

Machine Accessories

No.	Features	SMH-500	SMH-630	SMH-800
1	15-inch Monitor	●	●	●
2	Spindle Air Seal System	●	●	●
3	Spindle Splash Ring	●	●	●
4	Spindle Cooling System	●	●	●
5	Air Conditioning For Electrical Cabinet	●	●	●
6	Levelling Bolts & Plates	●	●	●
7	DDS Spindle	●	●	○
8	Belt Spindle With Gearbox (1:5.5)	-	○	●
9	Built-in Spindle	○	○	○
10	X/Y/Z Axis Rapid Traverse 48 m/min	●	●	-
11	X/Y/Z Axis Rapid Traverse 42 m/min	-	-	●
12	X/Y/Z Axis Rapid Traverse 60 m/min	○	○	-
13	Roller Type Linear Guideway	●	●	●
14	Coolant Through Spindle Interface	●	●	●
15	Tool Magazine 40 Pot	●	●	-
16	Tool Magazine 60 Pot	○	○	●
17	Tool Magazine 120 Pot	○	○	○
18	Oil Skimmer	●	●	●
19	Work Light	●	●	●
20	3-Color Signal Light	●	●	●
21	Rigid Tapping	●	●	●
22	Air Gun / Coolant Gun Interface	●	●	●
23	Chip Screws- Inside The Machine	●	●	●
24	Front Door Interlock	●	●	●
25	Top Flushing	●	●	●
26	Chain Plate Chip Conveyor	●	●	●
27	Scraper Chip Conveyor	○	○	○
28	B Axis-0.001 Degree	●	●	●
29	B Axis-0.001 Degree With Rotary Scale	○	○	○
30	B Axis-0.001 Degree For DDM Type	○	○	○
31	B Axis-1 Degree	○	○	○
32	Oil Mist Collector	○	○	○
33	Hollow Screw Cooling	○	○	-
34	CE	○	○	○
35	X/Y/Z Axis Linear Scale	○	○	○
36	Auto Tool Length Measurement and Breakage Detection	○	○	○
37	Auto Workpiece Measurement (OMP60)	○	○	○
38	Fixture Couple	○	○	○

● Standard ○ Optional - Not available



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SMH-500 | SMH-630 | SMH-800

HORIZON SERIES

Horizontal Machining Center

High-Efficiency Horizontal Machining Center Suitable for High-Volume, High-Speed Cutting Machining

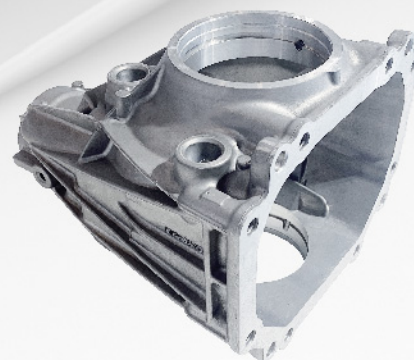
SIGMA's new generation HORIZON horizontal machining center is a high precision machine with excellent cutting rigidity and outstanding machining accuracy. It offers the best performance and the highest productivity for precision parts and general mold machining. HORIZON horizontal machining center is mainly suitable for the automotive industry, aerospace industry, energy industry, and other new business opportunities application.



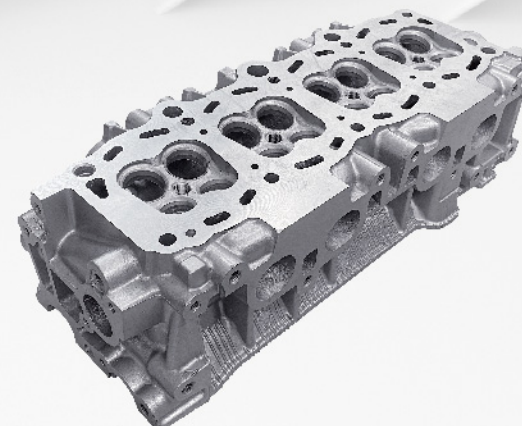
Steering Knuckle



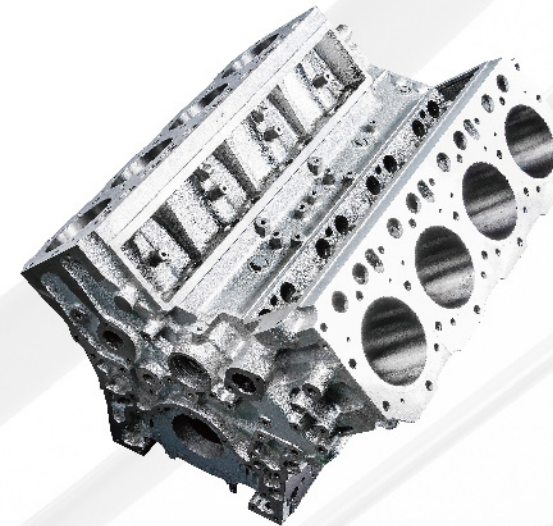
Swim Arm



Bell Housing



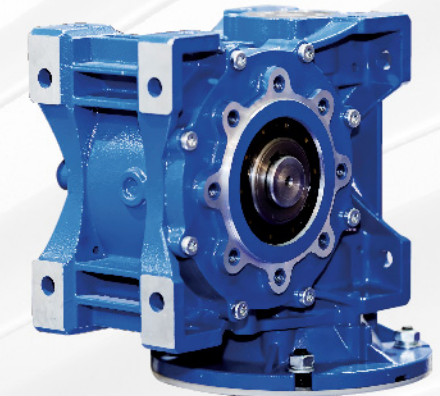
Cylinder Head



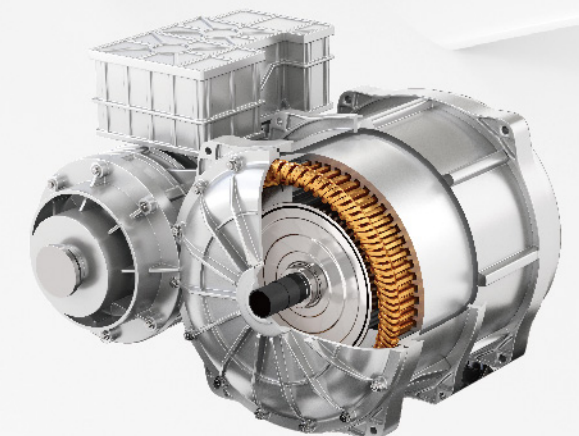
Engine Block



Aerospace Structure



Wind Turbine Gearbox



Electric Vehicle Motor

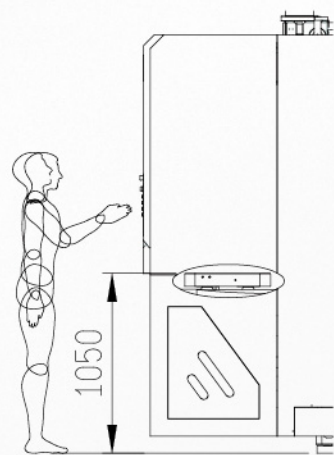
HORIZON SMH-500

Excellent For Diversified Industries

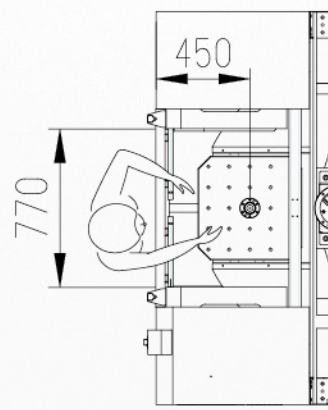
- Precision(profiled) Parts Machining
- General Mold Machining
- Automotive and Motorcycle Part Machining
- 3C Industries
- Aerospace Part Machining
- Semi-conductor Industry

Ergonomic Design

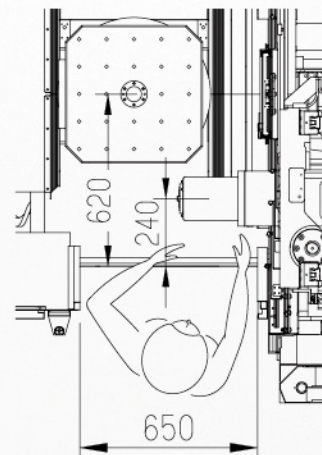
Operators can pick and place workpiece and operate at the optimal distance and height.



