

HT-500A

Horizontal Machining Center



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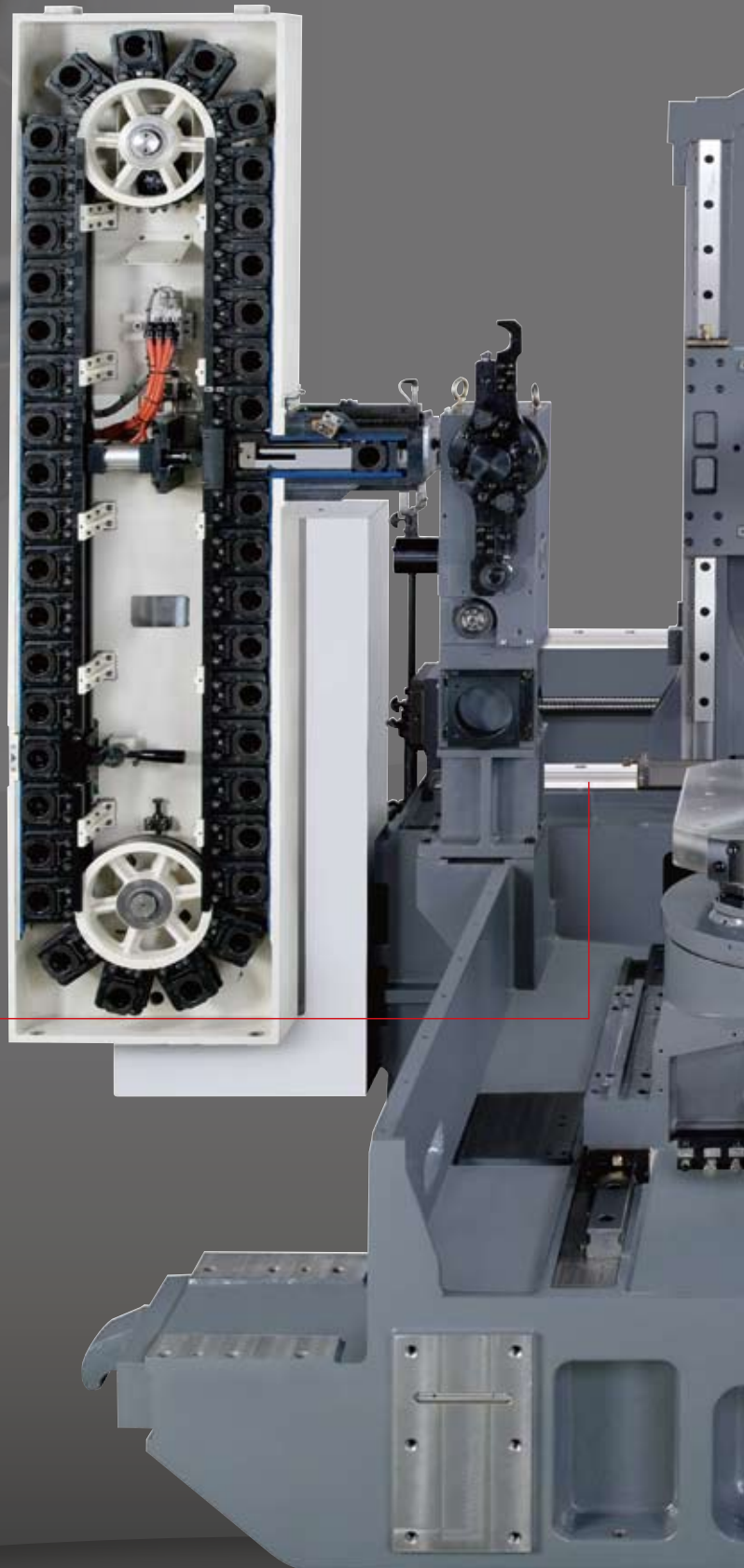
HIGH RIGIDITY MAIN STRUCTURE

