Methods

The all new Methods MV 800H & MV 1000H Performance Machining Centers

Designed for productivity and efficiency

Methods Brand 3-Axis Vertical Machining Centers are made to Methods' design and engineering standards by Litz Hitech Corp., a reputable, well-established, quality machine tool builder and are fully backed by Methods industry-leading technical service and parts support. Method Machining Centers are affordable, mid-range, best-in-class products providing durability, accuracy and long term reliability.

Key Design Features

Machine structure features
19 precision hand
scraped joints

Powerful 30hp direct drive
hollow shaft spindle motor
w/1000 psi CTS prep

Chiller cooled spindle
motor plate minimizes
heat migration

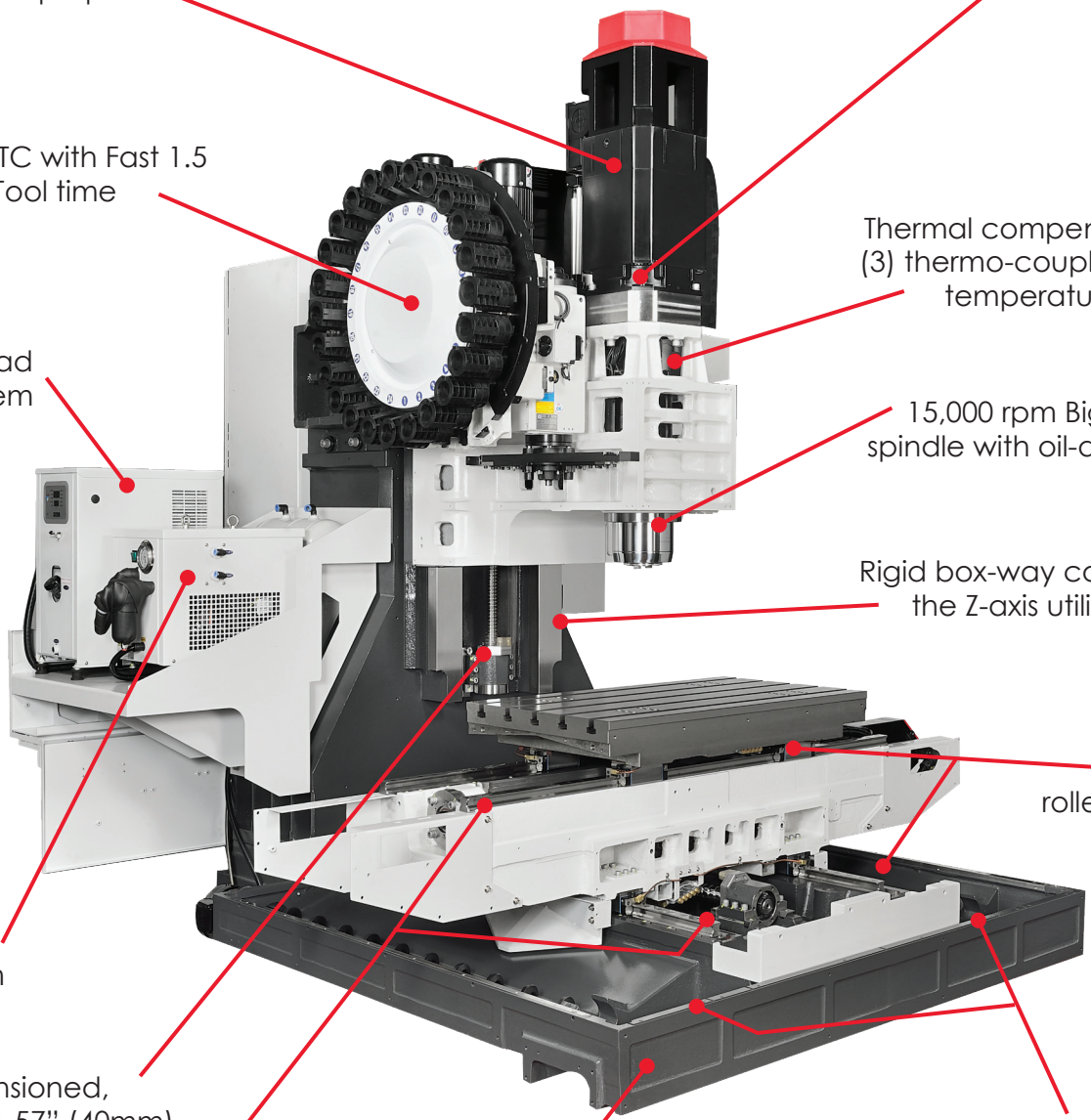
24/30 Tool ATC with Fast 1.5
sec. Tool to Tool time

Thermal compenation utilizes
(3) thermo-couples for actual
temperature feedback

Spindle / head
cooling system

15,000 rpm Big Plus/CAT40
spindle with oil-air lubrication

Rigid box-way construction in
the Z-axis utilizing turcite B



Robust
roller guideways

Spindle air
Dryer System

Fixed pre-tensioned,
double-nut 1.57" (40mm)
ball-screw in X/Y/Z axis

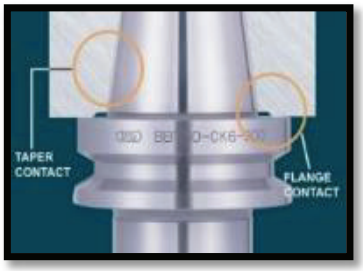
Includes dual ship screws,
chip conveyor, coolant
wash down, and coolant
flush gun

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

Auto oil lubrication
system for all axes

FANUC 0*i*MF with 10.4" LCD Screen is the Industry Benchmark for Quality and Reliability. We are not FANUC compatible, we are FANUC. Functions include Manual Guide i, AICC II, 2.0ms Block Processing Time (BPT) and 200 Block Look Ahead, Ethernet 100Mbps, USB, PCMCIA, RS232C. This package is well suited for industries such as medical, aerospace, automotive and job shops. The Pendent mounted control can be rotated up to 77 degrees for ease of use. The remote MPG hand-wheel allows for easy workpiece set-up.

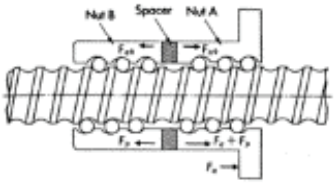
15,000 rpm Big Plus/CAT40 Taper Spindle with oil-air lubrication and spindle chiller provides power, speed, stiffness, required for the most adverse machining applications while providing long spindle life, thermal stability and overall machining accuracy.



