YOU JI

Sincerity Responsibility Innovation

You Ji Machine Industrial Company Limited

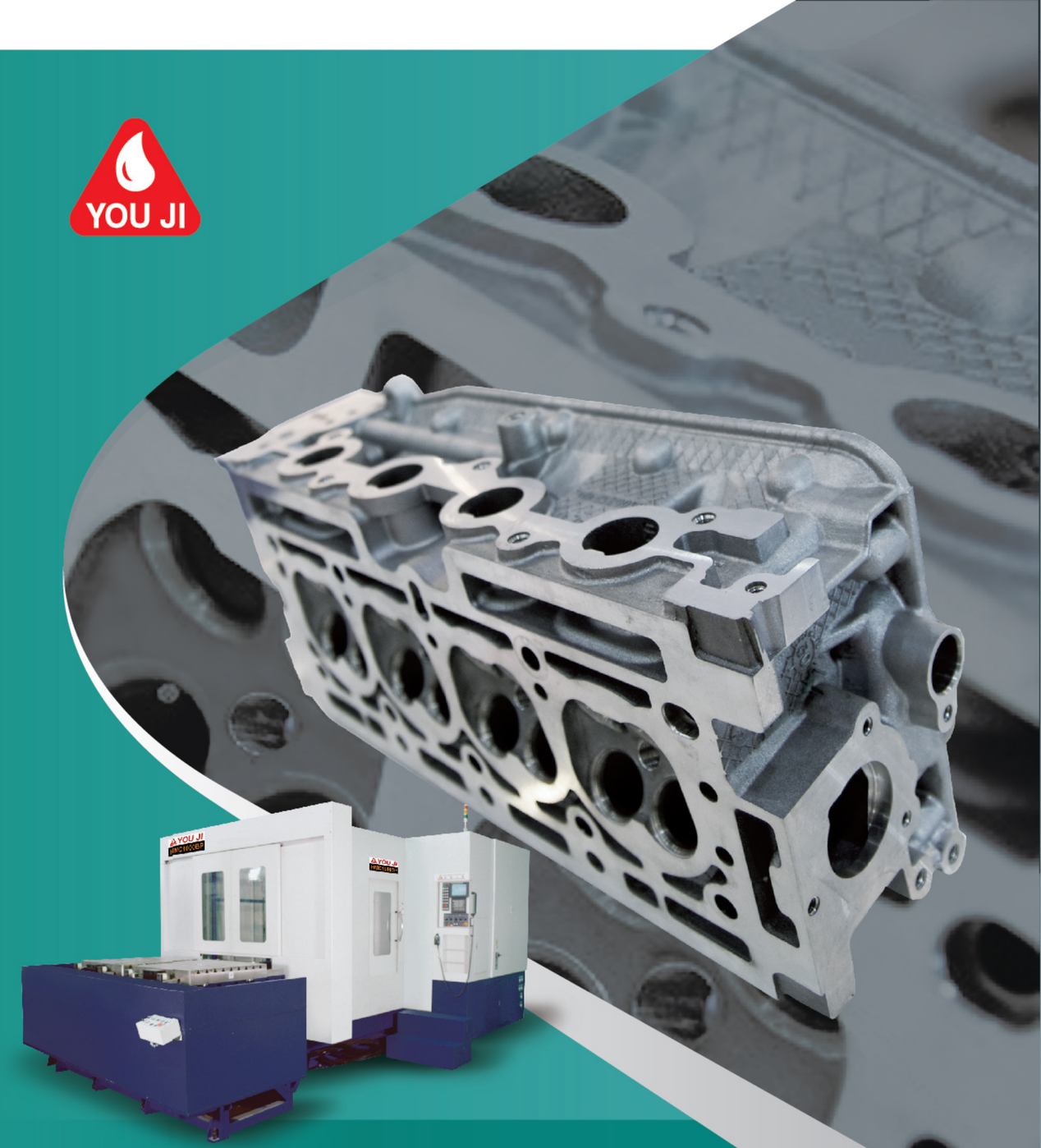
No.92, Huanqiu Rd.,Zhuyuan Vil.,
Luzhu Dist., Kaohsiung City 82142, Taiwan

TEL：886-7-695-2669
FAX：886-7-695-3301
Email：youji@ms15.hinet.net
www.youji.com

Distributor

L.Y.S HMC-10212(E)-B © Copy right reserved.

YOU JI



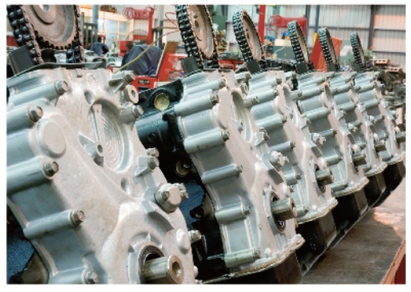
HMC Series

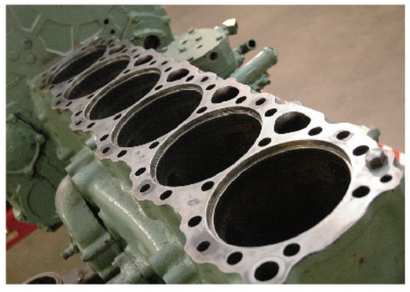
You Ji Machine Industrial Company Limited
Horizontal Machining Center

HMC Series

Horizontal Machining Center

High Rigidity Box-in Box Construction





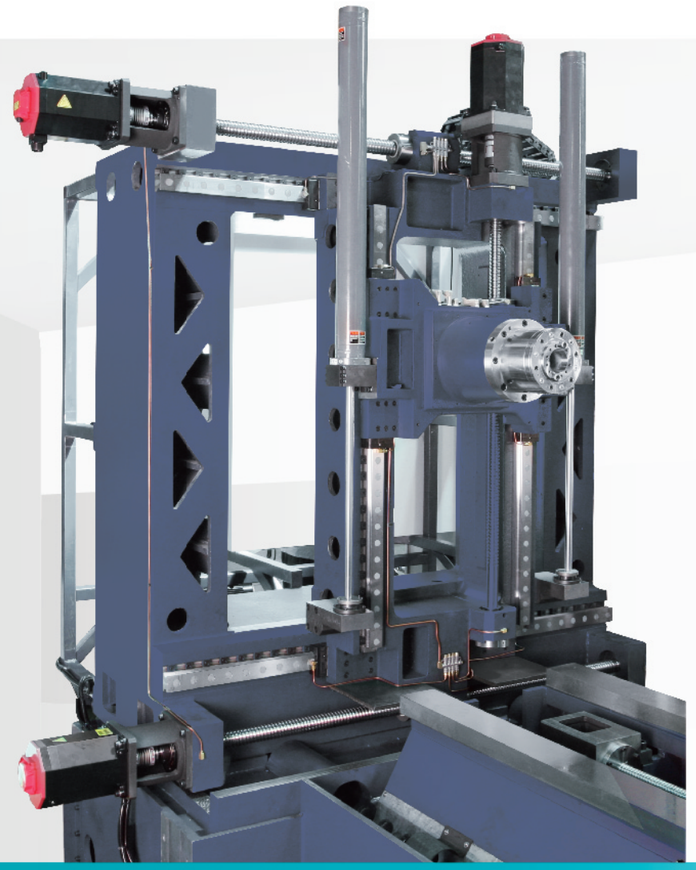
HMC 500 BP

- B : B-axis Rotary Table
- BP : B-axis Rotary Table + Automatic Pallet Changer
- Table Dimesion: 500,630,800,1000,1200,1600,2000,2500
- Horizontal Machining Center