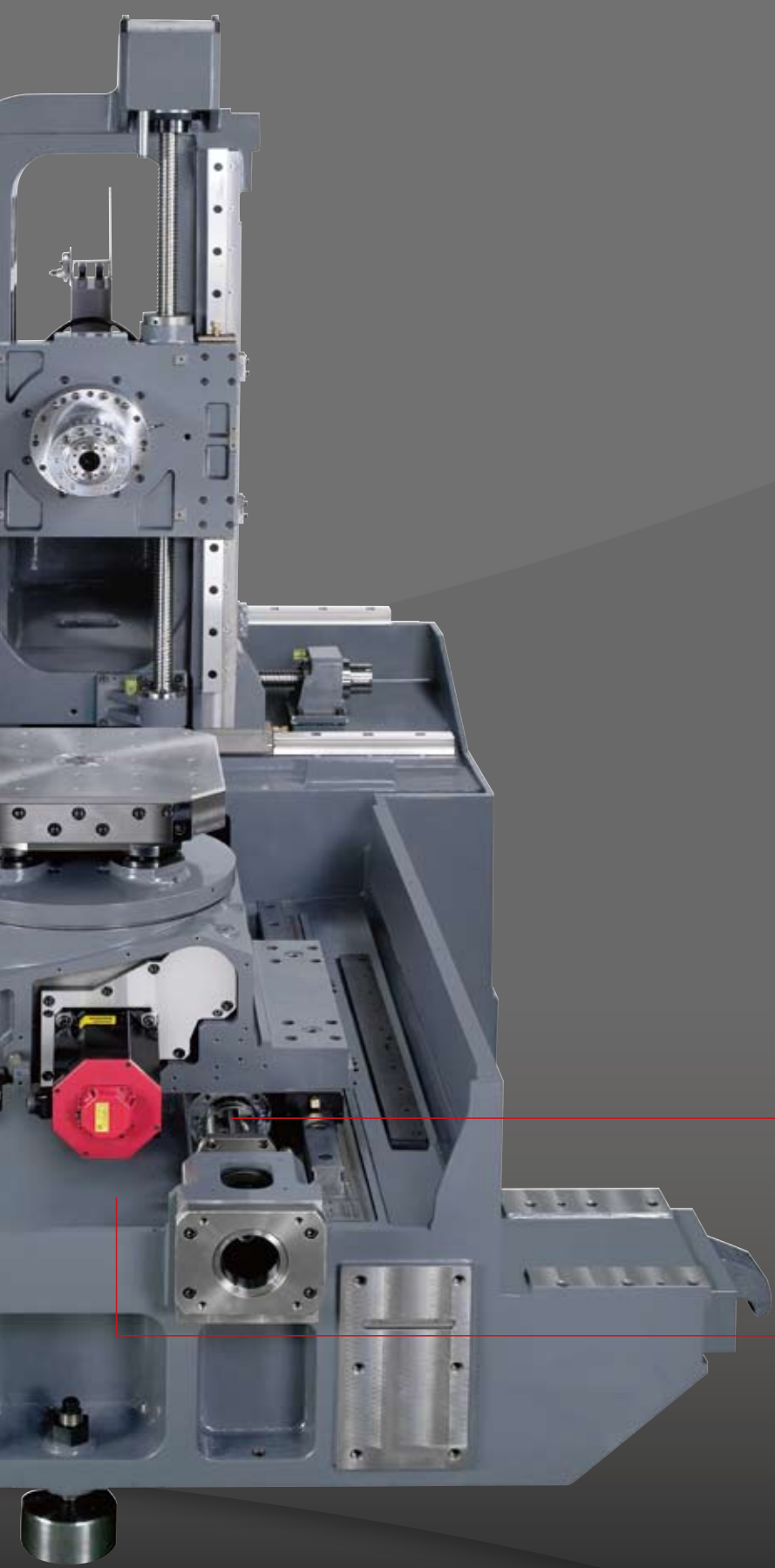
- High-tensile Meehanite cast iron on all major parts, with 3 layers T shape box type one-piece base design provides best rigidity and superior accuracy stability.
- Multi-layers and enforce-rib design on base unit structure prevent any deformation and greatly reduce machining vibration during high speed operation.
- All three axes equipped with C3 degree 45mm extra wide high accuracy linear guide way and high precision hollow coolant through ballscrew to ensure machining situation under very stable status.
- Main structure design adopts FEM technology to create a superior rigid and accuracy during high speed operation.



SPECIAL DIFFERENTIAL-SLIDE BASE DESIGN

Special High-Low level X axis guide way design with 580 mm wide span providing best stability and resistance of column motion during high speed machining.





SUPERIOR HIGH SPEED AXIAL FEEDRATE

Ø45 mm P20 coolant through ballscrew design on all 3 axes provides highest rapid feedrate 60 m/min with minimum heat deformation during high speed operation.