Powerful Direct Drive 30hp, Hollow Shaft Spindle Motor allows machining of tough-to-machine materials with fine surface finishes and the ability to add Coolant Through Spindle (CTS) easily. A standard spindle chiller and cooled spindle motor plate minimizes heat migration from the spindle motor to the headframe for added thermal stability.

BIG-PLUS Dual Contact Spindle provides a stiffer interface between both the spindle surface and tool holder flange surface, & spindle taper and tool holder taper. This design provides higher rigidity, stiffness, longer tool life, and improved accuracy when performing high-speed and difficult to machine applications when compared to traditional 40 Taper Tooling. Tool retention force is a Superior 2,205lbf (1000kgf).

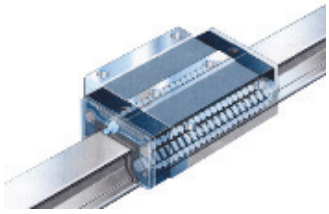
CAM Type Automatic Tool Changer provides fast, reliable 1.5 sec. Tool to Tool Time and includes both Heavy Tool & Big Tool Functions. This designed incorporates an invertor type cam-box-motor for easy ATC recovery in the event of a mishap. ATC capacity is 24 Tools on the MV 800H & 30 Tools on the MV 1000H.



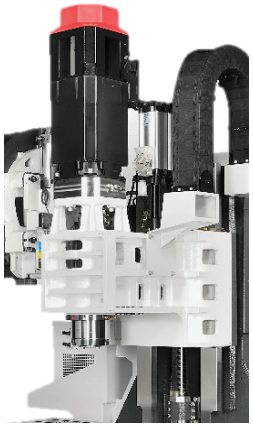
Fixed, Pre-Tensioned 1.57" (40mm) Double-Nut Ball-Screws are featured in the X, Y & Z-axis. This design minimizes thermal growth, enhances rigidity, stability, and precision of the machine. The X & Y-Axis feature an impressive 2,362 ipm (60 m/min) rapid rate reducing non-cutting time.

Features & Benefits

Robust 1.378" (35mm) LR Type Roller Guideways in the X & Y-axis utilize cylindrical rollers with greater contact area and vibration-damping characteristics that provide improved rigidity, cutting performance, surface finish and longer overall service life when compared to LM Ball Type Guideways.

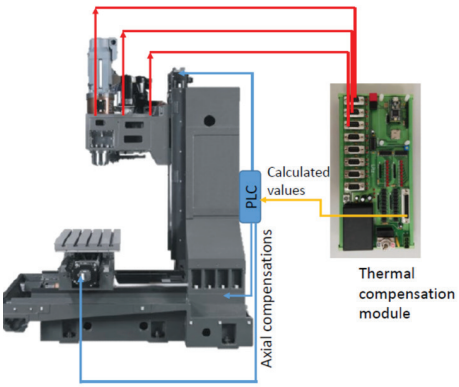


Rigid Box-Way Construction in the Z-Axis Utilizing Turcite B. Turcite B was specifically developed for the Machine Tool Industry providing superior rigidity, low friction coefficient, reduced vibration, and superior damping characteristics without stick-slip. This design ensures both cutting performance and machining accuracy. In addition Turcite B also has a very high wear resistance extending the life of the product. Distance between box ways is 14.6" (370mm). All castings are MEEHANITE certificated.

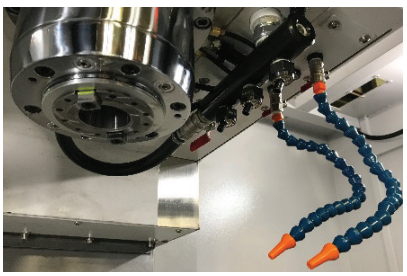


Machine Structure Features 19 Precision Hand Scraped Joints for increased structural rigidity, maximum stiffness, and optimum cutting performance. Proper hand scraping techniques improve the overall machine geometry, and minimizes the amount of electronic compensation required on the machine. For example, ball-screw bearing housings can be aligned to closer tolerances, improving all axes laser interferometry results and minimizing required electronic compensation. Proper scraping improves all axes straightness, squareness and tram, also limiting the effects of roll, pitch and yaw.

Thermal compensation utilizes (3) Thermo-Couples for actual temperature feedback. This feedback then allows the proprietary software to accurately compensate for thermal growth, greatly minimizing the impact of overall thermal movement. Thermal compensation combined with spindle chiller, chilled motor plate, oil-air lubrication, and fixed, pre-tensioned double-nut ball-screws proved a thermally stable machine.

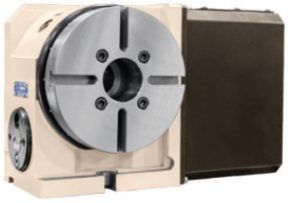


Efficient Chip and Coolant Management featuring Spindle Coolant Ring (4-ports on the spindle face) Spindle Flushing (3-adjustable ports right side of spindle) Spindle Air Blast (2-lock lines right side of spindle) Coolant Wash Down System (base chip wash-down), Coolant Wash-down Gun, Dual Chip Screws, and Hinge Type Chip Conveyor (41.34" (1050mm) drop height), provides efficient chip and coolant evacuation and management.



Standard Features

- Fanuc 0i-MF Control, 10.4'' LCD, MGI, AICC II, 2.0ms BPT, 200 block look ahead Ethernet 100Mbps, USB, PCMCIA, RS232C
- 15,000RPM, Oil-Air Lubricated Spindle
- Big Plus/CAT40 Taper
- aT15 Direct Drive, 30HP (15min), Hollow Shaft Spindle Motor
- Spindle Oil Chiller and Spindle Air Dryer
- Thermal Compensation
- 24/30 Tool (800/1000) Dual Swing Arm ATC
- 1280 meters of memory, Custom macro B, 400 tool offsets, Helical Interpolation, Rigid tapping, Auto power off
- Remote manual pulse generator (MPG) hand-wheel
- Extra set of 8 M-functions
- Chain/Hinge Type Chip Conveyor 1050MM Drop-off Ht.
- Dual chip augers
- Prepped for 1000psi (70bar) coolant through spindle (does not include pump)
- Pre-wired for 4th axis (does not include drives, or motors)
- Double anchor pretensioned ballscrews
- Z-Axis Box Way with Turcite B
- X, Y-Axis Linear Roller Guides
- X/Y/Z Rapid Travel at 2362/2362/1181 In/Min (60/60/30 M/Min)
- Automatic oil lubrication system
- Fully enclosed splash guard
- Dust-proof electrical cabinet with Heat Exchanger
- Coolant System incudes Spindle coolant nozzles (3), Spindle coolant ring nozzles (4), Spindle air blast nozzles (2), Coolant chip flush wash down, and Coolant flush gun
- Bright interior work lights
- 3-color signal light
- Air Gun
- Tool Kit
- Methods Safety Spec (CE Mark Modified)
- Machine Operating Manual & Control Manual (CD)
- 2-Year Machine and Control Warranty



