



Facilities List Updated: 4/26/05

CNC Horizontal Machining Centers

- (1) **Toyoda FA 630 34-Pallet RGV System with (4) 4-Axis CNC Horizontal Machining Centers**
Capacity X 39.4" (1000 mm) Y 33.5" (850mm) Z 29.5" (750mm) 22.5 cubic.ft.
Spindle 40HP, HSK 100, 20000RPM 120 Tool ATC on each.
- (1) **LaBlond Makino 28-Pallet Makino Manufacturing Cell with (2) LaBlond Makino A55 Delta 4-Axis CNC Machining Centers**
Capacity X 22" (560mm) Y 22" (560mm) Z 22" (560mm) 6.2 cubic ft.
Spindle 30HP, #40 Taper, 14000RPM 60 Tool ATC.
- (2) **Toyoda FA630 4-Axis CNC Horizontal Machining Center**
Capacity X 39.4" (1000mm) Y 33.5" (850mm) Z 29.5" (750mm) 22.5 cubic.ft.
Spindle 40HP, #50 Taper, 14000RPM 60 Tool ATC.
- (1) **Niigata HN50A 4-Axis CNC Horizontal Machining Center**
Capacity X 35" (890mm) Y 26" (660mm) Z 20" (508mm) 10.5 cubic.ft.
Spindle 15 HP, #40 Taper, 6000RPM 50 Tool ATC.
- (2) **Toyoda FH55 CNC Horizontal Machining Centers with 1 deg. Index 4th.**
Capacity X 28" (711mm) Y 28" (771mm) Z 22" (559mm) 10.0 cubic.ft.
Spindle 20HP, #50 Taper, 4000RPM 32 Tool ATC.
- (1) **Niigata EN50B CNC Horizontal Machining Center with q deg. Index 4th.**
Capacity X 25" (635mm) Y 22" (559mm) Z 20" (508mm) 6.4 cubic ft.
Spindle 15 HP, #40 Taper, 10000RPM 60 Tool ATC.
- (1) **HAAS EC400 4-Axis CNC Horizontal Machining Center**
Capacity X 20" (508mm) Y 20" (508mm) Z 20" (508mm) 4.6 cubic ft.
Spindle 30 HP, 40 Taper, 12000RPM 40 Tool ATC

CNC Vertical Machining Centers

- (1) **Monarch VMC 200B 4-Axis CNC Vertical Machining Center**
Capacity X 160" (4064mm) Y 36" (914mm) Z 44" (1117mm) 147 cubic ft.
Spindle 35HP, #50 Taper, 10000RPM 40 Tool ATC.
- (1) **Monarch VMC 200B 3-Axis CNC Vertical Machining Center**
Capacity X 120" (3048mm) Y 36" (914mm) Z 44" (1117mm) 110 cubic ft.
Spindle 35HP, #50 Taper, 10000RPM 40 Tool ATC
- (1) **Monarch VMC 150B 3-Axis CNC Vertical Machining Center**
Capacity X 74" (1880mm) Y 36" (914mm) Z 27" (686mm) 14.6 cubic ft.
Spindle 27HP, #45 Taper, 6000RPM 40 Tool ATC.
- (1) **Monarch VMC 150 3-Axis CNC Vertical Machining Center**
Capacity X 74" (1880mm) Y 36" (914) Z 27" (686mm) 34.7 cubic ft.
Spindle 20 HP, #45 Taper, 5200 RPM 40 Tool ATC.
- (1) **Fadal 6535 4-Axis Rotary Vertical Machining Center**
Capacity X 65" (1651mm) Y 35" (889mm) Z 34" (863mm)
Spindle 22.5 HP, #40 Taper, 10000RPM 24 Tool ATC.

Vertical Machining Centers (continued)

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| (1) | Fadal 6030 3-Axis CNC Vertical Machining Center
Capacity X 60" (1524mm) Y 30" (762mm) Z 30" (762mm)
Spindle 20 HP, #40 Taper, 10000RPM 21 Tool ATC. | 31.3 cubic ft. |
| (1) | SNK PC-60V 5-Axis CNC Vertical Profiler
Capacity X 60" (1524mm) Y 26" (660mm) Z 18" (457mm)
Spindle 20 HP, #50 Taper, 5000RPM 24 Tool ATC. | 16.3 cubic ft. |
| (1) | Toyoda FV65 3-Axis CNC Vertical Machining Center
Capacity X 50" (1270mm) Y 25.6" (650mm) Z 24" (610mm)
Spindle 20HP, #50 Taper, 4000RPM 32 Tool ATC | 17.8 cubic ft. |
| (2) | Haas VF-3 4-Axis CNC Vertical Machining Centers
Capacity X 40" (1016mm) Y 20" (508mm) Z 25" (635mm)
Spindle 30 HP, #40 Taper, 10000RPM 32 Tool ATC. | 11.6 cubic ft. |
| (2) | Matsuura 1000 VS 3-Axis CNC Vertical machining Centers
Capacity X 40" (1016mm) Y 20" (508mm) Z 20" (508mm)
Spindle 15 HP, #40 Taper, 6000RPM 25Tool ATC. | 9.3 cubic ft. |
| (1) | HAAS TM1 Vertical CNC Vertical Machining Center
Capacity X 30" (762mm) Y 12" (304mm) Z 16" (406mm)
Spindle 7.5 HP, #40 Taper, 4000RPM 10 Tool ATC. | 3.3 cubic ft. |
| (1) | Komo VR 512 CNC Machining Center Router/Profiler
Capacity X 145" (3683mm) Y 60" (1524mm) Z 6" (53mm)
Spindle 16HP, #30 Taper, 18000RPM 8+ATC Carousel. | 30 cubic ft. |
| (1) | Trac DPM S-5 Vertical Machining Center
Capacity X 30" (762mm) Y 17" (431mm) Z 23.5" (597mm)
Spindle 30HP, #40 Taper, 4200RPM | 6.9 cubic ft. |