- Easy to pick and place workpiece.
- Wider viewing angle for loading and unloading.



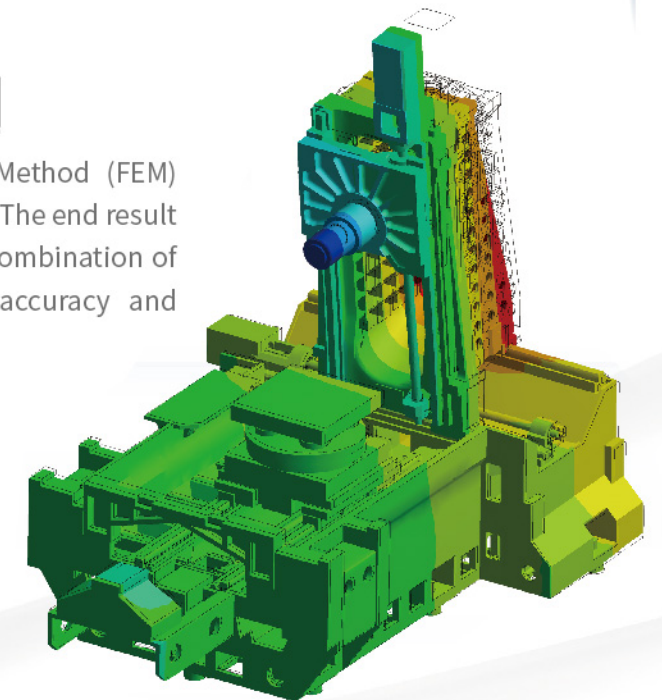
- Close to the center of the table.
- Larger operating area.



- Operating side closer to the center of the spindle.
- Provides convenience and large maintenance space.

Finite Element Method

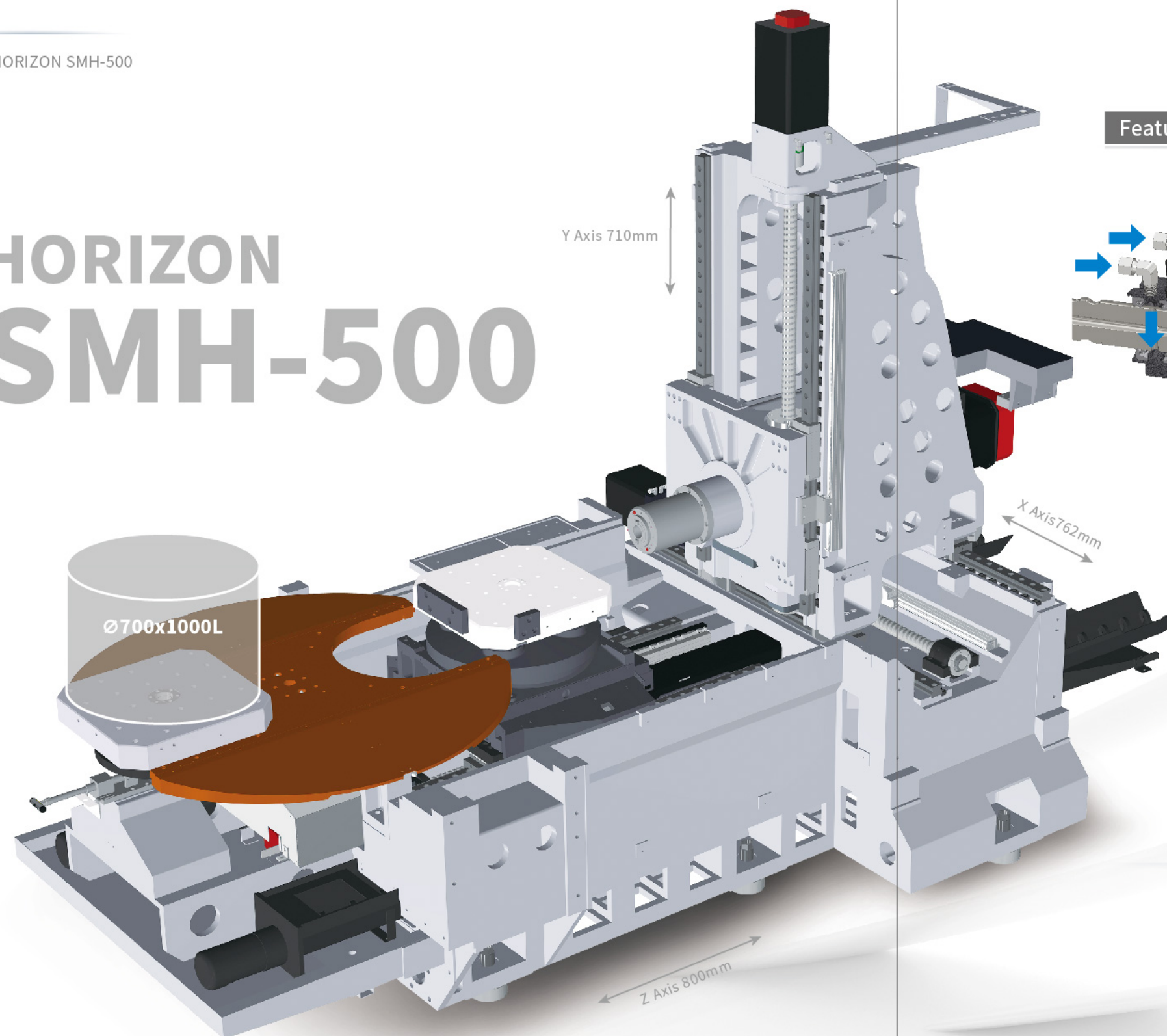
Fair Friend utilizes Finite Element Method (FEM) software for rigidity and FEM analysis. The end result is superior machines with optimum combination of structure, price/performance ratio, accuracy and reliability.



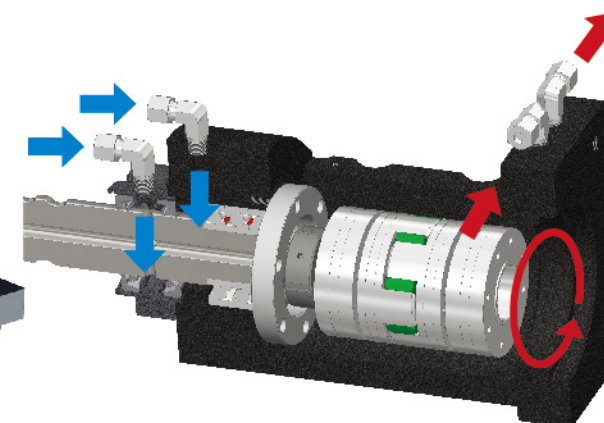
Automation/ Rotary Pallet System

- Multi-processing and small quantity production method.
- Mixed-line production (different processes for the same workpiece, different workpiece).
- Matching parts production (TPS compliant).
- No manned and humanized production.
- Dynamic order insertion, fast production.
- Reduced mold change time and quick line change.
- Reduced floor space.

HORIZON SMH-500

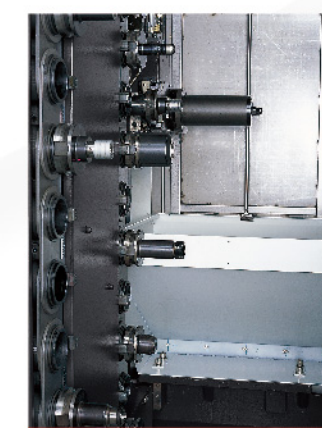


Feature



Three-axis Thermal Expansion Errors Compensation. (OPT)

- Motors for 3 axes are installed outside of casting body, motor housing equipped with frequency converter cooling circulation system. This insulates the casting parts and machine structure from heat resources to reduce thermal deformation.
- Forced lubrication and cooling system on 3 axes extends bearing lifetime and increases accuracy.
- Frequency converter cooling circulation system for 3-axis ball screws reduces thermal positioning errors while enhances accuracy and lifetime.



