Company Presentation

TWIGG

AEROSPACE COMPONENTS

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OUR HISTORY

Exotic Alloy Components:

Twigg Corporation was founded in 1971 with a quest to manufacture precision exotic metal alloy components. Over the last five decades our parts have proliferated across the United States defense and OEM industries.

Our company has a long-standing history with mission-critical customers that demand the highest standards in reliability and performance. This experience offers us the capacity to produce a wide-range of quality parts.

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OUR HISTORY

Our Projects:

In the late 1970s Twigg was contracted to make components for the **GE F404** engine program used in the **Lockheed F-117 Nighthawk** and the **F-18 Hornet** combat fighter.

Twigg components help power **Rolls Royce (Allison) T56** engines used on the **Lockheed C-130H Hercules** & the **Northrop Grumman E-2 Hawkeye**

Twigg vane assemblies are used in the **GE F110** turbofan engine, powering the:
General Dynamics F-16 Falcon, the **Gruman F-14D Super Tomcat** & **Boeing F-15EX Advanced Eagle** tactical fighter.

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OUR HISTORY

Our Projects:

Twigg Corp. supplied the vane assemblies for the **GE F118** turbofan engine that was specially developed for the **Northrop B-2 Spirit stealth bomber.**

We supplied **Rolls Royce** with **T406 (AE 1107)** engine components that power the **Bell Boeing V-22 Osprey** tiltrotor aircraft.

Twigg aerospace components are also used in rotor wing aircraft. Our vane and stator assembly components power the **Honeywell T55** engine used on the **CH-47 Chinook** and the **Bell 309 KingCobra**.

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OUR HISTORY

Our Projects:

Our components are used in the **Honeywell AGT1500** turbine engines that power the **M1 Abrams** tank.

Twigg Corporation was a development partner and component supplier for the **Hughes AIM-120 AMRAAM**.

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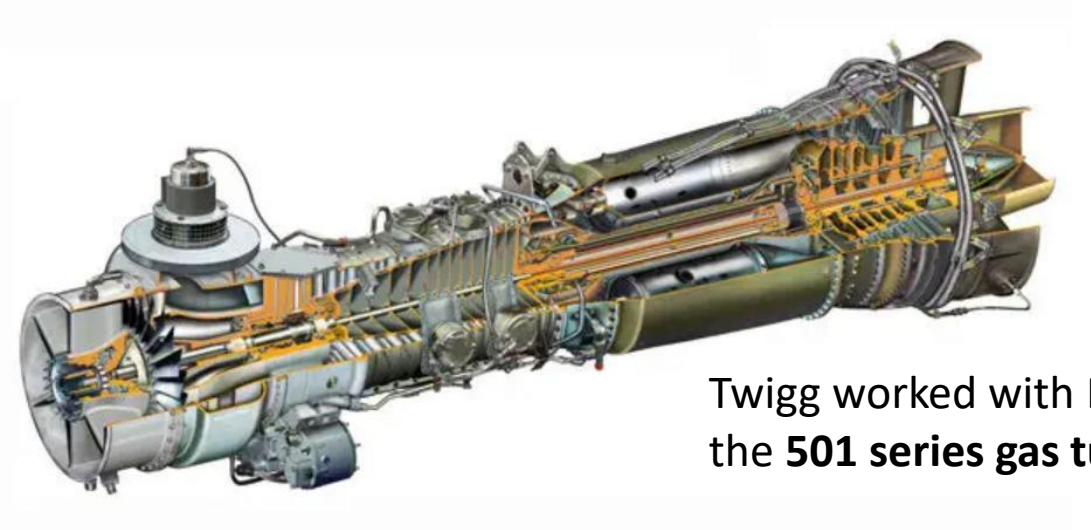
OUR HISTORY

Our Projects:

We supply components for marine vessel propulsion. Our compressor components are used in the **Vericor ETF40B** turbine engine that powers the **U.S. Navy LCAC fleet**.



Twigg worked with Rolls Royce in developing various versions of the **501 series gas turbine engine** used for power generation.

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OUR HISTORY

Power Generation:

While Twigg Corporation has been manufacturing engine components for aerospace applications, we also produce engine components for power generation customers.

