



***DUGARD EAGLE***  
***MH-500/630/800***

# Horizontal Machining Centre

Presenting a new level of  
performance and productivity !



# Horizontal Ma



## MH-500

- X, Y, Z axis travel 610 x 510 x 610 mm
- Pallet sizes 500 x 500 mm
- ISO 40 spindle taper
- 10,000 rpm spindle speed
- 3 axes linear ways



# chining Centre

## MH-630

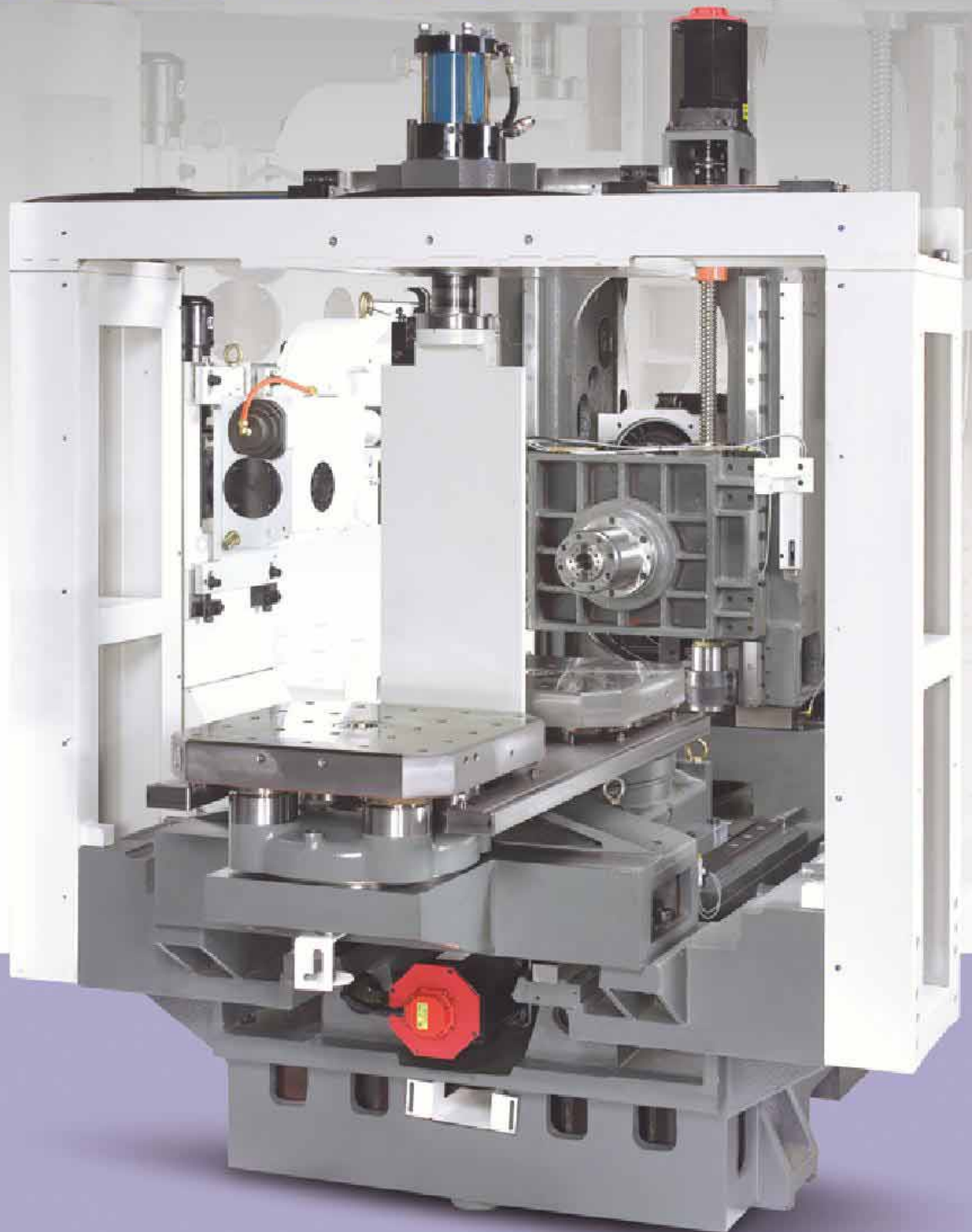
- X, Y, Z axis travel 1,000 x 800 x 750 mm
- Pallet sizes 630 x 630 mm
- ISO 50 spindle taper
- 4,500 rpm spindle speed  
(3-step gear drive)
- 3 axes linear ways

