Martin

CUSTOM CAPABILITIES

- Sintered Metal
- Injection Molding
- Milled Plastics
- Forgings & Castings
- Laser & Water Jet Cutting

PTDA

MPTA

Forge

Martin Tool and Forge, located in Fort Worth, Texas, has been a leading supplier of quality American forged products since 1917. Martin forgings are well regarded for Quality, Innovation, Reliability & Cost Savings.

Know how garnered over many decades provides unsurpassed benefit for the industrial user of custom forgings. This includes all phases in the forging process - die design and engineering, forging, coining, heat treating, and polishing.

Hammers ranging in size from 1,000 to 5,000 pounds produce finished parts from a few ounces to 50 pounds. Various alloys, considerable capacity, and secondary machining capability enable Martin to deliver near 100% density requirements in a cost effective manner.

Manufacturing Capabilities

Martin utilizes **closed impression die forging** where two dies containing the impression of the shape are brought together deforming the metal. Martin provides two types of closed impression die forgings: **Hammer Forgings** and **Press Forgings.**

Hammer Forging

Forging on a hammer is carried out in a succession of die impressions using repeated blows. Hammer forging can work to nearer net shape with smaller forging allowance, therefore on high cost or difficult to machine alloys there can be significant advantages in the Hammer Forging process. Hammer forgings can usually produce larger and heavier parts than press forgings.

Press Forging

The stock is usually hit only once in each die impression. Increased deformation and control achieved through press forging will give the material better consistency of properties.

Material Capabilities

Hammers

Up to 20" length

Carbon Steel	.25 to 45 lb
Alloy Steel	.25 to 45 lb
Stainless Steel	.15 to 25 lb

Presses

Up to 12" diameter or 14" length

Carbon Steel	1.5 to 40 lb
Alloy Steel	1.5 to 40 lb
Stainless Steel	1.5 to 20 lb

Secondary Operations

Other metalworking and inspection processes complement the forging of carbon, alloy and stainless steel components and parts.

- Heat Treatment
- CNC Machining, Broaching
- Magnetic Particle Inspection
- Liquid Penetrant Inspection
- Grinding, Polishing
- Cleaning
- Plating or Coating
- Coining

Benefits

- **High impact strength and structural integrity**
- Extremely **high consistency** of material and dimensions of parts
- **Higher strength to weight ratios** reduce both weight and size when close fit or weight issues are a factor
- Forging can produce **complex shapes** that otherwise may require multiple manufacturing processes
- Forged parts are **compatible with most secondary operations** such as heat treating, machining and fabrication
- In many cases **one forged part can be created where multiple parts were originally used**, reducing labor cost
- Martin's dedication to quality and service, is second to none

Watch the Forge & Foundry Video
scan QR code or visit: http://bit.ly/Forge-Foundry

Case Study:

Application: Counter weight on unit handling equipment

Problem: Parts were being milled in-house from purchased burned plate. Process was expensive, but low volumes had prevented consideration of alternate methods of manufacture.

Solution: Instead of utilizing their expensive CNC milling equipment on relatively low-tech parts, Martin designed a simple die for a forged part, which worked well for medium quantity production runs. When compared to sourcing costs, production time, and scrap, the forged part was less expensive than the milled part. The real savings has resulted from the enhanced utilization of the CNC milling equipment for other, more profitable work

Sintered Metal

Sintered metal is an excellent choice for a wide variety of products especially those with irregular shapes that would be difficult to manufacture using conventional methods.

Commonly associated with large quantity runs of fairly simple products, the sintered metal process also effectively addresses small quantities for many complex and multi-level parts where intricate machining or milling was required. Smooth surface finishes, self-lubrication, and tolerance repeatability are just a few of the attributes resulting from this technology. Using a wide range of alloys, Martin produces custom sintered parts for many industries and applications.

Advantages

- Superior resistance and performance
- Uniform tolerances
- High density
- Extremely smooth surface finish
- Self-lubricating
- 12% less weight than Steel

Manufacturing

Martin Sintered Steel presses average 750 tons, and can press up to 2000 tons.

