QUASER
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HX SERIES

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HX SERIES

	Pallet size	Spindle taper
HX404	☐ 400	BBT40
HX504	☐ 500	BBT40
HX505	☐ 500	BBT50
HX635	☐ 630	BBT50
HX805	☐ 800	BBT50

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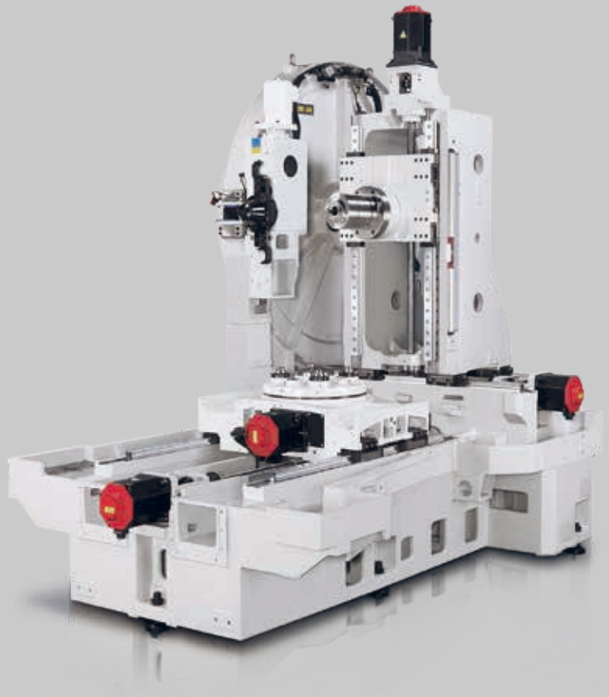
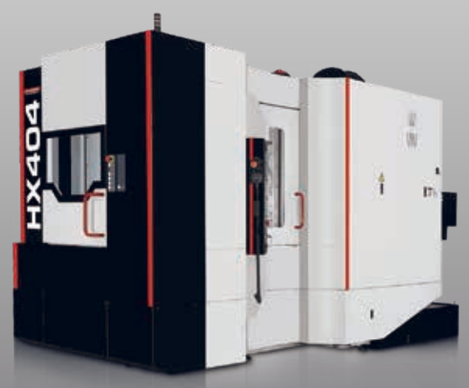
Horizontal Machining Center

HX404 & HX504 & HX505

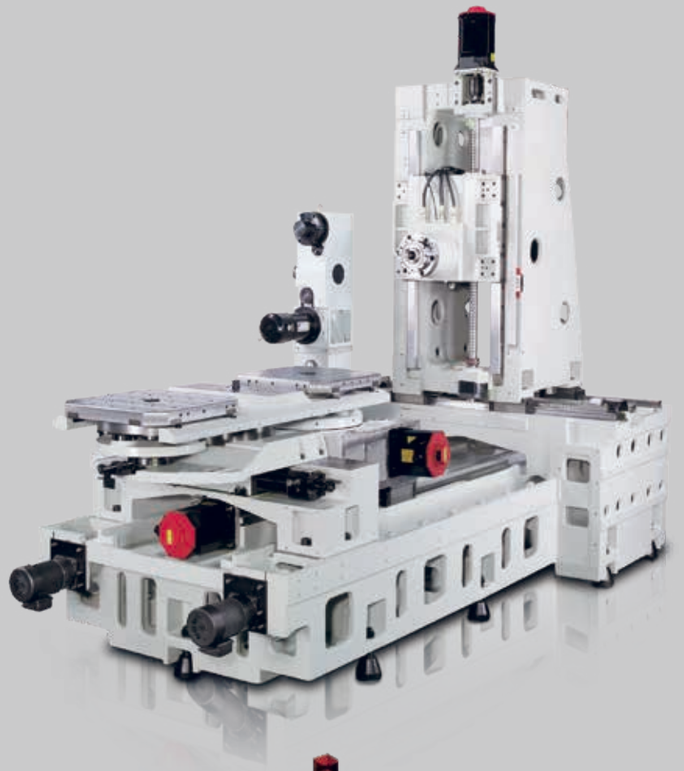
HX404 Max. workpiece: Ø630 mm x 900 mm / 400 kg





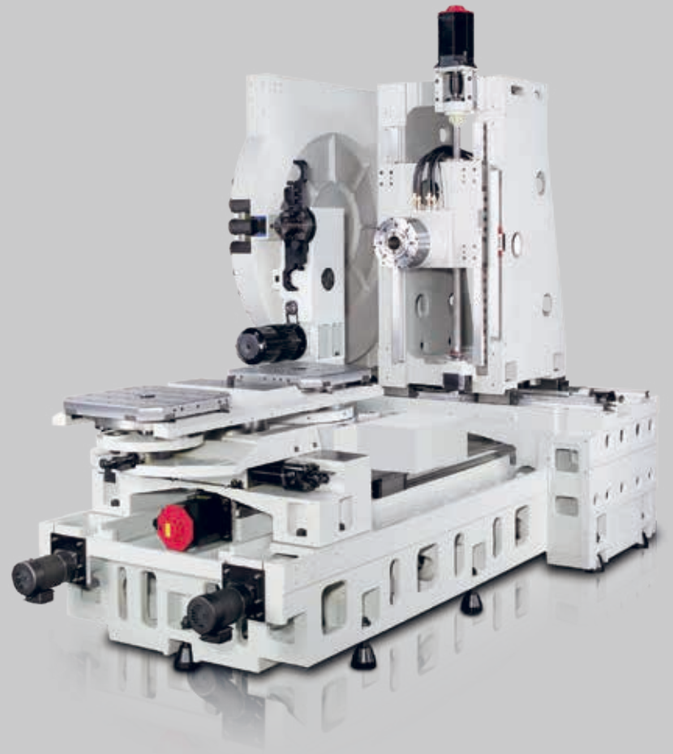
HX404E / HX404P

HX504 Max. workpiece: Ø762 mm x 900 mm / 500 kg



HX504E / HX504P

HX505 Max. workpiece: Ø800 mm x 900 mm / 500 kg



HX505E / HX505P

HX635 & HX805

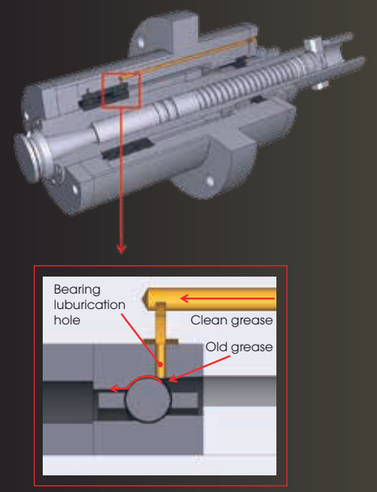
HX635 Max. workpiece: Ø950 mm x 950 mm / 900 kg

HX805 Max. workpiece: Ø1,200 mm x 1,100 mm / 1,500 kg

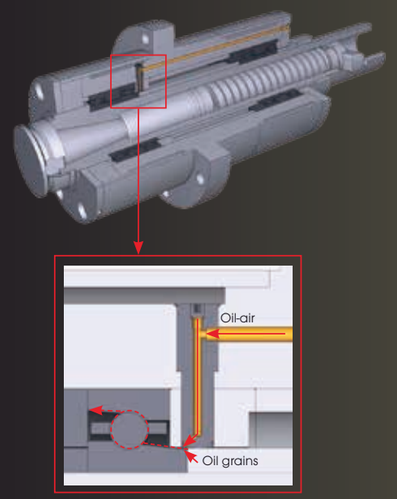
Note: Machine might be different form the photo if there is any update.

Unique spindle technology

- Re-grease supply system is stable and eco-friendly by supplying new grease intermittently to bearings during high speed rotation.

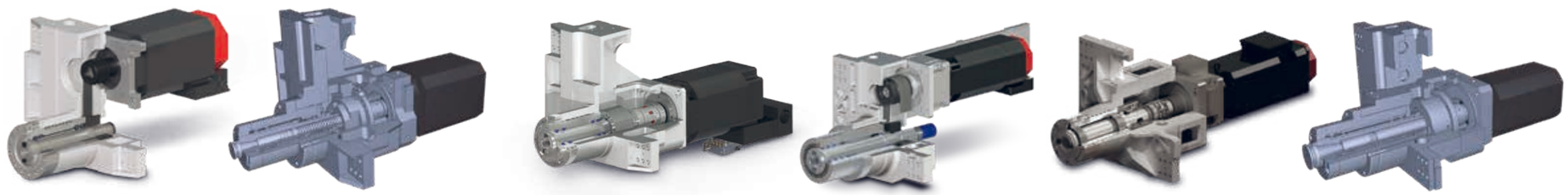


- Oil-Air lubrication system realizes stable operation on high speed rotation with large diameter spindles by utilizing compressed air to supply very little oil intermittently to the bearings .