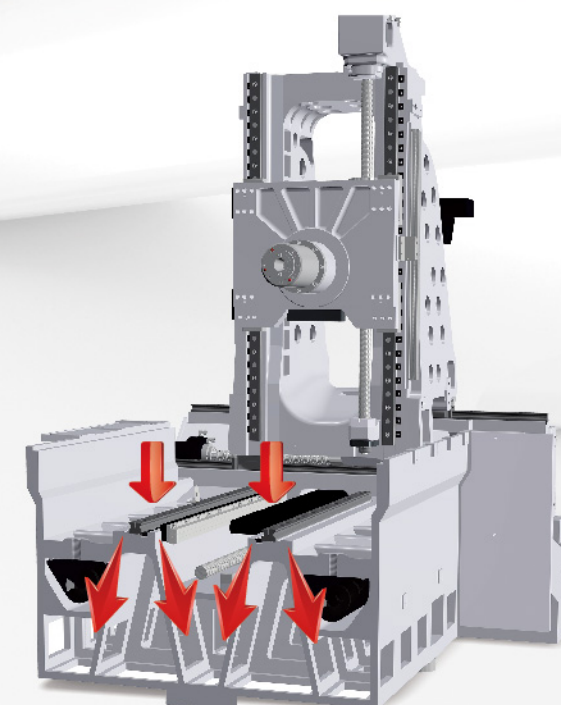
Special Return Flow Tilting Channel

When tool change is accomplished, the oil dust and chips will flow back to the machine base via the specially designed tilting channel. This may eliminate environmental pollution problem.



Quick Drainage Design

The machine is designed with a large sloping plate on the side of the machining area for quick chip removal and drainage during machining.

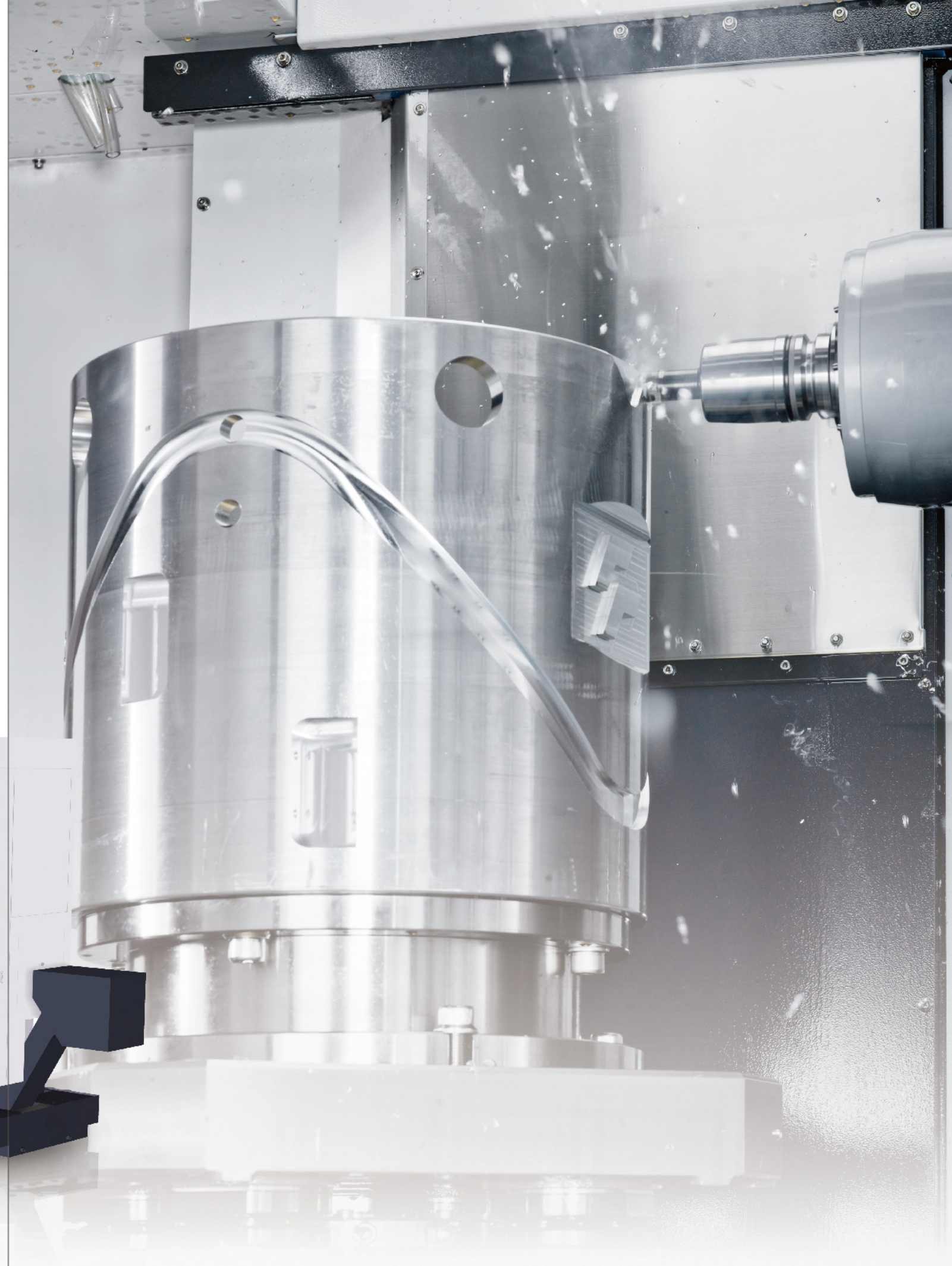


Highlighted Features

Enhanced rigidity realized by low gravity center, 3-point support.
Effectively improved model of high rigidity, high durability and high precision.

