

Metal Polishing

Everything You
Need to Know



HELANDER
PRECISION METAL COMPONENTS

Metal Polishing: Everything You Need to Know

Metal polishing is one of the most popular metal finishing processes available. It adds an attractive and functional surface to virtually any metal product. Depending on the application, metal polishing techniques can be used to achieve mirror-like shine or a subtler polish, while also reducing oxidation and prolonging the product's working life. Thanks to these advantages, metal polishing is now used across many industries to enhance products ranging from furniture to medical equipment and industrial assemblies.

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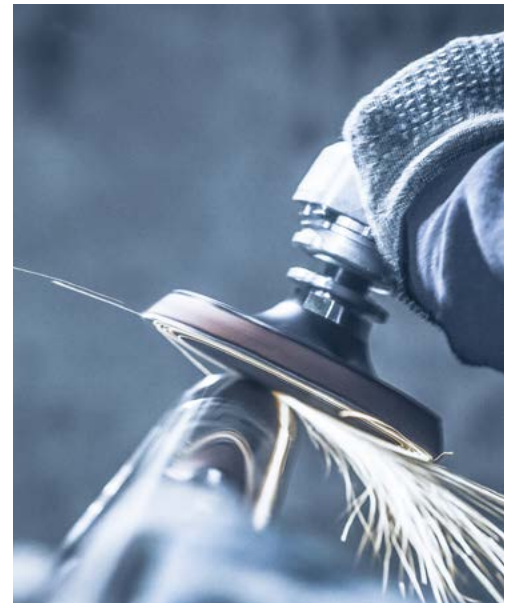
In this guide, the Helander team provides an overview of the metal polishing process to help you decide if it's the right fit for your project.

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What is Metal Polishing?

[Metal polishing](#) refers to the use of abrasive material to smooth a metal surface. The goal of metal polishing is to remove defects from the metal surface, improving both aesthetic and functional value. Polishing is often performed in conjunction with buffing, which uses gentler abrasives to brighten the surface finish. When used together, polishing and buffing can transform a dull metal into a shiny, mirror-like surface. Polishing may also be used to restore an aging metal's luster.

The metal polishing process proceeds in several stages depending on both the initial state of the surface finish and the desired finish. The first steps use coarse abrasives, followed by finer abrasives and buffers. The exact abrasives depend on the metal: softer metals like brass require fine abrasives throughout the process, while metals with high tensile strength can endure rougher materials.



Advantages of Metal Polishing

Metal polishing owes its popularity to a list of significant functional and aesthetic benefits, including:

Attractive Finish.

Polishing helps achieve a lustrous shine, which is desirable for both commercial and industrial products.

Enhanced Hygiene.

Polishing removes small and large surface defects that could otherwise trap bacteria. A polished surface is much easier to keep sterile, which is critical in medical, dental, and food applications.

Improved Corrosion Resistance.

The polishing process removes free iron from the metal's surface, slowing the development of rust.

Restored Surface.

Even high-quality metal products become corroded over time. Metal polishing can restore a surface's original finish, prolonging an aging product's working life.



Metal Polishing Applications

As a result of its various benefits, metal polishing has become ideal across a diverse set of industries, including:

Medical.

Stainless steel medical appliances must meet rigorous hygiene standards. Metal polishing removes the tiny defects that could otherwise compromise sanitation efforts.

Food Service.

Food-handling facilities of all types must maintain clean surfaces. Metal polishing ensures equipment is free of bacteria-harboring imperfections.

Consumer Goods.

Metal polishing is the best way to give a metal product an attractive shine. This makes polishing a great option for flatware, appliances, decorations, furniture, and similar products.

Architectural Details.

Gleaming metal accents signal quality and modernity to many consumers, which is why architects, interior designers, and building owners flock to polished metal for beams and detailing.

Industrial Assemblies.

Metal polishing yields components that are less likely to succumb to corrosion, and it can restore those that already have. These benefits are critical in harsh industrial environments, where product longevity is critical.

Automotive Parts.

Automotive manufacturers rely on metal polishing to increase shine and reduce corrosion, improving their vehicles' appearance and reliability.

Equipment & Machines Used in Metal Polishing

The most important piece of equipment for metal polishing is the abrasive itself. The type of abrasive chosen depends on the metal part's hardness, the desired finish, and the stage of the polishing process. Generally, aluminum oxide-based abrasives are best for metals with a high tensile strength, including carbon and steel alloys. Silicon carbide abrasives can be used on brittle or soft metals, including brass, aluminum, and copper, while green chromium (III) oxide is the best choice for ferrous metals.

These abrasives may be applied by a range of equipment. In manual polishing, the operator typically relies on lathes and turntables to control application. Automated projects use similar types of equipment, but the machinery is controlled by computers rather than human operators. Key automated equipment consists of robotic arms and automated 3-axis lathes.



Manual vs. Automated Metal Polishing

Like many manufacturing techniques, metal polishing can be performed either manually or via automated machinery. Automated metal polishing is the quickest way to polish high volumes of parts, providing an efficient and consistent finishing method for larger orders. A particularly good fit for automated metal polishing services is a large volume of small parts that are not too delicate or complex. Automated polishing uses a combination of robotic arms and CNC lathes to perform a pre-programmed polishing routine on each component. The main benefit is speed, but these robots also reduce labor costs, especially at high volumes, and make it easier to remove imperfections in large quantities.



While automated metal polishing is efficient, manual polishing remains the ideal choice for complicated components such as those with many grooves. Robots often struggle to reach every surface when dealing with intricate details, which ultimately leads to an inconsistent finish. Manual polishing is also the better choice for small-volume runs as well as oversized components, which may exceed the size limitations of automated systems. In these applications, manual polishing offers tighter tolerances and better consistency compared to automated polishing.



Metal Polishing Services at Helander

Metal polishing is a versatile, affordable technique for finishing metal products of all types. Whether used to add shine to a luxury good or to facilitate FDA-required sanitation procedures, metal polishing plays a pivotal role in part manufacturing.

At [Helander](#), we offer premium polishing services for all metals ranging from aluminum to titanium. Our metal polishing finishes range from 36 to 240 grit, all of which adhere to the highest quality standards and industrial regulations. We are ISO 9001:2015 certified, and we also adhere to rigorous industry-specific regulations like AS9100D, PPAP, and ITAR. As such, you can trust our ability to deliver high-performance, high-precision components, regardless of your specific industry.

For over 80 years, Helander has been a trusted partner to aerospace clients, high-end furniture manufacturers, automotive companies, and medical suppliers, among others, offering attractive and functional metal components at a competitive price.

To learn more about metal polishing or about our services and capabilities, [contact us](#) or [request a quote](#) today.

Learn More

Superior Quality. Advanced Machinery. Highly Skilled Technicians.

All of that and more encompass the name of Helander Metal Spinning Company.

For over 80 years, Helander has been a major partner to a variety of Fortune 500 companies and small businesses, providing them with metal forming and fabricating services.

Our long history of production excellence has been built by continually adhering to our customer's rigid specifications. Quality is – and has always been – our emphasis.

Our niche is forming cylindrically shaped parts ranging from 1.00" diameter to 72" in all types of metals and production quantities. Helander's core business competencies are metal spinning and sheet hydroforming (deep drawing).

We work with the aerospace industry, high-end furniture manufacturers, Tier 2 and 3 automotive companies, the medical sector, and agricultural industries. Our emphasis is on providing our commercial, aerospace and defense customers with superior service, no matter the industry. We focus our efforts on customer service, prompt deliveries, and efficient performance.

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