



MMH<sup>®</sup> 500



Horizontal Machining Center



# MMH<sup>®</sup> 500 – Horizontal Machining Centers

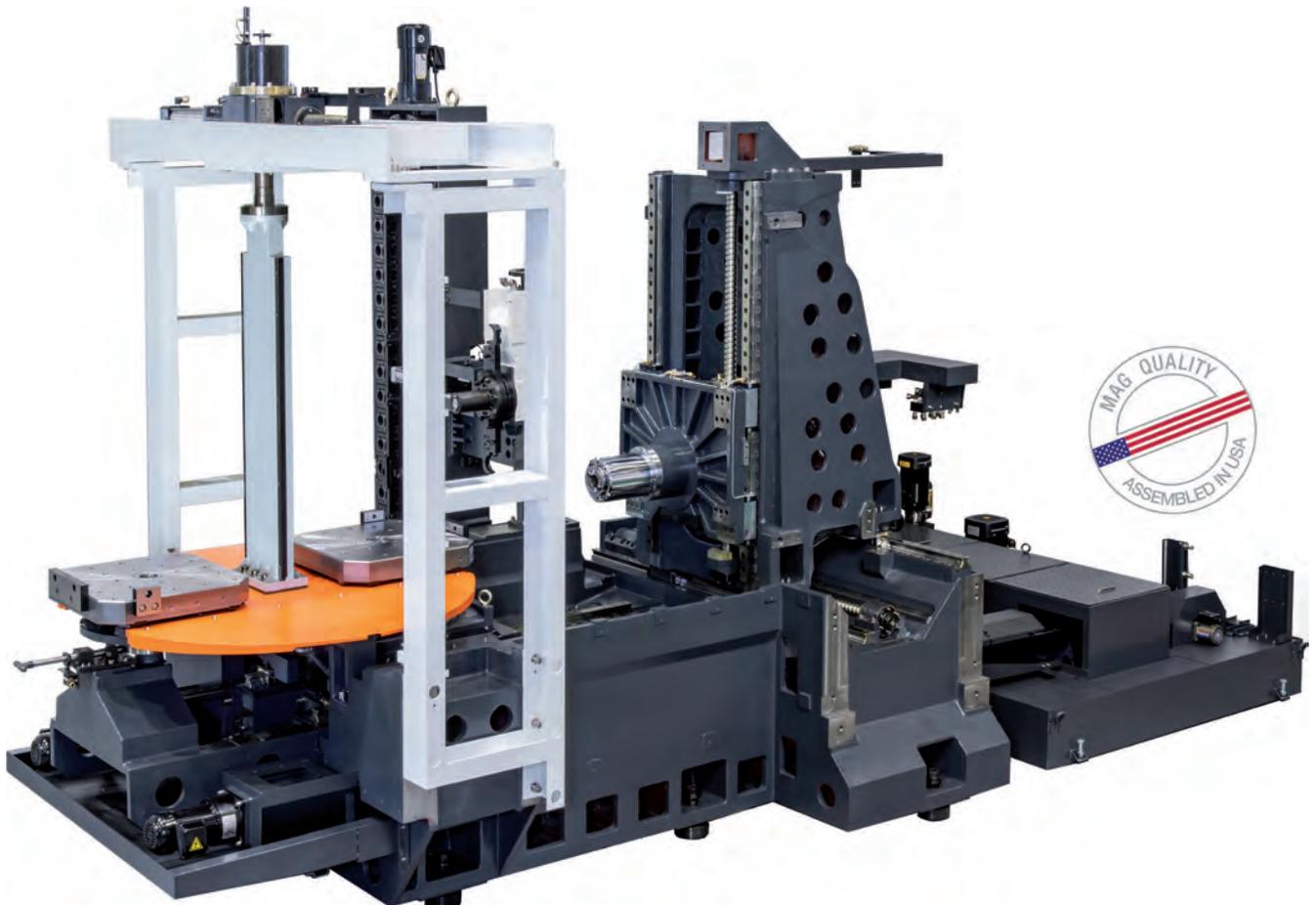
MAG stands for a long tradition of progress in the machine tool industry. MAG today sets standards for energy and environment management, technology integration and networked production.

Utilizing its extensive experience and expertise in providing system machining solutions to the global automotive OEM's, tier suppliers, and commercial / off-road vehicles, MAG presents its MMH<sup>®</sup> 500 Horizontal Machining Center for the general market.

MAG engineers designed the superb MMH<sup>®</sup> 500 with precision, power, performance, and productivity in mind. All MMH<sup>®</sup> machines come standard with 60 m/min linear axis speed and 12,000 rpm direct drive spindle (optional 15,000 rpm) which results in more machine throughput per spindle and high speed cutting capabilities. The High-Pressure Coolant Thru

Tool / Spindle ready feature is also included providing flexibility to application changes with the ability to have 70 bar at a small upgrade cost. The large tool capacity realizes more application possibilities on one machine.