Options

- Heidenhain Linear Scales in X/Y/Z axis*
- Tool and Part Probe Measurement
- High Pressure Coolant Through Spindle (up to 1000psi)
- MIDACO Pallet Changers
- 4th Axis Rotary Tables
- CT to BT Arm
- Oil/Coolant Separator
- Filter Mist Collector
- Electrical Cabinet Air Conditioner*
- Transformer

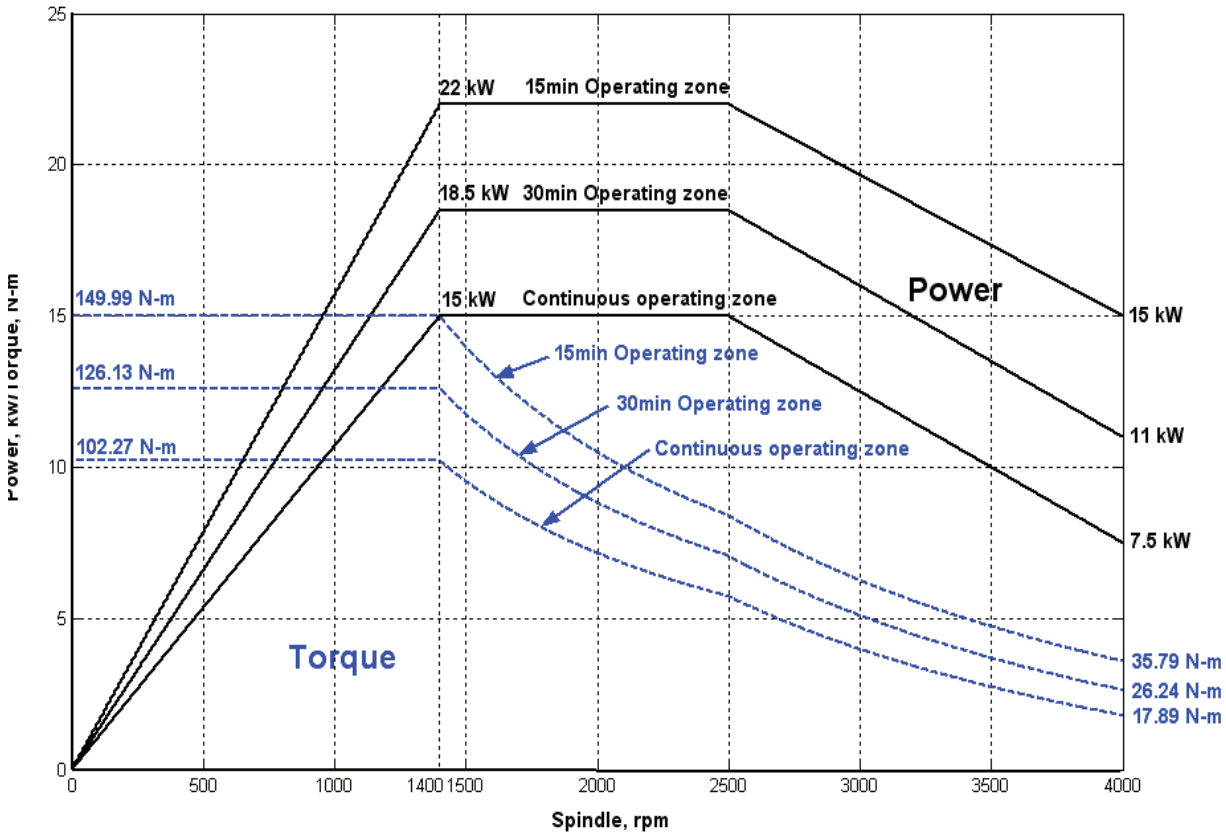
Specifications

FEATURES	UNIT	MV 800H	MV 1000H
X/Y-Axis Roller Guideways			
X/Y-Axis Travel	inches (mm)	x - 31.50 (800) y - 20.47 (520)	x - 39.40 (1000) y - 20.47 (520)
X/Y-Axis Rapid Traverse	in/min (m/min)	2,362 (60)	
X/Y-Axis Max Cutting Speed	in/min (m/min)	1181 (30)	
X/Y-Axis LR Type Roller Guideways	inches (mm)	1.387 (35)	
X/Y-Axis Distance Between Guideways	inches (mm)	x - 11.81 (300) y - 23.60 (600)	
X/Y-Axis Encoder Resolutions	-	4 million pulse	
X/Y-Axis Motor	FANUC	a22i	
X/Y-Axis HP	HP (kW)	5.4 (4)	
X/Y-Axis Ball Screw Class	-	C3	
X/Y-Axis Ball Screw Diameter	inches (mm)	1.57 (40)	
Z-Axis Boxways			
Z-Axis Travel	inches (mm)	20.7 (525)	
Z-Axis Rapid Traverse	in/min (m/min)	1181 (30)	
Z-Axis Max Cutting Speed	in/min (m/min)	787 (20)	
Z-Axis Distance Between box ways	inches (mm)	14.6 (370)	
Z-Axis Encoder Resolution	-	4 million pulse	
Z-Axis Motor	FANUC	a22Bi	
Z-Axis HP	HP (kW)	5.4 (4)	
Z-Axis Ball Screw Class	-	C3	
Z-Axis Ball Screw Diameter	inches (mm)	1.57 (40)	
Spindle			
Spindle Speed	RPM	15,000	
Spindle Type	Dual Contact	BIG-PLUS CAT 40 Taper	
Spindle Power	HP(kW) Cont HP(kW) 30 min HP(kW) 15 min	20 (15) 25 (18.5) 30 (22)	
Spindle Torque	ft-lb (Nm) Cont ft-lb (Nm) 30 min ft-lb (Nm) 15 min	76 (102) 93 (126) 111 (150)	
Spindle Base Speed	RPM	1,400	
Spindle Lube	-	Oil / Air	
Spindle Cooling	-	Oil Chiller	
Spindle Bearings	-	70mm Ceramic Angular (6)	
Specifications subject to change without notice			