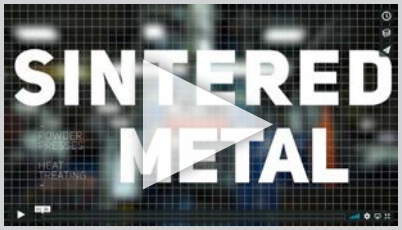
Presses delivering more than 880 tons of pressure form parts from bronze, iron, copper, manganese, etc.

Case Study:

Application: Timing plate on an agricultural implement

Problem: Production of parts required several steps and the use of several outside sources. All these factors led to inconsistent tolerances, difficulty in coordination of lead times, scrapped parts and production interruptions.

Solution: Martin reviewed sample parts and prints. Martin met with OEM engineering and service personnel to better understand the application. The Martin sintered component reduced the total cost of each part by an average of 54%, slashed acquisition costs and allowed for deliveries using staged release dates



Watch the Sintered Metal Video

scan QR code or visit:
http://bit.ly/SinteredMetal

Foundry

Operating its own foundry enables Martin to provide its customers with quality assurance, quick lead times, and application engineering assistance on cast and ductile iron parts.

With an upper range of 96" in diameter and 10,000 pounds, our own pattern shop, and streamlined access to secondary machining, Martin's comprehensive capabilities serve a broad spectrum of industrial uses.

Case Study:

Application: Conveyor

Problem: Redesign of equipment required flywheel and synchronous drive to be used in more compact area. The two separate components had clearance problems.

Solution: Martin designed a one piece casting which allowed machining of a duplex drive to fit in tight area. Equipment is more compact, one final part rather than two saves costs, and installation time is reduced

Watch the Forge & Foundry Video
scan QR code or visit: http://bit.ly/Forge-Foundry

Injection Molded Plastics

Martin is a leading supplier of cost effective non-metallic products.

Since the inception of our line of injection molded plastic components, Martin has emerged as a leading supplier of cost effective non-metallic products.

A combination of polymers are used to achieve desired wear, corrosion resistance, and color characteristics. Injection molded plastic is also advantageous in non-sparking and sanitary applications.

While the final form of most components is achieved directly from the press, Martin is able to perform secondary machining on molded parts if necessary.

Case Study:

Application: Packaging equipment

Problem: A sticky product required cleaning with a caustic solution which led to corrosion based fatigue of a threaded collar. In addition, high maintenance costs in the field were encountered due to difficulty of replacing the seized collar.

Solution: A Martin manufactured part made of glass filled nylon was produced. The Martin part withstood constant exposure to the caustic solution and prevented the seizing of threads which provided a longer part life. Unit price was reduced by approximately 34%, warranty claims dropped significantly and the user logo stamped on the part aided in capturing replacement part sales

Milled Plastics

When stock won't work, Martin is ready, willing and able to get your custom plastic product out the door and on the truck in record time.

Whether it is a simple alteration, rebore, or a product requiring secondary operations such as drilling, tapping, or inserts, Martin's trained and dedicated staff are standing ready to tackle your most demanding request.

Our CNC machines are able to mill a variety of plastic and non-metallic materials from 1/16" to over 8" thick, with diameters from 2" to 60" in a variety of unique shapes.

Additionally, secondary operations may be completed in-house when projects require both non-metallic and metallic components to complete one unit.

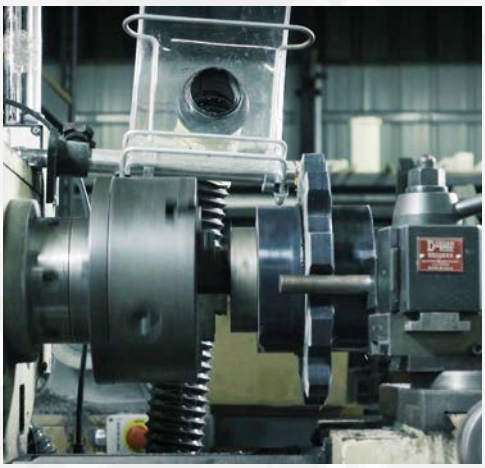
Martin manufactures parts from a variety materials including Nylon, UHMW, Acetal and more. They can be solid construction or multiple pieces requiring secondary operations. One part or 1,000, count on Martin to provide you with quick turnaround times on all your Made-to-Order plastic parts.

