

# Product Data Sheet

## Amphenol® Heat Sink Design and Manufacturing Capabilities

No. 202

Amphenol Aerospace has Extensive Heat Sink Design Knowledge and Manufacturing Capability.

Our experienced engineering group can design a custom heat sink to fit your board or work from your CAD models, assemblies, or step files.

### **BENEFITS OF AMPHENOL'S DESIGN AND MANUFACTURE OF CUSTOM HEAT SINKS:**

- Amphenol's familiarity with major industry and military specifications.
- Amphenol has been leading the marketplace in LRM (Line Replaceable Module Connectors) and Rectangular Low Mating Force Rectangular Connectors.

Our LRM and VME64x products are used on major programs that include the following and more:

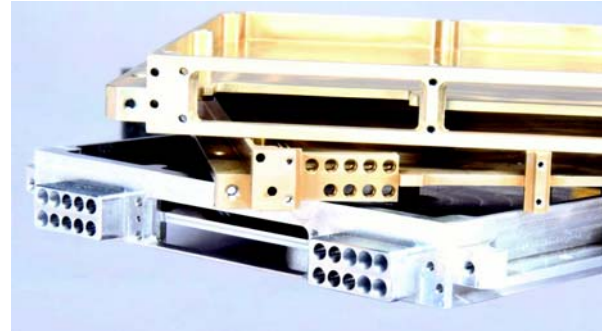
F-35, F-16, F-15, F/A-22, F/A-18, B2, JTRS, EH101, Sincgars, ATACMS, M1A2 Tank, Grippen, F-117, Harpoon, LANTRIN, AH-64 APACHE, ASRAAM, ATFLIR

This manufacturing and design excellence provides customers with the assurance that their custom or standard Amphenol rectangular connector will mate to their heat sink design.

- Amphenol is an ISO 9001 facility. Focus is always on quality with cost effectiveness and continuous improvement of processes.

### **HEAT SINK DESIGN CAPABILITIES**

- Provide manufacturing studies on prototype models, CAD models or drawing packages. (Consult Amphenol about acceptable CAD formats.)
- Provide rapid prototyping in house.
- Manufacture interface plates and other accessories; Design-in and install pins, studs and threaded inserts
- Provide extensive knowledge in geometric dimensioning and tolerancing techniques that can assist in optimizing your design to enhance manufacturability from the initial design phase (DFM).
- Provide ease of design for a variety of heat sink configurations and heat sink materials.
- Design flexibility for contact cavities for RF, digital I/O, high speed, fiber optic, power and low voltage data signal contacts.
- Provide in-process and final dimension checking.



*Variety of Heat Sinks manufactured by Amphenol.*



*Amphenol has earned the reputation as the leader in the military electrical connection arena. Amphenol LRM interconnects are the chosen connector for major aircraft systems.*



## HEAT SINK MANUFACTURING CAPABILITIES

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At Amphenol, we have experience manufacturing a wide variety of custom heat sink designs. Our state-of-the-art twin spindle machines with multi-axis control, unique fixturing, and indexing guarantee true position tolerancing on multiple faces of a machined piece. Other manufacturing features include glass scales and HSK heat shrink tool holders for greater accuracy. In addition: through-spindle probing for in-process checks, through-spindle high-pressure coolant system, single spindle mills with rotary tables, and 3-axis mills which supplement the twin-spindle machine operations. Other key benefits and features of Amphenol's manufacturing operations include:

- The ability to handle high or low run quantities.
- Machines set up and used exclusively for heat sink and related component milling.
- Temperature controlled environment to reduce the effect of thermal expansion/contraction.
- Capability to hold very precise positional, size and profile tolerances.
- Use of CAM software to translate solid models to machine instructions. This allows for a quick transition between design and manufacturing, and ensures parts are held to the proper dimensional tolerances.
- CAM programs are optimized to each machine's capabilities which minimizes run time and maximizes quality.
- Parts can be selectively plated and selectively machined to suit customer requirements
- Amphenol has a preferred status with material suppliers which ensures timely procurement of raw materials.



## QUALITY ASSURANCE

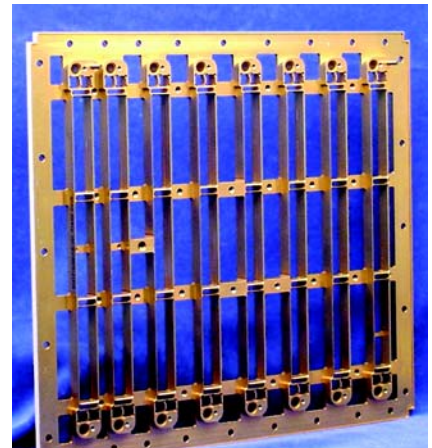
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- All dimensions are verified after machine setup, prior to production runs.
- Dimensions are checked by contact or optical Coordinate Measuring Machine (CMM).
- We import CAD/CAM files to our CMM's to guarantee parts are within the design's dimensional specifications.
- In addition to setup part checking, we also do 100% or sample part checking.

For additional information on Amphenol's heat sink capabilities, Amphenol rectangular interconnects, or other Amphenol products contact:

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See Amphenol High Performance Line Replaceable Module (LRM) Interconnects Catalog, 12-037.



*Interface Plate*



*Heat Sink and LRM Connector Prototype*

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