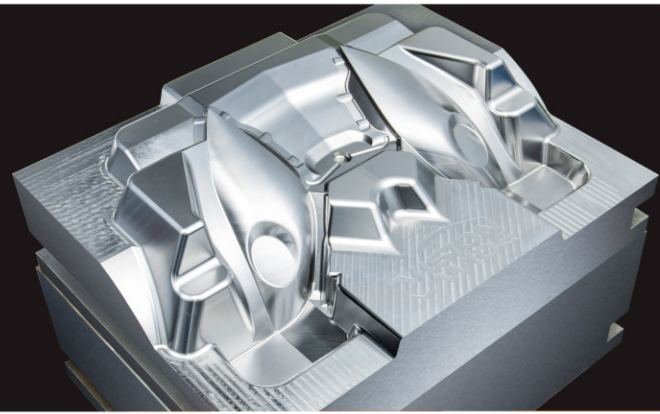


# SE SERIES



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SE-E-202210

# SE SERIES

High Speed Double Column Machining Center



## High Speed Double Column Machining Center

**SE** high speed machining center has a 50% increase in productivity by excellent mechanism and structural performance.

Extraordinary performance particularly meets mold processing, aluminum alloy machining and mass removal machining.

The performance of High Speed Machining (HSM) is created by precise mechanism and multiple spindle combination.

- 0.5 G axial thrust force
- Spindle speed reaches 28,000 rpm
- 20 m/min of feed rate
- Precise contour accuracy
- Delicate surface roughness
- Positioning accuracy P 0.007mm
- Repeatability Ps 0.003 mm
- Aluminum alloy chips removal rate  
7,000 cc / min

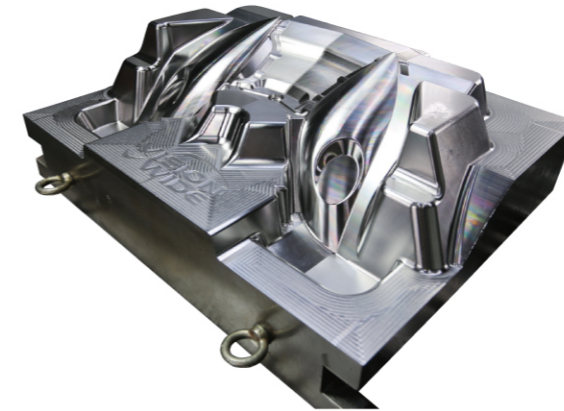


## High Speed and Precise Accuracy Cutting Performance



### Aircraft Frame

- Al6061
- 1,255 x 480 x 85 mm
- D32 copy milling cutter
- Ap: 10mm / Ae: 20mm
- Spindle speed : 12,000rpm
- Feed rate: 9,000mm/min



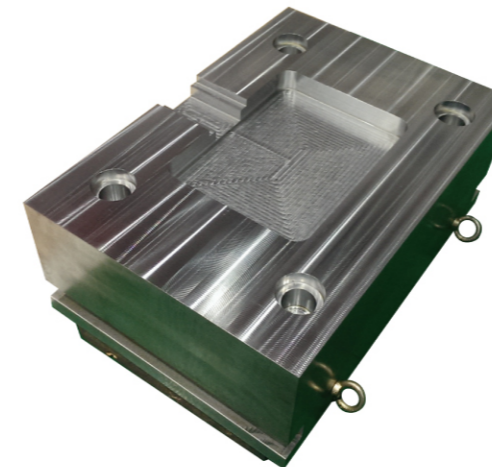
### High Speed Mold Surface Finishing Car Headlight Mold

- P20 Die Steel
- L800 x W550 x H250mm
- D10R5 ball end tool
- Spindle speed : 12,000rpm
- Feed rate : 4,000mm/min
- Surface roughness : Ra0.4 μm
- 0.04 mm high contour accuracy