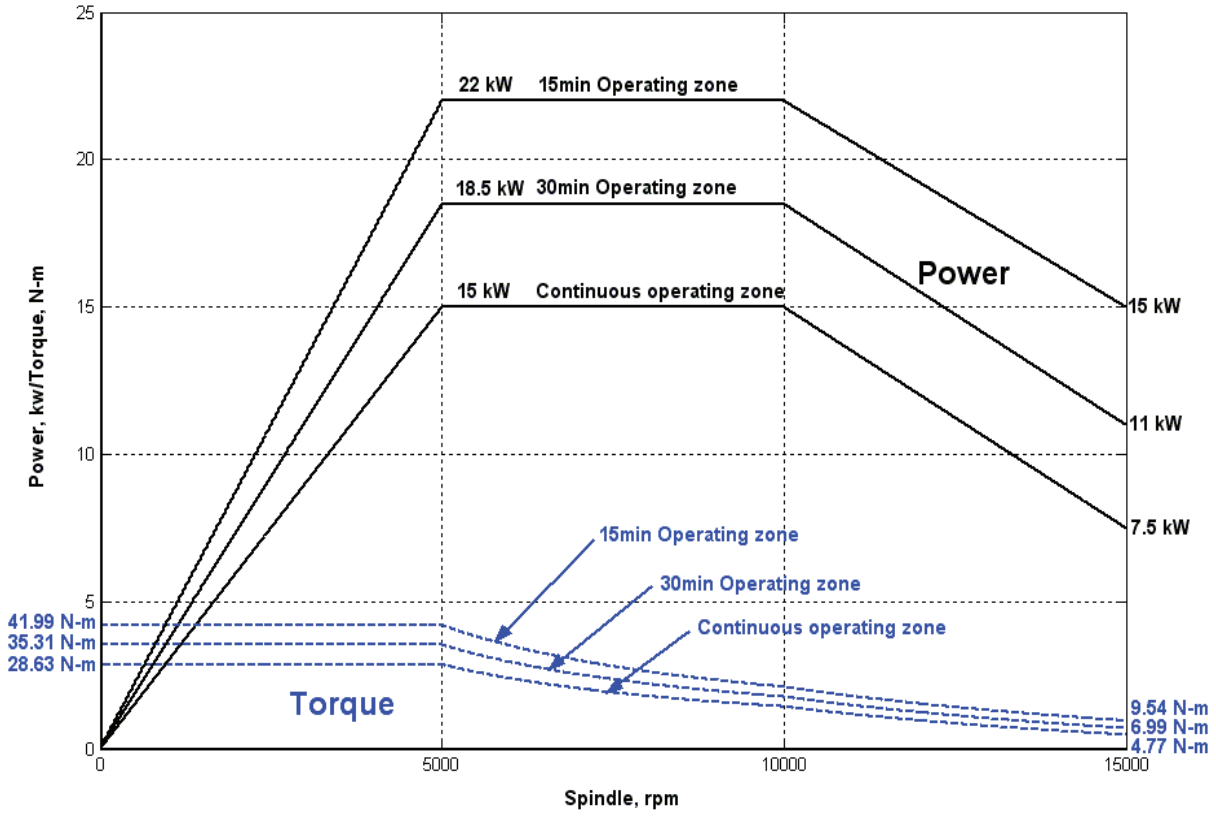
FEATURES	UNIT	MV 800H	MV 1000H
Automatic Tool Changer (Random/Bi-Directional)			
Tool Changer for Big Plus/CAT40 Tool Holders	-	Dual Swing Arm Type	
Maximum Number of Tools	-	24	30
Pull Stud	-	DIN CAT40 A Type	
Maximum Tool Weight	lbs. (kg)	15.4 (7)	
Maximum Tool Length	inches (mm)	11.8 (300)	
Maximum Tool Diameter	inches (mm)	3.1 (80)	
Maximum Tool Dia. - No AdjacentTool	inches (mm)	5.9 (150)	
Tool Changing Time - Tool to Tool	sec	1.5	
Tool Holder	-	Big Plus / CAT40	
Tool Clamp Force	lbf. (kgf)	2,205 lbf +/- 200 lbf (1000 kgf +/- 100 kgf)	
Accuracies (ISO 230-2) without scale			
X/Y Axis Positioning Accuracy	inches (um)	.00047 (12)	
X/Y Axis Repeatability Accuracy	inches (um)	.0002 (6)	
Z Axis Positioning Accuracy	inches (um)	.00059 (15)	
Z Axis Repeatability Accuracy	inches (um	.00027 (7)	
Table			
Table Dimensions	inches (mm)	37.4 x 20.5 (950 x 520)	42.2 x 20.5 (1150 x 520)
Spindle Nose to Table Surface	inches (mm)	3.94 ~ 24.6 (100 ~ 625)	
Spindle Center to Column Surface	inches (mm)	22.4 (570)	
T-Slot Width	inches (mm)	.708 (18)	
No. Of T-Slots	qty	5	
Distance between T-Slots	inches (mm)	3.937 (100)	
Maximum Load	lbs. (kg)	1,102 (500)	
Table Surface to Floor	inches (mm)	38.2 (970)	
Dimensions / Weight / Capacities / Power			
Floor Space with Chip Conveyor	inches (mm)	136.5 x 109 (3,457 x 2,768.5)	154.3 x 96.3 (3,920 x 2,445.5)
Machine Weight	lbs. (kg)	15,101 (6,850)	15,760 (7,150)
Maximum Machine Height	inches (mm)	118.01 (2,997.5)	
Coolant Tank Capacity	gal. (liters)	94 (355)	98 (370)
Coolant Motor (60hz)	HP (Kw)	.74 (.55)	
Coolant Flow (nozzle)	gpm (lm)	29 (110)	
Coolant Pressure (nozzle)	psi (Kg/cm2)	24.2 (1.7)	
Machine Power Capacity	KVA / AMP	25 / 100	
Machine Voltage & Phase	Volts / Phase	220 / 3	
Specifications subject to change without notice			