40/50 Taper

Belt driving | Coupling | Coupling | Gear box + Belt driving | Gear box + Coupling | Coupling



SPINDLE	MB-4.0	MB-4.0	SC-4.2	MC-4.1R	MC-4.0R	SB-5.0A	SB-5.1A	SC-5.0	RC5.0A	MC-5.0A
Shaft diameter	Ø70 / Ø65	Ø70 / Ø65	Ø80 / Ø70	Ø80 / Ø65	Ø70 / Ø60	Ø100 / Ø90		Ø100		Ø90
Spindle Taper	ISO-40		ISO-40	ISO-40 / HSK A63		ISO-50			ISO-50	
Bearing arrangement	< > =	< > =	<< >>	< > =	< > =	=<< > =	=<< > =	<< >>	<< >>	<< >>
Ball bearing type	Ceramic	Ceramic	Ceramic	Ceramic	Ceramic	Ceramic	Ceramic	Steel	Ceramic	Ceramic
Roller bearing type	Steel	Steel	-	Steel	Ceramic	Steel	Steel	-	-	-
Bearing lubrication	Grease packed		Grease packed	Re-Grease		Oil-Air		Grease packed	Oil-Air	
Transmission	Belt	Belt	Coupling	Coupling		Belt	Belt + Gear box	Coupling+ Gear box	Coupling	
Spindle Speed	9,000 / 12,000	9,000 / 12,000	12,000	15,000	20,000	6,000	6,000 / 7,500	6,000	10,000	15,000
FANUC										
Spindle base speed	1,125 / 1,500	1,125 / 1,500	1,500	1,400 / 600	1,150	750	300 / 375	375	500 / 460	600
Spindle output power kW (S6-25%)	25 / 25	35	15	26 / 30(1)	15	35	35 / 35	35	18.5(3) / 22(3)	30(1)
Spindle output torque Nm (S6-25%)	212 / 159	297 / 223	95.5	177 / 350(2)	125	446	114 / 891	891	353(3) / 457(4)	350(2)
SIEMENS										
Spindle base speed	- / -	1,500 / 2,000	1,500	2,000 / 2,000	-	1,000	350 / 437.5	437.5	- / 2,000	-
Spindle output power kW (S6-25%)	- / -	46.5	13.3	27.7 / 46.5	-	46.5	40.9 / 40.9	40.9	- / 46.5	-
Spindle output torque Nm (S6-25%)	- / -	296 / 222	85	132 / 222	-	444	1,115 / 892	892	- / 222	-
CTS Availability	● ●	● ●	○	● ●	●	●	● ●	●	● ●	●
Available NC adapting										
40 Taper										
HX404E	- -	- -	🟡🔵	- -	-	-	- -	-	- -	-
HX404P	- -	- -	-	🟡🔵 -	🟡	-	- -	-	- -	-
HX504AE / HX504BE	🟡 🟡	- -	-	- -	-	-	- -	-	- -	-
HX504AP / HX504BP	- -	🟡🔵 🟡🔵	-	🟡 🟡🔵	🟡	-	- -	-	- -	-
50 Taper										
HX505AE	- -	- -	-	- -	-	🟡	- -	-	🟡 -	-
HX505AP	- -	- -	-	- -	-	🟡🔵	- -	-	🟡 -	-
HX635A-HT / HX635B-HT	- -	- -	-	- -	-	-	- -	🟡🔵	- -	-
HX635A-HS / HX635B-HS	- -	- -	-	- -	-	-	- -	-	- 🟡🔵	-
HX805A-HT / HX805B-HT	- -	- -	-	- -	-	-	🟡🔵 🟡🔵	-	- -	-
HX805A-HS / HX805B-HS	- -	- -	-	- -	-	-	- -	-	- -	🟡

Note: (1)S6-60% (2)S6-40% (3)S3-40% (4)S3-25%
●: Standard ○: Option

Direct axes transmission

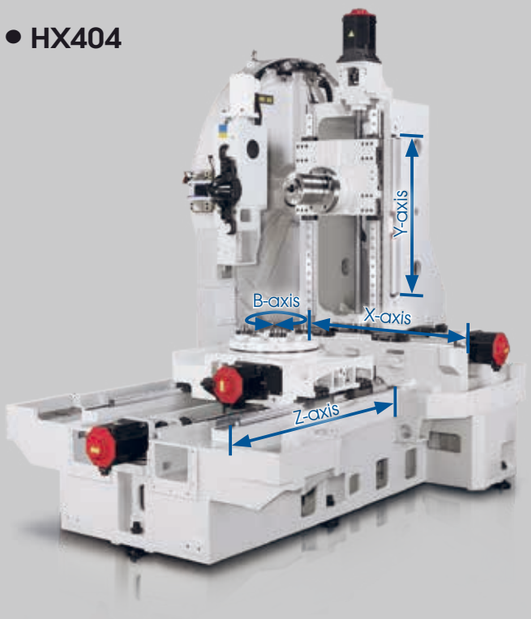
Control: (F) FANUC (S) SIEMENS

		HX404		HX504		HX505		HX635 ; HX805	
		A / B		A / B		A		A / B	
Specification code		E	P	E	P	E	P	HT	HS
Motor X / Y / Z (KW)	F	4.5 / 4.5 / 4.5	4.5 / 5.5 / 5.5	3 / 4 / 3	4 / 4 / 4	4 / 4 / 4		7 / 6 / 7	
	S	3.1 / 3.1 / 4.9	4.9 / 4.9 / 4.9	-	4.8 / 4.4 / 4.8	-	4.8 / 4.8 / 4.8	4.4 / 4.4 / 4.4	
B (KW)	F	2.7 / 4.5		3 / 4		3		3 / 4	3 / 4
	S	2.7 / 3.3		-	2.7	-	2.7	3.3	
Rapid X / Y / Z (m/min)		48	60	32	48	32		40	
Acceleration X / Y / Z (m/s^2)		6 / 7 / 9 (F) (S)	7.8 / 9.8 / 9.8 (F) (S)	3 / 4 / 4 (F)	4 / 5 / 5 (F) 4 / 5 / 5 (S)	3 / 4 / 4 (F)	3 / 4 / 4 (F) 3 / 4 / 4 (S)	4 / 5 / 5 (F) 4 / 5 / 5 (S)	

Note: A= 1° / B=0.001°

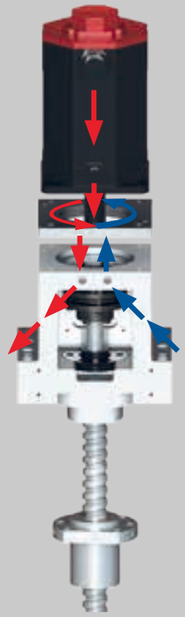
Thermal solution for HX404

- **HX404**

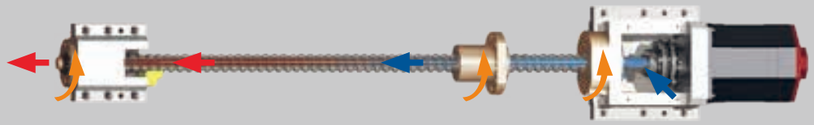


- **Additional Y-axis cooling plate**

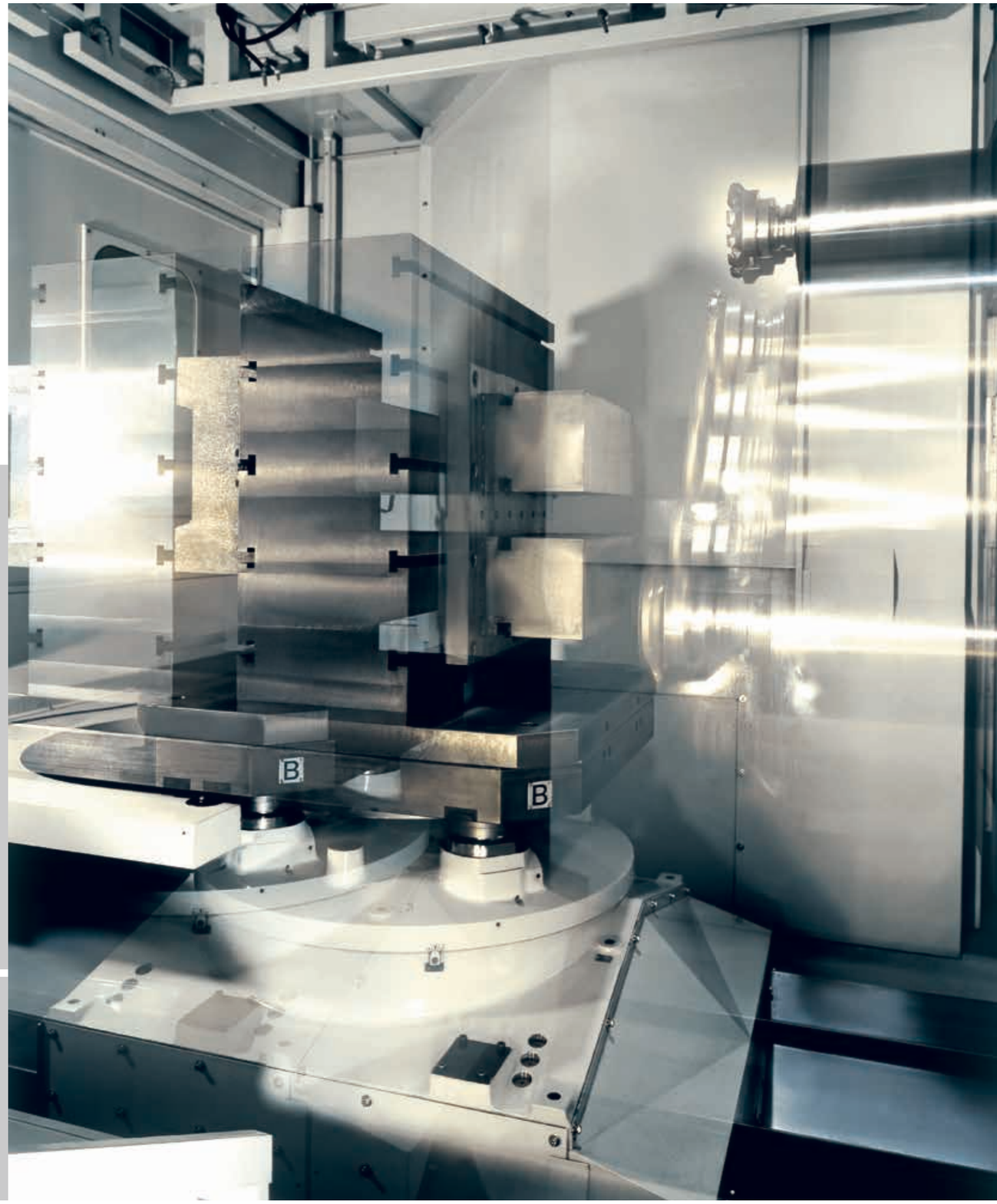
Y axis cooling plate prevents the heat produced by the motor from conducting to Y axis which may cause deformation.

