



Manufacturing Solutions for Industry

**6555 S. Dixie Hwy
Erie, MI 48133
419 242 9553**

**www.orttool.com
www.orttoolfab.com**

CNC Machining Centers

Vertical	Qty	Description
	1	<p>Kitamura Bridge-8</p> <p>Double Column Machining Center</p> <ul style="list-style-type: none"> • Fanuc CNC Control • Spindle Speed - 50 to 10000 RPM • Table Size - 35.4" × 98.4" • Travel – X - 80", Y – 42.7", & Z - 27.9" • Table Capacity - 6600 Lbs.
	1	<p>Kitamura 4-Axis</p> <p>Double Column Machining Center</p> <ul style="list-style-type: none"> • Fanuc CNC Control • Spindle Speed - 50 to 3500 RPM • Table Size - 35.4" × 98.4" • Travel – X - 80", Y – 42.7", & Z - 27.9" • Table Capacity - 6600 Lbs.
	1	<p>Kitamura 4-Axis</p> <p>Double Column Machining Center</p> <ul style="list-style-type: none"> • Fanuc CNC Control • Spindle Speed - 50 to 6000 RPM • Table Size - 35.4" × 98.4" • Travel – X - 80", Y – 42.7", & Z - 27.9" • Rotary Table Diameter - 25" • Table Capacity - 6600 Lbs.
	2	<p>Mazak, NEXUS 410A</p> <ul style="list-style-type: none"> • Mazatrol PC-Fusion 640M Control • Spindle Speed - 50-12,000 RPM • Table Size - 35.4" × 16.1" • Travel – X - 22", Y – 16", & Z - 20" • Table Capacity - 1,102 Lbs.

CNC Machining Centers

Vertical	Qty	Description
	1	<p>Mazak V-655B</p> <ul style="list-style-type: none"> • Mazatrol M32B CNC Control • Travel: X - 60", Y – 26", & Z – 26" • 30-Station Automatic Tool Changer
	1	<p>Mazak V414/32</p> <ul style="list-style-type: none"> • Mazatrol M-Plus Control • Table: 16" x 32" table • Travel: X - 32", Y – 16", & Z – 18" • 7000 RPM Spindle w/Cat #40 Taper
	1	<p>Mazak MTV 655/55N</p> <ul style="list-style-type: none"> • MasterCam Control w/ Mazatrol • Table: 25" x 59" table • Travel: X - 59", Y – 25", & Z – 25" • 6000 RPM Spindle w/Cat #50 Taper

CNC Machining Centers

Vertical	Qty	Description
	2	Mazak Nexus 510C <ul style="list-style-type: none">• MasterCam Control w/ Mazatrol• Travel: X – 41.340”, Y – 20.080”, & Z – 20.080”• 12,000 RPM Spindle w/Cat #40 Taper
	1	Mazak VTC 250D <ul style="list-style-type: none">• MasterCam Control w/ Mazatrol• Table: 25” x 65” table• Travel: X – 69”, Y – 25”, & Z – 26”• 6,000 RPM Spindle w/Cat #50 Taper

CNC Machining Centers

Horizontal	Qty	Description
	1	<p>Mazak Mazatech FH-880</p> <ul style="list-style-type: none"> • M-Plus CNC Control • 40-Station Automatic tool changer • 7000 RPM Spindle w/Cat #50 Taper • Table Size: 31.5" x 31.5" • Travel: X – 51", Y – 43", & Z – 39" • Table Capacity - 4850 lbs. • Contouring Rotary Table
	1	<p>Mazak HCN 8880</p> <ul style="list-style-type: none"> • Mazatrol Smooth G Control • 80-Station Automatic tool changer • 10000 RPM Spindle w/Cat #50 Taper • Table Size: - 31.5" x 31.5" • Travel: X – 55", Y – 47", & Z – 52" • Contouring Rotary Table
	1	<p>Mazak Mazatech FH-6800</p> <ul style="list-style-type: none"> • Mazatrol PC-Fusion 640M Control • 40-Station Automatic tool changer • 7000 RPM Spindle w/Cat # 50 Taper • Table Size: 25" x 25" • Travel: X – 41", Y – 31.5", & Z – 34" • Table Capacity - 3300 lbs • Positioning Rotary Table .001° Accuracy