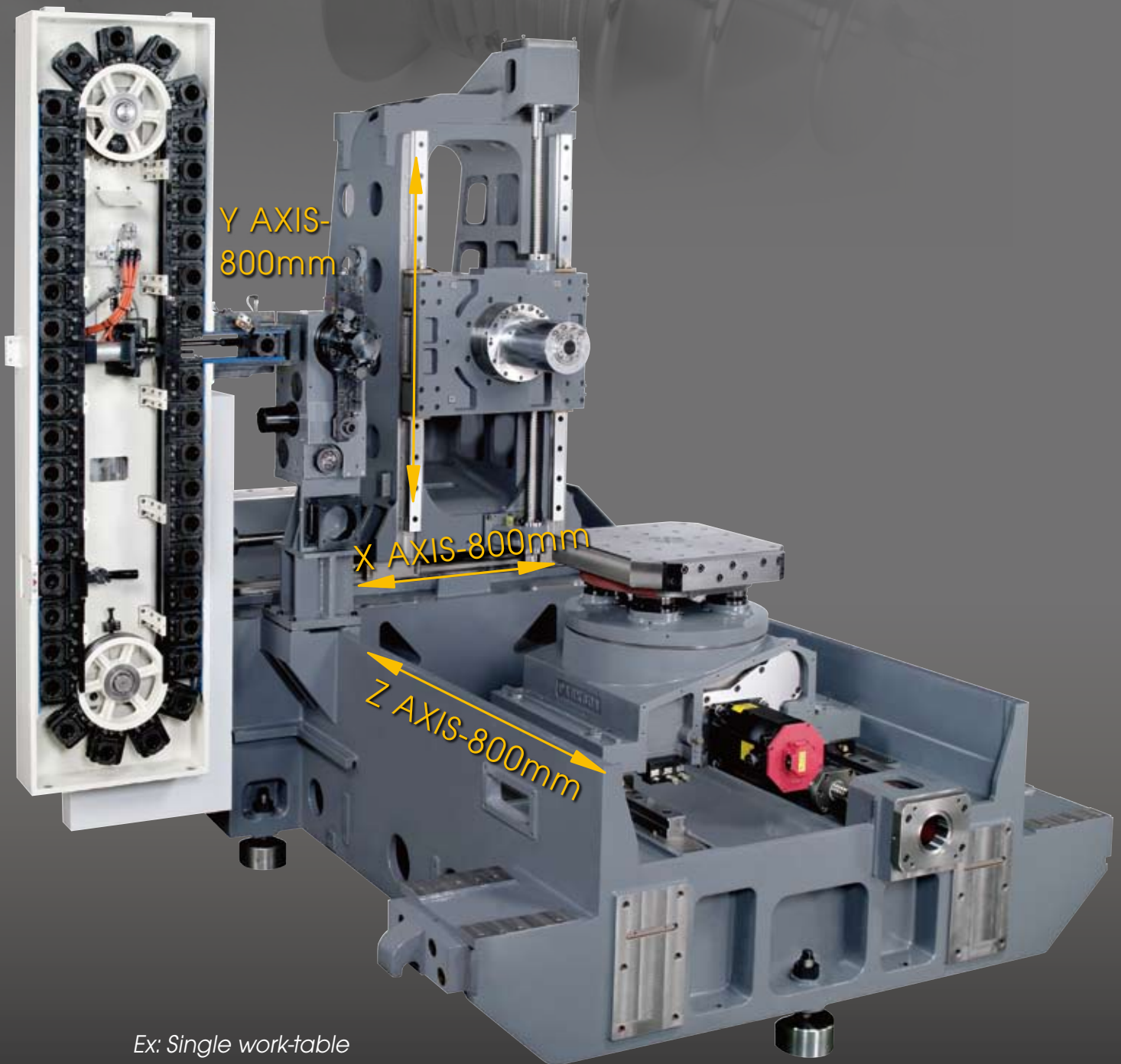
LARGE SPAN DESIGN

720 mm extra wide span between Z axis slides provides most stable movement and heavy machining operation support.

HT-500A

3 AXES TRAVEL 800/800/800mm

Largest 3 axes travel 800 x 800 x 800 mm in all similar level of HMC. Y axis travel 800mm allows multi-workpiece machining per set up, greatly enhance the efficiency and control your purchase cost.



Ex: Single work-table

LARGER WORKING AREA

The rotary table size 500 x 500 mm with maximum working area $\text{Ø}720 \times 900$ mm high and maximum loading 600 Kg is most suitable for both heavy duty with one workpiece and light machining with several pieces.



Ex: Twin work-table



BUILT-IN SPINDLE DESIGN

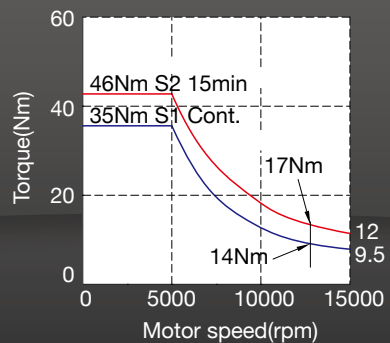
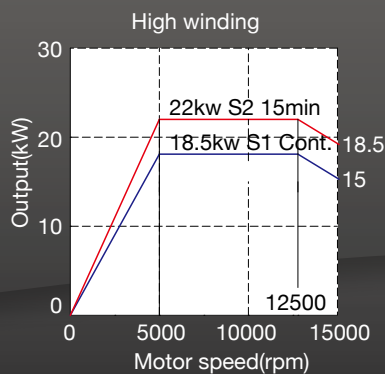
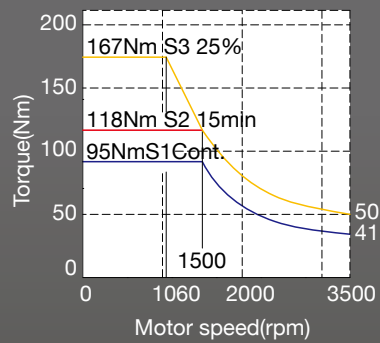
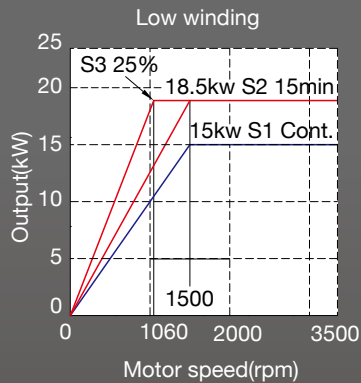
High torque built-in type direct drive spindle with P4 grade angular contact bearings in maximum loading support arrangement set up.

