CONNECTOR MANUFACTURING COMPANY

www.cmclugs.com | 513-860-4455

HUBBELL®

History of CMC

Connector Manufacturing Company (CMC) was established in the early 1940s and relocated to Cincinnati, Ohio, in 1976. The founder and CEO, Bill Boehm, was active in the utility industry for more than 50 years.

CMC has a history of industry-renowned customer and technical service, along with a reputation of engineering excellence, quality and reliability.

Here are some company facts:

- **Acquired by Hubbell in 2013 and now part of BURNDY**
- **Serving the OEM and utility markets**
  - **Selling to the OEM market almost exclusively through select distributors**
- **Based in Hamilton, Ohio, CMC has three primary sites that total more than 350,000 square feet. These sites are located in:**
  - **Hamilton, Ohio**
  - **Greenville, Alabama**
  - **Juarez, Mexico**
- **400-plus employees, including more than 125 BURNDY® Factory Direct Sales Representatives and top manufacturing representatives**
  - **BURNDY's team of on-the-ground sales representatives personally delivers a sole focus on the entire BURNDY® family of products, including CMC. This partnership ensures intricate product knowledge and open communication lines that provide fast answers to any questions**

CONTINUOUS INNOVATION

For the OEM Industry

For more than 70 years, Connector Manufacturing Company (CMC) has been dedicated to engineering, designing and manufacturing quality products for the OEM industry. Thanks to this long history, CMC has a solid understanding of industry challenges and provides the flexibility and expertise to provide solutions that:

- Improve reliability with new product development
- Increase efficiency

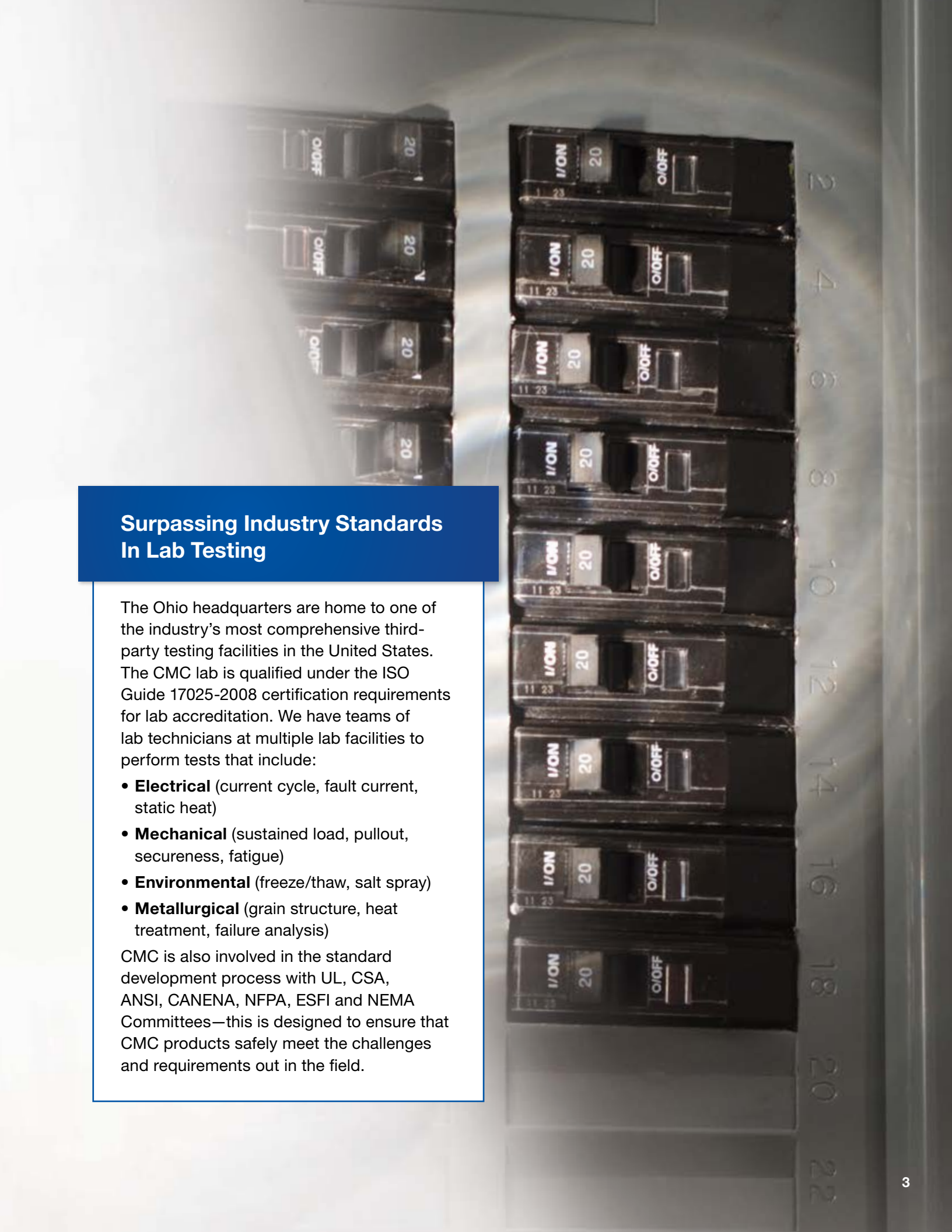
Tap our knowledge and you'll benefit from our wide-reaching capabilities, such as:

- Complete in-house engineering and design
- A certified UL third-party test facility equipped to perform UL, ANSI and CSA test requirements
- Customer service that consistently provides knowledgeable answers to our distributors and end-users

Also, CMC is dedicated to maintaining continued product quality while respecting our natural resources. For example, through our business strategy, we've integrated environmental considerations and achieved improvements with our ISO 9001 quality system, ROHS compliance and the Hubbell Sustainability Initiative.

Combined, these values have allowed CMC to build a world-class reputation of manufacturing the finest connector products available.

These factors—together with our dedication to the highest quality ISO certified standards available and an unsurpassed service level—deliver maximum reliability. CMC is also involved in the standard development process with UL, CSA, ANSI, CANENA, NFPA, ESFI, and NEMA Committees—this is designed to ensure that CMC products safely meet the challenges and requirements out in the field.



Surpassing Industry Standards In Lab Testing

The Ohio headquarters are home to one of the industry's most comprehensive third-party testing facilities in the United States. The CMC lab is qualified under the ISO Guide 17025-2008 certification requirements for lab accreditation. We have teams of lab technicians at multiple lab facilities to perform tests that include:

- **Electrical** (current cycle, fault current, static heat)
- **Mechanical** (sustained load, pullout, secureness, fatigue)
- **Environmental** (freeze/thaw, salt spray)
- **Metallurgical** (grain structure, heat treatment, failure analysis)

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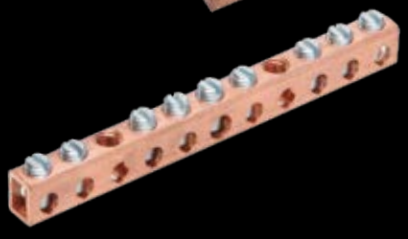
6061-T6 Aluminum Connectors

CMC proudly uses 6061-T6 aluminum alloy, which was chosen to balance strength and conductivity. This aluminum has nearly a 2:1 advantage in yield strength to that of a sand-cast alloy 356 or die-cast alloy AXS679. This allows for a higher safety margin while the conductivity is a most favorable 43% IACS (International Annealed Copper Standard).

Copper Connectors

CMC® copper connectors are extruded from pure electrolytic copper or formed from copper tubing and carefully shaped to size. They may also be produced from copper strip, which is used to form the tang or bus connection. The CMC® lightweight copper connectors perform better than many of the heavier, more bulky, cast copper connectors on the market. Our innovative designs are able to save customers in the costs of metal, freight and space.



OUR PRODUCTS

Connectors

At our core, CMC is a connector manufacturer, offering both mechanical and compression designs. Our products are marketed to utilities, original equipment manufacturers and commercial/industrial accounts. They are used in a variety of 600V applications that include meter sockets, load centers, LV switchgear, electrical panel boards, circuit breakers, motor controls, inverters and combiner boxes. Our connectors are known industry-wide for:

- Compact design
- Range-taking capability
- Reliability
- Easy installation
- Certification with Underwriters Laboratories and the Canadian Standards Association requirements for listing.

