



HPC series Horizontal Machining Centers

-introduction



Applications

Industry	Typical parts	Material	HPC	H	HUP			Typical Customers
			HPC600 II、HPC650、HPC800 (high effective, high accuracy)	63H、80H (high rigidity)	HUP80、100/125 (4500rpm) General workpieces	HUP80、100/125、160 (With W axis) deep hole machining	HUP80、100/125、160 (e) mold machining	
IMM parts	mold plate	cast iron		★★★★	★★☆	★★☆		Haitian
	valve plate、bars	steel/cast iron	★★★					
	injection stand	cast iron		★★☆	★★★			
Oil and Valves	valves	steel		★★★★	★★☆			Shanghai Xinlian
	diesel engine housing	cast iron	★★☆	★★☆	★★★			Ningbo Zhongce
	drillers	alloy steel						
Agricultural machinery & mechanical engineering	forklift balancing block	cast iron		★★★★	★★☆			Ruyi forklift
	Tractor bridge	cast iron		★★☆	★★★			YTO Group
	Railway controller housing	aluminum	★★★				★★★	CRRC Changchun Railway
	High voltage electrical tank	aluminum	★★★				★★★	JiangSu Ankura
	Turret, planetary gear base	steel		★★☆				
Molds	Slider, slider stand	steel	★★☆			★★★★	★★★	Beilun Xinlin
	mold center	steel	★★☆			★★★★	★★★	Beilun Junlin
	mold base	steel	★★☆			★★★★		Taizhou Kejia
Automobile parts	transmission	aluminum	★★★					ChangChun Saide
	engine housing&cover	aluminum	★★★					ChangChun Saide
	Brake clamp, pump	cast iron	★★★	★★☆	★★☆			ChangChun Saide
Aviation	Helicopter hub	Titanium alloy		★★★★	★★☆			Changhe Aircraft
	Aircraft landing gear	Titanium alloy		★★★★				Changhe Aircraft

conformity ★★★★★recommend ★★★☆ common

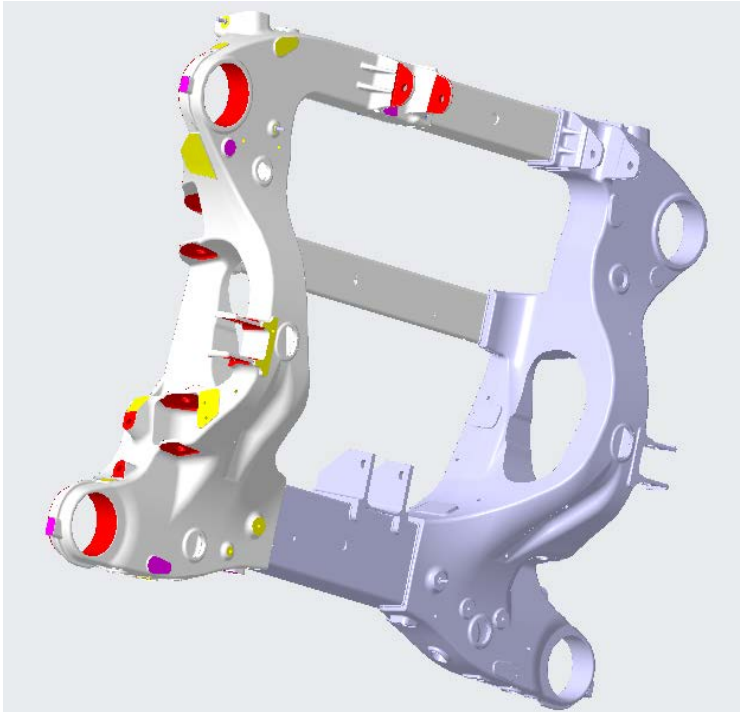




The HPC series incorporates international advanced design concepts and is equipped with a high-speed built-in spindle, which can respond to high-speed, high-accuracy to heavy cutting processing. Through the high-speed feed servo system and fast-rotating APC, efficient processing can be achieved. It is widely used in automobiles and aviation Aerospace, general machinery and other precision machining fields.

Models	HPC650	HPC800	HPC600II
Travels X/Y/Z , mm	1050/900/900	1400/1100/1050	800/800/850
Table size, mm	630×630	800×800	500x500
Max. speed rpm	8000		





**Electric vehicle chassis
(aluminum)**



**Transmission cover
(aluminum)**

HPC series is suitable for batch workpieces, high efficiency, APC and tool change system can save 25% time than ordinary horizontal

SPEC-HPC650



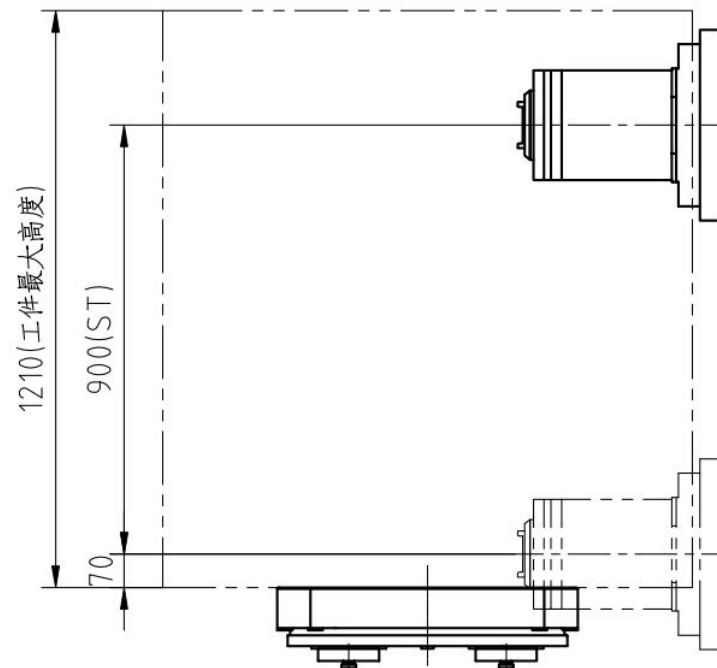
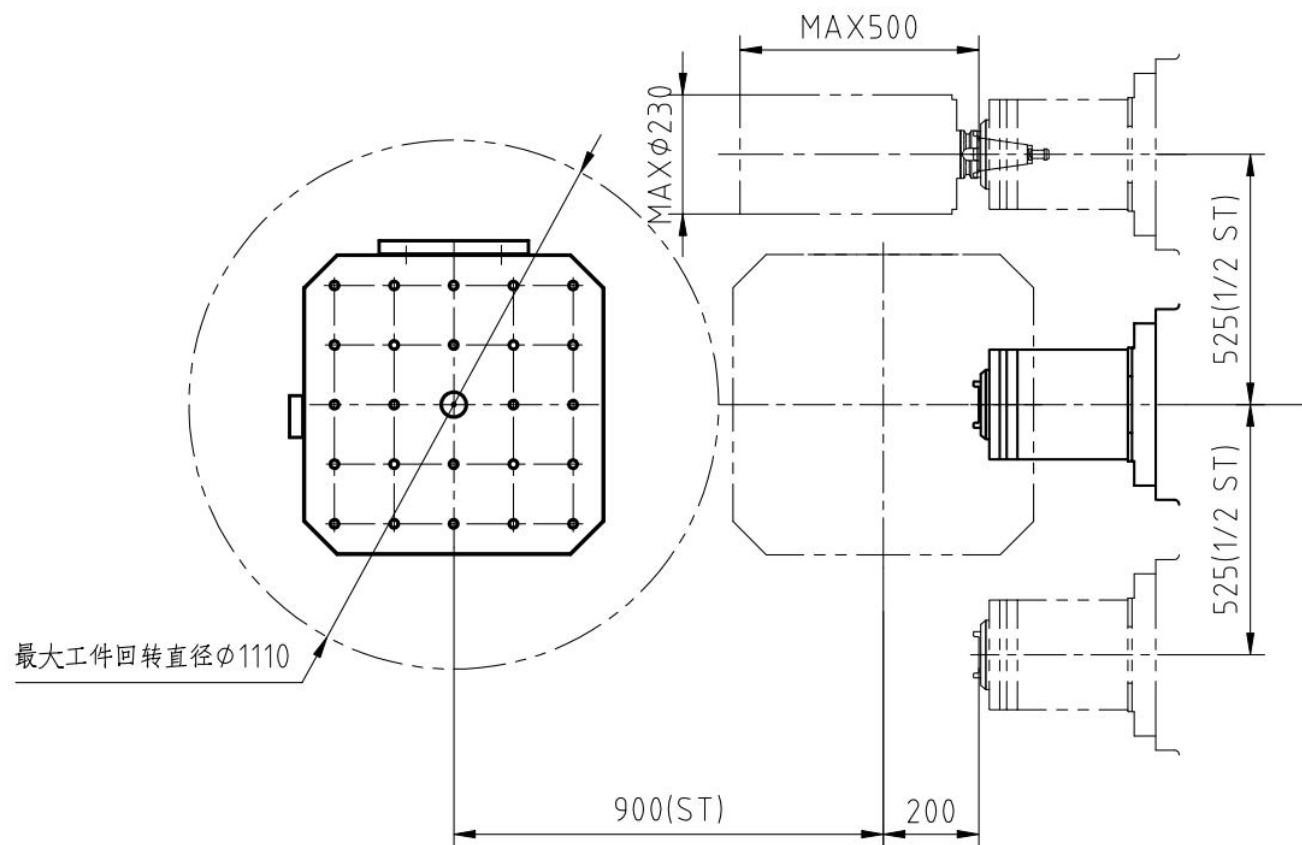
ITEMS			SPEC	ITEMS			SPEC	
Machining range	X stroke	mm	1050	Tool magazine	Capacity	T	40	
	Y stroke	mm	900		tool change type		shortest path	
	Z stroke	mm	900		taper		BT50	
	Distance from spindle center to table	mm	70-970		Max. tool diameter	mm	Φ115(Φ230)	
	Spindle nose to table center	mm	200-1100		Max. tool length	mm	500	
Table	size	mm	630×630		Max. tool weight	kg	25	
	Max.loading	kg	1300		time(T-T)	s	2.5	
	Index	°	1°		Positioning	X (with scale)	mm	0.012(0.008)
APC	type		Rotary			Y(with scale)	mm	0.012(0.008)
	time	s	10			Z(with scale)	mm	0.012(0.008)
	No.		2	Curvic coupling table		"	8	
Axes	X/Y/Z power	kW	7/6/7	NC table		"	10 (OP)	
	X/Y/Z torque	Nm	30/38/30	Repeatability	X (with scale)	mm	0.006(0.005)	
Spindle	speed	rpm	10-8000		Y (with scale)	mm	0.006(0.005)	
	power	kW	26/45		Z(with scale)	mm	0.006(0.005)	
	torque	Nm	305/623		Curvic coupling table	"	4	
	taper	-	ISO7:24 NO.50		NC table	"	6 (OP)	
	pull stud	-	P50T-2-MAS403		Required power	kVA	65	
Feeds	Cutting feed	m/min	1-40	controller			-	
	Rapid feed X/Y/Z	m/min	40/40/40	FANUC 0i				
	Table index 90 degree time	s	2.5					

ITEMS			SPEC	ITEMS			SPEC	
Machining range	X stroke	mm	1400	Tool magazine	Capacity	T	40	
	Y stroke	mm	1100		tool change type		shortest path	
	Z stroke	mm	1050		taper		BT50	
	Distance from spindle center to table	mm	55-1155		Max. tool diameter	mm	Φ115(Φ230)	
	Spindle nose to table center	mm	200-1250		Max. tool length	mm	500	
Table	size	mm	800×800		Max. tool weight	kg	25	
	Max.loading	kg	2000		time(T-T)	s	2.5	
	Index	°	1°		Positioning	X (with scale)	mm	0.012(0.008)
APC	type		Rotary			Y(with scale)	mm	0.012(0.008)
	time	s	15			Z(with scale)	mm	0.012(0.008)
	No.		2	Curvic coupling table		"	8	
Axes	X/Y/Z power	kW	6/9/6	NC table		"	10 (OP)	
	X/Y/Z troque	Nm	38/53/38	Repeatability	X (with scale)	mm	0.006(0.005)	
Spindle	speed	rpm	10-8000		Y (with scale)	mm	0.006(0.005)	
	power	kW	26/45		Z(with scale)	mm	0.006(0.005)	
	torque	Nm	305/623		Curvic coupling table	"	4	
	taper	-	ISO7:24 NO.50		NC table	"	6 (OP)	
	pull stud	-	P50T-2-MAS403		Required power	kVA	65	
Feeds	Cutting feed	m/min	1-30	controller				
	Rapid feed X/Y/Z	m/min	36/36/36	-		FANUC 0i		
	Table index 90 degree time	s	5					

ITEMS			SPEC	ITEMS			SPEC
Machining range	X stroke	mm	800	Tool magazine	Capacity	T	40
	Y stroke	mm	800		tool change type		shortest path
	Z stroke	mm	850		taper		BT50
	Distance from spindle center to table	mm	100-900		Max. tool diameter	mm	Φ125(Φ250)
	Spindle nose to table center	mm	150-1000		Max. tool length	mm	500
Table	size	mm	500x500		Max. tool weight	kg	25
	Max.loading	kg	1000		time(T-T)	s	2.9
	Indecx	°	1°		X (with scale)	mm	0.012(0.008)
APC	type		Rotary		Y(with scale)	mm	0.012(0.008)
	time	s	10		Z(with scale)	mm	0.012(0.008)
	No.		2	Curvic coupling table	"	8	
Axes	X/Y/Z power	kW	7/6/4	NC table	"	10 (OP)	
	X/Y/Z troque	Nm	30/38/22	Repeatability	X (with scale)	mm	0.006(0.005)
Spindle	speed	rpm	10-8000		Y (with scale)	mm	0.008(0.006)
	power	kW	26/45		Z(with scale)	mm	0.006(0.005)
	torque	Nm	305/623		Curvic coupling table	"	4
	taper	-	ISO7:24 NO.50		NC table	"	6 (OP)
	pull stud	-	P50T-2-MAS403		Required power		kVA
Feeds	Cutting feed	m/min	1-40	controller			
	Rapid feed X/Y/Z	m/min	60/60/60			-	FANUC 0i
	Table index 90 degree time	s	2.5				

