JANICKI INDUSTRIES

INNOVATE BUILD DELIVER

INDUSTRY LEADER OF

COMPOSITE TOOLING
PRODUCTION PARTS
PROTOTYPES
ENGINEERING SERVICES

SERVING AEROSPACE | MARINE | ENERGY | SPACE | TRANSPORTATION INDUSTRIES

JANICKI INDUSTRIES

ONE-STOP

Full service, design-build, manufacturing capabilities

Janicki Industries (Janicki) is a leading supplier of composite tools, prototypes and parts. Janicki excels at design/build projects that push the envelope in the use of advanced composite materials, exotic metals and manufacturing processes. Janicki is known throughout the industry for proprietary, large-scale, high-precision 5-axis NC mills. Janicki is a full service engineering company serving the Aerospace, Marine, Energy, Space and Transportation industries. Janicki uses SAP for enterprise resource management.

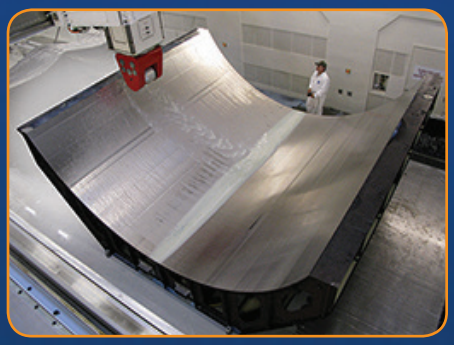
Founded 1993

by Peter Janicki

- 700 employees
- 130+ engineers

Give us your difficult challenges.

SHOP



Core Capabilities

- Engineering Design & Analysis
- Composite and Metal Manufacturing
- Large-scale, High-Precision Projects
- Project / Program Management
- Research & Development

Products

- Production Parts & Prototypes
- Composite Cauls
- Machined Syntactic Putty Patterns & Molds
- 160°F / 250°F / 350°F Composites
- Machined Core Materials
- Layup Molds in Invar, Aluminum & Steel
- Fiber Reinforced Plastic
- Trim & Drill Fixtures
- Metal / Composite Hybrid Tools
- Custom Fixtures & Assemblies

Equipment

- Nine Large 5-axis NC Mills
- Large Autoclave
- Annealing Furnace
- Curing Furnaces
- Waterjet NC cutters
- 500 Ton Press Break
- Laser Trackers & Radars
- Paint Booth
- Grit Blasting Booth

State-of-the-Art Facilities

- Plants in Washington and Utah
- 424,000 ft^2
- Temp / Humidity Controlled
- Large Buildings, High Bays, Overhead Cranes
- Clean Room – 9,300ft^2
- Machine Shop
- Weld Shop
- Assembly Shops

UTILIZING SAP

FULLY CAPABLE

Innovative, creative and persistent

Composites

Janicki Industries is recognized for its innovative use of composite materials including carbon fiber, fiberglass, metals of all types, proprietary polymer resins for infusion, proprietary VARTM techniques and specialized finishes. Janicki will assist customers with selection of composite materials, processes and cure cycles based on their unique needs.

5-Axis NC Mills

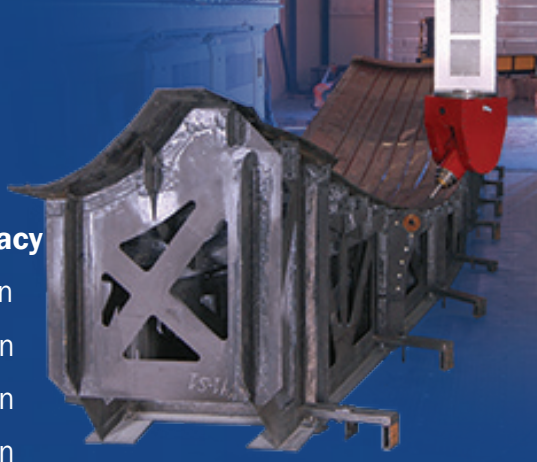
Janicki Industries specializes in very large scale, high precision composite and metal projects. Janicki's large factories, proprietary 5-axis mills and mill bays, large autoclave, fabricating equipment and assembly expertise support this capability.

