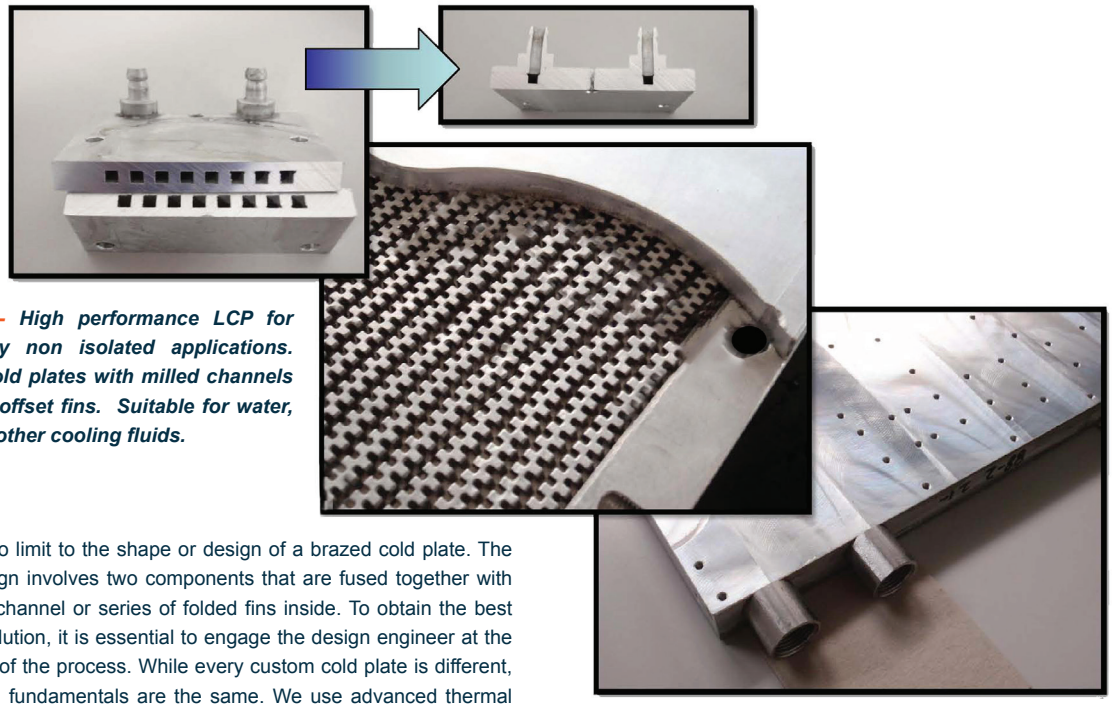
Tube Liquid Cold Plates And Brazed Cold Plate Heat Sinks

Low Cost Experts in Liquid Cooling

BRAZED COLD PLATE HEAT SINKS

Advantage

Custom designed aluminum or copper brazed cold plates overcome the “tube bending limitations” that are present with tube liquid cold plates. Our precision design and superior technology eliminate leaks for a cost effective and hassle free solution. High performance cold plates for demanding applications. Add internal fin structures to enhance heat transfer. Design flexibility to minimize pressure drop.



***BK Zed* - High performance LCP for electrically non isolated applications. Brazed cold plates with milled channels or lancet offset fins. Suitable for water, glycol or other cooling fluids.**

Design

There is no limit to the shape or design of a brazed cold plate. The basic design involves two components that are fused together with a cooling channel or series of folded fins inside. To obtain the best custom solution, it is essential to engage the design engineer at the beginning of the process. While every custom cold plate is different, the design fundamentals are the same. We use advanced thermal analysis software to model your heat loads, and then we create a design that meets or exceeds your requirements, and is cost-effective and reliable.

***BK Flow* - Vacuum brazed LCP for de-ionized water usage. Best for pure water in high voltage applications.**

Production and Testing

Baknor’s brazed cold plates are highly reliable and leak free. We manufacture and pressure test your custom cold plates to ensure they meet your working pressure requirements. We also comply with lot traceability. For the most efficient and cost effective brazed cold plates, choose Baknor.

Benefits of Liquid Cooling

Liquid cooling, also known as cooling with liquid, is a very effective way to remove high heat loads from components.

Excessive heat can compromise the reliability of a system, and engineers usually turn to liquid cooling when air-cooling is no longer providing enough heat removal.

Liquid cooling has two primary benefits over air-cooling.

One benefit is higher performance, since the fluids most commonly used for it have much higher thermal conductivity than air.

A second benefit is that it is often much quieter and requires less space than air-cooling. Since less airflow is needed, electronics can be packed in more tightly.

- **Brazed Cold Plates Construction**
  Material Options: AL6061, AL6063, C101, C102, C110, C145
  Internal Fin Structure: Machined, Folded Fin, Stamped Fin
- **Brazing Standards**
  Cold plates are brazed per following AWS standards:
  Copper cold plates: AWS C3.6M/C3.6: CLASS C
  Aluminum cold plates: AWS C3.7M/C3.7 CLASS C.
- **Diverse Coolants**
  Liquid cooled cold plates can be engineered to perform with diverse coolants, including water, water/glycol solutions, dielectric fluids, oils and synthe8c hydrocarbons (PAO).