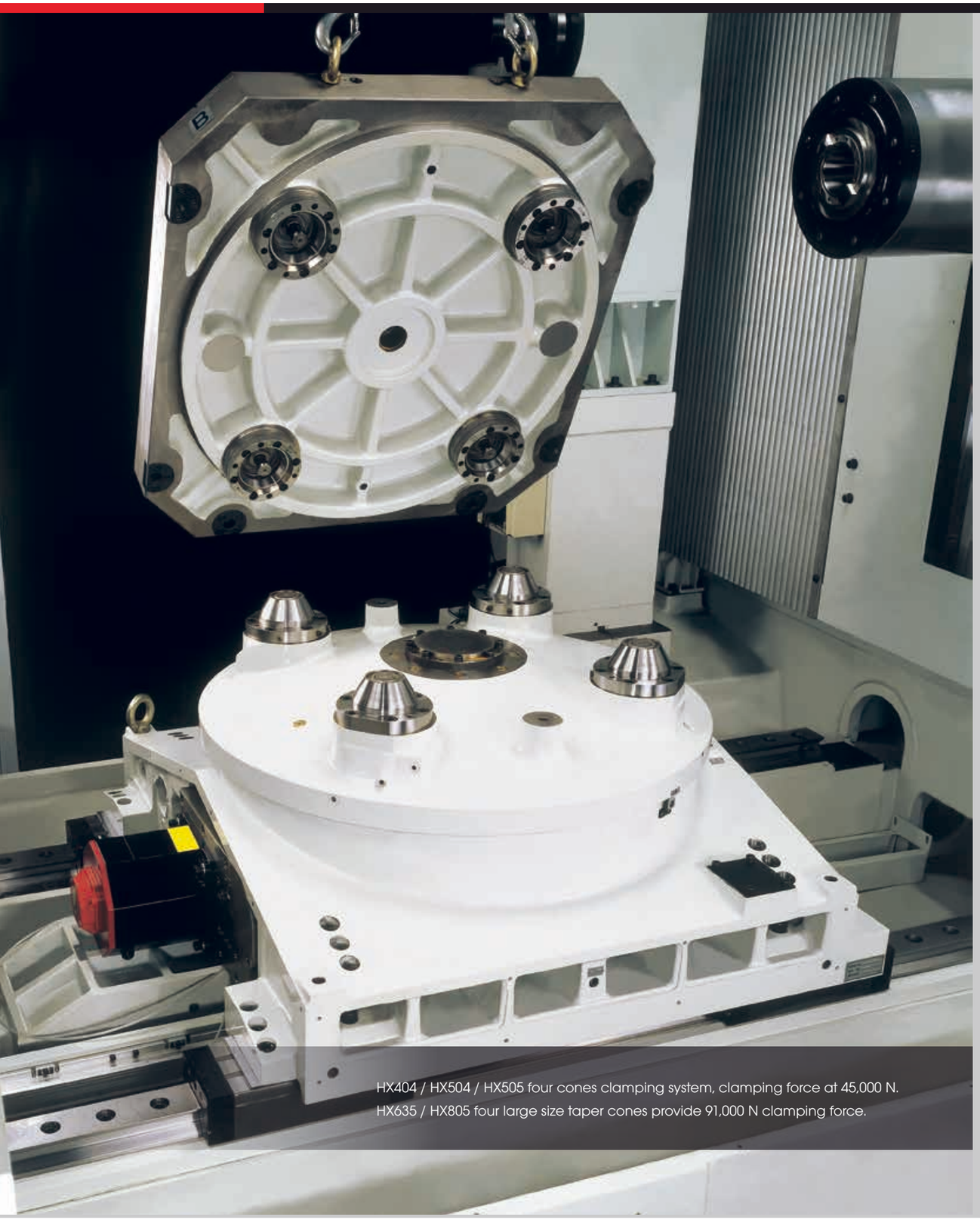


- **Auto grease axes bearing and ballscrew nut.**
- **Coolant through ballscrew***



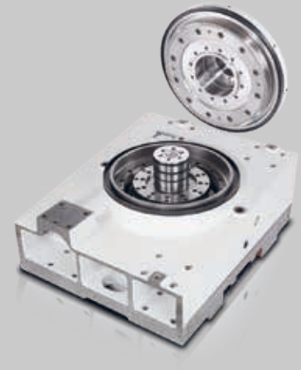
Note: *Coolant through ball screw is available on HX404E/P & HX504E/P

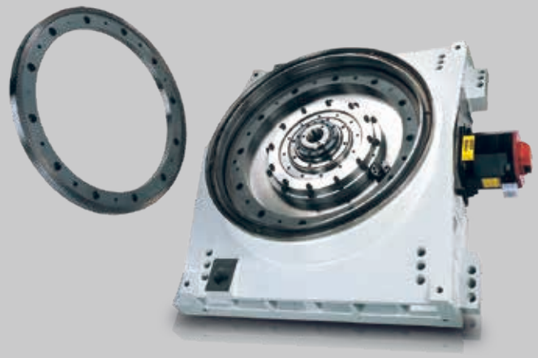




HX404 / HX504 / HX505 four cones clamping system, clamping force at 45,000 N.
HX635 / HX805 four large size taper cones provide 91,000 N clamping force.

1° indexing table Hirth coupling





	HX404	HX504 / HX505	HX635	HX805
Pallet size	400 x 400 mm	500 x 500 mm	630 x 630 mm	800 x 800 mm
Accuracy (VDI)	8 sec	8 sec	8 sec	8 sec
Repeatability (VDI)	3 sec	3 sec	3 sec	3 sec
Large tooth coupling	Ø360	Ø360	Ø520	Ø700
Tilting moment	7,800 Nm	7,800 Nm	15,000 Nm	28,000 Nm
High clamping force	40,000 N	40,000 N	90,000 N	90,000 N

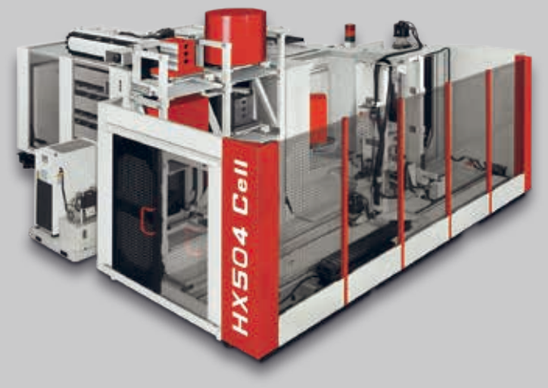
0.001° NC rotary table

	HX404	HX504	HX635	HX805
Pallet size	400 x 400 mm	500 x 500 mm	630 x 630 mm	800 x 800 mm
Indexing accuracy (VDI)	10 sec	10 sec	10 sec	10 sec
Repeatability (VDI)	4 sec	4 sec	4 sec	4 sec
Tilting moment	4,000 Nm	4,000 Nm	9,000 Nm	19,000 Nm
High clamping force	3,200 N	3,200 N	4,100 N	5,635 N
Drive torque	2,550 Nm	2,550 Nm	2,550 Nm	3,200 Nm

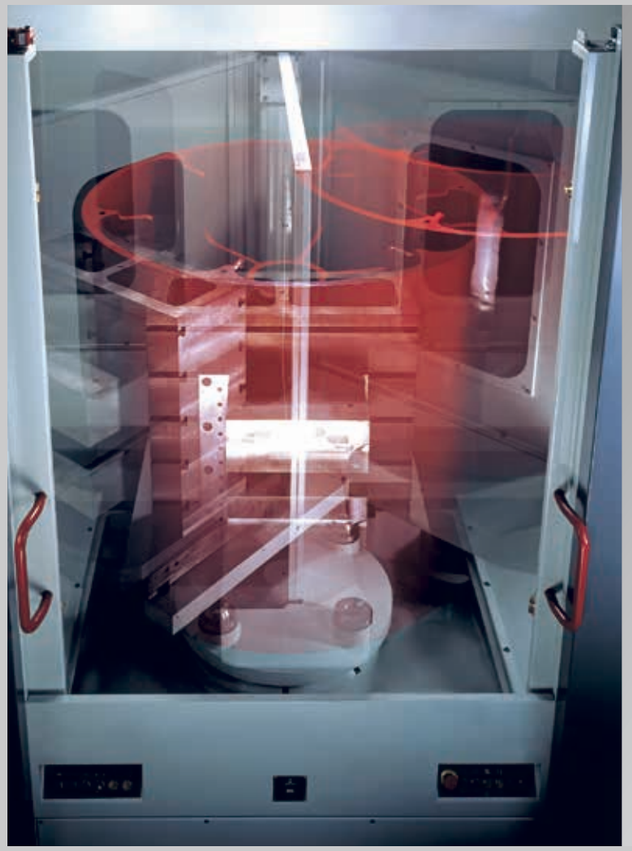
Pallet system

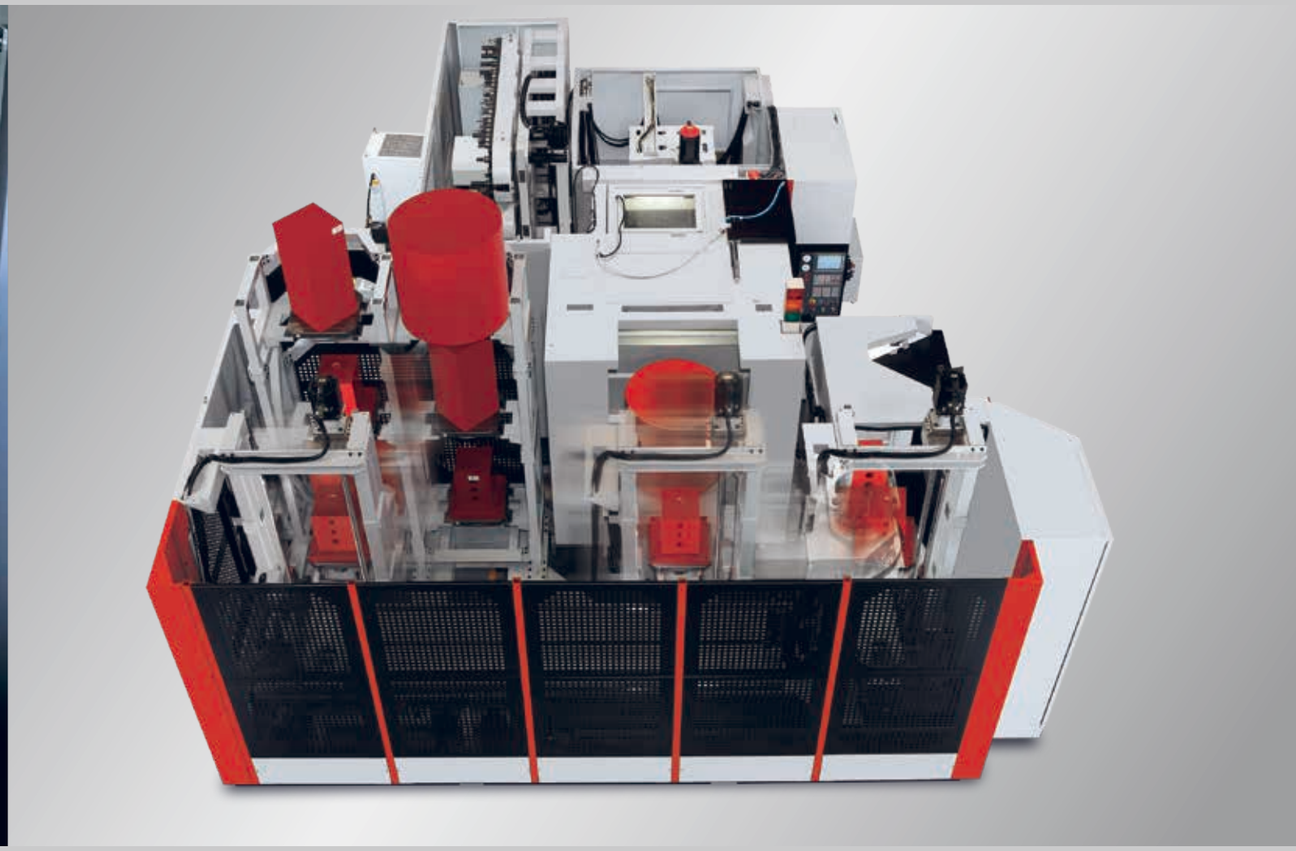
	HX404		HX504		HX505		HX635		HX805	
Specification code	E	P	E	P	E	P	HT	HS	HT	HS
APC time (sec.) at 60Hz	10.5±0.2	5.5±0.2	10.5±0.2				14±0.2		19±0.2	
Pallet load capacity (kgs / each)	400		500				900		1500	
Pallet changing repeatability (mm)	0.01									