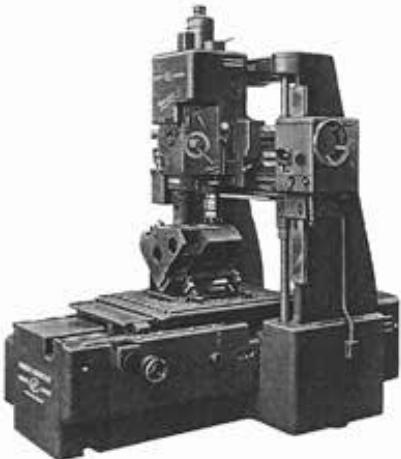
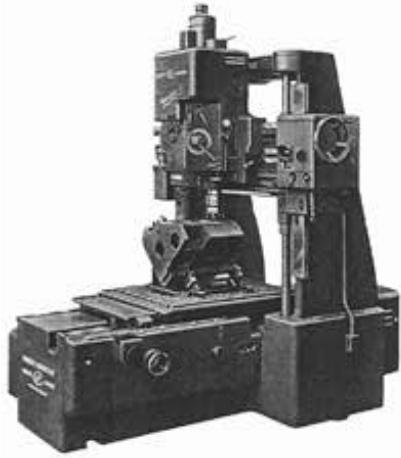


2

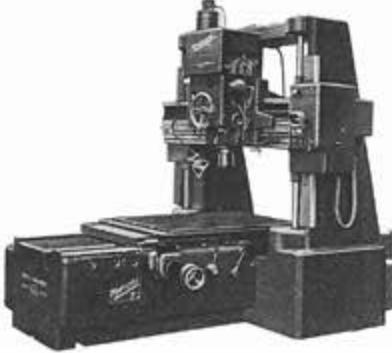
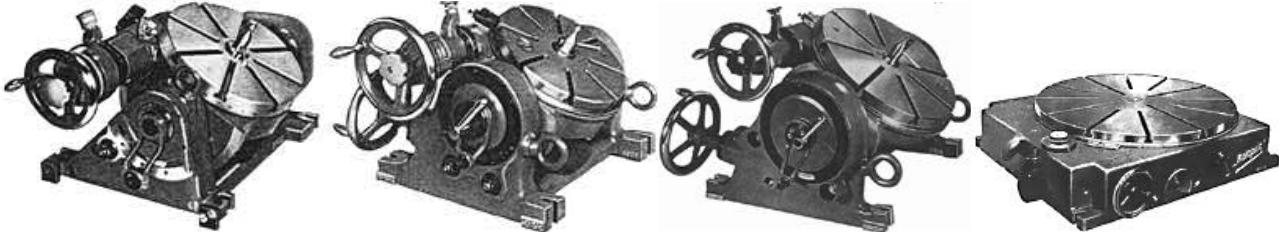
Mazak FH580/40

- Mazatrol M-Plus Control
- 30-Station Automatic tool changer
- 12000 RPM Spindle w/Cat #40 Taper
- Table Size: 20" x 20"
- Travel: X - 28" Y - 24" Z - 26"
- Table Capacity - 1000 lbs.
- Contouring Rotary Table

Milling

SIP Jig Borers	Qty	Description
	1	<p>Hydroptic 6A</p> <ul style="list-style-type: none"> • Optical measuring system • Glass scales w/ DRO • Table surface: 43.25" x 33" • Table travel: 40" • Spindle saddle travel: 28" • Spindle quill travel: 12" • Max. distance from table to spindle: 35.5" • Free space between uprights: 43.25" • Max table capacity: 2,200 lbs.
	1	<p>Hydroptic 6</p> <ul style="list-style-type: none"> • Optical measuring system • Glass Scales w/ DRO • Table surface: 43.25" x 33" • Table travel: 38" • Spindle saddle travel: 28" • Spindle quill travel: 10" • Max. distance from table to spindle: 35.5" • Free space between uprights: 43.25" • Max table capacity: 2,200 lbs.