## MH-800

- X, Y, Z axis travel 1,000 x 800 x 750 mm
- Pallet sizes 800 x 800 mm
- ISO 50 spindle taper
- 4,500 rpm spindle speed  
(3-step gear drive)
- 3 axes linear ways



# Rigidly Built to Provide Many Years of Reliable, Accurate Production



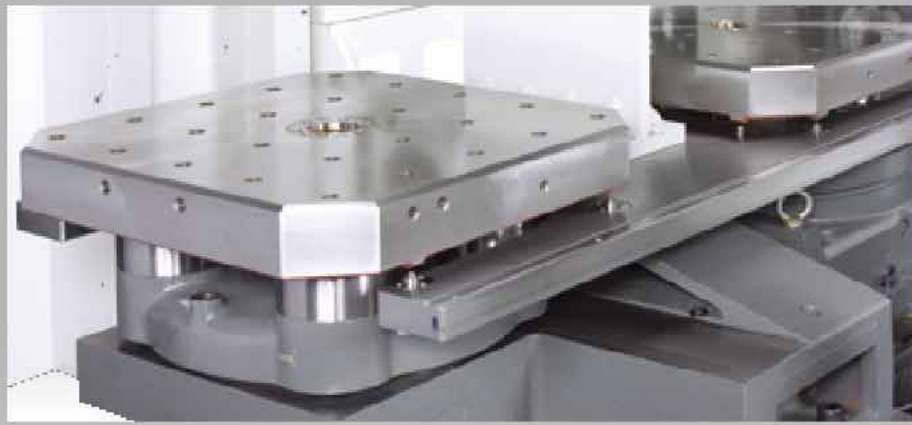
## Structure of MH-500

- The structural parts are manufactured from MEEHANITE cast iron.
- One-piece constructed base and saddle exhibits exceptional rigidity and stability.
- Heavy duty linear ways on 3 axes.
- Moving column construction features greater efficiency and smoothness of operation.



### ISO 40, 10,000 RPM High Rigidity Precision Spindle

- The long nose spindle design combined with high pressure coolant system make the machine ideal for deep cavity machining.
- Standard spindle speed is 10,000 rpm.
- 15,000 rpm direct-drive spindle is optional.



### Pallet Change

- The automatic pallet changer has manual indexing on the load station to facilitate ease of work piece change overs in the stand by position.
- Pallet indexing degree is 0.001°.



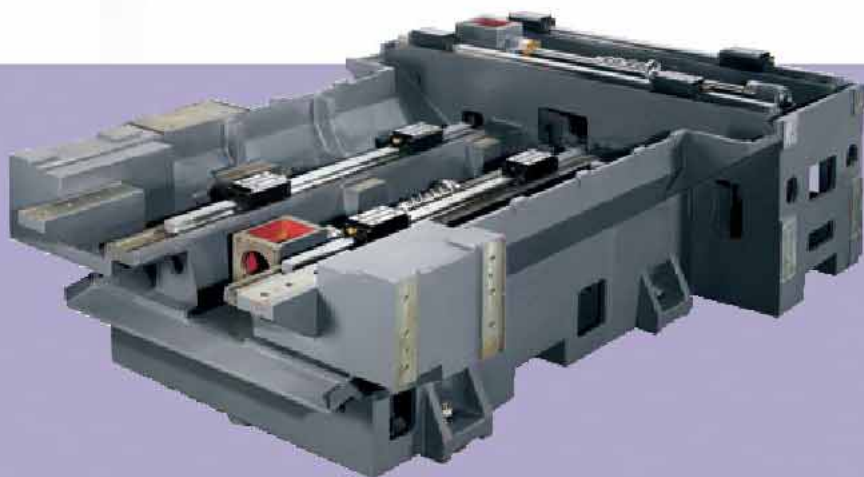
### 60-tool Chain Type Magazine

- The magazine is driven by a servomotor for high speed tool selection and precise tool positioning.
- Tool selection method employs shortest path and random access for saving time.
- 60-tool magazine is standard.



### Rigid Linear Ways on X, Y, Z axes

- The X, Y and Z axes have heavy duty linear ways to provide rapid traverses of 32 m/min. (MH-500)
- The extra wide span between linear ways on each axis assures outstanding rigidity and stability.



### Massive Base Construction

- The base is manufactured from MEEHANITE cast iron, tempered and stress relieved for maximum machine life.
- One-piece constructed base and saddle greatly upgrades durability, stability and accuracy.

