



12/12/16, RPM

CNC Machining Equipment

Two Spindle Vertical Machining Centers (15 pcs)

2 Matsuura MC-760-VSX-DC, 29" X 17" travel, 30 tools, 14" C/L	6,000 RPM
13 Johnford SV 45 2H, 45" X 21" travel, 40 tools, 17" C/L	8,000 RPM

Vertical Machining Centers (47 pcs)

1 Johnford DMC-3100PH, 122 X 90.5 X 31.5 travel, 60 tools	10,000 RPM
8 Johnford VMC 1600 HD w/ 2 pallet APC, 63" X 33.5" X 28" travel, 60 tools	10,000 RPM
1 Mighty Viper V1600, 63" X 32" travel, 32 tools	8,000 RPM
3 Johnford SV 48 H w/ 2 pallet APC, 48" X 28" X 24.8" travel, 40 tools	10,000 RPM
1 Fadal 4020 w/ 4 th axis, 40" X 20" travel, 30 tools	10,000 RPM
5 Monarch VMC75B (4 w/ 2 pallet APC), 40" X 20" travel, 40 tools	10,000 RPM
1 Monarch VMC45B, 30" X 18" travel, 40 tools	8,000 RPM
2 Monarch PMC 750 w/ 4 th axis, 30" X 18" travel, 40 tools	8,000 RPM
6 Kitamura Mytrunnion 5 axis, 32" X 30.7" X 19.7" travel, 100 tools	20,000 RPM
12 Johnford SV 40 (6 w/ 4 th axis), 41.3" X 19.7" X 24" travel, 24 tools	8,000 RPM
7 Johnford SV 32 (2 w/ 4 th axis), 31.5" X 19.7" X 24" travel, 24 tools	8,000 RPM

Horizontal Machining Centers (18 pc's)

2 Toyoda FA 630, 24 pallet FMS, 25" pallets, 39.4 X 31.5 X 32.3 travel, 422 tools	14,000 RPM
4 Kitamura HX 630i, 2 pallets, 25" pallets, 39.4 X 31.5 X 32.3 travel, 100 tools	12,000 RPM
8 Kitamura HX 630G, 2 pallets, 25" pallets, 50 tools	12,000 RPM
2 Toyoda FA 1050 w/ 2 pallets, 40" pallets, 62.99 X 55.11 X 45.27 travel, 120 tools,	15,000 RPM
2 Kitamura HX 800 w/ 2 pallets, 32" pallets, 100 tools	12,000 RPM

Turning Centers (17 pc's)

1 Daewoo Puma 6S, 6" chuck, 6" dia capacity, 12 station turret, tailstock	6,000 RPM
1 Yang ML 25, 10" chuck, 11" dia capacity, 10 station turret, tailstock	3,000 RPM
1 Yang ML 28, 10" chuck, 11" dia capacity, 12 station turret, tailstock	3,000 RPM
1 Yang ML 15, 8" chuck, 8" dia capacity, 12 station turret, tailstock	4,500 RPM
3 Johnford ST40-CX+C, 24" chuck, live tooling, 31.5" dia capacity, 12 station turret, tailstock	1,500 RPM
3 Johnford ST40-CX, 24" chuck, 31.5" dia capacity, 12 station turret, tailstock	1,500 RPM
1 Johnford ST40-BH, 18" chuck, 27.5" dia capacity, 12 station turret, tailstock	2,000 RPM
1 Hardinge Super Precision RS 65, 10" chuck, 12.35" dia capacity, 12 station turret, tailstock,	4,000 RPM
1 Hardinge Super Precision RS 51, 8" chuck, 12.35 dia capacity, 12 station turret, tailstock	5,000 RPM
1 Samsung SL 25/1000, 10" chuck, 14.9" dia capacity, 12 station turret, tailstock	3,500 RPM
2 Samsung SL 30/1000, 12" chuck, 15.8" dai capacity, 10 station turret, tailstock	2,800 RPM
1 Samsung SL 35/1500, 15" chuck, 16.5" dia capacity, 10 station turret, tailstock	2,000 RPM

