

Sheet Metal Fabrication

Sheet Metal Fabrication Process

Cutting



The cutting process often involves tools like lathes, saws, lasers, shears, mills, grinders, waterjets, and punches. Some of the most common cutting techniques include:



Laser Cutting

This low-cost, high-efficiency cutting process uses heated lasers to quickly vaporize a variety of sheet metal materials at a rate of 20 to 70 inches per minute.



Mechanical Cutting

Unlike laser cutting, mechanical cutting involves using physical force to cut metal. Examples include shearing, punching, milling, grinding, lathing, and sawing. Each of these processes offers unique advantages and disadvantages, and certain processes like punching are best used for holes, while shearing is great for metals where the edge cut doesn't need to be perfectly smooth.



Waterjet Cutting

With similar efficiency and precision as laser cutting, water jet cutting uses high-pressure water jets combined with abrasives to quickly cut through a variety of materials (including reflective materials). A huge advantage of waterjet cutting is that it does not leave heat lines.

Forming



The forming process is used to shape the sheet metal after cutting. There are a variety of methods you can utilize to form sheet metal, and the type you choose is highly dependent on your overall goals, requirements, and throughput needs. For example, roll forming provides incredible part uniformity, tight tolerances, and a superior surface finish. Air bending uses a V-shaped die and a punch to bend metal into specific shapes while coining uses pressure from the die and penetrates the metal itself.

Joining & Assembly



The final phase of the sheet metal fabrication process involves joining (e.g., rivets, joints, clinching, welding, etc.) and assembly of hardware and components.

Sheet Metal Fabrication Materials And Capabilities



Capabilities

- Laser Cutting
- Bending & Forming
- Welding
- Wire Forming
- Tube Fabrication



Materials

- Stainless Steel
- Steel
- Aluminum
- Copper

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