Standard external spindle cooling system, air lock system on spindle nose and floating tool clamp/unclamp system provide lowest noise, minimum vibration and highly stable performance in high speed operation.

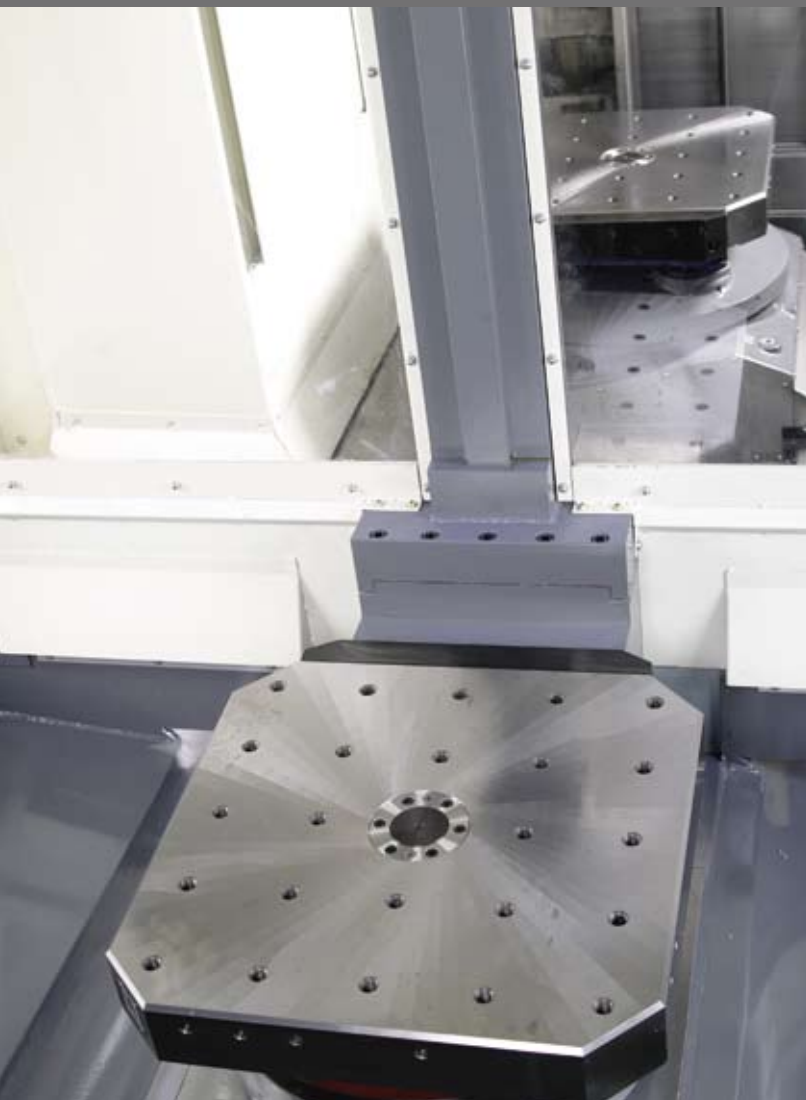
- Spindle speed..... 200~ 15,000rpm
- Spindle motor power..... 18.5/22kW (Cont./15min)
- Spindle outer diameter... Ø70mm

SPINDLE MOTOR TORSION DIAGRAM(18.5/22kW)

FANUC αB112L 15,000 rpm



HIGH ACCURACY AUTOMATIC PALLET CHANGE SYSTEM (APC)



AUTOMATIC PALLET CHANGE SYSTEM

High precision APC system adopts one-by-one table exchange way with table exchange time 11 seconds.

- Inner special worm design with gear gap 5~8 micron perfectly matched the gear and provided more than 5 times square measure of contacting area compared to other competitors.
- The central shaft adopts large lodged-in and pre-pressed bearings, greatly enhance high cutting rigidity and ensure the precision and smooth of table rotation.
- Hydraulic rotary table brake control system provides 2000 Kgf clamping force and 3500 Nm in B-axis lock-on power.
- Equipping with precise rotary table of 0.001 degree positioning angle, provides best positioning accuracy and most smooth revolution.

