

MPM has approximately 10,000 square feet of manufacturing space and all machining takes place in a climate-controlled building, along with 2,500 square feet of office space and an additional 1,800 square feet of storage space. We take pride in maintaining a clean, safe working environment. The following list of equipment, though not exhaustive, is representative of our capabilities.

Swiss Turning Equipment:

- **2024 Citizen L32:** High precision Swiss style turning center with 1.25" (32 mm) bar capacity. Fully programmable nine-axis machine with a manually set tenth axis, LNS bar feeder, 1,000 psi high pressure coolant system, 8,000 RPM, 5 HP main spindle and 8,000 RPM, 3 HP sub-spindle.
- **2014 Miyano BNA-42GTJ:** High precision Swiss style turning center with 1.625" (42 mm) bar capacity. Fully programmable ten-axis machine, FMB multiple bar feeder/loader, 1,000 psi high pressure coolant system, 6,000 RPM, 15 HP main spindle, Renishaw RLP40 probing with MT Gage program, coolant chiller, multiple live heads.
- **1999 Citizen M20:** High precision Swiss style turning center with .787" (20 mm) bar capacity. Fully programmable five-axis machine, LNS bar feeder, fifteen tool positions (four live), 7" max chucking length, 10,000 RPM, 5.3 HP main spindle.

CNC Turning Equipment:

- **2023 Nakamura AS200MLYS:** Fanuc Oi-TF control with NT Nurse System, 20 HP main spindle, 10 HP sub spindle, 8" hydraulic chuck main and 6" hydraulic chuck sub spindle, and 12 position turret with ½ indexing for 24 tool capacity. Full C-axis milling, with 5 HP drive motor for driven tools, extended bed for longer parts.
- **2021 Nakamura AS200MY:** Fanuc Oi-TF control with NT Nurse System, 20 HP spindle, 8" hydraulic chuck and 12 position turret with ½ indexing for 24 tool capacity. Full C-axis milling, with 5 HP drive motor for driven tools. Barfeeder interface with LNS quick 6 magazine barloader.
- **2020 Okuma LB3000EX-II/500:** Okuma control with 5,000 RPM, 30 HP spindle, 8" hydraulic chuck and 12 position turret. Max cutting diameter of 16" and 19" cutting length with a programmable tailstock and manual touch setter for tool offsets.
- **2019 Nakamura WT-250II MMY:** Fanuc 32i-B control with Nakamura NT Smart and NT Nurse System, 4,500 RPM, 25 HP left spindle and 4,500 RPM, 25 HP right spindle, both with 8" chucks. 5.5 HP motor for 12 station upper turret with 6,000 RPM rotating tool speed and 12 station lower turret with 3,600 milling speed. 9.8" max turning diameter and 21" part length. Configured with a 1,000 psi high pressure coolant system and coolant chiller system.
- **2007 Hardinge GT27SP (Super Precision):** Fanuc 21i-T control, PCMCIA flash card interface, 5,000 RPM, 5 HP spindle with Big Bore option, 4" chuck and 16C collet ready spindle. Overall axis repeatability of .000015" and .000010" resolution. Pre-tooled, quick change tooling plates allow for quick change over with repeatability of .0002".



MIDWEST PRECISION MACHINING

Facilities List

- **2007 Hardinge 6/42SP (Super Precision):** Fanuc 21i-T control, PCMCIA flash card interface, 6,000 RPM, 15 HP spindle, 6" chuck and 12-station turret. Overall axis repeatability of .000030" and .000010" resolution and offset control. Cutting capacity of 13" diameter and 12" part length.
- **2004 Haas SL20:** 4,000 RPM, 20 HP spindle with 2" bar capacity. 8.3" (210 mm) chuck with 10 position turret. Cutting capacity of 10.3" x 20" and swing diameter 23". Positioning accuracy $\pm .0002$, Repeatability $\pm .0001$.
- **1996 Mazak CNC Quick Turn 10:** T-32 Plus Control with a high speed 32-bit CPU, 6" chuck, 1.575 diameter through spindle, twelve position turret, programmable tail stock and tool setting gage. Unidirectional repeatability, X-axis $\pm .00007$ ", Z-axis $\pm .00011$ ", fully automatic tool wear compensation and breakage detection. Maximum capacities include: 6000 RPM, 10 HP spindle, rapid traverse X-1300 IPM, 8" cutting diameter and 12" cutting length.

Manual Turning – Support Equipment

- **Hardinge Tool Room Lathe**
- **Hardinge Hand Chucker**
- **PTL-59 Jet Equipment Hand Screw**
- **Northfield Air Chucks, 2 – 4", 3 - 6" and 2 – 10" chucks,** +/- .0001" TIR Repeatability

CNC Milling Equipment

- **2019 Haas VF-2SS:** Vertical machining center with Visual Quick Code programming and probe system. 10,000 RPM, 30 HP Inline Direct Drive spindle with high pressure, through spindle coolant, 30+1 side mount ATC and full 4th-axis. Maximum travels X – 30", Y – 16", Z – 20" with 1,200 ipm rapid traverse. Positioning accuracy $\pm .0002$, repeatability $\pm .0001$.
- **2010 Haas VF-5SS:** Vertical machining center with Visual Quick Code programming and probe system. 12,000 RPM, 30 HP Inline Direct Drive spindle with high pressure, through spindle coolant, 40+1 side mount ATC and full 4th-axis and 5th-axis drives. Maximum travels X – 50", Y – 26", Z – 25" with 1,200 ipm rapid traverse. Positioning accuracy $\pm .0002$, repeatability $\pm .0001$.
- **2008 Haas VF-3SS:** Vertical machining center with Visual Quick Code programming and probe system. 12,000 RPM, 30 HP Inline Direct Drive spindle with high pressure, through spindle coolant, 40+1 side mount ATC and full 4th-axis and 5th-axis drives. Maximum travels X – 40", Y – 20", Z – 25". Positioning accuracy $\pm .0002$, repeatability $\pm .0001$.
- **2004 Haas VF-3SS:** Vertical machining center with Visual Quick Code programming and probe system. 12,000 RPM, 30 HP Inline Direct Drive spindle with high pressure, through spindle coolant, 40+1 side mount ATC and full 4th-axis drive. Maximum travels X – 40", Y – 20", Z – 25". Positioning accuracy $\pm .0002$, repeatability $\pm .0001$.
- **2003 Makino a51:** Horizontal machining center with Fanuc 18i Pro 3 control, geometric intelligence, tool life monitor and helical interpolation. 12,000 RPM, 25 horsepower high torque spindle with high pressure,