Spindle Power & Torque Diagram

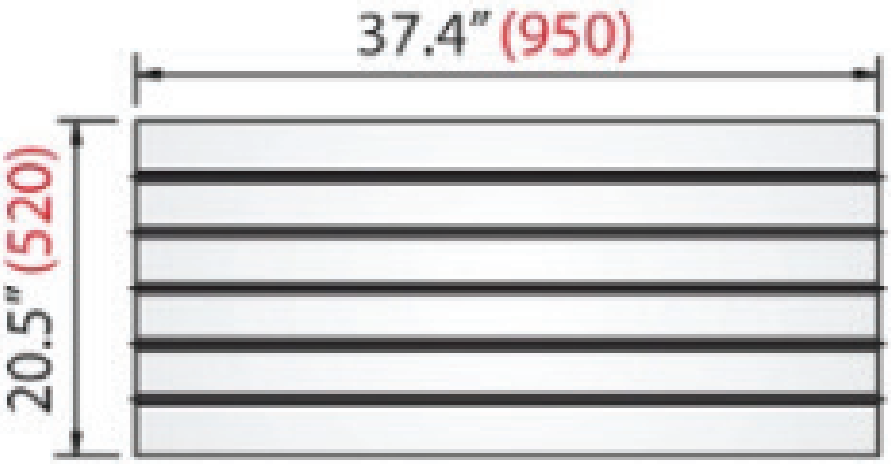
Power/Torque characteristic of FANUC αilT 15/15000 for spindle 15000rpm - Low-speed winding

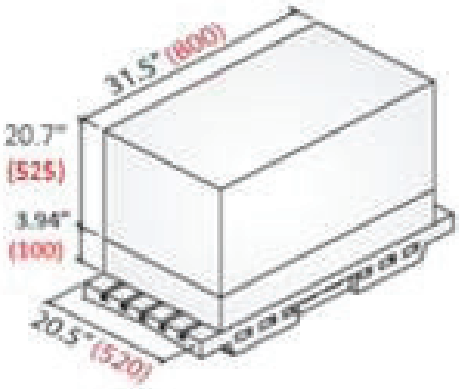


Power/Torque characteristic of FANUC αilT 15/15000 for spindle 15000rpm - High-speed winding

