



# METAL FABRICATION CAPABILITIES

Original equipment manufacturers (OEMs) have trusted Northern Metal Products with their metal fabrication projects for over 60 years, so we understand the need for precision, reliability, and quality. Since 1959, we've applied our expertise to meet these a broad spectrum of OEM constraints, drawing on advanced computer numerical control (CNC) and robotic technologies to achieve tight tolerances and rapid turnarounds. Our decades of experience have enabled us to accommodate aggressive lead times for custom products without compromising quality or performance.

Our wealth of in-house expertise and equipment contribute to our expansive portfolio of OEM project successes. Northern Metal Products is a turnkey, full-service manufacturer with comprehensive metal fabrication capabilities, so we can tackle the most advanced projects in-house from our Minnesota facility. Our specific metalworking capabilities include:



## WELDING

Including semi-automatic and fully automatic MIG and TIG welding.

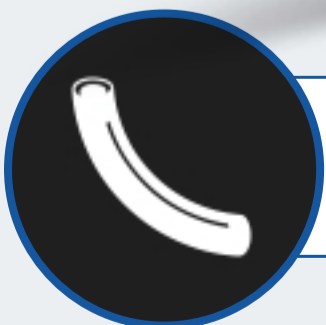


For precision metal components.

## LASER CUTTING

## BENDING AND FORMING

Of components up to 0.5 inches.



Including cutting, piercing, bending, notching, and similar techniques.

## TUBE FABRICATION

## WIRE FORMING

Of 2D and 3D forms.



# WELDING & FABRICATION

Our semi-automatic and fully automatic welding capabilities allow us to achieve tight tolerances with unmatched speed and consistency. Our CNC and robotic welding equipment minimizes labor costs and decrease the likelihood of errors, ensuring premium results with every single part. We complement our welding services with other fastening and assembly services for PEM, weld nuts, weld studs, and capacitance-discharge welded hardware, ensuring our customers receive ready-to-use components and products.

## High-Quality Fabrication Welding With Fast Turnaround Times

We offer a range of welding techniques to accommodate different materials and designs:



### RESISTANCE WELDING:

Resistance welding is highly cost-effective as it does not require filler. Instead, the method involves applying pressure and current at a seam, forcing the two workpieces together.

### CNC RESISTANCE (SPOT) WELDING:

CNC spot welding applies current to isolated locations on the workpiece, taking just a fraction of a second to form a spot weld. CNC spot welding allows for extremely precise and repeatable welding with a minimal heat-affected zone.

### ROBOTIC MIG WELDING:

In metal inert gas (MIG), a welding gun melts a consumable wire into a weld pool at the seam between workpieces. Robotic MIG guns automate and enhance the efficiency of this process to quickly achieve even cleaner welds.

### TIG WELDING:

Tungsten inert gas (TIG) welding is similar to MIG welding, but it uses a non-consumable wire, with filler metal is added separately when required. Manual TIG welding is an excellent choice for high-precision applications because it generates a small and intense welding arc for a localized weld.

# LASER CUTTING



At Northern Metal Products, we pride ourselves on our commitment to speed, quality, and dependability. Laser cutting is key to achieving all three of these metrics, helping to cut labor time and expense while increasing precision. Our laser cutting equipment allows us to achieve consistent cuts and tight tolerances on mild steel (up to 0.5 inches thick), stainless steel (up to 0.375 inches), and aluminum sheets (up to 0.25 inches).

## Precision Laser Cutting Saves Time and Money

Laser cutting is a non-contact cutting method that uses the energy of a laser beam to vaporize metal along precise guidelines. Laser cutting machines allow for greater accuracy, edge quality, and efficiency than most other cutting techniques, ultimately generating higher-quality components at a lower investment. Our top-of-the-line laser cutting equipment features automated loading and unloading to minimize lead times and decrease labor costs.