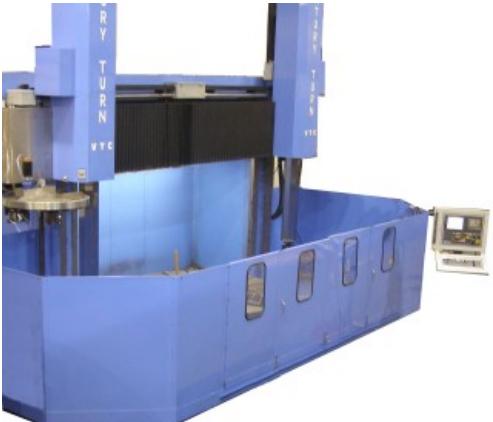
Milling

SIP Jig Borers	Qty	Description
	1	<p>Hydroptic 7A</p> <p>Our largest Jig Borer</p> <ul style="list-style-type: none"> • Temperature & Environment controlled • Mfr's guaranteed worst-case accuracy: .0002" or .005 mm • Table working surface: 61.75" x 40.5" • Table travel: 55" • Spindle saddle travel: 40" • Spindle quill travel: 12" • Max. distance from table to spindle: 42.4" • Free space between uprights: 63" • With Rotoptic-6 or PI-5 indexer
Indexing Tables for ORT's Jig bores		
	4	<p>Qty</p> <p>Description</p> <ul style="list-style-type: none"> • PI-3 - 9" diameter • PI-4 - 11.68" diameter • PI-5 - 17.75" diameter • Rotoptic-6 - 31.5" diameter Optical Dividing Table, with optical settings through microscope

Milling

Bridgeport	Qty	Description
	5	<ul style="list-style-type: none">• With Southwestern Prototrak controls
	1	<ul style="list-style-type: none">• With Southwestern Prototrak SMX control
	3	<ul style="list-style-type: none">• With Southwestern Prototrak A.G.E. controls
	1	<ul style="list-style-type: none">• With digital readout

Turning

CNC Vertical	Qty	Description
	1	<p>Century Turn 140</p> <ul style="list-style-type: none"> • Fanuc CNC Control • Double Ram, each with 12-Tool ATC • Renishaw Probe Measuring System • 138" Diameter Swing • 54" Height • 50" Ram Travel
	1	<p>Century Turn 130</p> <ul style="list-style-type: none"> • Fanuc CNC Control • Double Ram, each with 12-Tool ATC • Renishaw Probe Measuring System • 111" Diameter Table • 128" Diameter Swing • 66" Height • 40" Ram Travel
	1	<p>G&L 60 Hp</p> <ul style="list-style-type: none"> • G&L 8000B CNC Control • 12-Tool Automatic Tool Changer • Electronic Probe Measuring System • 87" Diameter Table • 96" Diameter Swing • 79" Height • 55" Ram Travel

Turning

CNC Vertical	Qty	Description
	1	Century Turn 60 <ul style="list-style-type: none">• Fanuc CNC Control• 51" Diameter Table• 60" Diameter Swing• 39" Height• 30" Ram Travel
	1	Mazak 60 Hp Mega Turn F-12 <ul style="list-style-type: none">• Mazatrol CAM T-1 CNC System• 57" Diameter Swing• 22" Height• 49" Diameter Table

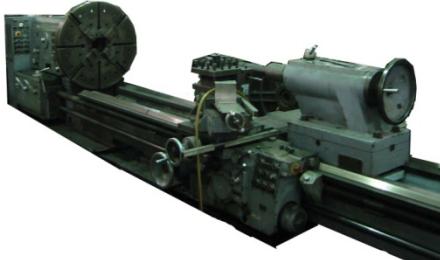
Turning

CNC Horizontal	Qty	Description
	1	<p>Willis 30120 ENC</p> <ul style="list-style-type: none"> • Fanuc Control • 30" Swing • 120" Between Centers • 1400 RPM • 8 Tool Turret • 6" Through Spindle
	1	<p>Mazak Integrex 200S Smooth X</p> <ul style="list-style-type: none"> • Mazatrol Smooth X control • 2.56" Spindle Hole • 42" Between Chucks • Turning and Milling Capabilities • 36 Station Tool Changer • 12000 RPM Spindle • (2) 8" Chucks
	1	<p>Mazak Integrex 200SY</p> <ul style="list-style-type: none"> • Mazatrol 640 MT PC-Fusion control • 2" Spindle Hole • 38" Between Chucks • Turning and Milling Capabilities
	1	<p>Mazak Integrex 200 II ST</p> <ul style="list-style-type: none"> • Mazatrol 640 MT Pro control • 5 Axis Milling • Two 8 Inch Chucks • 45 Inches Between Chucks • 12,000 RPM Spindle • Lower turret with 9 Tools • Lower turret can also be used as a center.

