TAKUMI When Precision Matters



TAKUMI

H Series



High Speed Bridge Type
Machining Center

- H22S/T
- H27S
- H32S/T
- H42S
- H52S

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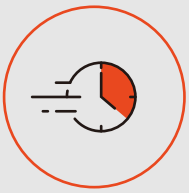
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High rigidity frame structure

The solid one-piece bed, column and cross rail design with no weldments, provides excellent support. The base width provides stability for large table loads. Cross rail saddle carries a constant weight which results in excellent part finish at fast cutting speeds.



High speed, high accuracy

The H Series meet the requirement of high accuracy and high speed simultaneously thanks to the optimal mechanical structure, high response axial transmission system, low vibration and excellent thermal controlled spindle.



Largest Y-axis travel in its class

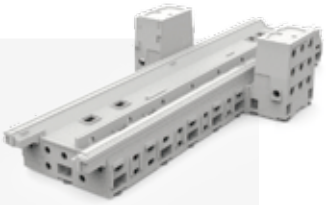
The H series large work envelope, which can machine large workpieces that are difficult to handle by other machines in the same class.

H Series

The Takumi H Series machining centers are designed for high dynamic and accuracy as demonstrated in both surface finish quality and consistent precision.



Basic Structure



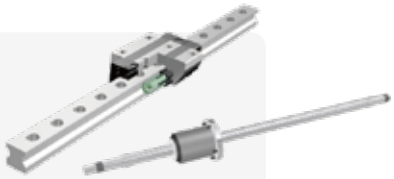
01 High rigidity frame structure

High rigidity one-piece bed, column and cross rail providing excellent stability as the casting absorbs the thrust forces of high rapids, while the “ladder” design of the cross rail, enables the spindle to be stable and powerful at high speeds.



02 High speed built-in spindle

The high-power built-in spindle limits vibration, noise and power loss during high speeds to achieve superior part finish. The helical cooling channel design minimizes thermal distortion and enables precision over extended cycle times.



03 High speed, stable axis structure

The H Series are equipped with roller type LM guideways that offer the best combination of high speed and superior rigidity. High precision ballscrews are connected directly to axis motors.



04 ATC and magazine

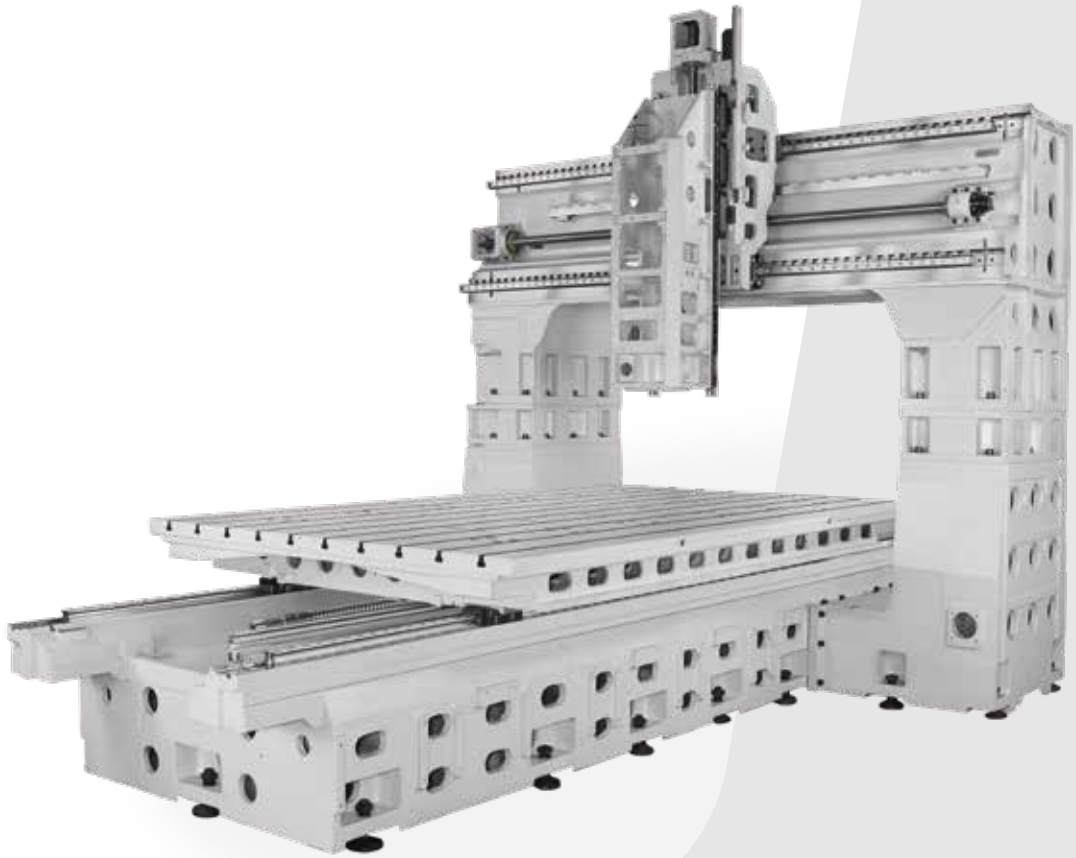
H Series offer a wide range of magazine capacity options, from 20 tools even up to 48 tools.