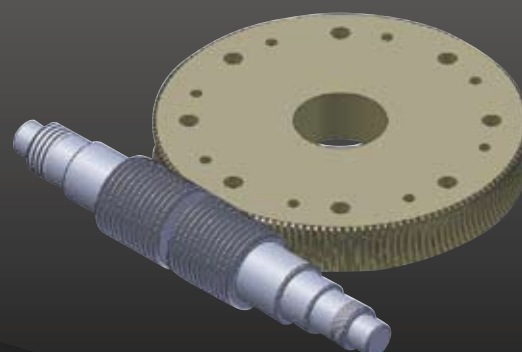
B AXIS POSITIONING PULL STUD

4-positioning-stud-design ensures both the positioning and cutting accuracy.



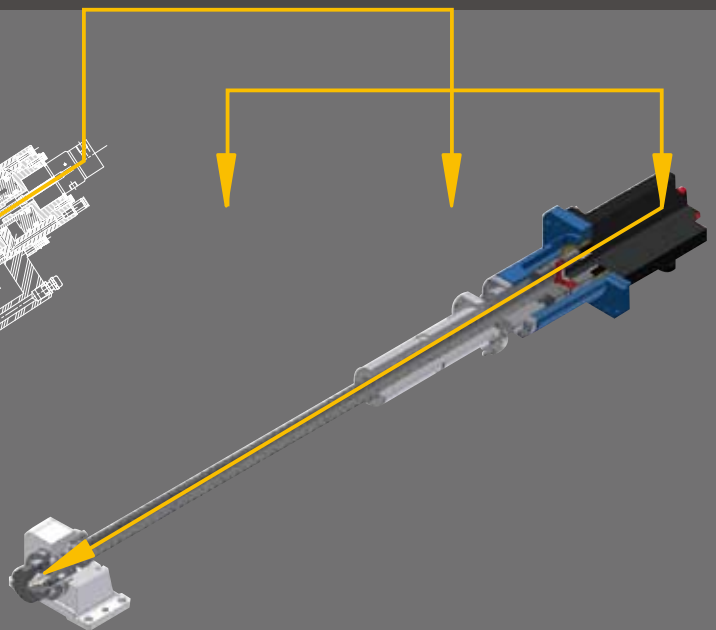
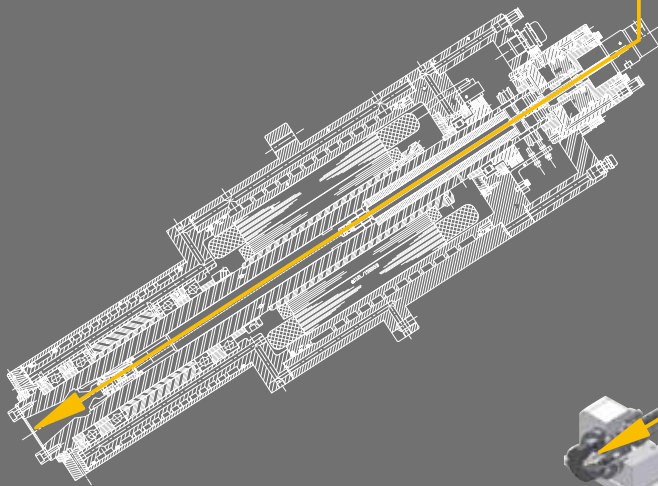
2-STEP WORM DESIGN

The 2-step worm design largely reduces the adjusting time of gear gap.



OUTSTANDING COOLING SYSTEM

- Temperature control range $\pm 9.9^{\circ}\text{C}$
- Cooling capacity: 3750 / 4500kcal / hour
- Adapted interior temperature: 10~40 $^{\circ}\text{C}$



High efficiency spindle external cooling system keeps spindle operation within minimum thermal variation control and perfectly prevents shifting occurred from spindle center and ensures machining accuracy.

Hollow coolant through ballscrew design allows the coolant pass through the ballscrew center and efficiently lower the inner temperature generated from high speed movement of 3 axes, keeps the thermal variation in smallest way and maintains machining accuracy.

HIGH EFFICIENCY & LARGE CAPACITY CHIP REMOVING SYSTEM

Big slant design on bed center below Z axis efficiently collects chips to the bottom from central outlet for conveyor to remove.



