



**20<sup>TH</sup>**  
1993 **ANNIVERSARY** 2013



# Executive Summary

## From prototypes to production part runs

A global supplier of large-scale, high-precision prototypes, tooling and parts, Janicki Industries serves the world's most innovative companies. While classified as a high-tech manufacturer, our real competitive advantage is our ability to solve seemingly impossible engineering challenges.

### Founded 1993 by Peter Janicki

- ▶ 600 employees
- ▶ 120 engineers
- ▶ 25 advanced degrees

### State-of-the-Art Production Facilities

- ▶ Plants in Washington and Utah
- ▶ 389,000 ft<sup>2</sup> production capacity
- ▶ Temperature and humidity controlled
- ▶ Large facilities with high bays and numerous cranes
- ▶ Multiple production areas & redundant equipment
- ▶ Cleanroom – 9,300 ft<sup>2</sup>



### Core Competencies

#### TOOLS

- ▶ Complete Design/Build
- ▶ Complex Designs/High Tolerances
- ▶ Large Scale Prototypes
- ▶ Large Scale Production Tooling
- ▶ 200°F/ 250°F/ 350°F Composites
- ▶ Metals: Steel, Aluminum, Invar
- ▶ Composite Cauls
- ▶ Trim & Drill Fixtures
- ▶ Hybrid Metal/Composite Tools
- ▶ Custom Fixtures and Assemblies
- ▶ Expert Finishing

#### PARTS

- ▶ Prototypes
- ▶ Production Part Runs
- ▶ Autoclave Cured & OOA
- ▶ Carbon Fiber/Fiberglass
- ▶ Core
- ▶ Metals



## Specialty 5-Axis Machines

- ▶ Proprietary large scale, high precision mills
- ▶ Envelopes from 18'x14'x6' to 100'x 20'x8'
- ▶ Tolerances from  $\pm 0.015''$  to  $\pm 0.002''$

## Quality Assurance & Certifications

- ▶ AS9100C
- ▶ Nadcap Composites Certified • Hamilton, WA
- ▶ ISO 9001:2008
- ▶ TEV
- ▶ Class 8 Cleanroom
- ▶ Numerous customer-specific certifications

## Design & Analysis Capabilities

- ▶ NX/Unigraphics
- ▶ Catia/Elfini
- ▶ MSC SimDesigner
- ▶ Nastra/Patran
- ▶ COSMOS
- ▶ MSC.ADAMS
- ▶ Precision metrology, no size constraints

## Advanced Composites Lab

## Automated/Machine Development

## Scheduling

- ▶ Trained & Certified Project Managers

## One-stop, Full Service Manufacturing Capabilities

- ▶ Advanced manufacturing of large scale components
- ▶ Tooling, prototypes and production parts
- ▶ All types of materials
- ▶ Wide variety of industries

**We believe that creative people,  
working together, can solve anything!**



Peter Janicki  
FOUNDER & CEO



John Janicki  
PRESIDENT



**JANICKI**  
INDUSTRIES





# Capabilities

## Tools

- ▶ Complete Design/Build
- ▶ Complex Designs/High Tolerances
- ▶ Large Scale
- ▶ Prototypes
- ▶ Proprietary Putty Patterns
- ▶ Block Foam & Wood Patterns
- ▶ Cold Molded Tooling
- ▶ Fiber Reinforced Plastic
- ▶ 200°F/ 250°F/ 350°F Composites
- ▶ Metals: Steel, Aluminum, Invar
- ▶ Composite Cauls
- ▶ Trim & Drill Fixtures
- ▶ Hybrid Metal/Composite Tools
- ▶ Custom Fixtures and Assemblies
- ▶ Expert Finishing

## Parts

- ▶ Prototypes
- ▶ Autoclave Cured
- ▶ Out of Autoclave
- ▶ Carbon Fiber Composites
- ▶ Fiberglass Composites
- ▶ Core
- ▶ Metals