HMC series

Horizontal Machining Center

Innovative Design



Machine featurs

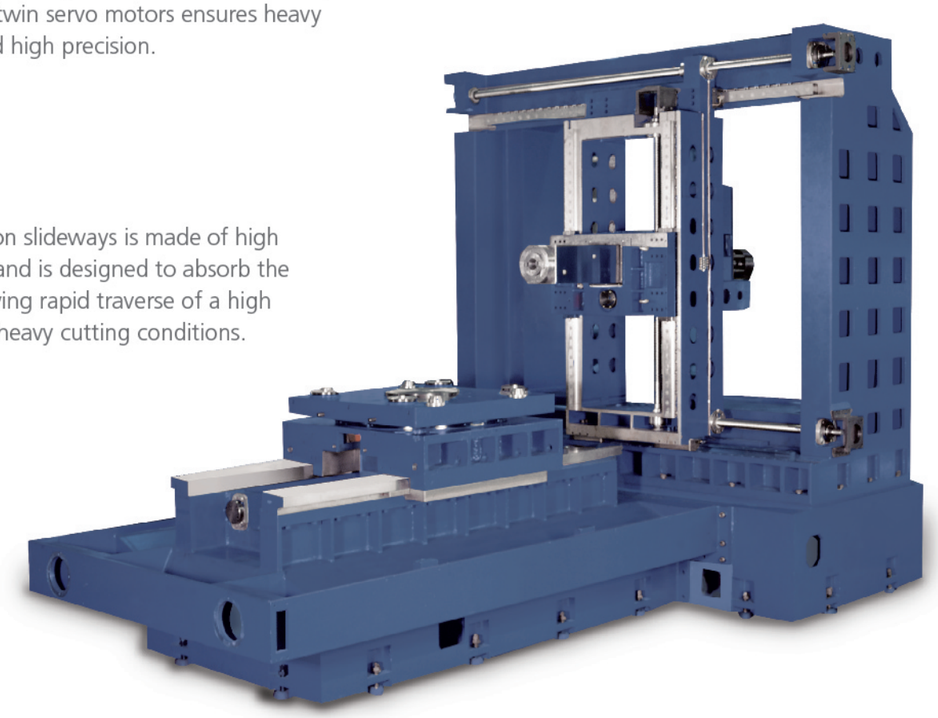
- Controls vibration effectively
- Shortens machining time
- Extended tool life
- Enhances surface machining quality
- Enhances machining precision
- Enhances contour precision

X-axis

X-axis slideways with a wide span linear guide, double roller type design and double ball screws, combined with twin servo motors ensures heavy duty cutting and high precision.

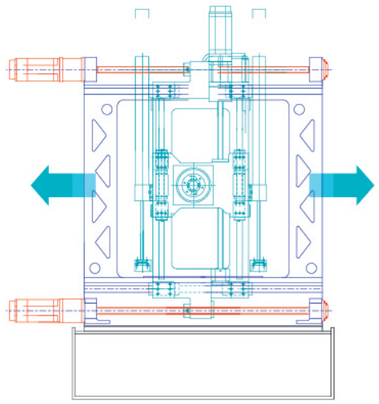
Y-axis

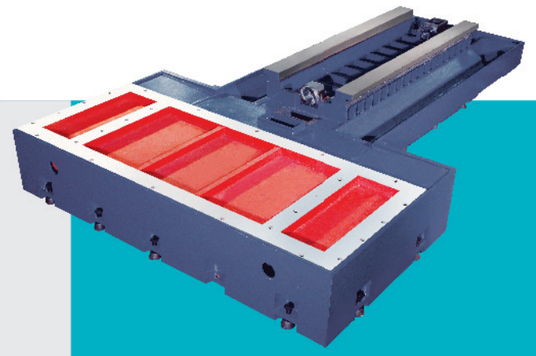
Y-axis box section slideways is made of high grade cast iron and is designed to absorb the vibrations, allowing rapid traverse of a high accuracy under heavy cutting conditions.



Twin drive of X-axis simultaneously

The characteristics of simultaneous twin drive increases the rapid traverse ensuring the best cutting conditions without inertia vibration as in a single drive system, it minimizes the cutting vibration during Y-axis movement, so increases tool life and enhances the machining precision.



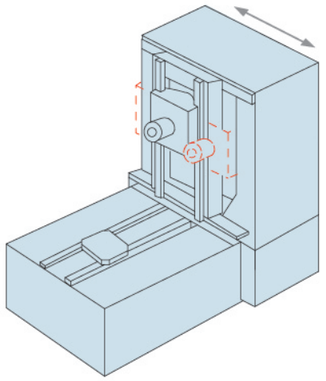


Z-axis

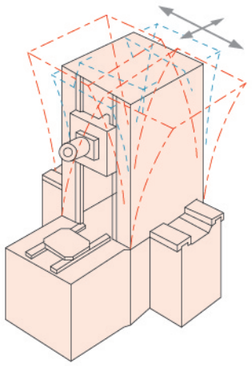
Z-axis slideways use alloy steel sheet and is designed to absorb the vibration under heavy cutting conditions, allowing high loads and increased accuracy.

Comparison for conventional single column and Box-in-Box Construction

X-axis rigidity



Box-in-Box Construction



Conventional single column

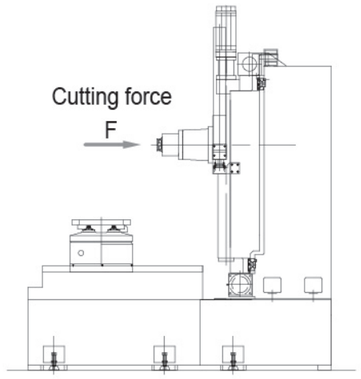
Box-in-Box Construction

The design of our X-axis has slideways on both top and bottom of our Box-in-Box construction. Designed with twin drive simultaneous ball screws this enhances the balance and greatly increases the rigidity ensuring accuracy under all conditions.

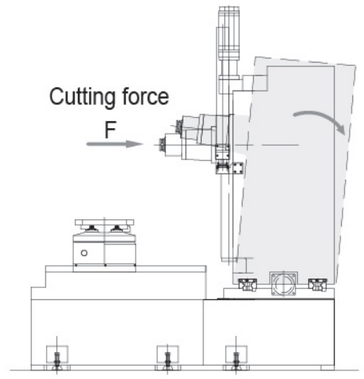
Conventional single column

A higher column is supported by two slideways at the bottom. This weak structure is not compatible with high speed and rigid structure under heavy milling.

Cutting force



Box-in-Box Construction



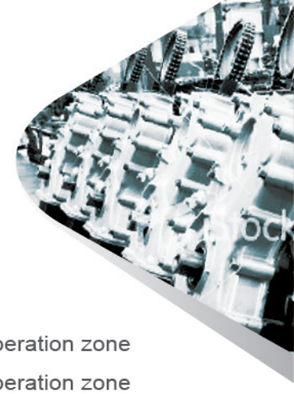
Conventional single column

Box-in-Box Construction

High rigidity can achieved with this kind of design, avoiding deformation and machine resonance. Our heavy duty Box in Box design increases heavy cutting by 15%.