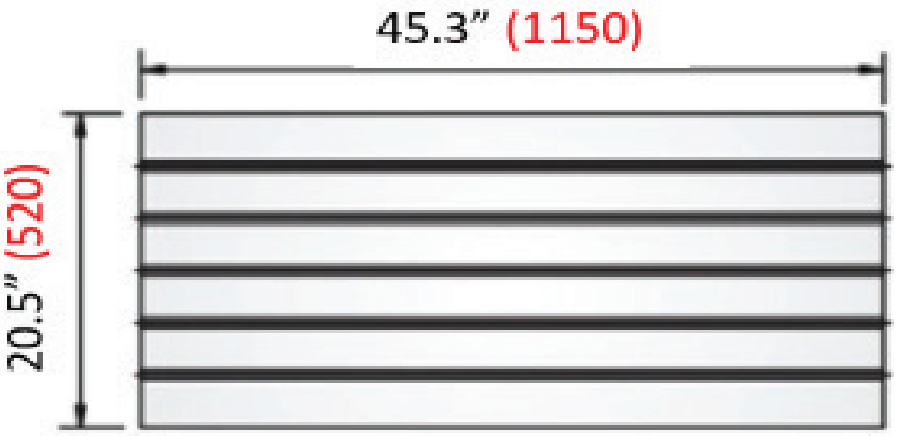


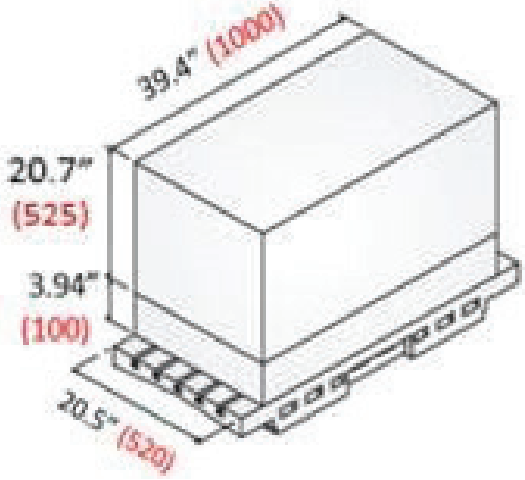
MV 800H Table

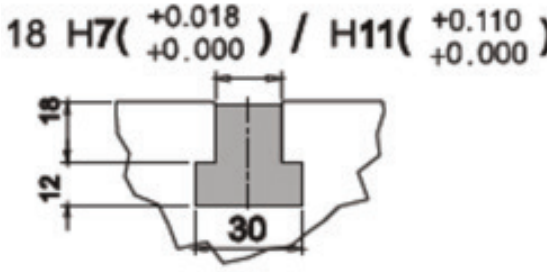




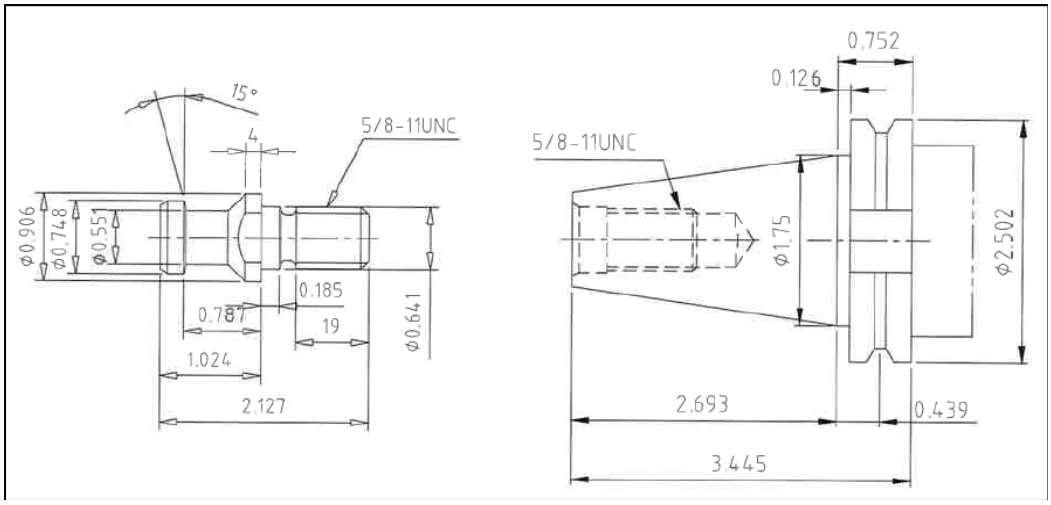
MV 1000H Table



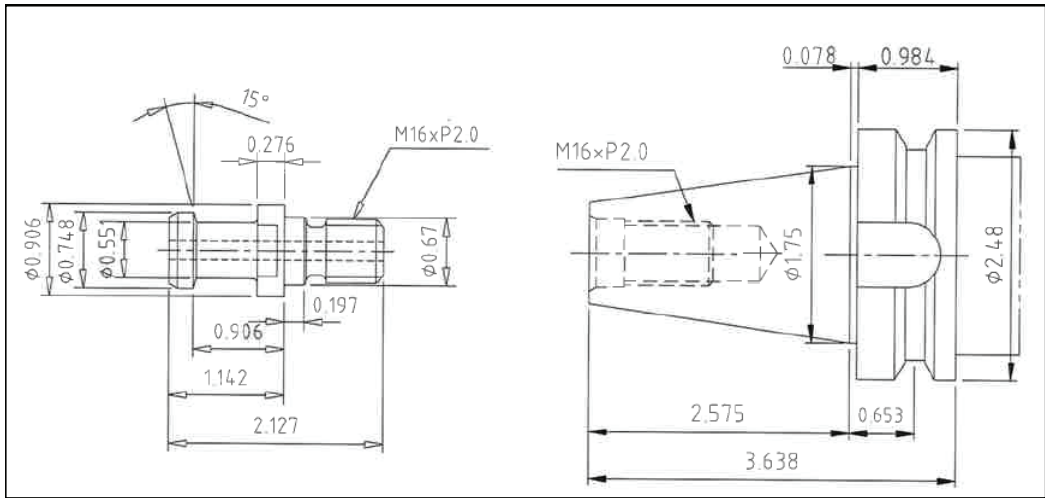


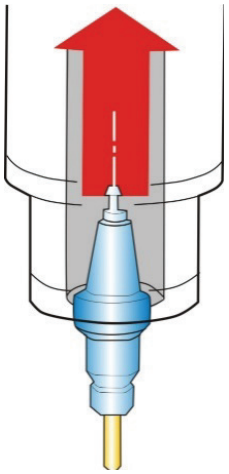


Big Plus CAT40 Tooling



Big Plus BBT40 Tooling





Tool Clamp Force

2,205lbf +/- 220lbf
(1000kgf +/- 100kgf)

In Compliance with Quality Assurance Procedures and Standards

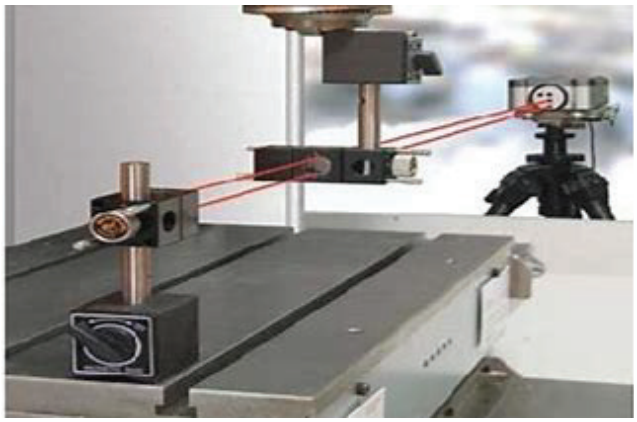
- ISO 9000 series of quality standards require that all manufacturing and inspection equipment is calibrated, monitored and controlled using recognized and traceable systems and methods

All MV 800H and MV 1000H Machines are fully Lasered and Ballbared

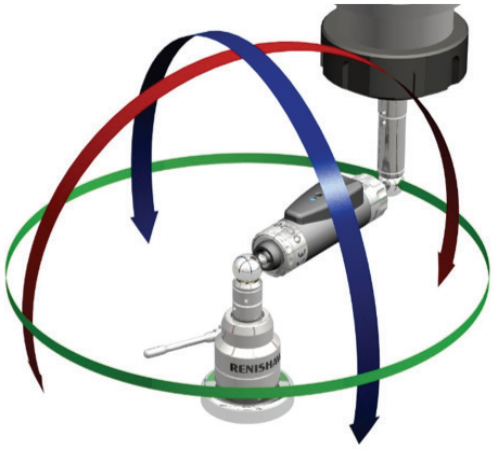
- Laser interferometer and Ballbar measurement systems assess, monitors and can help to improve the static and dynamic performance of the machine

- 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

Laser Interferometer



Ballbar

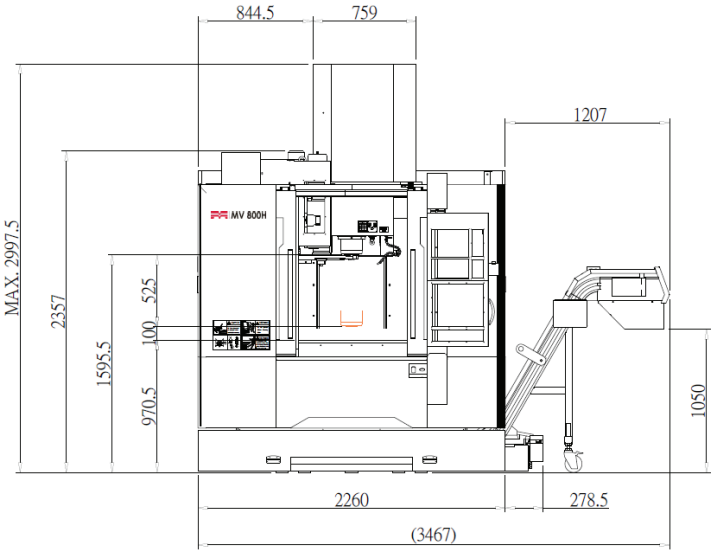


METHODS MACHINE ACCURACY - WITHOUT SCALE			
Models	**MV 800H ~ MV 2000H (Box Way Z, Linear Roller X/Y)**		
Standards	**VDI 3441**	**ISO 1079-4** **ISO 230-2**	**JIS B66338**
X/Y-Axis Positioning Accuracy	.00047" (12um)	.00047" (12um)	.0002" / 11.81" (5um / 300mm)
X/Y-Axis Repeatability Accuracy	.0002" (6um)	.0002" (6um)	± .0001" ± (3um)
Z-Axis Positioning Accuracy	.00059" (15um)	.00059" (15um)	.00022" / 11.81" (5.5um / 300mm)
Z-Axis Repeatability Accuracy	.00027" (7um)	.00027" (7um)	± .00014" ± (3.5um)