## Engineering

- ▶ Design
- ▶ Finite Element Modeling
- ▶ Reverse Engineering

## Quality Assurance

- ▶ AS9100C
- ▶ Nadcap Composites Certified  
• Hamilton, WA
- ▶ ISO 9001:2008





## Advanced Composites Lab

### MATERIAL DEVELOPMENT AND TESTING

- ▶ Seals
- ▶ Resins
- ▶ Tackifiers
- ▶ Interlaminar Properties
- ▶ Polymer Matrix Toughness
- ▶ Tensile and flexural strength

### MATERIAL PROPERTY TESTING

- ▶ Compression
- ▶ Polymer matrix toughness
- ▶ Polymer matrix impact strength
- ▶ Tensile and flexural strength
- ▶ CTE coefficient of thermal expansion
- ▶ Short beam shear
- ▶ Viscosity
- ▶ Moisture
- ▶ Interlaminar tension
- ▶ Resin thermal aging
- ▶ Vacuum integrity testing

## Metrology

### SOFTWARE

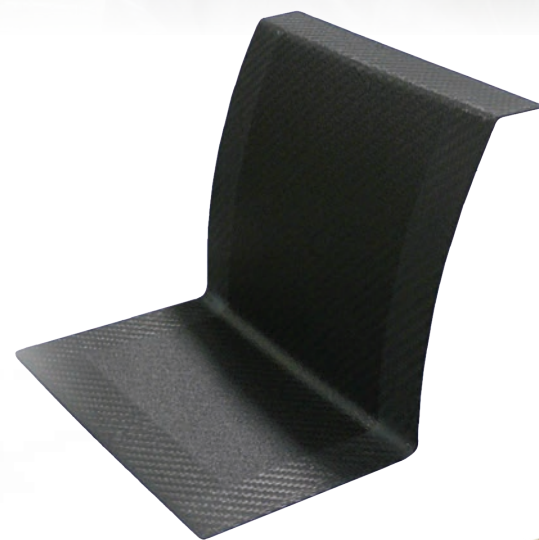
- ▶ Spatial Analyzer

### LASER TRACKERS

- ▶ Automated Precision Inc., Radian Laser
- ▶ Leica LTD 500/600/800
- ▶ Leica Absolute Trackers
- ▶ Leica T-Cam's/T-Prob's

### LASER RADAR SCANNERS

- ▶ Metris L260's and M260's





# Engineering

## Expertise

Over **20%**  
percent of our  
600 employees  
are engineers

Of our 120+  
engineers,  
**25** have  
advanced  
degrees

## Complete Design-Build Services

To develop break-through solutions, we involve engineers in every stage of a project. The depth and breadth of our engineering talent gives customers a significant competitive edge.

We will share design/build risk with you, collaborating with your team to develop project-specific solutions.

### CAD Programs:

- ▶ NX/Unigraphics – 37 Seats
- ▶ Catia V5 – 25 Seats

### Analysis:

- ▶ Catia V5/ Elfini – 2 seats
- ▶ MSC SimDesigner – 1 seat
- ▶ Nastran/Patran – 3 users
- ▶ Cosmos – 1 seat
- ▶ MSC.ADAMS – 1 user

## Certifications

**AS9100C CERTIFIED**

**NADCAP COMPOSITES CERTIFIED** • Hamilton, WA

**ISO 9001:2008 CERTIFIED**

- ▶ Registered/ITAR compliant with DoS, DDTC
- ▶ 6 Internal Auditors, trained in both ISO 9001 and AS 9100 Standards
- ▶ Calibration Program meets requirements of ISO/IEC 17025:2005, ANSI/NCSL Z540-1-1994 and A2LA

- ▶ Digital Product Definition (Metrology) approved by Boeing to D6-51991 Standard
- ▶ BAC5578/D6-53993 Qualification of Sources to Composite Parts
- ▶ BAC5578/D6-49327 Qualification of Autoclaves for Metal Bonding and Curing Composite Structure Approval
- ▶ Boeing approved DPD (Digital Product Definition) Supplier
- ▶ Approved source for Lockheed Space Systems Co.

