



MSL

Machining Systems
Laboratory

Milling Centres

Mori Seiki NMV1500DCG

Max. Feed Rate: 50m/min
Spindle Power: 15 HP
Max Spindle Speed – 20,000 RPM
Five Axis Machining,
FANUC Controller



Makino MC56-5XA

Rapid Feed Rate: 15m/min
Special High Power: 40 HP Spindle
Max Spindle Speed – 15,000 RPM
Simultaneous 5-Axis Control
FANUC 16 Control
Movement Increment 0.0001mm
Maximum Travel X:510mm Y:635mm Z:635mm
High Pressure Through Spindle Coolant and Air



Matsuura FX-5G

Rapid Feed Rate: 25m/min
Spindle Power: 27 HP
Max Spindle Speed – 27,000 RPM
High Precision, High Rigidity
FANUC 15iM Control, 20 Tool ATC
Maximum Travel X:1020mm Y:560mm Z:400mm
Probe Measuring and Positioning System



Matsuura LX-1

Rapid Feed Rate: 90m/min
1.5G Rapid Feed Acceleration
Max Spindle Speed – 60,000 RPM
Linear Motors on All Three Axis
Ultra High Precision
FANUC 15iM Control
Maximum Travel X: 500mm Y:500mm Z:300mm



Okuma Cadet-Mate

Max. Rapid Feed Rate: 20m/min
Spindle Power: 15 HP
Max Spindle Speed 8,000 RPM
Maximum Travel X:1016mm Y:508mm Z:523



Turning Centres

Boehringer VDF 180CM

Spindle Power: 50 HP
Max Spindle Speed – 4,500 RPM
10m/min Axes Feed Rate
12 Station VDI 40 Turret



Nakamura SC450

40 HP Wide Output Spindle
Spindle Speed-2,500 RPM
12m/min Rapid Axis Feed Rate
Slant Bed Design, 12" Diameter Chuck
Laserline 2.0 KW Diode Laser System
FANUC



Okuma Crown-S, BB

OSP Control System
Max. Spindle Power: 24 HP
Spindle Speed – 3,500 RPM
20m/min Rapid Feed Rate
10" Diameter Chuck



Test and Measurement

HP Laser Interferometer
HP Dynamic Signal Analyzer
Force and Vibration Monitoring Equipment
Vision Gauging Equipment

Water Jet System:

Flow AF-6080

Cutting Table: 6' x 8', Z-axis adjustability: 24"
Allen Bradley Series 9 Control System
Contouring Speed: 400 ipm



Flow Bengal

Cutting Table: 20" x 40", Z-axis adjustability: 5"
FlowMaster Control System
Speed Range: 0 - 300 ipm
Cutting Pressure: 60, 000 psi



Freeform 7000

Rotary C-Axis, Rotary B-Axis
High Speed Turbine Grinder
SP-90 Diamond Turning Spindle
LVDT Tool Set Station, Optical Tool Set Station
Tool Air/Lube System
Air Temperature Control System
Expected: July 2003

Micro Machining



Nanoform 300

Interchangeable Spindles
General Purpose Vacuum Chucks
Precision Grinding Attachments
Rotary "B" Axis, 10mm "Y" Axis
Adjustable Tool Holders
Optical and LVDT Tool Setting Systems
On-Machine Form Measurement and Error Comp.
Expected July 2003



Grinding

Walter Helitronic Power Series Tool Grinder

Double Ended Grinding Spindle
Oil Coolant Systems
15m/min Axes Feed Rate
HMC 500 Control With Pentium Processor
Automatic Tool Probing System



BLOHM Planomat 408 CNC Surface Grinder

GE Fanuc 18i control
Contour/creep-feed grinding capability
15 kW spindle
Grinding speeds up to 165 m/s
30 m/min. maximum table feed rate



CMM

Mitutoyo DHN-800

Resolution: 0.0005 (mm)
Maximum Speed: 1040 (mm/s)
Measuring Speed: 20 (mm/s)
Maximum Acceleration: 1.0 (g)
Scale: Metal Linear Scale
Guide: Linear Bearing
Measuring Space: X-1000 (mm), Y-600 (mm) Z-800 (mm)



Zeiss Prismo 900 with VAST measuring head.

Solution Software Library
Probing Technology (VAST)
900/1200/700 XYZ
Full Scanning Capabilities
1000pt a sec. and 3" a sec.
Caliber up to 2 Microns



EDM System

AGIETRON Impact 2 Ram-type EDM System

Windows-based Agievision 2 control
4 servo controlled axis
Freely definable 2- & 3-dimensional
orbital/vector movements
72 A power generator

