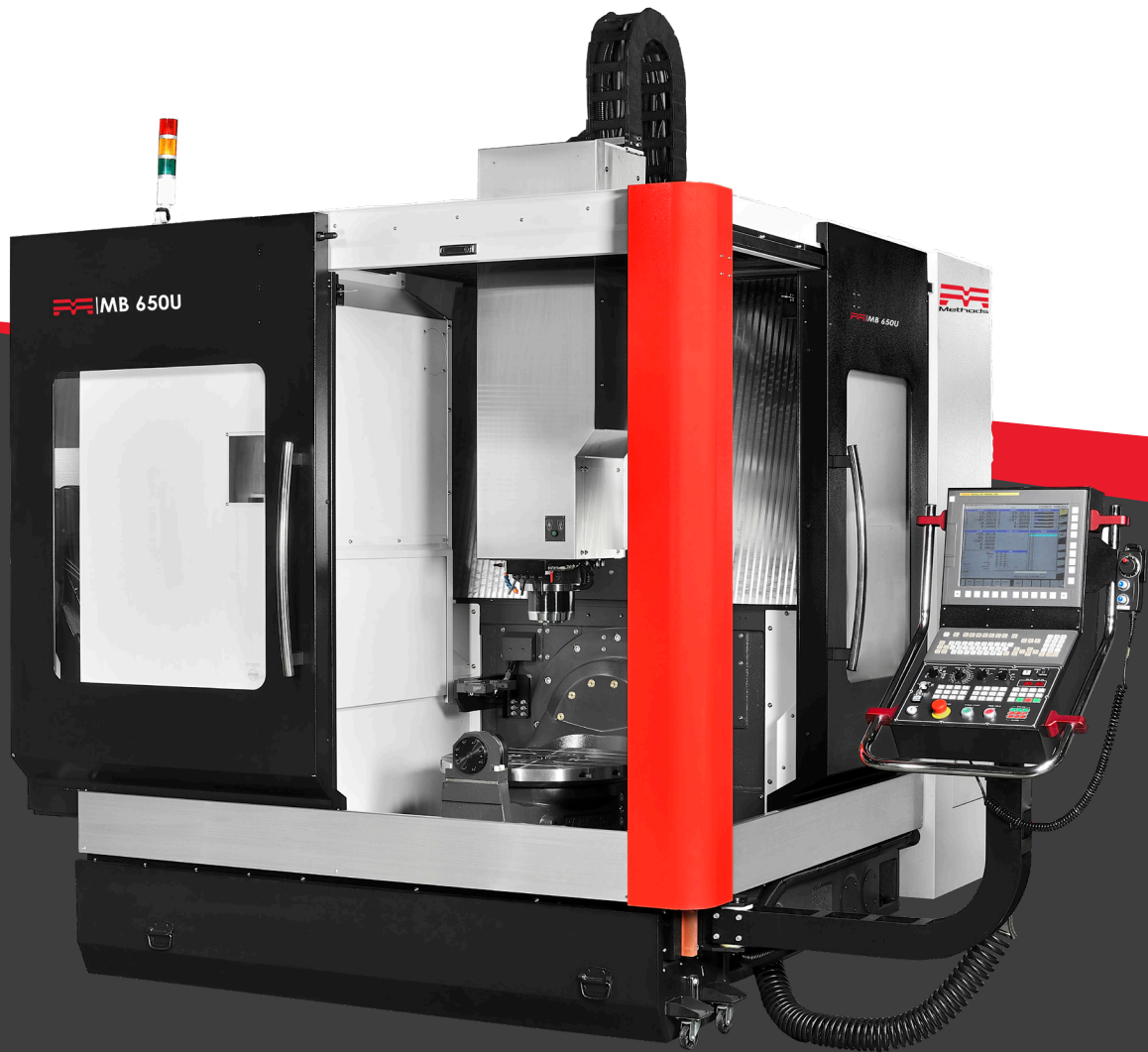




MB-U Series

5-Axis Machining Centers





Designed for productivity and efficiency.

Methods Brand 5-Axis Bridge Type Machining Centers are made to Methods design and quality standards by Litz Hitech Corp., a well-established, quality machine tool builder and are fully backed by Methods industry leading technical service and parts support. Methods Machining Centers are affordable, mid-range, best-in-class products providing durability, accuracy and long term reliability. They are built ready to ship and hit the floor ready to run. Prepackaged with industry leading inspection hardware and software advanced 5-Axis software from FANUC.

Key Features

Machine Structure Features 21 Precision Hand Scraped Joints for increased structural rigidity, maximum stiffness, and optimum cutting performance. Proper hand scraping techniques improve the overall machine geometry, and minimizes the amount of electronic compensation required on the machine.