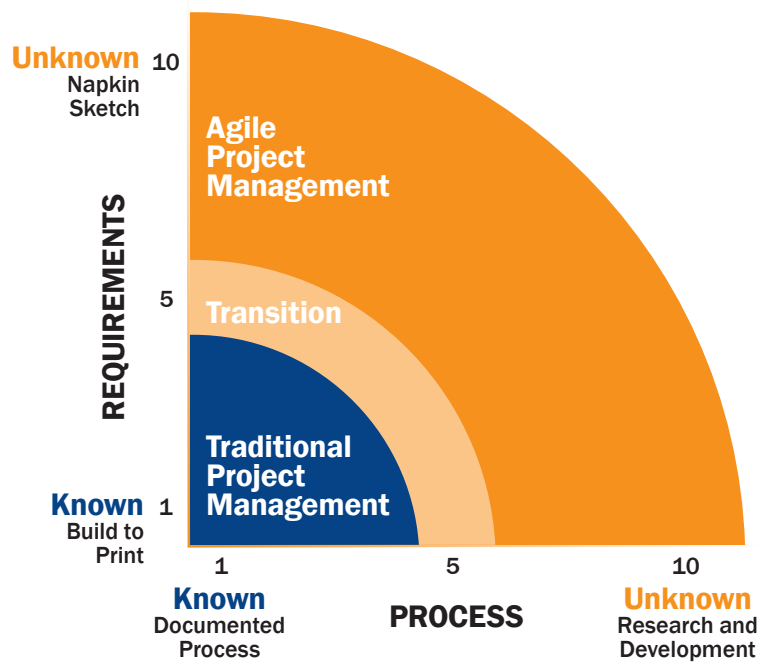


# Superior Project Management

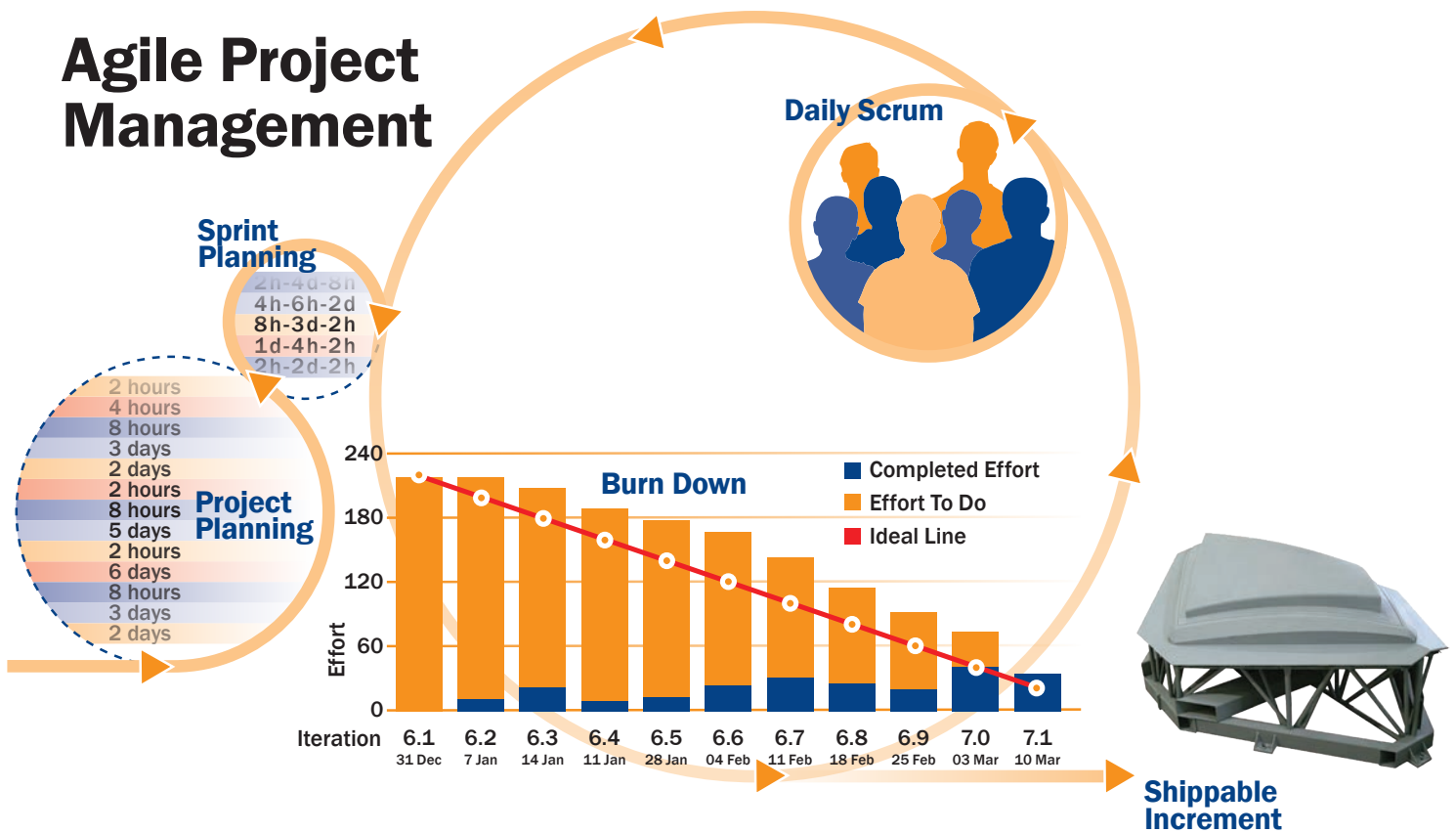
## Best Approach

Janicki's project teams are fluent in both traditional and agile methodologies. We select the best approach for your project, based on whether processes and requirements are well-known or need discovery. Our quality promise is to exceed customer requirements on every project.

At Janicki, schedules are paramount, fully simulated and modeled for each project at a detailed activity level. All aspects of the project come from the simulation, are fully factory integrated at the global company level for resource management, and are reviewed weekly by company executives.