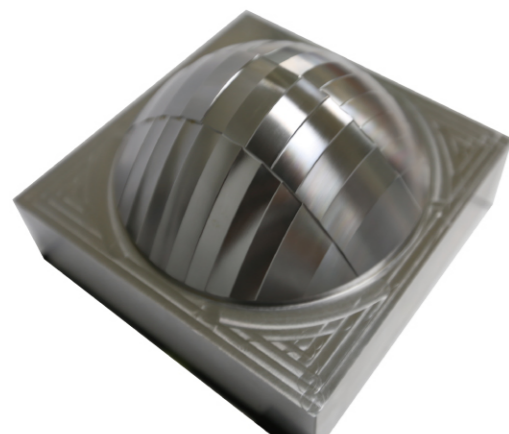
### Aerospace Aluminum Frame High Speed Machining (HSM)

- Al6061
- 1,425 x 680 x 70 mm
- D25 end mill Equal TEA tool path
- Spindle speed : 10,500 rpm
- Feed rate : 24,000 mm/min
- Cutting capacity : 1,00 cc/min-kW



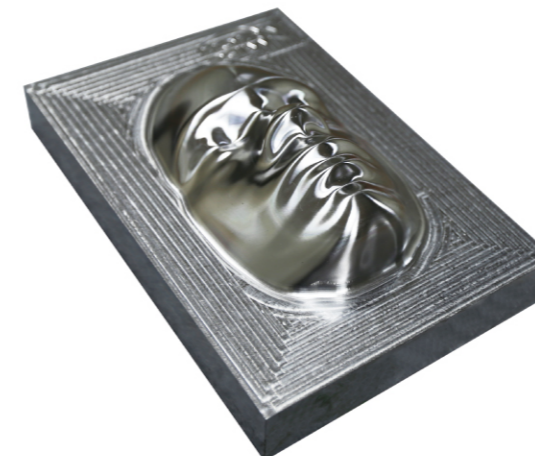
### Mold Base High Feedrate Machining

- S45C
- 800 x 500 x 250mm
- Vc 220 m/min
- 10 m/min High feedrate machining
- Boring positioning accuracy 0.006 mm  
(Pitch 400 x 700mm)
- Spindle speed : 2,000rpm
- D40 R1 High feed tool



### Speedy Mold Surface Finishing Automotive Reflector Light Core

- NAK80 die steel
- 160 x 160 x 100 mm
- Surface roughness : Ra 0.4 μm
- Contour accuracy 0.02 mm
- D3R1.5 ball end machining
- Spindle speed : 12,000 rpm
- Feed rate : 1,500 mm/min

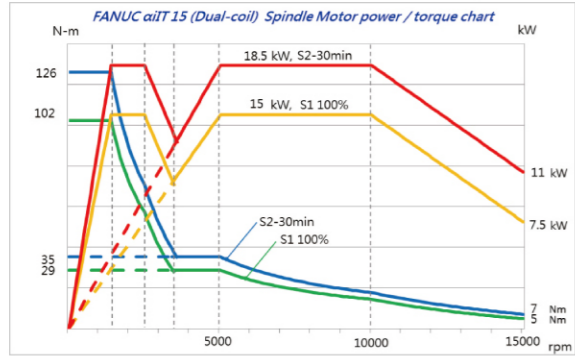


### Precise Accuracy 3D Mold Cutting Mask Core

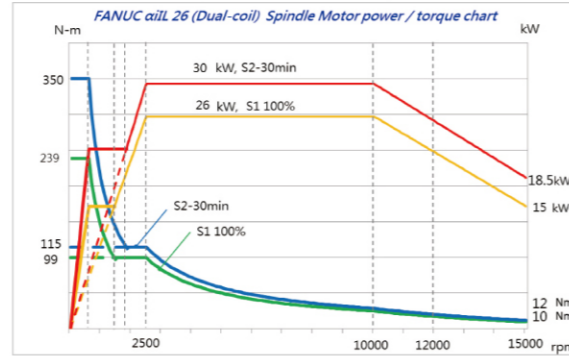
- S45C
- 300 x 200 x 100 mm
- 98.5% point error < 0.02mm
- 85.8% point error < 0.012mm
- D12R6 ball end tool
- 45° Project zig-zag cutting
- Spindle speed : 10,000 rpm
- Feed rate : 4,000 mm/min