Rugged Bridge Type Construction designed for fast, accurate, complex 5-Axis simultaneous machining. The B/C-Axis type tilt-rotary table is designed specifically for demanding full 5-Axis applications.

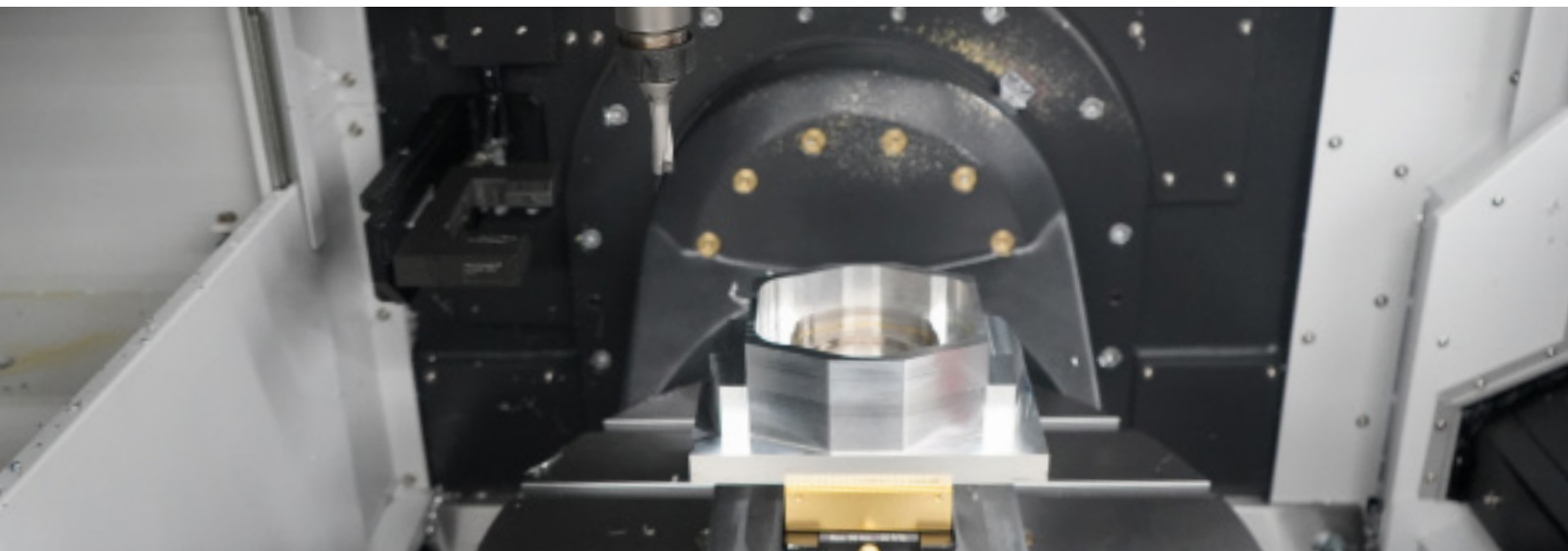
The 3D Interference Check Function is an advanced anti-collision function. This function is implemented directly into the CNC and has an extremely rapid interference check in real time.

Large Capacity 48 Tool Automatic Tool Changer provides tooling capacity for jobs that require it. The auto door keeps chips and coolant out of the tool storage area minimizing potential chip and coolant ingress.

Powerful Direct Drive 25 hp, Hollow Shaft Spindle Motor (MB 650U) allows machining of tough-to-machine materials with fine surface finishes and the ability to add Coolant Through Spindle (CTS) easily.

Standard Features

- Fanuc 31iM-B5 Simultaneous 5-Axis Control with 15" Color Display
- Includes 2GB Data Server, Manual Guide I, AICC II 600 Block Look Ahead, 1 MB of NC memory, .4ms Block Processing Time, Collision Detection (Built in 3D Interference Check), Fast Package III w/Tool Center Point control, Ethernet, USB, & PCMCIA card slot & RS232C port
- 15,000 RPM Direct Drive Spindle with Big Plus CAT40, 25HP (MB650 U) & 10HP (MB450 U)
- Hollow Shaft Spindle Motor w/1000psi (70bar) Coolant Thru Spindle Prep & Coupling
- Oil/Air Lubricated Spindle, Spindle Chiller, Spindle Air Dryer, Spindle Motor Plate Cooling, and Thermal Compensation
- Large Capacity 48 Tool Magazine, Arm Type
- Blum NT-Series Laser Tool Length Measurement System
- Blum TC-60 Spindle Probe w/ Table Center Point Calibration Ball & Kinematic Software
- X/Y/Z Rapid Travel at 36/36/36 (MB650 U) 48/48/48 M/Min (MB450 U)
- Heidenhain Linear Scales in the X/Y/Z Axes, Heidenhain Rotary Scales in the B & C Axes
- Robust Bridge Type Construction with 1.771" (45mm) Linear Roller Guide Ways in the X/Y-Axes and 1.377" (35mm) Z-Axis
- Full Circular Hydraulic Brake System for Rigid B & C Axis Clamping
- Coolant System includes Spindle Coolant Nozzels (4), Spindle Coolant Ring Nozzels (4), Chip Wash Down, and Coolant Gun
- Spindle Air Blast Nozzles (2) and Air Gun
- Chain/Hinge Type Chip Conveyor 1050MM Drop-off Ht.
- Full Enclosure with Bellows Type Roof with a Manual-Retractable Top Door
- Automatic Grease Lubrication System
- Remote manual pulse generator (MPG) hand-wheel
- Dust Tight Electrical Cabinet with Heat Exchanger
- Methods Safety Spec (CE Mark Modified)
- Machine Operating Manual & Control Manual (CD)
- Interior Work Lights
- 3 Color Signal Light
- Tool Kit