Conventional single column

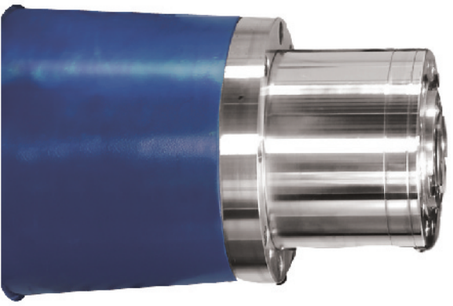
This weak design has a geometry problems, the cutting force can tilt the column back under cutting force. This will reduce accuracy and tool life.

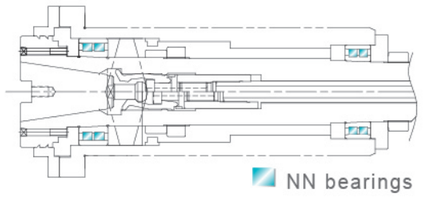


High rigid spindle structure

HMC-500-800

The direct drive spindle is put through both axial and radial static stiffness tests to insure high rigidity.





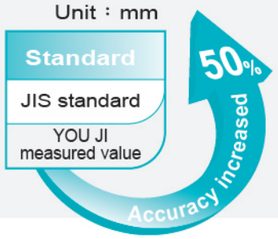
HMC-1000-2500

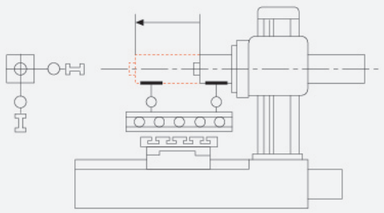
The spindle of square RAM is designed with high speed, high accuracy, and high rigidity NN series bearings. This spindle design absorbs axial and radial loads, providing the best rigidity for a complete trouble free life.

Comparison for RAM travel accuracy

Unit：mm

RAM type	Travel	Accuracy	Standard
Square RAM	500	0.03	JIS standard
220x220 Square RAM	500	0.015	YOU JI measured value

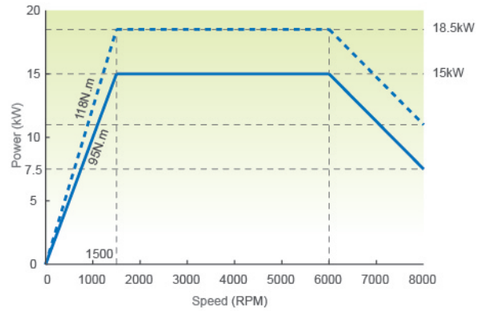




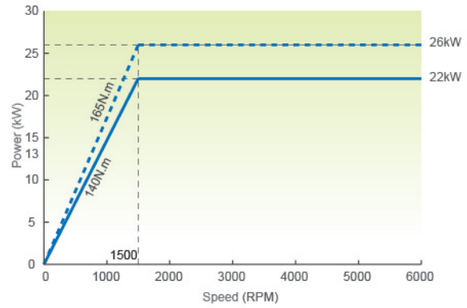
Spindle Torque Chart

30 Min operation zone
Continuous operation zone

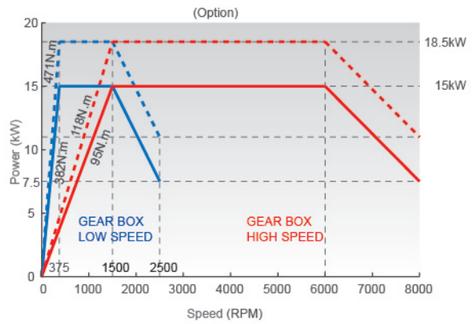
▼HMC500~630 Series (MOTOR:FANUC α T15)



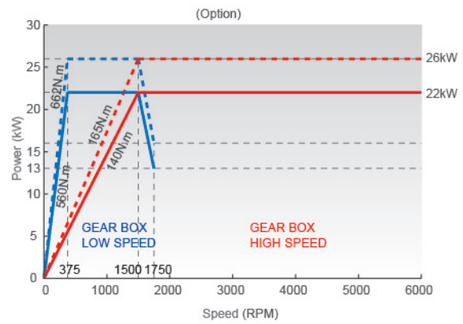
▼HMC800 Series (MOTOR:FANUC α 22)



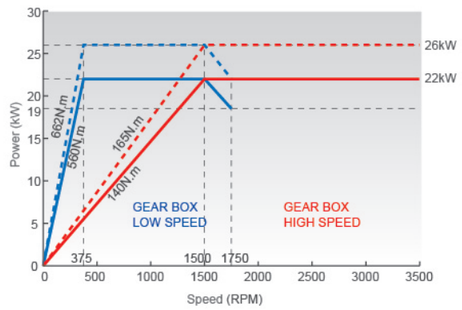
▼HMC500~630 Series (MOTOR:FANUC α T15)



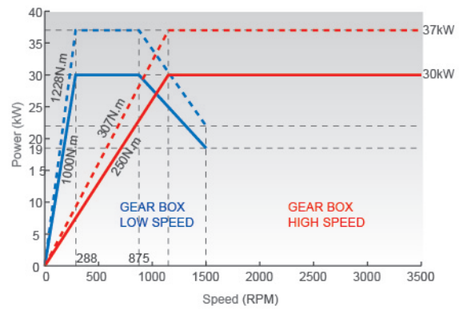
▼HMC800 Series (MOTOR:FANUC α 22)



▼HMC1000~1200 Series (MOTOR:FANUC α 22)

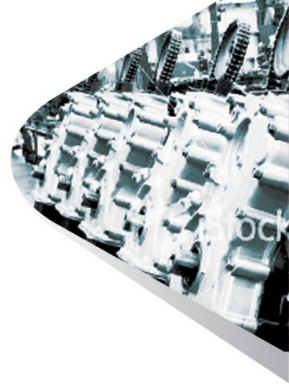


▼HMC1600 -2500Series (MOTOR:FANUC α 30)



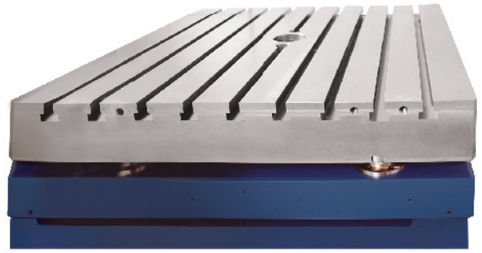
HMC series

Horizontal Machining Center



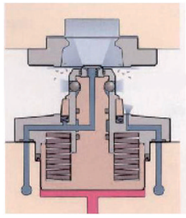
B-axis

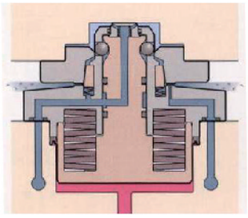
B-axis is designed with a high precision worm gear and worm shaft, high accuracy of ±7.5" and ±5" of repeatability is obtained using high torque servo motor. Complicated work-pieces can be machined using 4 axes simultaneously.