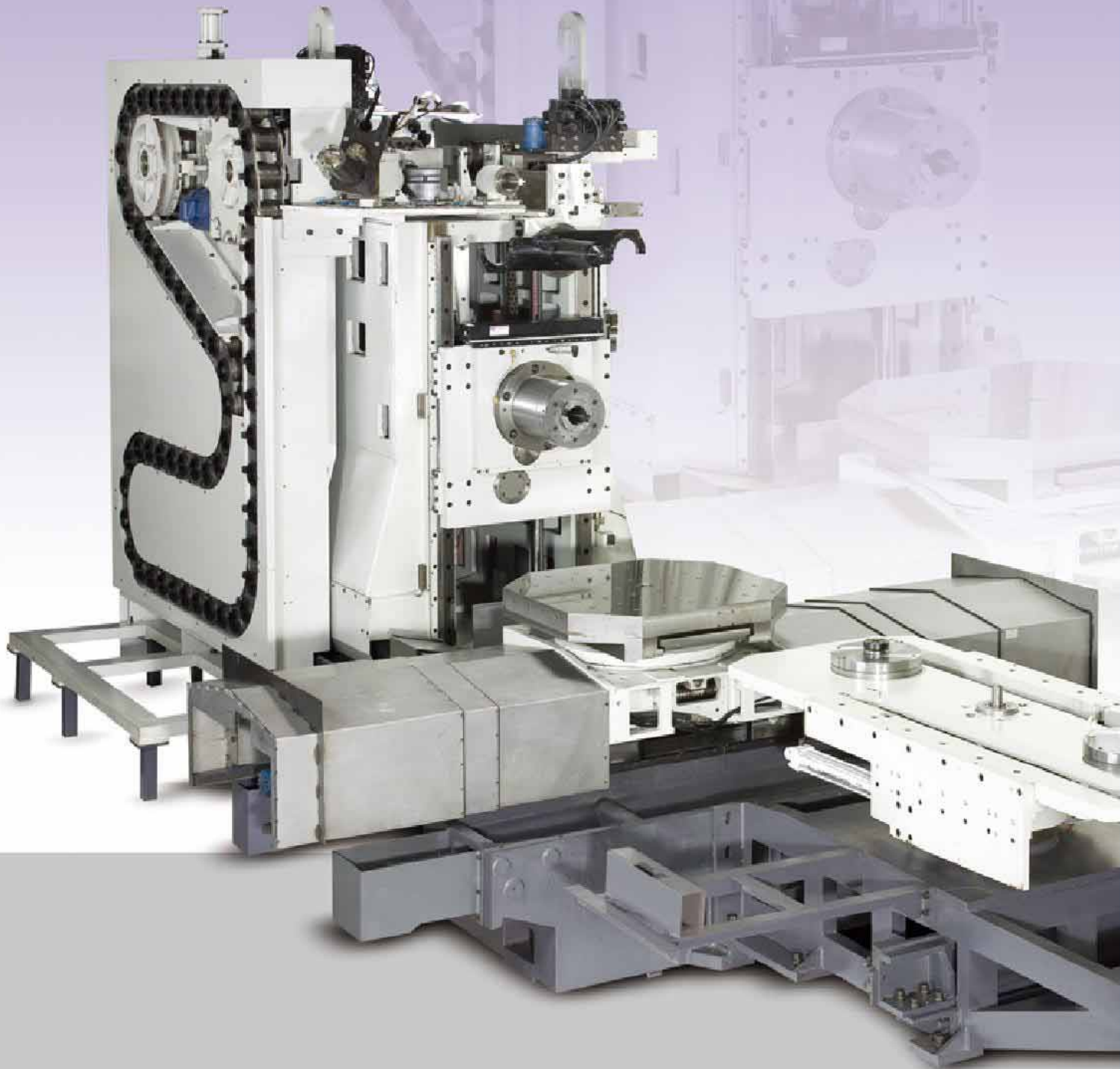


### Column on MH-500

### Rigid Moving Column

The ruggedly constructed column moves on heavy duty linear ways. The wide span between linear ways combined with 3 blocks on each linear way guarantees outstanding stability and machining accuracy.

