

Mid-Continent Engineering has 2 Automated RGV machining lines:

- Fastems pallet and material handling system attached to four (4) Okuma MA-500H Horizontal Machining Centers (30 pallet system)
- LeBlond Makino manufacturing cell attached to four (4) Makino A55 Delta 4-axis Horizontal Machining Centers (28 pallet)

The pallet and material handling systems allow for these machines to run effortlessly and harmoniously between jobs. The number of pallets available to each line allows 90% of all jobs to remain set up; essentially all load and unload times on each machine have been eliminated.

## Horizontal Machining Centers

<b>Kao Ming KMC-SR/SR-H</b>	<b>854.6 ft<sup>3</sup></b>
CNC Five-Face Machining Center	
a. X: 314.9", Y: 108.3", Z: 43.3"	
b. Vertical, horizontal max spindle speed: 8000, 3500 rpm	
c. 5 axis	
d. Spindle power: 35 hp	
e. Spindle torque: 752 ftlb	
<b>(x4) Toyoda FA630</b>	<b>24.1 ft<sup>3</sup></b>
CNC Horizontal Machining Center	
a. X: 39.4", Y: 31.5", Z: 33.5"	
b. Pallet 24.8" x 24.8"	
c. Max Spindle Speed: 14000 rpm	
d. 60 tool	
e. Taper: #50	
f. Maximum tool diameter: 4.72"	
<b>(x4) Okuma MB-5000H</b>	<b>15.5 ft<sup>3</sup></b>
CNC Horizontal Machining Center	
a. X: 29.92", Y: 29.92", Z: 29.92"	
b. Pallet size (rotary): X: 19.69", Y: 19.69"	
c. Max spindle speed: 20000 RPM	
d. Taper: #40	
e. Max load: 1100 lb	
f. Index angle: .001 in	
g. 40 tool, optional up to 400 tools	
<b>(x7) Okuma MA-500HII (500HB)</b>	<b>17.4 ft<sup>3</sup></b>
CNC Horizontal Machining Center	
a. X: 27.56", Y: 35.43", Z: 30.71"	
b. Work area: 19.69" x 19.69"	
c. Max spindle speed: 12000 RPM	
d. Taper: #40	
e. Spindle Power: 30 hp	
f. (x2) 240 tools, (x2) 170 tools, (x3) 40 tool	
<b>Okuma MA-800HB</b>	<b>77.1 ft<sup>3</sup></b>
CNC Horizontal Machining Center	
a. X: 55.12", Y: 49.21", Z: 49.21"	
b. Work area: 31.50" x 31.50"	
c. Indexing angle: .001	
d. Max spindle speed: 12000 RPM	
e. Taper: #50	
f. Spindle Power: 40 hp	
g. 50 tool, optional up to 400	
<b>(x4) LeBlond Makino MMC A55 Delta</b>	<b>6.2 ft<sup>3</sup></b>

CNC Horizontal Machining Center

- a. X: 22", Y: 22", Z: 22"
- b. Pallet 15.7" x 15.7"
- c. Taper: #40
- d. Spindle Speed: 14000 RPM
- e. 128 tools
- f. 18 pallets

**(x4) Toyoda FH55**

**10.0 ft<sup>3</sup>**

CNC Horizontal Machining Center

- a. X: 28", Y: 28", Z: 22"
- b. Max Spindle Speed: 5000 RPM
- c. Spindle Taper: #50
- d. ATC: 120 tools
- e. Spindle Power: 15 hp

**Haas EC-400**

**4.6 ft<sup>3</sup>**

CNC Horizontal Machining Center

- a. X: 20", Y: 20", Z: 20"
- b. Max Spindle speed: 12000 RPM
- c. 4 axis
- d. Taper: #40
- e. Spindle power: 20 hp (Optional up to 30 hp)
- f. Dual pallet changer
- g. 24+1 side-mount tool changer (optional up to 70+1)
- h. 15" Color LCD Monitor with USB port

**Toshiba BTD-9**

**21.7 ft<sup>3</sup>**

Table Type CNC Horizontal Boring Mill

- a. X: 48", Y: 39", Z: 20", W: 24" (saddle travel)
- b. Taper: #50
- c. Max Spindle speed: 1500 RPM
- d. Spindle Diameter: 3.9"

**Wotan Rapid 0**

**39.7 ft<sup>3</sup>**

Table Type CNC Horizontal Boring Mill

- a. X: 49.2", Y: 39.4", Z: 31.5"
- b. Taper: #50
- c. Max Spindle Speed: 3200 RPM
- d. Max table load: 3304 lbs
- e. Spindle Diameter: 4.33"

**Vertical Machining Centers**

**Hardinge GX1000 OSP**

**10.5 ft<sup>3</sup>**

CNC Vertical Machining Center

- a. X: 40.16", Y: 21.25", Z: 21.25"
- b. Spindle Power: 34.8 hp
- c. Max Spindle Speed: 10,000 RPM
- d. Taper: #40
- e. 30 tools
- f. Working surface: 44.09" x 21.25"