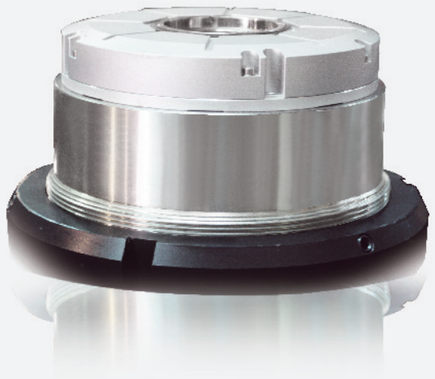


High precision indexing table

Our pallet changing system uses a 4 pin locating method, high accuracy is obtained between the table surface and the clamping surface due to air cleaning blasts to all 4 positions. This system greatly increases accuracy and repeatability.





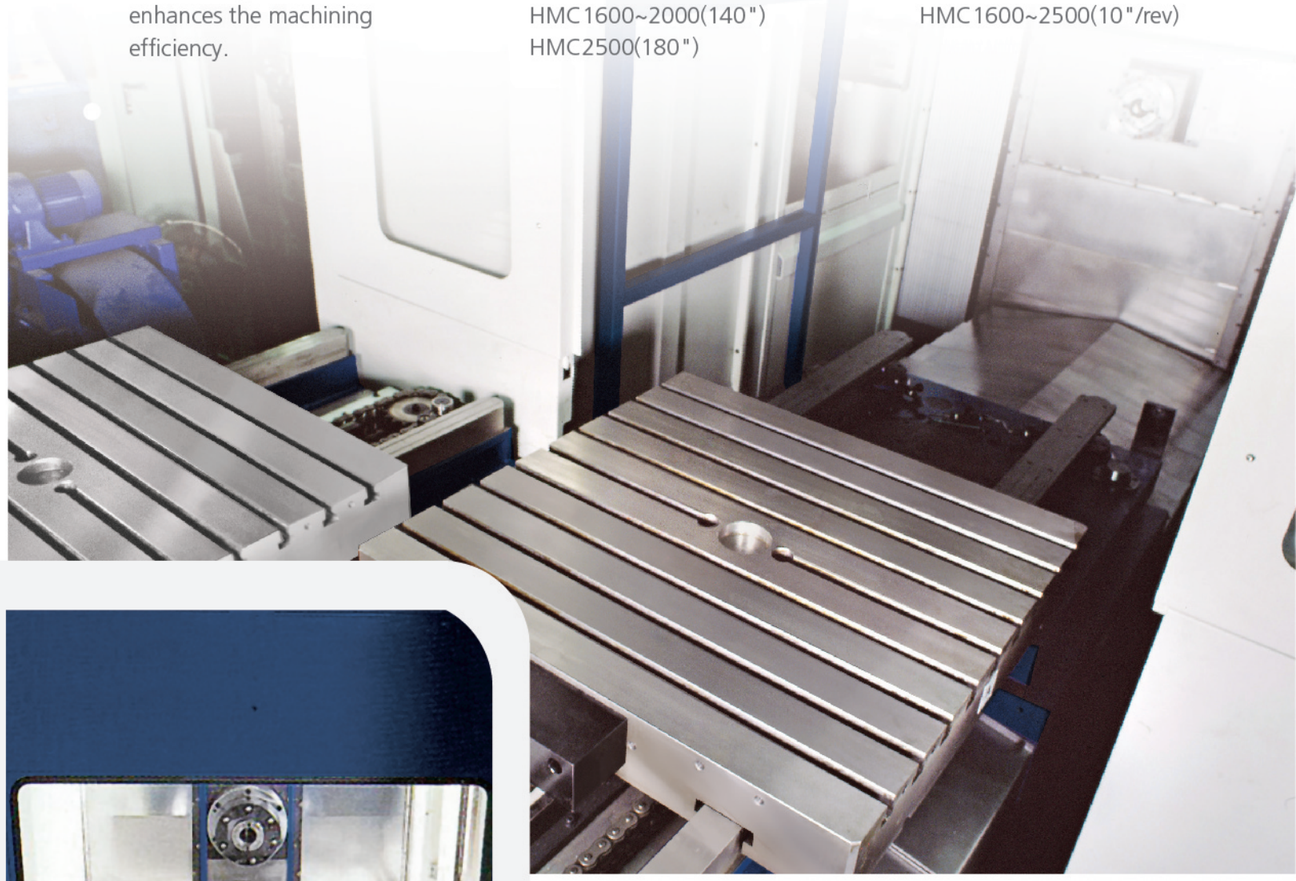


High resolution encoder

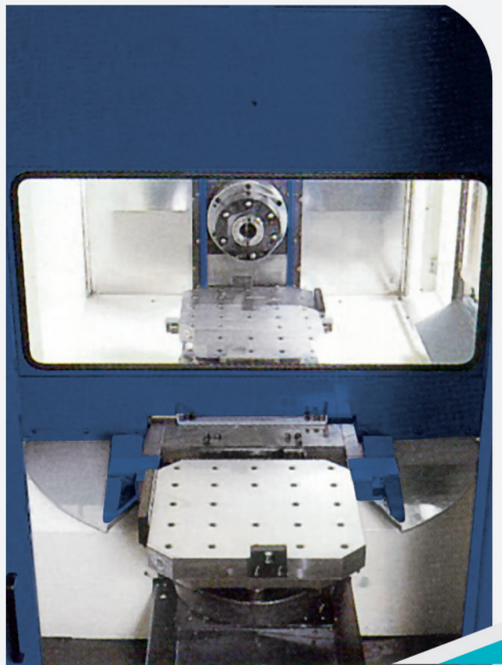
Via the high resolution encoder the accuracy resolution of rotary table reaches 0.001° to meet high precision machining demands.

APC

- APC provides fast work-piece changing to save the time of loading & unloading and enhances the machining efficiency.
- Pall changing time
  HMC500~630(20")
  HMC800(20")
  HMC1000~1200(100")
  HMC1600~2000(140")
  HMC2500(180")
- Table indexing time
  HMC500~630(5"/rev)
  HMC800(6"/rev)
  HMC1000~1200(8"/rev)
  HMC1600~2500(10"/rev)



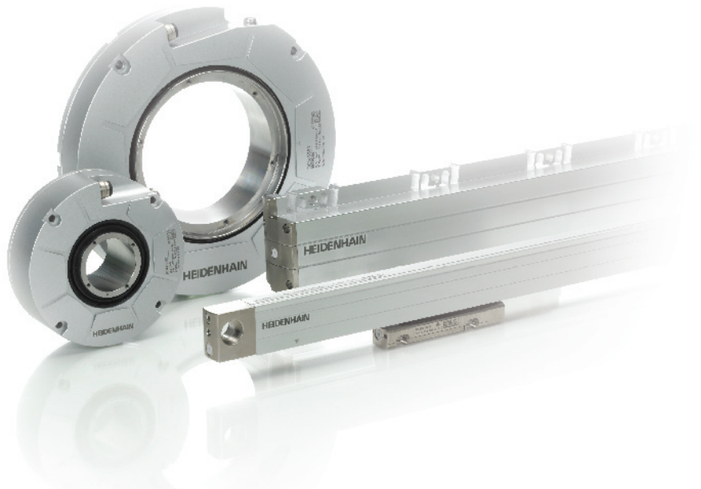
▲ HMC1000~2500 (Shuttle type APC)



◀ HMC500~800(Swing table APC)