# Designed To Provide Maximum Cutting Performance



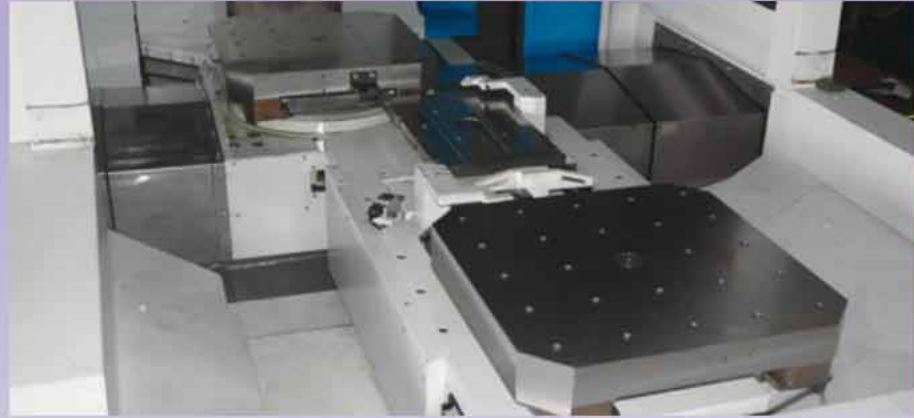
## Structure of MH-630 And MH-800

- The structural parts are manufactured from MEEHANITE cast iron.
- One-piece constructed base and saddle exhibits exceptional rigidity and stability.
- Heavy duty linear ways on 3 axes.
- Moving column construction features greater efficiency and smoothness of operation.



### ISO 50, 4,500 RPM High Rigidity Precision Spindle

- The spindle is supported by high precision large bearings for extra smooth running and long bearing life.
- The spindle is driven by 3-step gear mechanism, featuring great torque output to meet heavy cutting requirement.
- The long nose spindle design combined with high pressure coolant system make the machine ideal for deep cavity machining.



### Pallet Change

- The automatic pallet changer has manual indexing on the load station to facilitate ease of work piece change overs in the standby position.
- Standard indexing of pallet 0.001 degree(MH-500), 1 degree(MH-630/800)
- 0.001° indexing is optional for MH-630 and MH-800.



**Column on MH-630 & MH-800**

### Rigid Moving Column

The ruggedly constructed column moves on heavy duty linear ways. The wide span between linear ways combined with 3 blocks on each linear way guarantees outstanding stability and machining accuracy.



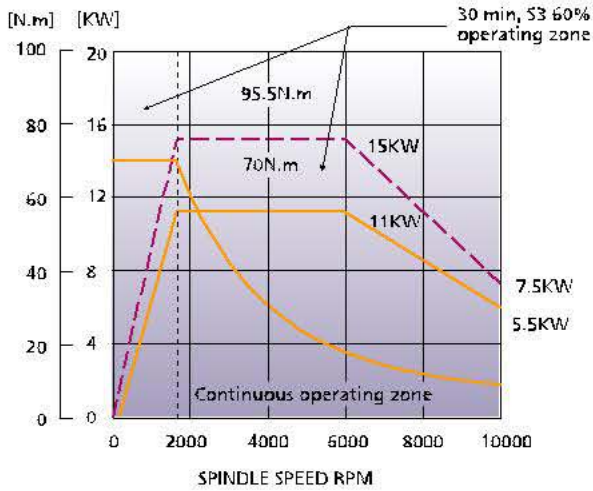
### 60-tool Chain Type Magazine

- The magazine is driven by a servomotor for high speed tool selection and precise tool positioning.
- Tool selection method employs shortest path and random access for saving time.
- 60-tool magazine is standard.
- 80-tool magazine is optional.

# Spindle Torque Diagram

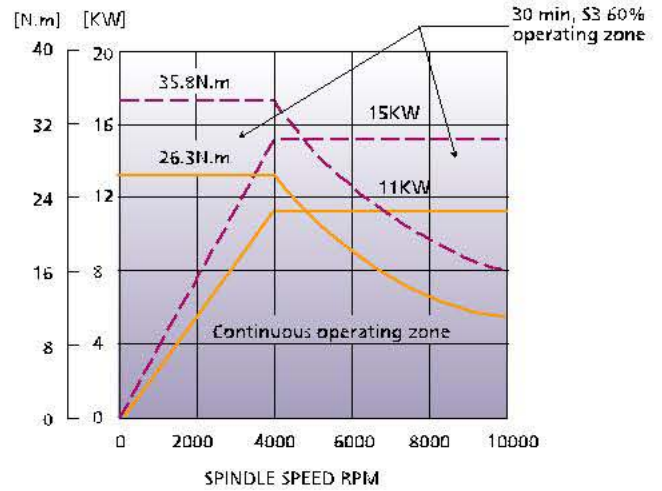
## MH-500

FANUC α 12/10000i (LOW-SPEED)