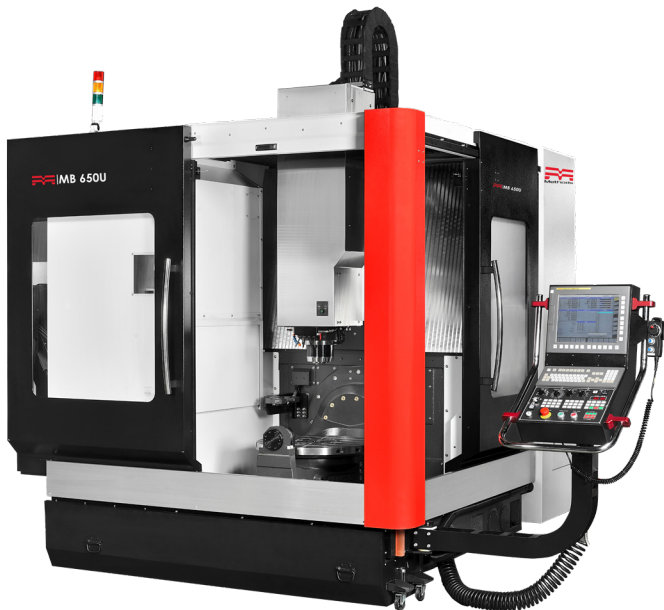


The Machines

The All-New Methods MB 650U and MB 450U Simultaneous 5-Axis Bridge Type Machining Centers are engineered & built to strict Methods specifications and quality standards. This new product line is packed with standard features and benefits that will exceed the expectations of our customers looking for quality, reliability, accuracy and longevity at a competitive price.

- The MB 450U and MB 650U were designed with job shops in mind who are looking for a machine to provide the accuracy and reliability that shops need.
- The powerful direct drive hollow shaft spindle motor allows manufacturers to power through hard to cut materials without slowing rapid travel
- The bridge style design allows for additional rigidity to help produce accurate parts throughout the day

MB 650U



MB 450U





Feature	Unit	MB 450U	MB 650U
TRAVEL			
X/Y-Axis	in (mm)	X - 15.7 (400) Y - 13.8 (350)	X - 24.4 (620) Y - 20.47 (520)
Z-Axis	in (mm)	13.8 (350)	18.1 (460)
B-Axis Tilting	°	-50 ~ +110	-50 ~ +110
C-Axis Rotation	°	360	360
TABLE			
Table Size (Diameter)	in (mm)	17.72 (450)	25.59 (650)
Max. Table Load	lbs (kg)	441 (200)	661 (300)
Number of T-Slots	qty	5	5
T-Slot Width	in (mm)	.708 (18)	.708 (18)
SPINDLE			
Spindle Speed	rpm	15,000	15,000
Spindle Type	Dual Contact	BIG-PLUS CAT 40 Taper	BIG-PLUS CAT 40 Taper
Spindle Power	hp (kW) Cont. hp (kW) 30 min hp (kW) 15 min	20 (15) 25 (18.5) 25 (18.5)	20 (15) 25 (18.5) 25 (18.5)
Spindle Torque	ft-lb (nm) Cont. ft-lb (nm) 30 min ft-lb (nm) 15 min	70.4 (95.5) 86.9 (117.8) 106 (143.7)	70.4 (95.5) 86.9 (117.8) 106 (143.7)
Spindle Cooling	-	Chiller	Chiller
AUTOMATIC TOOL CHANGER			
Maximum Number of Tools	-	48	48
Maximum Tool Weight	lbs (kg)	15.4 (7)	15.4 (7)
Maximum Tool Length	in (mm)	9.84 (250)	9.84 (250)
GENERAL			
Floor Space	in (mm)	141 x 123 (3,578 x 3,112)	141 x 123 (3,578 x 3,112)
Weight	lbs (kg)	13,250 (6,000)	13,250 (6,000)
Height	in (mm)	119 (3,013)	119 (3,013)

Key Design Features

Machine structure features
21 precision hand
scraped joints

Powerful 25 hp direct drive
hollow shaft spindle motor
w/1000 psi CTS prep

Chiller cooled spindle
motor plate minimizes
heat migration

Thermal compensation
utilizes (5) thermo-couples
for actual temperature
feedback

Robust 1.771" (45 mm)
roller guideways in the X
and Y-Axis and 1.377"
(35 mm) Roller guideways
the Z-Axis. All axes feature
1417 ipm (36 mm)
rapid rate.