Process Range

Max. rapid feed X/Y/Z m/min	40/40/40
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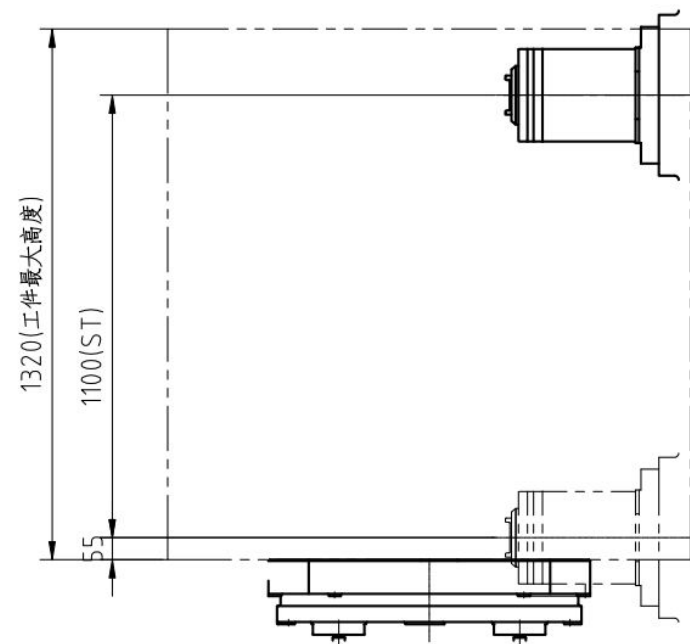
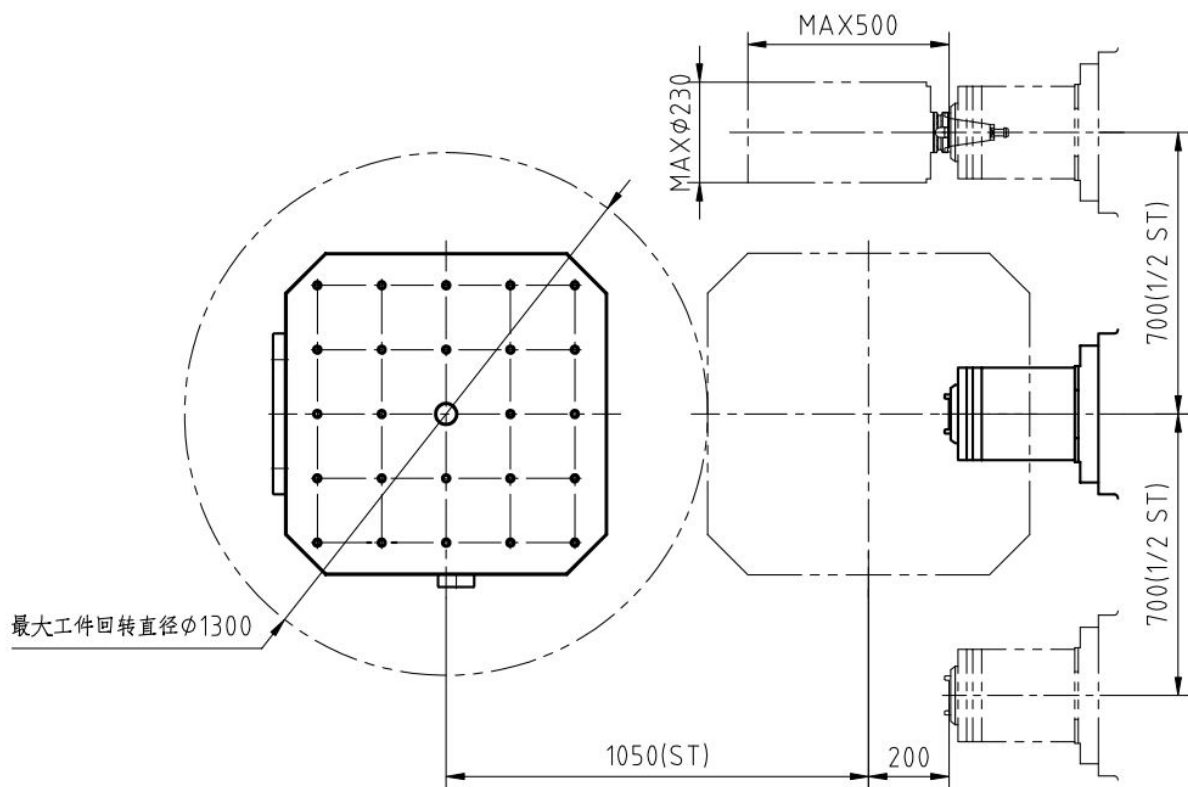


HPC650



Process Range

Max. rapid feed X/Y/Z m/min	36/36/36
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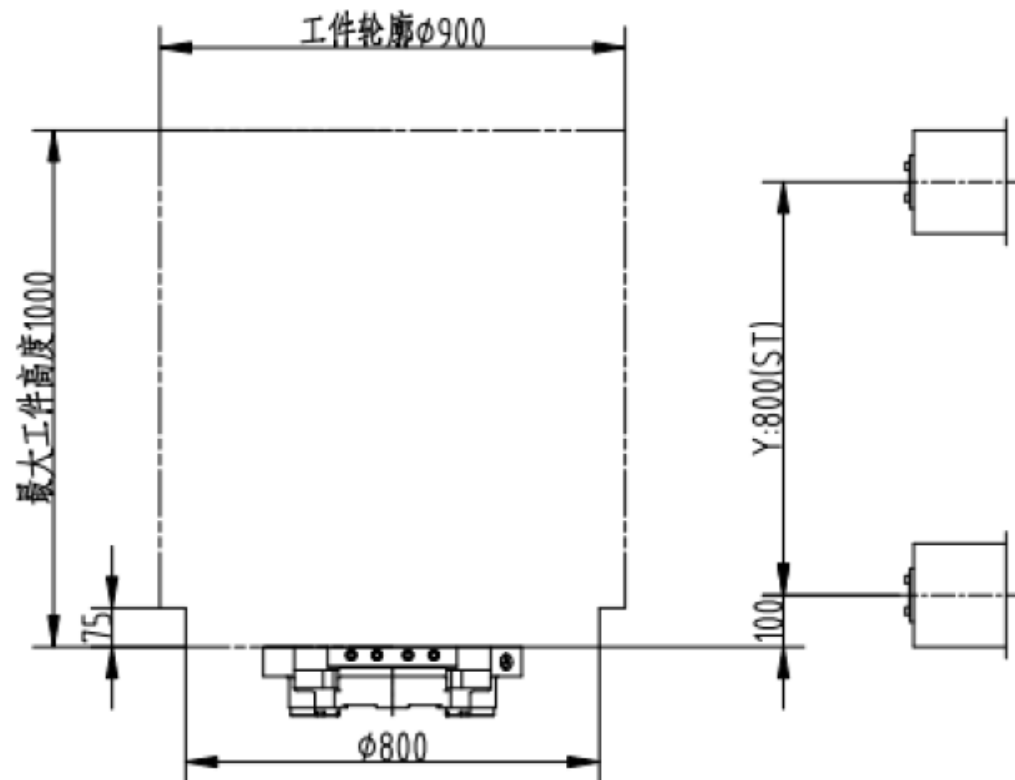
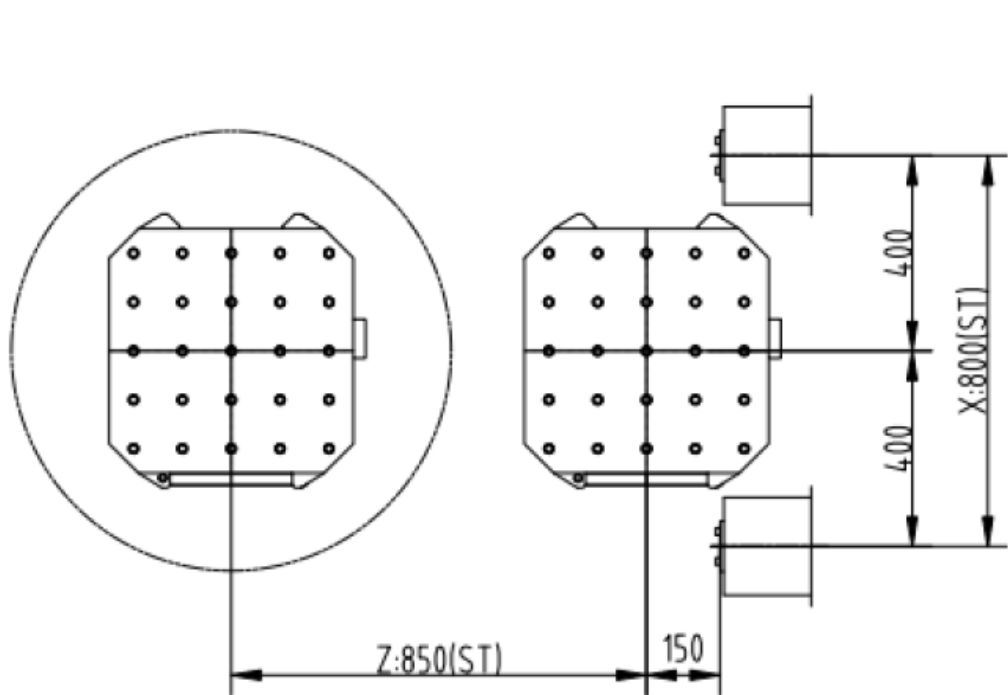


HPC800



Process Range

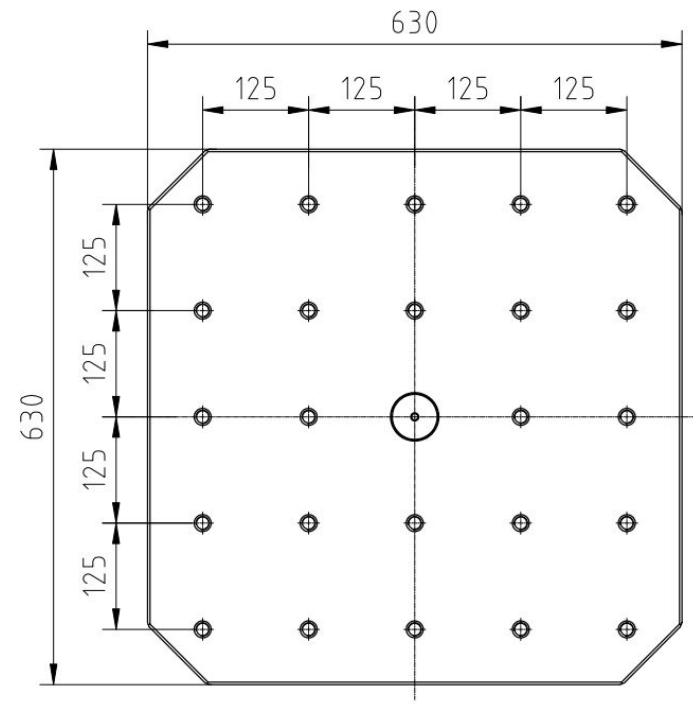
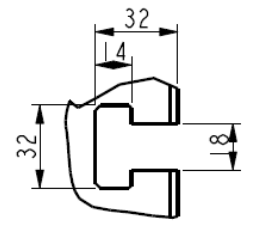
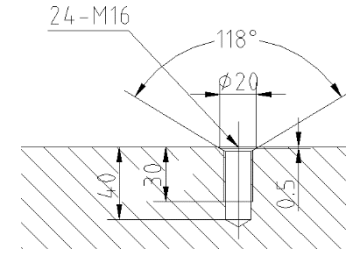
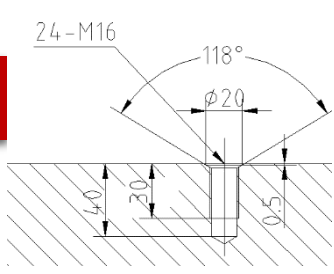
Max. rapid feed X/Y/Z m/min	60/60/60
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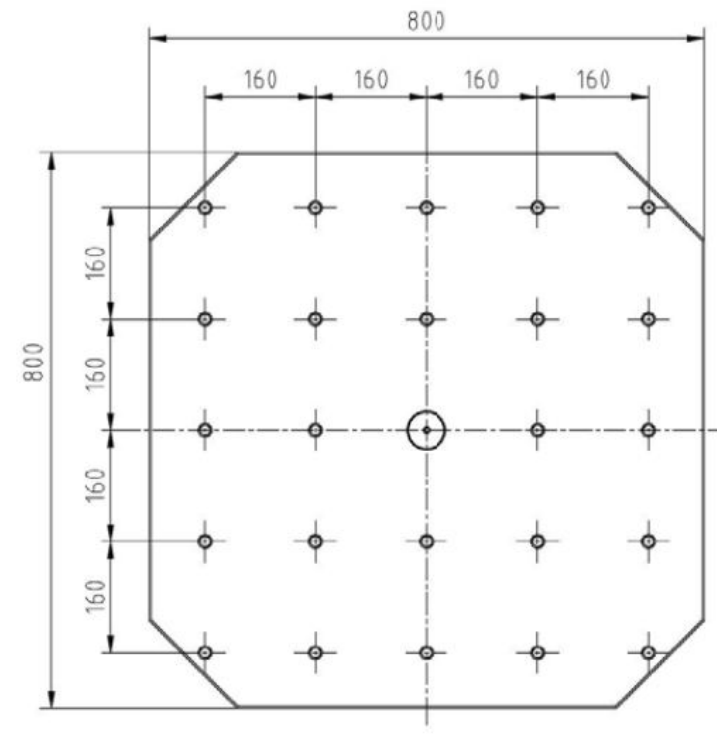
HPC600 II



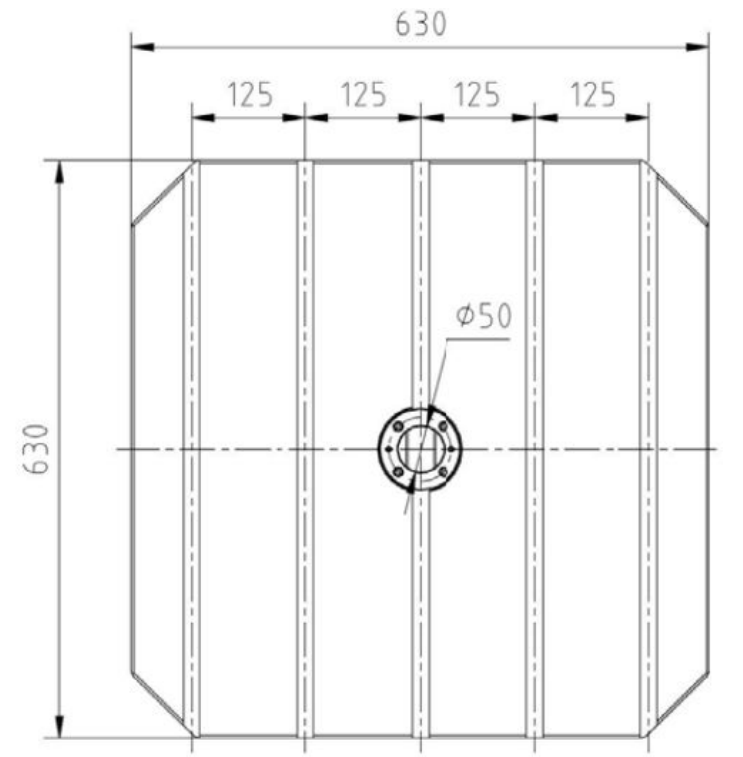
HPC650 Pallet size



630x630screw hole(STD)



