

BOYD

CORPORATION

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AUTOMOTIVE SOLUTIONS

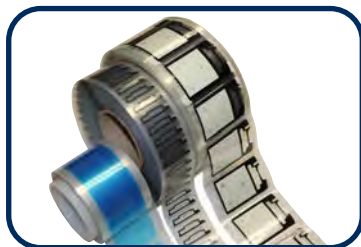
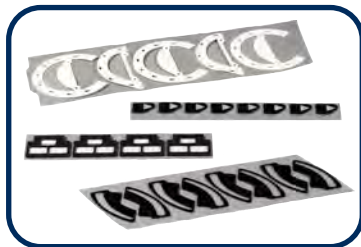


One Company, Many Solutions

Precision Converting Solutions

Boyd is an innovative precision converter with extensive experience in the automotive industry ranging from gaskets and seals, o-rings and acoustical absorbers, to interior and exterior attachment systems and optical films.

We turn concepts into components. From design to manufacturing to packaging and logistics, Boyd provides full-service solutions that transform your innovative ideas into reality.



Applications:

- Optical Films & Adhesives
- Interior & Exterior Trim
- EMI / RF Shielding
- Attachment Systems
- Surface Protection
- Thermal Conductors & Shielding
- Body Side Molding
- Hoses / Bushings / O-rings
- Gaskets & Seals
- Acoustic Insulation
- BSR / NVH
- Emblems & Nameplates
- Absorption in Infotainment & Telematics Systems
- Conductivity & Protection for Displays & Sensors
- Light Leak & Diffusion

Efficient Rotary Die Cutting

Our advanced rotary die cut converting core competencies have become a form of industrial artwork with ultra-tight tolerances (zero-gap), superb cleanroom manufacturing environments, and innovative raw material combinations that are critical to the high design and manufacturing demands of automotive applications.

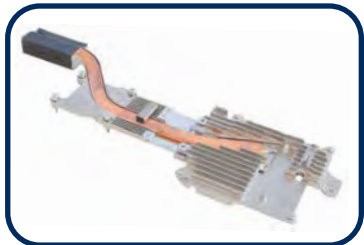
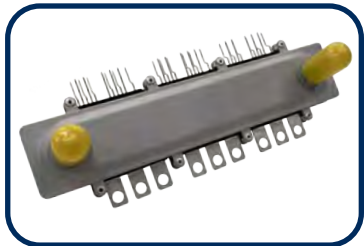
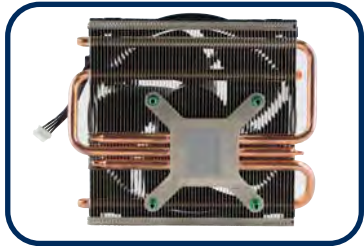
Quick-Turn Prototyping

Our CNC Laser, Knife, and Waterjet die-less prototyping systems, with Flashnesting software, allow us to quickly convert drawings to prototype parts without the need of tooling. Same or next day samples are often achievable.

Automotive Thermal Solutions

Aavid, Thermal Division of Boyd Corporation, provides solutions and services, utilizing both traditional cooling solutions and breakthrough technologies ranging from standard heat sinks to fully custom two phase or liquid systems.

Aavid meets the challenge of thermal control for applications involving increased power, extreme heat loads and tighter space constraints.



Applications:

- Battery Module Cooling
- Inverters & DC/DC Converters
- Computer Systems for AV
- Thermal Management for:
 - Sensors and LiDAR
 - Infotainment
 - ADAS
 - Navigation
 - Display (HUD)
 - Telematics Systems
 - Wireless Charging
 - Battery/Vehicle Charging
- LED Modules
- Vapor Chambers
- EMI & RF Shielding
- Heat Pipes
- Liquid Cooling Systems



Thermal Management

Through efficient thermal management solutions, Boyd continues to anticipate the future needs to the automotive market with solutions for cooling high heat loads and heat fluxes of automotives such as power electronics, motors, control electronics, fuel cells, and waste heat recovery.

Engine Compartment

Our under the hood solutions are manufactured to the highest quality standard. Our parts are able to endure extreme temperatures and constant vibration.