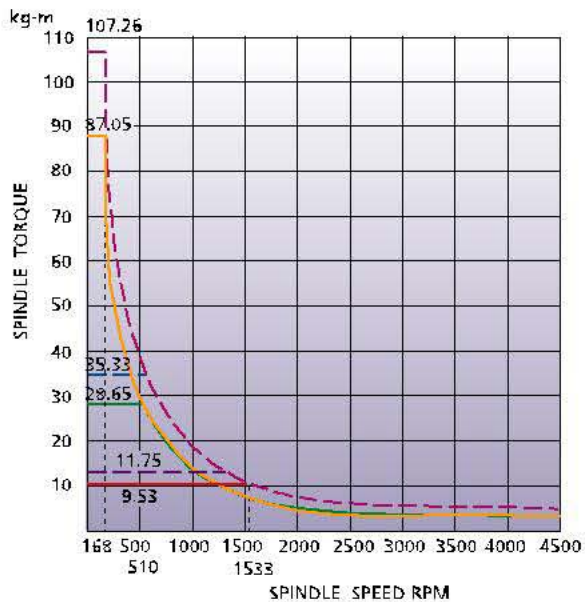
## MH-500

FANUC α 12/10000i (HIGH-SPEED)



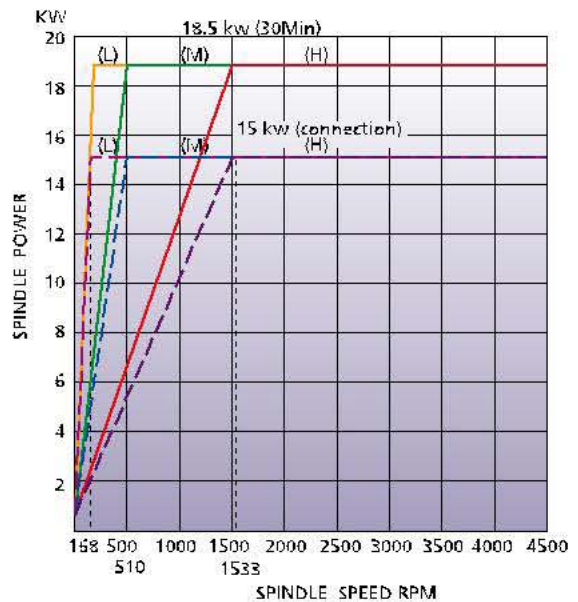
## MH-630/800

FANUC α 15/7000i



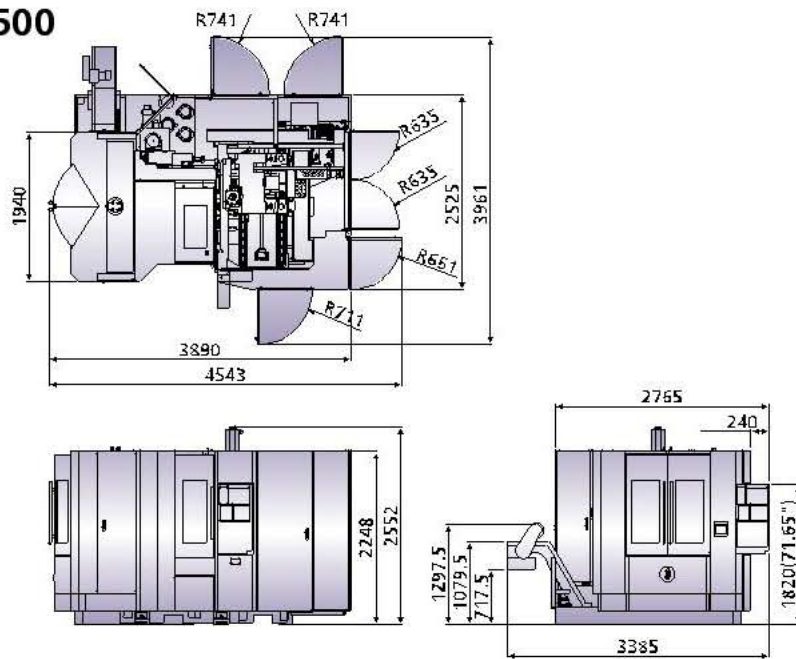
## MH-630/800

FANUC α 15/7000i

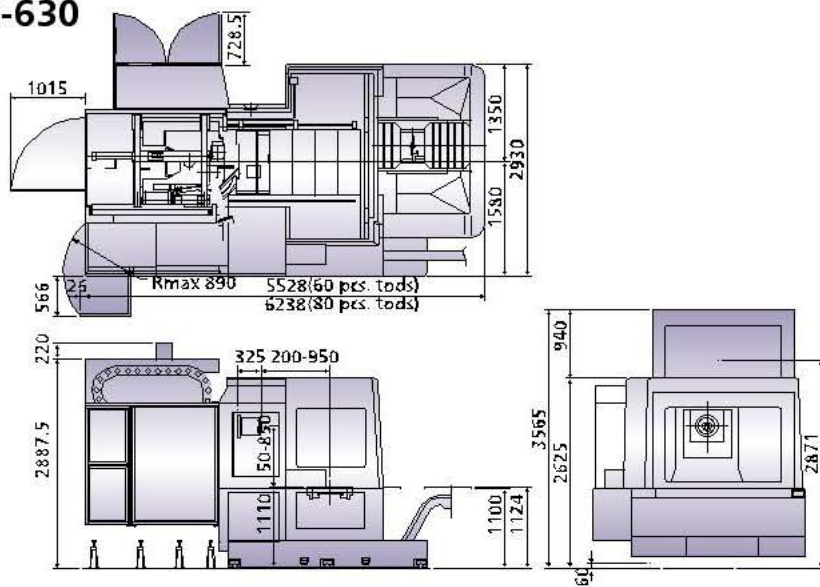


# Dimensional Drawings

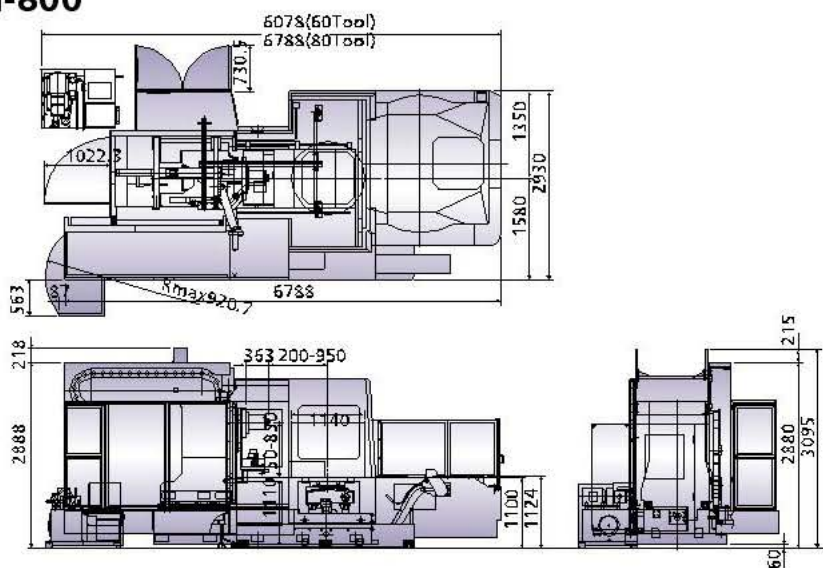
## MH-500



## MH-630



## MH-800



# Table & Tool Holders

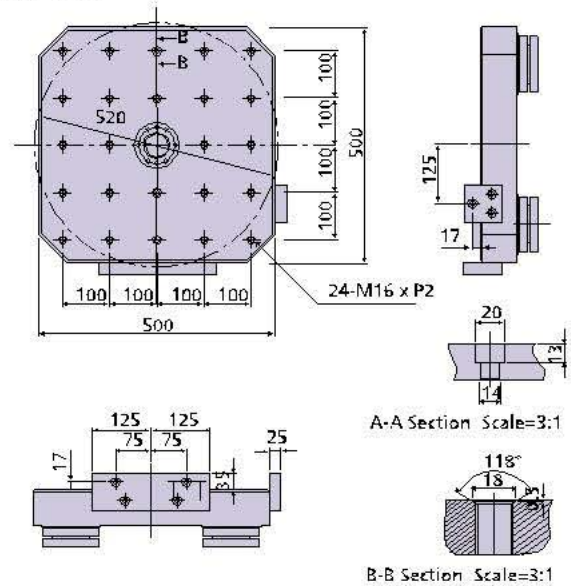
## Standard Accessories

1. Fanuc Oi-MC Controller
2. Spindle Speed: 4500 rpm (MH-630/800), 10000 rpm (MH-500)
3. Spindle Motor
4. Spindle Lubrication Coolant System
5. Automatic Lubrication System
6. Coolant System
7. X,Y,Z-axis Optical Scales (MH-630/800), Options for MH-500
8. Leveling Bolts and Pads
9. Tool Kit
10. 60-Tool Magazine Capacity with 60 pcs pull studs, 60-tool ATC
11. Screw Type Chip Conveyor
12. Index Table 1 Degree (MH-630/800), 0.001 Degree (MH-500)
13. Chip Conveyor + Chip Bucket
14. Fully Enclosed Splash Guard
15. 2 Pallet Shuttle
16. Work Lamp
17. Rigid Tapping
18. Scraper Type Swarf Conveyor
19. Chip Flushing
20. Pallet Wash
21. Screw Augers