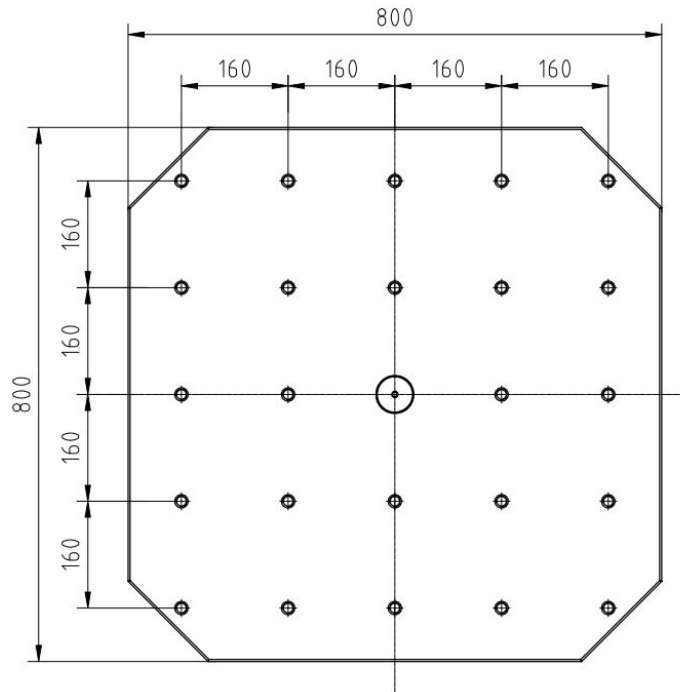
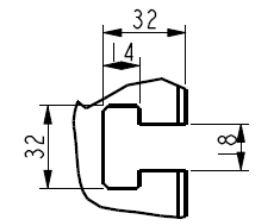
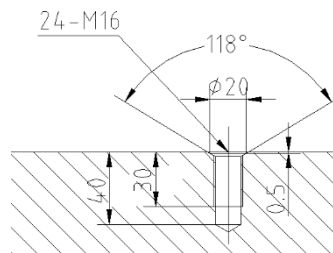
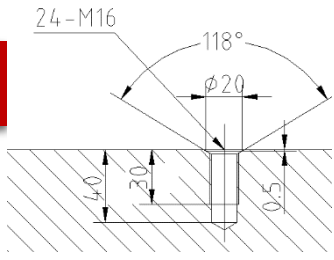
800x800 screw hole(OP)



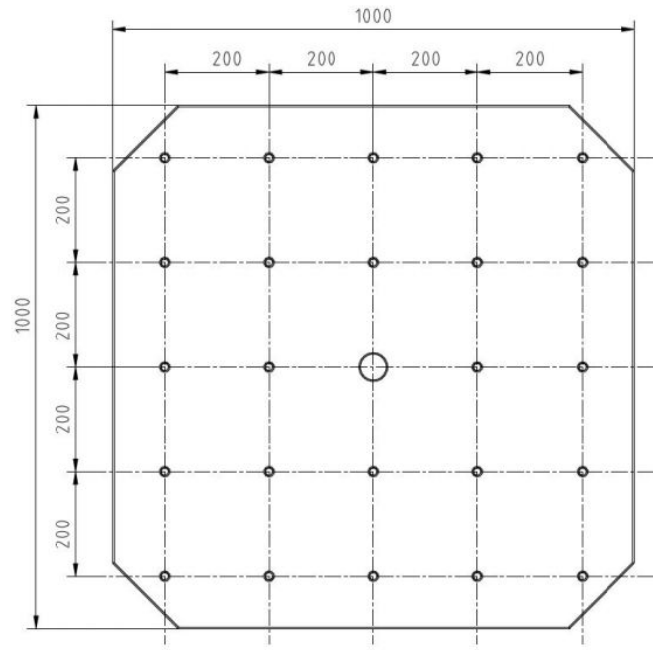
630x630T slot(OP)



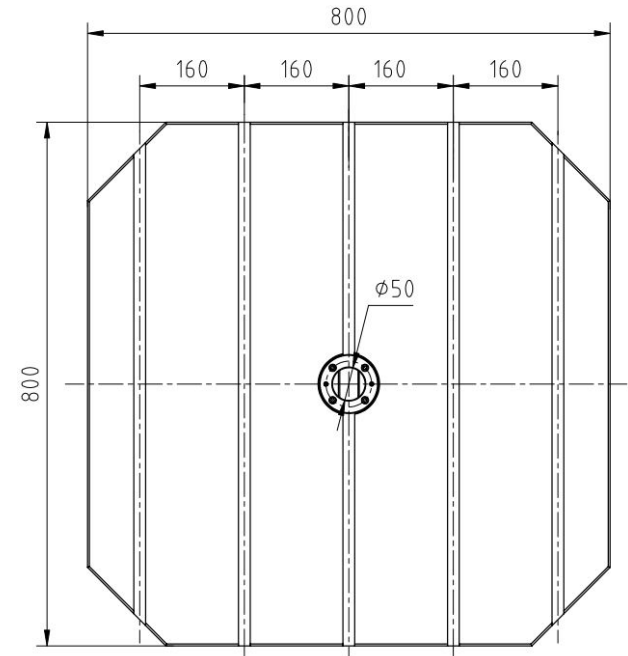
HPC800Pallet size



800x800screw hole(STD)



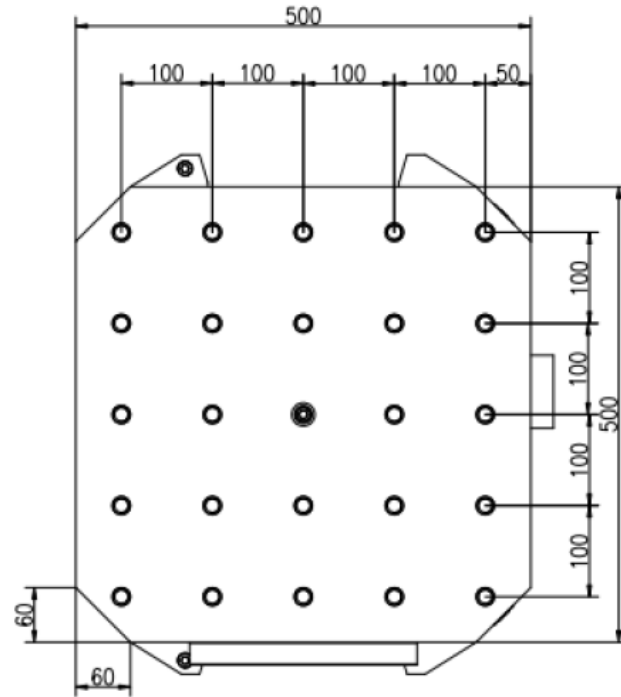
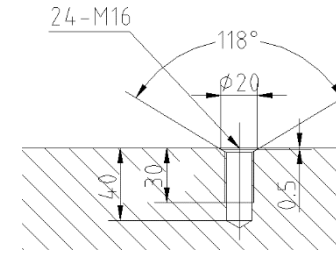
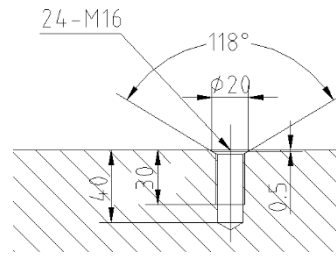
1000x1000 screw hole (OP)



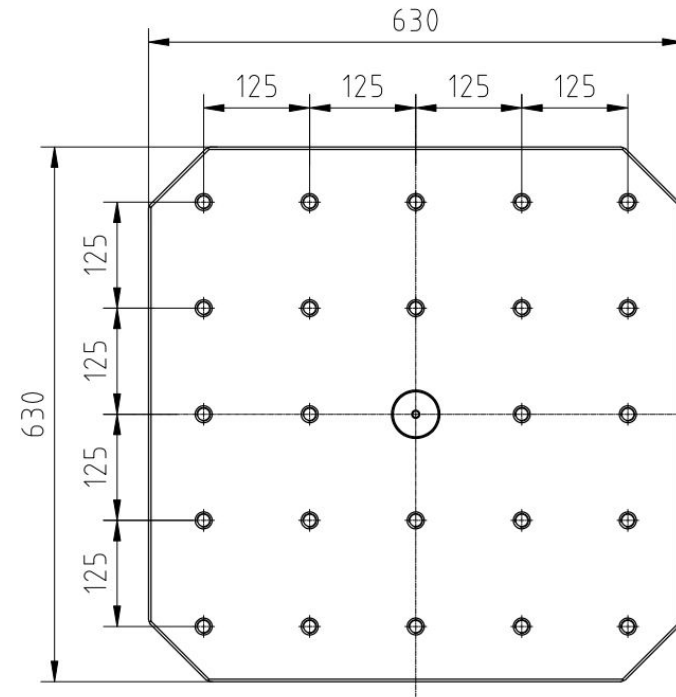
800x800T Slot(OP)



HPC600II Pallet size



500x500 screw hole(STD)



630x630 screw hole (OP)



Structure feature-Bed (one-piece)



HPC650

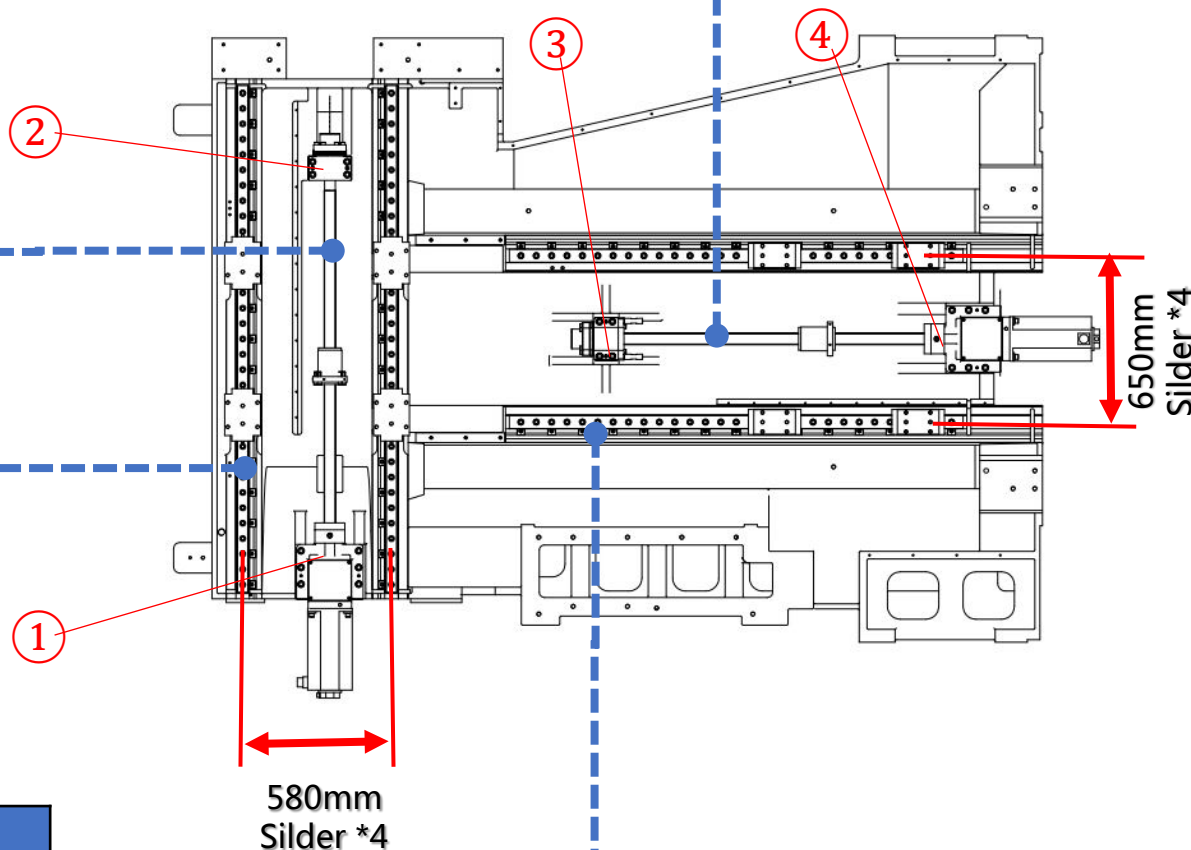
Model	Axis	Size(mm)		class
		OD	pitch	
HPC650	X	45	16	C3

Model	Axis	size	width (mm)	class
HPC650	X	55 roller	53	G2

Bearing
NSK

Bearing	①	②	③	④
Unit	4	4	4	4
ID&ODmm	Φ35*Φ72	Φ35*Φ72	Φ35*Φ72	Φ35*Φ72

Model	Axis	Size(mm)		class
		OD	pitch	
HPC650	Z	45	16	C3



Model	Axis	size	width (mm)	class
HPC650	Z	55 roller	53	G2

Linear
Guideway
Schneberg

Structure feature-Bed (one-piece)



HPC800

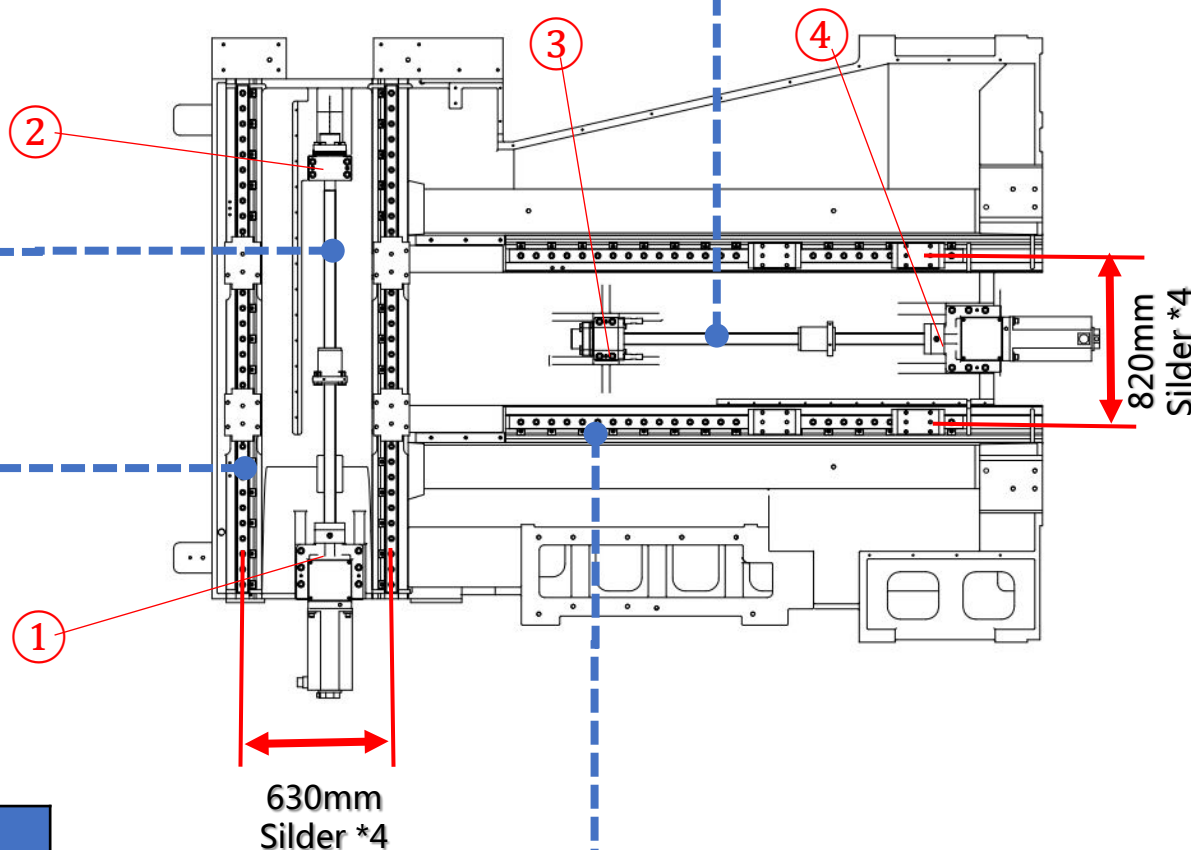
Model	Axis	Size(mm)		class
		OD	pitch	
HPC800	X	55	20	C3