HX504 & HX505 Cell



HX504: Max. ATC capacity: 240
Pallet capacity: 8 or 14
HX505: Max. ATC capacity: 150
Pallet capacity: 8 or 14





Note: Find details in Horizontal M/C Cell.

ATC system

(D) Disk type (C) Chain type

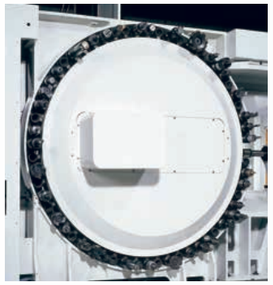
By std. magazine combination	HX404	HX504		HX505			HX635			HX805	
	A / B	A / B		A			A / B			A / B	
Specification code	E / P	E / P		E / P			HT / HS			HT / HS	
ATC type	ISO40			ISO50							
No. of tools	60 (D)	60 (D)	120 (C)	40 (D)	60 (C)	120 (C)	40 (D)	60 (C)	120 (C)	60 (C)	120 (C)
Max. tool length (mm)	350	450		400			500			600	
Max. tool weight (kg)	7	10	8	15	20	30	15	20	30	20	30
Max. tool diameter (mm)	Ø76.2		Ø95	Ø110		Ø125	Ø110	Ø125		Ø125	

By std. magazine combination	HX404		HX504		HX505		HX635		HX805	
	A/B		A / B		A		A / B		A / B	
Specification code	E	P	E	P	E	P	HT	HS	HT	HS
Tool to tool time (sec.) at 60Hz	1.3±0.2		2.3±0.2		3.4±0.2		3.9±0.2		3.9±0.2	
Chip to chip time (sec.) at 60Hz	5±0.2		7±0.2		8±0.2		8.5±0.2		8.5±0.2	

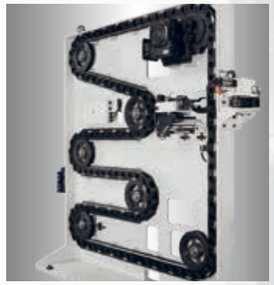
ISO40

60(C)

60(D)



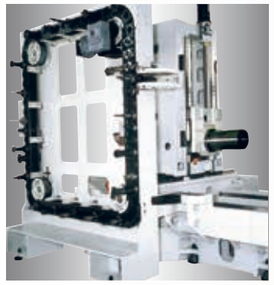
120(C)



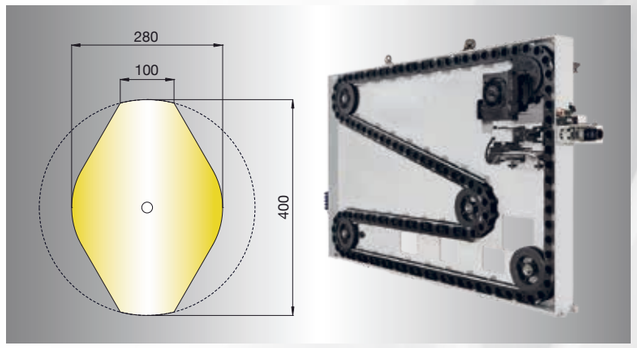
ISO50

40(D)

60(C)



120(C)



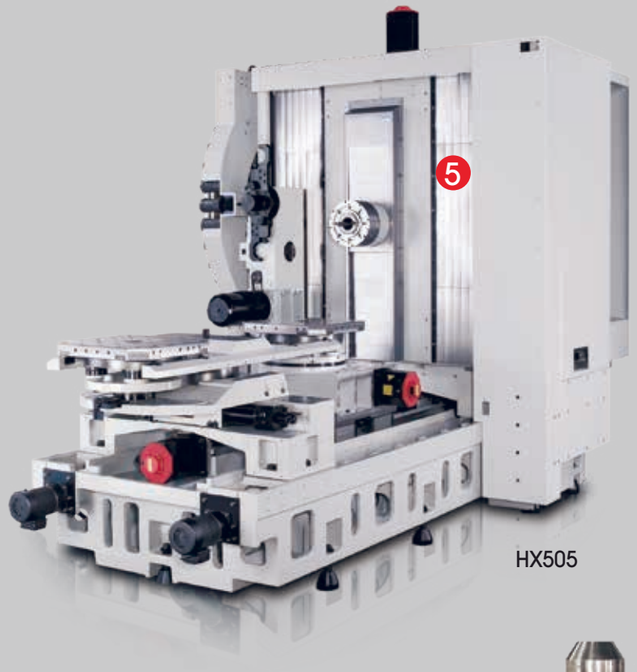
Ø400 is only applicable to special tools

Coolant & chip management

Total solution on coolant & chip management:

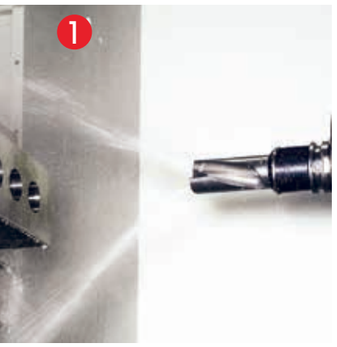
1. Coolant through spindle
2. Nozzle coolant
3. Wash gun
4. Ceiling wash down
5. X axis way cover
6. Internal chip augers
7. Large capacity coolant tank
8. External chip conveyor
9. W-shaped Z axis telescopic cover (HX404) (patent)

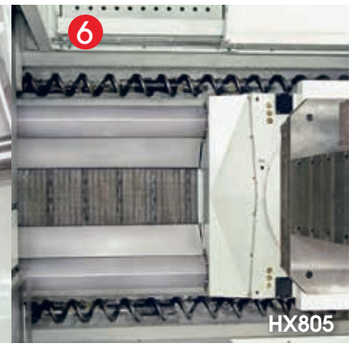
	HX404		HX504		HX505		HX635		HX805	
Specification code	E	P	E	P	E	P	HT	HS	HT	HS
Coolant tank	650 L		450 L		450 L		900 L		1,200 L	
Coolant through spindle	8 bar	20 bar	20 bar		20 bar		20 bar			
Nozzle coolant	3.5 bar		3 bar				4 bar			
Ceiling wash down	3.5 bar		3 bar		3 bar		2.6 bar			
Wash gun	1.5 bar		3 bar		3 bar		2.6 bar			
Drum filter	Opt.		Opt.		Opt.		Opt.			



HX505

HX805





HX805

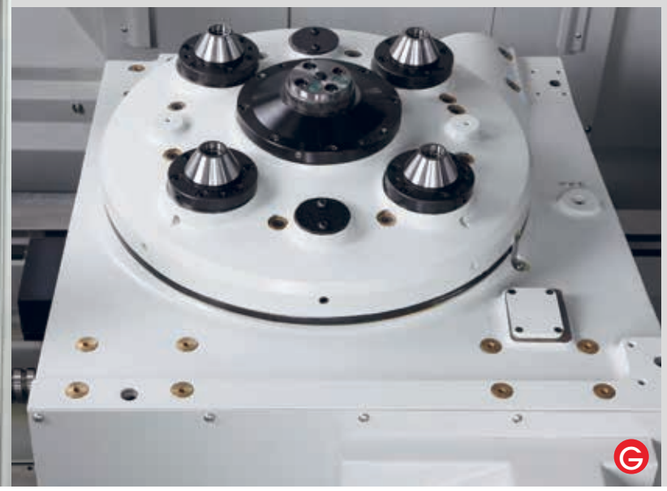
HX635

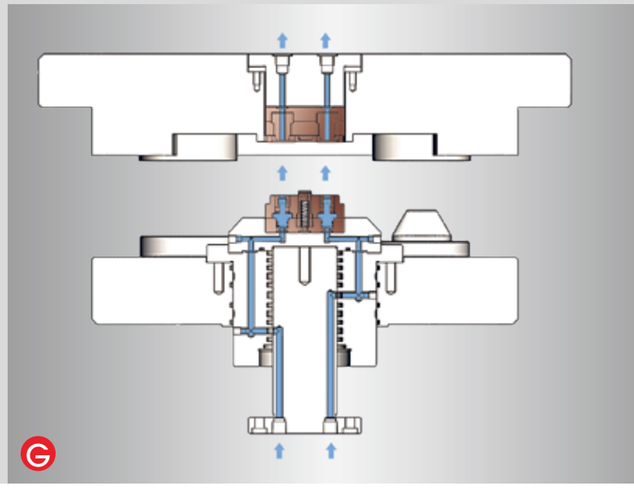
HX504/505

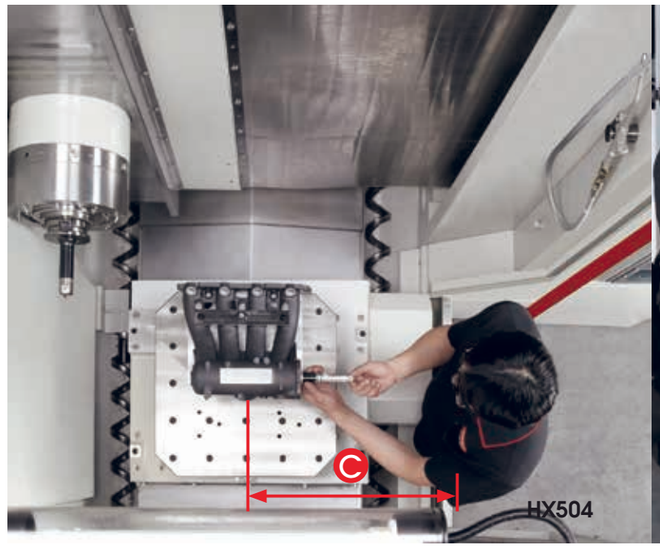
HX404

Easy operation

		HX404	HX504	HX505	HX635	HX805
A	Operator side door open	565 mm	703 mm	703 mm	745 mm	810 mm
B	Side door to spindle at convenient for manual tool loading / unloading from spindle	220 mm	285 mm	285 mm	145 mm	268 mm
C	From center of table to operator door	505 mm	645 mm	645 mm	645 mm	868 mm
D	Tool loading / unloading on magazine side					
E	Easy access to maintain machine					
F	Swivel type operation panel					
G	Hydraulic through pallet					