The superior scale and precision of the Janicki 5-axis NC mills is due to our custom design and development. We design and build the components, the software and the electronics/servo-control mechanisms. Janicki's machine capacities are among the largest in the world. The CNC software is internally developed and uses error compensation algorithms to provide unprecedented accuracy on large projects.

Large Autoclave (50' x 12')

Janicki Proprietary 5-Axis NC Mills

		Envelope Size	Rotary Axes	Spindle RPM	Spindle Torque	Accuracy
WASHINGTON	1	68ft x 19ft x 8ft	± 195° / ± 100°	13,000	27ft lbs	±.015in
	2	88ft x 19ft x 8ft	± 203° / ± 106°	10,000	230ft lbs	±.006in
	3	40ft x 12ft x 5ft	± 204.5° / ± 110°	20,000	32ft lbs	±.006in
	4	58ft x 14ft x 6ft	± 204.5° / ± 110°	20,000	32ft lbs	±.006in
	5	100ft x 20ft x 8ft	± 204.5° / ± 110°	24,000	64ft lbs	±.002in
	6	100ft x 20ft x 8ft	± 204.5° / ± 110°	24,000	64ft lbs	±.002in
UTAH	7	18ft x 14ft x 6ft	± 251° / ± 107°	30,000	40ft lbs	±.002in
	8	18ft x 14ft x 6ft	± 251° / ± 107°	30,000	40ft lbs	±.002in
	9	80ft x 14ft x 6ft	± 251° / ± 107°	30,000	40ft lbs	±.002in



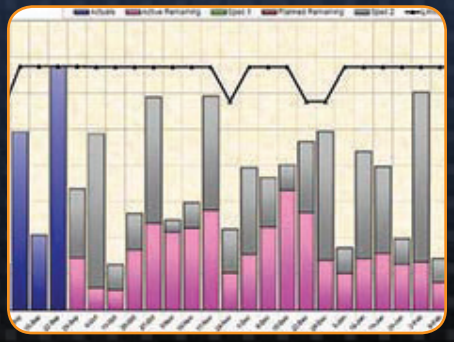
Engineering Services

Founded and run by engineers, Janicki Industries has the depth and breadth of technical expertise to solve the challenges your project brings. JI's talented engineers have extensive experience in meeting and solving the technical opportunities brought on by complex part and tooling projects. This experience gives our customers a distinct competitive advantage. JI works together with customers to design and build solutions that meet project specific needs.

Project Management

Janicki Industries understands your need for exceptional project management services. Our enterprise-wide project management system using SAP software allows you to see every aspect of your project in real-time.

At Janicki an experienced project manager dedicated to your job will constantly examine schedules, facility resource capacity, labor and material resources and costs. You will have clear insight into the details of your project at every step. Janicki's promise is to provide you an individualized solution that is on schedule and on-budget every time.



R&D

Janicki Industries has a dedicated laboratory, professionally staffed for research and development of new and innovative composite materials. Janicki's R&D lab continuously pushes the boundaries of composite fabrication materials and techniques seeking lighter, stronger, and more resilient materials. In addition to standard tests like hardness, durability and strength we simulate weather effects on composites to see how they will hold up over years of use or storage.