15,000 rpm Big Plus/
CAT40 Spindle with Oil-Air
Lubrication

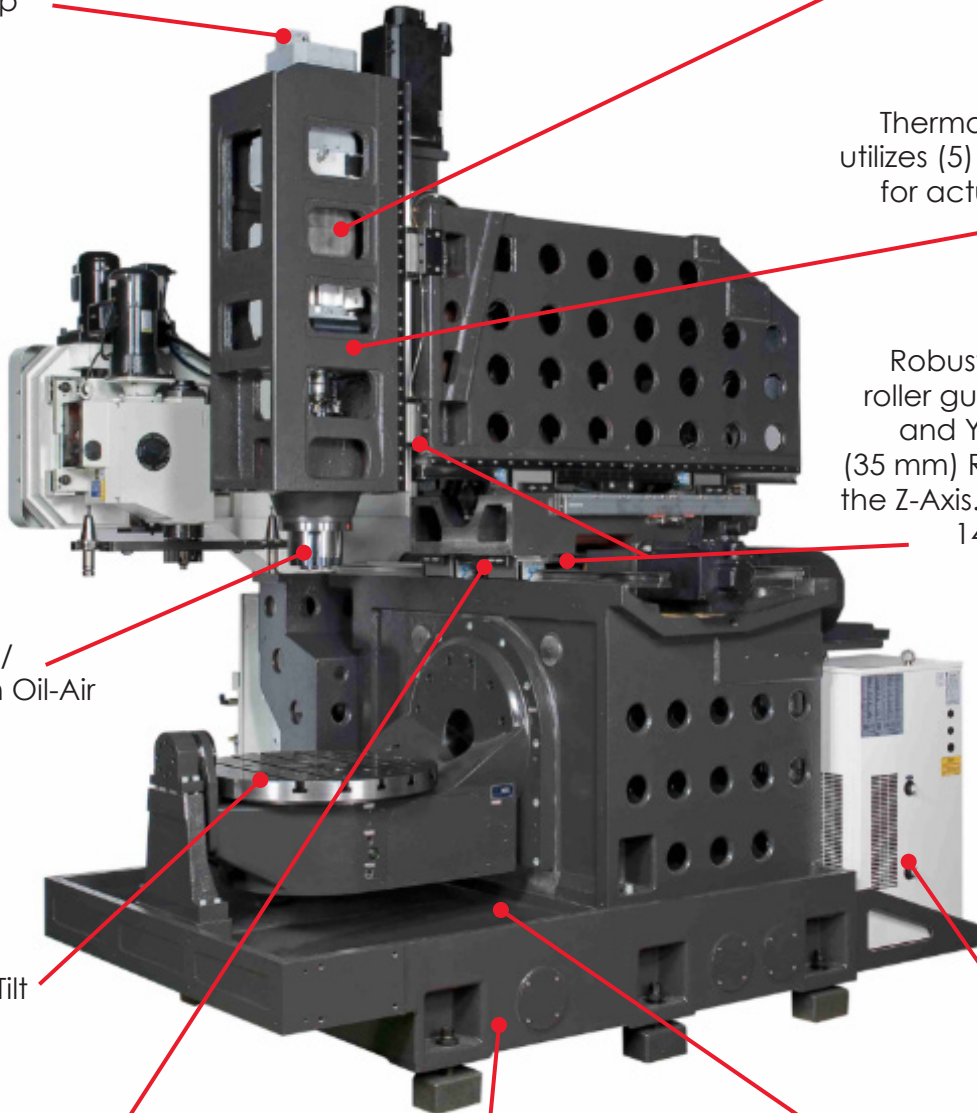
Durable B/C Type Tilt
Rotary Table

Auto grease lubrication
system for all axes

Spindle/Head
Cooling System

Includes chip conveyor,
coolant wash down, and
coolant flush gun

Machine design qualified
using FEA (Finite Element
Analysis) techniques to
provide superior machining
performance. All castings
are MEEHANITE certified