HX404 SERIES ISO 40

Control: (F) FANUC (S) SIEMENS

Technical Data		HX404 A / B		
Specification code		E	P	
Work range				
Pallet size (mm)		□400		
Max. work swing diameter (mm)		Ø630		
Max. work piece height (mm)		900		
Table load capacity (kg)		400		
Travel X / Y / Z (mm)		560 / 640 / 640		
B minimum indexing (degree)		1 / 0.001		
Table surface to spindle center (mm)		80		
Spindle nose to table center (mm)		70		
Surface configuration		24-M16@pitch80 mm grid		
Feed drive				
Feed force	X / Y / Z (N)	8,638 / 8,638 / 8,638 (F) 7,854 / 7,854 / 10,603 (S)	6,911 / 9,425 / 9,425 (F) 8,483 / 8,483 / 8,483 (S)	6,911 / 9,425 / 9,425 (F)
Rapid movement	X / Y / Z (m/min)	48	60	
	B (sec. /90 degree)	2.5 / 1.5		
Acceleration	X / Y / Z (m/s^2)	6 / 7 / 9	7.8 / 9.8 / 9.8	
Dia. & pitch of the ball screw (mm)		Ø40 / 16	Ø40 / 20	
Accuracy Positioning / Repeatability				
ISO 230-2		0.008 / 0.004		
JIS 6338 (300 mm)		±0.003 / ±0.002		
VDI3441		0.008 / 0.004		
Main spindle				
Spindle taper		40 Taper		
Max. spindle speed		12,000	15,000 (std.)	20,000 (opt.)(2)
Tool changer				
Tool selection		Random pocket, bidirectional selection		
Magazine positions		60		
Max. tool diameter w/o adjacent tool (mm)		Ø76.2 / Ø125		
Max. tool length (mm)		350		
Max. tool weight (kg)		7		
Max. tool weight moment (Nm)		10		
Tool to tool time (sec.)(1)		1.3±0.2		
Chip to chip time (sec.)(1)		5±0.2		
Pallet changer				
Number of pallet		2		
Method of pallet changer		ARM type		
Pallet change time (sec.)		10.5±0.2	5.5±0.2	
Pallet changing repeatability (mm)		0.01		
Coolant system				
Coolant tank capacity (Liter)		650 L		
- Nozzle coolant pump capacity		60 L/min., 3.5 bar		
- Coolant through spindle pump capacity		25 L/min., 8 bar	25 L/min., 20 bar	
- Ceiling & wash down pump capacity		60 L/min., 3.5 bar		
Machine size				
Height (mm)		2,895		
Floor space W x D (mm)		2,365 x 4,915		
Weight (kg)		10,500		
Connections				
Main power		220 ~ 230V / 50-60Hz, 380 ~ 415V / 50-60Hz		
Power consumption (KVA)		33 (F) 34 (S)	41(F) 43 (S)	41 (F)

Note: (1)At 60 Hz (2)FANUC control only

●=Standard O=Option X=N/A

Standard / Option accessories	HX404 A	HX404 B	HX404 A	HX404 B
Specification code	E		P	
■ FANUC 0i	●	●	×	×
FANUC - data server	○	○	○	○
■ FANUC 31i	×	×	●	●
AICC II (Lock-ahead 200 blocks)				
FANUC - data server	○	○	○	○
FANUC - high speed processing (Lock-ahead 600 blocks)	×	×	○	○
■ SIEMENS 828D	○	○	×	×
■ SIEMENS 840D	×	×	○	○
■ Oil chiller	●	●	●	●
■ Coolant through ball screw	○	○	●	●
■ Lubrication Auto lube	●	●	×	×
■ Lubrication Auto grease	×	×	●	●
■ Balance tooling for spindle warm up	●	●	●	●
■ Pull stud for BT tooling	●	●	●	●
■ Air pressure detector for pallet clamping	●	●	●	●
■ Hydraulic through pallet (5 ports)(3)	○	○	○	○
■ 2 pallet station	●	●	●	●
■ NC rotary table (0.001°) with rotary encoder	×	○	×	○
■ Linear encoder	○	○	○	○
■ Remote MPG	●	●	●	●
■ Transformer(4)	○	○	○	○
■ Work probe	○	○	○	○
■ Thermal compensation	○	○	○	○
■ Tool length / breakage measurement (Laser)	○	○	○	○
■ 8 bar coolant through spindle	●	●	×	×
■ 20 bar coolant through spindle	○	○	●	●
■ 50 bar coolant through spindle	○	○	○	○
■ 70 bar coolant through spindle	○	○	○	○
■ Ceiling wash down coolant	●	●	●	●
■ Coolant wash gun (Pallet loading side and machine side)	●	●	●	●
■ Internal Chip augers	●	●	●	●
■ External chip conveyor	●	●	●	●
■ Drum type conveyor	○	○	○	○
■ Bag filter	○	○	○	○
■ Oil-mist collector	○	○	○	○
■ Documentation (USB)(5)	●	●	●	●
■ Work light	●	●	●	●
■ Machine status light	●	●	●	●
■ CE & EMC(6)/ GB	○	○	○	○

Note: (3)Factory mounted only. (4)Transformer as standard or option item will be varied according to control system and power supply condition. (5)Paper documentation is option. (6)Standard for EU area.
- Machine specification might be different from the catalog if there is any specification update.

HX504 SERIES ISO 40

Control: (F) FANUC (S) SIEMENS

Technical Data		HX504 A / B					
Specification code		E		P			
Work range							
Pallet size (mm)		□500					
Max. work swing diameter (mm)		Ø762					
Max. work piece height (mm)		900					
Table load capacity (kg)		500					
Travel X / Y / Z (mm)		762 / 640 / 810					
B minimum indexing (degree)		1 / 0.001					
Table surface to spindle center (mm)		85 ~ 725 (Belt) 100 ~ 740 (Coupling)					
Spindle nose to table center (mm)		110 ~ 920					
Surface configuration		24-M16@ pitch100 mm grid					
Feed drive							
Feed force	X / Y / Z (N)	6,283 / 11,519 / 6,283		8,639 / 8,639 / 8,639 (F) 10,603 / 10,603 / 10,603 (S)			
Rapid movement	X / Y / Z (m/min)	32		48			
	B (sec. /90 degree)	2.5 / 1.5					
Acceleration	X / Y / Z (m/s^2)	3 / 4 / 4 (F)		4 / 5 / 5 (F) (S)			
Dia. & pitch of the ball screw (mm)		Ø45 / 12		Ø45 / 16			
Accuracy Positioning / Repeatability							
ISO 230-2		0.008 / 0.004					
JIS 6338 (300 mm)		±0.003 / ±0.002					
VDI3441		0.008 / 0.004					
Main spindle							
Spindle taper		40 Taper					
Max. spindle speed		9,000	12,000	9,000	12,000	15,000	20,000[2]
Tool changer							
Tool selection		Random pocket, bidirectional selection (60ATC) Address fixed, random method (120ATC)					
Magazine positions		60 (std.) / 120 (opt.)					
Max. tool diameter w/o adjacent tool (mm)		Ø76.2 / Ø150 (60ATC) Ø95 / Ø190 (120ATC)					
Max. tool length (mm)		450					
Max. tool weight (kg)		10 (60ATC) 8 (120ATC)					
Max. tool weight moment <from spindle gauge line> (Nm)		10 (60 & 120ATC)					
Tool to tool time (sec.)[1]		2.3±0.2					
Chip to chip time (sec.)[1]		7±0.2					
Pallet changer							
Number of pallet		2					
Method of pallet changer		ARM type					
Pallet change time (sec.)		10.5±0.2					
Pallet changing repeatability (mm)		0.01					
Coolant system							
Coolant tank capacity (Liter)		450 L					
- Nozzle coolant pump capacity		75 L / min, 3 bar					
- Coolant through spindle pump capacity		25 L / min, 20 bar					
- Ceiling & wash down pump capacity		75 L / min, 3 bar					
Machine size							
Height (mm)		3,030					
Floor space W x D (mm)		3,450 x 4,280 (60ATC) 3,620 x 4,800 (120ATC)					
Weight (kg)		13,000 (60ATC) 16,000 (120ATC)					
Connections							
Main power		220~230V / 50-60Hz, 380~415V / 50-60Hz					
Power consumption (KVA)		37 (F)		45 (F) 44 (S)		49 (F) 53 (S)	39 (F)

Note: [1]At 60Hz. [2]FANUC Control only.