FANUC Control Specifications

- 10.4" LCD color display
- AICC 200 Block Look Ahead
- Controlled axis 4 & 4+1
- 2.0ms Block Processing Time
- 1280 meters of memory
- 400 tool offsets
- Simultaneously controlled axes: 3
- HRV 3 control
- Inch / Metric conversation
- Machine lock
- Mirror image
- Rigid tapping
- Single direction position
- Exact stop mode
- Exact stop
- Tapping mode
- Cutting mode
- Dwell
- Linear interpolation
- Circular interpolation
- Helical interpolation
- Skip Function
- High Speed Skip Function
- Reference point return
- Feed per minute
- 2nd reference point return
- Feed rate override
- Jog override
- Program No. Search
- Sequence No. Search
- Dry run
- Jog feed
- Manual reference return
- Optional block skip
- Program number
- Sequence number
- Absolute/incremental programming
- Plane selection
- Automatic coordinate setting
- Coordinate setting
- Custom macro B
- Programmable data input
- Circular interpolation by program
- Automatic corner deceleration
- Scaling
- Coordinate system rotation
- Canned cycles for drilling
- Tool compensation pairs
- Tool offset memory C
- Tool length compensation
- Cutter compensation C
- Tool life management
- Backlash compensation rapid traverse
- Stored pitch error compensation
- Tool length measurement
- Ethernet 100Mbps, USB, PCMCIA, RS232C
- Current position display
- Program display
- Self-diagnosis function
- Parameter setting display
- Run hour/part count display
- Actual Cutting feed rate display
- Operator monitor Screen
- Spindle setting screen
- Spindle information screen
- Machine alarm diagnosis
- Alarm history display
- Operator history display
- Graphic function
- Memory card interface
- Additional of custom macro variables
- Sub program call
- Extended part program editing
- Additional workpiece coordinate
- Manual Guide i
- Manual absolute on and off
- Auto power off

MV 800H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759
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MV 800H
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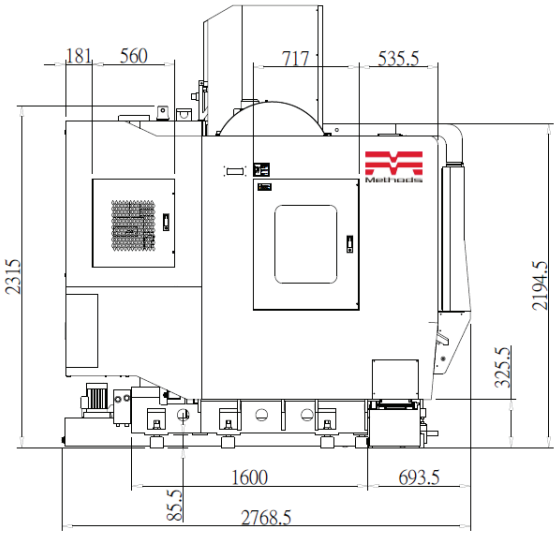
(3467)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535.5
2315
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693.5
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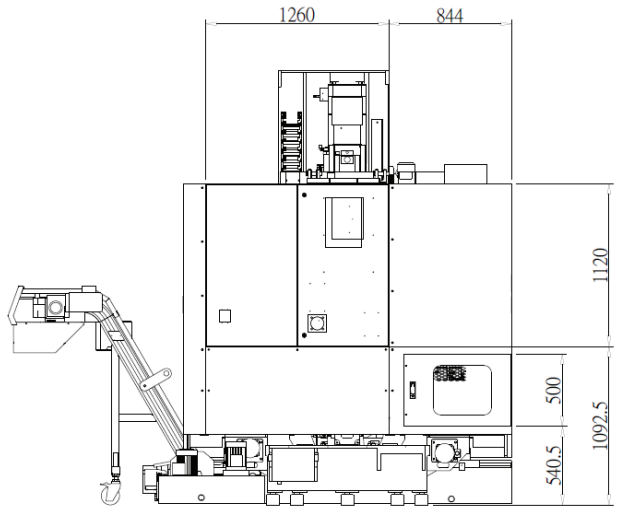
2768.5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500
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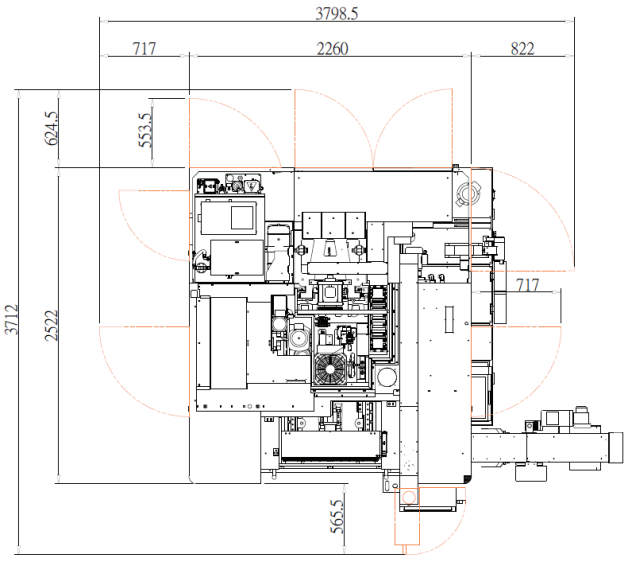
540.5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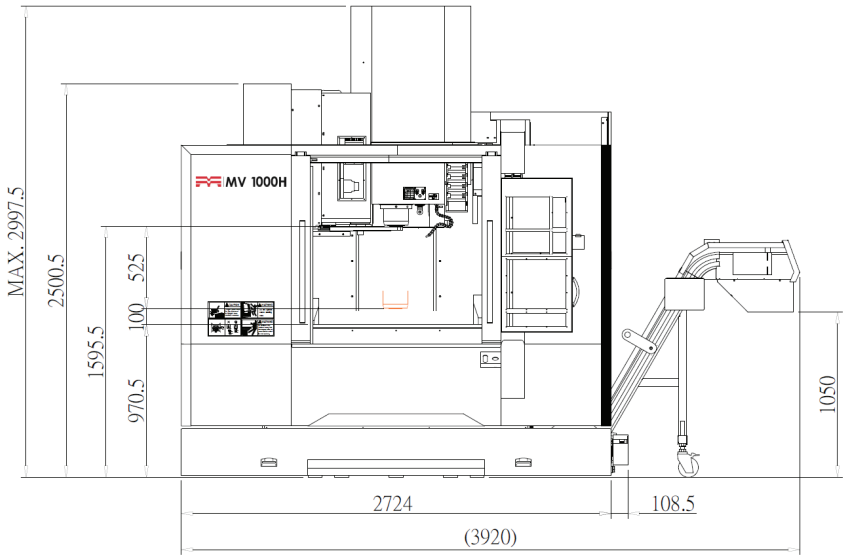
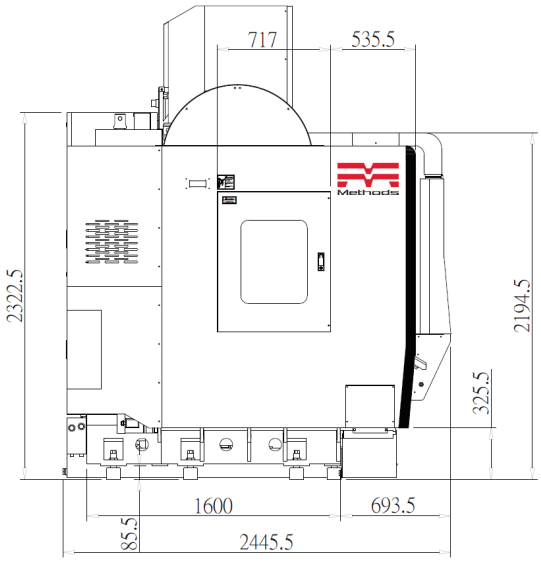
822
624.5
553.5
3712
2522
717
565.5