Case Study:

Application: Split bearing block made of UHMW found on the ends of an agitator that stirs a chemical treating solution in a beef processing plant. Thus the components are continuously submerged into a corrosive liquid

Problem: This agitator is an integral part of the streamlined processing at this facility, therefore it is necessary to have components readily on hand and available to keep it up and running. However, this customer was struggling to get the split bearing blocks from their current supplier in a timely manner.

Solution: Realizing an opportunity to service this end user, Martin was able to provide a quality component with a quick delivery at a lower price than the previous supplier. These split block bearings are used in many different industries and applications



Spin weld parts up to 12½" Diameter.

Up to 120" x 60" x 5" work piece at a max 22,000 RPM.

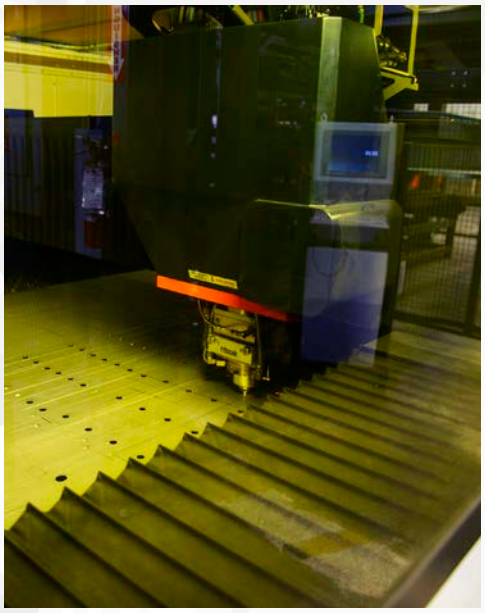
Watch the Machining Plastics Video

scan QR code or visit: http://bit.ly/MilledPlastics

Laser Cutter

Martin machines products using a laser cutter, which is another manufacturing process used to meet your needs.

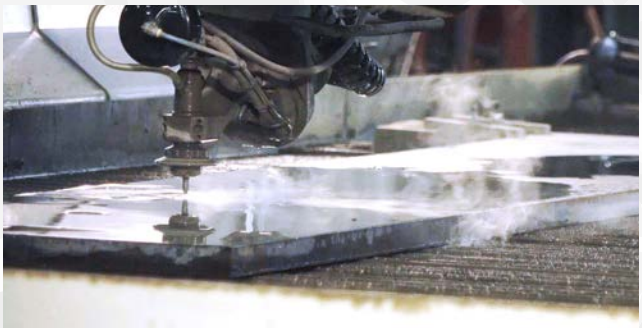
Martin has two laser cutting tables in their material handling division. These lasers are self loading and unloading, which means that once set up is complete, they can run unattended. These lasers can cut up to 3/4" thick mild or stainless steel and have a work envelope of 2 meters x 4 meters.



Water Jet

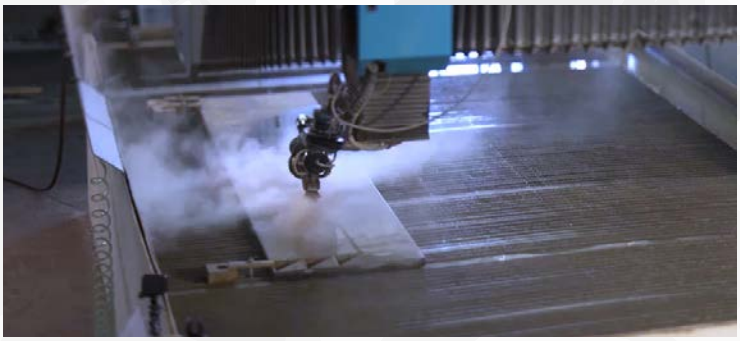
High Pressure Water Cutter

Our waterjet cutter penetrates stainless steel conveyor type sprockets and a number of other components with more precision than a burn table.