**Toyoda FV65**

**17.8 ft<sup>3</sup>**

CNC Vertical Machining Center

- a. X: 50", Y: 25.6", Z: 24"
- b. Spindle Power: 20 hp
- c. Max Spindle Speed: 4000 rpm
- d. Tools: 33
- e. Taper: #50

f. Table Dimensions: 56" x 26"	
<b>Fadal 04 6535</b>	<b>39.5 ft<sup>3</sup></b>
CNC Vertical Machining Center	
a. X: 65", Y: 35", Z:30"	
b. Spindle Power 30 hp	
c. Max Spindle Speed: 7500 rpm	
d. 4 axis	
e. ATC: 24 Tool	
f. Table: 68" x 35"	
g. Taper: #50	
<b>Fadal 07 6030</b>	<b>33.3 ft<sup>3</sup></b>
CNC Vertical Machining Center	
a. X: 60", Y: 32", Z: 30"	
b. Table: 61" x 30"	
c. Max Spindle Speed: 10000 RPM	
d. Spindle Power: 22.5 hp	
e. Spindle Torque: 225 ftlbs	
f. ATC: 24 tools	
<b>(x3) HAAS VF-3</b>	<b>11.6 ft<sup>3</sup></b>
CNC Vertical Machining Center	
a. X: 40", Y: 20", Z: 25"	
b. Spindle nose to table: 29" max, 4" min	
c. Spindle Power: 30 hp	
d. Max Spindle Speed: 8100 rpm	
e. 4 axis	
f. Spindle torque: 90 ft-lb	
g. 20 Tool changer	
h. Max tool diameter: 3.5"	
<b>LeBlond Makino GF6</b>	<b>12.4 ft<sup>3</sup></b>
CNC Vertical Machining Center	
a. X: 41.3", Y: 23.6", Z: 22.0"	
b. Max Spindle Speed: 4500 RPM	
c. Maximum workpiece: 74.8"x31.5"x14"	
d. Maximum payload: 3300 lbs	
e. ATC Capacity: 20 (30, 40, 50)	
f. Maximum tool diameter: 7.87"	
<b>Monarch 200B Model 160</b>	<b>146.7 ft<sup>3</sup></b>
CNC Vertical Machining Center	
a. X: 160", Y: 36", Z: 44"	
b. Max Spindle speed: 10000 rpm	
c. 4 axis	
d. Table load: 10,000 lbs	
e. ATC: 30 tools	
<b>Monarch VMC 200B Model 120</b>	<b>110 ft<sup>3</sup></b>
CNC Vertical Machining Center	
a. X: 120", Y: 36", Z: 44"	
b. Max Spindle speed: 10000 rpm	
c. 3 axis	
d. Table load: 10,000 lbs	
e. ATC: 30 Tools	
<b>Monarch VMC 150B</b>	<b>45.8 ft<sup>3</sup></b>
CNC Vertical Machining Center	
a. X: 50", Y: 36", Z: 44"	
b. Max Spindle Speed: 5300 RPM	

- c. 3 axis
- d. Taper: #50

### **Haas TM-1**

**3.3 ft<sup>3</sup>**

CNC Vertical Machining Center

- a. X: 30", Y: 12", Z: 16"
- b. Table: 47.75" x 10.5"
- c. Spindle Power: 7.5 HP
- d. Max Spindle Speed: 4000 RPM
- e. Spindle Torque: 33 ft-lb @ 1200 RPM

### **Trac DPM S-5**

**10.9 ft<sup>3</sup>**

Vertical Machining Center

- a. X: 40", Y: 20", Z: 23.5"
- b. Spindle Power: 5 HP
- c. Max Spindle Speed: 3900 RPM
- d. Taper: #40
- e. Table Size: 50" x 12"

## **3D Printers**

### **Formlabs Form 2**

3D printer

- a. Build Volume: 5.7 x 5.7 x 6.9 in.
- b. Axis Resolution: .001 x .002 x .004 in.
- c. Automated resin fill system
- d. Prints 14 different types of resin
- e. Wi-Fi, Ethernet, and USB connectivity

**224.2 in<sup>3</sup>**

## **CNC Routers**

### **(x2) Komo VR 512**

Machining Center Router/Profiler

- a. Table: 60" x 144"
- b. Spindle power: 16 HP
- c. Taper: #30
- d. Spindle speed: 6000-18000 RPM

## **Presses and Shears**

### **(x3) Cincinnati Press Brake**

- a. (2x) 150 ton press, (1x) 50 ton press
- b. Max press length: 12'

### **Diacro 4', 17 Ton Press Brake**

### **Beckwood 600 Ton 4-post Down-Acting Press**

### **(x2) Niagara Shears**

Mechanical Power Squaring Shears

- a. Up to 10' x 10 ga. (.135") mild steel
- b. Up to 10' x 12 ga. 18-8 stainless steel
- c. Length of knives: 122-1/2"
- d. Holddowns: 20
- e. Stroker per min: 65