MV 1000H

MV 1000H


MV 1000H
MAX. 2997.5
2500.5
1595.5
970.5
525
100
1050
2724
108.5
(3920)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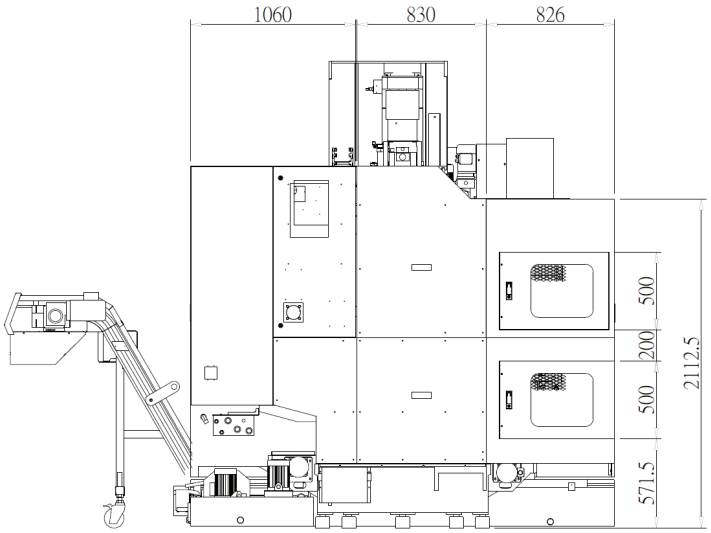
535.5
2322.5
2194.5
325.5
1600
693.5
85.5
2445.5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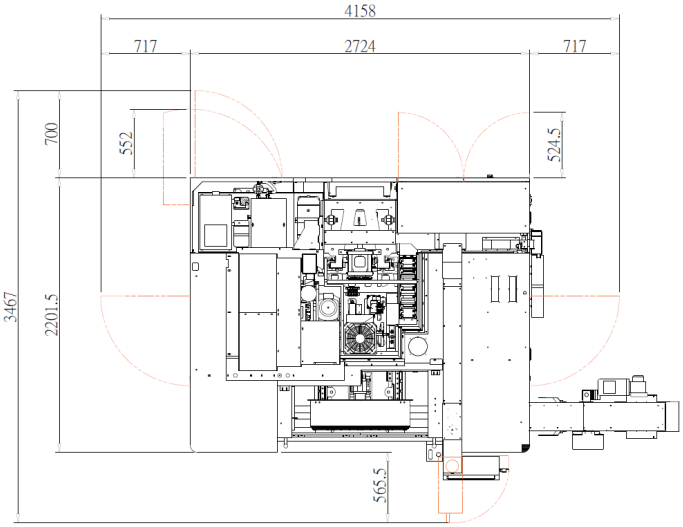
830
826
500
200
500
571.5
2112.5

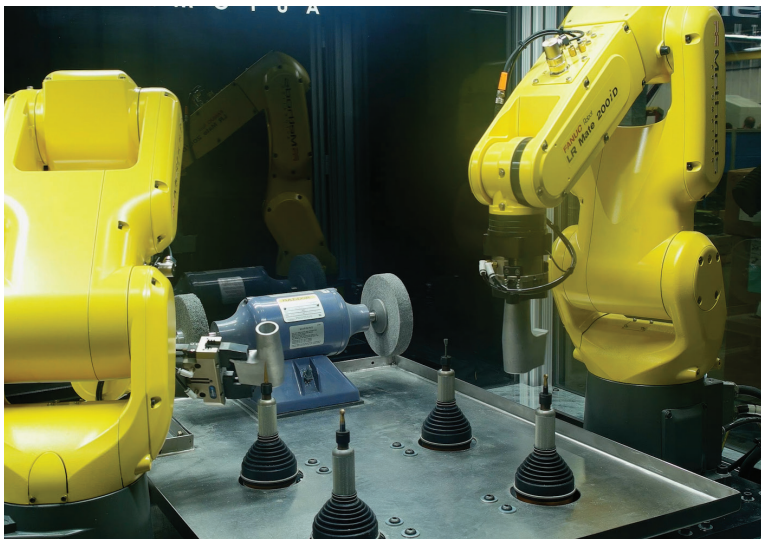

4158
717
2724
717
700
552
524.5
3467
2201.5
565.5

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 23 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 more than 30 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.

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 35,000 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