Providing Solutions To Complex Problems

Boyd's fully integrated precision converting and thermal management capabilities are from multi-faceted facilities in the US, Asia, and Europe, providing competitive solutions for a wide range of automotive and e-mobility applications. Boyd offers total solutions with deep material selection expertise, innovative manufacturing technologies and easy-to-integrate production parts with tight tolerances. Converting and fabrication capabilities include rotary and flatbed precision converting, laser and water jet for quick turn prototyping, laminating, slitting, 3D modeling, CNC machining, brazing, welding and other fabrication techniques. Boyd can assist in selecting the most cost-effective material solutions while supporting the design of your solutions within the most comprehensive manufacturing and assembly operations in the industry. The result is a reliable, consistent production execution at the highest quality.

Quality & Processing

Boyd helps you exceed industry standards, regulations and environmental protection goals while maximizing long-term performance and reliability. We put quality first. Our design & production facilities have extensive knowledge of automotive OEM, regulatory, third party and MRO specifications. Multiple facilities are certified to IATF 16949 quality and ISO 9001 specifications for safety and contingency planning.

Cleanroom Manufacturing

To exceed cleanliness requirements of sensitive or highly controlled designs and functionality, Boyd offers a variety of cleanrooms ranging from Class 100 to Class 10K, with constant monitoring of critical parameters - ensuring you a high level of cleanliness for your sophisticated automotive products. We convert and pack your products using numerous state-of-the-art manufacturing and assembly processes all within Boyd's cleanroom environment.

Global Capacity

With production facilities strategically located around the world, Boyd is uniquely positioned to support your needs. No matter where you are designing or building products around the world, we are there to support with design assistance, converting and metal fabrication, immediate customer service, local warehousing, and just-in-time delivery and logistics services efficiently and in close proximity to your R&D and production locations.

Boyd Automotive Facilities

With over 90 years of customer-focused performance, Boyd has evolved as a market leader in environmental sealing and thermal management solutions critical to products that keep the world running.

Design Centers



Boyd Corporation maintains Design Centers around the world dedicated to innovative thermal and sealing design and product integration. These engineers work closely with our customers and the manufacturing teams to provide a streamlined product life-cycle from conception to prototyping to production and even end of life management or retrofitting.

Boyd in America

Boyd Michigan, located in Grand Rapids, provides a value-added custom solution, including – design assistance, quick-turn prototyping, assembly, packaging, customer service and high volume, high complexity precision converting, out of its IATF16949/ISO9001 registered facility. **Boyd South Carolina**, located in Gaffney, is an IATF16949/ISO14001 registered facility that proudly serves the commercial vehicle, agricultural, construction, automotive, and industrial markets. Boyd South



Carolina provides full customer service through all product realization stages into volume production. **Aavid, Thermal Division of Boyd New Hampshire** designs and manufactures custom thermal management solutions for the e-Mobility, aerospace, and defense markets. With over 50 years of doing business, we partner and collaborate with our customers to design and manufacture cost-effective thermal management solutions.

Aavid, Thermal Division of Boyd New York, located in Niagara Falls, has extensive experience in custom heat transfer product engineering and manufacturing. Boyd New York proudly supports the automotive industry as well as other general industrial markets. Boyd New York is an AS9100/ISO9001 registered facility.

Boyd in Asia



Boyd China has multiple facilities strategically located near Shanghai. These innovative facilities provide Global OEMs' and Asia-Pacific customers R&D and production with quick-turn prototyping, design assistance, precision converting and customer service. In addition to supporting our automotive customers within the region and around the world, our Asia operations proudly serve the medical, mobile computing, and consumer electronics.

Boyd in Europe

Aavid, Thermal Division of Boyd Corporation Italy is an ISO 9001 certified facility providing thermal solutions to the e-Mobility industry. Using state-of-the-art CNC equipment, brazing technology, and various other metal fabrication processes, Boyd Bologna provides standard or custom extrusions and heat sinks, liquid cold plates, heat pipe assemblies, thermal clips including Max Clips, and liquid cooling systems. **Boyd Corporation GmbH** is an IATF 16949 and ISO 9001 certified facility in Syke, Germany. This facility processes, manufactures, and provides design assistance for the European e-Mobility market. Boyd Germany also serves the mobile electronics, consumer electronics, and medical markets.

