



Aerospace & Defense Welding

Helander offers a range of welding services well-suited to the specific demands of the aerospace and defense industry.

The infographic below provides details on our MIG welding, TIG welding, Soldering, and automated seam welding processes.

MIG Welding

Metal inert gas (MIG), or gas metal arc welding (GMAW), make uses of an electric arc that forms between a consumable wire electrode and the workpieces; this melts the workpieces and allows them to join together. A shielding gas is fed through the welding gun to protect the entire process from airborne contaminants.

TIG Welding

Tungsten inert gas (TIG), or gas tungsten arc welding (GTAW), utilizes a non-consumable tungsten electrode to generate an electric arc that heats the workpieces. In most TIG applications, a filler metal is added to the weld pool to aid in the joining of materials. As with MIG welding, an inert shielding gas protects the weld area from airborne contamination.

Soldering/Brazing

Soldering is the process of using heat to melt a solder material that joins workpieces, fusing them as the solder material cools and solidifies. This differs from welding in that soldering uses heat, rather than electric arcs, and does not melt the workpieces at all. Soldering is usually used in more delicate applications, such as electronics.

Automated Seam Welding

These welding processes use automated welding machines to achieve high-quality MIG or TIG welds at faster rates and higher accuracy.

Which Welding Process is Best for you?

The specific requirements of your application and industry will determine which welding method is best for your project. Take a look at some of the unique features and benefits of each welding technique:



MIG Welding

- Allows for high welding speeds
- Provides better control for thinner metals
- Achieves cleaner welds than other methods — with no slag to clean
- Produces high-strength welds with optimal aesthetics



TIG Welding

- Achieves the highest-quality, strongest, most precise welds
- Produces very attractive weld beads
- Allows for the adjustment of heat input during welding using foot control
- Gives operators better control over the weld compared to other methods
- Provides ideal welding for thin sections of alloy steel, stainless steel, and nonferrous metals such as magnesium, aluminum, and copper alloys



Soldering/Brazing

- Produces lower heat than other processes (400 °F)
- Conducts electricity easily
- Offers multiple connections with a single operation
- Eliminates the risk of metals melting or warping since solder flows at lower temperatures
- Allows for an easy learning process



Automated Seam Welding

- Eliminates the need for expensive weld grinding and cleaning processes
- Works well with galvanized steel, aluminum, stainless steel black iron, and paint lock
- Offers an ideal solution for butt welding materials under 3/16" via fusion or with filler.