### 2000-watt Mazak

One of our most efficient cutters, the 2000-watt Mazak boasts dual spindles and turrets to accommodate two parts at once. Mazak laser cutters control these stations with cutting-edge CNC multitasking to boost production speed without sacrificing precision or edge quality.

### 4000-watt AMADA

AMADA laser cutters are known throughout the industry for their flexibility, accommodating a range of metals with advanced beam delivery systems. The AMADA 4kW laser cutter is four times as fast as the competition, and we leverage its speed to offer clients rapid turnaround times.

### BLM LC5 Tube/Sheet Laser System

The BLM Group's LC5 system allows us to laser cut tubes and sheets on the same machine with instant changeovers and automatic bundle loading. The LC5's multitasking minimizes the cost-per-part and lead times while still achieving smooth, well-defined edges and precise geometries.

# BENDING & FORMING

Our precision wire and sheet bending techniques make us the ideal partner for completing your OEM projects. As part of our turnkey metal fabrication capabilities, we can handle metal bending and forming of metals up to 0.5 inches thick, using CNC technology to guarantee accuracy.

## Bending & Forming Processes Tailored to Your Needs

We customize our bending and forming process to suit each project's specifications, drawing from the following capabilities:

### CNC & Hydraulic Press Brakes

Our high-end CNC and hydraulic press brakes allow us to achieve unmatched bend accuracy and repeatability.

Using our versatile, open-back inclinable presses, we offer general-purpose, high-tonnage bending.

### OBI Presses

### 4-Post Hydraulic Presses

We accommodate larger components (up to 150 tons) with the help of a 4-post hydraulic press, which presses components vertically between two parallel plates.

# TUBE FABRICATION

At Northern Metal Products, we know that fabrication of specialty parts often requires adding to raw tube materials using a variety of bending and forming techniques. Regardless of the size of your project, we have the OEM capabilities to provide tube fabrication on mild steel, stainless steel, and aluminum.

## Affordable, High-Quality Tube Forming & Fabrication

Our advanced tube fabrication capabilities present an ideal solution for achieving both simple and complex forms, combining processes such as:



Cutting



Mandrel Bending



Notching



Swaging



Piercing



CNC Bending



Laser Cutting

# WIRE FORMING, ASSEMBLY, AND FABRICATION

Many OEM projects involve wire assemblies, so we have invested in the technology necessary to fabricate and form wires from 0.063 to 0.500 inches in diameter.

As experts in wire-forming, assembly, and fabrication, we take care to choose ideal materials and forming methods to suit each individual job. Low-carbon steel, stainless steel, or galvanized steel will suit most needs, but we will pursue other options when the project requires it.

## Conquering Your Wire-Forming & Assembly Projects For 60+ Years

---

Our primary wire-forming and assembly capabilities include:

### 2D and 3D Wire Forms

Using manual and automated forming techniques, we can assemble 2D and 3D wire forms as simple as hooks or as complex as standalone wire shelving units.

### Conventional Straightening

Our in-house wire straightening equipment allows us to achieve perfectly straight wires, regardless of thickness. Straightening before bending is essential for repeatable results, although not all straightened wires will go on to be bent.