As the power generation industry moves to hydrogen fueled technology, Twigg Corporation understands the potential and the significance of this transition. We are excited to support the hydrogen green energy revolution.

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OUR MARKETS

Market Segments:

Defense

Aerospace, Land and Marine

Energy

Gas Turbine Power Generation

Commercial

Aerospace Applications

MRO

Turbine Engine Component Overhaul

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OUR MARKETS

MRO Repair & Overhaul Services:

Twigg corporation has been performing turbine engine component repair and overhaul services since the 1970s. Our experience has produced a state-of-the-art quality control system that assures our customers that all MRO process phases are in place to prevent nonconforming product escapes.

By overhauling components, turbine engine operators do not have to rely on new parts that are both increasingly hard to find due to supply chain disruptions and more expensive because of inflation.

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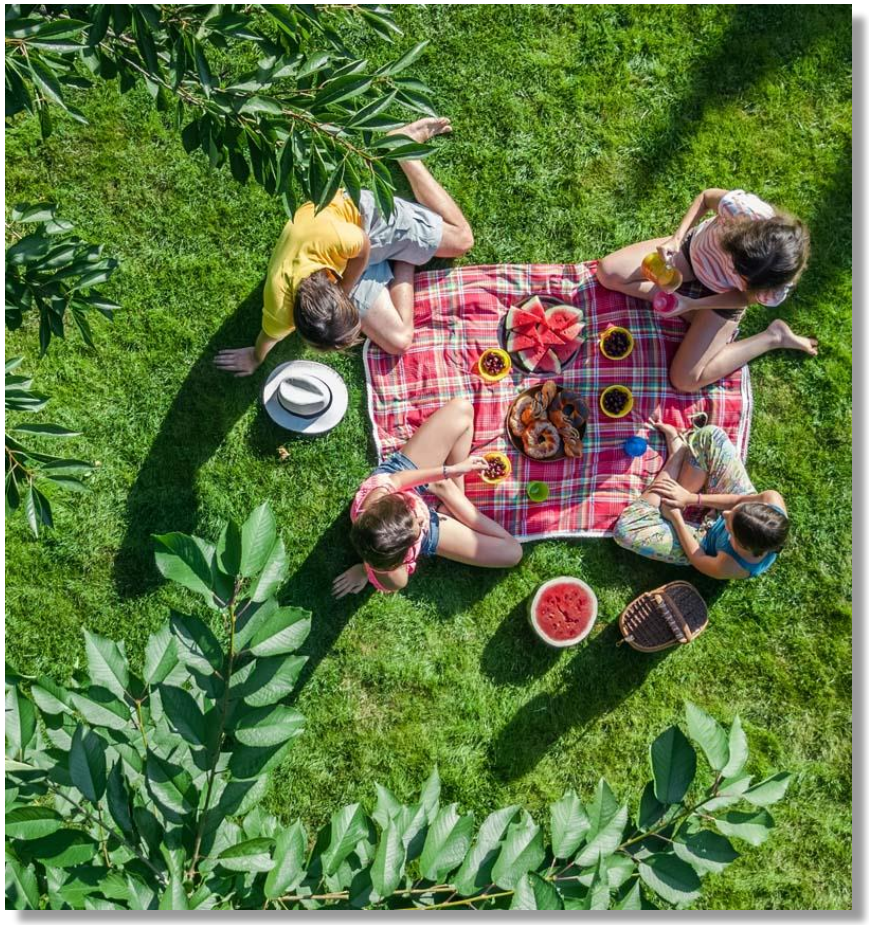
OUR VALUES

Sustainability:

Twigg Corporation is committed to environmental sustainability.

We made a substantial investment by transitioning our entire manufacturing campus in Martinsville, Indiana to geothermal energy.

We also support environmental remediation by researching and investing in the removal of soil contaminants that were left behind by other businesses. This effort will help protect human health and restore the environment.



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OUR VALUES

Quality has no finish line:

Inspired by the Kaizen philosophy of continual improvement, our organization continues to identify and evaluate processes in an ongoing engagement with quality and customer service.

Our mission is to be good stewards for our community and the environment. We value saving material resources by providing MRO services to extend the life of current gas turbine engine components.

