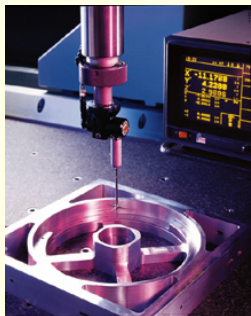


Economic Impact

- Our \$40 billion industry employs 440,000 workers in 16,000 companies across the nation.
- Precision tooling & machining shops are small to mid-sized companies that are located in all 50 states, with a large concentration in Michigan, Ohio, Illinois, California, Pennsylvania, Indiana and Wisconsin.
- Manufacturing jobs create three to five times more secondary employment than does a service industry job.



Markets Served

We provide valuable services and products to vital industries:

- Defense
- Automotive
- Aerospace
- Energy
- Appliance
- Printing
- Electronics
- Medical
- Construction
- Transportation
- Mining
- Telecommunications

Everything manufactured starts with tooling and machining

The precision custom tooling and machining industry plays an indispensable role in the manufacturing process. Our industry produces high quality precision crafted parts, assemblies and tooling for today's global industries, such as automotive, medical, telecommunications, energy and defense – to name just a few. Precision machining and tooling is truly the backbone of modern manufacturing.



Examples of high-quality precision turned parts used by industry

What we do

Toolmakers craft precision tools and machines that are used to cut, shape, and form metal and other materials. With these machines, tools and molds, they are able to produce complex components for every manufacturing sector. These companies may produce large quantities of one part, but oftentimes produce small batches or one-of-a-kind items to meet precise specifications from their customer.

A machining shop typically machines titanium, brass, stainless steels, aluminum, plastic, silicon or any other materials to precise dimensions. After machining the parts, tool and die makers carefully check the accuracy of the parts.



To develop products and parts, our industry uses a full range of machines and tools, computer-numerically-controlled (CNC) machines and other computer-aided design and manufacturing (CAD/CAM) techniques.

Critical Industries We Serve

► **Aerospace/Defense**—Precision tooling and machining is essential to our national defense. All sectors of the U.S. military rely on tooling and machining for tank, truck, telescopes, jet engine, missiles, satellite and guidance systems and other vital components. Many of our members specialize in the manufacturing, machining and tooling of highly complex critical components used in the aerospace sector.



Millat Industries of Dayton, Ohio produces this titanium elbow for a jet engine.

► **Medical/Surgical**— From surgical instruments to medical equipment, our industry plays an important role in the manufacture of complex precision machined components for the medical device industry such as plates, couplers, rods, and surgical instrument components.



Criterion Tool & Die Company of Brookpark, Ohio produces these spinal plates.

► **Automotive/Racing** — We provide the automotive and racing industry with design, process development, manufacturing and machining of engine, spark plugs, power and valve train and brake components.



Preferred Tool and Die of Shelton, Connecticut machines these automotive parts.

Industry Challenges



Outsourcing - The precision tooling and machining industry operates in a highly competitive global marketplace. The industry has witnessed a massive shift of production and orders to low-cost overseas competitors. As a supplier of tools, dies and components to many companies and original equipment manufacturers, we have been severely impacted by this trend. Since ~~2001~~, nearly a third of the U.S. tooling and machining companies have been forced to shut their doors as their customers have turned to China and other non-market economy countries to fill their orders.

Rising Costs - Our industry also faces unprecedented challenges with exorbitant energy and health care costs. Additionally, the cost burden of complying with regulations falls disproportionately on small manufacturers because regulatory costs for manufacturers are 81 percent higher than costs for all other types of businesses.

Workforce Shortage - Tool and die makers are among the most highly skilled workers in manufacturing. Today, there is a shortage of workers to do the high-quality, precision work required by our industry. This problem will only get worse as the baby boomers retire with no generation of skilled workers in the pipeline to replace them.



About NTMA

The National Tooling and Machining Association (NTMA) represents over 1,600 custom precision manufacturers and 55,000 employees across the nation. Our member companies are primarily privately owned and operated small-to-medium-size businesses. They design and manufacture special tools, dies, jigs, fixtures, gages, special machines, and precision machined parts.