Turning

CNC Horizontal	Qty	Description
	1	<p>Mazak Quick Turn 250</p> <ul style="list-style-type: none"> • Mazatrol 640 PC-Fusion control • 8" Chuck • 2" Thru Spindle • 16" Between Centers • Single Turret 12 tools
	1	<p>Mazak Quick Turn 300 MY</p> <ul style="list-style-type: none"> • Mazatrol 640 PC-Fusion control • 10" Chuck • 3" Spindle hole • 40" between centers • 12-tool turret • Optional Live tooling • Programmable both C & Y axis.
	1	<p>Mazak Quick Turn 300 L</p> <ul style="list-style-type: none"> • Mazatrol 640 PC-Fusion control • 2.8" spindle hole • 40" between centers • 16-tool turret
	1	<p>Trak TRL 1840 SX</p> <ul style="list-style-type: none"> • ProtoTRAK SLX control • 15" Swing • 40" Between Centers • 2500 RPM • 4 Tool indexer • 2.36" Through Spindle

Turning

Manual Lathes	Qty	Description
	3	<p>LeBlond 15" Engine Lathe</p> <ul style="list-style-type: none"> • Digital Readout • Tracing Attachment
	1	<p>Clausing Colchester 15" Lathe</p> <ul style="list-style-type: none"> • Digital Readout • 2-1/8" Thru Spindle • 50" Between Centers
	1	<p>LeBlond 24" Engine Lathe</p> <ul style="list-style-type: none"> • Digital Readout • 5" Thru Spindle
	1	<p>Poreba 40" Lathe</p> <ul style="list-style-type: none"> • 50" Diameter X 20" Long Gap • 28" Diameter x 13' Long Turning Capacity • 3-Axis Digital Readout

Grinders

OD-ID Cylindrical	Qty	Description
 A photograph of a Shigiy Seki GPS-40 ID/OD CNC Grinder. A worker is standing next to the machine, operating it. The machine has a control panel with multiple displays and buttons.	1	<p>Shigiy Seki GPS-40</p> <p>ID/OD CNC Grinder</p> <ul style="list-style-type: none">• Capacity: 16" x 36"
 A photograph of a Schaudt ID/OD Grinder. It is a long, horizontal machine with various mechanical components, a worktable, and a control cabinet at the end.	1	<p>Schaudt</p> <p>ID/OD Grinder</p> <ul style="list-style-type: none">• Capacity 14" x 60"

Grinders

Jig Grinders	Qty	Description
	2	<p>Moore</p> <p>#3 Jig Grinder</p> <ul style="list-style-type: none"> • Digital Readout • Maximum part capacity: <ul style="list-style-type: none"> ◦ 18.5" × 11.5" × 14" ◦ 500 lbs • 3" Max spindle stroke
	1	<p>Moore</p> <p># 3 Jig Grinder</p> <ul style="list-style-type: none"> • NASA AGS-3 CNC Control • 17.5" X- 10.5" Y- 360 degree C axis rotation
Rotary	Qty	Description
	1	<p>Okamoto</p> <p>Rotary Surface Grinder</p> <ul style="list-style-type: none"> • 24" Chuck

Grinders

Surface Grinders	Qty	Description
	3	<p>Chevalier FSG-2460</p> <p>CNC Surface Grinder</p> <ul style="list-style-type: none"> • 24" x 60" Electromagnetic Chuck • Fanuc Control
	3	<p>Okamoto</p> <p>Surface Grinder</p> <ul style="list-style-type: none"> • 12" x 24" Variable Electromagnetic Chuck • Programmable Control • Variable Wheel Speed Control • 11" Max Height
	1	<p>Okamoto</p> <p>Surface Grinder</p> <ul style="list-style-type: none"> • 32" x 78" Variable Electromagnetic Chuck • Programmable Control • Variable Wheel Speed Control • 32" Max Height
	1	<p>Gallmeyer & Livingston</p> <p>Surface Grinder</p> <p>8" x 18"</p>