Model	Axis	size	width (mm)	class
HPC800	X	55 roller	53	G2

Bearing
NSK

Bearing	①	②	③	④
Unit	4	4	4	4
ID&ODmm	Φ35*Φ72	Φ35*Φ72	Φ35*Φ72	Φ35*Φ72

Model	Axis	Size(mm)		class
		OD	pitch	
HPC800	Z	55	20	C3



Model	Axis	size	width (mm)	class
HPC800	Z	55 roller	53	G2

Linear
Guideway
Schneberg

Structure feature-Bed (one-piece)

HPC600 II

Ball screw


Model	Axis	Size(mm)		class
		OD	pitch	
HPC600II	Z	50	20	C3

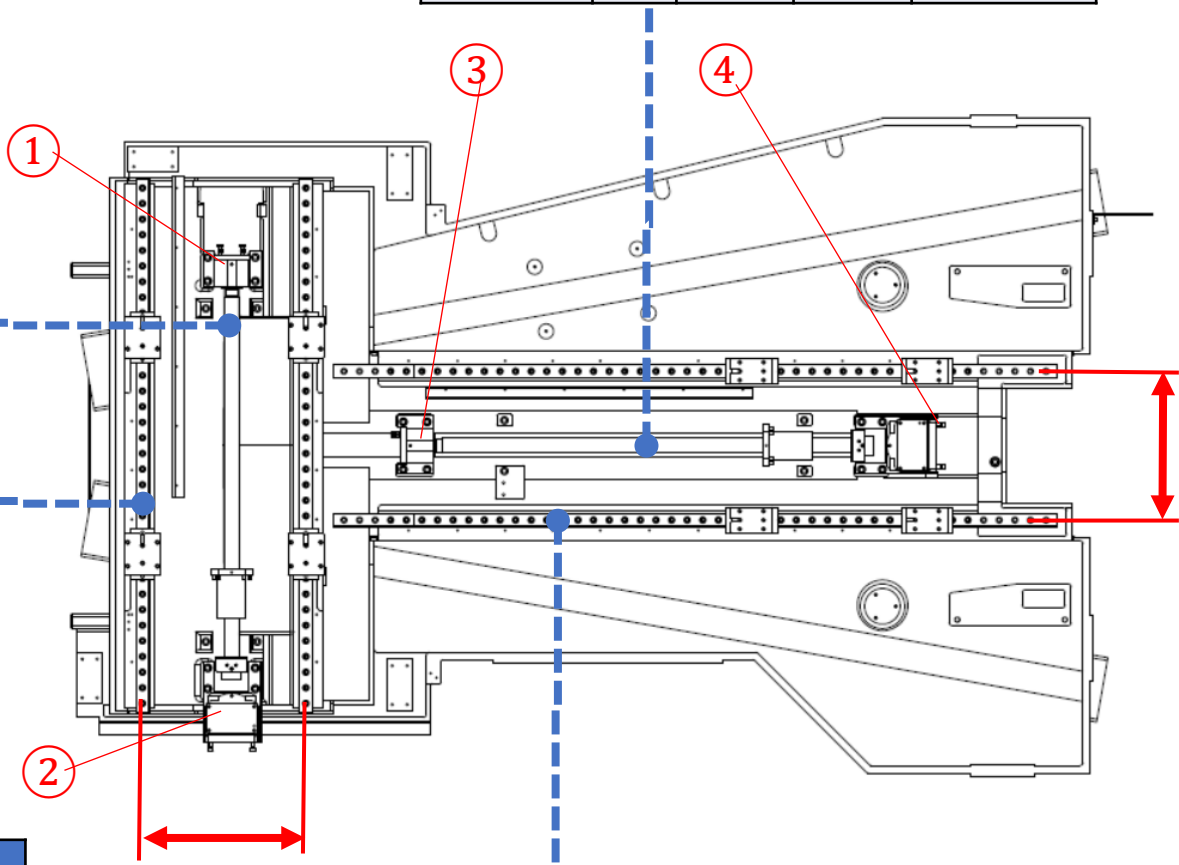


Model	Axis	Size(mm)		class
		OD	pitch	
HPC600II	X	50	20	C3

Model	Axis	size	width (mm)	class
HPC600II	X	45roller	45	G1

Bearing
 NACHI

Bearing	①	②	③	④
Unit	2	4	2	4
ID&ODmm	Φ40*Φ90	Φ40*Φ90	Φ40*Φ90	Φ40*Φ90



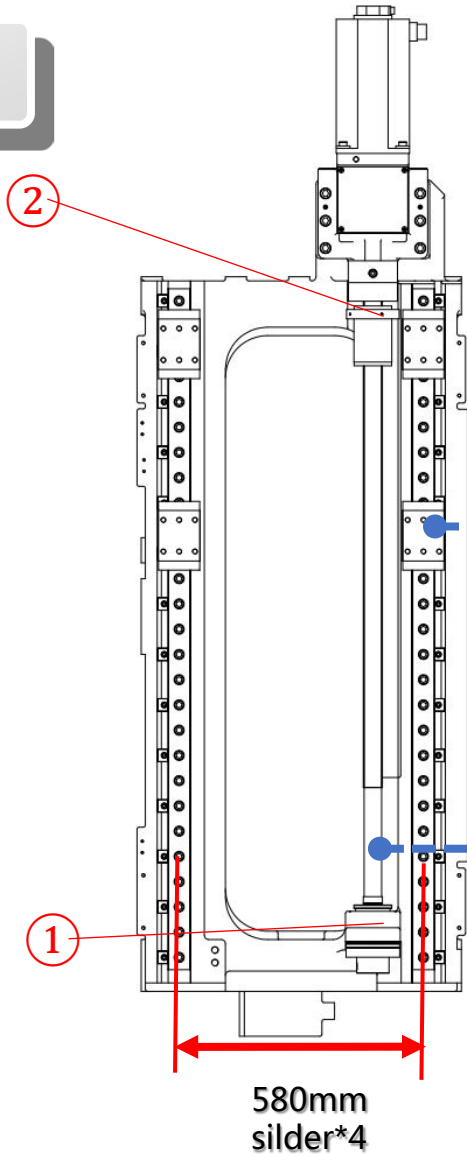
Model	Axis	size	width (mm)	class
HPC600II	Z	45roller	45	G1

Linear
 Guideway
 Schneberg



Structure feature-Column

HPC650



bearing	①	②
Unit	4	4
ID&OD mm	Φ35*Φ72	Φ35*Φ72

Bearing
NSK



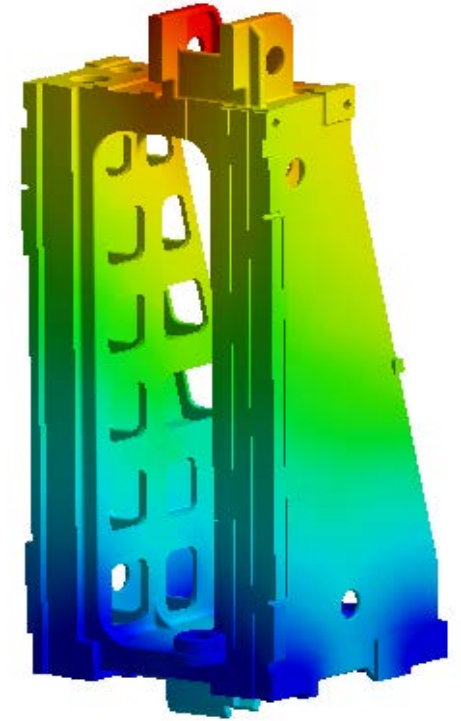
Model	Axi s	size	width (mm)	class
HPC650	Y	55 roller	53	G2

Linear
Guideway
Schneberg

Model	Axi s	Size(mm)		class
		OD	pitc h	
HPC650	Y	45	16	C3

Ball screw
PMI
Linear Motion Systems

Lightweight column to ensure fast rapid

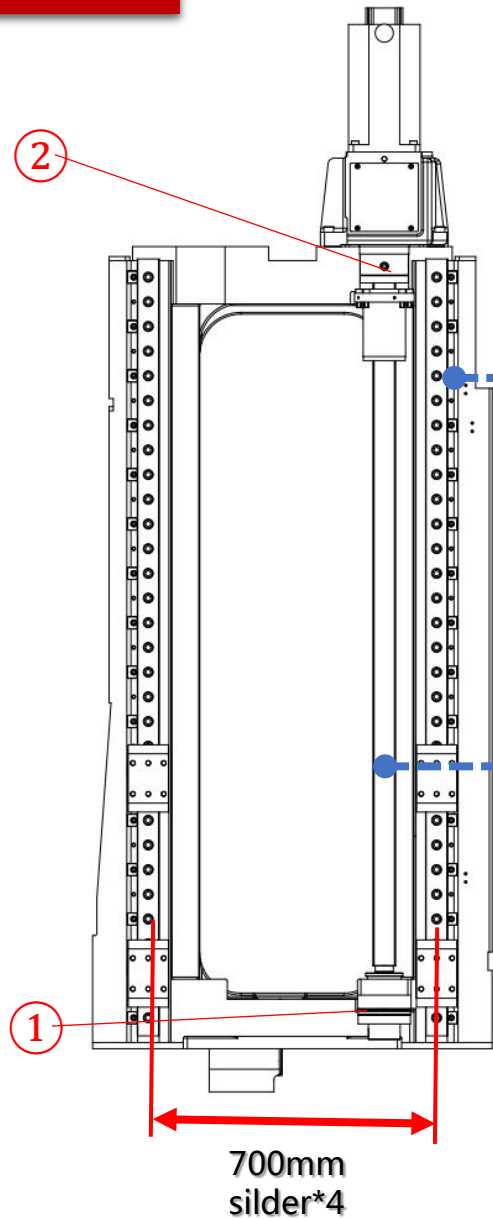


Finite element optimized structure to ensure sufficient rigidity

Structure feature-Column

HPC800

Lightweight column to ensure fast rapid



700mm
silder*4

bearing	①	②
Unit	4	4
ID&OD mm	Φ35*Φ72	Φ35*Φ72

Bearing
NSK



Model	Ax is	size	width (mm)	class
HPC800	Y	55 roller	53	G2

Linear
Guideway
Schneberg

model	ax is	Ball screw size(mm)		class
		OD	pitc h	
HPC800	Y	55	20	C3

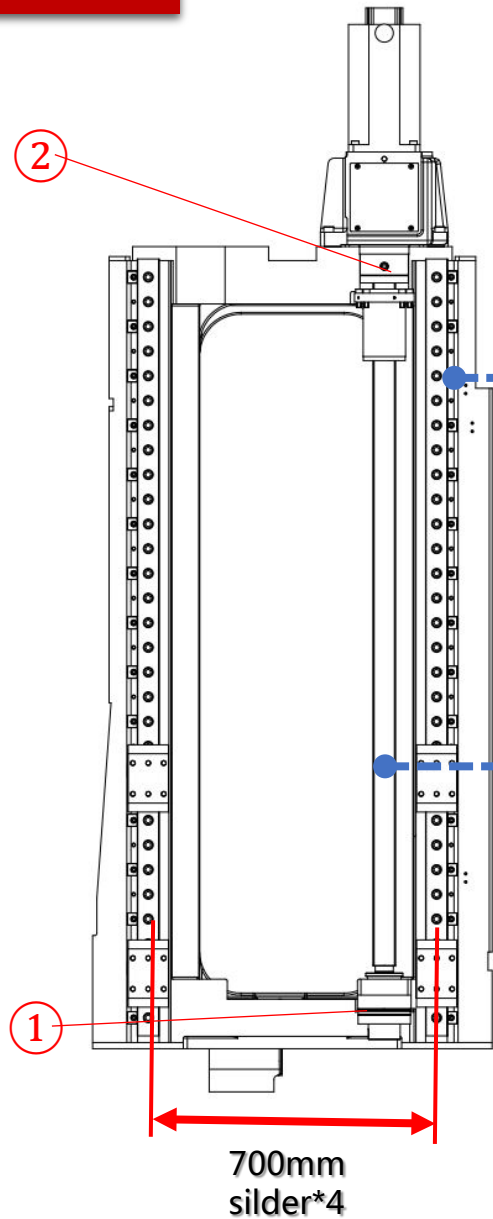
Ball screw
PMI
PMI Linear Motion Systems



Structure feature-Column

HPC600 II

Lightweight column to ensure fast rapid



bearing	①	②
Unit	2	4
ID&OD mm	Φ40*Φ90	Φ40*Φ90

Bearing
NACHI



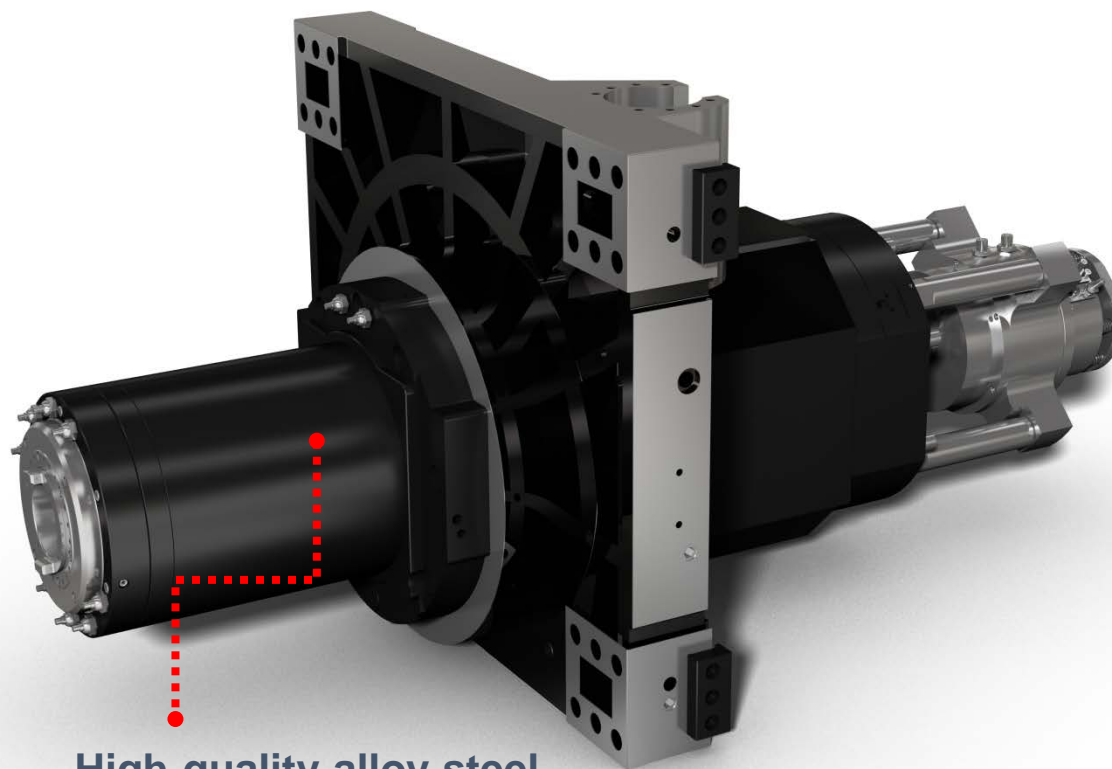
Model	Ax is	size	width (mm)	class
HPC600II	Y	45roller	45	G1