through spindle coolant. Pallet shuttle with 1 degree 4th axis indexing, interchangeable pallets and 40 station automatic tool changer. Renishaw MP700 and NC3 ATLM probing with retractable measurement system. Maximum travels X – 22”, Y – 22”, Z – 19.7”. Positioning accuracy ± 0.000160 ”, repeatability ± 0.000080 .

- **2002 Makino a51:** Horizontal machining center with Fanuc 18i Pro 3 control, geometric intelligence, tool life monitor and helical interpolation. 12,000 RPM, 25 horsepower high torque spindle with high pressure, through spindle coolant. Pallet shuttle with 1 degree 4th axis indexing, interchangeable pallets and 60 station automatic tool changer. Maximum travels X – 22”, Y – 22”, Z – 19.7”. Positioning accuracy ± 0.000160 ”, repeatability ± 0.000080 .

Milling Support Equipment

- **Bridgeport** Manual vertical mill, 2 HP, 80-2780 RPM, power feed and digital readout on X, Y, Z. Travel limits of X – 24”, Y – 12”, Z – 5”.
- **Haas TR210 Trunnion Rotary Table** – 5-axis simultaneous motion
- **3 Haas HRTA6 Indexers**
- Various milling tooling, vises, angle plates, index heads, etc.

Inspection Equipment:

- **2021 Vici Vision Techno309** Optical Measuring System fully automated laser inspection system with a measuring range of 300 x 90 mm, repeatability of .3 μm on diameter and 1.2 μm on length, accuracy dependent on size of $1.5+D[(\text{mm})/200]\mu\text{m}$ on diameter and $4+L[(\text{mm})/200]\mu\text{m}$ on length.
- **Two - 2019 Zeiss Duramax CMM** fully automated CMM with XXT sensor and Calypso software. Measuring range: X, Y and Z: 19.6”.
- **2009 Zeiss Contura G2 CMM** fully automated CMM with RDS – CAA scanning head and XXT sensor with +/- 180 degrees swivel range of motion and a total of 20,736 indexing positions and Calypso software. Measuring range: X-axis 27.6”, Y-axis 39.4”, Z-axis 23.4”.
- **2021 Starrett HDV400 CNC** video optical comparator, combines optical comparator capabilities with a vision system. Measuring range: X-axis 16”, Y-axis 6”, glass scale resolution of 0.00002” in X and Y.
- **QC-Calc** software for SPC data collection and analysis
- Federal Air Bore Comparator Gage (all air gauging has a wide variety of master rings and air probes)
- Bendix Air over Electric Air Column
- Federal Electronics Comparator
- Mueller groove gages +/- .0005”
- (2) Sunnen bore gage sets +/- .00005” accuracy with master gage set
- 0 - 1” pressure mics (accuracy +/- .00005”)

Inspection Equipment, Cont'd:

- 1” - 2” pressure mics +/- .00005”
- 2” - 3” pressure mics +/- .00005”
- 3” - 4” pressure mics +/- .00005”
- Mitutoyo Quick Mics Set 1” – 4” SPC capability
- Mitutoyo Digital Mics Set 1” – 4” SPC capability



MIDWEST PRECISION MACHINING

Facilities List

- 0 - 12" Brown and Sharp height gage +/- .0001"
- 0 - 24" height gage +/- .0005"
- Gage Trak Software for calibration management
- (2) Profilometer(s) - Surftest 211
- 5X - 400X video monitor scope
- Mitutoyo Model 176-901-1A Tool Maker's Microscope, 6"x11" Staging Table, Mitutoyo LedXY Readouts, Mitutoyo Model 150 Light Source, 15X Lens
- Trimos V302+ digital height gage
- Trimos V604+ digital height gage
- (2) Marposs M1 Star electronic bore gages and readouts
- (3) Meyer gage pin sets .060-.750
- Many Deltronic gage pins and carbide gage pins
- Numerous gage block sets
- Various mics, thread gages, calipers

Miscellaneous Equipment

- Ultrasonic Aqueous cleaning tanks
- Micro/Blaster sand blaster
- 2008 Amada HA250W automatic saw, 7" x 12" capacity with automatic feed and bundle cutting ability
- Kalamazoo automatic cutoff saw
- Vibratory tumblers
- Surface grinder
- Burr/Bench tumbler
- Boyer Schultz form tool grinder
- Bar chamfering machine
- Sunnen hone machine

Programming

- MasterCam - Importing of Step, IGES, DWG, DXF, STL, NFL and CDL files
- Extreme DNC, DNC download to some CNC machines, most machines utilizing USB or compact flash.

Jobboss Manufacturing System Software

- Quoting
- Order Entry
- Purchasing
- Job Routing
- Receiving
- Shipping
- Scheduling
- Invoicing

Unipoint Quality System Software

- Integrated with Jobboss
- Total quality toolkit for handling NC's, CPA's, Customer Service and Tools & Equipment