HX505 SERIES ISO 50

Technical Data		HX505 A / B			
Specification code		E		P	
Work range					
Pallet size (mm)		□500			
Max. work swing diameter (mm)		Ø800			
Max. work piece height (mm)		900			
Table load capacity (kg)		500			
Travel X / Y / Z (mm)		762 / 640 / 800			
B minimum indexing (degree)		1			
Table surface to spindle center (mm)		85 ~ 725			
Spindle nose to table center (mm)		115 ~ 915			
Surface configuration		24-M16@ pitch100 mm grid			
Feed drive					
Feed force	X / Y / Z (N)	11,519 / 11,519 / 11,519		11,519 / 11,519 / 11,519 (F) 14,137 / 14,137 / 14,137 (S)	
Rapid movement	X / Y / Z (m/min)	32			
	B (sec. /90 degree)	2.5			
Acceleration	X / Y / Z (m/s^2)	3 / 4 / 4 (F)		3 / 4 / 4 (F) (S)	
Dia. & pitch of the ball screw (mm)		Ø45 / 12			
Accuracy Positioning / Repeatability					
ISO 230-2		0.008 / 0.004			
JIS 6338 (300 mm)		±0.003 / ±0.002			
VDI3441		0.008 / 0.004			
Main spindle					
Spindle taper		50 Taper			
Max. spindle speed		6,000	10,000	6,000	10,000
Tool changer					
Tool selection		Random pocket, bidirectional selection (40ATC) Address fixed, random method (60 & 120ATC)			
Magazine positions		40 (std.) / 60 & 120 (opt.)			
Max. tool diameter w/o adjacent tool (mm)		Ø110 / Ø220 (40 & 60ATC) Ø125 / Ø400[3] (120ATC)			
Max. tool length (mm)		400			
Max. tool weight (kg)		15 (40ATC) 20 (60ATC) 30 (120ATC)			
Max. tool weight moment <from spindle gauge line> (Nm)		30 (40 & 60ATC) 50 (120ATC)			
Tool to tool time (sec.)[1]		3.4±0.2			
Chip to chip time (sec.)[1]		8±0.2			
Pallet changer					
Number of pallet		2			
Method of pallet changer		ARM type			
Pallet change time (sec.)		10.5±0.2			
Pallet changing repeatability (mm)		0.01			
Coolant system					
Coolant tank capacity (Liter)		450 L			
- Nozzle coolant pump capacity		75 L / min, 3 bar			
- Coolant through spindle pump capacity		25 L / min, 20 bar			
- Ceiling & wash down pump capacity		75 L / min, 3 bar			
Machine size					
Height (mm)		3,030			
Floor space W x D (mm)		3,450 x 4,280 (40ATC) 3,620 x 4,800 (60ATC) 3,620 x 6,750 (120ATC)			
Weight (kg)		13,500 (40ATC) 15,500 (60ATC) 17,000 (120ATC)			
Connections					
Main power		220~230V / 50-60Hz, 380~415V / 50-60Hz			
Power consumption (KVA)		44 (F)	48 (F)	44 (F) 44 (S)	48 (F) 53 (S)

Note: [3] Ø250 is standard, Ø400 only apply to special tools. (please refer to page 15)

HX635 SERIES ISO 50

Control: (F) FANUC (S) SIEMENS

Technical Data		HX635			
		A		B	
Specification code		HT	HS	HT	HS
Work range					
Pallet size (mm)		□630			
Max. work swing diameter (mm)		Ø950			
Max. work piece height (mm)		950			
Table load capacity (kg)		900			
Travel X / Y / Z (mm)		1,000 / 800 / 900			
B minimum indexing (degree)		1		0.001	
Table surface to spindle center (mm)		50 ~ 850			
Spindle nose to table center (mm)		150 ~ 1,050			
Surface configuration		24-M16 Tapped holes; pitch: 125			
Feed drive					
Feed force	X / Y / Z (N)	11,780 / 14,920 / 11,780 (F) 14,137 / 14,137 / 14,137 (S)			
Rapid movement	X / Y / Z (m/min)	40			
	B (sec. /90 degree)	2.5		2	
Acceleration	X / Y / Z (m/s^2)	4 / 5 / 5 (F) (S)			
Dia. & pitch of the ball screw (mm)		Ø50 x 16			
Accuracy Positioning / Repeatability					
ISO 230-2		0.008 / 0.004			
JIS 6338 (300 mm)		±0.003 / ±0.002			
VDI3441		0.008 / 0.004			
Main spindle					
Spindle taper		50 Taper			
Max. spindle speed		6,000	10,000	6,000	10,000
Tool changer					
Tool selection		Random pocket, bidirectional selection (40ATC) Address fixed, random method (60 & 120ATC)			
Magazine positions		40 (std.) / 60 & 120 (opt.)			
Max. tool diameter w/o adjacent tool (mm)		Ø110 / Ø220 (40ATC) Ø125 / Ø230 (60ATC) Ø125 / Ø400[2] (120ATC)			
Max. tool length (mm)		500			
Max. tool weight (kg)		15 (40ATC) 20 (60ATC) 30 (120ATC)			
Max. tool weight moment <from spindle gauge line> (Nm)		30 (40 & 60ATC) 50 (120ATC)			
Tool to tool time (sec.)[1]		3.9±0.2			
Chip to chip time (sec.)[1]		8.5±0.2			
Pallet changer					
Number of pallet		2			
Method of pallet changer		ARM type			
Pallet change time (sec.)		14±0.2			
Pallet changing repeatability (mm)		0.01			
Coolant system					
Coolant tank capacity (Liter)		900 L			
- Nozzle coolant pump capacity		60 L / min, 4 bar			
- Coolant through spindle pump capacity		25 L / min, 20 bar			
- Ceiling & wash down pump capacity		100 L / min, 2.6 bar			
Machine size					
Height (mm)		3,006			
Floor space W x D (mm)		4,225 x 6,730 (40ATC) 4,280 x 5,660 (60ATC) 4,280 x 7,550 (120ATC)			
Weight (kg)		19,600 (40ATC) 20,500 (60ATC) 22,500 (120ATC)			
Connections					
Main power		220~230V / 50-60Hz, 380~415V / 50-60Hz			
Power consumption (KVA)		48 (F) 47 (S)	51 (F) 47 (S)	48 (F) 47 (S)	52 (F) 47 (S)

HX805 SERIES ISO 50

Technical Data		HX805					
		A			B		
Specification code		HT	HS		HT	HS	
Work range							
Pallet size (mm)		□800					
Max. work swing diameter (mm)		Ø1,200					
Max. work piece height (mm)		1,100					
Table load capacity (kg)		1,500					
Travel X / Y / Z (mm)		1,200 / 1,000 / 1,000					
B minimum indexing (degree)		1			0.001		
Table surface to spindle center (mm)		30 ~ 1,030					
Spindle nose to table center (mm)		100 ~ 1,100					
Surface configuration		24-M16 Tapped holes; pitch: 160					
Feed drive							
Feed force	X / Y / Z (N)	11,780 / 14,920 / 11,780 (F) 14,137 / 18,850 / 14,137 (S)					
Rapid movement	X / Y / Z (m/min)	40					
	B (sec. /90 degree)	3			2.1		
Acceleration	X / Y / Z (m/s^2)	4 / 5 / 5 (F) (S)					
Dia. & pitch of the ball screw (mm)		Ø50 x 16					
Accuracy Positioning / Repeatability							
ISO 230-2		0.008 / 0.004					
JIS 6338 (300 mm)		±0.003 / ±0.002					
VDI3441		0.008 / 0.004					
Main spindle							
Spindle taper		50 Taper					
Max. spindle speed		6,000	7,500 (opt.)	15,000	6,000	7,500 (opt.)	15,000
Tool changer							
Tool selection		Address fixed, random method					
Magazine positions		60 (std.) 120 (opt.)					
Max. tool diameter w/o adjacent tool (mm)		Ø125 / Ø230 (60ATC) Ø125 / Ø400[2] (120ATC)					
Max. tool length (mm)		600					
Max. tool weight (kg)		20 (60ATC) 30 (120ATC)					
Max. tool weight moment <from spindle gauge line> (Nm)		30 (60ATC) 50 (120ATC)					
Tool to tool time (sec.)[1]		3.9±0.2					
Chip to chip time (sec.)[1]		8.5±0.2					
Pallet changer							
Number of pallet		2					
Method of pallet changer		ARM type					
Pallet change time (sec.)		19±0.2					
Pallet changing repeatability (mm)		0.01					
Coolant system							
Coolant tank capacity (Liter)		1,200 L					
- Nozzle coolant pump capacity		60 L / min, 4 bar					
- Coolant through spindle pump capacity		25 L / min, 20 bar					
- Ceiling & wash down pump capacity		100 L / min, 2.6 bar					
Machine size							
Height (mm)		3,658					
Floor space W x D (mm)		4,800 x 7,220 (60ATC) 4,860 x 7,850 (120ATC)					
Weight (kg)		25,000 (60ATC) 27,000 (120ATC)					
Connections							
Main power		220~230V / 50-60Hz, 380~415V / 50-60Hz					
Power consumption (KVA)		53 (F) 59 (S)		57 (F)	54 (F) 59 (S)		58 (F)

Note: [1] At 60Hz [2] Ø250 is standard, Ø400 only apply to special tools. (please refer to page 15)

●=Standard　○=Option　×=N/A

Standard / Option accessories	HX504				HX505		HX635		HX805	
Specification code	AE	BE	AP	BP	AE	AP	A	B	A	B
FANUC 0i	●	●	×	×	●	×	×	×	×	×
FANUC - data server	○	○	×	×	○	×	×	×	×	×
FANUC 31i AICC II (Lock-ahead 200 blocks)	×	×	●	●	×	●	●	●	●	●
FANUC - data server	×	×	○	○	×	○	○	○	○	○
FANUC - high speed processing (Lock-ahead 600 blocks)	×	×	○	○	×	○	○	○	○	○
SIEMENS 840D	×	×	○	○	×	○	○	○	○	○
Oil chiller	●	●	●	●	●	●	●	●	●	●
Coolant through ball screw	●	●	●	●	●	●	×	×	×	×
Balance tooling for spindle warm up	●	●	●	●	●	●	●	●	●	●
Pull stud for BT tooling	●	●	●	●	●	●	●	●	●	●
Air pressure detector for pallet clamping	●	●	●	●	●	●	●	●	●	●
Hydraulic through pallet (5 ports)[5]	○	○	○	○	○	○	○	○	○	○
2 pallet station	●	●	●	●	●	●	●	●	●	●
NC rotary table (0.001°) with rotary encoder	×	○	×	○	×	×	×	○	×	●
Linear encoder	○	○	○	○	○	○	○	○	●	●
Remote MPG	●	●	●	●	●	●	●	●	●	●
Transformer[4]	○	○	○	○	○	○	○	○	○	○
Work probe	○	○	○	○	○	○	○	○	○	○
Thermal compensation	○	○	○	○	○	○	○	○	○	○
Tool length / breakage measurement (Laser)[3]	○	○	○	○	○	○	○	○	○	○
20 bar coolant through spindle	●	●	●	●	●	●	●	●	●	●
50 bar coolant through spindle	○	○	○	○	○	○	○	○	○	○
70 bar coolant through spindle	○	○	○	○	○	○	○	○	○	○
Ceiling wash down coolant	●	●	●	●	●	●	●	●	●	●
Base, wash down coolant	×	×	×	×	×	×	●	●	●	●
Coolant wash gun	●	●	●	●	●	●	●	●	●	●
Internal Chip augers	●	●	●	●	●	●	●	●	●	●
Internal Chip conveyor	×	×	×	×	×	×	×	×	●	●
External chip conveyor	●	●	●	●	●	●	●	●	●	●
Drum type conveyor	○	○	○	○	○	○	○	○	○	○
Bag filter	○	○	○	○	○	○	○	○	○	○
Oil-mist collector	○	○	○	○	○	○	○	○	○	○
Documentation (USB)[2]	●	●	●	●	●	●	●	●	●	●
Work light	●	●	●	●	●	●	●	●	●	●
Machine status light	●	●	●	●	●	●	●	●	●	●
CE & EMC[1] / GB	○	○	○	○	○	○	○	○	○	○