Linear
Guideway
Schneberg

model	ax is	Ball screw size(mm)		class
		OD	pitch	
HPC600II	Y	50	20	C3

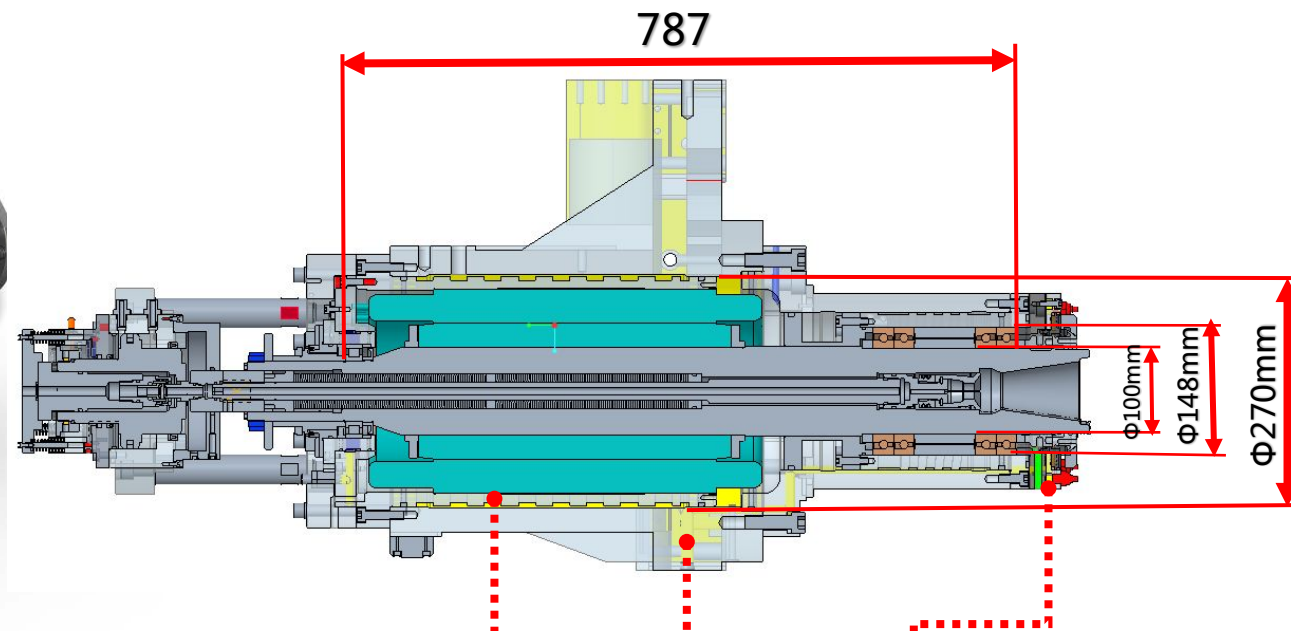


Structural features-headstock



High-quality alloy steel

High-speed, high-precision built-in electric spindle
Maximum spindle speed 8000r / min,
maximum torque 623Nm
Large-span support bearings ensure high-speed cutting stability



AC direct drive motor

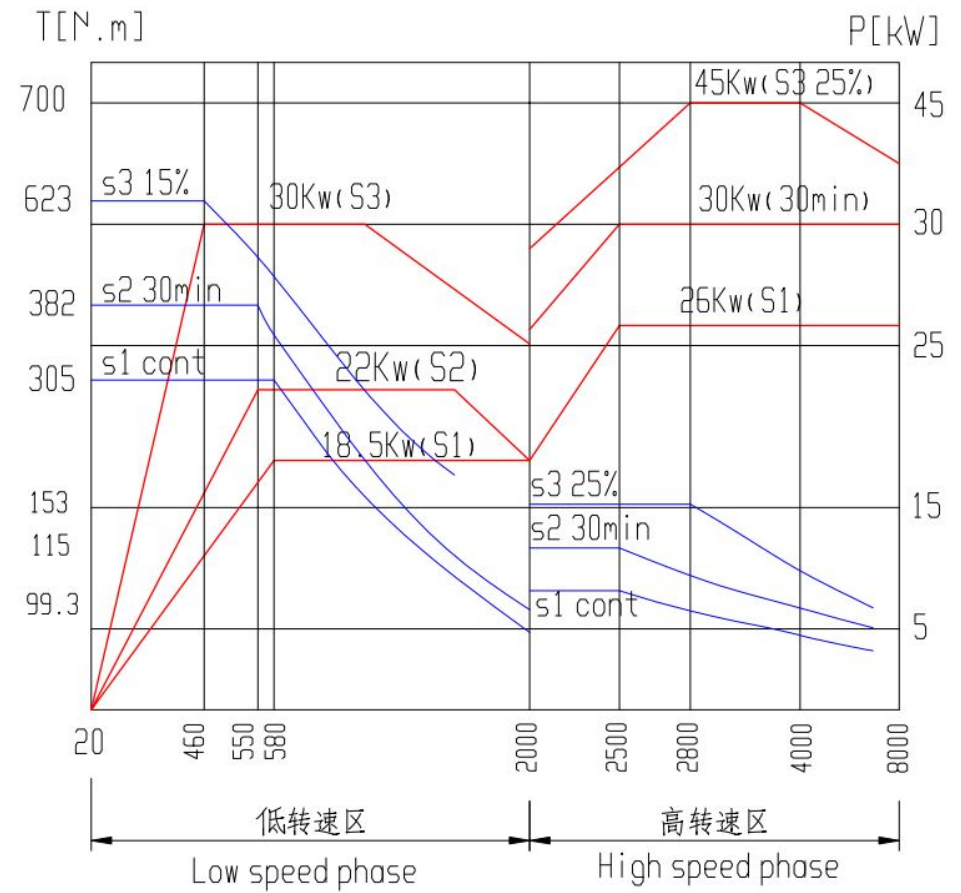
Stator cooling (OD $\Phi 270$)

Ceramic ball bearings x 4
Bearing

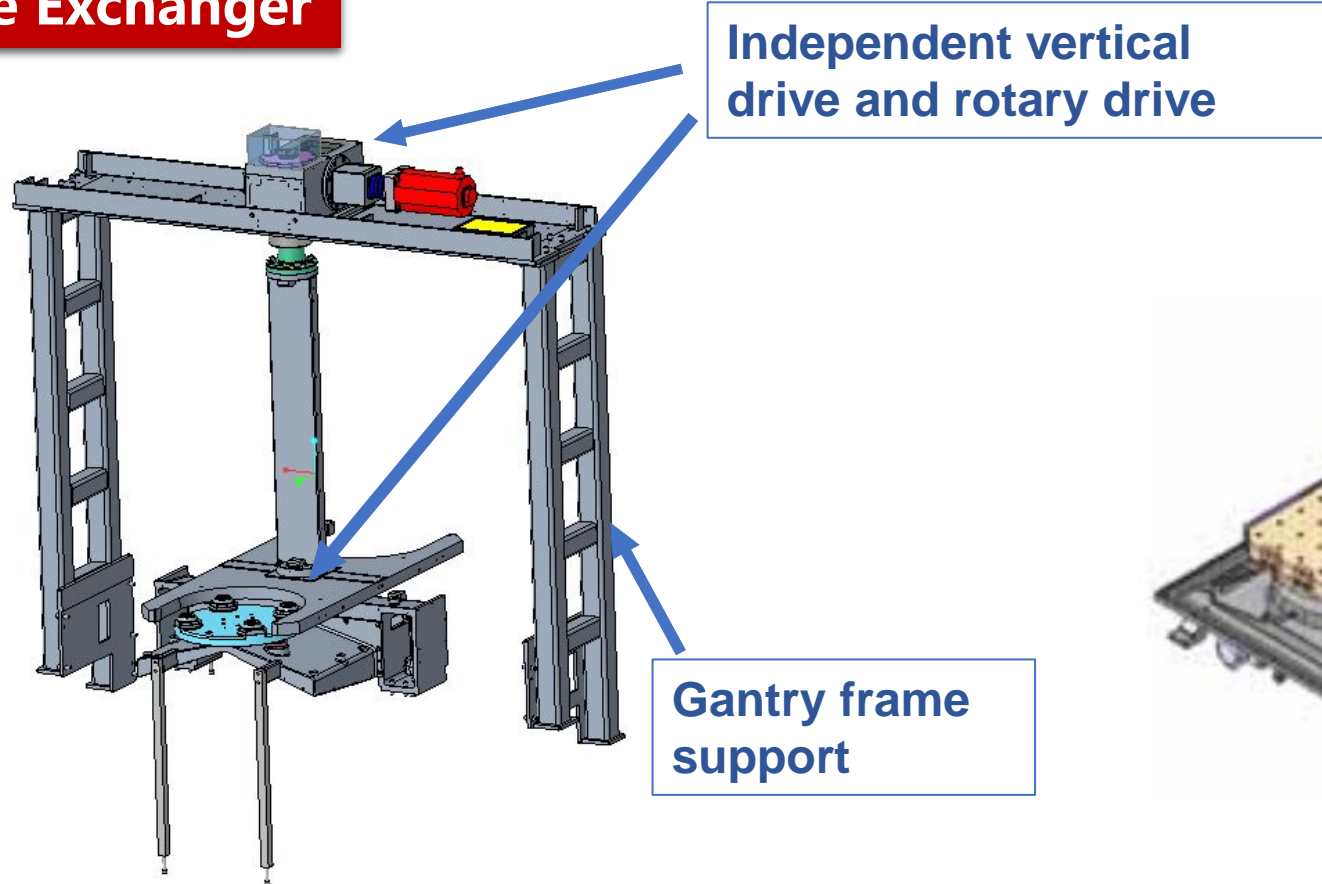
HPC650/HPC800 Power-torque



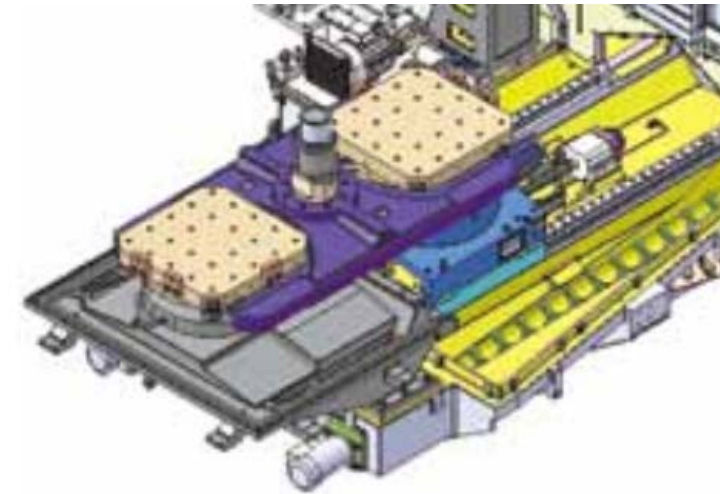
— 主轴功率
 Power of the spindle
 — 主轴扭矩
 Torque of the spindle



Structural Features- Gantry Frame Exchanger



HPC APC time 15s



Competitor APC time 50s

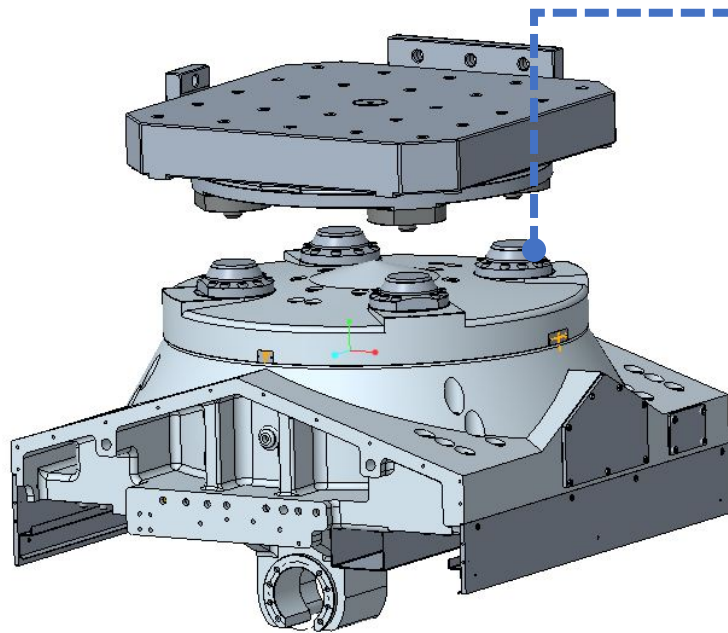
The gantry frame support of the HPC series exchange table avoids eccentric load, and the up-down drive and the rotation drive are separated to avoid mutual influence



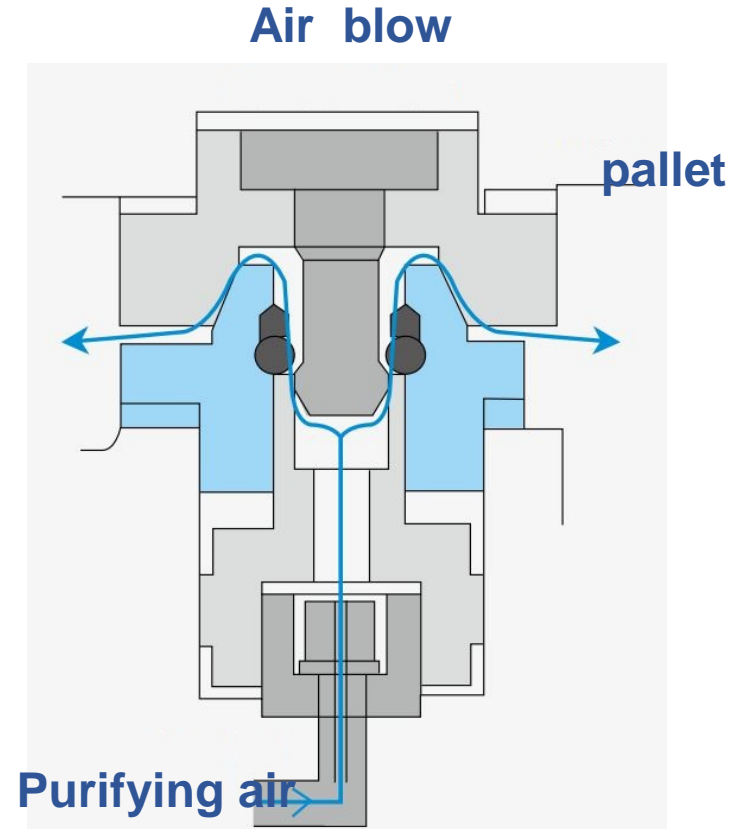
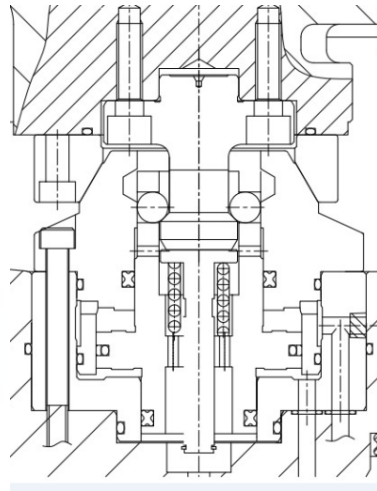
Structural features-indexing table



positioning (")	Repeatability (")	Speed (r/min)		Evenly loading (t)	
8	4	HPC650	10	HPC650	1.3
10	6	HPC800	6	HPC800	2
8	4	HPC600II	10	HPC600II	1