Total: 97 CNC Machines





Conventional Machining Equipment

Jig Grinders

1 Moore G-18

Jig Borers

1 Moore B-18
1 Moore # 1-1/2
1 Moore # 2

Surface Grinders

1 Okamoto Automatic 20" X 40" EX
1 Okamoto Automatic 12" X 24" EX
2 Harig 6" X 12"
3 Harig 6" X 18" Ballway

O.D. Grinders

1 Kellenberger 60QU-125, Automatic cycle & sizing, 10" X 24" capacity and internal grinding attachment
1 Royal Master Centerless Grinder, Model TG-12 X 4 Hi – Accuracy, 1.5" capacity

Honing Machine

1 Sunnen 1650 manual

Finishing Machines

1 Pressure Blast Wet Blast system
4 Abrasive Blast Cabinets

Lathes

1 Trak conversational lathe Model TRL 1840 V
1 Trak conversational lathe Model TRL 2460 SX
1 Hardinge chucking lathe
1 Harrison M600 engine lathe

Milling Machines

1 KIA-MT Seiki # 2 Vertical miller
3 Bridgeport Series 1, 3 hp variable speed w/ 48" table and Prototrak Control
3 Bridgeport Series 1, 2 hp variable speed w/ 42" table and Prototrak Control
1 Bridgeport Series 1, 3 hp variable speed w/ 48" table and E-Z Trak Control
6 Bridgeport Series 1, 2 hp variable speed w/ 42" table
3 Trak DPM conversational 3 axis miller
1 Royal vertical miller w/ 50" table and Prototrak Control

Special Equipment and Services

1 PV – T Aluminum Vacuum Brazing Furnace, 22" X 24" X 30" capacity
Hot Plate, Oven, and Manual flame soldering
Vacuum testing
Leak testing
Flow testing
Refrigerant system evacuation and charging (R-134 and AZ-50)





Quality Assurance Equipment

Comparators

2 Jones & Lamson EPIC-114
1 Jones & Lamson TC-14
1 Mitutoyo PH 350
3 Stereo Microscopes

Data Collection

Micro Measure IV
PCDMIS Software (used with CMM)
Minitab SPC Software, 3 seats
Measurlink Real Time SPC, Site License

Additional QA Equipment

5 Federal Air Gauges and Various Probes
4 Dillon Dial Forces Gauge
1 Mountz M-200 Torque Analyzer
4 Fowler Sylvac Z – Cal 24”
18 Fowler Sylvac Z – Cal 12”

Coordinate Measuring Machines

1 Brown & Sharpe PFx B454, Auto CMM
1 Brown & Sharpe Xcel 9-15-9, Auto CMM
1 Brown & Sharpe 7-10-7 UHA, Auto CMM
1 Brown & Sharpe Global 9-12-8, Auto CMM
7 Brown & Sharpe Gage 2000, Manual CMM
1 Brown & Sharpe Micro Val, Manual CMM
1 Brown & Sharpe Micro Xcel, Manual CMM
1 Brown & Sharpe Global Advantage 20.33.15, Large capacity Auto CMM

Other Testing Equipment

1 Tropel measurement system

- Measures flatness and topography
- Accurate to .002 microns
- 150 mm and 300 mm size ranges
- Stitching capability for larger surfaces

1 Precitech, roundness & concentricity measuring system
1 XRF Portable Analyzer

- Analytical mode for material identification
- RoHS mode for material compliance

1 Mitutoyo Z-Microscope, vision type measuring system
1 Fischer Beta 870C Plating Thickness
1 Isoscope Plating Thickness
10 Federal Surface Finish Analyzer
3 Wilson Hardness Tester





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3D Printing

- 1 Stratasys uprint "SE plus" FDM, Build Size: X8" Y8" Z6",
Material: ABS
- 1 Stratasys "Fortus 450Mc" FDM, Build Size: X16" Y14" Z16",
Material: ABS-M30, Nylon 12, Polycarbonate, Ultem 1010

Engineering Software

- 5 seats Pro E CAD
- 2 seats Unigraphics CAD
- 2 seats Solidworks CAD
- 2 seats MasterCAM CAD
- 6 seats MasterCAM, 3D with solids
- 2 seats Minitab
- 2 seats Micro Estimating

