



DFF Corporation
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Equipment List, 02/01/2021, RPM

CNC Machining Equipment

Twin Spindle Vertical Machining Centers

13 Johnford SV 45 2H (3 w/4th axis), 45" X 21" X 25" travel, 40 tools, 17" C/L 8,000 RPM

Vertical Machining Centers (47 pcs)

1 Johnford DMC-3100PH Gantry (w/4th axis), 122" X 90.5" X 31.5" travel, 60 tools 10,000 RPM
9 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" X 24.5" 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/ 4th axis, 40" X 20" X 20" travel, 30 tools 10,000 RPM
5 Monarch VMC75B (4 w/2 pallet APC), 40" X 20" X 24" travel, 40 tools 10,000 RPM
1 Monarch VMC45B, 30" X 18" X 18" travel, 40 tools 8,000 RPM
2 Monarch PMC 750 w/ 4th axis, 30" X 18" X 21.7" 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/ 4th axis), 41.3" X 19.7" X 24" travel, 24 tools 8,000 RPM
7 Johnford SV 32, 31.5" X 19.7" X 24" travel, 24 tools 8,000 RPM
Total: 48

Horizontal Machining Centers

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
25 Kitamura HX 630G, 2 pallets, 25" pallets, 39.4 X 31.5 X 32.3 travel, 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, 55.1 X 49.2 X 52.2 travel, 100 tools 12,000 RPM
Total: 35

Turning Centers (Horizontal)

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
4 Johnford ST40-CX+C axis, 24" chuck, live tooling, 30.5" dia capacity, 12 station turret, tailstock 1,500 RPM
3 Johnford ST40-CX, 24" chuck, 30.5" 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

Turning Centers (Vertical)

4 VTL, Hwacheon VT-650, 18" chuck, 24" dia capacity, 12 station turret 1,500 RPM
Total CNC Lathes: 22

Total: 118 CNC Machines



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Tool Room Equipment

Jig Grinder

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"

Honing Machine

1 Sunnen 1650 manual

Lathes

1 Trak conversational lathe Model TRL 1840 V
1 Trak conversational lathe Model TRL 2460 SX
1 Hardinge chucker
1 Babin chucker

Milling Machines

2 Trak FHM 7, 3 axis CNC, 60" X 23" X 20" travel
3 Trak DPM 5, 3 axis CNC, 40" X 20" X 23" travel
1 Trak DPM, 3 axis CNC, 30" X 15" X 18" travel
3 Trak K3SX, 2 axis CNC, 32" X 16" X 16" travel
3 Bridgeport Series 1, 2 axis CNC, 42" table
1 Bridgeport Series 1, 2-1/2 axis CNC, 48" table
6 Bridgeport Series 1, DRO, table
1 KIA-MT Seiki # 2 Vertical miller, manual

Special Equipment and Services

Robotic automation cell #1: 2 Fanuc robots supporting 13 Horizontal Mills and 3 Horizontal Lathes

Robotic automation cell #2: 2 Fanuc robots supporting 12 Horizontal Mills and 3 Vertical Lathes

The machines used in the Robotic cells are included in the CNC Equipment section

Hot Plate, Oven, and Manual flame soldering

Vacuum leak testing

Helium leak checking

Pressure testing

Flow testing

Refrigerant system evacuation and charging (R-134 and AZ-50)

Finishing Equipment

1 Pressure Blast Wet Blast system
5 Abrasive Blast Cabinets
4 Wet finishing tanks
1 Wet downdraft de-burr station



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Cleaning Equipment

2 Ultrasonic cleaning systems
7 Hot water high pressure air cleaning tanks
2 Tiyoda/Serec closed loop solvent vapor degreasers

Quality Assurance Equipment

Comparators

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

Data Collection

PCDMIS Software (used with CMM)
Minitab SPC Software, 3 seats
Measurlink Real Time SPC, Site License
DISCUS Inspection Report Software

Additional QA Equipment

5 Federal Air Gauges and Various Probes
4 Dillon Dial Forces Gauge
1 Check Line MTMDP-3 Torque Analyzer
10 – Mitutoyo 24" QM Height Gages
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
1 Hexagon Global Advantage 15-30-10 Auto CMM



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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
- 1 Taylor Hobson Surface Analyzer
- 3 Wilson Hardness Tester

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

- 2 seat Catia CAD
- 2 seats Pro E CAD
- 2 seats Unigraphics CAD
- 9 seats Solidworks CAD
- 3 seats MasterCAM Design Only
- 8 seats MasterCAM, 5 axis with solids and surfacing
- 2 seats Minitab
- 2 seats Micro Estimating
- 5 seats VERICUT machine tool path verification software