## Agile Project Management

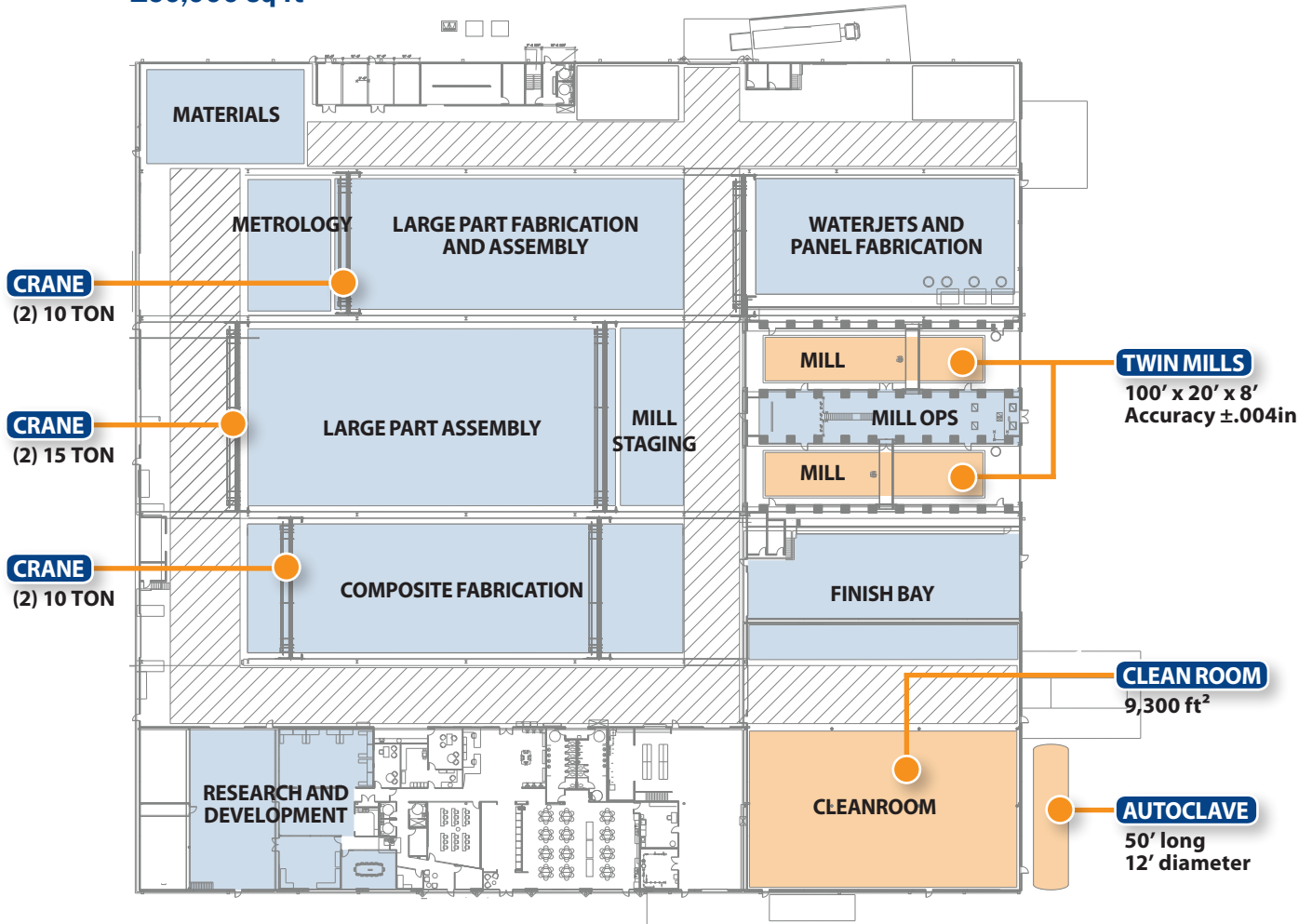




# Facilities

Janicki's facilities are designed to be highly functional. The buildings readily accommodate multiple work stations complete with gas, electrical

