  |
|---------------|--|-------------|-------------|-------------|-------------|---------------|-------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--|
|               | 2<br>(0.19)  | 3<br>(0.28) | 4<br>(0.37) | 5<br>(0.47) | 6<br>(0.56) | 7.5<br>(0.70) | 9<br>(0.84) | 10<br>(0.93) | 15<br>(1.40) | 20<br>(1.86) | 25<br>(2.33) | 30<br>(2.79) | 40<br>(3.72) | 50<br>(4.65) |  |
| 20 (11)       | 10   | 10          | 15          | 20          | 20          | 25            | 30          | 35           | 50           | 65           | 80           | 100          | 130          | 160          |  |
| 40 (22)       | 15   | 20          | 30          | 35          | 40          | 50            | 60          | 65           | 100          | 130          | 160          | 195          | 260          | 320          |  |
| 60 (33)       | 20   | 30          | 45          | 50          | 60          | 75            | 90          | 100          | 145          | 195          | 240          | 290          | 385          | 480          |  |
| 80 (44)       | 30   | 40          | 55          | 65          | 80          | 100           | 115         | 130          | 195          | 260          | 320          | 320          | 515          | 640          |  |
| 100 (56)      | 35   | 50          | 65          | 80          | 100         | 125           | 145         | 160          | 240          | 320          | 400          | 400          | 640          | 800          |  |
| 120 (67)      | 40   | 60          | 80          | 100         | 115         | 150           | 175         | 195          | 290          | 385          | 480          | 480          | 770          | 960          |  |
| 140 (78)      | 45   | 70          | 90          | 115         | 135         | 175           | 205         | 225          | 340          | 450          | 560          | 560          | 900          | 1120         |  |

**Uninsulated Enclosure Wattage Selection Table**

| Δ Temperature | TOTAL SURFACE AREA ft <sup>2</sup> (m <sup>2</sup> ) |             |             |             |             |               |             |              |              |              |              |              |              |              |  |
|---------------|--|-------------|-------------|-------------|-------------|---------------|-------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--|
|               | 2<br>(0.19)  | 3<br>(0.28) | 4<br>(0.37) | 5<br>(0.47) | 6<br>(0.56) | 7.5<br>(0.70) | 9<br>(0.84) | 10<br>(0.93) | 15<br>(1.40) | 20<br>(1.86) | 25<br>(2.33) | 30<br>(2.79) | 40<br>(3.72) | 50<br>(4.65) |  |
| 20 (11)       | 30   | 40          | 55          | 70          | 80          | 100           | 120         | 135          | 205          | 270          | 335          | 405          | 540          | 670          |  |
| 40 (22)       | 55   | 80          | 110         | 135         | 160         | 200           | 245         | 270          | 405          | 540          | 670          | 805          | 1075         | 1340         |  |
| 60 (33)       | 90   | 120         | 160         | 205         | 245         | 300           | 365         | 405          | 605          | 805          | 1005         | 1210         | 1610         | 2010         |  |
| 80 (44)       | 110  | 160         | 215         | 270         | 325         | 400           | 485         | 540          | 805          | 1075         | 1340         | 1610         | 2145         | 2680         |  |
| 100 (56)      | 135  | 200         | 270         | 335         | 405         | 500           | 605         | 670          | 1005         | 1340         | 1675         | 2010         | 2680         | 3350         |  |
| 120 (67)      | 165  | 240         | 320         | 405         | 485         | 600           | 725         | 805          | 1210         | 1610         | 2010         | 2415         | 3220         | 4020         |  |
| 140 (78)      | 190  | 280         | 375         | 470         | 565         | 700           | 845         | 940          | 1410         | 1880         | 2345         | 2815         | 3775         | 4690         |  |