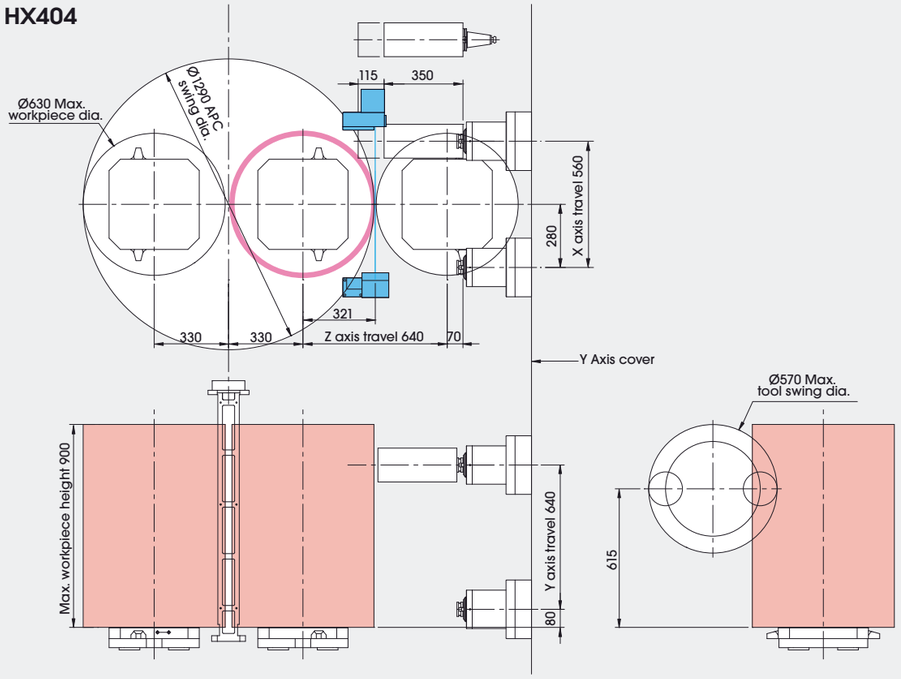
Note: [1]Standard for EU area.　[2]Paper documentation is option.　[3]HX504 / 505 / 635 /805 only available for NC4S Renishaw.
[4]Transformer as standaard or option item will be varied according to control system and power supply condition.
[5]Factory mounted only.

Note: - Machine specification might be different from the catalog if there is any specification update.

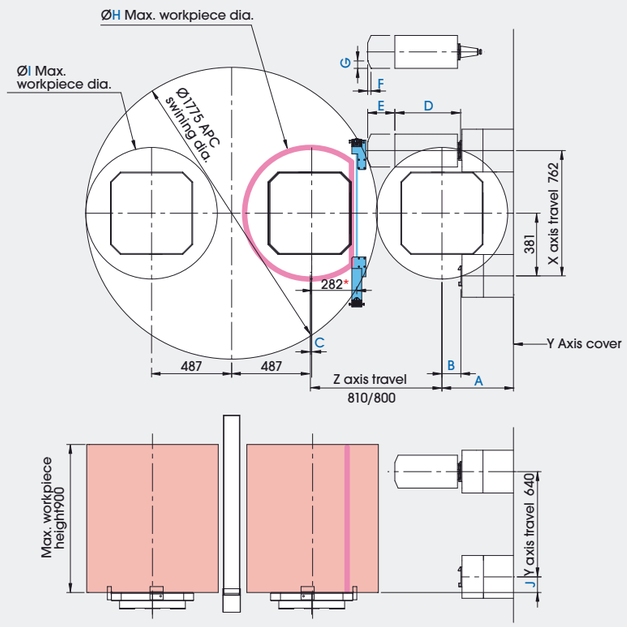
Cutting area interference

Cutting area interference

HX404



HX504 / HX505

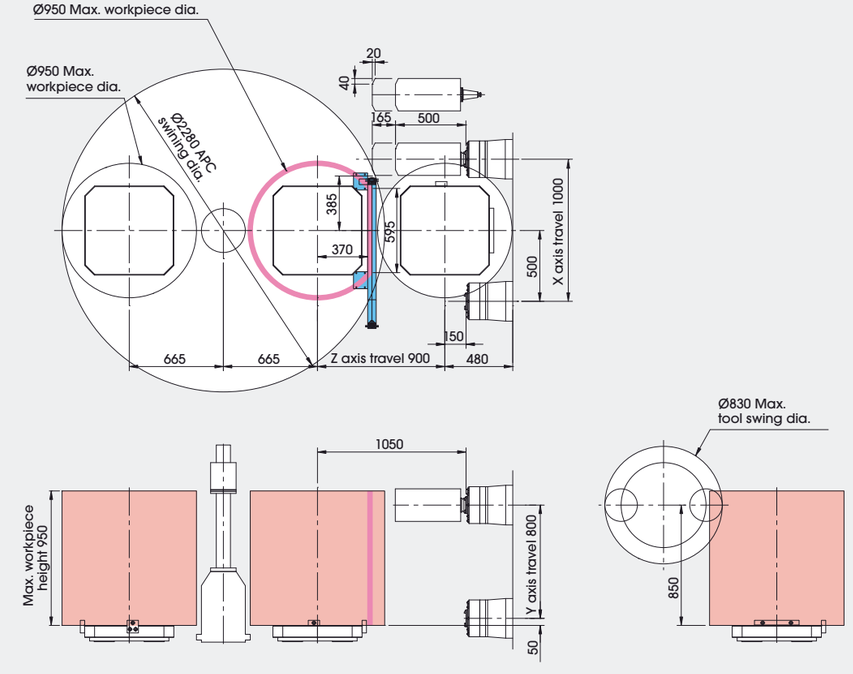


	HX504		HX505	
	E	P	E	P
	Belt	Belt / Coupling	Belt	Belt / Coupling
A	388.5		435	
B	110		115	
C	5.5		8	
D	450		400	
E	115		165	
F	-		20	
G	-		55	
H	762		800	
I	762		800	
J	85	85 / 100	85	85 / 85
k	650		770	

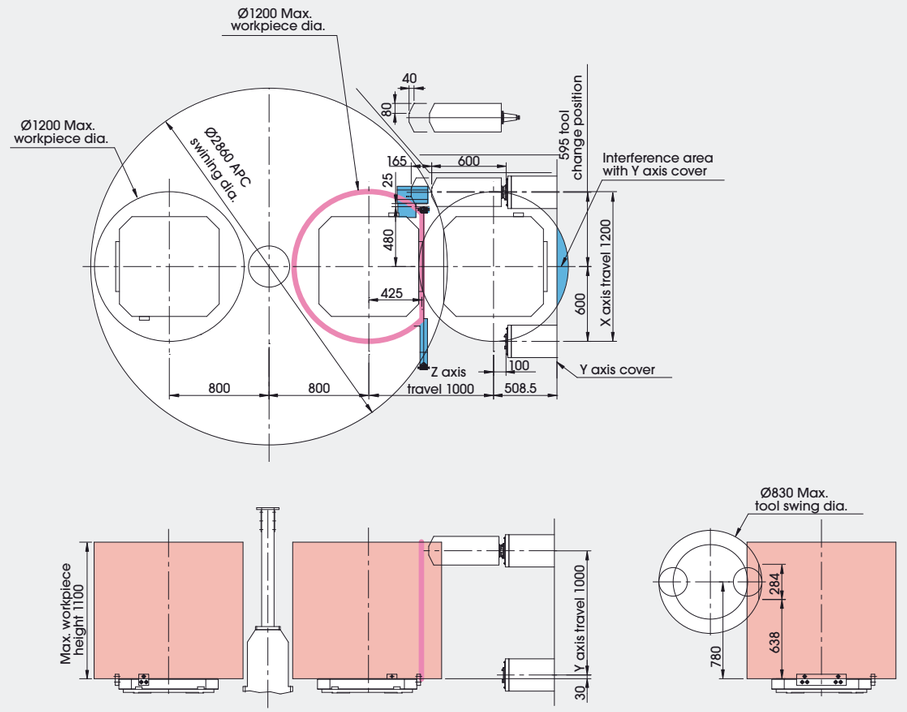
Note: *Maximum workpiece swing may impact "TOOL LENGTH MEASUREMENT" functionally.