Box-Style Lugs

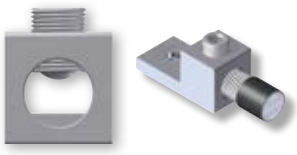
CMC® box-style lugs contain a boss on the bottom for mounting into electrical equipment, including terminal blocks, molded circuit breakers, panel boards and wiring devices. Other benefits include:

- Anti-rotational options in single and available multiple conductor configurations
- Designed for 600V power termination, and equipment grounding and bonding
- Available in copper or aluminum (aluminum designs are dual rated)

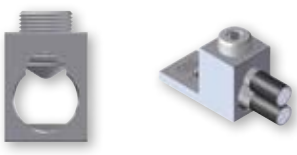
CMC offers multiple designs: square, rectangular, anti-rotational and multi-conductor.

Keyhole Lug vs Traditional Lug

CMC offers our "Keyhole™" style lug in single and multiple conductor designs.



In most traditional lug designs, a single conductor hole is meant for a single conductor to be terminated.

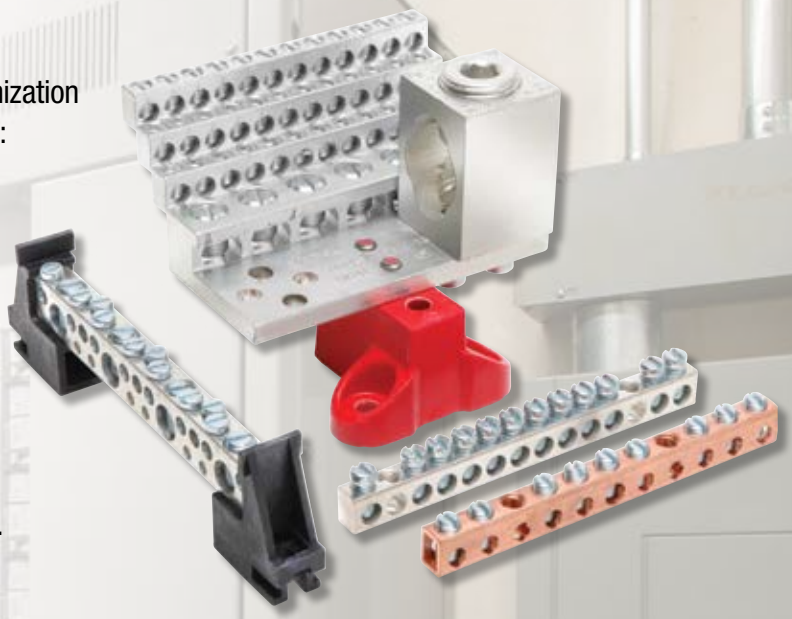


The CMC "Keyhole™" design allows for multiple same size conductors to be placed in a single port, reducing the amount of connectors and space required to do multiple terminations.

Neutral/Ground Bars

Our CMC® neutral bars offer a wide range of customization for size and conductor range. Other benefits include:

- Easy assembly
- Electro tin-plated for low-contact resistance
- Corrosion resistant
- UL recognized from #12 to 300 kcmil
- Available in copper or aluminum (aluminum designs are dual rated)
- Neutrals must maintain at least 1/2" clearance off metallic surface (usually mounted on a base).



Screws

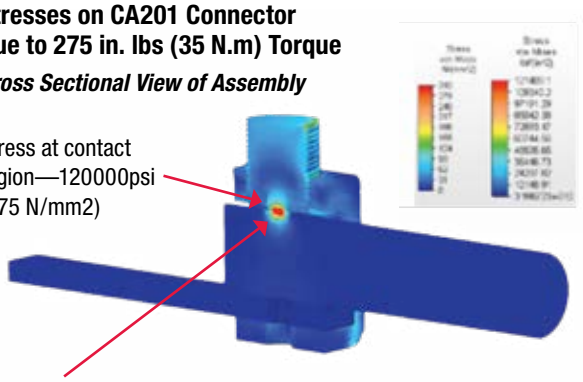
CMC manufactures specialty socket and slotted-set wire clamp screws; thread-forming screws; trim and adjusting screws; and control screws. All options are available in all unified and metric sizes from #10-24 to 1-1/8-16 with lengths from 0.200" to 2." Materials include steel, stainless steel, aluminum, brass, bronze and copper. CMC® screws are designed for a variety of different industries, including:

- Energy
- Automotive
- Fittings
- Appliance
- Medical
- Electrical

LEADING THE INDUSTRY

Stresses on CA201 Connector Due to 275 in. lbs (35 N.m) Torque

Cross Sectional View of Assembly



At the contact region between screw and conductor, the stress exceeds the maximum bearing strength.