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CERTS & ACCREDITATIONS

REGISTERED AS 9100

INTERNATIONAL CERTIFICATIONS ISO 9001

Accredited Nadcap™

ITAR Registered International Traffic In Arms Regulations

Federal Aviation Administration

FAA # MX5R057N

NIST National Institute of Standards and Technology

EASA European Aviation Safety Agency

<u>Five Accreditations</u>

- Heat Treatment
- Welding
- Nonconventional Machining
- Chemical Processing
- Non-Destructive Testing (NDT)

NEW Auto Processor FND 9000

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CAPABILITIES

Core Products:

Air Nozzle
Air Seal Bands
Build - Module
Casings - Fab Casings - Mach.
Combustor Liners & Cylinders
Compressor Stators
Cowl Support Assembly
Dynamic Balancing
Exit Guide Vane Assembly
Flameholder
Flaps
Honeycomb Seals
Hot Section Turbine Stator
HP Turbine Nozzle

HPT Seals
LPT Seals
Nozzle Guide Vanes
Pressure Balance Seals
Seals
Slip Rings
Snap Rings
Stator Vane Assembly
Struts
Turbine Cases
Tool Manufacture
Vane Assembly
Vane Sectors

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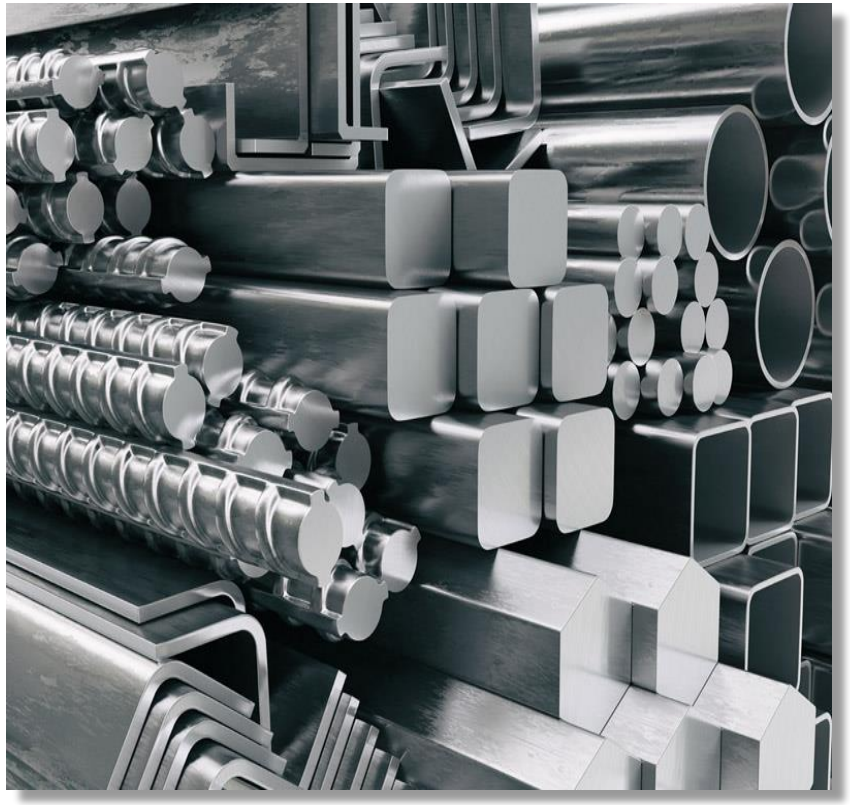
CAPABILITIES

Raw Material:

- Aluminum
- Aluminum Lithium
- Cobalt
- Haynes 188
- Nickel
- Hastelloy
- Inconel
- L605

- Stainless
  - 300 & 400
- Custom 450
- PH Stainless
- René
- Titanium
- Waspaloy
- Monel