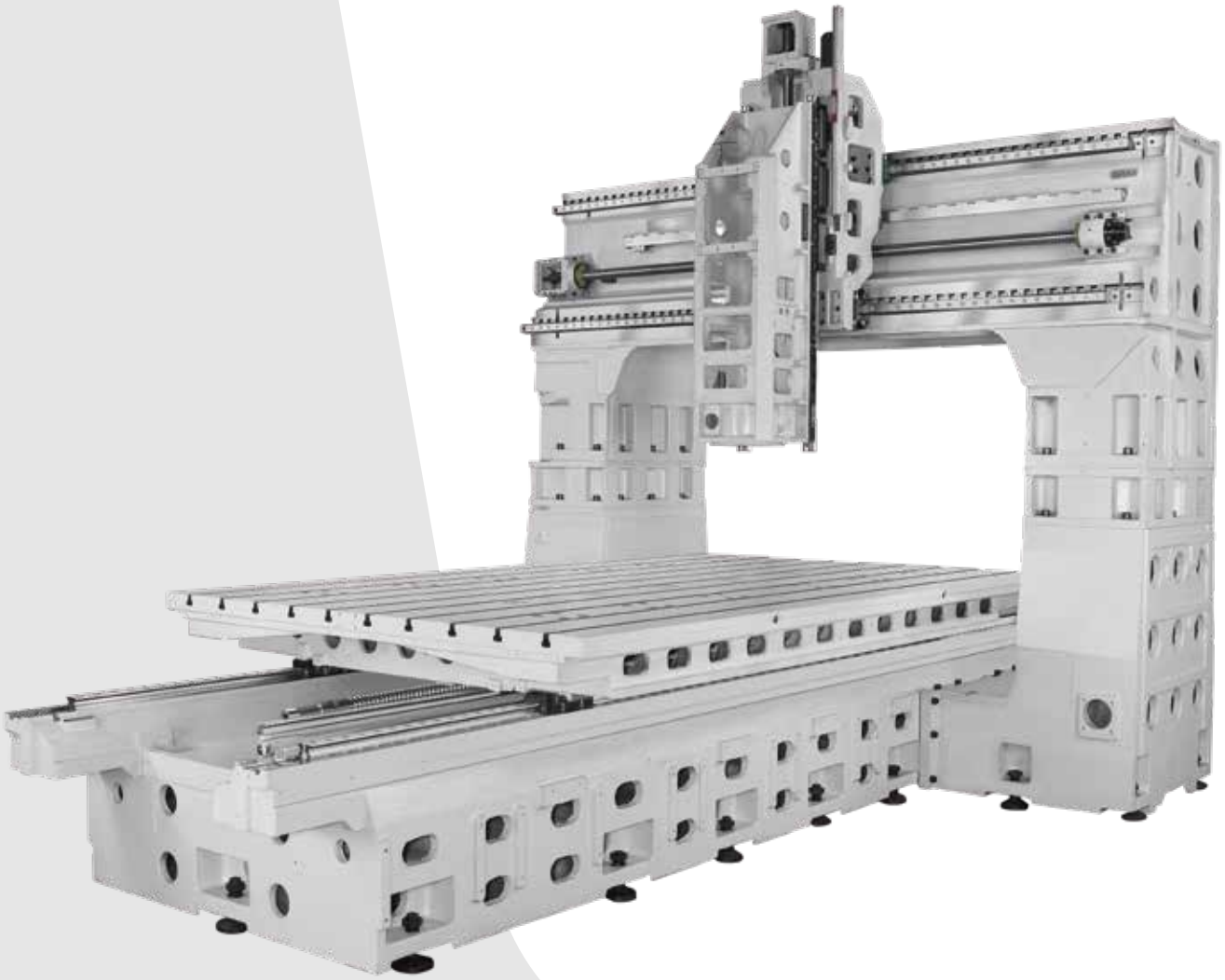
05 User convenience

The H series are built ergonomically for simple operation. Large door opening to the working area gives the operator impressive freedom and handling space.

H Series



H22S	**20/20/20** m/min Rapid traverse (X/Y/X-axis)	**2200/1600/800** mm Travel (X/Y/Z-axis)
H22T	**20/16/20** m/min Rapid traverse (X/Y/X-axis)	**2200/2200/800** mm Travel (X/Y/Z-axis)
H27S	**16/20/20** m/min Rapid traverse (X/Y/X-axis)	**2700/1600/800** mm Travel (X/Y/Z-axis)
H32S	**16/20/20** m/min Rapid traverse (X/Y/X-axis)	**3200/1600/800** mm Travel (X/Y/Z-axis)
H32T	**16/16/20** m/min Rapid traverse (X/Y/X-axis)	**3200/2200/800** mm Travel (X/Y/Z-axis)



01 H Series Frame



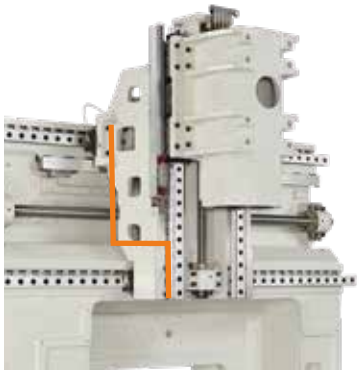
Robust one-piece casting bed

Integrated bed frame ensures high rigidity, excellent vibration absorption and outstanding surface finishes, especially when compared to separate structures.