As a Tier 1 and Tier 2 supplier, we're committed to listening to our customers' application problems and equipped to devote significant engineering, manufacturing and testing resources to solving these challenges. That's precisely what we have been doing for more than 70 years. When you engage with our engineering team, you benefit from our decades of knowledge and experience. Our team offers innovative resources such as:

FEA Analysis

Finite element analysis (FEA) is a computerized method for predicting how a product reacts to real-world forces, vibration, heat and other physical effects. FEA analysis shows whether a product will break, wear-out or work the way it was designed. Although it's called "analysis," this process is actually used during product development to predict what will happen to the product when it is used. When working with a new product, CMC uses FEA analysis as a way to reduce the need for costly prototypes, eliminate rework, and save time and development costs.

Broad Spectrum of UI/CSA Listings and Approvals

CMC maintains UL and/or CSA files on all applicable parts and works with customers to move products quickly through the listing process when new projects are kicked off. In many cases, listings can be obtained with little or no testing, thanks to the breadth of CMC products that have already gone through the UL testing process. Leading the Industry

Need Customized Products?

Call us! The CMC Technical Services Department works with our engineers, designers and machinists to create custom connectors that won't sacrifice maximum conductivity. Our teams utilize 3D models, in CAD, CAM and PDM; numerical simulation; FEA analysis; and rapid prototyping to deliver the right product for the application.

Learn more by contacting CMC Technical Services at 513-860-4455.

Posigrip®

Our patented PosiGrip aluminum dual rated mechanical connectors are designed to meet the rigorous requirements of UL 486A/B and CSA 1165A specifications covering connectors for use with aluminum and copper conductors. The PosiGrip line is fully listed by Underwriters Laboratories, Inc. and Canadian Standards Association. The CMC® Posigrip line of aluminum mechanical connectors contain all the best possible design features while utilizing the least amount of metal necessary — this combination ensures that pricing can be kept competitive without sacrificing quality. The CMC® Posigrip line of lugs stands out for its:

Tongue Ridges for Better Heat Dissipation

These unique ridges formed on the bottom of the contact surface are designed to provide positive contact points for an electrically secure joint of the lowest resistance for current flow. The Posigrip connector is designed to cause specific contact points where current can flow without creating “hot spots” when two flat surfaces are joined.

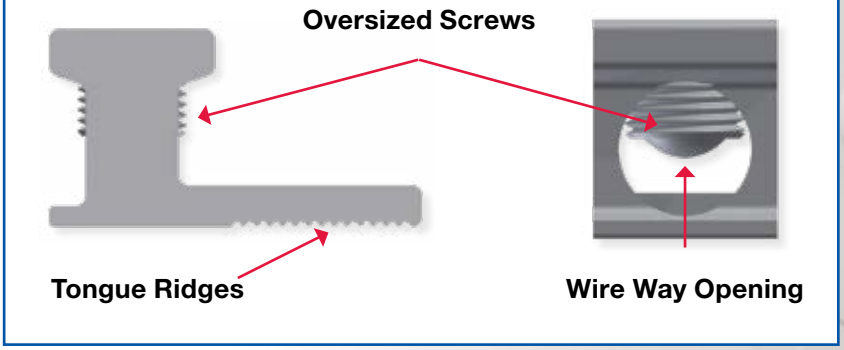
Oversized Screws

The screws used to clamp the conductor are designed to extend beyond the barrel sides of the connector to allow for better, more secure compression of the conductor. This design spreads the conductor strands to help dissipate heat more effectively. In addition, oversized screws cause the maximum conductor to spread slightly more than the wire way, which, when installed, improves the pullout safety features and capabilties.

Wire Way Opening

The conductors are able to enter the lug at the lowest possible point near the tang of the lug, providing optimum transfer of current and creating a straight-line flow through the connector for the path of least possible electrical resistance. A positive wire stop is provided with a step in the connector tang.

POSIGRIP FEATURES



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