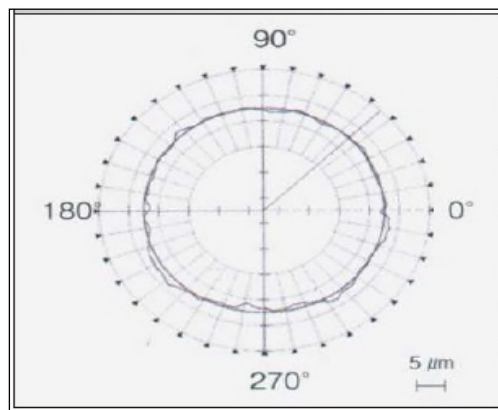
In Compliance with Quality Assurance Procedures and Standards

- Strict quality standards require that all manufacturing and inspection equipment is calibrated, monitored and controlled using recognized and traceable systems and methods

All MB Machines are fully Lasered and Ballbared

- Laser interferometer and Ballbar measurement systems assess, monitors and can help to improve the static and dynamic performance of the machine
- Ballbar testing provides an important, rapid check of a CNC machine tools positioning performance accuracy as it relates to circularity and circular deviation positioning accuracy. This test is recognized by international standards such as ISO 230-4 and ANSI/ASME B5.54

A Dynamic High-Accuracy, High Performance 5-Axis Simultaneous Cutting Test is performed on each MB 650U machine according to the NAS979 standard ensuring that every machine meets and/or exceeds strict performance and quality specifications. Roundness Value Tested .0003" (8 μ).



Cutting conditions:	
Cutting Object (JIS)	A7075 (alu. Alloy)
Tool	Ultra-hard End-mill Tool - Ø 40mm (double- edge Tool)
Spindle Speed	2000 rpm
Milling Speed	2000 mm/min
Workpiece Dimensions	Ø216mm x Ø250mm x 63.5mm (H)

FANUC Control Specifications



15" Color Display

Custom macro B
Ethernet 100Mbps
USB, RS23C, PMCIA ports

5 Simultaneously
controlled axes

AICC II 600 block
look ahead
3D Interference Check
.4ms Block Processing Time
200 tool offsets
Skip Function
High Speed Skip Function

