

# Cast-In Thermal Components - Liquid Cool

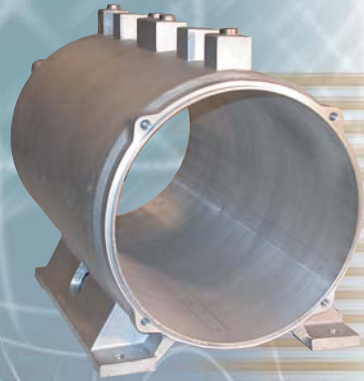
## Engineered Solutions With State-Of-The-Art Technology in Liquid Cool Aluminum Cast-In Thermal Components

You can count on Tempco to continue its leadership tradition for providing cutting edge solutions as we address the needs and challenges of specialized segments of industries that depend on cooling for the operating efficiency and performance of their equipment.

As a result of market demand for such products, Tempco introduces our capabilities of producing a complete selection of made-to-order liquid cool aluminum cast-in thermal components available in both complex geometrics or simple platens.

The thermodynamic relationship between the liquid heat transfer media circulating through the precisely formed and configured stainless steel cooling tube and the aluminum alloy casting maximizes heat removal efficiency. Tempco's liquid cool cast-in thermal component technology is a novel approach to clean, efficient and reliable process cooling of difficult and complex applications.

Consult Tempco with your challenging applications. Our capabilities for manufacturing these complex liquid cool thermal components offer you the advantage to think outside the box. Let the endless possibilities spark your imagination, allowing you the freedom to customize your design.



Cast Aluminum Motor Housing & Base with Integral Liquid Cool Capabilities  
U.S. Patents: # 6222289 & #5939808



**Let Tempco's Creative Team of Professionals Tackle Your Next Cast-In Liquid Cool Thermal Component Project. We Have the Technology, Infrastructure & Commitment to Exceed Our Customers' Expectations.**

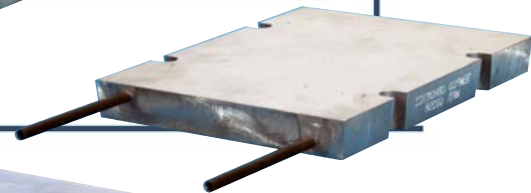
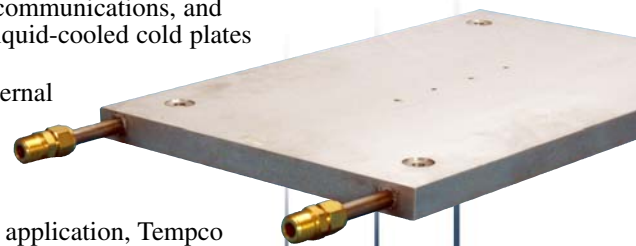
## Thermo-Platens for Liquid Cooling of High Density Electronic Systems & Other Applications Requiring Flat Surface Cooling

In a world of compact designs with increased power densities, more heat is being generated than can be properly dissipated by conventional air blowers. For applications such as lasers, high-powered electronics, telecommunications, and semiconductor processing, that have high-watt densities, liquid-cooled cold plates are the ideal high-performance heat transfer solution.

Mounting the components on an aluminum platen with internal liquid cooling tubes replaces forced air cooling to achieve and maintain lower electronic cabinet temperatures, thus increasing the operating service life of the individual components and the system.

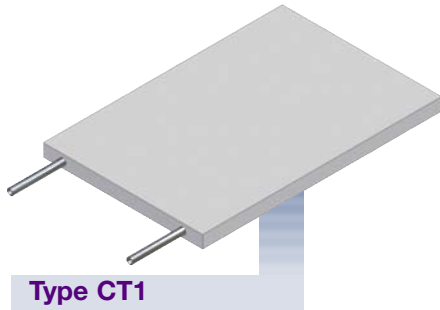
When drilling and/or tapping is required for the cold plate application, Tempco will perform the machining to ensure that the product's integrity is not compromised.