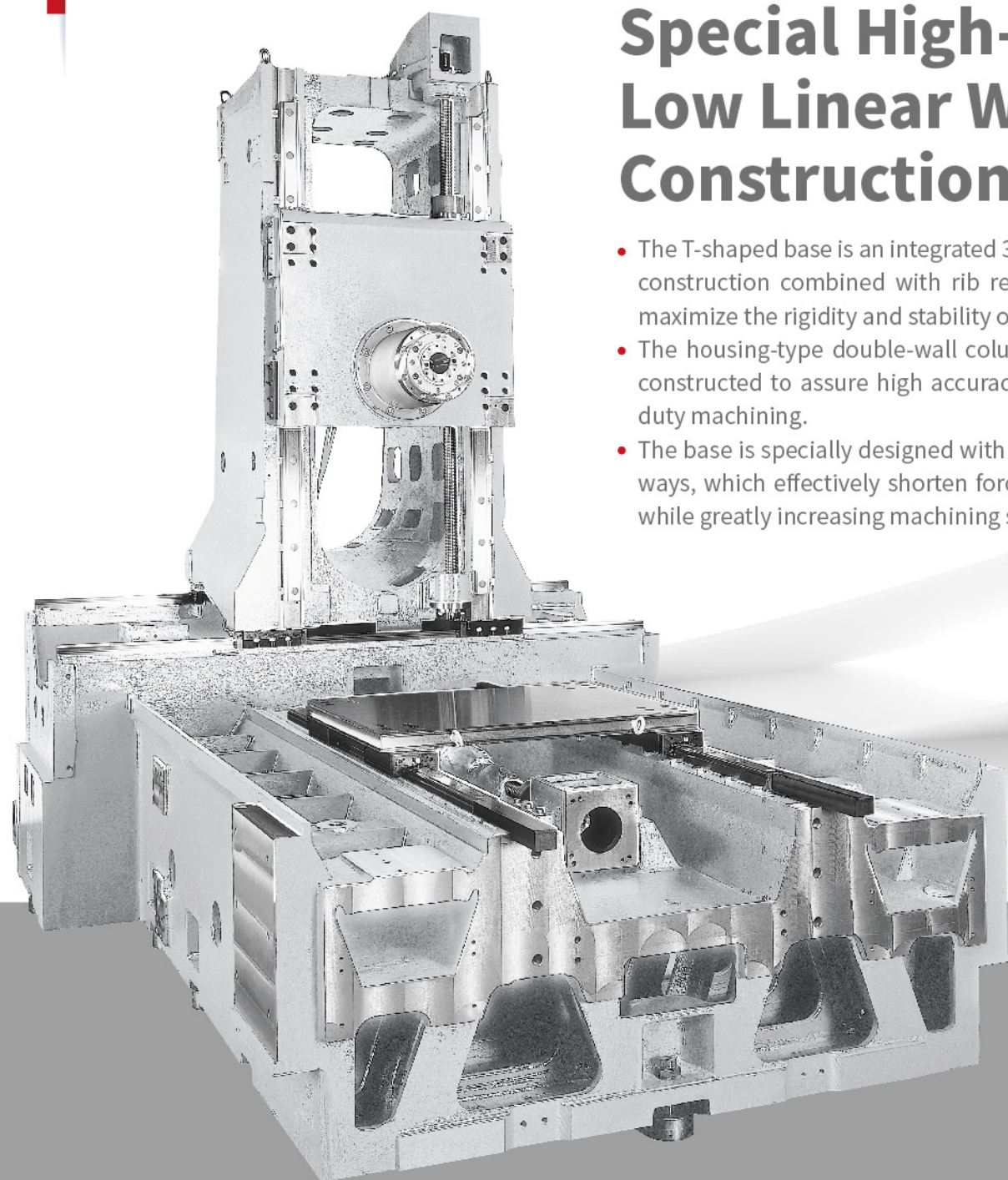
HORIZON SMH-630

The HORIZON SMH-630 is designed and engineered with efficiency, stability and heavy duty in mind. It is a machining center excellent for precision mold machining and heavy parts machining. The brand new design concept of HORIZON horizontal machining centers are dedicated to machine both mass production parts and general molds with high accuracy. The outstanding performance of machines from SIGMA brings you the utmost cutting efficiency as well as maximum profitability.



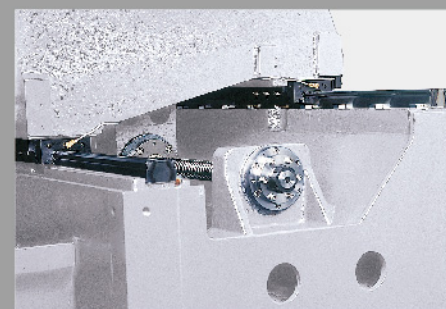
Special High-Low Linear Ways Construction

- The T-shaped base is an integrated 3-layer box-type construction combined with rib reinforcement to maximize the rigidity and stability of the machine.
- The housing-type double-wall column is ruggedly constructed to assure high accuracy during heavy duty machining.
- The base is specially designed with high/low linear ways, which effectively shorten force loading lines while greatly increasing machining stability.

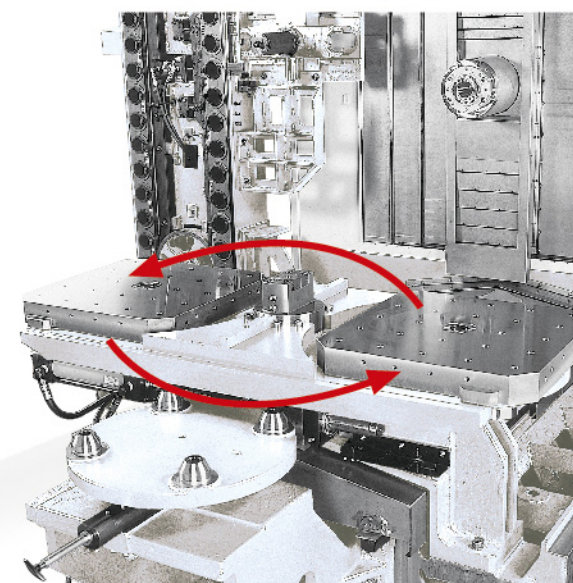


Three Axes Linear Ways Resists Heavy Loads

Three axes are fully equipped with linear guide ways, combined with double rows support at both sides, for increased loading capacity, high rigidity and high accuracy. No further maintenance is required for long term operations.

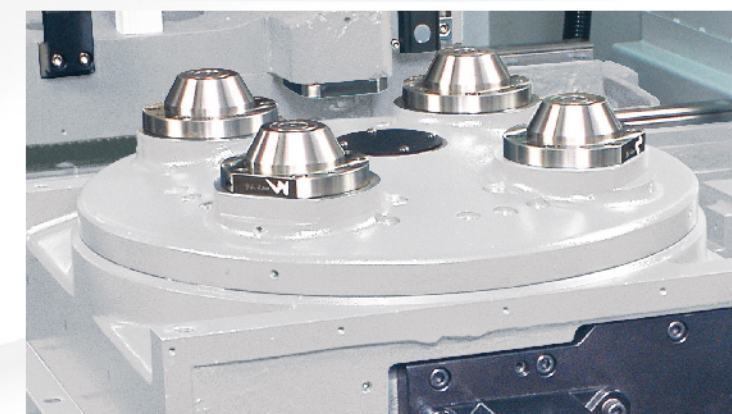


Swing-Type Automatic Pallet Changer (APC)

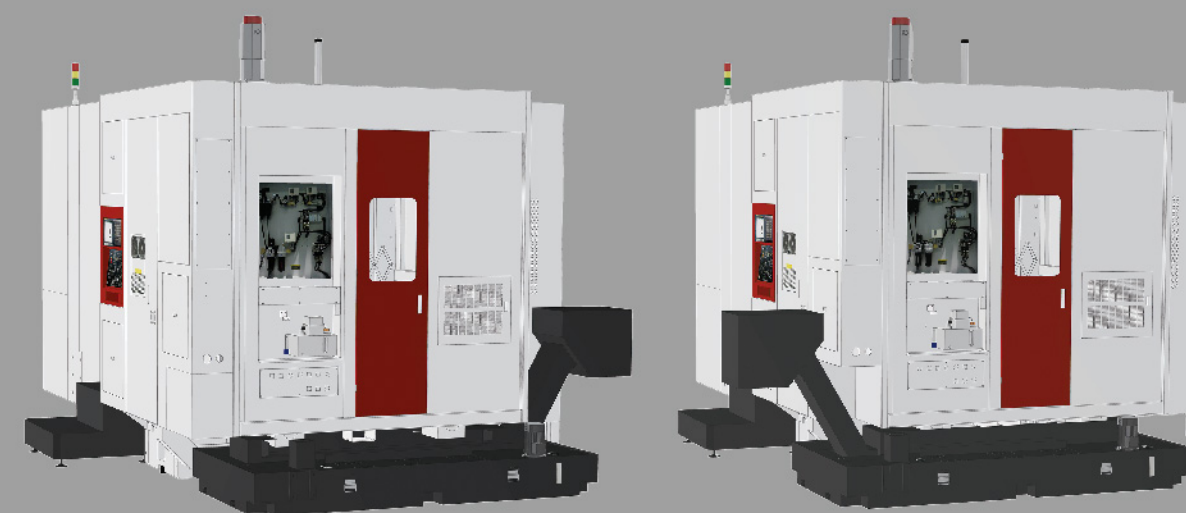


- Designed with one-to-one swing-type automatic pallet change. The APC features rigid construction, high positioning accuracy and fast change.
- Maximum table loading capacity up to 1,200 kg.
- Maximum table diameter $\varnothing 1000$ mm.
- Fastest change time is 10 seconds.

Oversized Tapered Cones



The B axis movement and Z axis cross movement are equipped with oversized tapered cones for extremely accurate pallet positioning. This assures outstanding machining accuracy.



Chip Conveyor

The position of the chip outlet can be customized according to the requirement. Chip conveyor can be left/right side Discharge and rear discharge.