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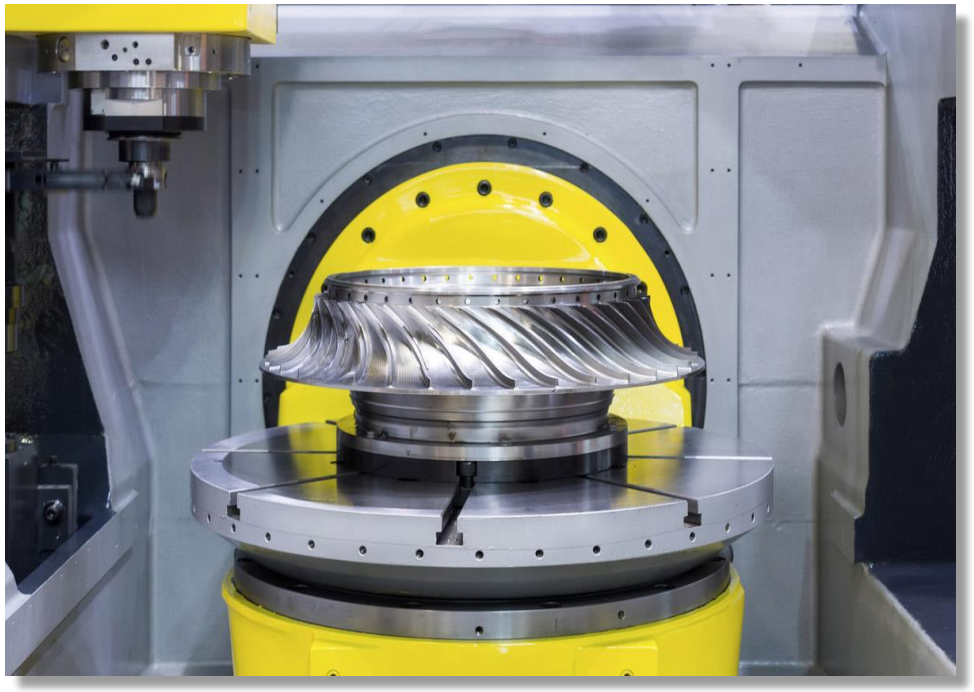
CAPABILITIES

Processes:

Our capabilities are always expanding as we continue to invest in advanced CNC machining centers and customized lean processes to create unique products at our customer's request.

Special Processes: Heat Treating, Soldering, Torch Brazing, Welding, Chemical Processing, Non-Conventional Machining, Non-Destructive Testing (NDT), Honeycomb Application

Spot Operations: If our customers have a specific process that they can't perform, we can provide spot operations to help complete their manufacturing project requirements.



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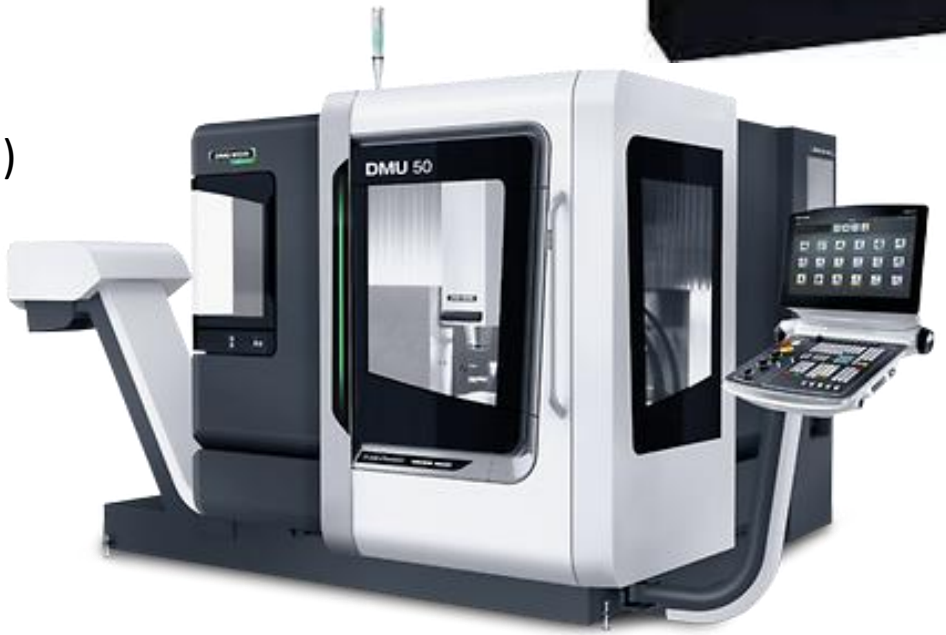
CAPABILITIES

Machining:

- **5-Axis Machining**
- **5-Axis Laser**
- Electro Chemical Grinding 52”
- Vertical Lathe TL 52”
- Horizontal CNC 30”
- Boring Mill 62”
- Milling 72”x46”x30”
- Grinding (Surface & Cylindrical)
- Fast Hole Drilling
- EDM Wire/Drill/Sinker
- Blanking
- Cutting
- Spinning
- Thread Rolling



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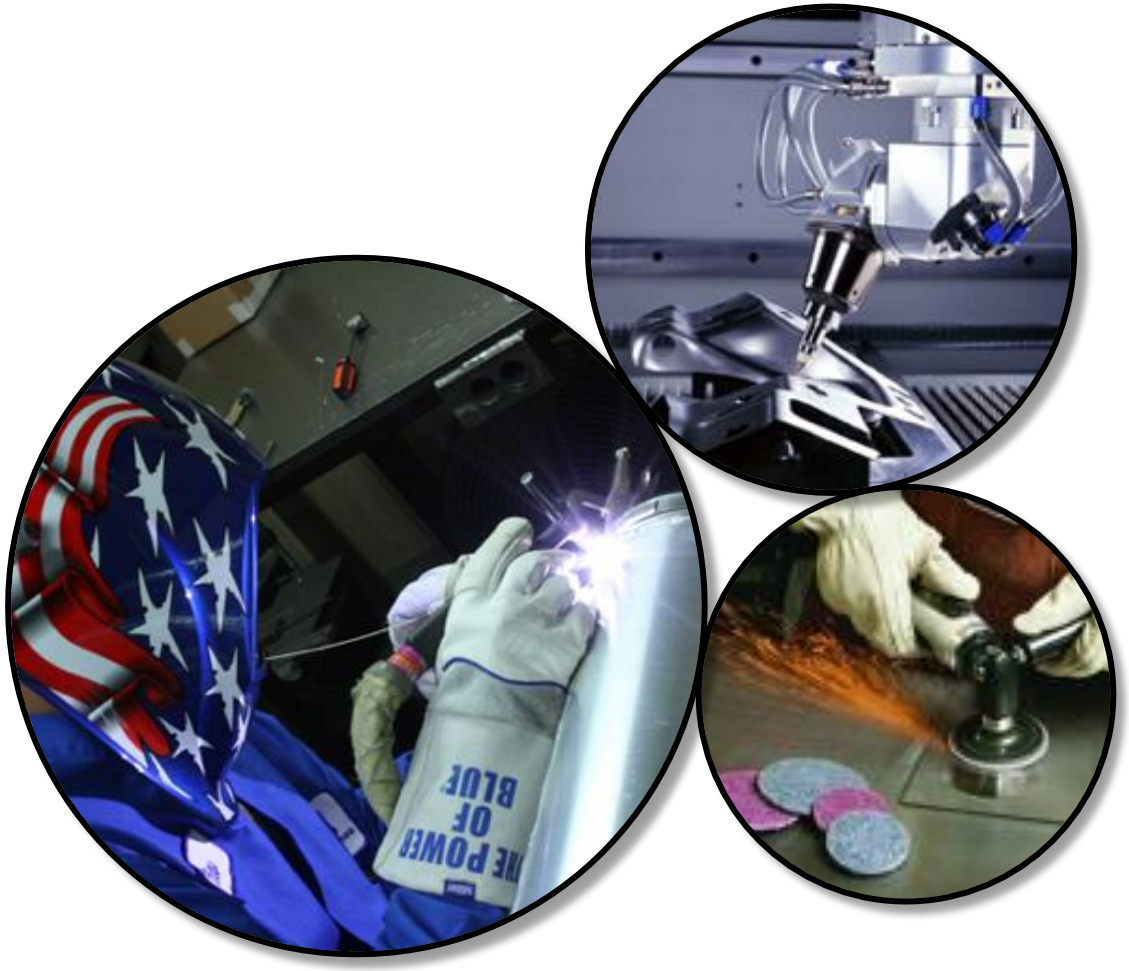
CAPABILITIES

Fabrication:

- **Honeycomb Application**
- Benching
- Blanking/Pressing
- Cold Form
- NEW Hydroforming
- Press
- Polishing
- Rivet
- Roll
- Shear
- Sizing
- Solder
- Torch Braze
- Welding