## Spindle Power and Torque Charts | FANUC Controller

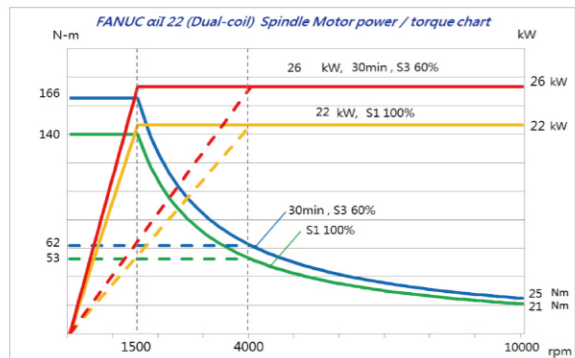
1. FANUC  $\alpha$  iT 15 / Direct-driven / 15,000 rpm / BBT-40 (Standard)



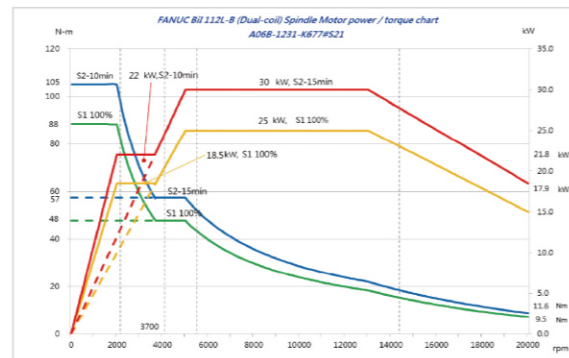
2. FANUC  $\alpha$  iL26 / Direct-driven / 15,000 rpm / BBT-40 / 12,000 rpm / BBT-50



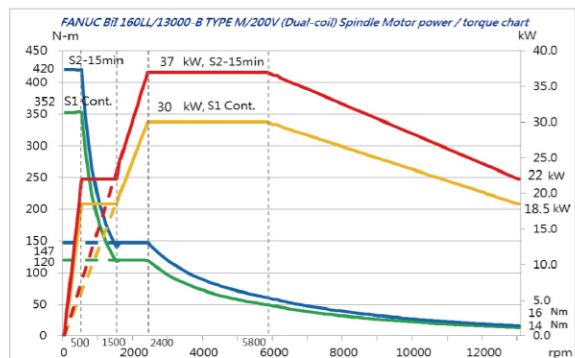
3. FANUC  $\alpha$  iL 22 /  $\alpha$  iL22T / Direct-driven / 10,000 rpm / BBT-50



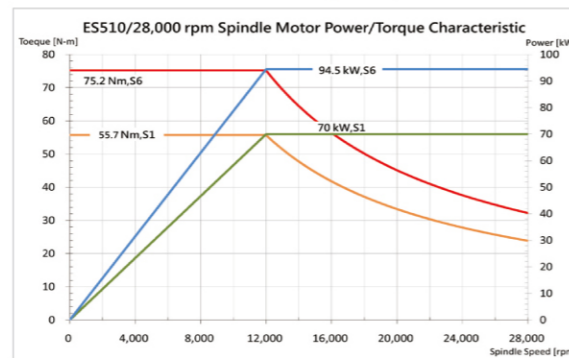
4. FANUC Bi112L / Built-in / 20,000 rpm / HSK-A63