HORIZON SMH-800

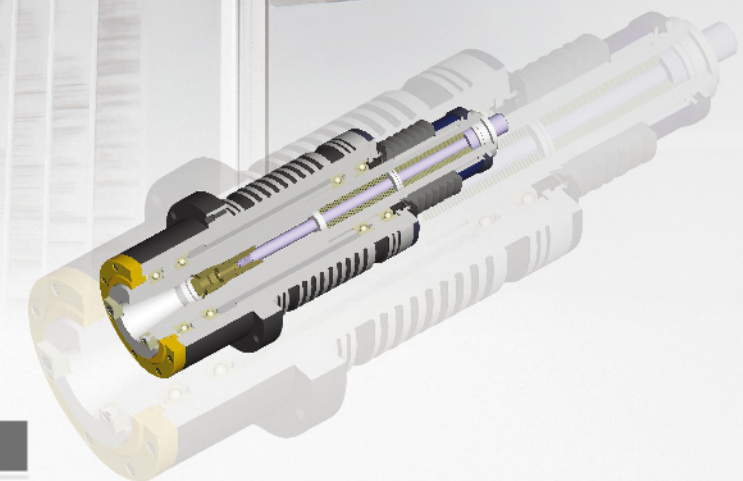
Machine Features

- T-Shaped base structure deploying linear guideways at Hi-Low step arrangement, 3 axes adopts linear roller guideways.
- High power spindle motor with GTP gearbox, delivery high torque during low speed, suitable for heavy duty cutting.
- Auto Pallet Changer is driven by servo motor, APC speed can be adjusted according to pallet load. (OPT)
- Auto Tool Changer is driven via cam mechanism and servo motor, ATC speed can be adjusted according to tool weight.(OPT)



Precision Rigid Spindle

- Air jet around spindle nose.
- High rigidity large span layout.
- Special treatment for critical parts.
- High accuracy tool draw mechanism.
- Double anti-leak design.
- High precision labyrinth-type locknut.
- High rigidity quill.
- Optimal span from spindle nose to front bearing.

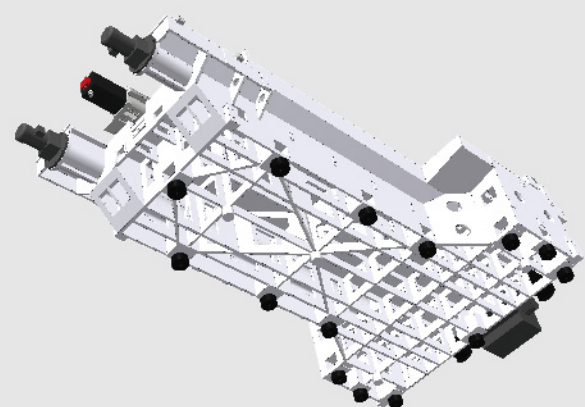
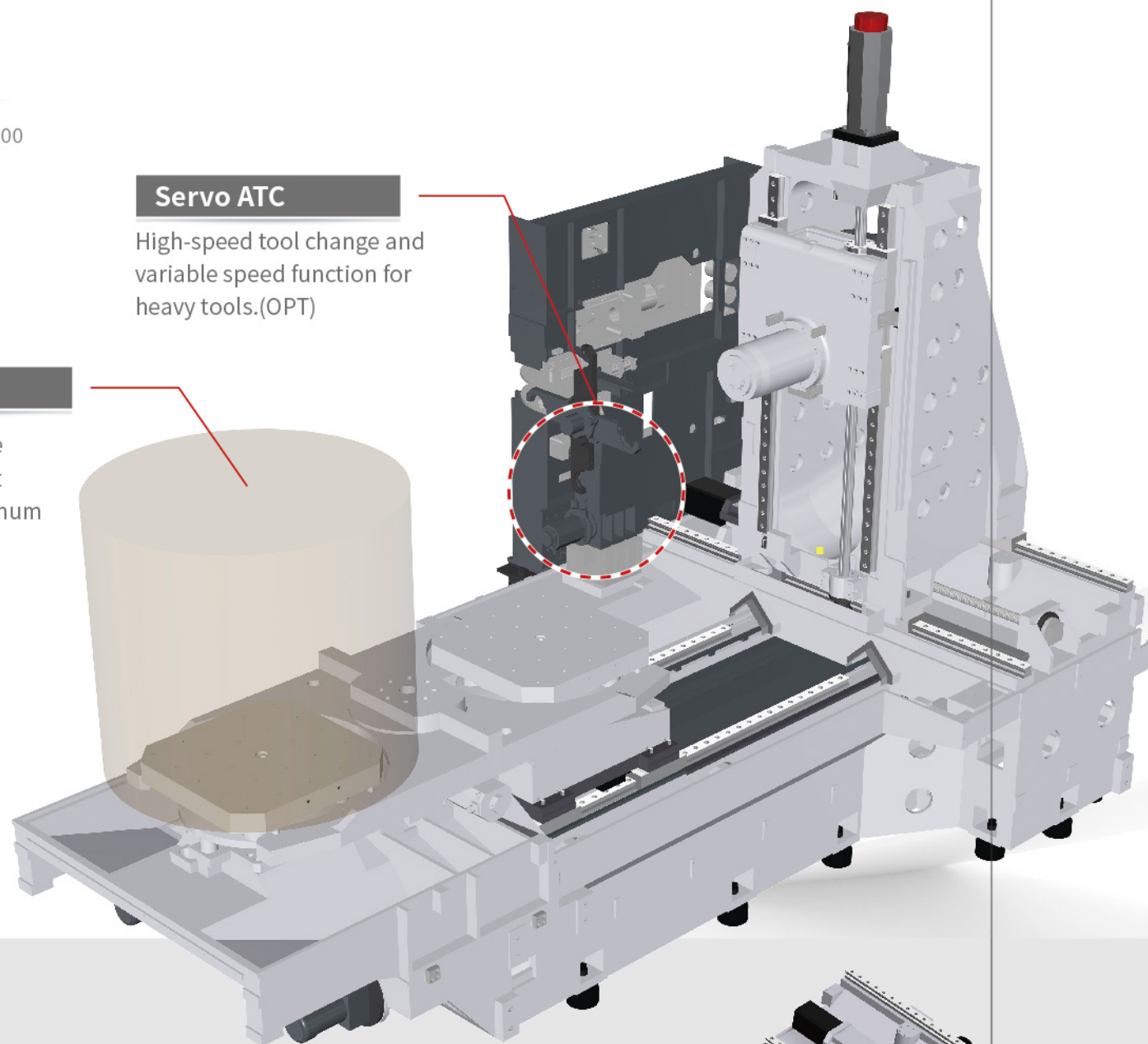


Servo ATC

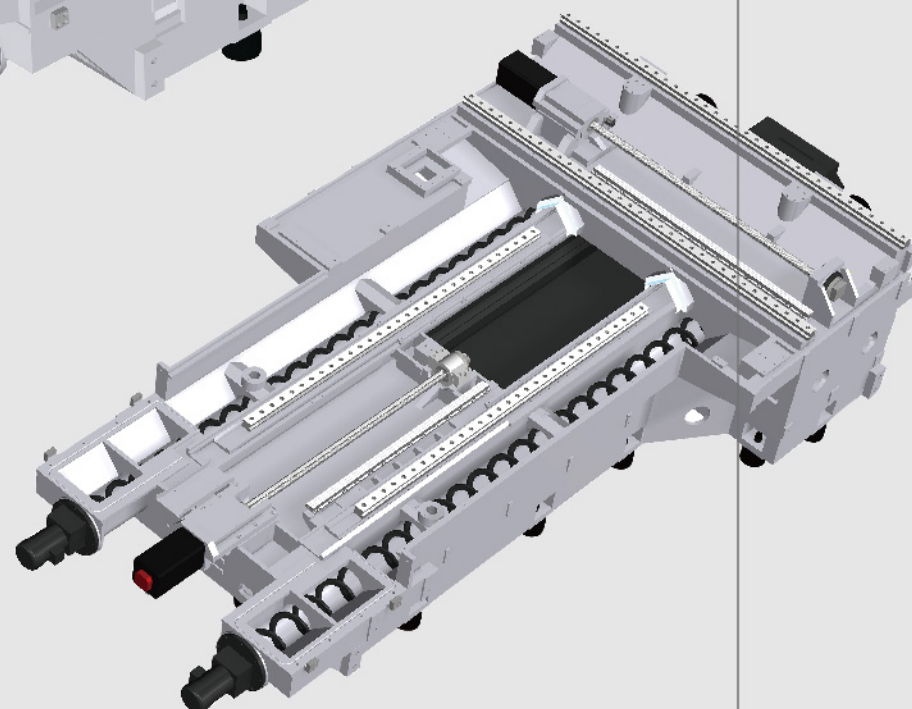
High-speed tool change and variable speed function for heavy tools.(OPT)