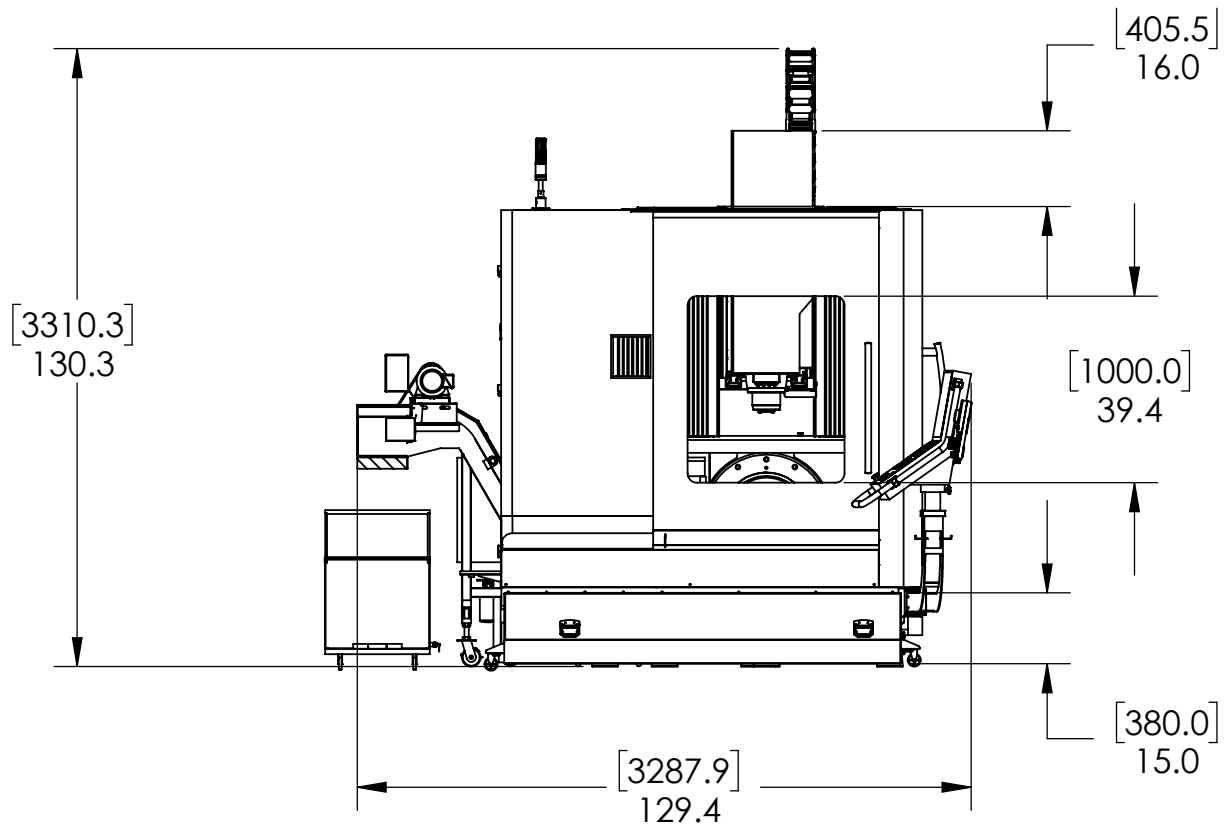
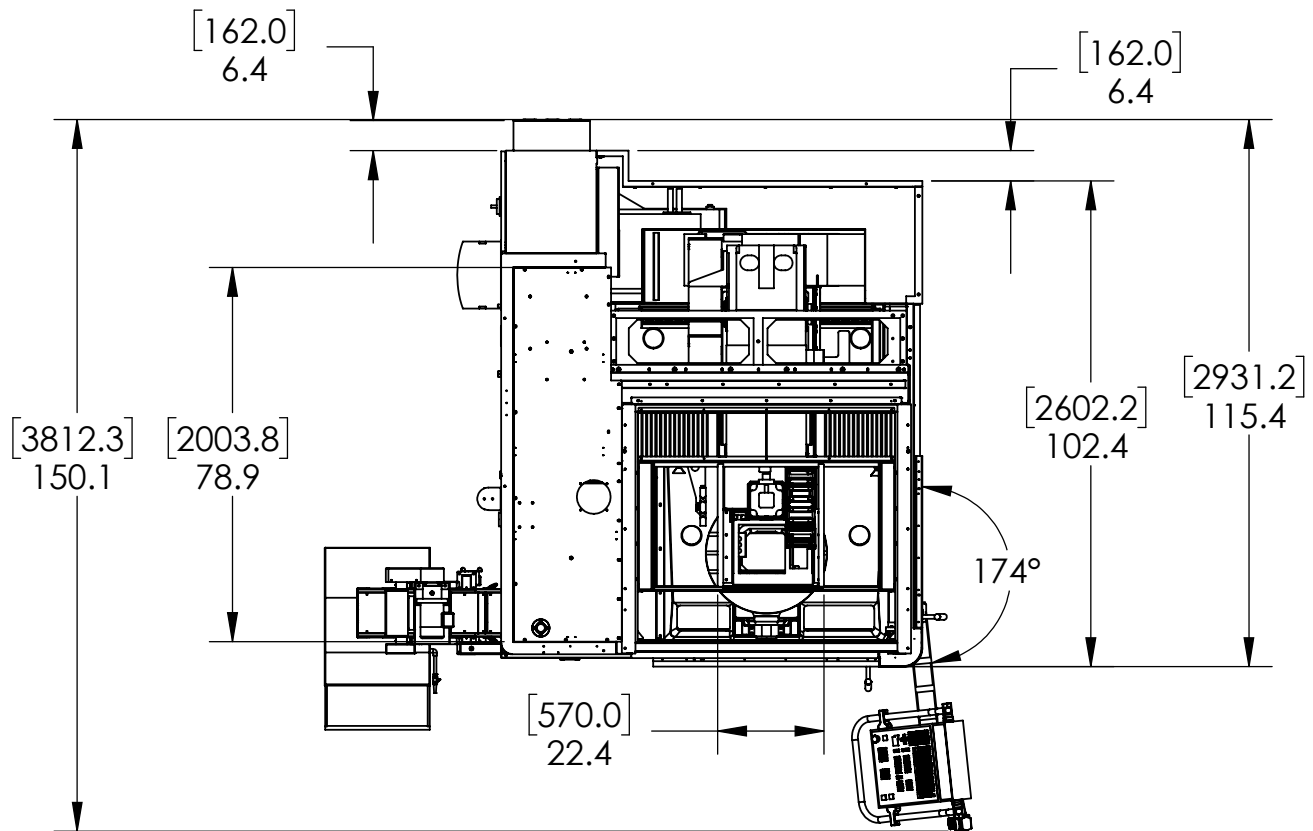
Circular interpolation
Helical interpolation
Skip Function
High Speed Skip Function