The base width provides stability for heavy table loads even when operating at high speed.

Outstanding ladder structure on the beam

The bridge utilizes a “ladder design” head casting and saddle which increases rigidity, reduces overhang and eliminates head deflection. The Y-axis cross rail saddle carries a constant weight, allowing for faster cutting while maintaining excellent part finish.





Double column structure

The one-piece design provides increased weight to absorb cutting vibration, and increased rigidity. The dual contact areas with the base eliminates pitch in the Y-axis and reduces the effect of machine leveling changes over time.

Hand scraping

Accuracy is ensured by hand scraped contact points. Contact surfaces such as column to base components, spindle cartridge to spindle housing, ball screw bearing block seats to bearing retainer and worktable to linear guide trucks and motor seat. Hand scraping results in better mating surfaces of key components and will provide consistent results over a longer period of time.



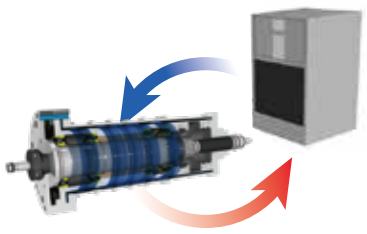
02 H Series Spindle





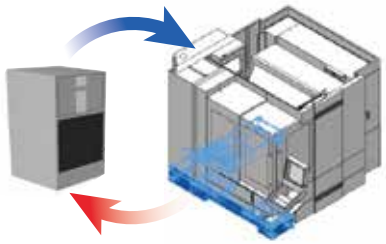
High Speed Built-in Spindle option

The high-power built-in spindle limits vibration, noise and power loss during high speeds to achieve superior part finish. The helical cooling channel design minimizes thermal distortion and enables precision over extended cycle times.



Stable Spindle Cooling Circulation

Spindle temperature is constantly controlled by oil chiller. Our test result have proven that the temperature of the circulating oil is controlled within ±0.2°C. which minimizes thermal displacement during continuous operation at high speed.



Cutting Coolant Chiller option

The coolant chiller reduces the temperature of the cutting fluid before it is circulated through the machine. The cooler has effectively reduced the deviation and leads to excellent accuracy of the workpieces and extends the life of cutting tool by stabilizing coolant temperature.

Spindle Power - Torque Curve

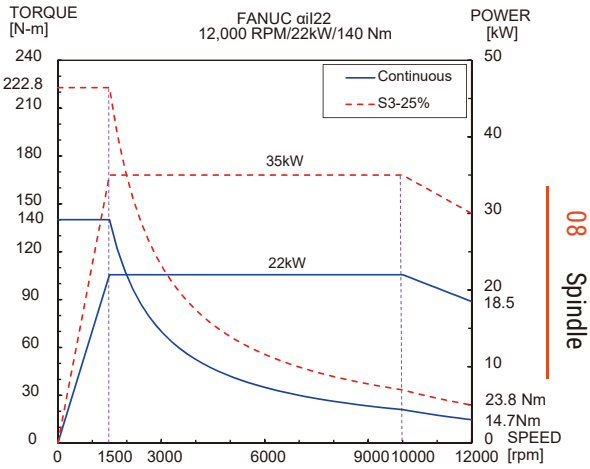
12,000rpm Direct drive spindle (ST: H22S/T, H27S,H32S/T)

22/35

kW Power (Cont./S3-25%)

140/222.8

N.m Torque (Cont./S3-25%)



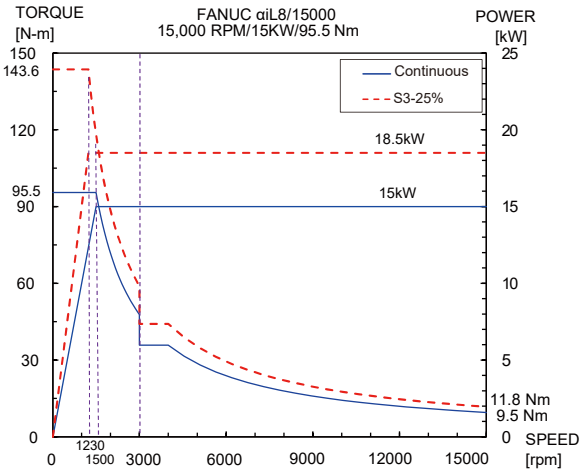
15,000rpm Direct drive spindle (OPT: H22S/T, H27S, H32S/T)

15/18.5

kW Power (Cont./S3-25%)

95.5/143.6

N.m Torque (Cont./S3-25%)



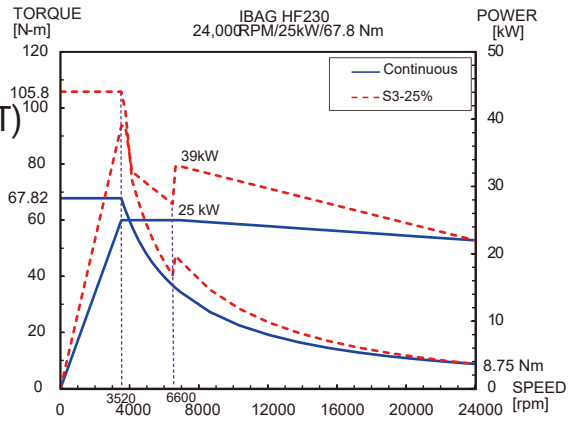
24,000rpm IBAG Built-in spindle (OPT:H22S/T, H27S, H32S/T)