Servo APC

Rotates at variable speed for different workpieces. Maximum table loading 2,000Kg.(OPT)



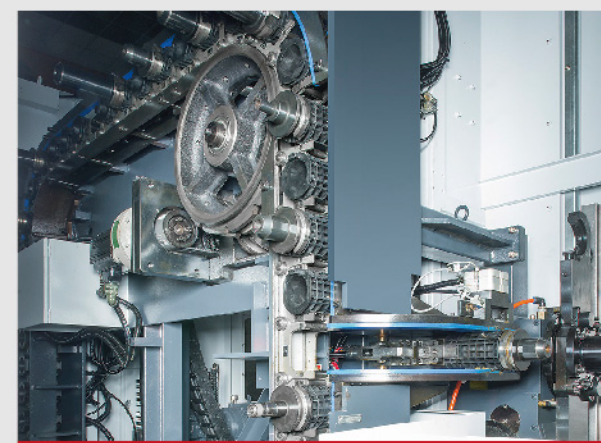
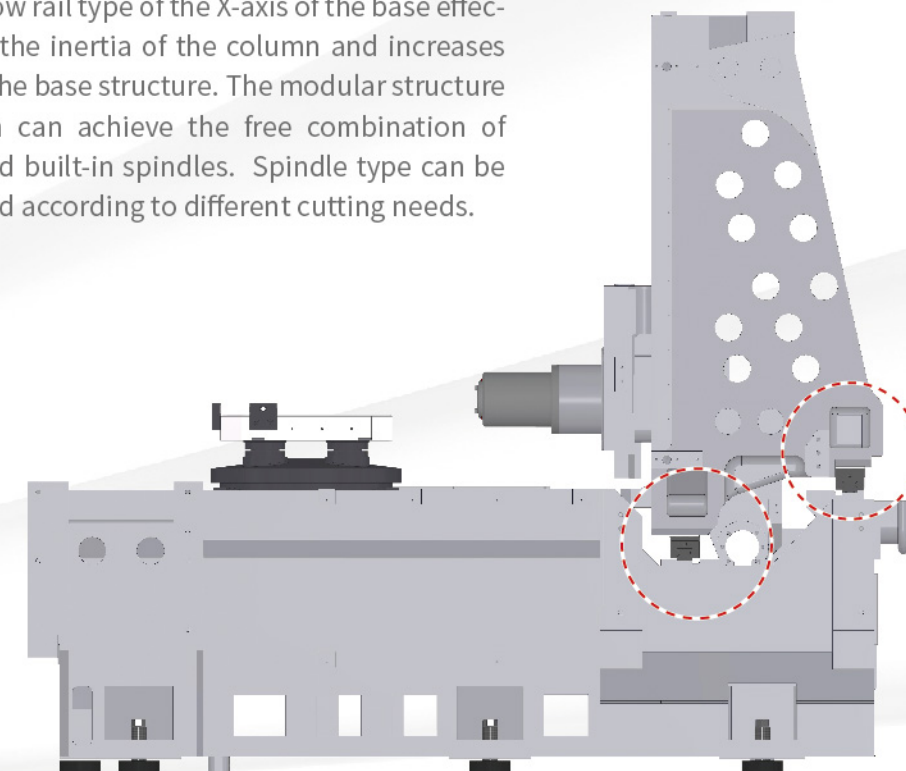
Base foot bearing structural ribs are connected each other, so that the load force flow is not interrupted, effectively enhancing structural rigidity.



The three axes use class 65 roller guide: designed to achieve ultra-high rigidity and extra heavy load capacity; furthermore, it extends the service life of linear guide.

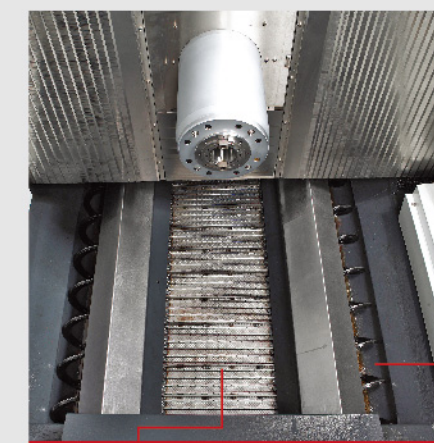
X-Axis Uses High and Low Rail Design

The high and low rail type of the X-axis of the base effectively reduces the inertia of the column and increases the rigidity of the base structure. The modular structure of the column can achieve the free combination of direct-drive and built-in spindles. Spindle type can be flexibly selected according to different cutting needs.