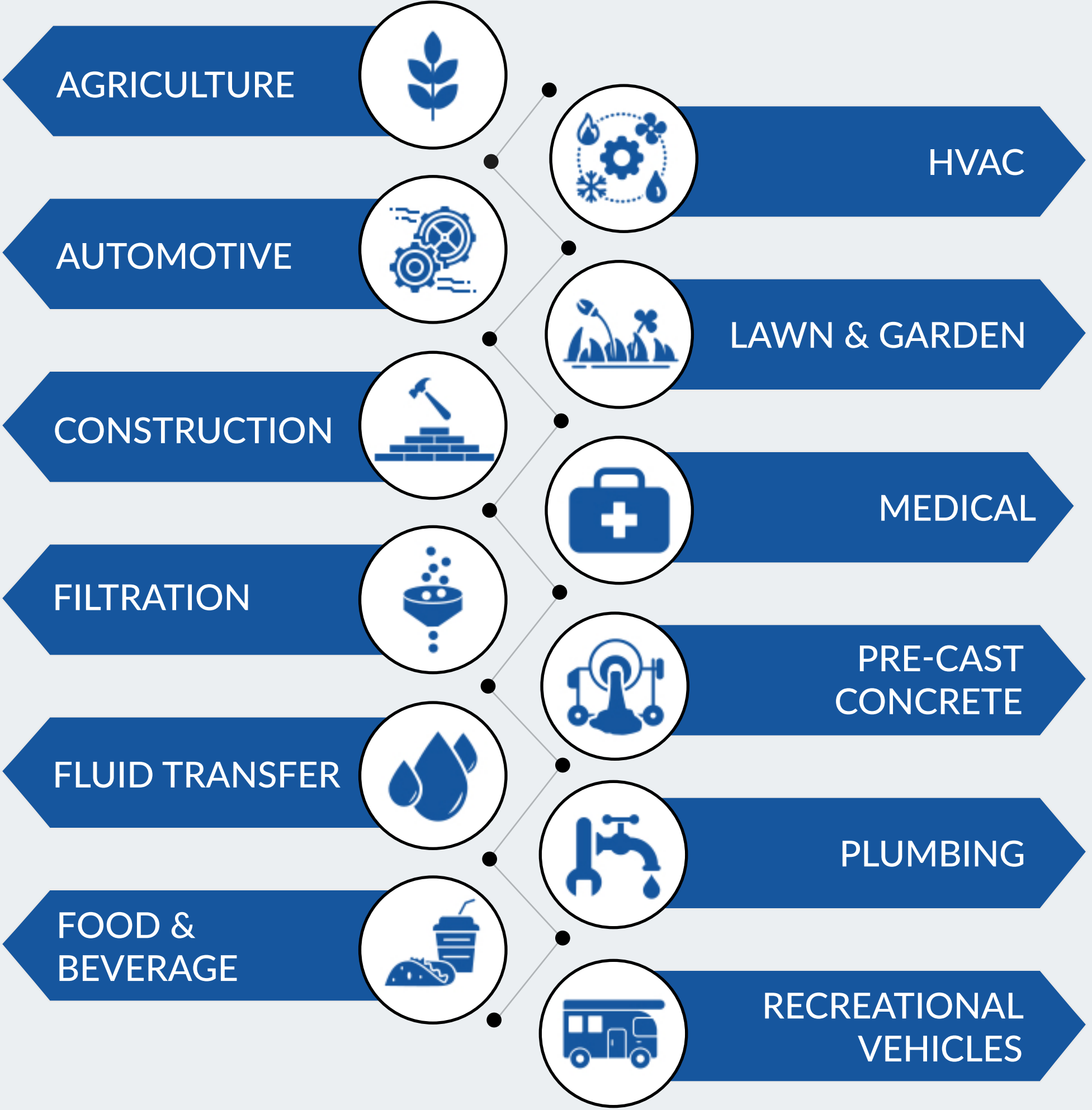
### 5-Axis CNC Forming

CNC forming can dramatically reduce wire processing times, and we use advanced 5-axis forming machines to increase efficiency even further. A 5-axis CNC forming machine moves along five axes simultaneously, speeding the production of larger or more intricate wire assemblies.

# COMPREHENSIVE, METAL CUSTOM FABRICATION BY NORTHERN METAL PRODUCTS

Northern Metal Products has spent over six decades crafting high-end metal components from our U.S.-based manufacturing facility. As an ISO 9001:2015-certified manufacturer, we craft components that adhere to the highest industry standards, and our repeat OEM clients trust us to deliver consistent precision components on-time and to their exact specifications.

Our clients come to us from a wide range of industries, and our custom metal fabrication services are especially well-suited to the following sectors:



To learn more about our extensive turnkey metal fabrication capabilities, contact us or request a quote today.

[www.northernmetalproducts.com](http://www.northernmetalproducts.com)