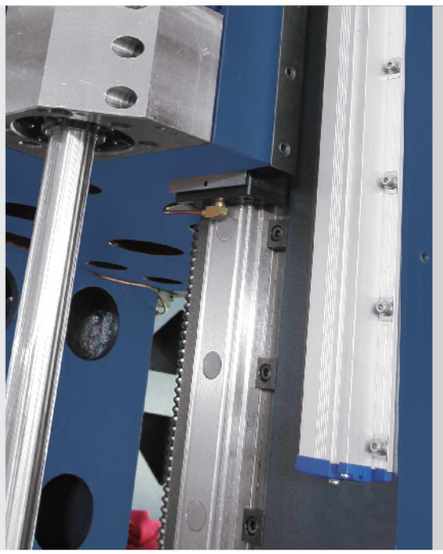
HMC series

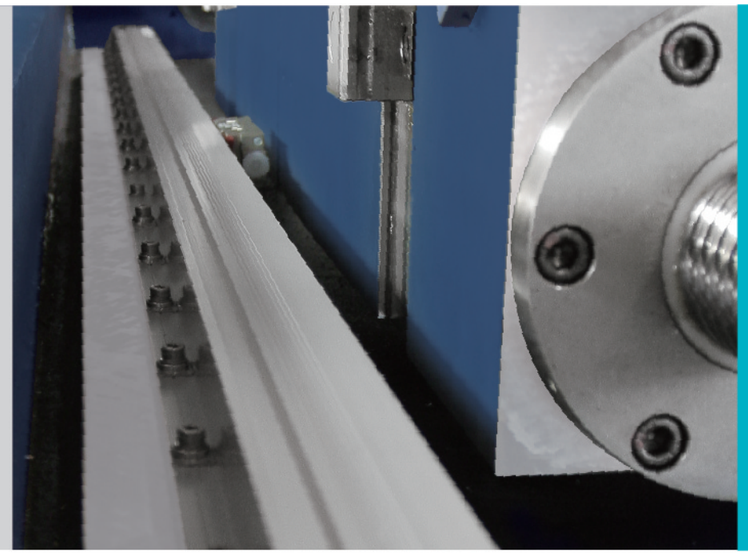
Horizontal Machining Center



Linear scales

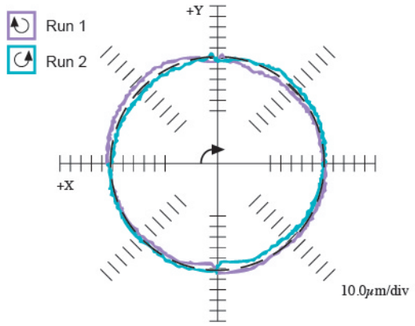
An optional linear scale can be fitted to the X/Y/Z axis. Thermal displacement will be reduced when machining high precision parts.
The linear scales are fitted with a pressurized air unit protecting the scales from oil and dust pollution, increasing the life of the linear scales.





Ball bar feature

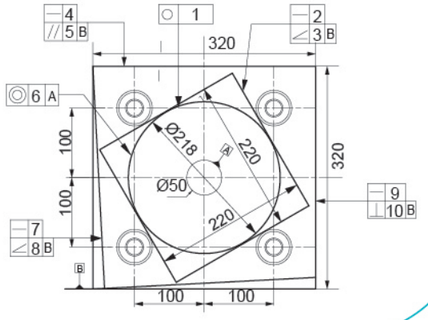
The Box in Box design with slideways at both top and bottom greatly increases the rigidity of the X-axis. This rigid design is better than a conventional single column design. The Ball bar test of X-axis and Y-axis greatly increases the interpolation movement of X & Y. Machining stability and accuracy are considerably improved compared to a conventional machine.



Ball bar test

ISO 230 standard: 30 μm

Measured Value	Test Parameter
Roundness: 14.8 μm	Diameter: 200mm
Max. deviation: 7.8 μm 57°	Feedrate: 500mm/min
Min. deviation: -7.0 μm 265°	Start angle: 0°
	End angle: 360°



Machining Accuracy

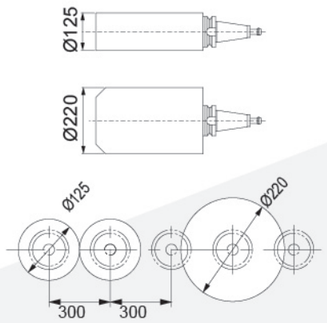
Unit：mm

NO	Item	Permissible tolerance	NO	Item	Permissible tolerance
1	Roundness	0.02	6	Concentricity	0.025
2	Straightness	0.015	7	Straightness	0.015
3	Gradient	0.02	8	Gradient	0.02
4	Straightness	0.015	9	Straightness	0.015
5	Parallelism	0.02	10	Squareness	0.02

Tool magazine

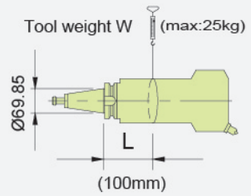
The reliable ATC which located outside of machining range uses a double arm tool change system for fast and random tool selection. The maintenance is easily assured on this hydraulic motor type system, ensuring reliable and efficient production gain.

Max. tool diameter



Max. tool support torque:

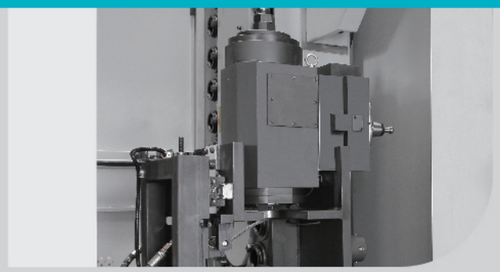
W x L=max2.5Kg-m



Max. Tool Dimension

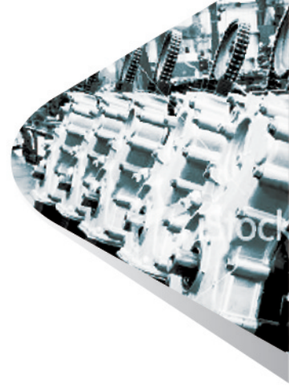
BT50	
Max. tool length	400
Max. tool diameter	Full tool (Ø125mm)
	Adjacent tool empty (Ø220mm)
Max. tool weight(kg)	25
Max. tool support torque(kg-m)	2.5

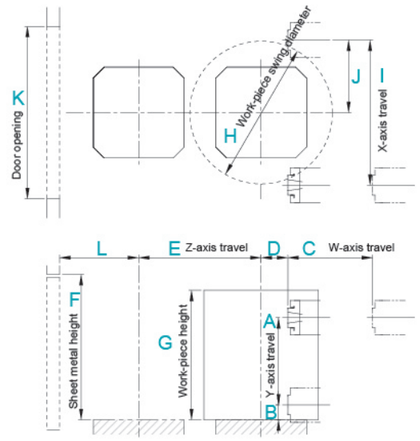
90° milling head (Option)



Parking station of 90° milling head (Option)