SUPERIOR PRODUCTS

Machined Syntactic FRP Putty

250° Composite Tooling

High Quality, Price Competitive and On-time Delivery

Machined Syntactic Putty

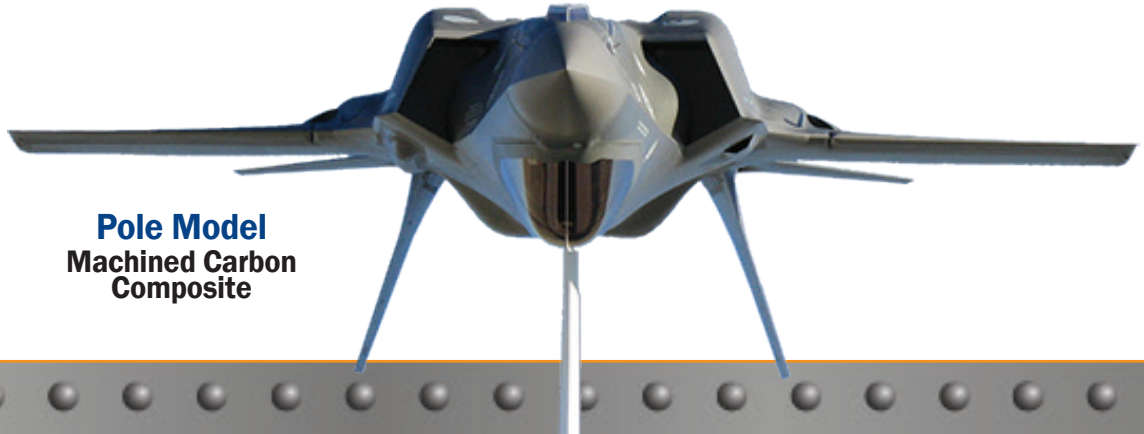
Ideal for low temperature, low cycle prototyping for all industries. This Janicki proprietary product provides low cost tooling options for one-off or limited-life quality parts. The fiberglass reinforced composite foundation with the machined putty surface is mounted on a durable wood or steel substructure.

160°F Putty Patterns & Molds

Highly accurate, budget conscious tooling solutions with fast turnaround. This is a basic putty mold originally developed for Marine and Wind Energy Industries for plugs, patterns and molds.

250°F Carbon/ Fiberglass Hybrid Mold

Solid solution for composites requiring low temperatures and Out-Of-Autoclave (OOA) processing. Made of proprietary hybrid composites the Janicki 250°F tools utilize a durable infused face sheet mounted on a steel substructure. These tools are precision machined and remain stable during repeated cure cycles.



Pole Model
Machined Carbon Composite

275°F Machined Carbon Mold

Used for Aerospace products with low CTE requirements. Similar to the 250°F tools with a slip plane and rectangular welded steel substructure. Infused carbon face sheet is machined to high tolerance.

350°F Carbon Tool

Machined Carbon Tooling for high temperature parts typically used in aerospace applications where CTE and thermal mass are primary requirements. Tools are made of carbon fiber with either Epoxy, Benzoxazine, or BMI resin systems. They can be made for low to high cycle applications. Processes include infusion, autoclave cured prepreg, and OOA cured prepreg for very large parts.

350°F Invar Molds

High cycle tooling for CTE matched composite parts. The product is made from Invar 36 plate, billet or castings. These tools are machined to tight tolerances and can be used for many, repeated cure cycles.

350°F Steel Layup Molds

For non-CTE matched composite parts. Mid to high temperature, high cycle tooling or assembly jigs. Typically used in the aerospace industry for low contour parts.

Machined Core Materials

Our capabilities and expertise with honeycomb core are undisputed. Large jobs requiring bond joints and precise machining are our specialty. Janicki uses proprietary cutters and processes to produce high quality surfaces on all core types.

Production Parts

Janicki is a BAC and Nadcap qualified manufacturer of composite aerospace fly-away parts. Janicki's long experience with composites and machining provides a firm foundation to produce composite parts for prototype/one-off, short run, and long-term production with a wide range of customer inputs for trim/drill-to-print, build-to-print, or complete process development parts. Our facilities and machine resources can accommodate a wide range of schedule, quality and rate requirements. This 100% in-house capability for the total tooling and parts solution enables a one stop, lean enterprise solution.

Engineering Services

To develop break-through solutions, we involve engineers in every stage of a project. JI engineers & designers work on many unique projects. Consequently, our engineers have developed broad skills on multiple product types and composite systems.

- CATIA V5
- NX (Unigraphics)
- Finite Element Modeling and Stress Analysis
- Reverse Engineering
- 3D Rapid Prototyping
- SAP Enterprise Resource Planning (ERP) System
- SAP-DMS Data Management System

Machined Core Materials

HISTORICALLY PROVEN

We expect ourselves to provide exceptional and personalized customer service.