## **Punches**

### **Weidemann Centrum 2000**

Punch Press

- a. Punching cap. – 22 tons
- b. Max material thickness: .25"

- c. Throat depth: 41.338"
- d. Accuracy: .004"
- e. Punching hit rate on 1 inch: 200 hits/min
- f. Press drive motor: 5 HP
- g. Turret: 25 rpm, 22 stations. X: 49.213", Y 39.70"

## **Strippit 30-Ton Hydraulic Precision Direct-Punching Machine**

### **Drill Presses**

- (x7) Clausing 15
- (x5) Bridgeport Drill Press
- (x3) Johansson Drill Press
- (x2) Powermatic 1150
- Avey BMA-6 Tapping/Drill Press

### **Grinding, Deburring, Sanding**

Tumblers, vibrators, sanders, and support equipment to finish product to our customers' needs

- (x2) Vibe Tech VTHT 3232
- RGV Tumbler
- (x4) Black and Decker 10" ball bearing grinder
- Sweco FMD-14LR

### **Saws**

- (x2) Grob 4V-18 Band Saw
- W.F. Wells and Sons Band Saw

### **Paint**

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

- (x2) Chromate conversion dip line tank, Iron Phosphate, and Passivate tanks

### **Hardware Insertion Machines**

#### **Haeger HP6-B**

Hardware insertion machine

- a. Maximum force: 9,000 lb

#### **Haeger 618 Plus**

Hardware insertion machine

- a. Maximum Force: 12,000 lb
- b. Throat depth: 18 in.
- c. Stroke length: 0-8 in.

#### **Chicago Pneumatic**

Hardware Insertion Press

- a. Throat Depth: 24"

### **Lathes**

#### **Hardinge HLV-H**

Lathe

- a. Max Spindle Speed: 3000 RPM
- b. Solenoid operated brake
- c. 5C collet capacity
- d. 1 HP motor

#### **Leblond Regal 15**

Lathe

- a. Max Spindle Speed: 1800 RPM
- b. 7.5 HP

### **Welding**

(x10) GTAW (TIG) Welding machine  
(x6) GMAW (MIG) Welding Machine  
Miller Dynasty 280  
Miller Maxtron 450  
Miller Aerowave  
(x2) Miller Phoenix 456  
Miller Dynasty 350  
Cobra Matic MK-3A PS  
Miller XMT 304  
Spot Weld Inc. 100 KVA Automated Resistance Spot Welder  
Sciaky 200 KVA Resistance Spot Welder  
Sciaky 250 KVA Resistance Spot Welder

## **Material Recycling Equipment and Compressors**

Puckmaster MCT-175 Puck/Briquette Machine  
Coolant Recycling Tank  
Evaporator M406NAA  
Ingersoll Rand Rotary Screw Air Compressor  
a. Power: 100 hp  
b. 3 phase electrical  
c. Speed: 1775 rpm  
QSI 370i Industrial Compressor  
a. Power: 75 hp  
b. Pressure: 100 psig  
c. Speed: 1800 rpm  
d. Flow: 365 acfm

## **Ovens and Deburrers**

Despatch oven RS-4  
Despatch oven V-41  
Despatch oven psc-3-315  
Thermal deburrer C-250

## **Cranes and Monorail**

Spanmaster 2 ton underhung crane and monorail system  
Spanco ½ ton aluminum adjustable crane  
Gorbel ½ ton motorized rotation jib crane  
Atlas ½ ton crane

## **Inspection Equipment**

### **Brown and Sharpe Xcel-122010**

Coordinate Measuring Machine  
a. X: 47.2", Y: 78.7", Z: 39.4"  
b. TP200 probe system  
c. PCDMIS Curves and Surfaces  
d. Pentium 11 workstation running Windows NT

### **Brown and Sharpe Xcel-9159**

a. X: 35.4", Y: 59.1", Z: 33.5"  
b. TP200 Probe System  
c. PCDMIS Curve and Surfaces  
d. Pentium 11 workstation running Windows NT  
Certified to ISO 9001:2000 and AS9100: 2001

## **Engineering Facilities**

### **Software**

Windows 10  
Surfcam 2018  
Catia V5  
Solidworks 2018  
CAMWorks 2018  
PCDMIS 2016  
Creo 4.0

## **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

### **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**

## **Tank Room**

Chromate Conversion Dip Line, Iron Phosphate and Passivate tanks

a. Tank Sizes (gallons): 100, 620, 700, 710, 800, 825, 940

b. Tank Contents/function:

<b>Contents</b>	<b>Function</b>
Oakite NST	Aluminum Cleaner
Oakite 33	Acid Etching
Oakite LNC	Deoxidizer
Chromicoat L25	Chromate
Nitric Acid and Sodium Dichromate	Type II Military Passivation
Type II Chromium	Chromate
Oakite 160	Aluminum Etching
Oakite 187	Iron Phosphate
Oakite L25	Chromate
Nitric Acid	Passivation Type 6