60 Tools of ATC Features

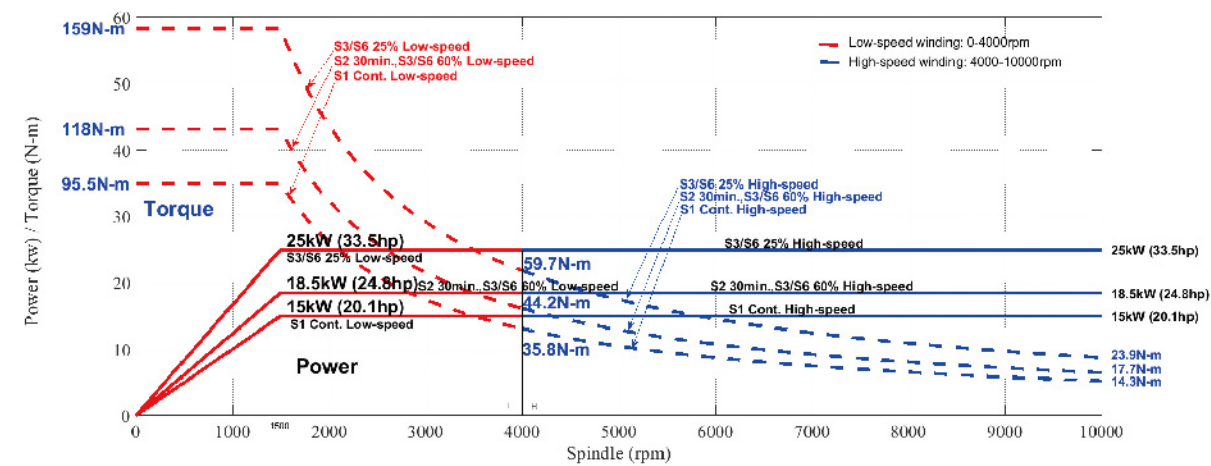
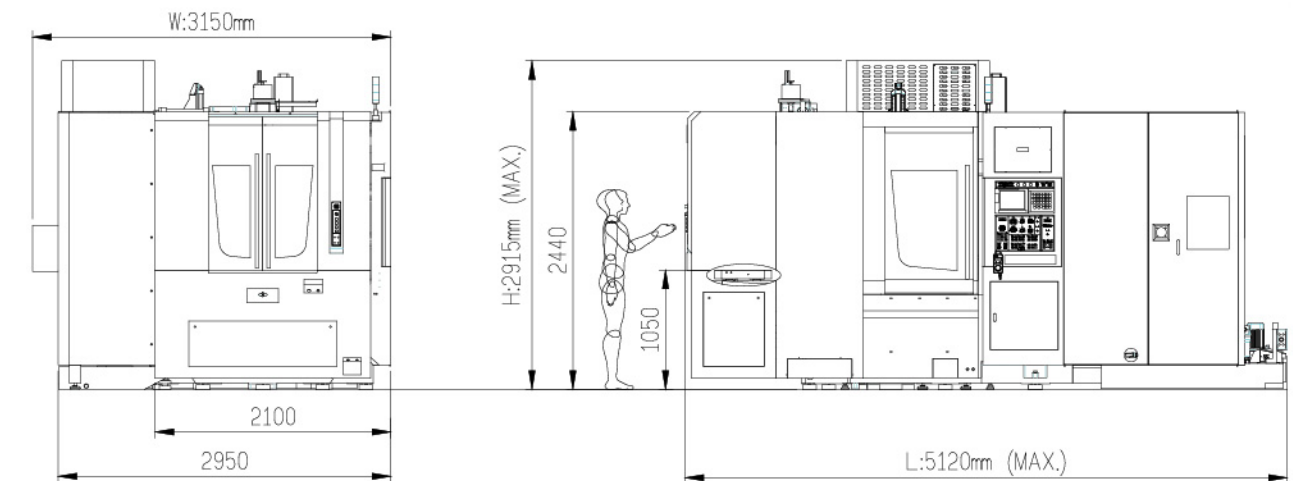
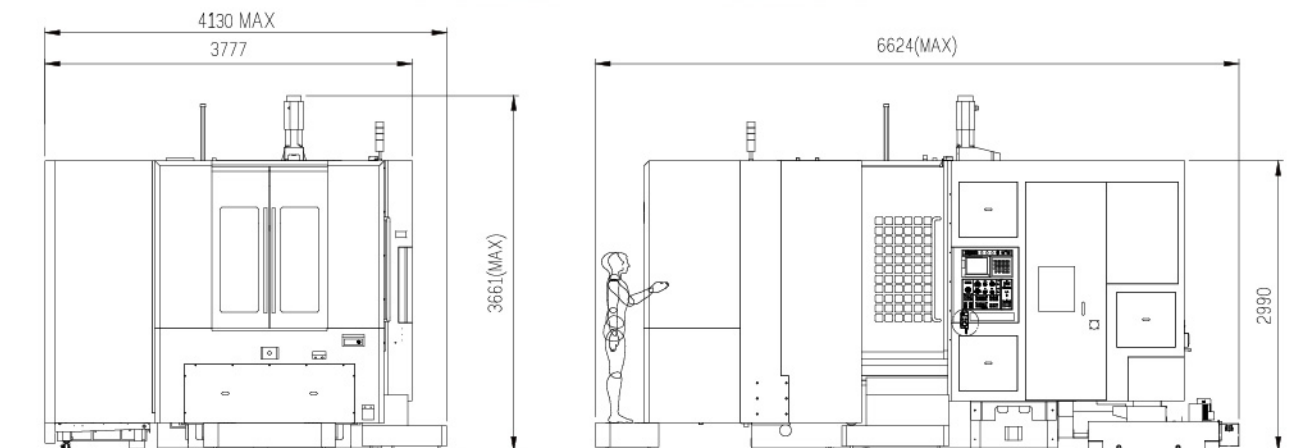
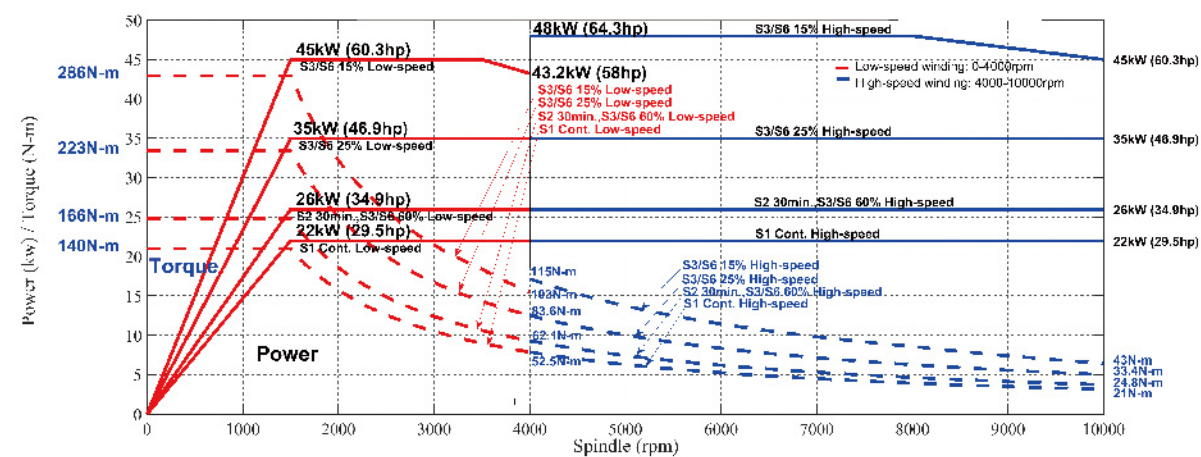
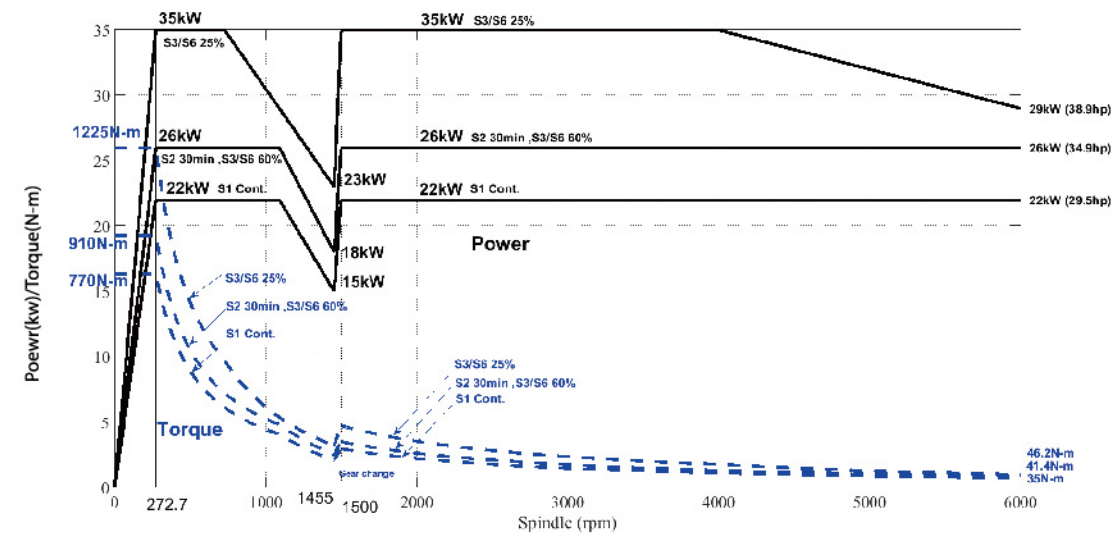
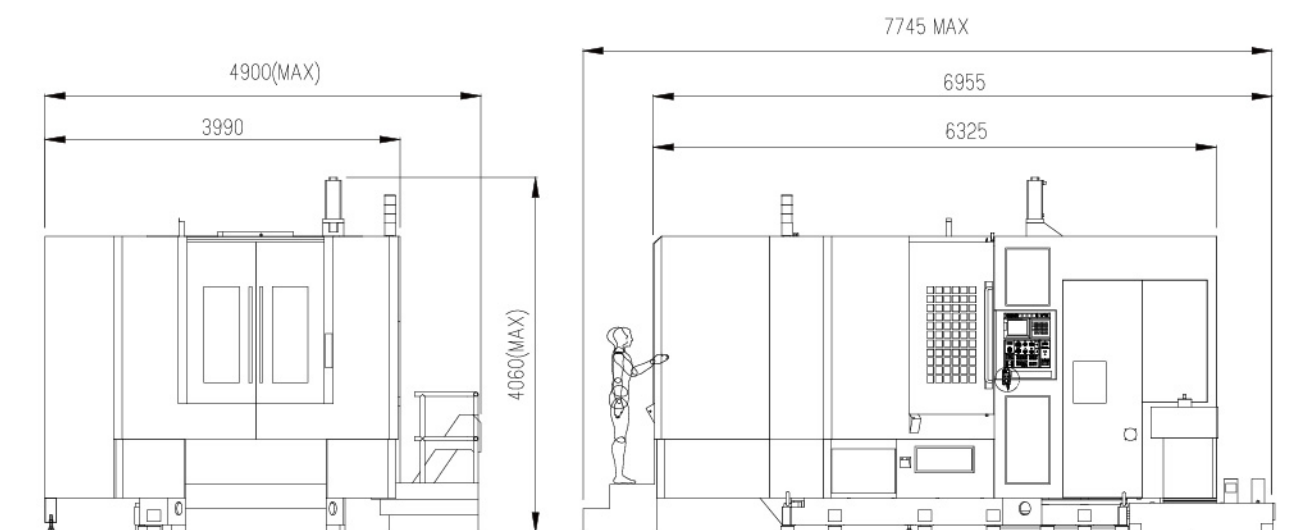
Unique C-shaped chain type architecture and minimalist design of a sprocket drive that facilitates tool pocket to quickly swing 90 degrees to reach ahead of tool change preparation.