Four positioning pins for positioning and clamping function



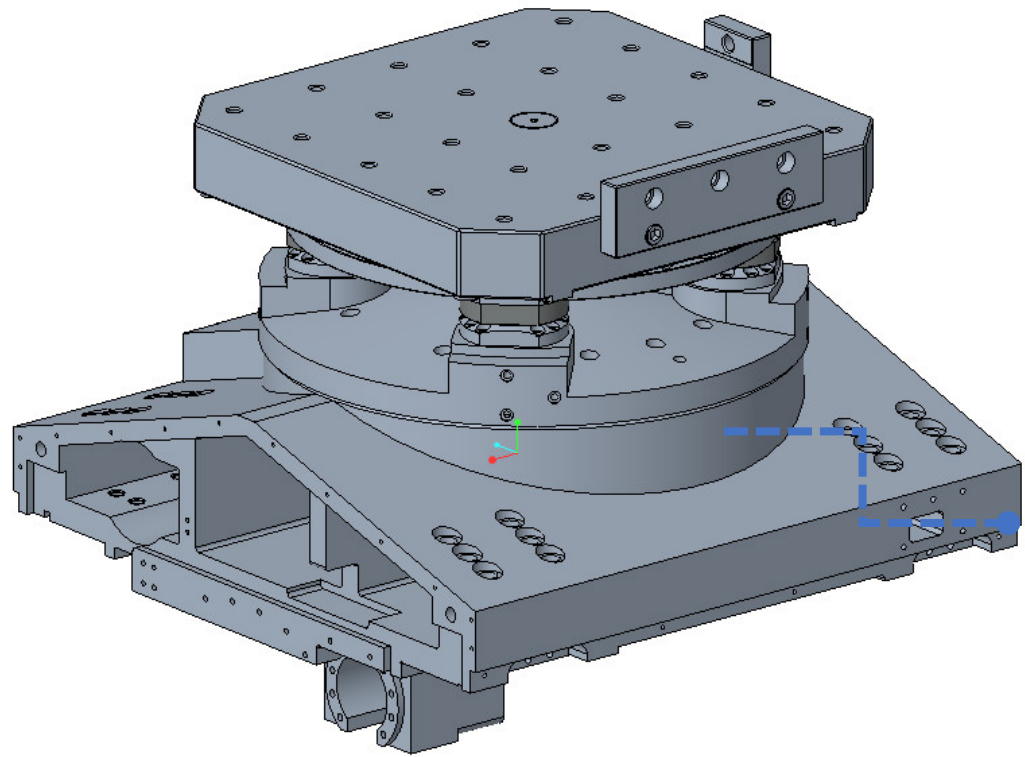
HPC series worktable adopts high precision crankset positioning and roller bearing support structure. It has the characteristics of high indexing accuracy and large bearing capacity. The hydraulic clamping force of the internal cylinder between the rotary table and the base is 7.7t (HPC650), 10.7t (HPC800).

When the pallet is exchanged, a 0.5 MPa airflow is sprayed into the cone to remove chips and ensure the positioning accuracy of the pallet.



OP—NC Table

- Index 0.001°
- High rigidity and high load capacity
- High rotation accuracy



Four large positioning pins are used for positioning between the worktable plate and the base. The worm gear transmission and brake pad clamping function can ensure the rigid clamping and accurate positioning of the tray. The repeatable positioning accuracy of the tray is high. The supporting structure uses a dedicated turntable bearing with a built-in angle. Measuring system with high indexing accuracy and large bearing capacity, in addition, the hydraulic clamping force of the internal cylinder 15t (HPC650) , 20t (HPC800)

positioning (")	Repeatability (")	Speed (r/min)		Evenly loading (t)	
		HPC650	10	HPC650	1.3
8	4	HPC650	10	HPC650	1.3
10	6	HPC800	6	HPC800	2
10	6	HPC600II	10	HPC600II	1



YRTM turntable bearing with angle measurement system.

Structure feature-ATC



Taiwan made 40T
ATC

Manipulator motor drive

The base is installed on the bed, which is stable and reliable

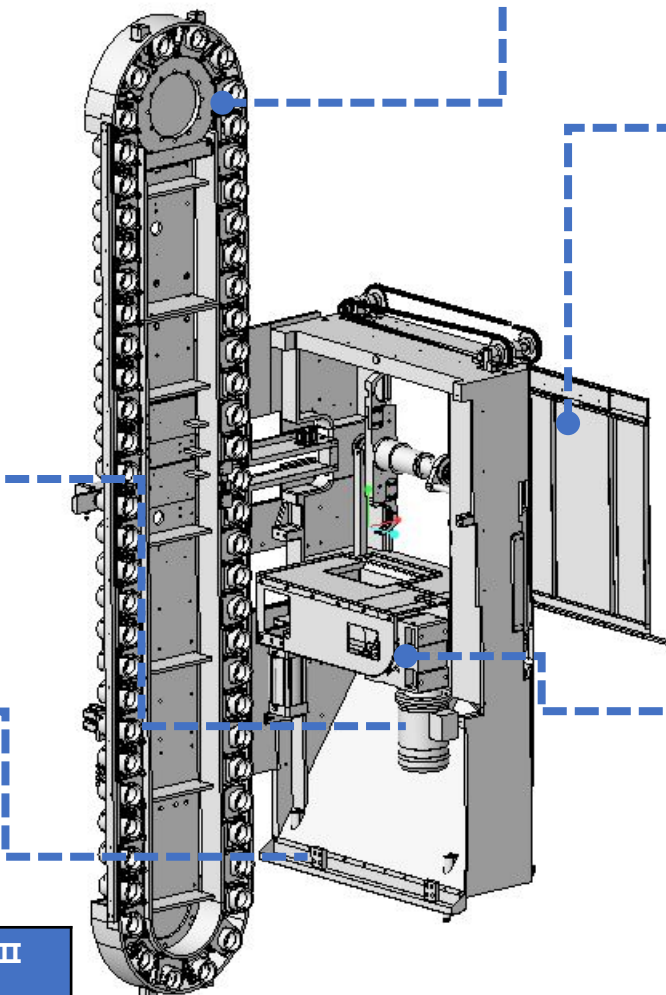
Servo motor drive

Linked tool magazine door

1. The tool magazine is driven by a servo motor, and there is no random tool and the like, and the tool chain running time is shorter;
2. Fixed-point tool change, no hydraulic components, smooth movement and no vibration;
3. The robotic tool change is linked with the tool magazine door to shorten the tool change time.

Precision cam box

Hardened iron tool holder



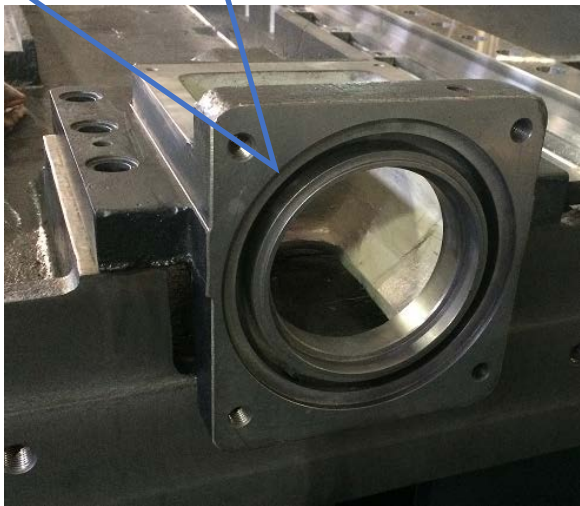
Model	HPC650	HPC800	HPC600II
Change time(T-T)	2.5s		2.9s
options	60T、90T、120T		60T
Change time(C-C)	10		



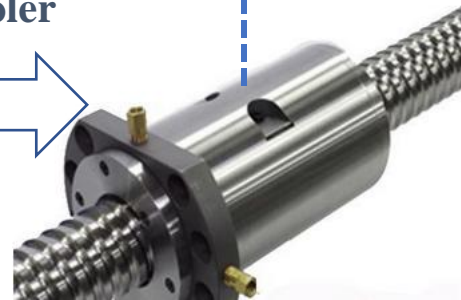
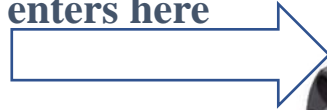
Structural features-ball screw cooling

The three axes are provided with a screw nut for cooling, and the motor seat bears cyclic cooling, which reduces the thermal deformation of the drag system and has high positioning accuracy.

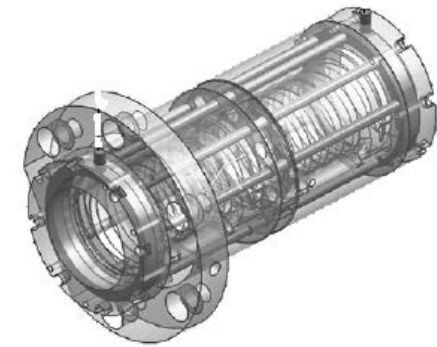
Circulating cooling oil tank, effectively isolating the heat source of the motor to the motor base



The coolant provided by the oil cooler enters here



Nut cooling

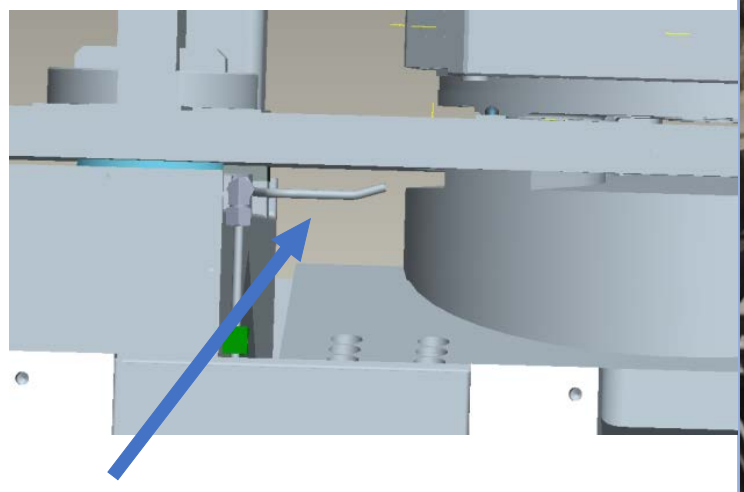


Nut cooling can effectively suppress the thermal energy and thermal expansion caused by the rolling of steel balls, so as to achieve the goal of high speed and high accuracy when the ball screw is running at high speed.



Structural features-excellent chipping

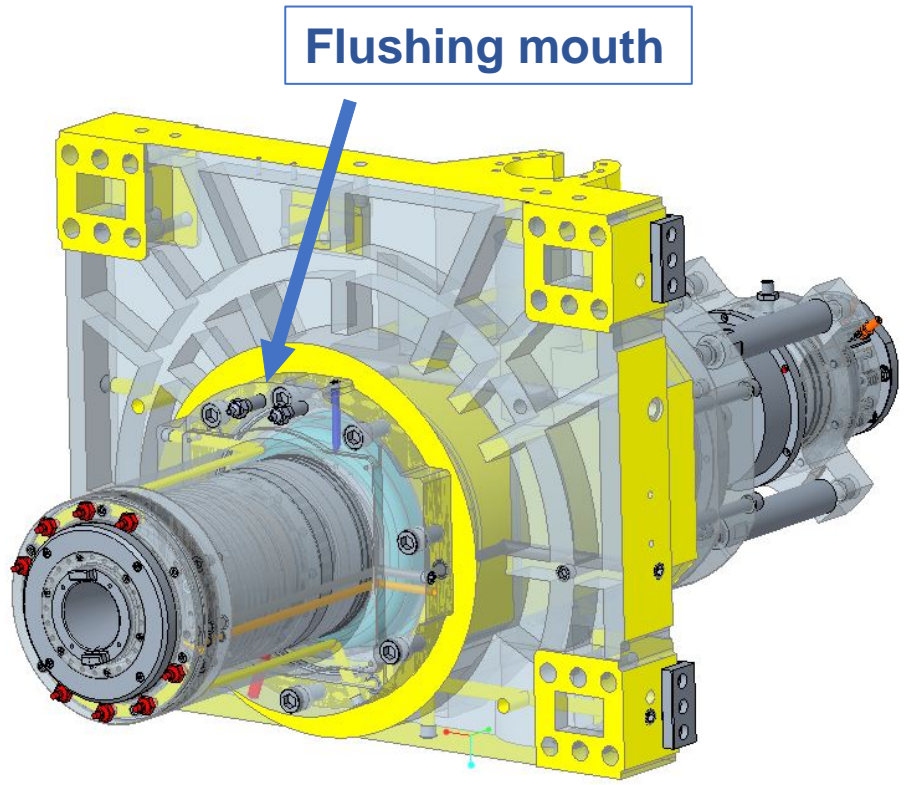
Excellent chip flushing capability makes the machine chip removal without dead angle



Flushing mouth



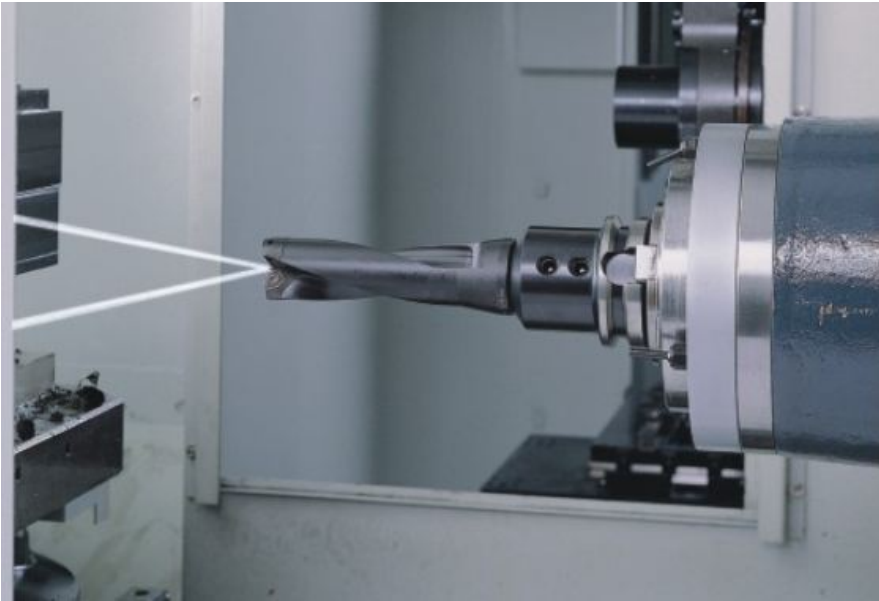
Chips on the upper surface of the rotating body of the table



Flushing mouth

Spindle nose flush





The coolant passes through spindle center and is sprayed from the tip of the tool, which can directly cool the workpiece and the cutting edge, and take away the cutting heat to ensure the processing quality, suitable for parts for deep hole processing.