25/39

kW Power (Cont./S3-25%)

67.82/105.8

N.m Torque (Cont./S3-25%)





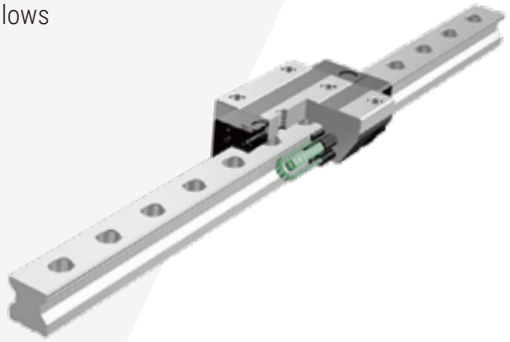
03 H Series Feed Axis

H22S	**20/20/20** m/min Rapid traverse rate (X/Y/Z-axis)	**H22T**	**20/16/20** m/min Rapid traverse rate (X/Y/Z-axis)
H27S	**16/20/20** m/min Rapid traverse rate (X/Y/Z-axis)	**H32S**	**16/20/20** m/min Rapid traverse rate (X/Y/Z-axis)
H32T	**16/16/20** m/min Rapid traverse rate (X/Y/Z-axis)		



High Rigidity Rotating Nuts Design (X-axis)

With the rotating nuts design, the screw remains fixed and the nut is rotated to achieve linear motion. This not only allows greater speeds, but also greater strokes.



Roller Type LM Guideways

All axes are equipped with LM roller guideways. These features higher load capacity and greater rigidity even at high acceleration. Additionally, they have greater contact area to support faster feeds, higher rigidity and higher weight bearing capability.

Larger Ballscrew

H series are equipped with high precision ballscrews, featuring high load capacity while also providing high durability and rigidity.

With φ63mm larger ballscrews provide rigidity and accuracy during heavy cutting.





High Accuracy Linear Scales

Linear scales are standard on all 3 axes. Mounted to the table, cross rail and head they take a direct reading of the true position of the axes. This compensates for thermal growth of the ballscrews mechanical flex and backlash, for improved accuracy and repeatability during the life of the machine.



ATC

The ATC is mounted outside of the work area, with a door protecting the mechanisms of the tool changer, keeping tools and tool changer from chips and coolant.





Tool magazine for various types of tools

The tool magazine can store up to 20 tools as standard and up to maximum 48 tools as option depending on the model. Optional servo driven magazine ensures fast and reliable tool indexing.

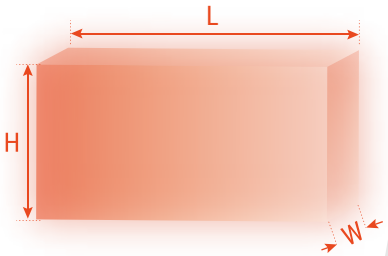
04 H Series Automatic Tool Changer

Maximum workpiece weight

H22S/T	8000 kg
H27S	7500 kg
H32S/T	8500 kg

Maximum workpiece size (L x W x H)

H22S	1600 x 2200 x 800mm
H22T	2200 x 2200 x 800mm
H27S	1600 x 2700 x 800mm
H32S	1600 x 3200 x 800mm
H32T	2250 x 3200 x 800mm





The H series are built ergonomically for simple operation and uncomplicated maintenance.



02 Large Door Opening

Large door opening to the working area gives the operator impressive freedom and handling space.

H22S/T	2430 mm width of the door
H27S	2910 mm width of the door
H32S/T	3360 mm width of the door

01 Optimal Ergonomic Design

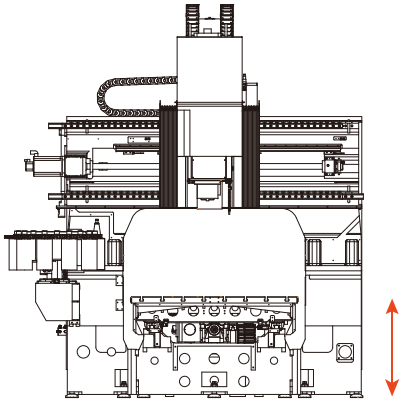
The operation panel can swivel 180° , and the height can be adjusted to the operator's viewpoint.

05 H Series User Convenience

Ergonomic Design

Large door opening to the working area give the operator impressive freedom and loading and unloading space.

