Titanium Ultra-Thin Vapor Chambers

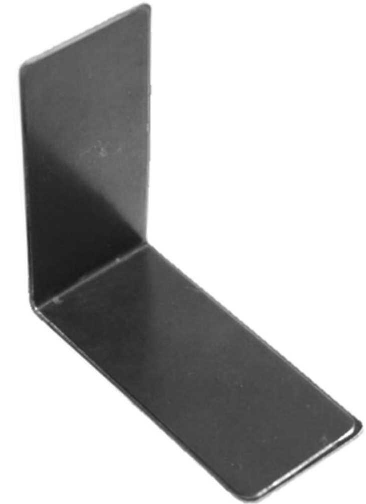
TITANIUM ULTRA-THIN VAPOR CHAMBERS

Titanium Vapor Chambers utilize passive two-phase heat transfer to conduct heat between 10 to 40 times more than solid copper. Two-phase heat transfer helps move and spread heat without the use of any active components like fans or pumps, making them extremely reliable thermal management solutions.

The high yield strength of titanium enables thinner and lighter vapor chamber construction compared to copper. Thinner vapor chamber walls maximize the internal vapor space that drives the high effective thermal conductivity of two phase components regardless of thermal conductivity of the metal itself. Switching to Titanium Vapor Chambers can help you decrease the thickness of your thermal management solution or maximize the power transferred from your heat source.

With increased strength over traditional copper components, Titanium Vapor Chambers enable product designers to combine mechanical and structural functions into this single thermal management solution. Boyd can highly customize wick structures optimize vapor chamber performance with a stronger material. Over the past 5 years, Boyd has developed robust and repeatable high volume manufacturing methods that leverage the attractive qualities of Titanium within cost-effective processes.

Leverage the reliable thermal and mechanical benefits of Titanium Ultra-Thin Vapor Chambers in applications where space and weight are at a premium, such as mobile and consumer electronic products as well as eMobility applications.



Custom Mounting Holes, Bends, and Geometries possible

Printer Paper (White) and TiVC (black) between fingers under magnification

ORDERING INFORMATION

Contact your Boyd representative or contact us at boydcorp.com/request-a-quote.html

Boyd offers a wide range of ultra-light, high conduction technologies in addition to stainless steel and copper ultra-thin vapor chambers, including graphite heat spreaders, thermal interface materials, and flexible thermal straps in order to meet application requirements for cost effective, high performance products.

FEATURES & BENEFITS

Features and Benefits
Enables innovation by allowing higher power and faster chipset speeds at reduced weight and within a smaller volume
Improved design flexibility with mounting holes, bends and easy integration with other functions
Increased reliability with cooler touch temperatures and electronic operating temperatures. Passes long term operation, thermal cycling, and freeze-thaw testing
Reduces total cost of ownership with integrated thermal management, EMI Shielding, and mechanical/structural support.

TECHNOLOGY DETAILS

Property	Details
Material	*Titanium*
Thickness Range	*0.3 – 2.0 mm*
Size Range	*30 mm x 30 mm – 300 mm x 300 mm*
Power Range	*0.5 W – 150 W*
*Effective Thermal Conductivity Range**	*up to 45000 W/mK*

** Higher effective thermal conductivities are dependent on vapor chamber temperatures, with higher temperatures yielding higher conductivities.*