2Mpa



3-6Mpa

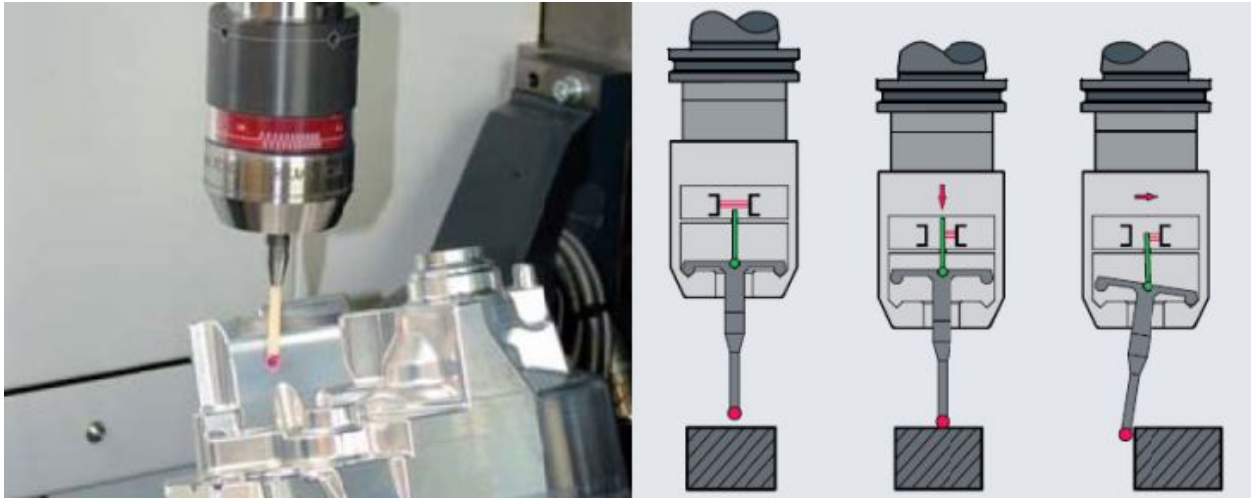


The coolant is sprayed from machine top for workpiece strongly cooling.
And take away chips from corner.



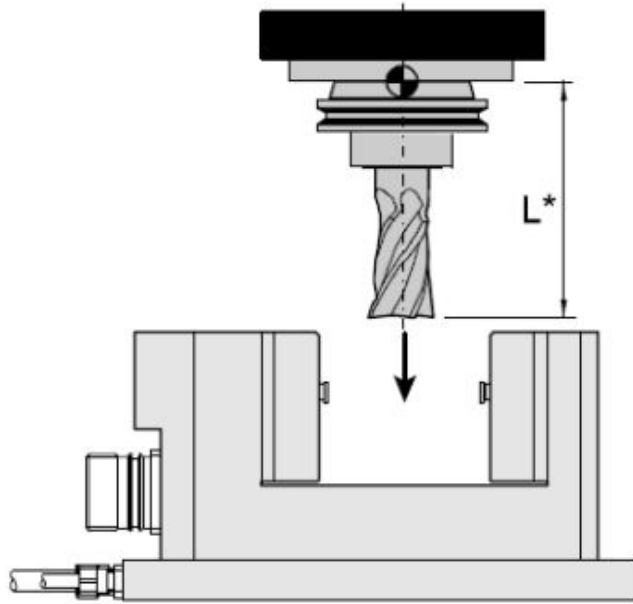
Option—Workpiece probe

Brand



BRC wireless radio transmission contact type device.





Laser type

Laser tool setter for detecting the geometry of the tool.



Contact type

Common used for tool length and diameter.

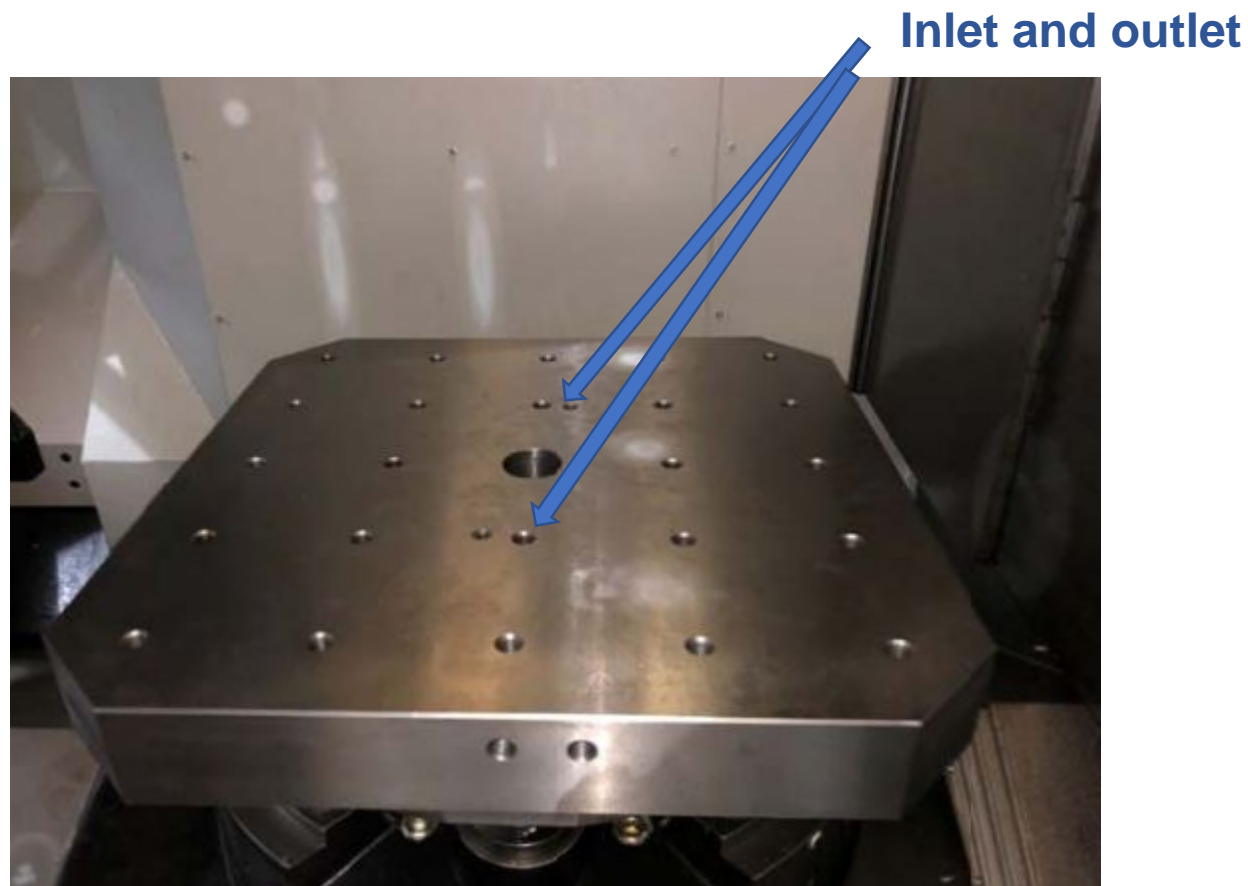
option--Broken tool detection



It is installed in the tool magazine and detected when the tool returns to the magazine, saving processing time.



option—Table hydraulic clamp interface



The table has an oil hole with a diameter of $\Phi 8$. The machine's own hydraulic station can supply oil to the hydraulic clamp at 6MPa (one in and one out). If you want to increase the pressure, you need to add your own hydraulic station.



■ Standard :

- Controller : FANUC 0i
- 40T ATC (BT50)
- Full enclosure splash guard
- APC
- External chain type chip conveyor
- Spindle oil chiller
- Screw the nut cooling
- Spindle air blow
- Auto power off
- Self-diagnostic function
- 3-color signal lamp

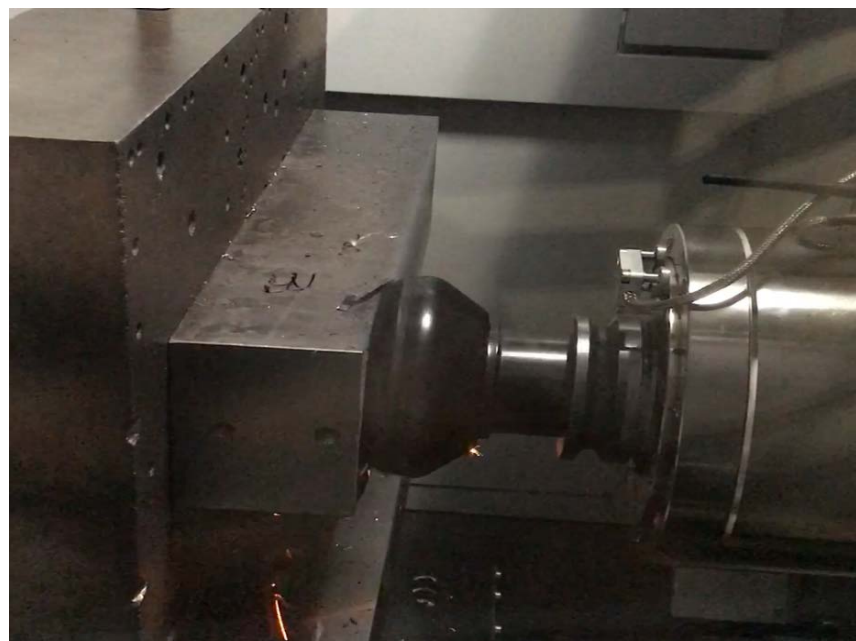
➤ Options :

- Controller;FANUC31i
- A/C for panel
- Stabilizer (100KVA)。
- BT50 /JT500 pull stud/↑(45 °, 60 °)
- X\Y\Z linear scale(hedienhan)
- NC rotary table (0.001° index) 。
- T Slot table
- Screw enlarge table
(HPC650:800×800;HPC800:1000×1000;
HPC600 II : 630×630)。
- Table with hydraulic clamp interface
(one in and one out)
- ATC (60T/90T/120T)
- Workpeice probe (BLUM)
- BLUM Tool setter(laser、Contact)
- Broken tool detection
- CTS (2Mpa、3-4Mpa、5-6Mpa) 。
- Shower coolant
- Coolant gun
- Air gun
- Oil skimmer
- Oil mist collector
- X\Y steel type guideway cover

Cutting example

Face Milling

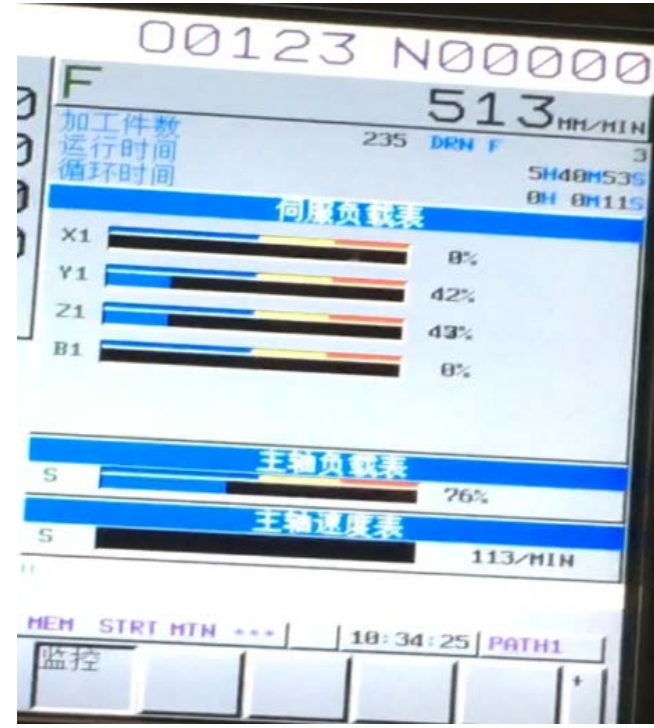
tool	Material	speed (rpm)	width (mm)	depth (mm)	rapid (mm/min)	motor loading
Φ125 face cutter (*6)	45#	504	100	5	900	105%



Cutting example

Tapping

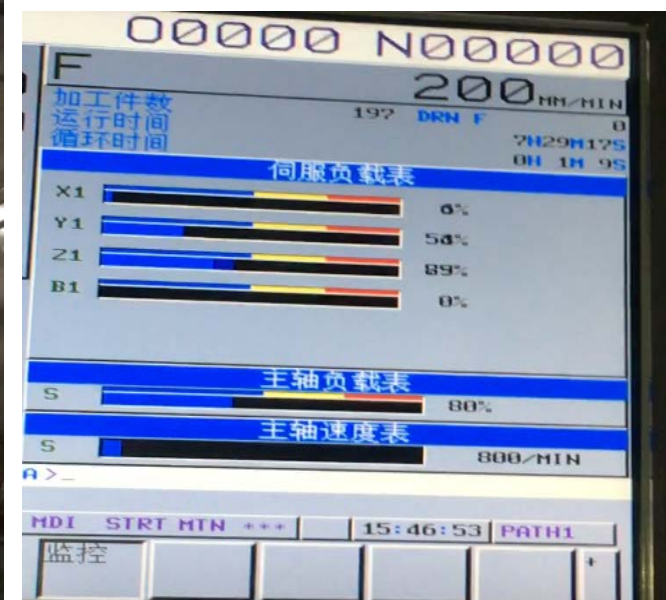
tool	Material	speed (rpm)	width (mm)	depth (mm)	rapid (mm/min)	motor loading
M42x4.5Tap	45#	114	—	50	513	76%



Cutting example

U drill

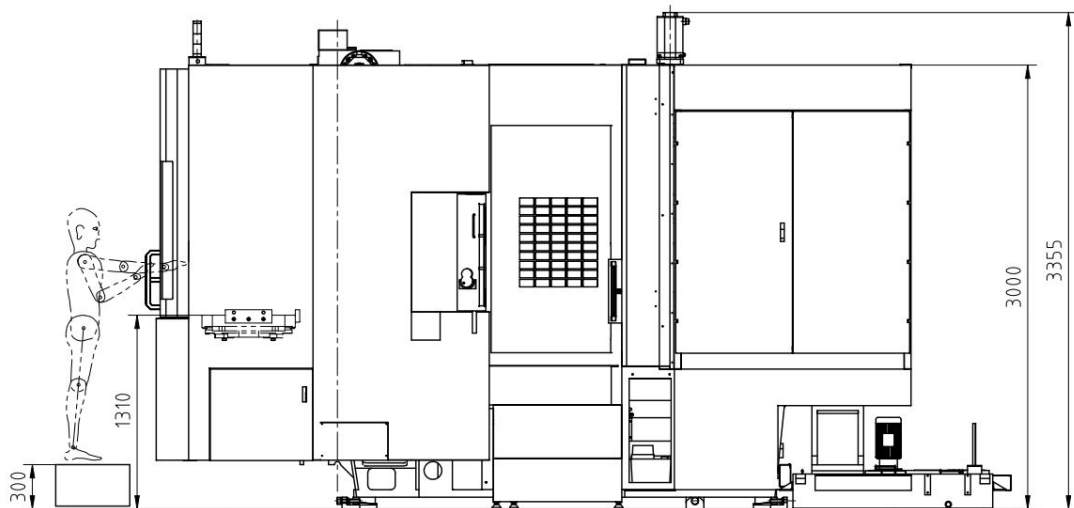
tool	Material	speed (rpm)	width (mm)	depth (mm)	rapid (mm/min)	motor loading
Φ56U drill	45#	800	—	50	200	80%