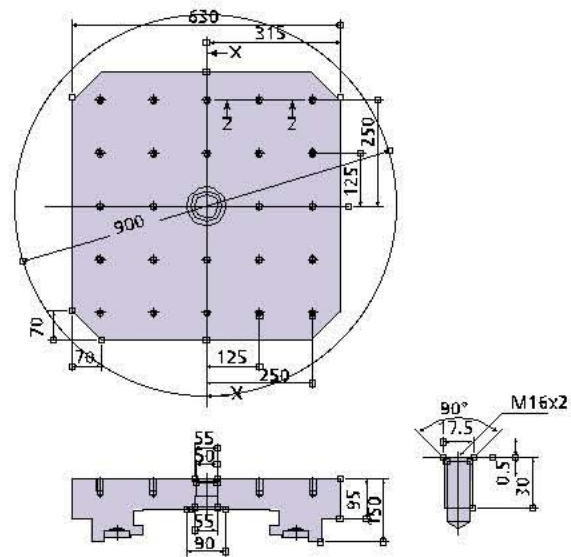
## Optional Accessories

1. 80-Tool Magazine Capacity with 80 pcs Retention Knobs (MH-630/800)
2. Fanuc 18i-MB
3. Oil Hole Tool Holder
4. Rotary Table 0.001 Degree (MH-630/800)
5. Automatic Tool Length Measurement
6. Automatic Workpiece Measurement

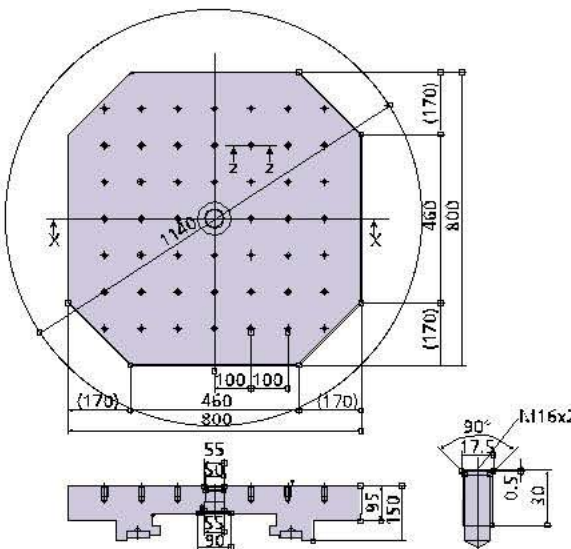
### MH-500



### MH-630



### MH-800



# Specifications

Unit:mm(inch)