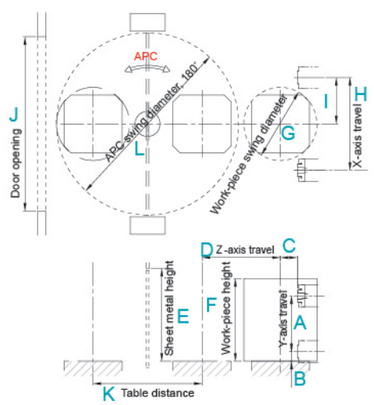
Machining Range and Axes Travel





Model HMC500B~2500B

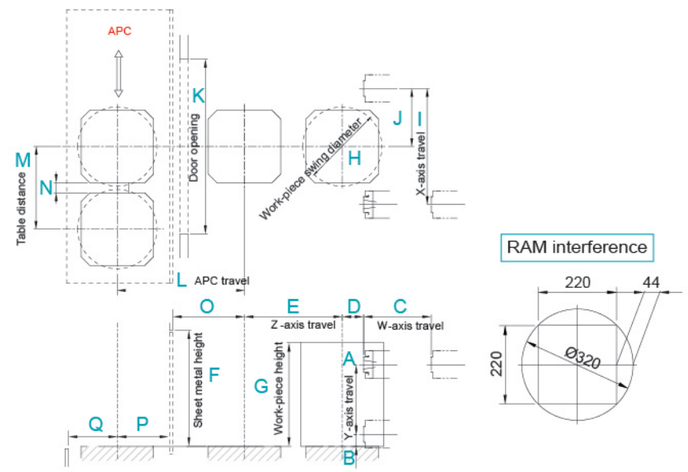
Model	A	B	C	D	E	F	G	H	I	J	K	L
HMC500B	750	0	-	150	800	1300	800	800	800	400	800	400
HMC630B	750	0	-	170	1000	1300	800	1100	1050	550	1100	600
HMC800B	1000	0	-	200	1200	1500	1000	1300	1300	750	1300	700
HMC1000B	1000	0	600	200	1200	1500	1000	1400	1500	850	1400	800
HMC1200B	1500	0	700	200	1500	2000	1500	1800	1800	1000	1800	1000
HMC1600B	1500	0	700	200	1500	2000	1500	2150	2200	1200	2150	1300
HMC2000B	1800	0	700	450	1500	2100	1800	2800	3000	1600	2400	1500
HMC2500B	1800	0	700	710	2000	2400	1800	3300	3400	1800	3300	1760



Model HMC500BP~2500BP

Fixed type spindle

Model	A	B	C	D	E	F	G	H	I	J	K	L
HMC500BP	750	0	150	800	1140	800	630	800	400	900	940	1570
HMC630BP	750	0	150	1000	1200	860	800	1050	615	1180	1250	2170
HMC800BP	1000	0	200	1200	1300	1000	1100	1300	750	1400	1420	2720



Model HMC1000BP~2500BP

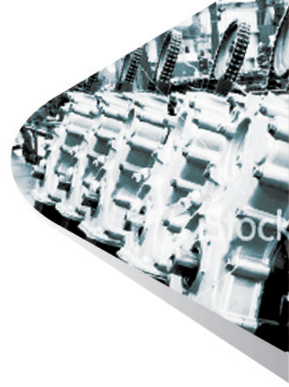
Model	A	B	C	D	E	F	G	H
HMC1000BP	1000	0	600	150	1200	1500	1000	1300
HMC1200BP	1500	0	700	200	1500	1800	1500	1600
HMC1600BP	1500	0	700	200	1500	1950	1500	1800
HMC2000BP	1800	0	700	450	1500	2100	1800	2550
HMC2500BP	1800	0	700	710	2000	2400	1800	3150

Model	I	J	K	L	M	N	O	P	Q
HMC1000BP	1500	750	1400	1410	1300	190	500	815	1200
HMC1200BP	1800	1000	1700	1550	1600	200	610	850	1300
HMC1600BP	2200	1200	1900	1950	1850	250	720	1150	1400
HMC2000BP	3000	1600	2100	2400	2600	400	1100	1250	1600
HMC2500BP	3400	1800	2700	2900	3200	600	1250	1550	1850

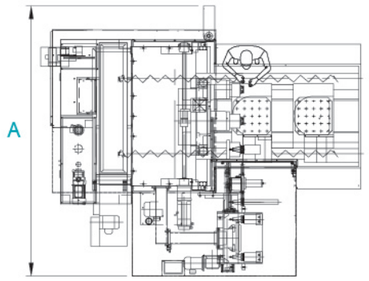
HMC series

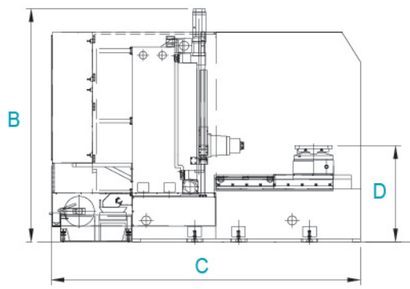
Horizontal Machining Center

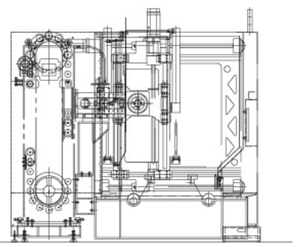
Machine Layout Dimension



Model HMC500B~800B

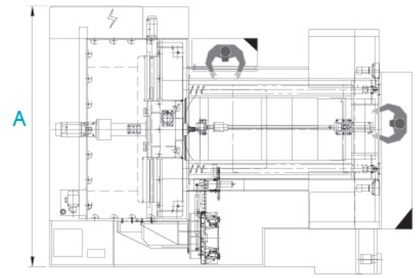


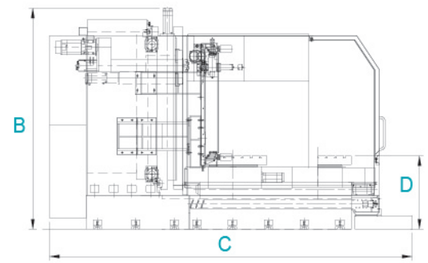


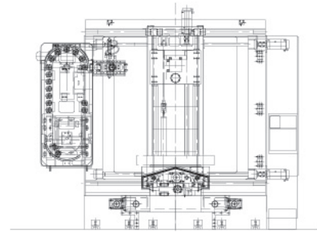


Model	A	B	C	D
HMC500B	2620	3150	3640	1280
HMC630B	3020	3250	5085	1280
HMC800B	4480	3570	5856	1440

Model HMC1000B~2500B

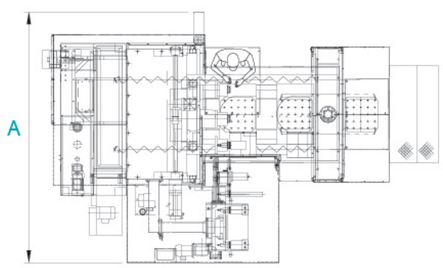


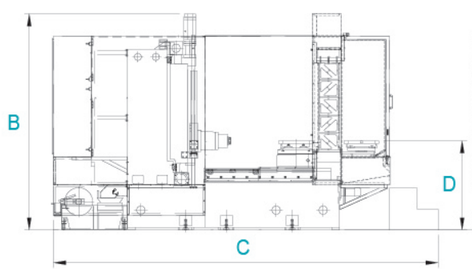


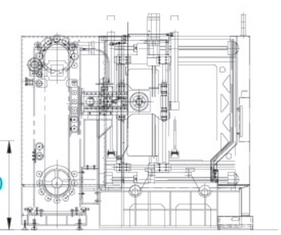


Model	A	B	C	D
HMC1000B	4830	3565	5865	1480
HMC1200B	4765	4560	6455	1480
HMC1600B	5350	4560	6555	1480
HMC2000B	6415	4660	8320	1600
HMC2500B	6720	4780	9670	1700