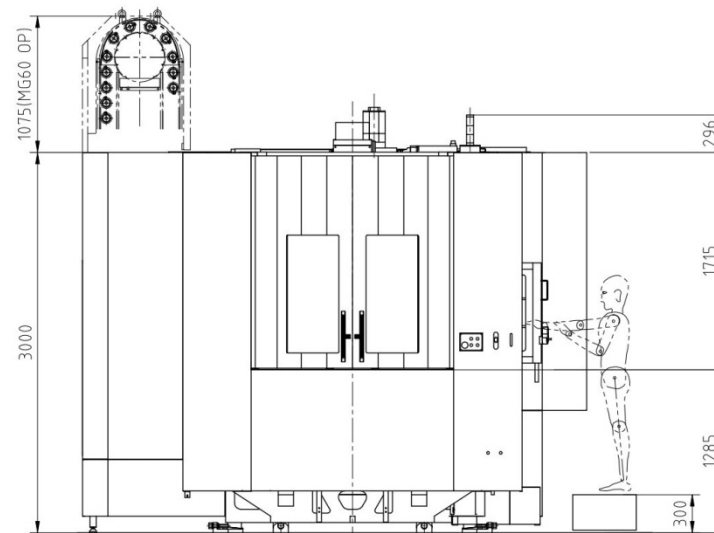
HPC650 dimension



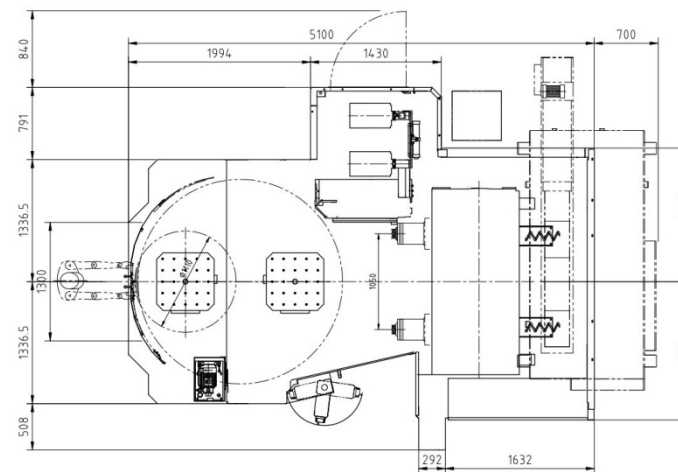
right view



Front view



Top view



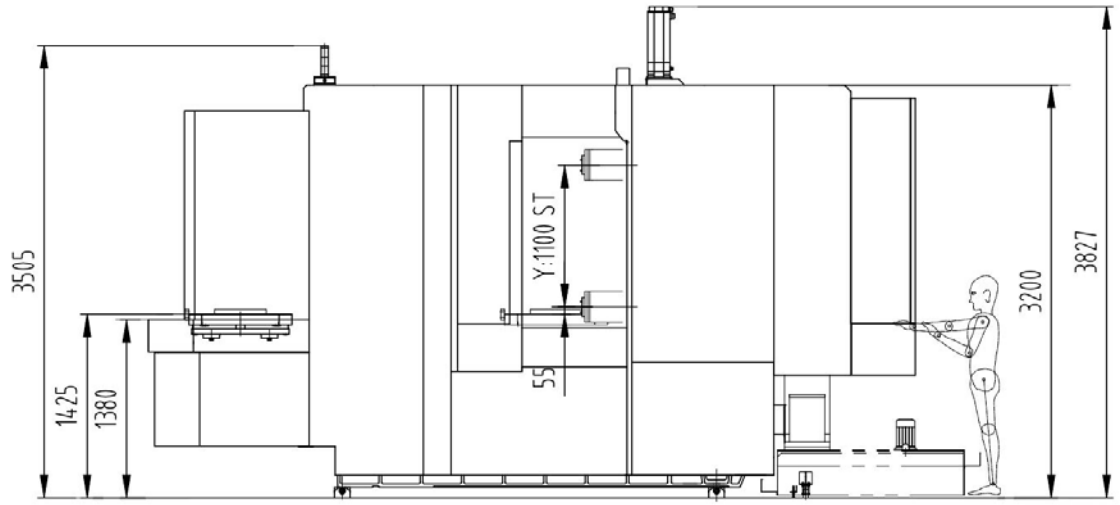
Water tank removal direction (right view)

Coolant tank capacity -800L
Water output 66L/min

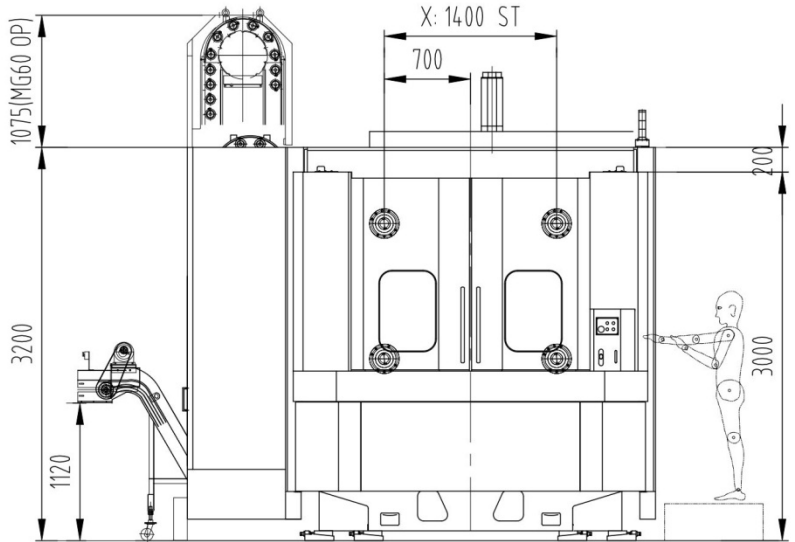


HPC800 dimension

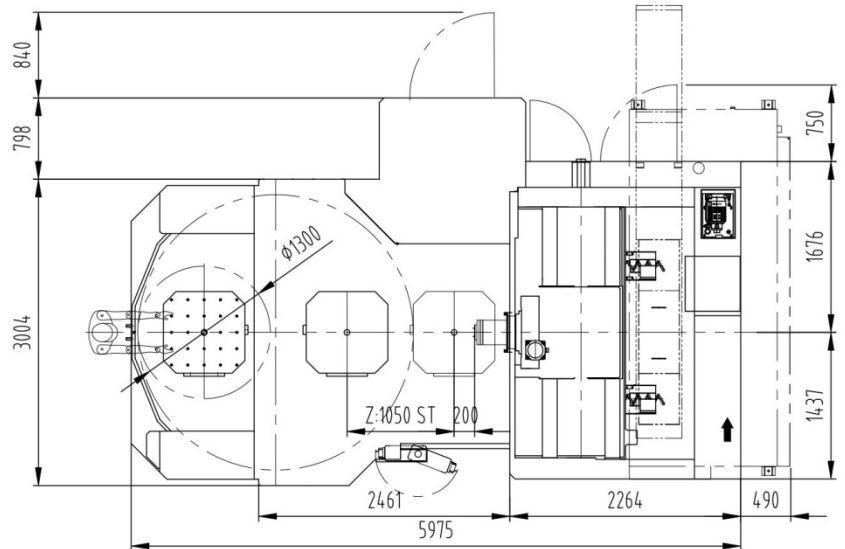
right view



Front view



Top view



Water tank removal direction (right view)

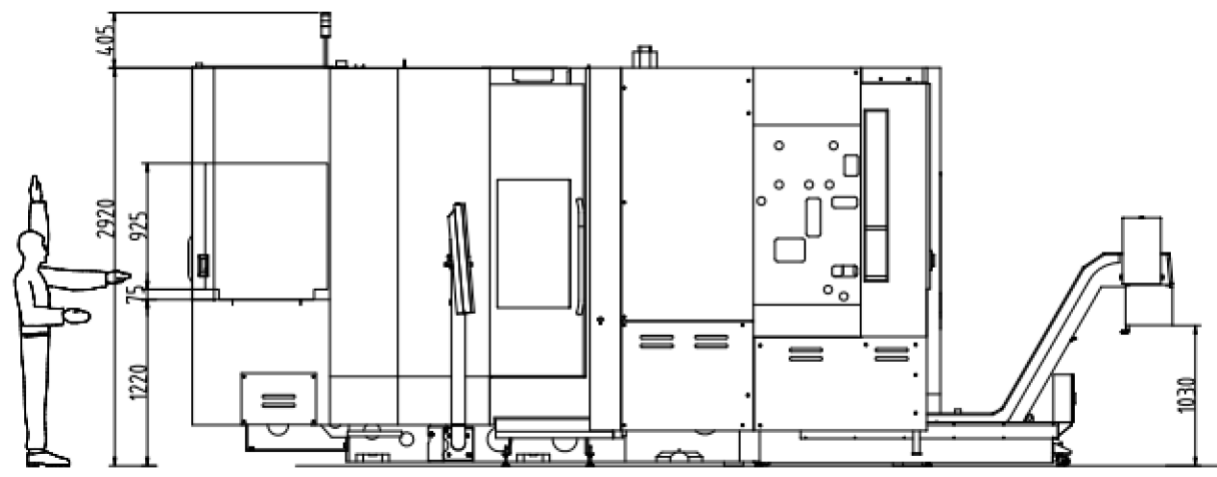
Coolant tank 1650L
Water output 66L/min



HPC600II外形尺寸

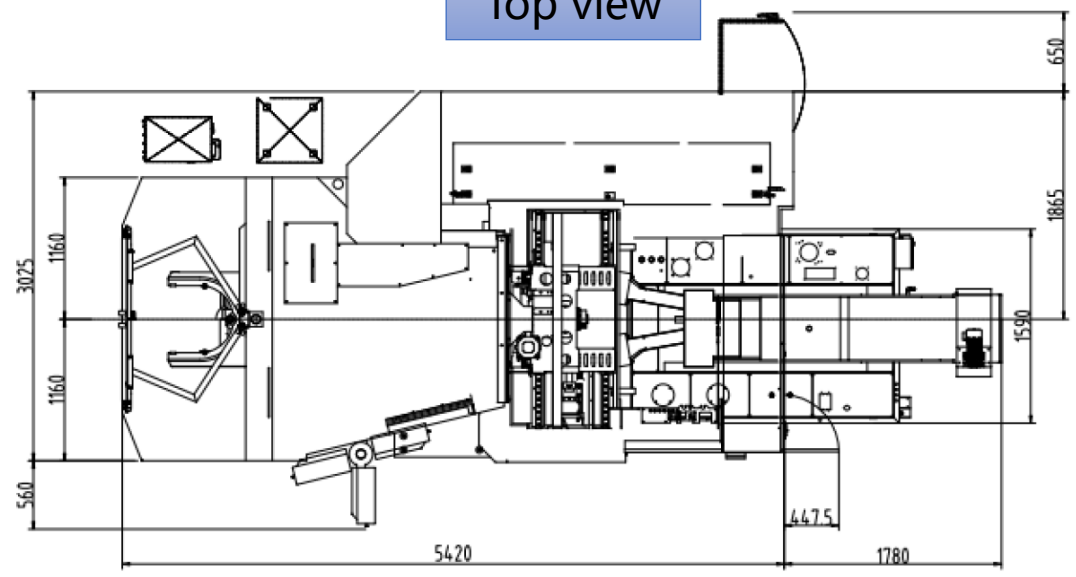


right view



Water tank removal direction (right view)

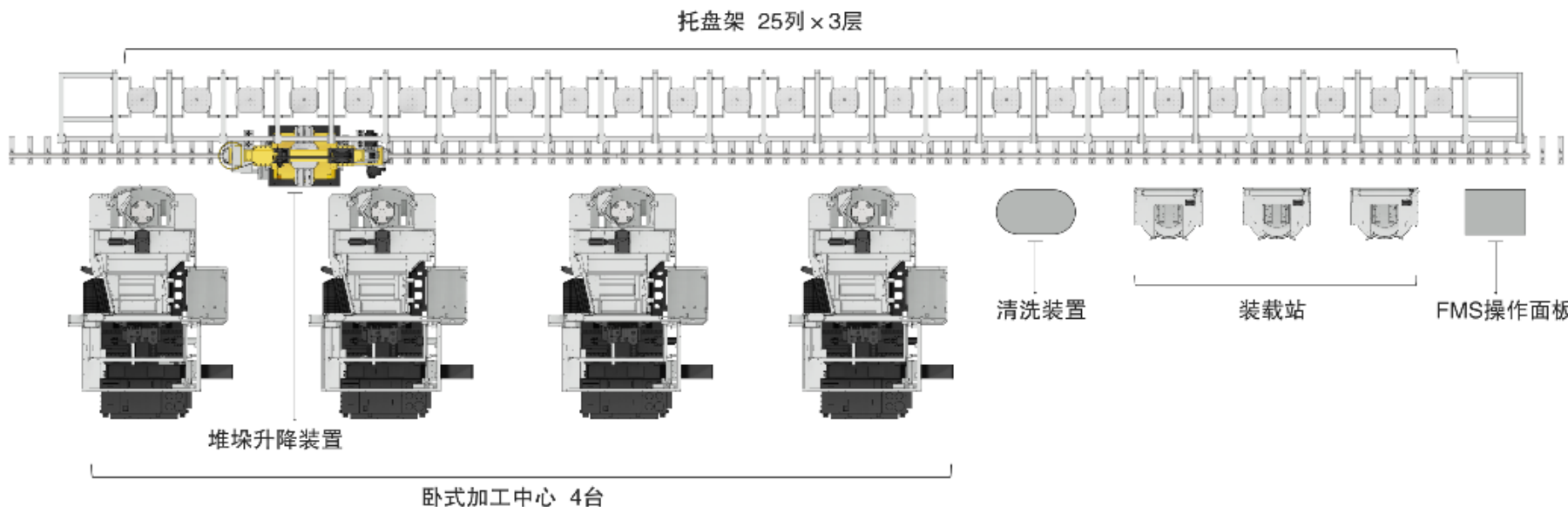
Top view



Coolant tank capacity -800L
Water output 66L/min



Flexible manufacture system



Stacker parameters

Horizontal walking speed :
100m/min

Vertical up and down speed :
12m/min

Fork telescopic speed : 20m/min

Rated lifting weight : 1.6T



Flexible manufacture system



HPC650-FMS

M/C : HPC650 *4

loading stations No. : 3

Table No. : 3x25

HPC800-FMS

M/C : HPC800 *4

loading stations No. : 3

Table No. : 2x25



Flexible manufacture system



HUP80-FMS

M/C : HUP80

loading stations No. : 1

Table No. : 4



HPC650-FMS

M/C : HPC650* 4

loading stations No. : 3

Table No. : 3x25



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Thanks!

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