Grinders

Surface Grinders	Qty	Description
	1	Brown & Sharp 618 Micromaster Surface Grinder 6" x 18"
Tool Grinders	Qty	Description
	1	Cincinnati Milacron <ul style="list-style-type: none">• Universal Cutter Grinder

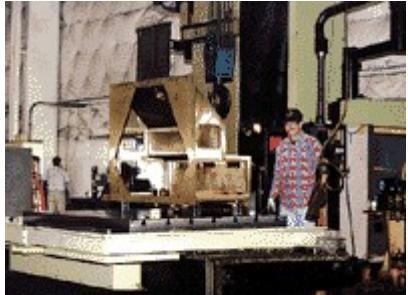
Hones

Hones	Qty	Description
	1	Sunnen CV-616 Cylinder King Vertical hone <ul style="list-style-type: none">• Auto stroke• 2.88" dia. capacity
	1	Sunnen <ul style="list-style-type: none">• 1801 Horizontal hone

Large Milling

Horizontal	Qty	Description
	1	<p style="text-align: center;">Giddings & Lewis</p> <p style="text-align: center;">G60-RTX</p> <ul style="list-style-type: none"> • Fanuc Control • 100-Tool Capacity Automatic Tool changer • 3500 RPM Spindle w/Cat #50 Taper • Table Size: 167"×73" • Travel: X – 165", Y – 142", Z – 50", & W – 77" • Spindle diameter: 6.1" • Table Load Capacity: 88,000 lbs. • 122" × 84" Rotary Table • Refrigerated Lubrication System • Thermal compensation of Z-Axis
	1	<p style="text-align: center;">Giddings & Lewis</p> <p style="text-align: center;">G60-TX</p> <ul style="list-style-type: none"> • G&L 8000B Control • 80-Tool Capacity Automatic Tool changer • 3000 RPM Spindle w/Cat #50 Taper • Table Size: 168"×72" • Travel: X – 168", Y – 115", Z – 48", & W – 60" • Spindle diameter: 6" • Table Load Capacity: 80,000 lbs. • 120" × 70" Eimeldingen Rotary Table .001° Resolution • Refrigerated Lubrication System • Thermal compensation of Z-Axis

Large Milling

Horizontal	Qty	Description
	1	<p style="text-align: center;">Milltronics</p> <p style="text-align: center;">HBM-5T</p> <ul style="list-style-type: none"> • Fanuc 18I Control • 60-Tool Capacity Automatic Tool changer • 3000 RPM Spindle w/Cat #50 Taper • Table Size: 70" x 86" • Travel: X – 137", Y – 102", Z – 53", & W – 15" • Spindle diameter: 5.2" • Table Load Capacity: 30,000 lbs. • Contouring Full 4th Axis Rotary Table
	1	<p style="text-align: center;">Kuraki</p> <p style="text-align: center;">KBT-13DXA</p> <ul style="list-style-type: none"> • Fanuc Control • 40-Tool Capacity Automatic Tool changer • 2500 RPM Spindle w/Cat #50 Taper • Table Size: 63" x 71" • Travel: X – 120", Y – 78", Z – 50", & W – 27" • Spindle diameter: 5.13" • Table Load Capacity: 22,000 lbs. • Positioning Table 90° Index's
	1	<p style="text-align: center;">Kuraki</p> <p style="text-align: center;">KBT-11DX</p> <ul style="list-style-type: none"> • Fanuc Control • 40-Tool Capacity Automatic Tool changer • 2500 RPM Spindle w/Cat #50 Taper • Table Size: 47" x 55" • Travel: X – 66", Y – 48", Z – 45", & W – 25" • Spindle diameter: 5.13" • Table Load Capacity: 10,000 lbs • Positioning Table 90° Index's