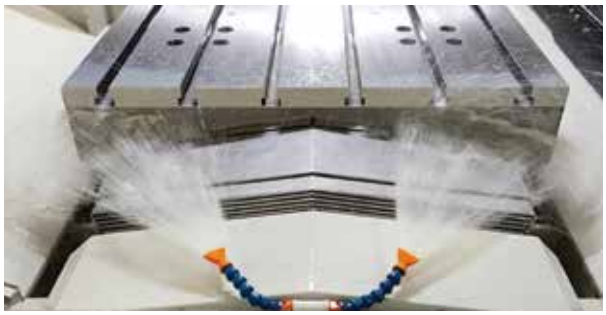




- **Large door opening:**
  - 2430mm (H22S/T)
  - 2910mm (H27S)
  - 3360mm (H32S/T)
- **Distance from floor surface to table top:**
  - 970mm (H22S/T, H27S, H32S/T)

Rear Side Flushing Coolant System

The design of the sloping way covers, tilt of the bed casting and the flushing coolant system provides excellent chip removal.



Dual Chip Auger

Chip removal efficiency is greatly enhanced thanks to the dual screw type augers.



Effective Chip Removal Solutions

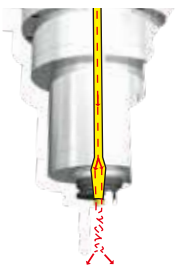
High pressure coolant and/or air through the spindle and other chip removal solutions help wash away chips from hole drilling, tapping and other machining. By effectively cooling and flushing, tool life can be greatly extended.



