

# TAKING THE HASSLE OUT OF ELECTRONIC ENCLOSURE MODIFICATIONS

There are often times when standard, “off the shelf” electronic enclosures require modifications to meet the exact requirements of device manufacturers. Many companies find that making these modifications can be tedious, overcomplicated and costly, as it distracts from their core business activities. This is particularly the case for products in the very early or very late stages of their lifecycle, when order volumes — ranging anywhere from 50 to 1,000 units — are too high for modifications to be done manually in-house, but too low to justify investment in a dedicated computerized numerical control (CNC) or milling machine.

In many cases, device suppliers elect to outsource enclosure modifications to a third-party machining shop. However, this frequently results in a longer time to market for the product. Logistics and supply chains also become more complex, which further increases the risk of delays and other issues that can impact the supplier’s bottom line.

## Standard enclosure modification services

Having been in business for more than a century, Hammond Manufacturing has long recognized these pain points and offers modification services when standard enclosures don’t exactly fit device manufacturers’ specifications. The company operates facilities across the globe, including in the U.S., the U.K., Australia and Taiwan. However, the vast majority of products are manufactured in Ontario, Canada.

In recent years, Hammond has expanded its facilities in Canada to accommodate the growing number of customers requesting standard enclosure modifications. This includes two state-of-the-art enclosure modification plants in Ontario. The 26,000 sq ft Waterloo facility, which was expanded in 2019, houses 13 CNC machining centers, along with printing and assembly.

Roughly 20 miles away is Hammond’s Guelph facility, which focuses on metal fabrication, mainly for data communications cabinets. The Guelph facility houses an advanced powder painting line and is a key part of the modified enclosure production process. Many die-cast aluminum enclosures are painted in the plant, in either stock or special colors.

Some of the most common types of enclosure modifications made at these facilities include:

- Special paint colors
- Custom UV printing
- Non-standard sizes
- Pressed-in hardware
- Cutouts
- Punched holes
- Tapped holes
- Pre-installed accessories



Figure 2. Example of a standard enclosure with several modifications. Source: Hammond Manufacturing

*When compared to other alternative options for modifying enclosures (i.e., doing in-house, outsourcing to machine shop and other routes), Hammond’s modification service offers several advantages.*



Figure 1. In-house UV printing is used to print logos, labels, and artwork directly onto the enclosure

### **Simplifying enclosure modification with a one-stop shop**

While most third-party machining shops are capable of making modifications to standard enclosures, they often place a burden on the device supplier in terms of both time and resources spent verifying the enclosure design. The responsibility of ensuring delivery of enclosures (both pre- and post-modification) to and from the machine shop also typically falls on the supplier.

When utilizing Hammond's modification service, supplier risk and responsibility are kept to a minimum. This is made possible through a very deliberate development process that Hammond has perfected over the past decade:

1. Hammond personnel work directly with the device supplier to select a standard enclosure and determine the specific modifications requested. The supplier can provide an existing 3D drawing they have developed or even a simple sketch. Hammond then develops its own CAD file and sends it to the supplier for approval. If printing is included, Hammond will also provide an artwork proof.
2. Once the design of the enclosure has been approved, a prototype enclosure is manufactured and shipped overnight to a designated supplier location for visual inspection. This step provides added assurance by allowing the supplier to physically see and handle their modified enclosure to ensure that it meets exact requirements.
3. After the prototype has been approved, production at one of Hammond's manufacturing facilities begins. Production times will vary depending on quantity and the specific modifications requested. PEM inserting, painting and printing are steps that may require additional time. Typically, however, batches can be completed in a matter of weeks. Enclosure inventory is rarely an issue, as Hammond molds most of its own products and maintains a large inventory of products that are produced in its other facilities.
4. The batch of modified enclosures is shipped directly to the supplier site, just as they would if they were ordered as standard enclosures with no modifications. The enclosure receives a designated Hammond part number so if the customer needs to order additional quantities in the future, they can do so by simply picking up the phone.

### **Why use Hammond?**

When compared to other alternative options for modifying enclosures (i.e., doing in-house, outsourcing to machine shop and other routes), Hammond's modification service offers several advantages.

#### **Quality**

Hammond uses state-of-the-art equipment to ensure that every enclosure precisely meets design specifications. Highly accurate laser work centers and CNC punches guarantee the exact location and dimensions of holes or cutouts. Ultra-durable powder paint can be color matched to manufacturer specifications, ensuring a factory-quality paint finish every time. The process ensures all edges around the cutout have factory quality, powder paint coverage.

#### **Reduced cost**

Performing modifications in-house is typically viewed as the least expensive solution. However, there are many factors manufacturers do not consider prior to taking this route; this can include prep time, cutting or paint touch up, product handling, high error rate, increased scrap and more. There is also an opportunity cost associated with having workers focus on a task that is not part of their core responsibility. Customers typically find that when the true scope of the job is considered, in-house modifications can be very costly.

#### **Reduced risk**

Hammond's proven process for engaging with customers minimizes the risk of modifying enclosures by ensuring that the design meets exact requirements before heading to production. Additionally, Hammond support personnel are available 24/7 and ready to work with customers in the event that an issue does arise with an order.

**Simplified logistics**

When using Hammond's modification service, there is only one entity that device manufacturers have to interface with. This is not always the case when using third-party machine shops, as the standard enclosures often must be ordered from the enclosure supplier and then shipped to the machine shop. With Hammond, there is no additional handling or steps required. The finished modified enclosure arrives at their facility just as it would if it were a standard enclosure, with no modifications.

**Benefits of early engagement**

In many cases, electronic device manufacturers do not consider enclosure design until after their device has been manufactured. However, it is often advantageous to choose an enclosure first.

While this may seem counterintuitive, doing so ensures that the device (for example, a circuit board) will fit into an existing standard enclosure. If it does not, a custom enclosure may be required, which can be expensive and complicate the overall production process. While some enclosure styles, such as extruded aluminum, have flexibility, it is always beneficial for suppliers to involve the enclosure provider early enough in the design stage to ensure that their requirements are met in a timely and cost-efficient manner.

**Hammond Manufacturing**

Hammond Manufacturing is a global enterprise with customers all over the world. A staff of over 700 works together to ensure delivery of high-quality products and exceptional service. Hammond's reputation for quality is enhanced by high-performance manufacturing equipment and continuous client satisfaction.

Hammond provides a wide range of standard products, product customization services and technical support to electrical and electronic manufacturers, utilities and institutions through a global network of agents and distributors. Visit their website to learn more about modification services - [www.hammondmfg.com](http://www.hammondmfg.com).

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**ABOUT HAMMOND MANUFACTURING COMPANY INC.**

Hammond Manufacturing is now a global enterprise with customers all over the world. Our 700-strong staff works together to ensure that we deliver on our promise of high-quality products and exceptional service. Our reputation for quality is enhanced by high-performance manufacturing equipment and continuous improvement management approaches. A significant company focus is on continuing efforts to differentiate ourselves through high service and client satisfaction levels. These are the pillars on which our future prosperity will be built. Hammond is based in Guelph, Ontario, Canada, and is a publicly-traded corporation on the Toronto Stock Exchange (HMM.A).

Hammond has offices in Canada, the United States, the United Kingdom, and Taiwan. Hammond provides a wide range of standard products, product customization services, and technical support to electrical and electronic manufacturers, utilities, and institutions through a global network of agents and distributors.