



ADVANCED MACHINING

5 - A X I S • M I L L I N G • T U R N I N G • E D M

AS9100D ISO 9001:2015

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Process Capability:

- **CNC Milling** – 3 to 5 axis with automatic pallet changing
- **High Speed CNC Milling** - 42,000 RPM with 2g acceleration
- **CNC Turning & Mill/Turn multitasking**
- **Wire EDM** – work pieces up to 16.7" thick
- **Sinker EDM** – 4-axis CNC
- **Precision Surface Grinding**
- **CNC Coordinate Measuring Machines** – complex inspection & reporting
- **AS9100D/ISO 9001:2015 registered**

Products & Services:

- **Dies** - stamping, forming, compacting, extrusion, fine blanking
- **Mold Cavities and Cores** - plastic, die-cast, compression, injection
- **Prototype Components** – defense, aerospace, medical, and energy
- **Production Manufacturing** – automated machining with pallet changing
- **Exotic materials** – ceramics, carbide, refractory metals, nickel alloys
- **EDM electrodes** - graphite, copper, copper-tungsten
- **Inspection Services** - Zeiss CMM, Calypso, FAI, PPAP
- **Hard Die Milling** – hardened material up to HRC 65
- **Reverse Engineering** – CAD models created from sample parts

CAD/CAM Software & Shop Management

Mastercam

- 3D Solid modeling with toolpaths for 5-Axis milling, turning and EDM.

Esprit

- CNC Toolpaths and simulation

ANSYS SpaceClaim

- 3D Direct modeling

CAMplete

- 5-Axis simulation, verification, and post processing.

ECI JobBoss² Shop Management System

- Estimating, Scheduling, Quality, Document Control, and Accounting

Wire EDM Systems

+GF AgieCharmilles Progress VP3

- +/- 30 degree taper cutting
- Fine Wire capability to 0.002" diameter
- Fine Finish capability to 4 Ra
- 20" x 14" x 16.7" thickness capability

+GF AgieCharmilles Progress VP3

- +/- 30 degree taper cutting
- Fine Wire capability to 0.002" diameter
- Fine Finish capability to 4 Ra

+GF AgieCharmilles Progress VP2

- +/- 30 degree taper cutting
- Fine Wire capability to 0.002" diameter
- Fine Finish capability to 4 Ra
- 14" x 10" x 10" thickness capability

+GF AgieCharmilles Classic 3 HS

- +/- 30 degree taper cutting
- 20" x 14" x 16.7" thickness capability

+GF AgieCharmilles Classic 3 V

- +/- 30 degree taper cutting
- 20" x 14" x 16.7" thickness capability

CNC Sinker EDM Systems

+GF AgieCharmilles Advance 3

- 4-axis CNC with automatic electrode changer
- 8 microinch surface finish
- 37.8" x 25.6" x 10" workpiece (2200 lbs.)

+GF AgieCharmilles Advance 4

- 4-axis CNC with automatic electrode changer
- 8 microinch surface finish
- 43.3" x 29.5" x 14.5" workpiece (4400 lbs.)

+GF AgieCharmilles Drill20 (x2)

- CNC High Speed EDM Drill
- Hole diameters 0.3mm to 3.0mm

CNC Milling Systems

GF+ Mikron Mill X 400u - 5-Axis Machining Center

- Linear Drives on all axes capable of 2g acceleration/deceleration
- 18 hp 42,000 RPM Spindle w/ HSK 40E taper
- Thru Spindle Coolant (Hi-Pressure)
- 18-Station Robot Pallet Changer for unattended machining
- 19.7" x 9.5" Travels

GF+ Mikron HPM450U - 5-Axis Machining Center

- Thru Spindle Coolant (Hi-Pressure)
- 30 hp 20,000 RPM Spindle w/ HSK 63A taper
- 7-Station Robot Pallet Changer for unattended machining
- 23.6" x 17.7" Travels

GF+ Mikron HPM450U - 5-Axis Machining Center

- Thru Spindle Coolant (Hi-Pressure)
- 30 hp 20,000 RPM Spindle w/ HSK 63A taper
- 7-Station Robot Pallet Changer for unattended machining
- 23.6" x 17.7" Working Area

GF+ Mikron Mill E 700u – 5-Axis Machining Center

- Thru Spindle Coolant (Hi-Pressure)
- 30 hp 20,000 RPM Spindle w/ HSK63A taper
- 5-station pallet changer for unattended machining

Mikron VCP-600

- Laser tool measurement
- 18 hp 42,000 RPM Spindle w/ HSK 40E Taper
- Graphite Dust Extraction System
- 23.6" x 17.7" Travels

Mikron VCP-1000

- Laser tool measurement
- 30 hp 20,000 RPM Spindle w/ HSK 63A taper
- Probing System
- 40" x 25.5" Travels
- Fixed Table w/ max. work piece weight of 3500 lbs.

Mikron VCP-1000

- Laser tool measurement
- 30 hp 20,000 RPM Spindle w/ HSK 63A taper
- Probing System
- 40" x 25.5" Travels
- Fixed Table w/ max. work piece weight of 3500 lbs.

CNC Mill/Turn

DMG Mori NTX 2500/1500

- Dual Spindle
- Full 5-axis milling head w/ 20,000 rpm spindle
- Turret w/ milling capability and Y-axis

DMG Mori NLX 2500/700 SY

- Dual Spindle, Y-axis multitasking lathe
- 10,000 RPM milling tools

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Grinding

Okamoto ACC 20-40 DX Automatic Surface Grinder

- 20" x 40" grinding area
- 14" dia. x 2" width wheel
- 0.00008" down feed resolution

Inspection Systems

Zeiss Contura Aktiv CMM

- Measuring range 39.4" x 47.3" x 23.7"
- VAST XTR Probe with active scanning
- Scanning Speed 5"/second

Zeiss Eclipse 550ST CMM

- Zeiss ST 3D dynamic touch probe (with fully automatic probe changing)
- 20" x 21.5" x 20" work envelope

TESA-HITE 700

- 28" Range

Deltronic Optical Comparator

- 14" Screen
- 25x Magnification
- Heidenhain glass scales
- Quadra Chek 200 Digital Measurement System

Traceable Standards

- Gage Blocks and Surface Plates calibrated and traceable

Software

- Inspection Xpert
 - Bubbled drawings
 - Excel format characteristic lists
 - AS9102 forms
 - PPAP documentation
 - Automated import of CMM data
- Zeiss ERS + MiniTab
 - SPC – statistical data collection and reporting
 - Gage R&R