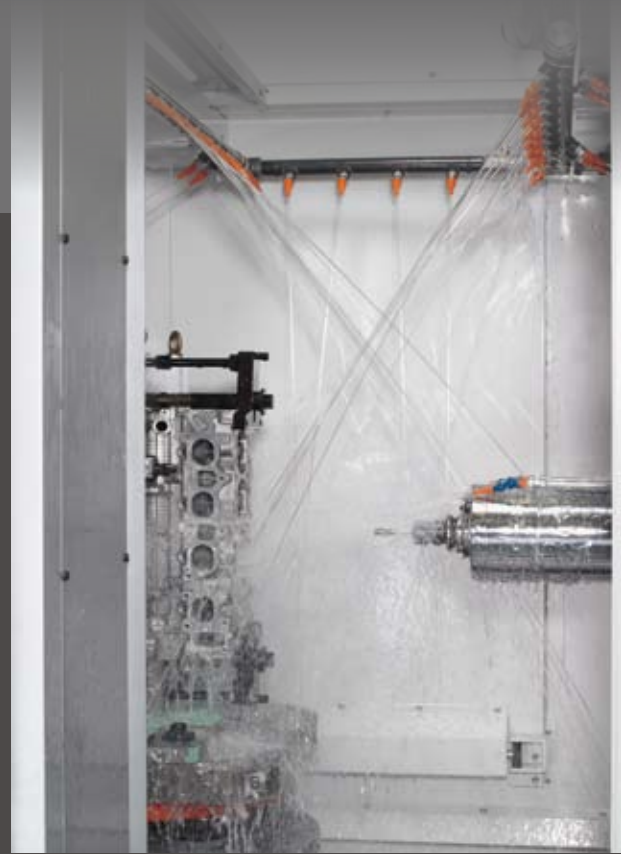
Standard chain type chip conveyor will be inserted forward from machine rear side and match the central outlet perfectly to collect chips and automatically remove to specialized chip collect cart, largely save your time for cleaning.



MACHINING SAMPLE

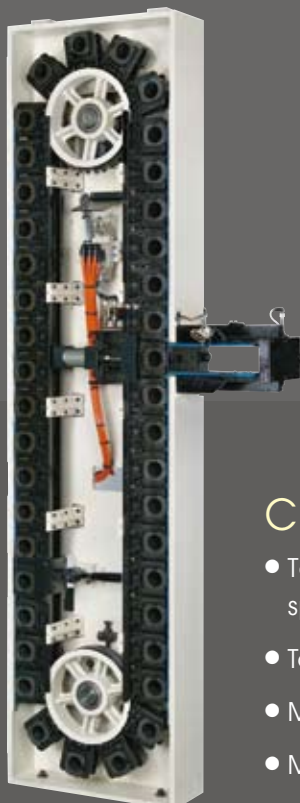
LARGE VOLUME ROOFTOP FLUSHING SYSTEM

With rooftop coolant flashing design, easily flush the chips out from machine inner side.



HYDRAULIC UNIT

Provide 2000kgf of clamping force and 3500Nm of B-axis lock-on power.



CNC CONTROL SYSTEM

- Considerable operation panel interface let users easy to handle and start your machining in no time.
- Standard: Fanuc 18i-MB ◦
Option: Mitsubishi M720VS ◦



CHAIN TYPE ATC SYSTEM

- Tool magazine is driven by AC servo motor, features high speed and superior positioning accuracy.
- Tool to Tool: 1.5sec
- Maximum tool length: 400mm
- Maximum tool diameter (w/o adjacent tool): 200mm

HEAT EXCHANGER (AIR CONDITIONER)

- Perfectly prevent the external chips from getting the electrical cabinet and injuring inner elect. units.
- Efficiently control the temperature and wet by air conditioner and largely extend the service life of elect. cabinet.



SUCCINCT TUBE DESIGN

All the important oil tubes used high strength copper tubes to provide machine users better protection.



INDEPENDENT COOLANT TANK FOR CTS

Provide plentiful coolant and sufficient hydraulic pressure for CTS function and make chip removing more efficient, most suitable for tapping application.



CUTTING CAPACITY



FACE MILLING

Work piece material : S45C
Spindle speed : 800 rpm
Feedrate : 1000 mm/Min
Cutting width : 80 mm
Cutting depth : 3 mm
Material elimination rate : 240 cc/Min



END MILLING

Work piece material : S45C
Spindle speed : 250 rpm
Feedrate : 150 mm/Min
Cutting width : 20 mm
Cutting depth : 25 mm
Material elimination rate : 75 cc/Min



DRILLING

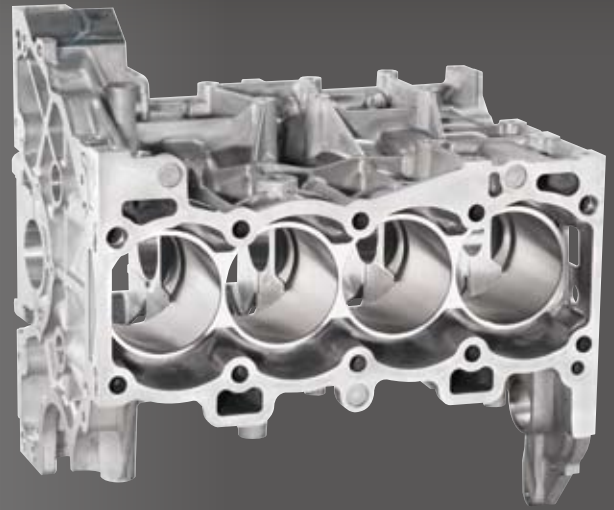
Work piece material : S45C
Spindle speed : 900 rpm
Feedrate : 180 mm/Min
Drilling diameter : 40 mm
Material elimination rate : 226 cc/Min



