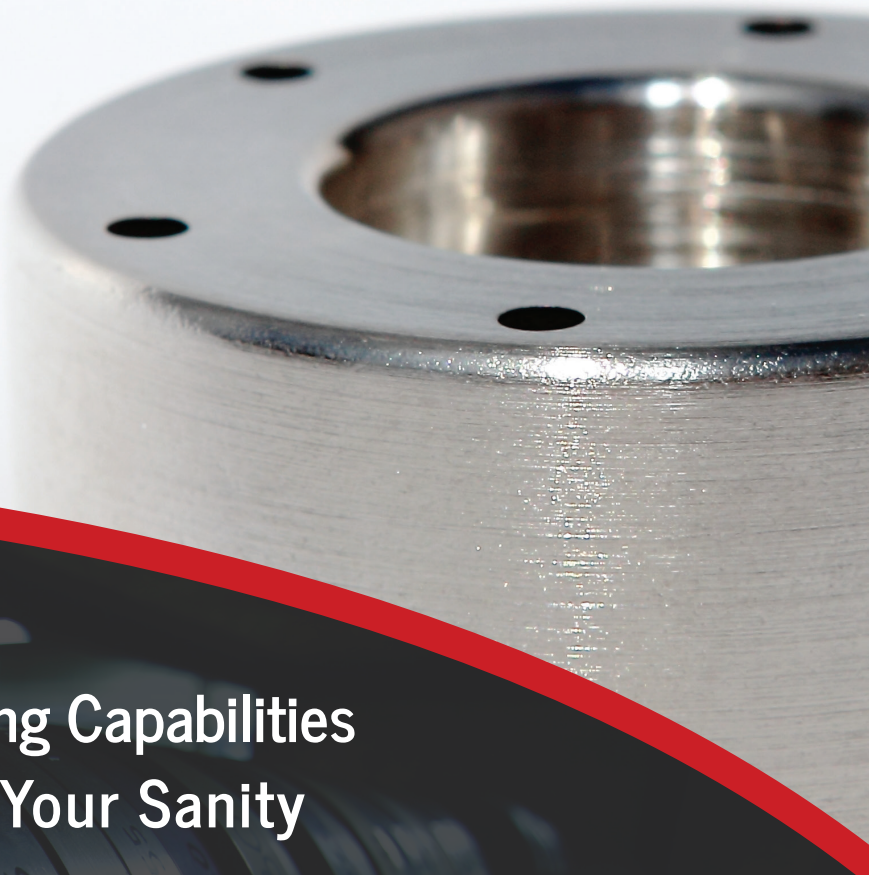


MuShield®

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ITAR-Registered
Manufacturer



MuShield's In-House Tooling Capabilities Save Time, Money, and Your Sanity

Let's get to the root of things.

You've got an idea, or, you've got a standard production job that you need manufactured for whatever your unique application may be.

The question is, what are you doing for tooling? Each custom job comes with it the need for a custom tool to accomplish whatever the end goal/product may be.

What Is Tooling?

Tooling is, quite simply (though not simple at all), the process by which a manufacturer establishes the literal tool needed to complete a job. It starts at the design phase and works its way through engineering and production.

Manufacturing Capabilities

- Conventional Sheet Metal Fabrication
- 5-Axis Laser Cutting & Trimming
- CNC Machining & Turning
- Hydroforming - Deep Draw
- Hydrogen Annealing
- Laser Welding
- Rolling
- Rotary TIG Welding
- Spinning
- Spot Welding
- Stamping
- TIG Welding
- Tooling Manufacturing
- Turret Punching

Consulting + Engineering Services

- Magnetic Shielding Design
- Design for Manufacturing Efficiencies - All Alloys
- Special Process Development



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Different types of tools needed in a production facility include:

Dies

- For hydro / cold forming applications
- For sheet metal applications
- For forging and extrusion applications

Cutting tools

- For milling applications
- For grinding applications
- Etc.

Work holding tools

- Jigs
- Fixtures
- For welding applications
- Inspection
- Etc.

Why Is Tooling Important?

When it comes to the quality of the finished product at hand – tooling is literally how you get from point a to point b. If you're looking for that finished result to be equal to or exceed expectations from a quality perspective, you need the right tool for the job, and you need it to be uncompromised. There's a lot science and math behind it. You can't just hit Home Depot and hope for the best.

Perspectives to consider when designing the right tool:

- Quality requirements of a finished part
- Finished part's geometry
- Speed and accuracy with which a part can be produced
- Repeatability of the job with regard to sheer volume and number of production runs
- Customer's budget

All of these points are taken into consideration during the quoting phase and will impact the final design for the tool(s) used in production.

When developing tooling, we ask questions such as:

- What type of precision are you hoping for?
- What overall characteristics are you looking for in your tooling solution?
- Where in the product life is your part?
- How long will this product be around?

If you're building your own tools in house, you know the ins and outs of all of this already. But for many, you aren't and that is where MuShield can help.

- Our machining capabilities allow us to build all tooling needed for our customers' unique parts / jobs.
- Having control over building custom tooling saves time as we're able to quickly react to any modifications or design changes and do not have to rely on a 3rd party.
- We not only provide you with "just" tooling; we're also equipped with functional gauges and fixturing. In order to inspect to tight GD&T callouts on aerospace flight drawings on our CMM, we need to hold the part.
- Our machinists are able to make of those in our machine shop.



In short, MuShield's tool-making ability doesn't just save you time, it also saves you money as well. The more people you get involved with a project, the more expensive the project gets. Economics 101.