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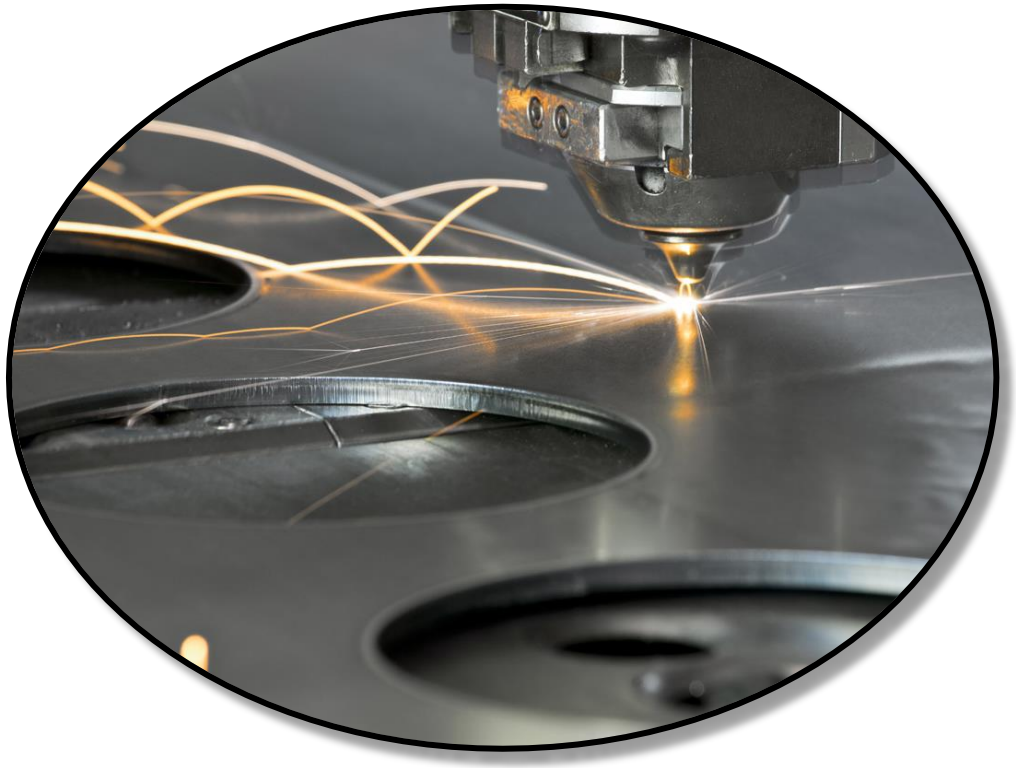
CAPABILITIES

Dimensions:

At Twigg Corporation we are defining the future with a commitment to innovation and quality. We look forward to the challenge of developing unique components critical to your projects.

5 Axis Machining 25.5”x20.4”x18.7
5 Axis Laser 118”x59”x23”
Electro chemical grinding 52”, **Vertical TL** 52”
Horizontal CNC 30”
Boring Mill 62”
Vacuum Furnace up to 50”x34”x72”
Hydroforming 20”blank 6”draw
Spinning 52” diameter



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CAPABILITIES

Heat Treat:

Three Vacuum Furnaces

NEW

- 63x48x24-80
- 35x23x18-D
- 34x22x15-C

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CAPABILITIES

Nondestructive Testing (NDT):

Nondestructive testing (NDT) is a profession that blends quality assurance and materials science. NDT is used to inspect and evaluate materials, components, or assemblies without destroying their serviceability.

Our customers have the quality assurance that all components ship after thorough Florescent Penetrant Inspection (FPI) and/or Radiographic Testing (RT) nondestructive testing.

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CAPABILITIES

Engineering:

Twigg Corporation has a dedicated team of engineers that are individually assigned to projects based on each customer's needs. Whether your organization desires newly manufactured components, MRO services, or consultation, our engineers are ready to listen and find the solutions that will exceed your expectations.

Engineering solutions:

Manufacturing
Fabrication
Component Overhaul
Consultation
CMM Services
Spot Operations
Heat Treating
Chemical Processing
Reverse Engineering

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AS9100D, ISO 9001, NADCAP, EASA & FAA Certified Repair Station