Air through spindle



Spindle cooling splash

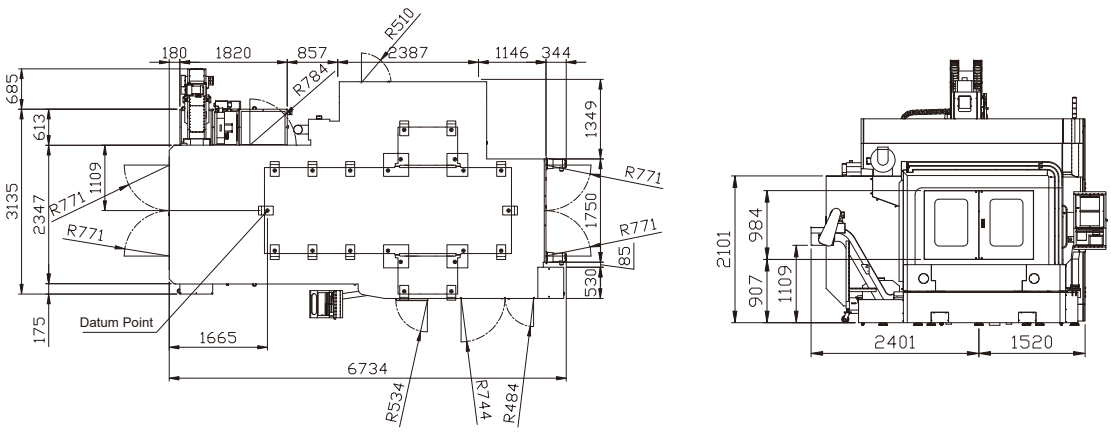


30 bar coolant through spindle

External Dimension

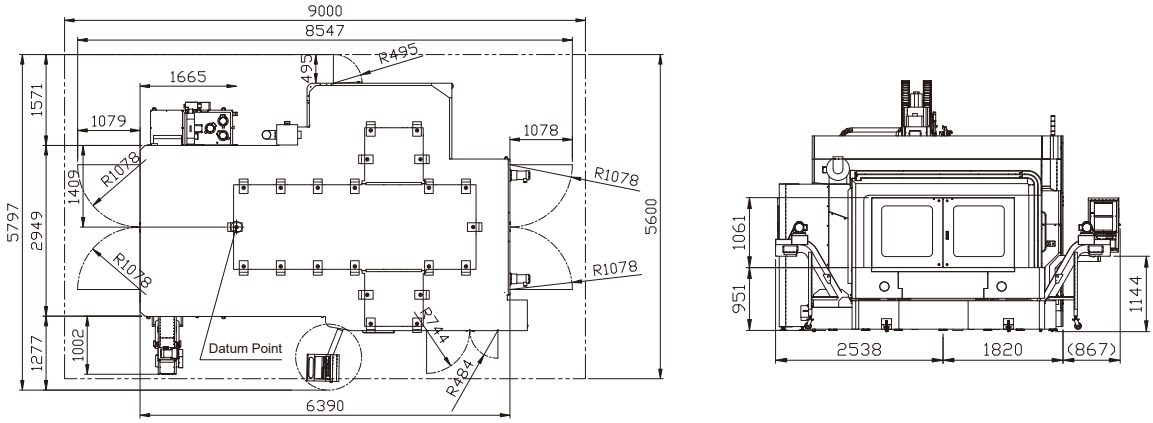
H22S

Unit : mm



H22T

Unit : mm



H27S

Unit : mm

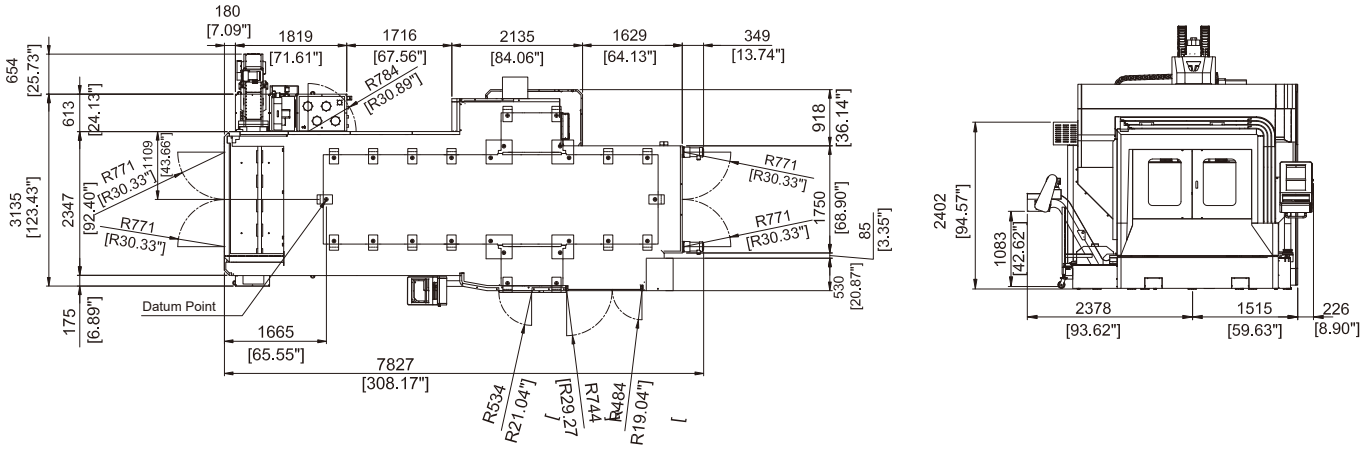
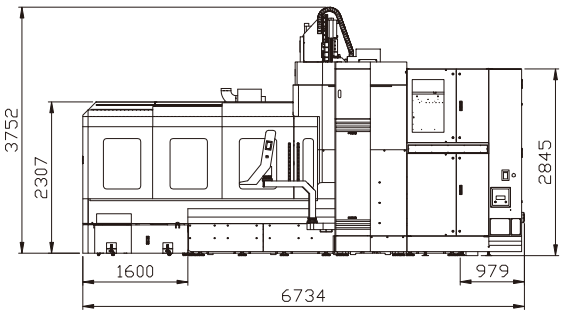
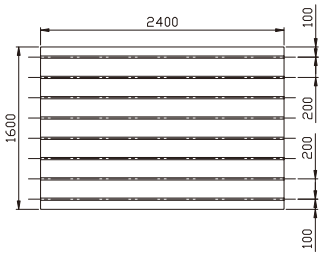
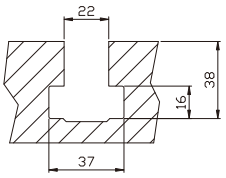


Table & T-Slot Dimension

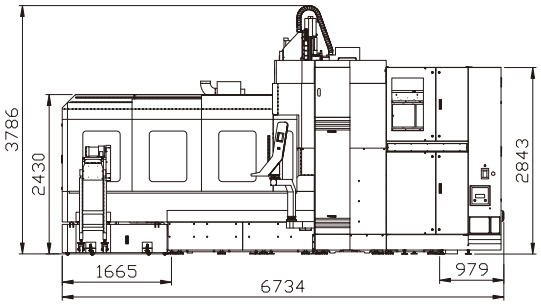
Unit : mm

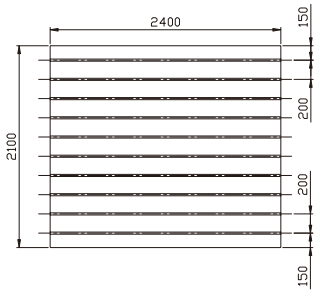


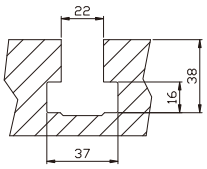




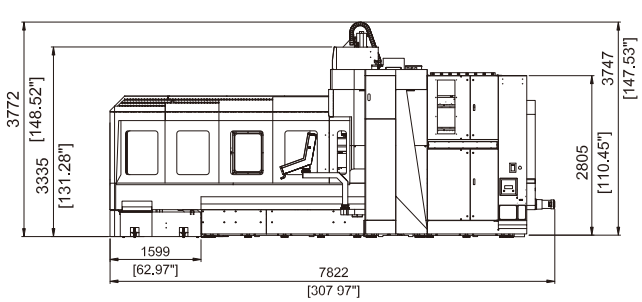
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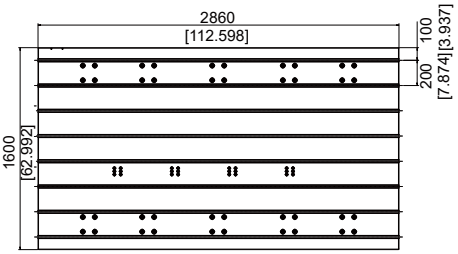