## Hamilton, WA 160,000 sq ft

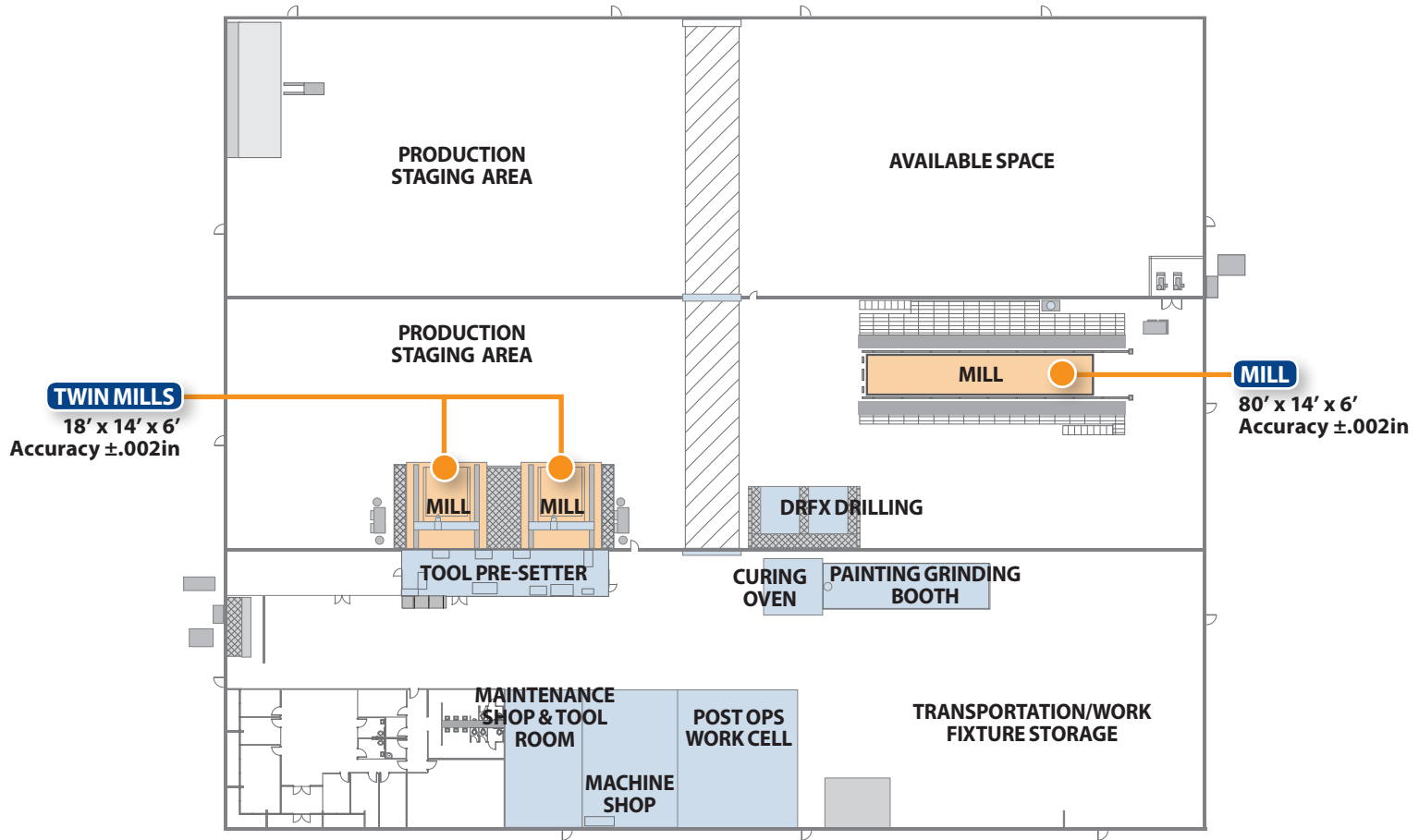




flexible, adapting to a variety of project-types, from prototypes and models to high-volume parts production. processes, eliminating transportation between sites. Throughout the Hamilton facility there are numerous power, communication lines and water. This allows for highly-efficient parts production runs.

## Layton, UT

100,000 sq ft



# Equipment

## Janicki Proprietary Mills

	Envelope Size	X-Axis	Y-Axis	Z-Axis	Rotary Axes	Spindle RPM	Spindle Torque	Accuracy
WASHINGTON	1 68ft x 19ft x 8ft	816in	228in	96in	± 195° / ± 100°	13,000	27ft lbs	±.015in
	2 88ft x 19ft x 8ft	1065in	235in	96in	± 203° / ± 106°	10,000	230ft lbs	±.006in
	3 40ft x 12ft x 5ft	480in	144in	60in	± 204.5° / ± 110°	20,000	32ft lbs	±.004in
	4 58ft x 14ft x 6ft	696in	144in	72in	± 204.5° / ± 110°	20,000	32ft lbs	±.004in
	5 100ft x 20ft x 8ft	1200in	240in	96in	± 204.5° / ± 110°	24,000	64ft lbs	±.004in
	6 100ft x 20ft x 8ft	1200in	240in	96in	± 204.5° / ± 110°	24,000	64ft lbs	±.002in
UTAH	7 18ft x 14ft x 6ft	216in	168in	72in	± 251° / ± 107°	30,000	40ft lbs	±.002in
	8 18ft x 14ft x 6ft	216in	168in	72in	± 251° / ± 107°	30,000	40ft lbs	±.002in
	9 80ft x 14ft x 6ft	960in	168in	72in	± 251° / ± 107°	30,000	40ft lbs	±.002in

## Complete Machine Shop

- ▶ Haas SL-20 CNC lathe
- ▶ Republic Lagun RL-14X40 manual lathe
- ▶ Mazak VTC-300C vertical mill
- ▶ Bridgeport EZVISION mill
- ▶ OMV Brave mill
- ▶ Mitsubishi 4-axis horizontal boring mill