**Now You Can Give Your Electronics a Chill!**





### Typical Cooling Tube Exit Locations For Cast-In Thermo-Platens



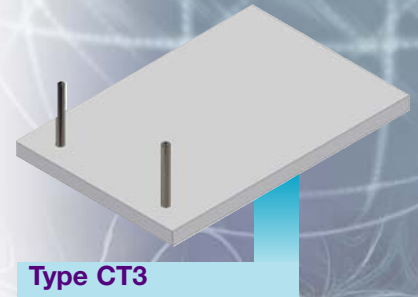
**Type CT1**

Cooling tubes exiting through the thickness toward the ends of the width or length.



**Type CT2**

Cooling tubes exiting through the thickness opposite of each other toward the ends of the width or length.



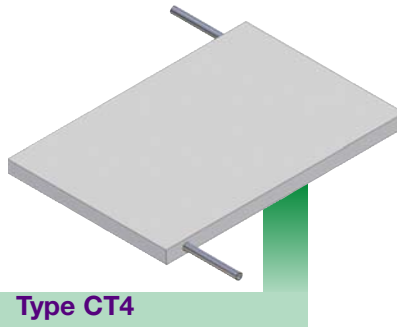
**Type CT3**

Cooling tubes exiting at the ends of the width or length through the top surface.

#### Complex Geometrics

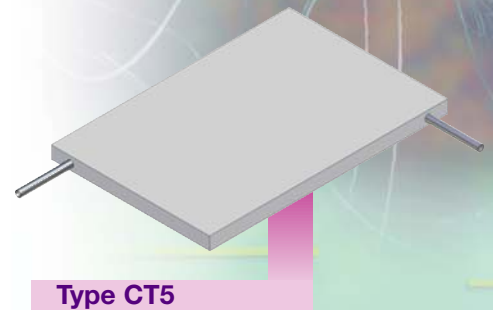


**Note:** Cooling Tube Exit Locations for Complex Geometric Liquid Cool Thermal Components can be at any practical location for the shape and size of the individual thermal component.



**Type CT4**

Cooling tubes exiting through the thickness at opposite ends of each other toward the ends of the width or length.



**Type CT5**

Cooling tubes exiting through the thickness at opposite ends of each other with one in the width and one in the length.

For Cooling Tube Termination Optional Fittings and Accessories See pages 3-50 and 3-51

## Ordering Information

To process your order or quotation, please specify the following information.



**Note: Cast-In Thermal Components – Liquid Cool are made to customer specifications.** For technical assistance, engineering data and available options please refer to pages 3-6 & 3-7. For cooling tube terminations and optional

fittings refer to pages 3-18, 3-52 and 3-53. When ordering please provide detailed design drawings, including dimensions, critical tolerances, electrical ratings, watts, volts, single or three-phase, and any other feature or special requirements.

#### Variable Dimensions

Length\_\_\_\_\_ Width\_\_\_\_\_ Thickness\_\_\_\_\_

Special Features\_\_\_\_\_

#### Material Specifications

Aluminum  Bronze  Brass

#### Cooling Tube Sizes

1/4" O.D. SS  3/8" O.D. SS  1/2" O.D. SS  
 Optional Incoloy® (1/2" only)  Dual Cooling Tubes

#### Cooling Tube Exit Location

CT1  CT2  CT3  CT4  CT5

#### Surface Finish

Machined or As Cast. *Indicate surfaces to be machined.*

#### Special Cast-In Features

Holes, Cutouts, Slots, Bevels, Mounting Studs, Stand-Offs and Taper Angles.  
*For special features a detailed drawing is required.*



**Note: Machining:** Provide a detailed drawing of your electronic component placement (layout). Tempco will machine and pre-drill all mounting holes to ensure that the cooling tube is not compromised. For field drilling Tempco will

provide a detailed drawing of the cooling tube path and the maximum depth at which holes can be drilled. Specify the location and size of the thermal plate mounting holes, and exiting location and length of the cooling tubes. For cooling tube fittings and accessories refer to pages 3-50 and 3-51.