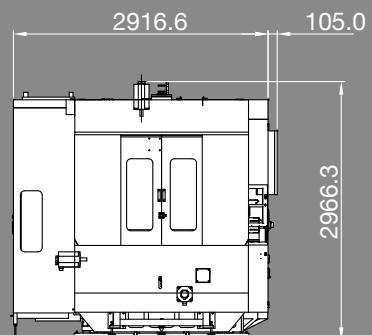
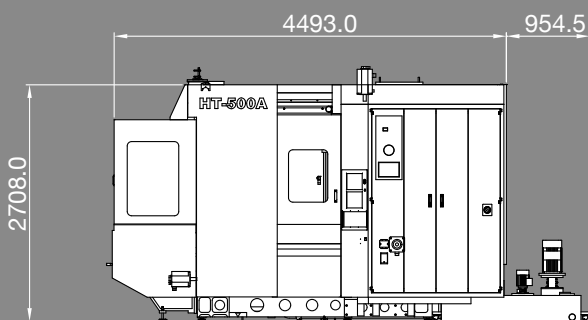
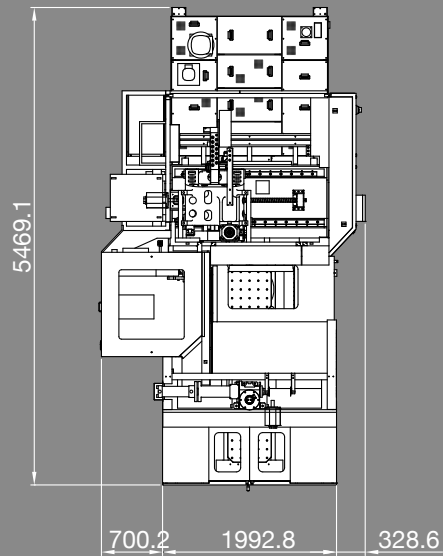
TAPPING

Work piece material : S45C
Spindle speed : 235 rpm
Feedrate : 705 mm/Min
Tap : M27 x P3.0