2GB Data server
1Mbyte program storage

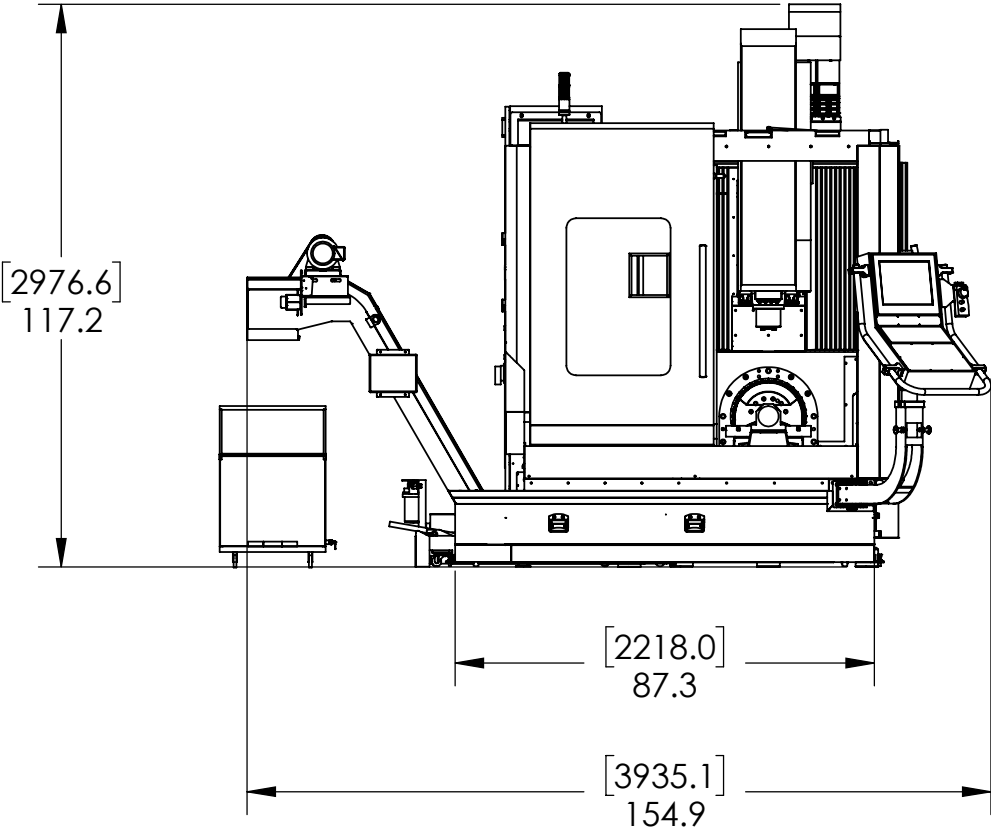
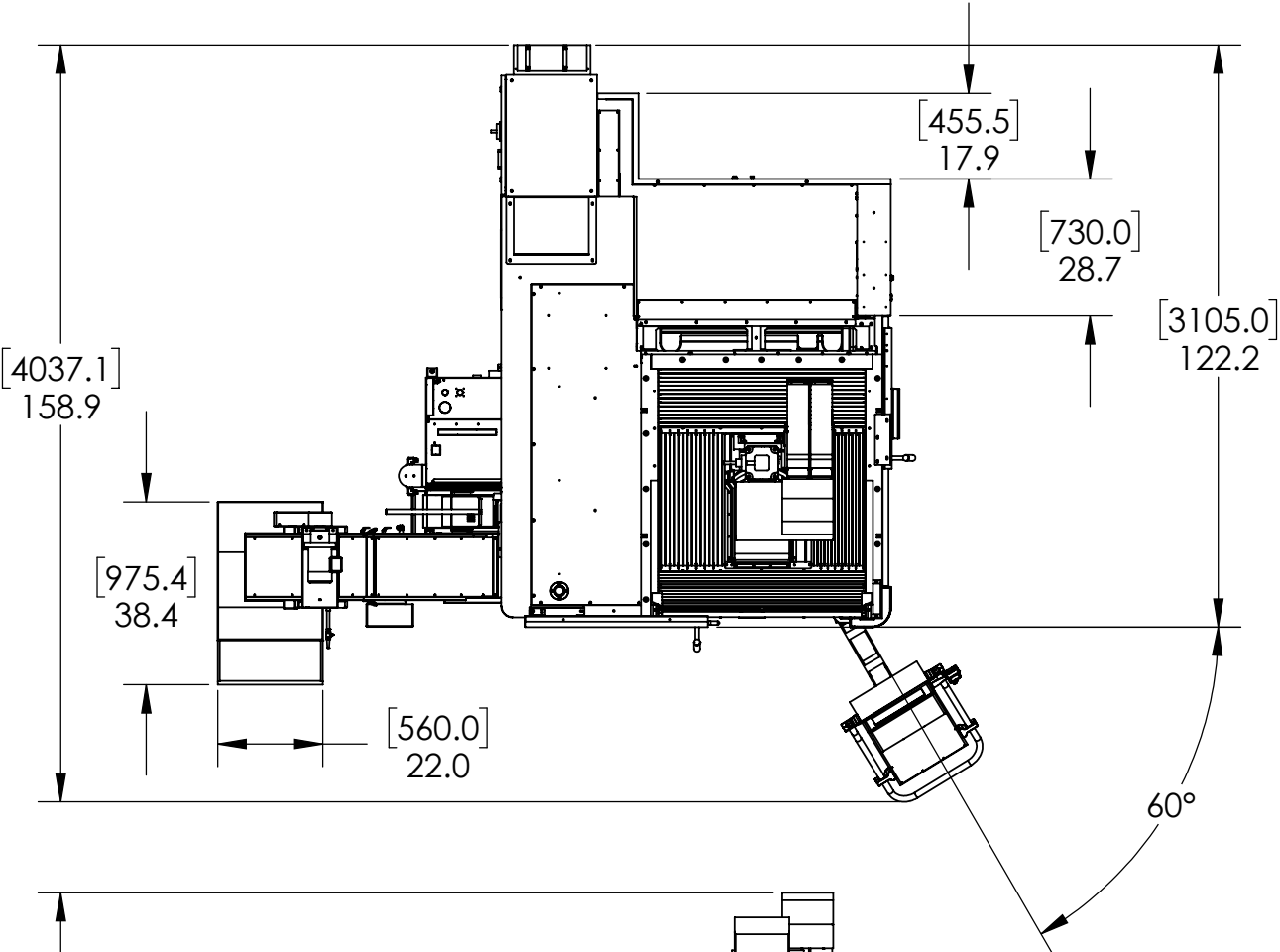
5 Simultaneously
controlled axes