Cutting area interference

HX635



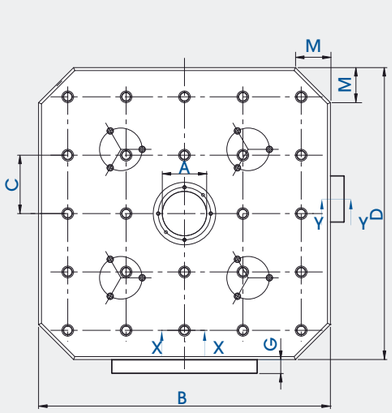
HX805

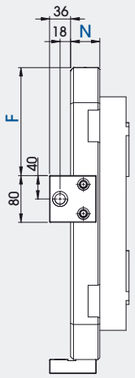


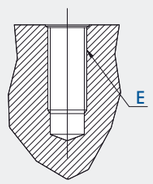
Machine Dimensions

Pallet dimension

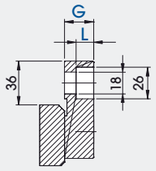
	HX404	HX504/HX505/8APC	HX635	HX805
A	Ø50 $^{+0.016}_{0}$ x 32depth	Ø50 $^{+0.016}_{0}$ x 32depth	Ø30 $^{+0.02}_{0}$ x 15depth	
B	400	500	630	800
C	80	100	125	160
D	400	500	630	800
E	24-M16			
F	120	185	250	560
G	24	24	30	30
H	75	125	157.5	200
I	250	250	315	400
J	50	50	57.5	65
K	150	150	200	270
L	14.5	14.5	17	17
M	50	60	70	100
N	50	50	85	85



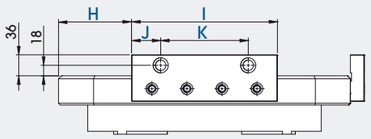


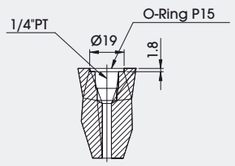


X-X SECTION

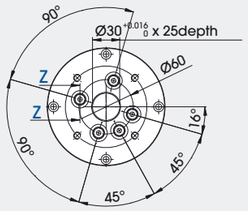


Y-Y SECTION

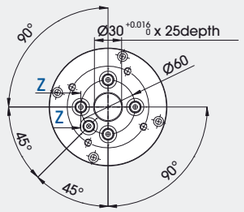




Z-Z SECTION



Fixture hydraulic
(HX404/HX504/HX505)

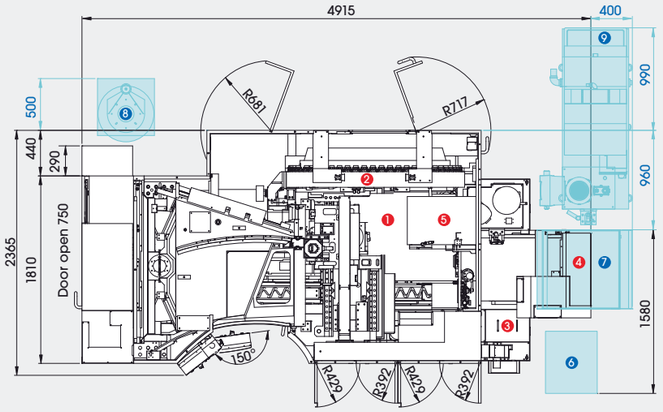


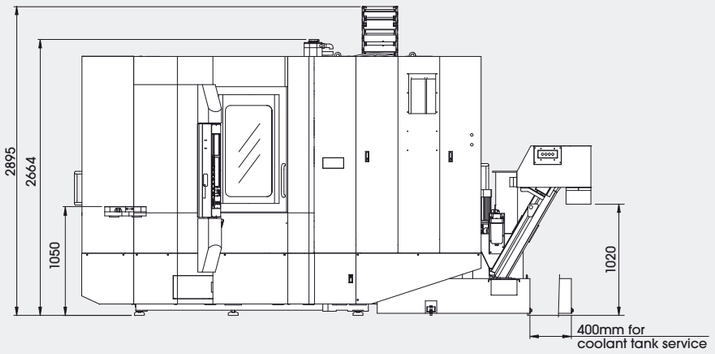
Fixture hydraulic
(HX635/HX805)

Installation dimension

HX404

1. Standard Machine
2. Magazine unit
3. Coolant supply unit
4. Chip conveyor
5. Spindle cooling unit & Hyd. tank unit
6. Transformer (Opt.)
7. Chip bucket (Opt.)
8. Oil-mist collector (Opt.)
9. Filtration unit (Opt.)



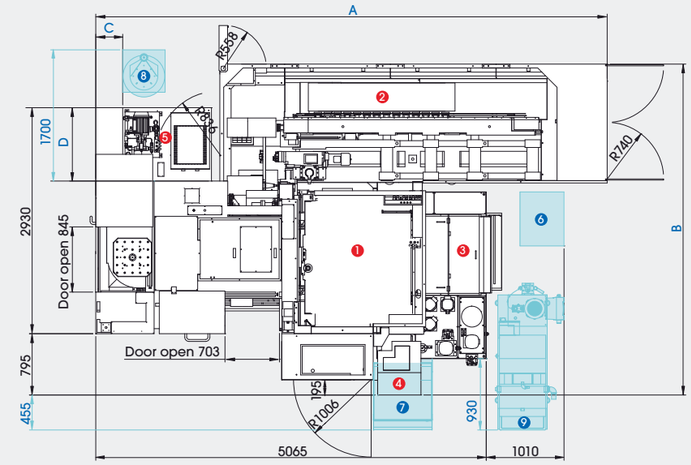


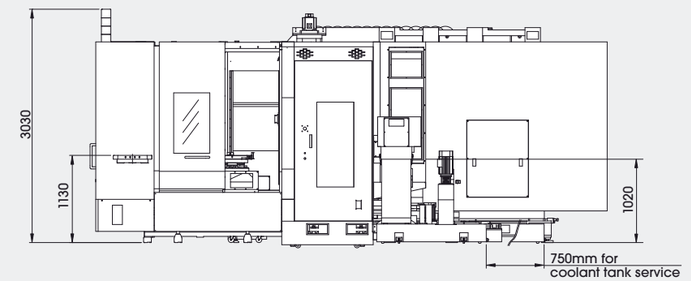
HX504/HX505

1. Standard Machine
2. Magazine unit
3. Coolant supply unit
4. Chip conveyor
5. Spindle cooling unit & Hyd. tank unit
6. Transformer (Opt.)
7. Chip bucket (Opt.)
8. Oil-mist collector (Opt.)
9. Filtration unit (Opt.)

	HX504			
	A	B	C	D
60ATC	4,280	3,450	350	950
120ATC	4,800	3,620	350	950

	HX505			
	A	B	C	D
40ATC	4,280	3,450	350	950
60ATC	4,800	3,620	350	950
120ATC	6,750	3,620	350	950



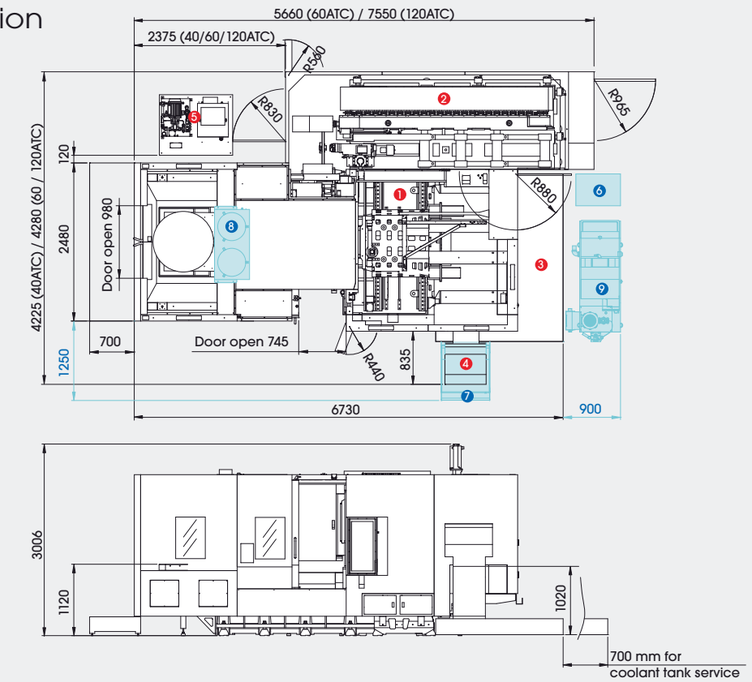


Machine Dimensions

Installation dimension

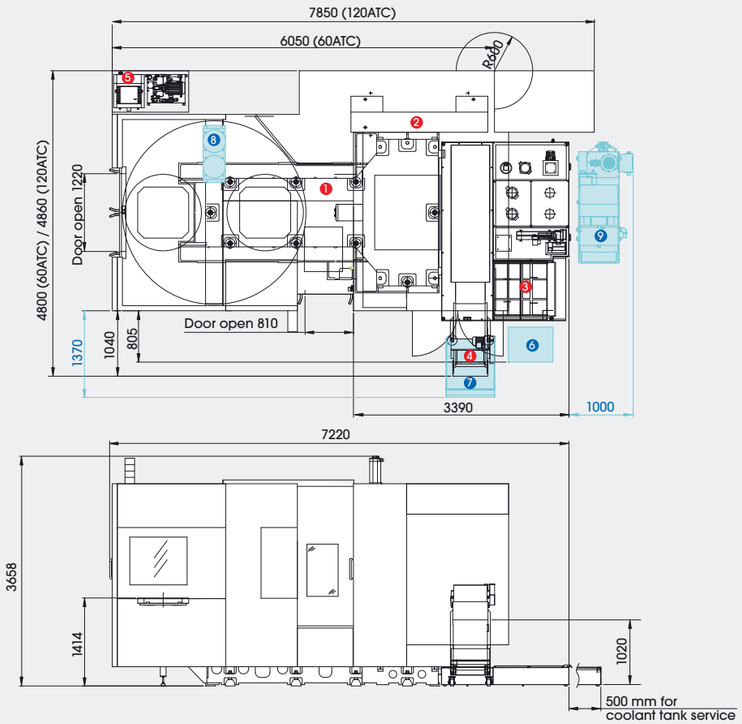
HX635

1. Standard Machine
2. Magazine unit
3. Coolant supply unit
4. Chip conveyor
5. Spindle cooling unit & Hyd. tank unit
6. Transformer (Opt.)
7. Chip bucket (Opt.)
8. Oil-mist collector (Opt.)
9. Filtration unit (Opt.)



HX805

1. Standard Machine
2. Magazine unit
3. Coolant supply unit
4. Chip conveyor
5. Spindle cooling unit & Hyd. tank unit
6. Transformer (Opt.)
7. Chip bucket (Opt.)
8. Oil-mist collector (Opt.)
9. Filtration unit (Opt.)



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- Very classic craftsmanship combined with most advanced modern equipments in a clean environment...

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