Sikorsky Raider Helicopter

Aerospace projects have been a steady stream of work for Janicki, including tooling for the Raider helicopter fuselage. Janicki provided the 350°F Epoxy tools to customer requirements, delivered in 60 days, and helped Sikorsky get the Raider into the air.

Oracle America's Cup 2013

Janicki has supported the BMW ORACLE Racing team with the America's Cup competition for over 12 years. Janicki helped give the racing yacht technological breakthroughs in speed and maneuverability with its manufactured molds for the wing sail. Working with Core Builders in Anacortes, WA, Janicki has provided tooling for most of the carbon fiber components of the racing yacht.

Commercial Aerospace Production Tooling

Janicki has provided innovative solutions for 15+ years as an aircraft production tool supplier. Our 100% in house production capability for all tooling types (Metallic & Composite), tool testing, and production part proofing of tools provides full service turnkey solutions. Our client base, includes all the major aerospace manufacturers, who repeatedly rely on Janicki for new, legacy and rate tooling solutions.

Low-Density
Supersonic
Decelerator
NASA

Betts Boat

Janicki provided Betts Boats with fabrication tooling for an observation platform. This was a putty mold offering Betts competitive pricing and quick delivery. This mold utilized Janicki's precision machined putty over fiberglass tooling technology with a room temperature cure resin system. The finished product was an observation platform/control station for their Motor Yacht "Steadfast."

"Boat building and composite parts manufacturing is all about tooling. The precision we can achieve with tooling provided by Janicki Industries is unparalleled, and critical for the success of our manufacturing operations."

Kellen Betts
President

NASA

Janicki Industries supports NASA with many projects delivering both production tooling and fly-away parts. The Mass Volume Isolator (MVI) was designed by NASA Langley and fabricated in collaboration with Janicki. The MVI is a large diaphragm made of carbon fiber composite material, is 16.5 feet in diameter, was cured out-of-autoclave (OOA) and weighs 340 lbs. The Janicki team received a notable congratulations and group achievement award from NASA for developing and delivering the MVI. The diaphragm is the largest OOA carbon fiber flight hardware ever built by NASA.

"Thanks for the accuracy and on-time delivery Janicki did for us."

Kevin Rivers
Manager NASA-Langley

AgriMarine Technologies

Janicki Industries has over 20 years' experience designing and building precision molds, tools, and parts for the Marine industry. JI recently worked for AgriMarine Technologies to manufacture both tooling and tank sections for its proprietary floating tank technology – the AgriMarine System™, used for sustainable fish farming. AgriMarine's 24 meter tanks are built with composite materials to better withstand the challenging high energy marine environments. Janicki made the tooling and tank sections out of Fiberglass/ vinyl-ester with a Duratec finish.

"We chose Janicki based on their reputation for very high quality control and solid engineering capacity. Also, their operation is highly professional, with well trained staff."

Robert Walker
President

EQUIPMENT

Complete Machine Shop

- Haas SL-20 CNC Lathe
- Republic Lagun RL-14X40 Lathe
- Mazak VTC-300C Vertical Mill
- Bridgeport EZVISION Mill
- Mitsubishi 4-axis Horizontal Boring Mill
- CNC Komo Router #VR510TG 3-Axis 5ft x 10ft x 12.5ft

Autoclaves

- Production Autoclave 500°F 150psi, 12ft dia. x 50ft long (5,625 ft^3)
- Lab Autoclave 500°F, 150psi, 30in dia. x 36in deep

Annealing Furnace

- 1600°F 72ft x 24ft x 11ft
- Heat distribution delta T 35°F
- Semi-truck accessible
- Modular for expansion to 108ft

Ovens

PORTABLE OVENS

- 2 Wisconsin ovens 500°F
- 2 Testing ovens 500°F
- 400°F 100ft x 24ft x 14ft

DESPATCH OVENS

- 500°F 30ft x 10ft x 10ft
- 250°F 40ft x 20ft x 10ft

Weld Shop

- 8 Configurable Tables with surface laser trackers ±0.02in
- Two 25 ton cranes
- 4 Fronius GMAW welding machines
- Lincoln and Miller welding machines
- Tube and pipe pinch/bend machine