Model HMC500BP~800BP

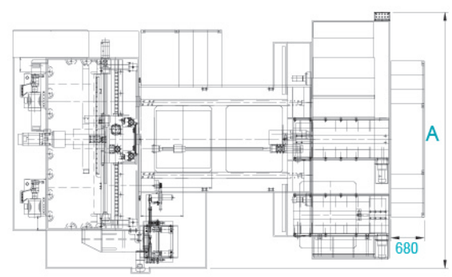


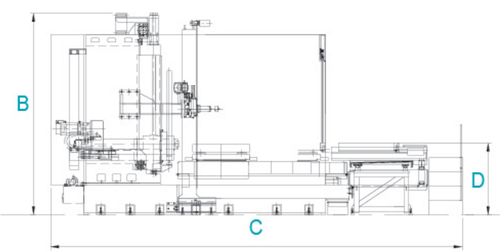


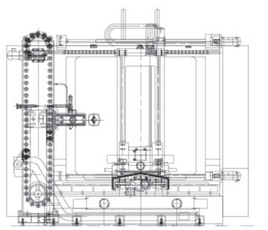


Model	A	B	C	D
HMC500BP	3280	3150	5000	1280
HMC630BP	3970	3250	5830	1280
HMC800BP	4480	3570	7100	1440

Model HMC1000BP~2500BP







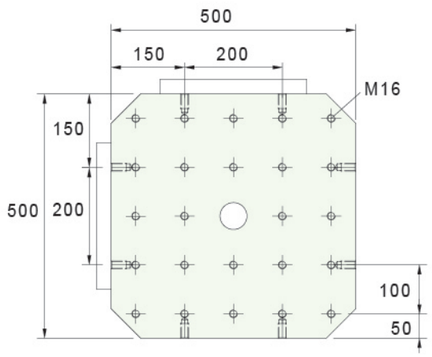
Model	A	B	C	D
HMC1000BP	4720	3660	7050	1470
HMC1200BP	5400	4560	8680	1510
HMC1600BP	6340	4560	8880	1780
HMC2000BP	7380	4660	9080	1880
HMC2500BP	7720	4780	11700	1980

HMC series

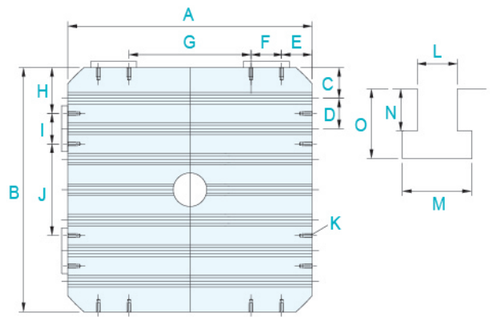
Horizontal Machining Center

Table Dimension

HMC500



HMC630~2500



Model	A	B	C	D	E	F	G	H	I	J
HMC630	630	630	115	100	65	100	300	65	100	300
HMC800	800	800	100	100	100	100	400	150	100	300
HMC1000	1100	1000	100	100	150	100	500	150	100	500
HMC1200	1400	1200	120	160	200	160	680	200	150	500
HMC1600	1600	1400	160	160	210	160	860	210	160	860
HMC2000	2200	1800	200	160	250	210	1080	250	210	1080
HMC2500	2600	2200	140	160	550	210	1080	350	210	1080

Model	K	L	M	N	O
HMC630	M12	18	32	20	30
HMC800	M16	22	37	23	38
HMC1000	M16	22	37	23	38
HMC1200	M16	22	37	23	38
HMC1600	M16	22	37	27	43
HMC2000	M16	22	37	27	43
HMC2500	M16	22	37	27	43

Machine Specifications

Machine Specifications		Unit	HMC500B	HMC500BP	HMC630B	HMC630BP	HMC800B	HMC800BP
Travel	X axis travel	mm	800		1050		1300	
	Y axis travel	mm	750		750		1000	
	Z axis travel	mm	800		1000		1200	
	W axis travel	mm	N/A		N/A		N/A	
	Distance from table surface to spindle center	mm	0~750		0~750		0~1000	
	Distance from table center to spindle nose	mm	165~950		170~1170		200~1300	
Table	Table dimension	mm	500x500		630x630		800x800	
	Maximum loading weight	kg	500		1000		1500	
	Dimension of T-slot		24xM16		18x5 Slot		22x7 Slot	
	Minimum table indexing angle	degree	0.001		0.001		0.001	
Spindle	Spindle speed	RPM	8000		8000		6000	
	Number of spindle speed ranges		N/A		N/A		N/A	
	Spindle bearing inner diameter	mm	Ø90		Ø90		Ø90	
Feed rate	X / Y / Z / W rapid traverse	m/min	X:30 Y:30 Z:15		X:30 Y:30 Z:15		X:20 Y:20 Z:15	
	Cutting feed rate	mm/min	1~15000		1~15000		1~15000	
ATC	Type of tool shank	taper	BT-50		BT-50		BT-50	
	Pull stud		P50T- I		P50T- I		P50T- I	
	Number of tools	pieces	40		40		40	
	Maximum tool diameter	mm	Ø125		Ø125		Ø125	
	Maximum tool length	mm	400		400		400	
	Maximum tool weight	kg	25		25		25	
	Method of tool selection		Automatic selection of the shortest route		Automatic selection of the shortest route		Automatic selection of the shortest route	
	Tool changing time (T to T)	sec	5		5		5	
	Tool changing time (C to C)	sec	10		10		12	
APC	Method of pallet change		N / A	180°Swing table	N / A	180°Swing table	N / A	180°Swing table
	Pallet changing time	sec	N / A	20	N / A	20	N / A	20
Motor	Spindle motor	kW	α T15/10000i(15/18.5 kW)		α T15/10000i(15/18.5 kW)		α 22/7000i(22/26kW)	
	Controller		FANUC 0i-M		FANUC 0i-M		FANUC 0i-M	
	Servo motor / X / Y / Z / W / B	kW	X,Y,Z,B: α 22/3000i(4.0kW)		X,Y,Z,B: α 22/3000i(4.0kW)		X,Z: α 30/3000i(7.0kW) Y: α 40B/3000i(6.0kW) B: α 22/3000i(4.0kW)	
	Hydraulic motor	kW	3.75		3.75		3.75+2.2	
	Motor for oil cooler	kW	0.7		0.7		0.7	
	Coolant pump	kW	0.8+0.75		0.8+0.75		1.5+2.2	
	APC motor	kW	N / A	α 22/3000i(4.0kW)	N / A	α 22/3000i(4.0kW)	N / A	α 30/3000i(7.0kW)
Accuracy	Positioning accuracy / full travel / X.Y.Z.W axis	mm	±0.010		±0.010		±0.010	
	Repeatability accuracy / X.Y.Z.W axis	mm	±0.005		±0.005		±0.005	
	B axis positioning accuracy	S	±7.5		±7.5		±7.5	
	B axis repeatability accuracy	S	±5		±5		±5	
Others	Power AC220V ±10% 60Hz ±1Hz	KVA	40		40		40	
	Air pressure required	Mpa	0.4~0.6		0.4~0.6		0.4~0.6	
	Hydraulic tank capacity	L	150		150		150	
	Lubrication tank capacity	L	4.6		8		8	
	Coolant tank capacity	L	400		500		600	
	Machine height	mm	3150		3250		3570	
	Floor dimension	mm	2620x3640	3280x5000	3020x5085	3970x5830	4480x5856	4300x7100
	Machine weight	kg	13000	19000	18000	23000	25000	29000

• Specification is subject to change without prior notice.

