



## **FACILITIES LIST**

### **Swiss Type CNC Screw Machines**

(4) Tsugami S206: 20mm capacity - high pressure coolant - sub-spindle pickoff - cross drilling and milling on both spindles - simultaneous machining on both spindles - C-axis on both spindles - magazine barfeed, Firetrace system, and accumulation table for unattended machining - can be used as a Swiss turn or fixed headstock lathe

(2) Tsugami S206: 20mm capacity - TMAC tool monitoring system - high pressure coolant - sub-spindle pickoff - cross drilling and milling on both spindles - simultaneous machining on both spindles - C-axis on both spindles - magazine barfeed, Firetrace system, and accumulation table for unattended machining - can be used as a Swiss turn or fixed headstock lathe

(2) Tsugami S206-II: 26mm capacity - high pressure coolant - sub-spindle pickoff - cross drilling and milling on both spindles - simultaneous machining on both spindles - C-axis on both spindles - magazine barfeed, Firetrace system, and accumulation table for unattended machining - can be used as a Swiss turn or fixed headstock lathe

### **CNC Chuckers**

(1) Miyano BNE-51SY: 51mm thru the spindle - twin turret - cross drilling and milling - sub-spindle pick-off for back working - fully synchronized C-axis on main and sub-spindle - independent Y-axis motion - magazine barfeed, Firetrace system, and accumulation table for unattended machining

(2) Wasino G07: 27mm thru the spindle - gang tool machine - magazine barfeed - Kennametal quick-change tooling

(1) Wasino SH5DM: 25mm thru the spindle - cross drilling and milling - C-axis - sub-spindle pick-off for back working - magazine barfeed - Kennametal quick-change tooling

(1) Wasino LG-6: 25mm thru the spindle - gang tool machine with Kennametal quick-change tooling - magazine barfeed

(1) Akebono MINC-26: 25mm thru the spindle - gang tool machine with Kennametal quick-change tooling

### **CNC Machining Centers**

- (1) Tsugami FMA3: 11 pallet horizontal machining center - 1 degree pallet indexing - 128 tools - 14" machining cube – capable of unattended machining
- (1) Tsugami FMA3: 11 pallet horizontal machining center - 1 degree pallet indexing - 64 tools - 14" machining cube - Renishaw touch probe – capable of unattended machining
- (1) Tsugami FMA3: 11 pallet horizontal machining center – full B-axis - 64 tools - 14" machining cube - Renishaw touch probe – through spindle coolant - capable of unattended machining
- (4) Tsugami FMA3: 11 pallet horizontal machining center - 1 degree pallet indexing - 64 tools - 14" machining cube – capable of unattended machining
- (3) Haas VF2 SSYT: Vertical machining center - 25 tools - 12,000 rpm spindle - high-speed machining - Renishaw touch probe - 20" X 30" table travel
- (1) Kira VTC40b: Vertical machining center - 20 tools - 12,000 rpm spindle with chiller - Meca Tool pallet system - 16" X 24" table travel
- (1) Kira VTC30b: Vertical high speed machining center - 20 tools - 15,000 rpm spindle - Meca Tool pallet system - 12" X 18" table travel

### **Inspection Department and Equipment**

Temperature and humidity-controlled inspection facility

Keyence IM-6500 Image Dimension Measurement System: Ø25mm & Ø100mm field of view

Zeiss Contura G2 Aktiv Coordinate Measuring Machine: 27" x 27" x 23" probe area

Numerex Coordinate Measuring Machine: 10" X 12" X 15" probe area

Phase II Knoop Hardness Tester

(5) Optical comparators with edge sensing and geometric digital readouts

(3) SPC stations equipped with Mitutoyo Measurlink SPC Software and Mitutoyo digital measuring instruments

Dedicated gage library - Brown & Sharpe Supermic Bench Micrometer - gagemasters for calibration - Federal Profilometer - Mitutoyo Profilometer - Starrett Indicating Thread Gage System - Toolmaker Scopes - Stereo Scopes

### **Miscellaneous Support Equipment**

Standard milling, drilling, grinding and turning equipment for secondary operations, prototypes, and internal manufacture of tooling and fixtures

Welding: MIG, TIG, rod, and gas for internal repairs and tooling fabrication

Finishing: 7 cubic ft. bowl type vibratory deburring unit - 3 cubic ft. tub-type vibratory deburring unit - 1.5 cubic ft. tub-type vibratory deburring unit - Pritic high energy magnetic deburring and polishing machine

Degreasing: Aqueous-based ultrasonic parts washing with centrifugal drying

Ultimaker S3 dual extrusion head 3D printer

Programming: Mastercam Mill with Predator verification software and Esprit SolidMillTurn software for machine tool program generation

JobBOSS integrated shop management system: Estimating, order entry, purchasing, accounting, and barcoded data collection on the shop floor for attendance and job costing

E-commerce: Internet connections for purchasing, quoting, incoming orders, shipping, general communication, file, and drawing transfer

Datanomix real-time machine monitoring system

Building card access and video surveillance system