Large Milling

Horizontal	Qty	Description
	1	<p>Kuraki</p> <p>KBT-11WDX</p> <ul style="list-style-type: none"> • Fanuc Control • 40-Tool Capacity Automatic Tool changer • 2500 RPM Spindle w/Cat #50 Taper • Table Size: 47" x 55" • Travel: X – 78", Y – 59", Z – 57", & W – 25" • Spindle diameter: 5.13" • Table Load Capacity: 10,000 lbs • Positioning Table 1° Programmable
	1	<p>Giddings & Lewis</p> <p>G60-TX</p> <ul style="list-style-type: none"> • G&L 8000B Control • 80-Tool Capacity Automatic Tool changer • 2500 RPM Spindle w/Cat #50 Taper • Table Size: 72" x 144" • Travel: X – 144", Y – 112", Z – 48", & W – 55" • Spindle diameter: 6" • Table Load Capacity: 93,000 lbs. • 72" x 108" Positioning Table .001° Resolution
	1	<p>Giddings & Lewis</p> <p>G60-TX</p> <ul style="list-style-type: none"> • G&L 8000B Control • 80-Tool Capacity Automatic Tool changer • 2500 RPM Spindle w/Cat #50 Taper • Table Size: 72" x 144" • Travel: X – 120", Y – 96", Z – 36", & W – 49" • Spindle diameter: 6" • Table Load Capacity: 63,000 lbs • 60" x 84" Contouring Rotary Table w/30,000 lbs capacity.

Large Milling

Horizontal	Qty	Description
	1	Toshiba BTH-130.R24 <ul style="list-style-type: none">• Tosnuc 999 Control• 60 -Tool Capacity Automatic Tool changer• 2500 RPM Spindle w/Cat #50• Table Size: 78"× 94"• Travel: X – 118", Y – 90", Z – 99", & W – 27.5"• Spindle diameter: 5.1"• Table Load Capacity: 44,000 lbs• Full Positioning Table
	1	Toshiba BTH-110.R18 <ul style="list-style-type: none">• Tosnuc 999 Control• 60 -Tool Capacity Automatic Tool changer• 4000 RPM Spindle w/Cat #50• Table Size: 55"× 70"• Travel: X – 100", Y – 80", Z – 60", & W – 20"• Spindle diameter: 4.0"• Table Load Capacity: 20,000 lbs• Full Positioning Table

Large Milling

Horizontal	Qty	Description
	1	<p style="text-align: center;">Toshiba</p> <p style="text-align: center;">BTD-110.R16</p> <ul style="list-style-type: none"> • Fanuc Control • 38-Tool Capacity Automatic Tool changer • 8000 RPM Spindle w/Cat #50 Taper • Table Size: 55"× 63" • Travel: X – 98", Y – 70", Z – 50", & W – 16" • Spindle diameter: 7.9" • Table Load Capacity: 22,000 lbs • Contouring Rotary Table
	1	<p style="text-align: center;">Toshiba</p> <p style="text-align: center;">BTD-110.R16</p> <ul style="list-style-type: none"> • Fanuc Control • 38-Tool Capacity Automatic Tool changer • 8000 RPM Spindle w/Cat #50 Taper • Table Size: 55"× 63" • Travel: X – 78", Y – 59", Z – 50", & W – 16" • Spindle diameter: 7.9" • Table Load Capacity: 22,000 lbs • Contouring Rotary Table

Large Milling

Vertical	Qty	Description
	1	<p>SNK</p> <p>RB200F</p> <ul style="list-style-type: none">• Fanuc Control• Effective distance between columns - 112"• Distance from table top to spindle end - 57"• Size of working surface - 157"×79"• Max. Weight - 33,000 lb.• Table travel - 167"• Spindle head travel – 114"• Spindle head tilt – 95 deg.• Spindle head swivel - 360 deg.• Spindle speeds – 40 – 6,000

EDM Equipment

Sinker	Qty	Description
	1	<p>Mitsubishi</p> <p>EX 22 Sinker</p> <ul style="list-style-type: none"> • Travel: X – 19.68", Y – 15.74", & Z – 13.77" • Tank size: 15.74" Deep × 25.5" × 37.25"
Wire	Qty	Description
	1	<p>Mitsubishi</p> <p>CX2 Wire EDM</p> <ul style="list-style-type: none"> • Travel: X – 19.68", Y – 13.77", & Z – 11.80"
	2	<p>Mitsubishi</p> <p>FX10 Wire EDM</p> <ul style="list-style-type: none"> • Travel: X – 13.77", Y – 9.84", & Z – 8.60"