Tool length compensation
Cutter compensation C
Coordinate system rotation

MB 650U Dimensional Drawings



MB 450U Dimensional Drawings



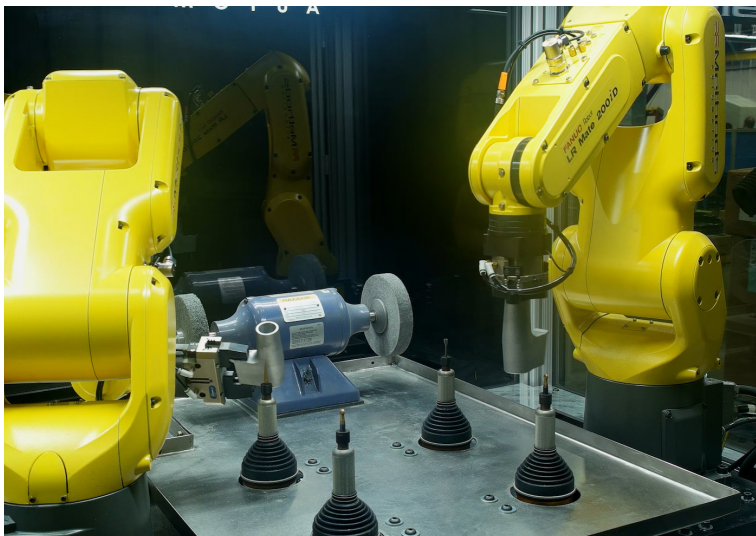
Parts

Methods is a one stop supplier with the expertise and inventory to keep business running 24/7. The parts distribution center is 16,000 square feet and has a dedicated team of employees for parts and tooling across the United States. The company has one of the largest parts inventories in North America and maintains \$35 million within their spare parts department.



Service

To make sure every problem finds a quick solution, Methods has developed an 'umbrella' of support services. Methods sales and support centers work with an extensive national network of distributors and EDM dealers to offer the technology solutions demanded by machine shop owners. The unique blend of seasoned engineers and young talent and a 15 year average level of experience guarantees the service department's high level of customer satisfaction.



Automation

Automated processing offers the highest potential for increased productivity. Methods automation department has automation engineers nationwide and provides highly innovative machine tool automation solutions. Methods automation group includes design engineers, control engineers, fluid engineers, integration/assembly engineers, field service/installation engineers, electrical/mechanical engineers and machinists.

METHODS

MACHINE TOOLS



Achieve More with Methods

Founded in 1958, with three employees and a few refurbished machines, Methods Machine Tools, Inc. has grown into one of the largest, most innovative precision machine tools importers in North America. With over 300 employees, eight sales and technology centers, and over 40,000 machines installed throughout the United States, Canada and Mexico, Methods supplies leading-edge precision machine tools and solutions. The founder Mr. Clement McIver, Sr., established principles from the company's beginning that continue to set Methods apart from conventional importers or distributors. "Anyone can sell a machine," said the company's late founder, "but not everyone provides the extra effort that makes a difference in the company's bottom line."

Showrooms and Technical Centers

Boston ■ Charlotte ■ Chicago ■ Detroit
Los Angeles ■ Memphis ■ Phoenix ■ San Francisco

 **Methods**
877.668.4262 | methodsmachine.com