Baknor Thermal and Packaging

Thermal Management Solutions

Thermal Modeling Solutions

Natural Convection Heat Sinks
- BGA Cooling
- Heat Sinks Extrusion
- Heat Sinks Castings
- Heat Sinks Machining
- Heat Sinks Forged

Forced Convection Heat Sinks
- Fin Assemblies
- Fan Assemblies

Phase Change Heat Sinks
- Heat Pipes
- Vapor Chambers

Liquid Cooling Cold Plates
- Brazed Cold Plates
- Tube Liquid Cold Plates
- Standard Liquid Cold Plates

Thermal Assemblies

Baknor aggressively pursues price and technology improvements for our customers.

baknor

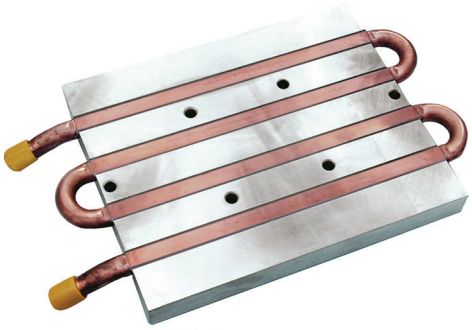
Tube Liquid Cold Plates And Brazed Cold Plate Heat Sinks

Low Cost Experts in Liquid Cooling

TUBE LIQUID COLD PLATES

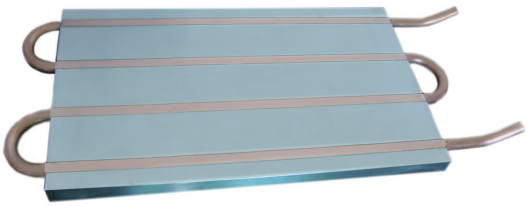
Advantages

. Used for low to medium power density applications
. Cost effective 2, 4 & 6 pass standard cold plates
. Customized tube paths for enhanced performance

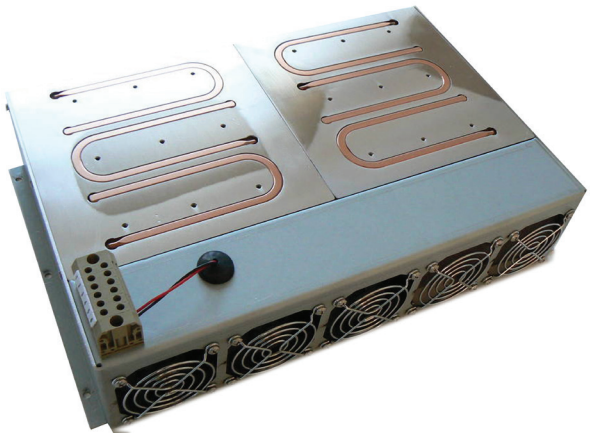


Design

Baknor's thermal experts will work with you to develop liquid cold plate solutions using copper pipes for maximum design flexibility. We embed the piping into aluminum plates to move heat to a different location, where it is released away from the component. We can customize the design for length, width and fluid path to meet your specific design and performance requirements.



Liquid cooling has become the choice to manage the rising heat loads in various electronic designs. Liquid Cold Plates offer various performance advantages over air cooled solutions in high watt density applications. It is an effective way of removing high heat loads from electronic components.



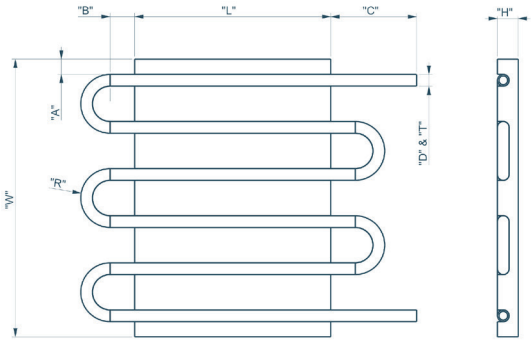
Cold Plate Construction

. Base Plate: Al6061, AL6063, CU
. Tube Diameters: 1/4", 3/8"
. Wall Thickness: 0.05"
. Standard Bend Radii

Production Benefits

. High quality fabrication
. Meets ISO 9001:2000 Certified QMS
. Cost effective for high volume production

Liquid cold plate design guideline



Dim	Description	Min (mm)	Max (mm)
A	Tube to edge	6.4	
B	Center line of tube radius to plate	3	
C	Tube extension	25	250
D	Tube diameter	6.4	25.4
H	Plate thickness	1.7 x D	
L	Plate length	25	
R	Tube bend radius measured at centreline	2 x D	
T	Tube wall thickness	1.25	
W	Plate width	38	250

BAKNOR PRODUCT LINES ALSO INCLUDE

Custom Packaging Solutions
Metal Components
Sub Assemblies

Designed By Baknor Or We Build To Your Print

Machining
- Precision
- Repeatable
- Complex

Precision Die Casting
- High Quality
- Aluminum
- Zinc
- Magnesium

Fabricated Extrusion
- Standard Profiles
- Custom Profiles
- Complete Finishing

Precision Packaging

Mechanical Assemblies

Electro Mechanical Assemblies

Fabricated, fully tested, and ready-to-install.

- **Applications**

-military/aerospace,
-power electronics,
-renewable energy,
-medical equipment,
-lasers,
-transportation,

- **Outstanding Performance With Liquid Solutions**

- Leak Free
- No Risk of Corrosion
- Greater Power Density
- Will Withstand High Pressure

Low Pressure Drop In The Circuit for Lower Energy Consumption

Liquid Cold Plates
For the most efficient and cost effective serpentine liquid cold plates, choose Baknor.

Many customers look to Baknor for cost reductions from their existing vendors.

baknor

5225 Orbitor Drive Suite #2
Mississauga, Ontario
Canada L4W 4Y8
Phone: 905-624-1800
www.baknorthermal.com
sales@baknor.com