WORKPIECE SAMPLE



DIMENSIONAL DRAWING



MACHINE SPECIFICATION

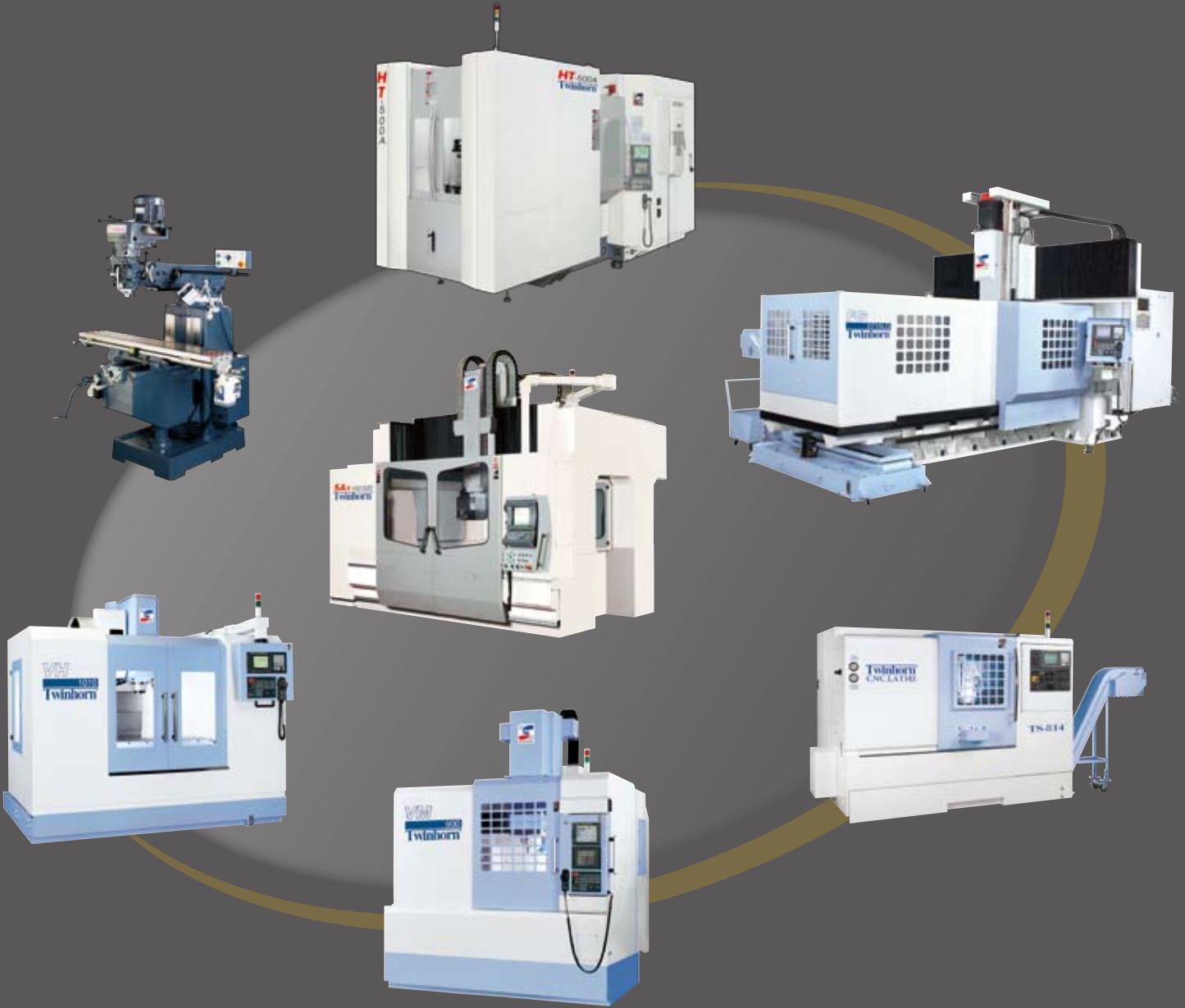
MODEL	HT-500A+2APC
Travel	
X-Axis travel	800mm
Y-Axis travel	800mm
Z-Axis travel	800mm
Feedrate	
Rapid feedrate (X/Y/Z)	60 / 60 / 60m/min
Acceleration (X/Y/Z)	1 / 1 / 1G
Cutting speed	10-30,000mm/min
Ballscrew ØD x Pitch	Ø45mm x 20mm
Spindle	
Spindle nose to table center distance	150-950mm
Spindle center to pallet surface distance	120-920mm
Spindle taper hole	7/24 No. 40
Spindle driven method & Max. speed	Built-in 15,000rpm
Spindle diameter	70mm
Table	
Pallet dimension (L x W)	500mm x 500mm
Max. loading capacity	600kg
Minimum indexing degree	0.001°
Surface configuration	M16 x 2 x 33L
Maximum rotating speed	16.6min ⁻¹ (1500min ⁻¹)
Table clamping force	350kg-m (3.5MPa) (500kg-m)
Pallet clamping force	2000kg (3.5MPa) (3600kg)
Cutting force resistance	250kg-m
Indexing accuracy	25sec
Repeatability	±2sec
ATC	
Tool change method	Arm type
Tool shank	BT40
Tool capacity	40
Tool change time	T-T 1.5sec ; C-C 4.5sec
Pull stud	MAS 403 P40T-2 60°
Max. tool diameter (With adjacent tool)	95mm
Max. tool diameter (Without adjacent tool)	200mm
Max. tool length	400mm
Average tool weight	5kg
Max. tool weight	11kg
Tool selection method	Fixed position
APC	
Exchange method	Rotary pallet change
Number of pallets	2
Max. jig swing diameter	Ø750mm
Max. jig height	900mm
Pallet surface to floor	1150mm
Pallet exchange time	11 sec
Accuracy	
Positioning	VDI 3441 P 0.014mm (JIS B6338 ± 0.004mm/300mm)
Repeatability	VDI 3441 PS0.010 (JIS B6338 ± 0.003mm)
Motor	
Spindle motor	FANUC αB112L/15000i (18.5kW(cont.) / 22kW(15min))
Servo motor X/ Y/ Z / B	X : FANUC α40 / 4000is (5.5kW)
	Y : FANUC α40 / 4000isB (5.5kW)
	Z : FANUC α30 / 4000is (5.5kW)
	B : FANUC α22 / 3000i (4kW)
Coolant Pump	0.37kW
Hydraulic unit motor	3.7kW
Other	
Air required	3-4kg/cm ² (0.3-0.4MPa), 200L/min
Power required	45kVA
Machine size (WxDxH), approx.	310 x 610 x 300cm
Total Machine Weight, approx.	13500kg

STANDARD

- Built-in spindle BT-40 15000RPM
- Arm type ATC system 40T
- Spindle oil cooler
- Coolant tank
- Chip conveyer & cart
- Safety door interlock
- Fully enclosed splash guard
- Work lamp
- Auto lubrication system
- Hydraulic unit
- Spindle air blast
- Auto side flushing device
- Coolant through ballscrews
- Spindle air curtain
- Rigid tapping
- Heat exchanger
- Magazine operation panel
- Tools and tool box
- Leveling bolts and pads
- Mechanical manual, part lists, Operation manual, Electrical manual, Test report, operator's manual and maintenance manual of the controller
- FANCU 18i-MB controller

OPTION

- BT40 pull stud
- Auto tool length measurement
- CTS, coolant through spindle
- Water gun
- Air gun
- Transformer
- Water level switch
- Arm type ATC system 60T
- Optical scale
- Oil skimmer



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