The MAG MMH<sup>®</sup> 500's standard infinite (0.001 degree) B-axis table delivers higher precision part cutting without having to add this typically expensive option. The machine is 480V connection ready which requires no isolation transformers, saving you valuable floor space and investment cost. Unlike many other horizontal machining centers in the market, MAG's MMH<sup>®</sup> 500 is designed and built with North American Controls Design and Safety Standards, which fully conforms to the latest US, Canadian, and Mexican safety standards. Finally, the MAG MMH<sup>®</sup> 500 is proudly built in Sterling Heights, Michigan with high quality MAG USA craftsmanship.



MMH<sup>®</sup> 500



### Key Benefits

- ▶ 60 m/min rapid traverse speed
- ▶ (2) Versatile direct drive spindle options: 12,000 (standard) and 15,000 rpm
- ▶ Infinite B-axis table (.001 degree) comes standard
- ▶ North American Controls Design and Safety Standards
- ▶ 480 V connection ready without transformer
- ▶ Large tool capability – Ø 190 mm, 550 mm Length, 12 kg Mass
- ▶ Spindle prepped for high pressure coolant tool comes standard
- ▶ Assembled in USA – local product expertise and build

### What's Included in Basic Machine

- ▶ Greased for life direct drive spindle: 12,000 rpm, CAT40, 30HP (15 min rating)
- ▶ Axis strokes: 762 mm (X), 710 mm (Y), 800 mm (Z)
- ▶ 40T Magazine: floor level tool load
- ▶ Fanuc 31ib CNC, alpha series high voltage Fanuc motors
- ▶ 60 m/min in X/Y/Z axes
- ▶ Automatic lubrication system for linear guides & ball screw
- ▶ B axis/0.001 degree rotary table with air blow system for cones
- ▶ Self-contained coolant system, chip augers, chip conveyor, and oil skimmer
- ▶ Machine guarding with safety interlocks
- ▶ Rotary type automatic pallet changer
- ▶ (2) 500 x 500 tapped hole pallets
- ▶ (12) Port fixture ready

### Available Options

- ▶ Greased for life direct drive spindle: 15,000rpm, CAT40, 30 HP (15min rating)
- ▶ HSK63 tool taper
- ▶ High pressure coolant thru spindle, 70 bar
- ▶ Absolute scales on X, Y, Z, and B
- ▶ 60T Magazine: floor level tool load
- ▶ (2) 500 x 500 T-slot pallets
- ▶ Mist collector
- ▶ Broken tool detect
- ▶ Tool length measurement
- ▶ Spindle probe
- ▶ Additional pallets
- ▶ 12 Port auto fixture system
- ▶ Drum type chip conveyor
- ▶ Automatic front door with robot interface



MMH® 500 Built In-House

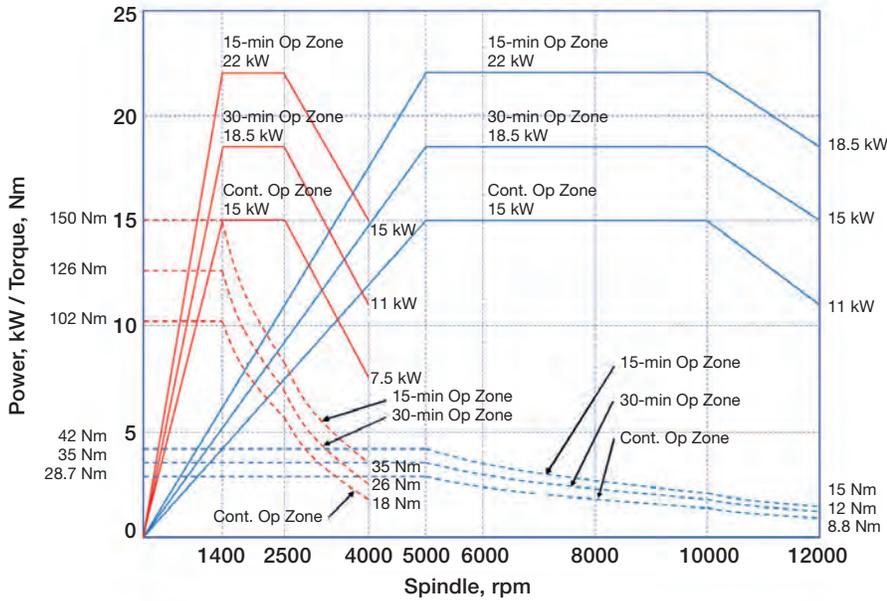


MAG USA Build and Commissioning

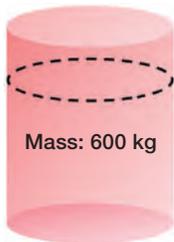


North American Controls Design

# Technical Data



12K Spindle Power and Torque Curve characteristic of FANUC air15/15000 for spindle 12,000 rpm