HMC series

Horizontal Machining Center

Machine Specifications

Machine Specifications		Unit	HMC1000B	HMC1000BP	HMC1200B	HMC1200BP	HMC1600B	HMC1600BP	HMC2000B	HMC2000BP	HMC2500B	HMC2500BP
Travel	X axis travel	mm	1500		1800		2200		3000		3400	
	Y axis travel	mm	1000		1500		1500		1800		1800	
	Z axis travel	mm	1200		1500		1500		1500		2000	
	W axis travel	mm	600		700		700		700		700	
	Distance from table surface to spindle center	mm	0~1000		0~1500		0~1500		0~1800		0~1800	
	Distance from table center to spindle nose	mm	200~1300		200~1700		270~1770		400~1900		710~2710	
Table	Table dimension	mm	1100x1000		1400x1200		1600x1400		2200x1800		2600x2200	
	Maximum loading weight	kg	3000		5000		8000		10000		15000	
	Dimension of T-slot		22x9 Slot		22x9 Slot		22x9 Slot		22x11 Slot		22x13 Slot	
	Minimum table indexing angle	degree	0.001		0.001		0.001		0.001		0.001	
Spindle	Spindle speed	RPM	3500		3500		3500		3500		3500	
	Number of spindle speed ranges		2 steps (1:4)		2 steps (1:4)		2 steps (1:4)		2 steps (1:4)		2 steps (1:4)	
	Spindle bearing inner diameter	mm	Ø90		Ø90		Ø90		Ø90		Ø90	
Feed rate	X / Y / Z / W rapid traverse	m/min	X:20 Y:20 Z:15 W:15		X:20 Y:20 Z:15 W:15		X:20 Y:20 Z:15 W:15		X:20 Y:20 Z:15 W:15		X:20 Y:20 Z:15 W:15	
	Cutting feed rate	mm/min	1~15000		1~15000		1~15000		1~15000		1~15000	
ATC	Type of tool shank	taper	BT-50		BT-50		BT-50		BT-50		BT-50	
	Pull stud		P50T- I		P50T- I		P50T- I		P50T- I		P50T- I	
	Number of tools	pieces	40		40		40		40		40	
	Maximum tool diameter	mm	Ø125		Ø125		Ø125		Ø125		Ø125	
	Maximum tool length	mm	400		400		400		400		400	
	Maximum tool weight	kg	25		25		25		25		25	
	Method of tool selection		Automatic selection of the shortest route		Automatic selection of the shortest route		Automatic selection of the shortest route		Automatic selection of the shortest route		Automatic selection of the shortest route	
	Tool changing time (T to T)	sec	5		5		5		5		5	
	Tool changing time (C to C)	sec	12		12		12		12		12	
APC	Method of pallet change		N / A	Shuttle type	N / A	Shuttle type	N / A	Shuttle type	N / A	Shuttle type	N / A	Shuttle type
	Pallet changing time	sec	N / A	100	N / A	100	N / A	140	N / A	140	N / A	180
Motor	Spindle motor	kW	α 22/7000i(22/26kW)		α 22/7000i(22/26kW)		α 30/6000i(30/37kW)		α 30/6000i(30/37kW)		α 30/6000i(30/37kW)	
	Controller		FANUC 0i-M		FANUC 0i-M		FANUC 0i-M		FANUC 0i-M		FANUC 0i-M	
	Servo motor / X / Y / Z / W / B	kW	X,Z,W: α 30/3000i(7.0kW) Y: α 40B/3000i(6.0kW) B: α 30/3000i(7.0kW)		X,Z,W: α 30/3000i(7.0kW) Y: α 40B/3000i(6.0kW) B: α 30/3000i(7.0kW)		X,Z,W: α 30/3000i(7.0kW) Y: α 40B/3000i(6.0kW) B: α 40/3000i(6.0kW)		X,W: α 30/3000i(7.0kW) Y: α 40B/3000i(6.0kW) B,Z: α 40/3000i(6.0kW)		X,W: α 30/3000i(7.0kW) Y: α 40B/3000i(6.0kW) B,Z: α 40/3000i(6.0kW)	
	Hydraulic motor	kW	3.75+2.2		3.75+2.2		3.75+2.2		3.75+2.2		3.75+2.2	
	Motor for oil cooler	kW	0.7		0.7		0.7		0.7		0.7	
	Coolant pump	kW	1.5+2.2		1.5+2.2		1.5+2.2		1.5+2.2		1.5+2.2	
	APC motor	kW	N / A	1.5	N / A	1.5	N / A	2.2	N / A	2.2	N / A	2.2
Accuracy	Positioning accuracy / full travel / X.Y.Z.W axis	mm	±0.015		±0.015		±0.015		±0.015		±0.015	
	Repeatability accuracy / X.Y.Z.W axis	mm	±0.008		±0.008		±0.008		±0.008		±0.008	
	B axis positioning accuracy	S	±7.5		±7.5		±7.5		±7.5		±7.5	
	B axis repeatability accuracy	S	±5		±5		±5		±5		±5	
Others	Power AC220V ±10% 60Hz ±1Hz	KVA	65		65		65		65		65	
	Air pressure required	Mpa	0.4~0.6		0.4~0.6		0.4~0.6		0.4~0.6		0.4~0.6	
	Hydraulic tank capacity	L	150		150		150		150		150	
	Lubrication tank capacity	L	8		8		8		8		8	
	Coolant tank capacity	L	600		600		800		800		800	
	Machine height	mm	3565		4560		4560		4660		4780	
	Floor dimension	mm	4830x5865	4720x7050	4765x6455	5400x8680	5350x6555	6340x8880	6415x8320	7380x9080	6720x9670	7720x11700
	Machine weight	kg	30000	35000	40000	46000	48000	54000	50000	57000	60000	68000

• Specification is subject to change without prior notice.

Standard Accessories

- Fanuc 0i-M controller
- Automatic pallet changer (BP series)
- Rotary table (indexing angle 0.001°)
- Linear scales for X, Y, Z-axis (Fagor)
- Screw type chip disposal
- Steel belt type chip conveyor
- Coolant unit
- Coolant through spindle system17 bar
- Deluge coolant
- Coolant system around the spindle
- Oil skimmer
- Coolant gun
- Hydraulic unit
- 40 tools ATC
- Spindle air blast system
- Dual speed gearbox (HMC1000-2500)
- Air conditioner for electrical cabinet
- Rigid tapping
- Full enclosure guarding
- Auto lubrication unit
- Protection covers for slideways
- Tool box
- Signal tower light (3 stage)
- Working lamp
- Leveling bolts and pads
- Operation / Electric manual

Optional Accessories

- Siemens 840D controller
- Rotary table (indexing angle 5°)
- Rotary encoder for rotary table
- Dual speed gearbox (HMC500-800)
- Linear scales for X, Y, Z-axis (Heidenhain)
- Scraper type chip conveyor
- Coolant cooler
- Coolant float switch
- 60, 80, 120 tools ATC
- 90°milling head
- Parking station of 90° milling head
- Oil mist collector
- Work-piece probe
- Tool presetter
- Transformer
- CE Mark
- Door interlock