5. FANUC Bi1-160LL / Built-in / 12,000 rpm / BBT-50

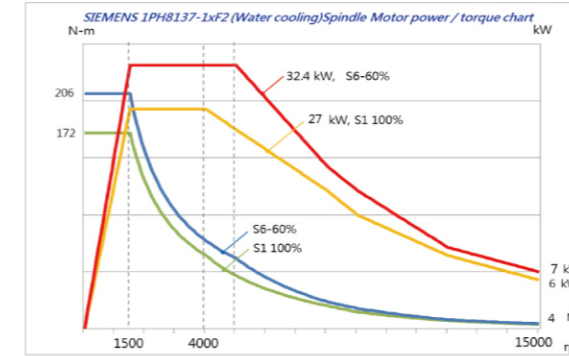


6. HSD ES 510 / Built-in / 28,000 rpm / HSK-A63

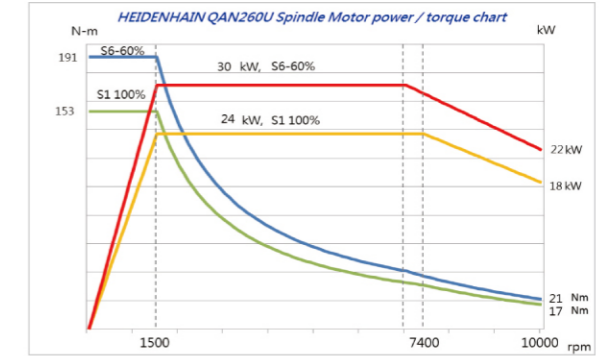


## Spindle Power and Torque Charts | HAIDENHAIN Controller

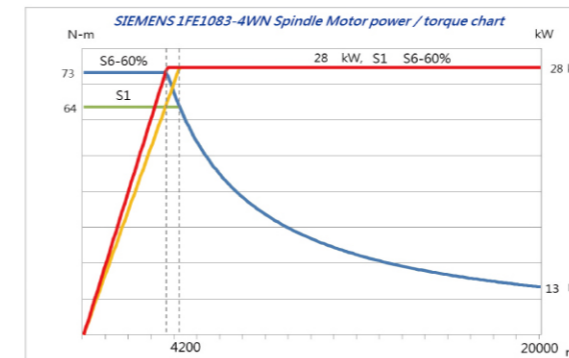
1. SIEMENS 1PH8137 / Direct-driven / 15,000rpm / BBT-40 / 12,000rpm / BBT-50 / 12,000rpm / BBT-40



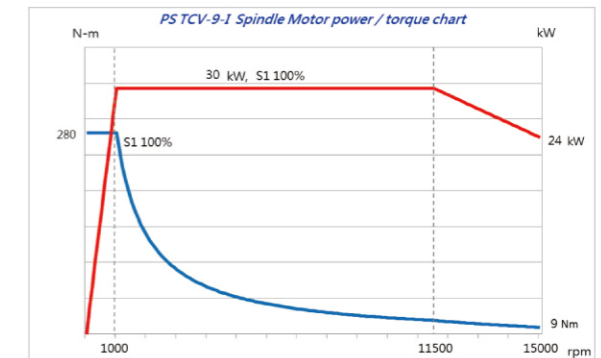
2. HEIDENHAIN QAN260U / Direct-driven / 10,000 rpm / BBT-50



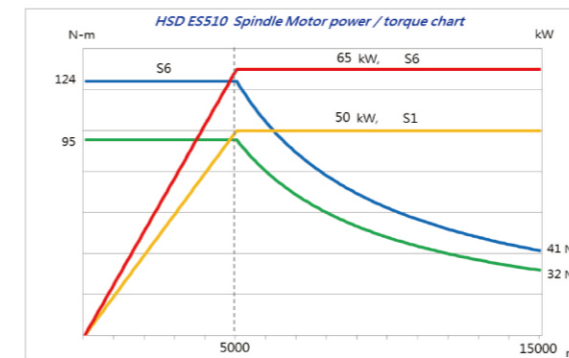
3. SIEMENS 1FE 1083 / Built-in / 20,000 rpm / HSK-A63



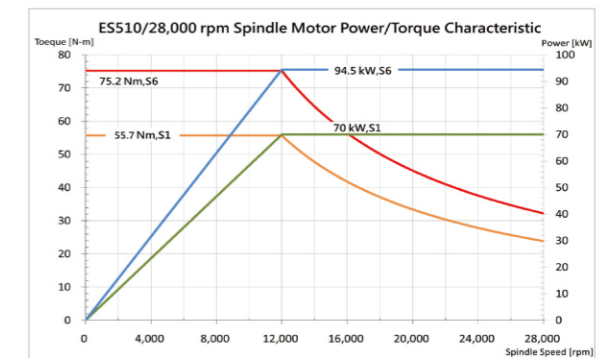
4. PS TCV-9-I / Built-in / 15,000 rpm / HSK-A100