## CNC Waterjet Cutters

- ▶ Ward 2-Axis Waterjet  
12ft x 40ft x 10in/3.4m  
x 12m x 25cm
- ▶ Flow 2-Axis Waterjet  
6ft x 12ft x 10in/1.8m  
x 3.4m x 25cm

## CNC Komo Router #VR510TG

- ▶ 3-axis
- ▶ 5ft x 10ft x 12.5ft/ 1.5m x 3.1m x 3.8m

## Ovens

- ▶ 400°F/204°C oven — 100ft x 24ft x 14ft/  
- 30m x 7m x 4m  
- Modular
- ▶ 500°F/260°C  
- modified Despatch oven  
- 30ft x 10ft x 10ft/9m x 3m x 3m
- ▶ 250°F/121°C  
- 40ft x 20ft x 10ft/12m x 6m x 3m
- ▶ Multiple modular tent ovens
- ▶ 2 Wisconsin ovens 500°F/260°C
- ▶ 2 testing ovens 500°F/260°C



**WATERJET CUTTER**



**LASER TRACKER**





**PRODUCTION AUTOCLAVE**

### Autoclaves

#### LAB AUTOCLAVE

- ▶ 500°F/260°C
- ▶ 150psi/10.5Kg/cm
- ▶ 30in/.76m diameter, 36in/.91m deep

#### PRODUCTION AUTOCLAVE

- ▶ 550°F/288°C
- ▶ 150psi/10.5Kg/cm
- ▶ 12ft/3.6m diameter, 50ft/15.2m deep (5,625ft<sup>3</sup>/160m<sup>3</sup>)
- ▶ 50,000lb/22.7 metric tonnes load capacity



**ANNEALING FURNACE**

### Annealing Furnace

- ▶ 1600°F/871°C
- ▶ 72ft x 24ft x 11ft/22m x 7m x 3.4m
- ▶ Heat distribution delta T 35°F/19.4°C
- ▶ Semi-truck accessible
- ▶ Modular for expansion to 108ft/33m

### Cleanroom

- ▶ 9,300 ft<sup>2</sup>



**CLEANROOM**

### Painting and Curing Booth

#### PAINT

- ▶ 60ft x 16ft x 10ft/18m x 4.8m x 3m
- ▶ Door 9ft x 12ft/2.7m x 3.6m
- ▶ Permitted for chromated aerospace paints

#### CURE BOOTH

- ▶ 26ft x 16ft x 10ft/7.9m x 4.8m x 3m
- ▶ Door 9ft x 12ft/2.7m x 3.6m



**PAINT BOOTH**

### CNC Waterjet Cutters

- ▶ Ward 2-Axis Waterjet  
12ft x 40ft x 10in/3.4m x 12m x 25cm
- ▶ Flow 2-Axis Waterjet  
6ft x 12ft x 10in/1.8m x 3.4m x 25cm

### Weld Shop

- ▶ Eight modular weld tables can be configured as needed
- ▶ Each table 18ft x 18ft/ 5.5m x 5.5m
- ▶ Surfaces laser tracked for accuracy (±.02in/.05cm)
- ▶ Two 25 ton/22.6 metric ton capacity cranes in invar shop
- ▶ 4 Fronius push/pull pulsed GMAW welding machines
- ▶ Lincoln and Miller welding machines
- ▶ Tube and pipe pinch/bend machine

#### AWS CERTIFIED PROCESSES FOR:

- ▶ GMAW-P Invar36\*
- ▶ GTAW Invar36\*
- ▶ GTAW Aluminum Alloy 6061 and other M23 alloys
- ▶ GMAW Aluminum Alloy 6061 and other M23 alloys
- ▶ GMAW Aluminum for class M25 alloys
- ▶ FCAW steel
- ▶ GMAW steel
- ▶ FCAW stainless steel

\* Invar welding processes certified per AWS D1.1 standards





**AS9100C**  
**Nadcap Composites Certified • Hamilton, WA**  
**ISO 9001:2008**

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# our quality promise

We are dedicated to the **continual improvement** of our products and quality management system to ensure we deliver **quality products** that meet or **exceed our customers' requirements**.

