

## CNC/NC Equipment

(1) MAKINO DA300 VMC 5-Axis, Ø17.7" X 15.7", 30HP 20K RPM HSK-A63 Spindle, 120 extended tool magazine, 210 PSI TSC, Vision BTS, direct drive motors on rotary axes, Moire scale .00001" feedback on linear axes, positioning accuracy ±.00006", repeatability ±.00004". Rapids up to 2,362 IPM, feed rates up to 1,968 IPM. Fanuc 3Li controls

(1) HAAS UMC-750 VMC 30"x20"x20" 5-Axis 30hp Vector Drive, 15K rpm spindle, wireless intuitive probing system

(2) HAAS VF5/40 VMC 50"x26"x25" 4-Axis 20hp Dual Drive, 10K rpm spindle, 1000 ipm Rapid, 25 tools, Renishaw auto probe/tool pickup

(1) HAAS VF5/40 VMC 50"x26"x25" 4-Axis 20hp Dual Drive, 7500 rpm spindle, 800 ipm Rapid, 25 tools, Renishaw auto probe/tool pickup

(1) HAAS VF3/40 VMC 50"x26"x25" 4-Axis 20hp Dual Drive, 15K rpm spindle, 1000 ipm Rapid, 25 tools, Renishaw auto probe/tool pickup Extended travel

(1) HAAS VF3/40 VMC 40"x20"x25" 4-Axis 20hp Dual Drive, 10K rpm spindle, 1000 ipm Rapid, 25 tools, Renishaw auto probe/tool pickup

(2) HAAS VF3/40 VMC 40"x26"x25" 4-Axis 30hp Vector Drive, 10K rpm spindle, 1000 ipm Rapid, 25 tools, Renishaw auto probe/tool pickup

(1) HAAS VF3/40 VMC 40"x20"x25" 4-Axis 30hp Vector Drive, 8100 rpm spindle, 1000 ipm Rapid, 20 tools, Renishaw auto probe/tool pickup

(4) HAAS VF2/40 VMC 30"x16"x20" 4-Axis 20hp Dual Drive, 10K rpm spindle, 1000 ipm Rapid, 25 tools, Renishaw auto probe/tool pickup

(1) HAAS VF2-YT VMC 30"x20"x20" 4-Axis 20hp Dual Drive, 30K rpm spindle, 1000 ipm Rapid, 25 tools, Renishaw auto probe/tool pickup

(1) HARDINGE Elite II-8/51 Turning Center, GE Fanuc Series 21i-TB control. 12 station turret with live rotary tooling. 8,000 RPM and programmable "C" axis. Renishaw tool pickup

(4) HAAS 3+2 Tilting 5-Axis Trunnion Rotary Table

(1) HAAS TL-2 CNC Turning Center. 16" swing, 48" between centers, 12 HP, 2000 RPM

(1) MITSUBISHI MV 1200R, 4-Axis LSM (xyuv), 8.5"x27.6"x31.9"

## Inspection Equipment

Zeiss Contura 40"x48"x 24" CNC Coordinate Measuring Machine, with Calypso software

Helmel 20"x30"x15" Coordinate Measuring Machine, with Geomet 101 software

DISCUS – FAI Software

HITACHI X-MET8000 XRF Optimum Analyzer

Starrett Digichck II 48" Electronic Height Gage

Bausch & Lomb 18" Optical Comparator

Mitutoyo Surface Tester

Wilson Hardness Tester

DoAll Granite Surface Plate, 3' x 6'

Starrett 18" Optical Height Gage

Gage Blocks, pin gages, thread gages (plug, ring, helical coil (STI)) and various other

## **CAD/CAM Equipment**

VERICUT Machine Configuration

GibbsCAM 3D Programming Software (1 Seat)

GibbsCAM 3D Prog. Software. Includes 3D solids, Advanced Milling & Solids Import (1 seat)

GibbsCAM 3D Programming Software. Includes 3D solids, Advanced Milling & Solids Import including rotary milling module +5 Axis (3 seats)

GibbsCAM 3D Prog. Software. Includes 3D solids with Volume Mill +5 Axis. (1 seat)

GibbsCAM Software Turning Module (1 seat)

SolidWorks Office Premium X64 Edition (1 seat)

Esprit SolidWire Platinum

HP DesignJet T2300 document printer

## **Tooling and Machining Equipment**

(1) Moore Jig Grinder, Model G-18 DRO 1um, 11"x24", 60K rpm spindle

(2) Moore Jig Bore, Model #3 DRO 1um, power feed. Rebuilt to original specifications

(1) Moore Jig Bore, Model #1-1/2 DRO 1um

(1) LeBlond Regal Lathe, 15" swing, with hydraulic tracer. 4' between centers

(9) Bridgeport milling machines, DRO, power feeds

(1) Clausing-Covel Surface Grinder, 10"x16" fully hydraulic, 14" under the wheel

(1) Reid Surface Grinder, 6"x18" DRO fully hydraulic, 16" under the wheel

(3) Reid Surface Grinders, up to 6"x18". Equipped with Sindex Grinding Spinners, capable of O.D. grinding 5" diameter x 8' long shafts and tapers to +/- .0001" accuracy. 2-1/2 degree indexing.

(1) J & L Press, 60 ton, wide frame, 36"x24" bed with auto feed

(1) Hansvedt Model CS-1 Workman/201 EDM, 6"x8" with 8" RAM travel, 20 AMP capacity, 9"x15" worktable, with ISO cut

## Support Equipment

(1) Grieve Model AF-500 Oven w/ programmable recording temperature control  
Inside dimensions: 24" wide x 36" deep x 24" high

(1) Industrial FFF 3D Printer, MakerGear Ultra One, 16.00 x 14.00 x 13.00 build volume

(1) HAAS Rotary table w/A1-6 Spindle Nose; 3 Jaw chuck; 5C collet; 8"x11" face plates & tailstock

(2) HAAS 5C Programmable Indexer - 4<sup>th</sup> Axis