Grit Blasting & Paint Booth

PAINT BOOTH

- 60ft x 16ft x 10ft
- Permitted for Chromate Aerospace Paints

GRIT BLASTING BOOTH

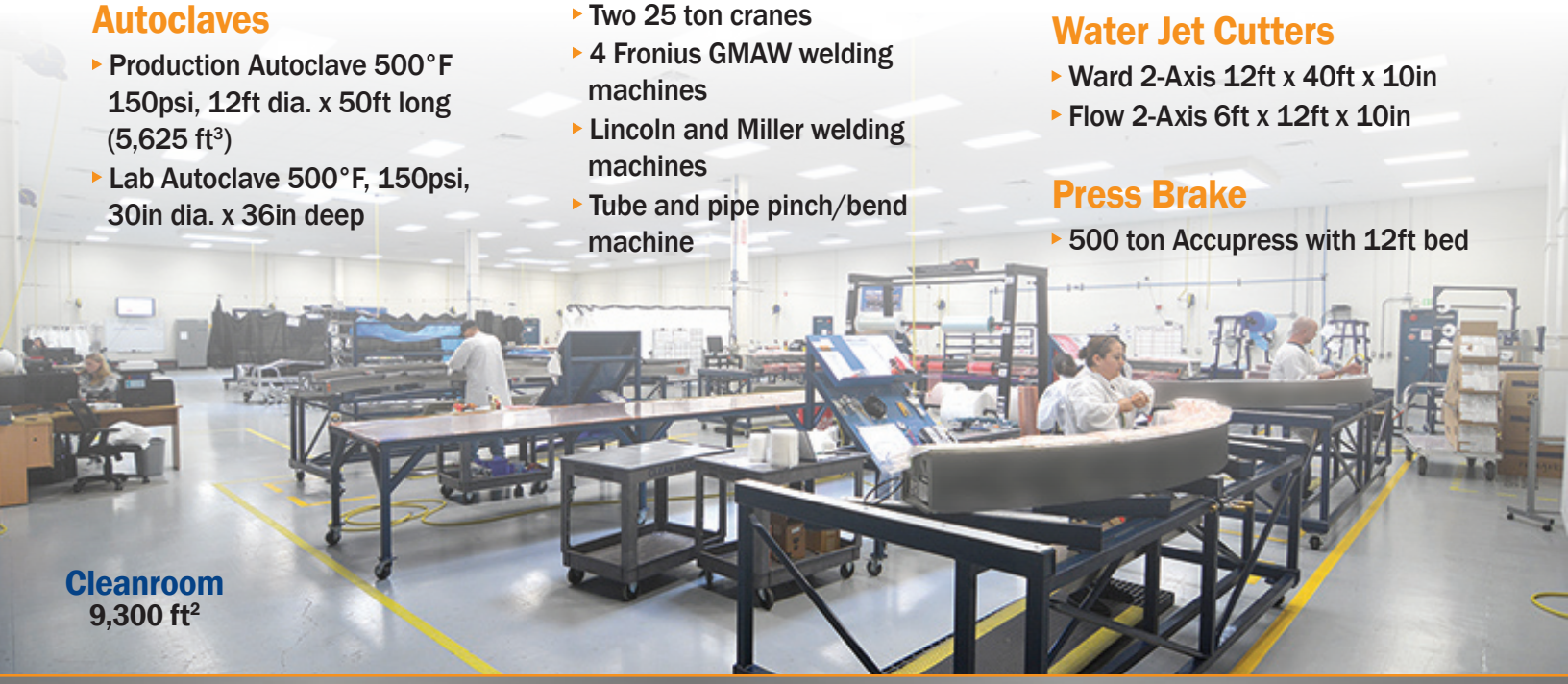
- 50ft x 20ft x 12ft
- Door size 11ft x 16ft