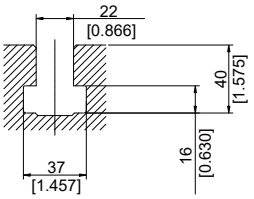




Unit : mm



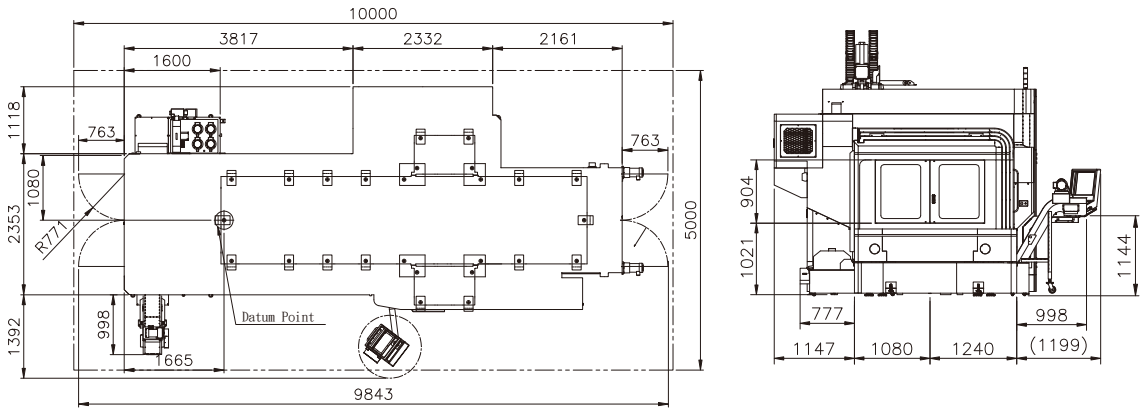




External Dimension

H32S

Unit : mm



H32T

Unit : mm

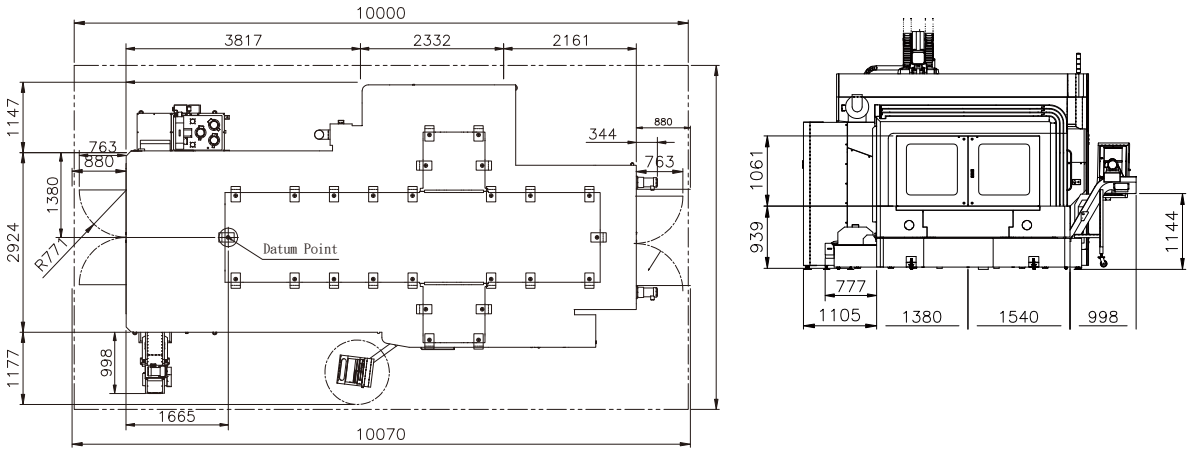
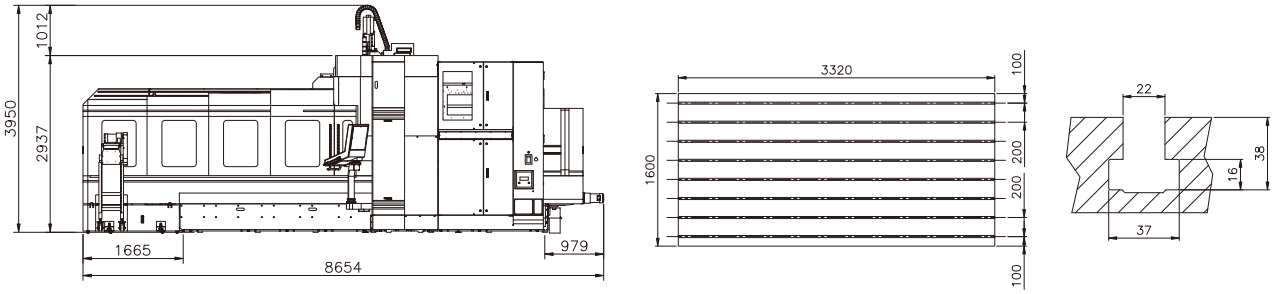
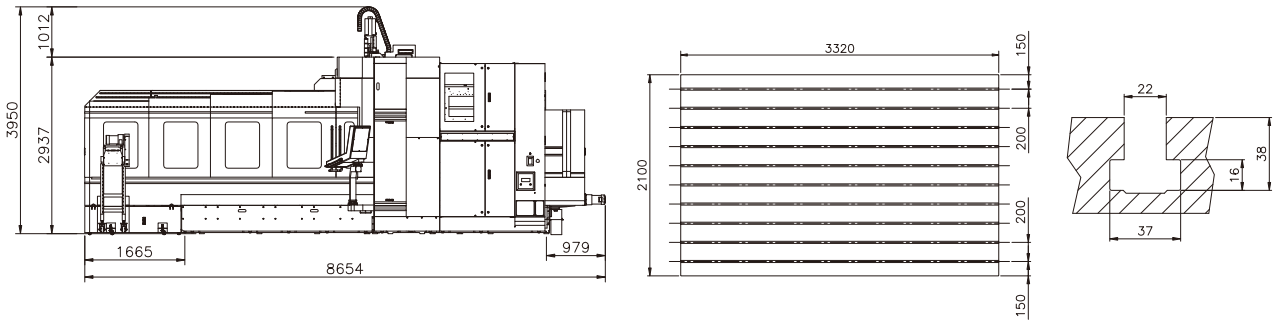