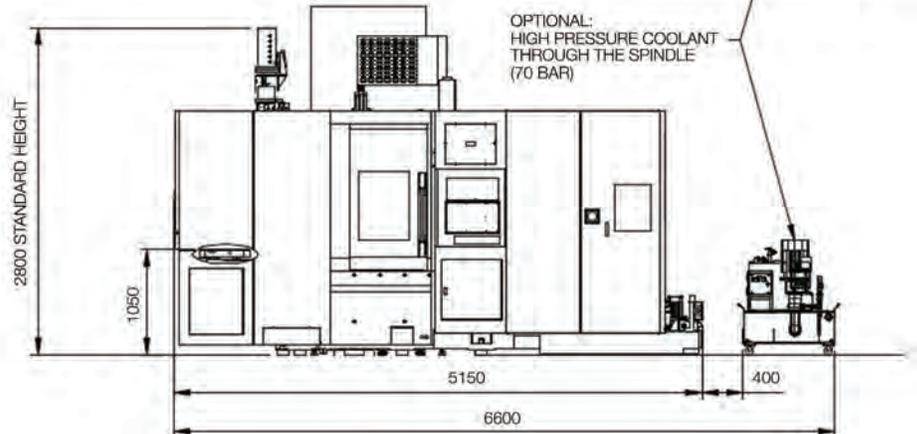
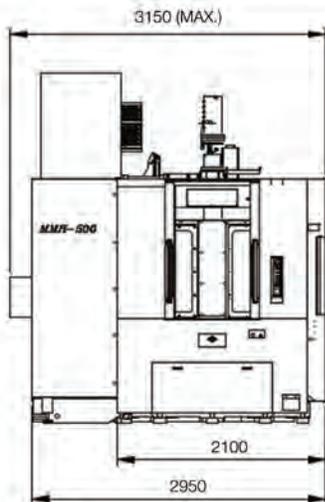
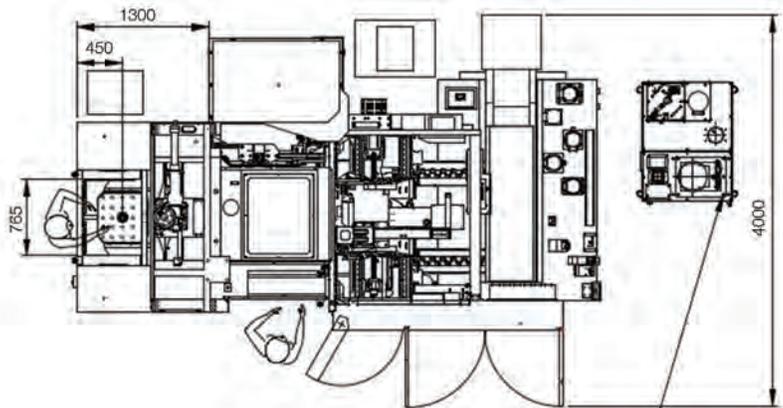


Height:  
1000 mm (w/o fixture)  
710 mm (w/ fixture)

