



Selecting the Right Metal Fabrication Vendor/Supplier

How do you select a sheet metal fabricator for your product?

It's critical to collect as much information as possible about what a contract manufacturer can (and can't) do before you commit. But how do you figure out if a particular company is a good fit for your needs? We put together this checklist to help procurement and supply chain professionals vet potential suppliers and create a supplier shortlist.

About the Supplier

Start by looking at supplier websites for information on the below topics. Most of this information should be readily accessible. If you can't find this information on their website, make a note to ask about it on your initial discovery call.

Can the supplier handle my project?

Location & Supply Chain - Ideally your fabricator should have a strong footprint that includes proximity to your company, your customers and their customers. It goes without saying that a supplier with a facility near you not only saves on freight but also improves on-time delivery (OTD) and lead time. Even better: a supplier with multiple facilities. If they're strategically located, it can reduce the risk of supply chain disruptions.

Besides location, consider the fabricator's supply chain health. Ask questions about their supply chain health, such as their access to required materials.

Experience - Longevity in the industry is a plus. This means they have successfully launched programs like your own and can quickly navigate challenges including product manufacturability and scalability.

Flexibility - Many times flexibility is overlooked when making a supplier shortlist. Be sure to look for a supplier that can not only supply your current demand but can also easily scale to fit changes in your demand schedule. If they cannot grow with your company, you may quickly find yourself looking for additional fabrication support.

Certifications - Does your supplier meet product and quality requirements? One example is looking for a supplier that holds the latest ISO certification to ensure the supplier matches your expectations around quality management systems.

Support Team

• *In-house engineering team* – Do they have a team of design engineers available to assess drawings and recommend changes when needed to [ensure manufacturability](#)? It's beneficial if engineering teams are close to their company's manufacturing team and shop floor.

• *Customer service* - Get a feel for how the supplier works with their customers. Do they seem like they listen to clients and want to build a strong partnership, or does it feel more like a transactional relationship? Do they provide dedicated account management? Do they have processes in place for corrective action?

Metal Types

Find out if a fabricator works with the types of sheet metal your drawings require. Obvious? Yes. Easy to overlook? Also, yes. Save yourself time upfront and take a moment to confirm that your potential supplier can work with the type of sheet metal you need. They aren't all the same and not every supplier is experienced in every material.

Which metal does your product require?

- Aluminum** - Lightweight, relatively strong and can hold up to a **NEMA 3 specification**. It's more expensive than carbon steel but less costly than copper. Aluminum's disadvantage is it doesn't hold up to heat as well as other metals, so it must be TIG welded.
- Carbon Steel** - A metal alloy made up of iron and typically no more than 2.1% carbon. The most widely used in sheet metal fabrication, easy to form, cut and weld. Also holds up to NEMA 3 specs.
- Stainless Steel** - An alloy made up of iron and around 11% chromium. Stainless steel is durable and resistant to heat, rust and corrosive acids making it useful for NEMA 4x enclosures. Stainless steel's surface finish is excellent for highly aesthetic products. A reaction that causes pitting or discoloration can occur when it comes into contact with other materials, specifically aluminum.
- Copper** - Soft, malleable and an excellent conductor of heat and electricity. Copper is great for construction and transportation uses. Because of its price point, it's not typically used for sheet metal enclosures, unless the project requires conductivity.
- Titanium** - A more expensive but incredibly durable material with low density. Its strength can make titanium difficult to machine. It's perfect for cases where precision, durability and weight are key, such as medical and aerospace applications.



Capabilities and Processes

Sheet metal fabrication can be relatively simple or extremely complex. It all depends on what the enclosure, kiosk or part calls for. Before you choose a supplier, make sure they have the capabilities and processes your product demands. Bonus points if the supplier can offer everything you need under one roof. You need a contract manufacturer that can precisely fabricate the product you need for your project.

Can the supplier handle my project?

- Cutting** - The process of cutting sheet metal into smaller shapes that will be used later in the fabrication process. Equipment may include a fiber laser, a plasma cutter, turrets or a water jet cutting machine.
- Drawing** - This process uses a mold or a die and pulls the sheet metal to form the desired shape. Drawing works well with thicker materials.
- Folding** - Sheet metal is bent to certain angles using equipment such as a brake press, which can easily fold panels and multiple shapes on a piece of sheet metal.
- Extrusion** - Molds or dies are used to form shapes into sheet metal. Turret punches used during the extrusion process can improve product manufacturability by reducing the need for fastener hardware.
- Punching** - A turret and die are used to force material out of a working piece or part (simply put it makes a hole). Punch press turrets come in different sizes and styles to create different shaped openings.
- Shearing** - This process cuts sheet metal in a long, straight line, usually using two blades to trim metal into a smaller size. The top blade pushes the metal into the stationary bottom blade to cut.
- Stamping** - Instead of cutting completely through a piece of metal, stamping uses a die to mold shapes and create indents. It's often used in the automotive industry for certain vehicle parts and components.
- Stamping** - Sheet metal welding is a staple in complex metal fabrication and includes [MIG, TIG, arc and spot welding](#). Each method requires varying capabilities and expertise in the trade.
- Roll Forming** - This process turns sheet metal over rollers at room temperature to form round parts.
- Machining** - Most machining processes fall into three categories: turning (also known as lathing), drilling and milling. This category covers a wide variety of processes that remove metal from a part or piece using a coordinate system, which allows for improved accuracy over other processes such as punching and folding. You won't typically find machining in a fabrication facility, but it can be advantageous to have a supplier with fabrication and machining capabilities for tight tolerance requirements.

Capabilities and Processes

Can the fabricator meet your tolerance requirements? Tolerance refers to an acceptable range of variation from a design file, which is represented by +/- . The tighter the tolerance, the more precision is required. Machining is commonly used when tight tolerances are called for.

Follows Industry Standards - The supplier understands and follows industry standards set by organizations like [American National Standards Institute \(ANSI\)](#) and [Machinery's Handbook](#) for achieving the tolerance your project requires.

Maysteel follows [4 Sigma quality standards](#), which gives a tolerance of +/- .006" / .15mm for standard feature sizes (hole, square, etc.). For a single hit, flat pattern relation, the tolerance is +/- .010" / .25mm. Although they vary by project, our machining capabilities allow us to meet the tighter tolerance requirements used for military, aerospace and defense products.

Now It's Time to Make Your Supplier Shortlist

As you can see, there's a lot to consider when choosing your sheet metal fabrication partner. There's nothing worse than finding out too late that your supplier can't produce the high-quality enclosure, kiosk, or other custom machined parts you need. Taking some time to do your homework upfront can keep you from wasting time or budget down the road.



Maysteel is a complex sheet metal fabricator with in-house machining capabilities. Our solutions include custom enclosures, kiosks, machined parts and more. If you have a project that you'd like to review, [use this form to contact our team](#) or email us at info@maysteel.com.