Water Jet Cutters

- Ward 2-Axis 12ft x 40ft x 10in
- Flow 2-Axis 6ft x 12ft x 10in

Press Brake

- 500 ton Accupress with 12ft bed

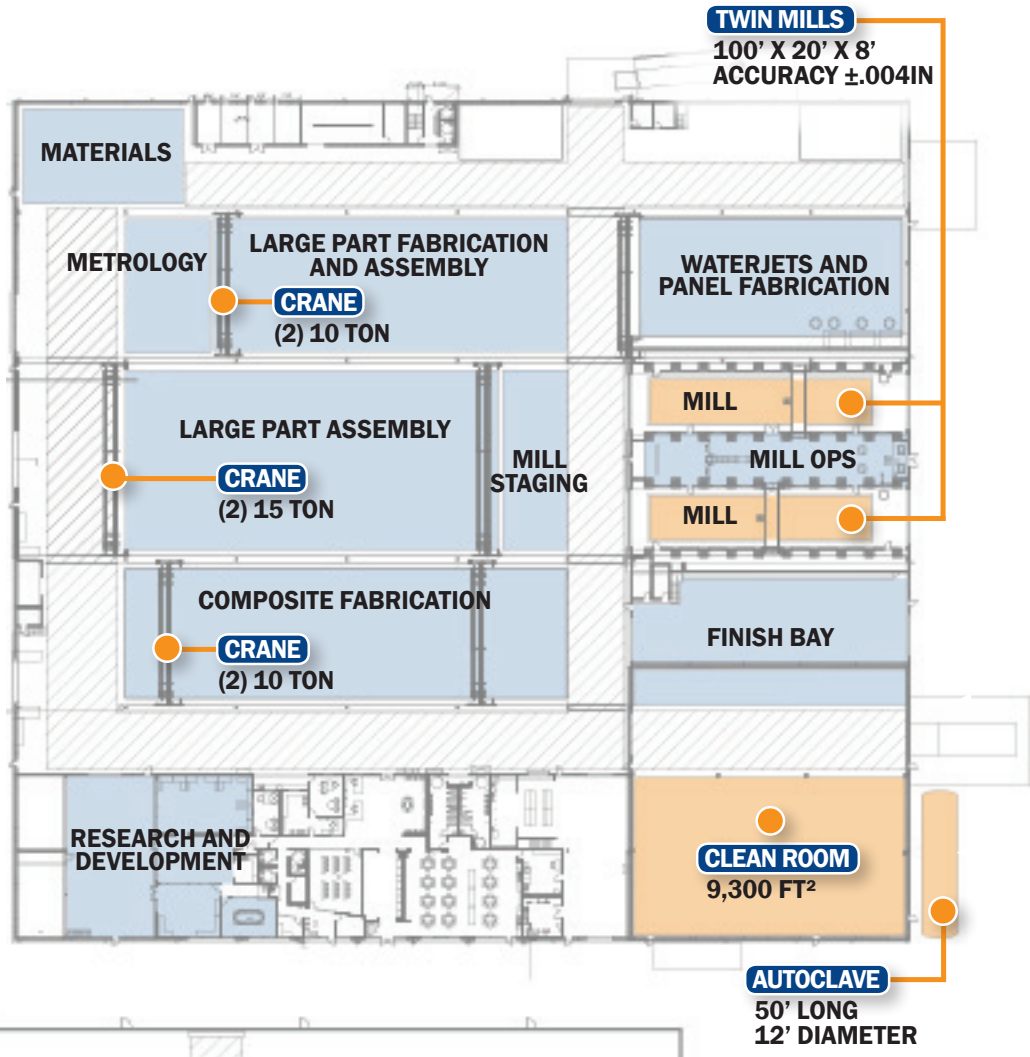


Cleanroom
9,300 ft^2

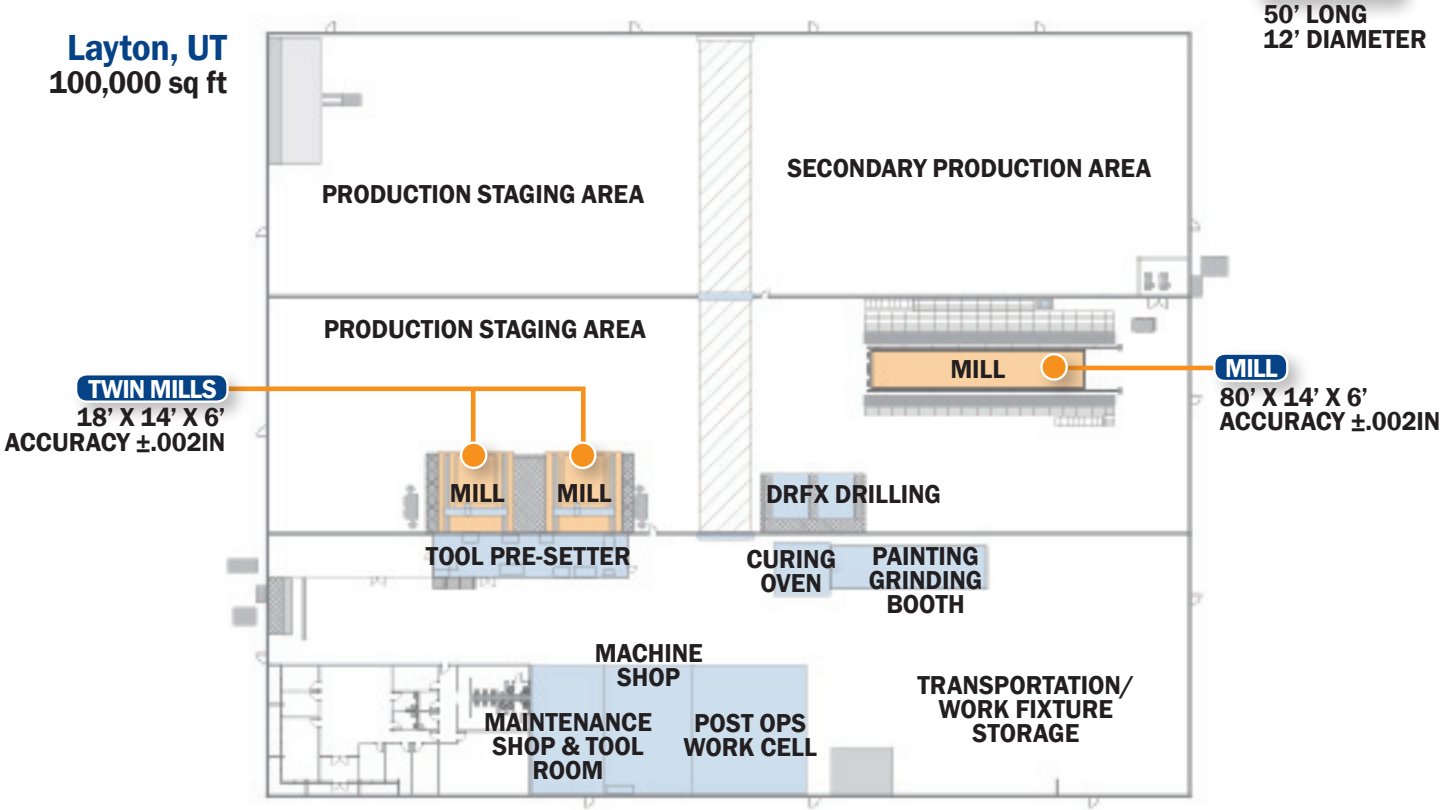
FACILITIES

Hamilton, WA
160,000 sq ft

Janicki's facilities are designed to be highly flexible, adapting to a variety of project-types, from prototypes and models to high-volume parts production. The buildings readily accommodate multiple processes, eliminating transportation between sites. Throughout the Hamilton facility there are numerous work stations complete with gas, electrical power, communication lines and water which allows for highly-efficient parts production runs.



Layton, UT
100,000 sq ft



JANICKI INDUSTRIES

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Quality Assurance & Certifications

- AS9100C
- Nadcap Composites Certified
- ISO 9001:2008
- Customer Aerospace Certifications
- Aerospace Prime Approvals & Certifications

Values

We are innovative, creative and persistent. Our goal is to provide exceptional and personalized customer service. We have a commitment to honesty and high ethical standards. We believe our most valued assets are the creative people, working together to solve customers' challenges.

Peter Janicki
FOUNDER & CEO

John Janicki
PRESIDENT