

# High-Performance, Cost-Competitive JBXA Carbon Tooling

## Janicki Proprietary JBXA Tooling

JBXA is a custom modified epoxy resin formulated to provide increased performance at a competitive price. It is a high quality, autoclave cured system with use temperatures up to 360°F. JBXA was researched and developed specifically to beat the performance of conventional epoxy at a lower cost than BMI and Invar materials.

Description	CTE	Use Temp	Typical Cycles
JBXA High-cycle Carbon Lay-up Mold	1.9x10 <sup>6</sup> in/in/°F	360°F	100+
JBXA Med-cycle Glass Lay-up Mold	5.5x10 <sup>6</sup> in/in/°F	360°F	50+

## JBXA Material for Space and Military

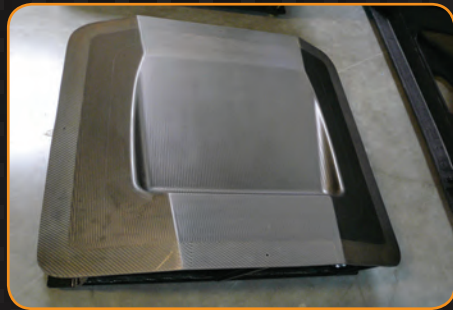
JBXA has a cost advantage over BMI and INVAR. It is offered in multiple configurations to match your program needs. The JBXA prepreg cloth is pliable and conducive to forming complex shapes, such as airfoils, fairings and control surfaces.

- ▶ Excellent machined surfaces to high tolerances
- ▶ More durable than Epoxy
- ▶ Cured at 360°F (445°F Tg)
- ▶ Autoclave cured
- ▶ Retains vacuum integrity after 100+ cycles
- ▶ Long out times allow for very large laminates



Aerospace tooling fabricated from JBXA carbon fiber prepreg

**JBXA material delivers extraordinary value**



JBXA Production Tool



Nadcap AC7118 CERTIFIED

ISO 9001:2008 CERTIFIED

AS9100C CERTIFIED

AWS D1.1, D1.2 and D17.1 CERTIFIED

ASME Section VIII and IX CERTIFIED

Boeing Digital Product Definition  
Approved Supplier

Boeing approved processor to  
D1-4426 requirements

# Production Tooling

## Capabilities | Experience | Equipment

Janicki invests in facilities and equipment to optimize fabrication of large and accurate composite and metal tools. Janicki has the capabilities and experience to build production tooling for major OEMs, Tier 1 and Tier 2 suppliers across several industries.

### Capabilities

- ▶ Engineering Design & Analysis
- ▶ 5-Axis NC Milling (+/- 0.005")
- ▶ Large-scale Facilities
- ▶ R&D Lab
- ▶ Metrology
- ▶ Tool leak testing w/ Helium / Autoclave



Carbon Fiber Lay-up



Annealing Furnace

### Program Experience

- ▶ Large collapsible Fuselage Mandrels for Aerospace OEM
- ▶ Complex Wing-to-Body Fairing Tools
- ▶ 80 ft carbon fiber lay-up mold for a commercial jet wing
- ▶ Fuselage molds for UAV
- ▶ Long, curving stringer & beam molds
- ▶ Fuselage molds for helicopters

### Equipment

- ▶ 9 Large 5 Axis CNC Mills (100' x 20')
- ▶ Machine Shop (4 & 5 Axis Mills & Lathes)
- ▶ Ovens (100' x 24' x 14')
- ▶ Weld Shop (Certified Welders)
- ▶ Water & Plasma Cutter (14' x 42')
- ▶ Autoclave (12' x 50')
- ▶ Annealing Furnace (24' x 72')
- ▶ 25 Ton Overhead Cranes
- ▶ Grit Blasting & Paint Booth (60' x 16' x 10')
- ▶ 1,100 Ton Forming Press



Forming Press



Large-Scale, Precision 5-Axis NC Mill



12' X 50' Autoclave

our  
**quality** promise

- ▶ Dedicated Continuous Improvement
- ▶ Deliver Quality Products
- ▶ Exceed Customers' Requirements

**Sedro-Woolley, WA**  
117,000 ft<sup>2</sup>

**325+**  
Employees

**Hamilton, WA**  
164,000 ft<sup>2</sup>

**350+**  
Employees

**Layton, UT**  
100,000 ft<sup>2</sup>

**50+**  
Employees



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