Advantages

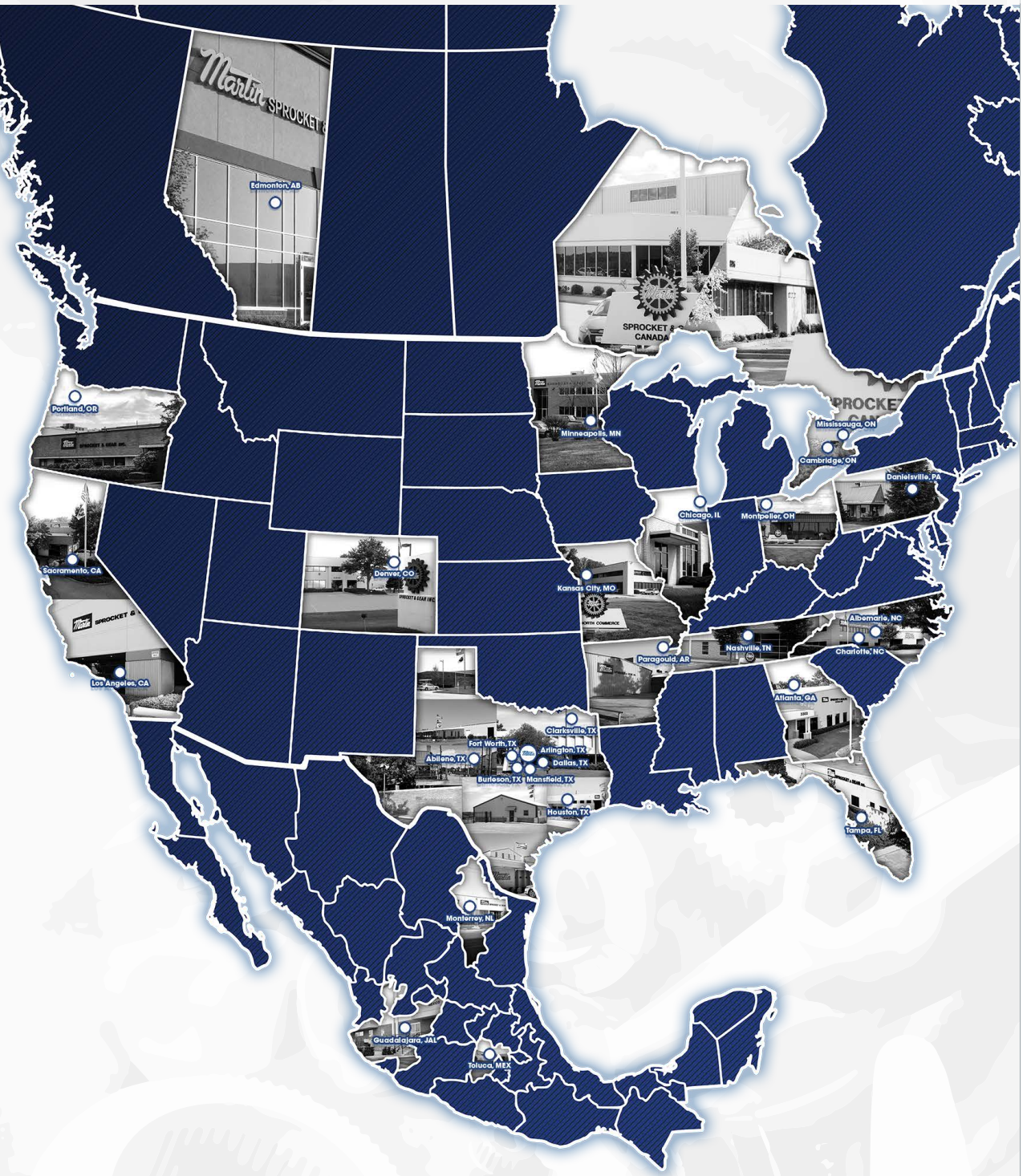
- No material limitations
- Work Envelope: 150" x 79"
- 5 axis capability
- Highest in the industry water pressure of 87,500 PSI
- Easily cut up to 5" steel plate precisely and accurately, and up to 6" with adjustments



Watch the Water Jet Video

scan QR code or visit: https://bit.ly/WJetCapability

There's a Martin Near You



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martinsprocket.com

Martin Sales and Engineering will work with you to completely solve your power transmission needs. Since there are infinite amounts of possibilities and configurations our sales and engineering staff are prepared to assist you with a custom solution.

Call Martin, we will be happy to assist you!

Free Download
Maintenance and Troubleshooting Guide

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