Inspection Equipment

CMM	Qty	Description
	1	<p>Wenzel</p> <p>RS-1515 CMM</p> <ul style="list-style-type: none"> • Measuring area: 100" X-Axis, 60" Y-Axis, 60" Z-Axis • Maximum Support Weight: 10,000 Pounds • Operating Software - 3D-CAPPS
	1	<p>Brown & Sharpe</p> <p>Gage 2000</p> <ul style="list-style-type: none"> • Measuring Range: 18" X-Axis, 20" Y-Axis, 16" Z-Axis • Maximum Weight 500 Pounds • PC Dmis Software
	1	<p>Varian</p> <p>979 Helium leak detector</p>

Fabrication Equipment

Qty	Description
1	Hydraulic straightening press
1	Drake 50-ton press, 32" wide x 40" stroke
1	100-ton press, 72" wide X 60" stroke
1	CNC Marvel Saw
1	Roll-In Wells Saw
1	Scotchman Cold Saw

Welding Equipment

Qty	Description
2	Miller XR115 Aluminum Wire Feed
1	Miller CP300 MIG Welder
1	Miller Syncrowave 350 Amp Tig Welder
1	Miller Syncrowave 350 LX Tig Welder
2	Miller Syncrowave 351 Tig Welder
3	Miller Dynasty 300 DX Tig Welder
1	Miller Dynasty 350 DX Tig Welder
1	Miller Maxstar 150STM Tig Welder
1	Miller Invision 456 MP Mig Welder
1	Miller Invision 456 P Mig Welder
1	Millermatic 250 Amp Mig Welder
2	Miller Deltaweld 451 Mig Welder
1	Miller Deltaweld 452 Mig Welder
1	Miller Spectrum 3080 Plasma Cutter
14	Acorn layout tables 5' X 5' can be joined to create any configuration needed
1	Acorn layout table 36" x 36"
2	Power Rotary Welding Table
6	Welding Positioners <ul style="list-style-type: none"> • 200 Lbs. (2) • 1000 Lbs. • 2500 Lbs. • 6000 Lbs. • 20,000 Lbs.
3	Cutting & Brazing Torch Sets
2	Proto-Trak Bridgeports
1	15" LeBlond Lathe

Programming Equipment

ORT's CNC department is supported through an in-house Fiber Optic Network. This system includes the following CAD/CAM software packages for programming:

VIRTUAL GIBBS	100% native Windows. Full mill, lathe, wire EDM and MTM (multi-task machining) package, capable of machining and creating Parasolid models.
ESPRIT	100% native Windows. Capable of full 4/5 axis milling, Lathe, and wire EDM programming. Also supports Parasolid model and surface machining. Considered to be the best wire EDM software available. Also includes full 4/5 axis milling and lathe programming capabilities, along with machining of surfaces and Parasolid models.

Drawings produced in our Engineering Department are fully integrated into CNC programs. This is done using error-free, bi-directional data communications incorporating the parasolid protocol. Our software also allows the direct importation of Solid Edge, Solid Works, Unigraphics and Auto CAD Mechanical Desktop, Pro E and STEP files.

Our EXTREME DNC software permits the exchange of G-code and Mazatrol programs to and from all machine controllers. Any file can be loaded as a whole or spoon fed through our Fiber Optic Network.

Design Department Resources

CAD Software

- AutoCAD
- Unigraphics
- SolidWorks

CAM Software

- Gibbs
- MasterCam

Translators

- IGES Files
- DXF Files
- ACIS
- Solid Works Reader
- Pro E
- STEP (AP203 and AP214)
- PARASOLID Files
- SAT Files
- HPGL2 plot files - quick transfer to manufacturing
- E-Drawings

In addition to these software tools we offer a FTP site to streamline transfer of data; for security this is a password protected FTP site

Our experienced design staff leverages these advanced tools to develop the best possible design for our customer's individual needs. The deliverables that result from this collaborative effort are fully annotated assembly and detail drawings with complete parts list. We support "build to print" 100%.