Table & T-Slot Dimension

Unit : mm



Unit : mm



Machine Specification

Travel	H22S	H22T	H27S	H32S	H32T
X/Y/Z-axis	2200 / 1600 / 800mm	2200 / 2200 / 800mm	2700 / 1600 / 800mm	3200 / 1600 / 800mm	3200 / 2200 / 800mm
Distance from spindle nose to table	150-950mm (Direct drive)				
Distance between columns	1750mm	2350mm	1750mm	1750mm	2350mm

Table					
Dimension	2400 x 1600mm	2400 x 2100mm	2860 x 2100mm	3320 x 1600mm	3320 x 2100mm
Max. load	8000kg		7500kg	8500kg	
T-slot (width x pitch x number)	22 x 200 x 8mm	22 x 200 x 10mm	22 x 200 x 8mm	22 x 200 x 8mm	22 x 200 x 10mm

Spindle	
Spindle type	Direct drive
Spindle speed	12000rpm
Spindle motor power	22 kW/35 kW (Cont./S3-25%)
Spindle taper	BBT50

Feed					
Rapid feed (X/Y/Z)	20/20/20m/min	20/16/20m/min	16/20/20m/min	16/20/20m/min	16/16/20m/min
Cutting feed	1~12000mm/min				
Motor power (X/Y/Z)	9.0/9.0/6.0kW				

ATC & Magazine	
ATC type	Armless
Number of tools	20pcs
Max. tool diameter (next pockets epmty)	105/150mm
Max. tool length	300mm
Max. tool weight	7kg
Tool shank	BBT50

Supply	
Air pressure	6kgf/cm²
Electric power supply	75kVA

Net Weight					
Machine weight	27000kg	31000kg	29000kg	33000kg	37000kg

Travel	H42S	H52S
X/Y/Z-axis	4200 / 1600/ 800mm	5200 / 1600/ 800mm
Distance from spindle nose to table	150-950mm	
Distance between columns	1750mm	

* The specifications and information may be changed without prior notice.

Standard & Optional

● : Standard ○ : Option ✕ : Non Applicable

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Spindle		H22S	H22T	H27S	H32S	H32T
12,000rpm		●	●	●	●	●
15,000rpm		○	○	○	○	○
24,000rpm		○	○	○	○	○
ATC						
ATC Extention	20T	●	●	●	●	●
	30T	○	○	○	○	○
	32T	○	○	○	○	○
	48T	○	○	○	○	○
Tool Shank Type	BBT40	○	○	○	○	○
	BBT50	●	●	●	●	●
	HSK-A63	○	○	○	○	○
Coolant System						
Coolant Through Spindle Ready (w/o filter)		○	○	○	○	○
Coolant Through Spindle	30bar	○	○	○	○	○
	70bar	○	○	○	○	○
	70bar ready (w/o filter system)	○	○	○	○	○
Air Through Spindle (w/o CTS)		○	○	○	○	○
Cutting Air Blast		●	●	●	●	●
Cutting Coolant Chiller		○	○	○	○	○
Chip Disposal						
Coolant Tank & Coolant Flushing System		●	●	●	●	●
Full Chip Enclosure		●	●	●	●	●
Chip Disposal	Steel Belt Type	●	●	●	●	●
	Scraper Type	○	○	○	○	○
Feed Axis						
Linear Scales (X/Y/Z)		●	●	●	●	●
3-Axis Absolute Encoder Motors		●	●	●	●	●
Y/Z-Axis Ballscrew Cooling		○	○	○	○	○
Electric Device						
3-Color Signal Light		●	●	●	●	●
Working Light		●	●	●	●	●
Air Conditioner for Electric Cabinet		●	●	●	●	●
Measuring Device						
Workpiece Measurement		○	○	○	○	○
Tool Measurement		○	○	○	○	○
Environment						
Oil Skimmer		●	●	●	●	●
Oil Mist Collector		○	○	○	○	○
Oil Mist Cutting Device		○	○	○	○	○
Control						
Fanuc 0iMF-Plus Type0, 15"		●	●	●	●	●
Simens One		○	○	○	○	○
Heidenhain TNC7, 24"		○	○	○	○	○
Transformer / Stablizer						
Transformer		○	○	○	○	○
Stablizer		○	○	○	○	○
ETC						
Leveling Block and Screws		●	●	●	●	●
Maintenance Tools		●	●	●	●	●
Manuals		●	●	●	●	●
Washing Gun & Air Gun		●	●	●	●	●
Manual Pulse Generator		●	●	●	●	●
USB / Ethernet / RS-232C Interface		●	●	●	●	●
Automatic Centralized Lubrication System		●	●	●	●	●
250mm Raiser for Column		○	○	○	○	○
CE Certified		○	○	○	○	○