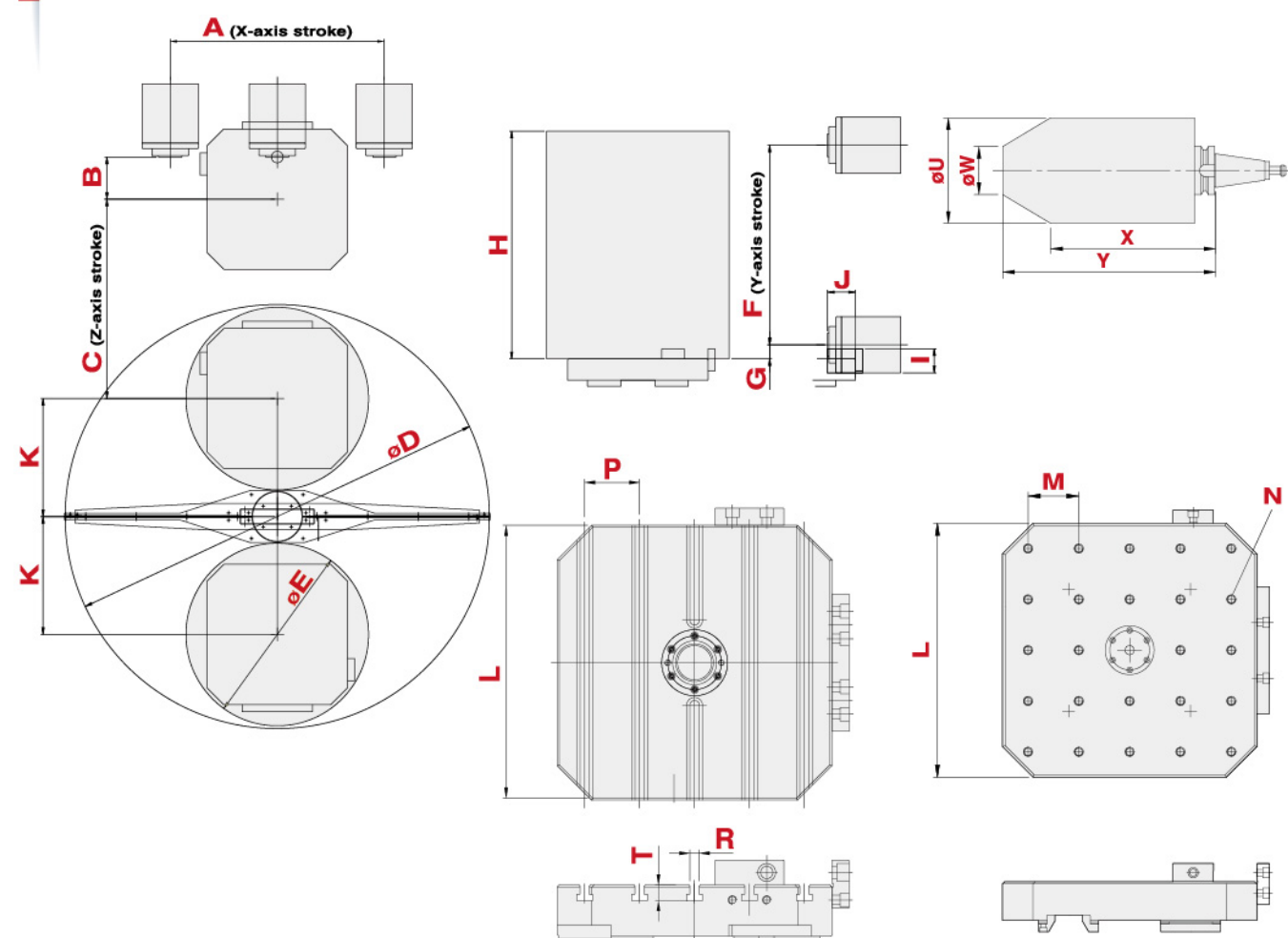


Chip Conveyor

Quickly removing metal chips that generating heat.

Twin Screw Type

HORIZON SMH-500/630**FANUC aiT15/12000-B(#S0P) for spindle 10000rpm-DDS type (STD)****HORIZON SMH-500****HORIZON SMH-630****FANUC aiT22/12000-B(#S0S) for spindle 10000rpm-DDS type (OPT)****HORIZON SMH-800****FANUC aiT22/8000-B(#S0P) for spindle 6000rpm-Gear box(1:5.5) (STD)****HORIZON SMH-800**



	SMH-500		SMH-630	SMH-800
	#40	#50		
A	762	762	1050	1300
B	100	50	100	150
C	800	800	950	1100
D	1550	1550	2120	2900
E	700	700	1000	1300
F	710	710	850	1020
G	50	50	100	100
H	1000	1000	950	1200
I	30	45	32.5	32.5
J	150	200	215	250
K	420	420	560	800
L	500*500	500*500	630*630	800*800
M	100	100	125	160
N	24-M16*2.0P	24-M16*2.0P	24-M16*2.0P	24-M16*2.0P
P	100	100	125	160
R	14	14	18	22
T	23	23	30	42
U	190	250	250	250
W	150	150	/	/
X	520	470	/	/
Y	550	500	500	500

Model	Unit	SMH-500		SMH-630	SMH-800
		#40	#50		
Travel					
X Axis Travel	mm	762		1050	1300
Y Axis Travel	mm	710		850	1020
Z Axis Travel	mm	800		950	1100
Spindle Center To Table Surface	mm	50~760		100-950	100-1120(60-1080)
Spindle Nose To Table Center	mm	100~900	50~850	100-1050	150-1250
Table Surface To Floor	mm	1050		1300	1475(1515)
Table					
Table Dimension	mm	500x500		630x630	800x800 (1000X1000)
Max.Loading Weight	kg	600		1200	2000
Min Indexing Angle	degree	0.001°		0.001°	
Spindle					
Spindle Speed	rpm	10000		10000	6000
Spindle Taper		#40	#50	#50	
Drive Method	-	DDS		DDS	BELT + GEAR BOX
Spindle Motor	kW	15/25	22/35	22/35	22/35
Feedrate					
X Axis Rapid Traverse	m/min	48(60)		48(60)	42
Y Axis Rapid Traverse		48(60)		48(60)	42
Z Axis Rapid Traverse		48(60)		48(60)	42
Cutting Feedrate	m/min	20		20	
Automatic Tool Changer					
Tool Changing Time (Tool To Tool)	Sec/Hz	1.5 / 60	2.5 / 60	2.5/60	
No. Of Tools	-	40		40	60
Pull Stud(Degree)	-	P40T-1	P50T-1	P50T-1	
Max. Tool Weight	Kg	12	25	25	
Max. Tool Length	mm	550	500	500	
Max. Tool Diameter	mm	Ø95	Ø125	Ø125	
Max. Tool Diameter(No Adjacent Tool)	mm	Ø190	Ø250	Ø250	Ø250
Other					
Number Of Pallets	-	2		2	
Method Of Pallet Change	-	Rotary		Rotary	
Floor Space Wxd	mm	3150x5120		4130x6624	4900x7745
Max. Machine Height	mm	2915		3661	4060

*Specifications are subject to change without prior notice.