Sheet Metal Equipment

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| (1) | Weidemann Centrum 2000
40" x 96" sheet size, 22 ton
Punching Accuracy +_ .003 | |
| (1) | Strippet 30-Ton Hydraulic Precision Direct-Punching Machine | |
| (1) | Cincinnati AutoForm 135-Ton x 12' 5-Axis Press Brake | |
| (1) | Cincinnati 135-Ton Hydraulic 12 ft. Press Brake with Hurco 2-Axis Micro-Processor Autobend Backgauging | |
| (1) | Cincinnati #5 135-Ton Press Brake with 10' capacity with Hurco Single Axis Micro-Processor Autobend Backgauging | |
| (1) | Cincinnati #3-50 65-Ton Press Brake with 8' Capacity | |
| (1) | Diacro 17-Ton Press Brake 4' | |
| (3) | Power Shears (Up to 10' x 10-Gauge) | |
| (3) | Diacro Rollers (Up to 48" width) | |
| (1) | Marchant Model 12A Pneumatic Shrinker/Stretchers | |
| (1) | Model 2BH Hot/Cold Hydraulic Joggle Tooling | |

Punch Presses

- (1) *Beckwood 600-Ton 4 Post Down Acting Hydraulic Press 48" x 36" Bolster*
- (1) *Rouselle 80-Ton 100" x 30" Straight Side Press*

Heat Processing System

- (1) *Recco Bottom Drop Aluminum Solution Heat Treating Furnace with Artificial Aging Capability*
Manufactured to BAC-562I specification
Certified processes to MIL-H-6088G and BAC-5602
NADCAP Approved

Welding Equipment

- (1) *Welding Robot, Miller Model "MRV-6" with 36.0 Extended Swing Arm*
Capable of welding aluminum, steel and stainless steel
- (10) *GTAW (TIG) Welding Machine*
- (6) *GMAW (MIG) Welding Machine*

Finishing, Deburring, and Cleaning Equipment

Various tumblers, vibrators, sanders and support equipment to produce product to our customers' needs

Paint Equipment

Wet and powder booths to 10' x 8' capacity with oven capacity to 4' x 6' x 7'

- (2) *Chromate Conversion Dip Line & Tank*
L 8' x W 3.5' x D 4.5'
Iron Phosphate and Passivate tanks

Assembly Equipment

Well-equipped and automated mechanical and electro-mechanical assembly

Inspection Equipment

- (1) *Brown & Sharpe Xcel-122010 Coordinate Measuring Machine*
X 47.2 Y 78.7 Z 39.4 UHA Refined Accuracy
TP200 Probe System
PCDMIS Curves and Surfaces
Pentium 111 Workstation running Windows NT
- (1) *Brown & Sharpe Xcel-9159 Coordinate Measuring Machine*
X 35.4 Y 59.1 Z 33.5 UHA Refined Accuracy
TP200 Probe System
PCDMIS Curves and Surfaces
Pentium 111 Workstation sunning Windows NT

Various gauges and inspection equipment

Certified to ISO 9001:2000 and AS9100:2001

Engineering Facilities

Software

Windows
AIX v4.3.3 Unix OS
SURFCAM 2004plus Build 57 5-Axis w/ Verify+
Catia 4.2.4 Refresh 1
Solidworks 2005
Visual Studio.net

Engineering Facilities (continued)

Visual Studio 6
Pro-Engineer Wildfire 2.0
Unigraphics v11 NX3
PC-Dmis offline CMM programming
CIM-TECH Router-CIM
NetPro (multiple part sharing nesting)
AutoCad 2002 w/IGES Translator

Communication

Internet Access via:
T1 Line
REDARS/BOLD
E-mail
File Transfer Protocol (FTP)
PGPmail 6.0.2 w/RSA for encrypted message and file protection

Certified Processes

Solution and Precipitation Heat Treating Processes of Clad and Aluminum Alloys

MIL-H 6088G BAC-5602 NADCAP Accredited

Chemical Conversion Coatings on Aluminum and Aluminum Alloys

MIL-C-5541B Customer Requirements NADCAP Accreditation (in process)

Painting of Vinyls, Enamels, Epoxy and Water Base Paints

FED STD 595 Customer Requirements
FED STD QQ-P-35

Passivation for Corrosion-Resisting Steel

FED STD 595 Customer Requirements

Silk-screening and Parts Marking

MIL-STD-130E Customer Requirements

Welding-Fusion, Aluminum, Steel, Stainless Steel

AWS-D1.1 MIL-W-8604 MIL-W-45205 NADCAP Accredited
AWS-D1.2 MIL-STD-2219 MIL-W-22248
AWS-D1.3 MIL-STD-1595

Welding-Spot Aluminum and Steel

MIL-W-6858

Brazing and Soldering

MIL-B-7883

Engraving-Aluminum

MIL-STD-130

Structural Bonding Per Mil-Specs

Resident In-house Certified Welding Inspector

Outside Testing or Qualification by Customer Request