	ITEM	MH-500	MH-630	MH-800
PALLET	DIMENSION	500 x 500 (20 x 20)	630 x 630 (24.8 x 24.8)	800 x 800 (31.5 x 31.5)
	BOLT HOLE	M16 x 2	M16 x 2	M16 x 2
	MAX. LOADING CAPACITY	450 kgf (990 lbs)	1200 kgf (Uniform distribution) (2640 lbs)	1200 kgf (Uniform distribution) (2640 lbs)
	INDEX DEGREE	0.001°	STD:1°; OPT: 0.001°	STD: 1°; OPT: 0.001°
	INDEX REPEATABILITY	±4"	±4"	±4"
	PALLET CAPACITY	2	2	2
TRAVEL RANGE	MAX. TRAVEL RANGE OF X/Y/Z-AXIS	610 / 510 / 610 (24 / 20 / 24)	1000 / 800 / 750 (39.4 / 31.5 / 29.5)	1000 / 800 / 750 (39.4 / 31.5 / 29.5)
	DISTANCE FROM SPINDLE NOSE TO TABLE CENTER	30-540 (1.2-21.2)	200-950 (7.9-37.4)	200-950 (7.9-37.4)
	DISTANCE FROM SPINDLE CENTER TO TABLE SURFACE	140-750 (5.5-29.5)	50-850 (2.0-33.5)	50-850 (2.0-33.5)
SPINDLE	SPINDLE TAPER	ISO No. 40	ISO No. 50	ISO No. 50
	SPINDLE NOSE OUTER DIAMETER	∅ 65 (∅ 2.8)	∅ 100 (∅ 3.9)	∅ 100 (∅ 3.9)
	SPINDLE SPEED	STD: 10,000 rpm; OPT: 15,000 rpm	45-4500 rpm (3-step gear)	45-4500 rpm (3-step gear)
FEEDRATE	CUTTING FEEDRATE OF X/Y/Z-AXIS	1-3000 mm/min (0.04-314 ipm)	1-5000 mm/min (0.04-197 ipm)	1-5000 mm/min (0.04-197 ipm)
	RAPID TRAVERSE SPEED OF X/Y/Z-AXIS	32 m/min (1,260 ipm)	20 m/min (787 ipm)	20 m/min (787 ipm)
	MINIMUM SETTING UNIT OF X/Y/Z-AXIS	0.001	0.001	0.001
	FEEDBACK ELEMENT	Optical scale (Options)	Optical scale	Optical scale
TOOL	TOOL CAPACITY	STD: 40 pcs; OPT: 60 pcs	STD: 60 pcs; OPT: 80 pcs	STD:60 pcs; OPT:80 pcs
	TOOL SELECTION	Shortest path	Shortest path	Shortest path
	MAX. ADJACENT TOOL DIAMETER x LENGTH	∅ 76 x 300 (∅ 3.0 x 11.8)	∅ 140 x 450 Max. tool diameter ∅ 230	∅ 140 x 450 Max. tool diameter ∅ 230
	MAX. TOOL WEIGHT	8 kg (17.6 lbs)	20 kg (44 lbs)	20 kg (44 lbs)
	TOOL SHANK TYPE	BT40, CAT40	BT50, CAT50	BT50, CAT50
DRIVE MOTOR	SPINDLE MOTOR	15 / 18.5 kW (20 / 24.8 HP)	15 / 18.5 kW (20 / 24.8 HP)	15 / 18.5 kW (20 / 24.8 HP)
	SERVO MOTOR OF X/Y/Z/B-AXIS	4 / 4 / 4 / 3 kW (5.4 / 5.4 / 5.4 / 4 HP)	4 / 4 / 7 / 1.6 kW (5.4 / 5.4 / 9.4 / 2.1 HP)	4 / 4 / 7 / 1.6 kW (5.4 / 5.4 / 9.4 / 2.1 HP)
	SPINDLE RECIRCULATING LUBRICATION MOTOR	120 W+180 W (1/6HP+1/4HP)	370 W	370 W
	CENTRALIZED LUBRICATION SYSTEM	12 W	12 W	12 W
	HYDRAULIC MOTOR	2.25 kW (3 HP)	5.5 kW (7.4 HP)	5.5 kW (7.4 HP)
	COOLANT MOTOR (FOR TOOLS/CHIPS)	1.27 kW x 3	0.75 / 1.5 kW	0.75 / 1.5 kW
	CHIP CONVEYOR MOTOR	200 W (0.3 HP)	0.1 kW x 2 (1/8HP x 2)	0.1 kW x 2 (1/8HP x 2)
	ATC MOTOR	430 W	2.2 kW	2.2 kW
	PALLET MOTOR (ARM MOTOR)	560 W	Hydraulic	Hydraulic
ACCURACY	POSITIONING	±0.004	±0.004	±0.004
	REPEATABILITY	±0.003	±0.003	±0.003
MISCELLANEOUS	T-T (SEC)	3	3	3
	P-P (SEC) PALLET TO PALLET	7-8	18	18
	OUTLINE DIMENSION (W x H x D)	3145 x 2552 x 3890 (123.8 x 100.5 x 153)	6238 x 2950 x 2950 (246 x 116 x 116)	6788 x 2950 x 2950 (267 x 116 x 116)
	PACKING SIZE (W x H x D)	4770 x 2300 x 2500 (187.8 x 90.6 x 98.4)	7300 x 3365 x 3530 (287 x 132 x 139)	7820 x 3360 x 3550 (308 x 132 x 140)
	NET WEIGHT A/B (APPROX.)	9230 kg (20306 lbs)	17200 / 3250 kg (37840 / 7150 lbs)	19410 / 3250 kg (42702 / 7150 lbs)
	GROSS WEIGHT (incl. CHIP CONVEYOR)	9630 kg (21186 lbs)	21700 / 3550 kg (47740 / 7810 lbs)	23920 / 3550 kg (52624 / 7810 lbs)

• The above specifications are subject to change without prior notice.

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