

# THAT'S SO METAL

A guide to the benefits of your Tempco Cast-In Heater material

## ALUMINUM

**MAX SURFACE TEMPERATURE:**  
700-750°F (371-399°C)

- Ⓜ **Lightweight:** Easy to handle and install
- Ⓜ **Excellent Thermal Conductivity:** Efficient heat transfer enhances performance. Aluminum 356 offers superior heat transfer than aluminum 319
- Ⓜ **Corrosion Resistance:** Naturally formed oxide layer protects against corrosion, extending lifespan of heater
- Ⓜ **Cost-Effective:** Generally less expensive than brass and bronze
- Ⓜ **Machinability:** Allows for intricate designs and precise dimensions

## BRONZE

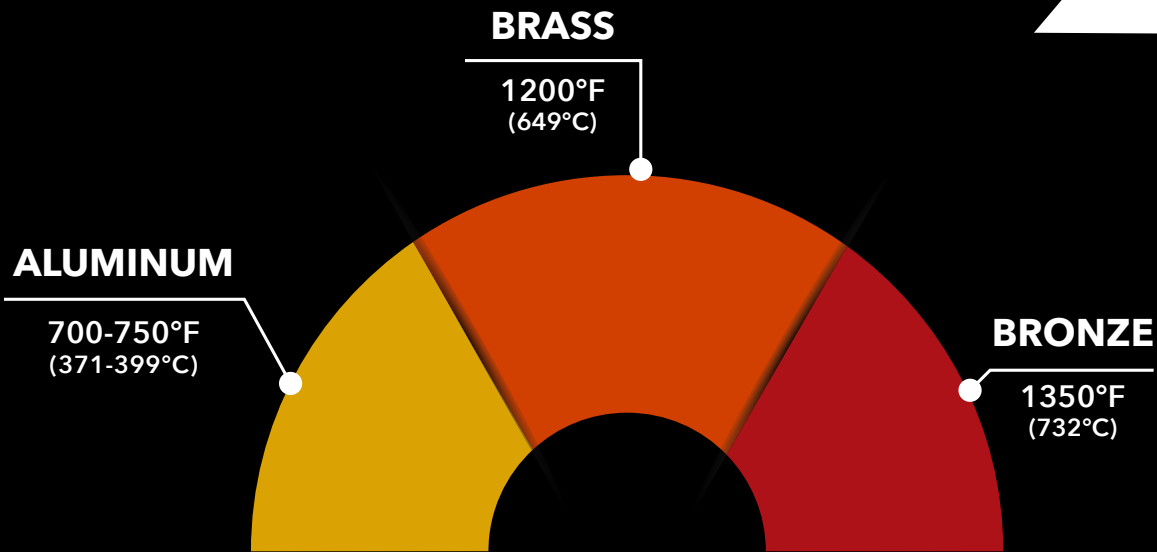
**MAX SURFACE TEMPERATURE:**  
1350°F (732°C)

- Ⓜ **High Strength:** Ideal for heavy-duty applications
- Ⓜ **Low Expansion Rate:** Maintains dimensional stability under varying temperatures, critical in precision applications
- Ⓜ **Wear Resistance:** Suitable for applications where wear and tear are a concern, performing well under friction
- Ⓜ **Corrosion Resistance:** offers resistance to lightly corrosive environments

## BRASS

**MAX SURFACE TEMPERATURE:**  
1200°F (649°C)

- Ⓜ **Corrosion Resistant:** Resistant to oxidation and corrosive environments
- Ⓜ **Thermal Conductivity:** Offers superior heat transfer properties compared to bronze
- Ⓜ **Durability:** High strength & durability makes it suitable for demanding applications
- Ⓜ **Low Friction:** Provides good wear resistance, making it suitable for applications with moving parts



## MAX SURFACE TEMPERATURE

Surface temperature is a driving factor to selecting the right cast-in heater material. The graphic above shows each available alloy's max surface temp.

## THERMAL ENERGY

(BTU-in/hr-ft<sup>2</sup>-°F)

## THERMAL CONDUCTIVITY

Thermal conductivity measures how much heat the material is able to conduct. But how do the alloys compare to each other? The graphic to the right illustrates each alloy and their thermal conductivity value.