Diameter: 700 mm

Mass: 12 kg  
Length: 550 mm

Diameter: 190 mm



MMH® 500 Footprint

# Technical Data

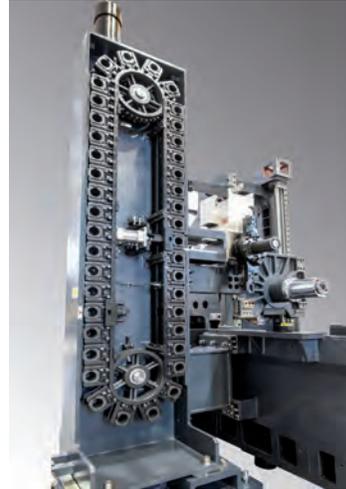
	Ball Screw Drive (Imperial)		Ball Screw Drive (Metric)	
<b>Work Area</b>				
X-Axis	in	30	mm	762
Y-Axis	in	28	mm	710
Z-Axis	in	31.5	mm	800
Work piece max. swing diameter	in	Ø 27.5	mm	Ø 700
Work piece max. load	lb	1323	kg	600
Work piece max. height ( w/ fixture )	in	39.4 ( 28 )	mm	1000 ( 710 )
Table surface to floor	in	41.3	mm	1050
<b>Axis Speed</b>				
X-, Y-, Z-Axis	in/min	2,362	m/min	60
<b>Axis Acceleration</b>				
X-, Y-, Z-Axis max.	in/s <sup>2</sup>	197	m/s <sup>2</sup>	5
<b>Positioning: ISO-230-2 / JIS</b>				
Position accuracy (w/scale)	10 <sup>-3</sup> in	0.4 / ± 0.08 (0.4 / ± 0.08)	µm	10 / ± 2 (10 / ± 2)
Position repeatability (w/scale)	10 <sup>-3</sup> in	0.24 / ± 0.06 (0.2 / ± 0.04)	µm	6 / ± 1.5 (5 / ± 1)
<b>Direct Drive Spindle</b>				
Tool taper [optional]	type	CAT40 [HSK63]	type	CAT40 [HSK63]
Speed max. [optional]	rpm	12,000 [15,000]	rpm	12,000 [15,000]
Power max. (15 min rating)	HP	29.5	kW	22
Torque max. (15 min rating)	ft-lbs	111	Nm	150
<b>B-Axis (NC Table) (ISO-230-2)</b>				
Position accuracy w/absolute scale	arc s	± 7.5 / ± 5.0	arc s	± 7.5 / ± 5.0
Index B-Axis min.	deg	360 x 0.001°	deg	360 x 0.001°
Rotary speed (B-Axis)	rpm	22	rpm	22
<b>Tool Magazine</b>				
CAT40 / HSK63	no.	Chain 40 / 60	no.	Chain 40 / 60
Tool length max.	in	21.6	mm	550
Tool-Ø without empty positions max.	in	3.7	mm	95
Tool-Ø with empty positions max.	in	7.5	mm	190
Tool weight max.	lb	26.5	kg	12
Tool-to-tool	s	1.5	s	1.5
Tool change time	s	2.4	s	2.4
<b>Pallet Changer</b>				
Pallet change time	s	8.5	s	8.5
Pallet size	in	19.7 x 19.7	mm	500 x 500
<b>Machine Dimensions (Doors Closed)</b>				
Machine width	in	124	mm	3,150
Machine length	in	209	mm	5,300
Machine height	in	110	mm	2,800
Machine weight	lb	37,479	kg	17,000
<b>Electrical System CNC Control: Fanuc 31iB</b>				
Connection load (average base machine)	kVA	60	kVA	60

# MMH<sup>®</sup> 500 – Standard Design



## Designed and Built to North American Controls Standard

- ▶ Electrical panel meets NEC, UL 508A (UL label included), and NFPA 79
- ▶ Dual-check safety system included (Dual-channel guard safety lock switches provided)
- ▶ Direct connect 480V electrical power to machine, eliminating the need for an isolation transformer



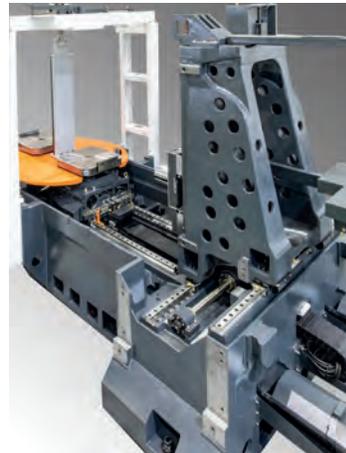
## Versatile, Fast Tool Storage and Automatic Tool Changer

- ▶ 40-Tool CAT40 comes standard with optional 60-Tool and HSK63 tool taper available
- ▶ Industry-leading tool size capable with up to 550 mm long and 190 mm diameter tools
- ▶ Fast tool change time provided with 2.4 sec and tool-to-tool time of 1.5 sec



## Large Capacity Work Envelope

- ▶ Apply work pieces and fixtures up to 1000 mm tall and 700 mm in diameter
- ▶ Shower and flood coolant in work-zone comes standard supplied by included coolant system and chip conveyor
- ▶ Well-lit work zone with overhead window and LED light included to allow for easy measuring and viewing inside work zone



## Versatile Machine Structure

- ▶ Travelling column design with stepped X-axis including linear guides in all axes providing fast 60m/min traverse speeds
- ▶ Infinite B-axis table (0.001 degree) comes standard to provide precision part manufacturing for all applications
- ▶ Multi-purpose spindle allows you to machine either soft metals or hard metals in the same machine

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### About FFG Europe & Americas

The FFG entities in Europe and the Americas unite major players from the German, Italian, Swiss and American machine tool industry with a broad range of milling, turning, grinding, and gear manufacturing technology, and the knowhow of the renowned machine tool brands VDF Boehringer, Hessapp, IMAS, Jobs, MAG, Meccanodora, Modul, Morara, Pffner, Rambaudi, Sachman, Sigma, SMS, Tacchella and Witzig & Frank. Since 1798, these brands have substantially contributed to the progress in industrial manufacturing and are well known as reliable and innovative equipment and systems solutions suppliers for the automotive and truck, aerospace, machine building, general machining, railway industry, energy and heavy engineering industries. While being an independent group, these entities benefit from the strengths and opportunities of the global Fair Friend Group. They stand for premium technology within FFG.



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