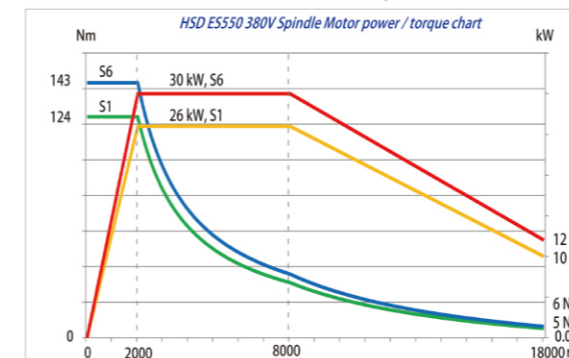
5. HSD ES 510 / Built-in / 15,000 rpm / HSK-A100



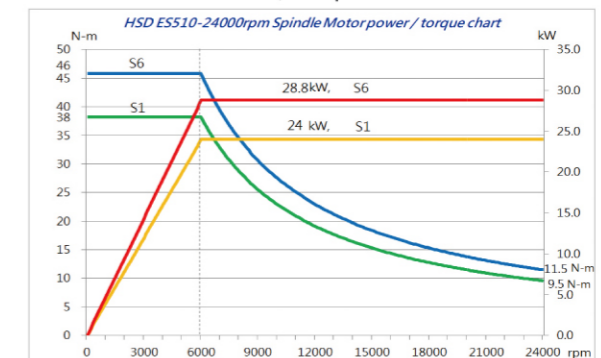
6. HSD ES 510 / Built-in / 28,000 rpm / HSK-A63



7. HSD ES550 Built-in / 18,000 rpm / HSK-A63



8. ES510 / Built-in / 24,000rpm / HSK-A63



## Outstanding Rigidity Structure Fulfills Efficiency In Machining

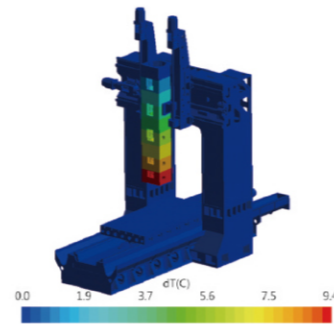
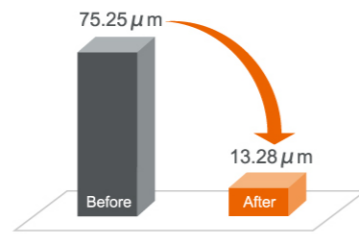
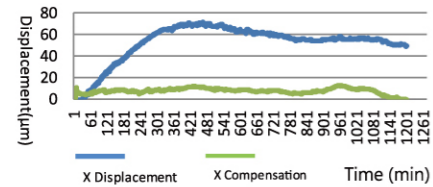
Multi-support structural design enabled the best force flow and dynamic geometry accuracy.

### Thermal Friendly Accuracy

Ambient temperature Compensation (ATC) 0.005 mm

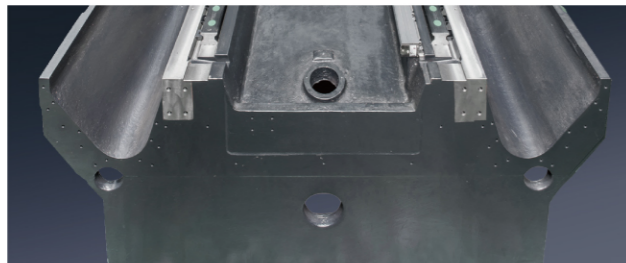
Spindle Thermal Compensation (STC) 0.02 mm

- Tool Center Point Displacement(10,800 rpm)
- Deformation Compensation Performance



### Topology Rib Configuration (TRC )

- Transferred worktable and cutting load to anchor bolts within the shortest distance.
- Configured worktable, base, anchor bolts and foundation approaching absolute rigidity for best rigidity.



- Efficient transmission of force flow



### Best Dynamic Geometric Accuracy and Rigidity Guaranteed

- 3 slider guideways were stepwise configuration for better structural rigidity.
- Y-axis moving straightness is guaranteed by 870 mm thickness of cross beam.
- Y-axis linear guideways were located on 920 mm wide beam to sustain dynamic rigidity at speedy feed rate.



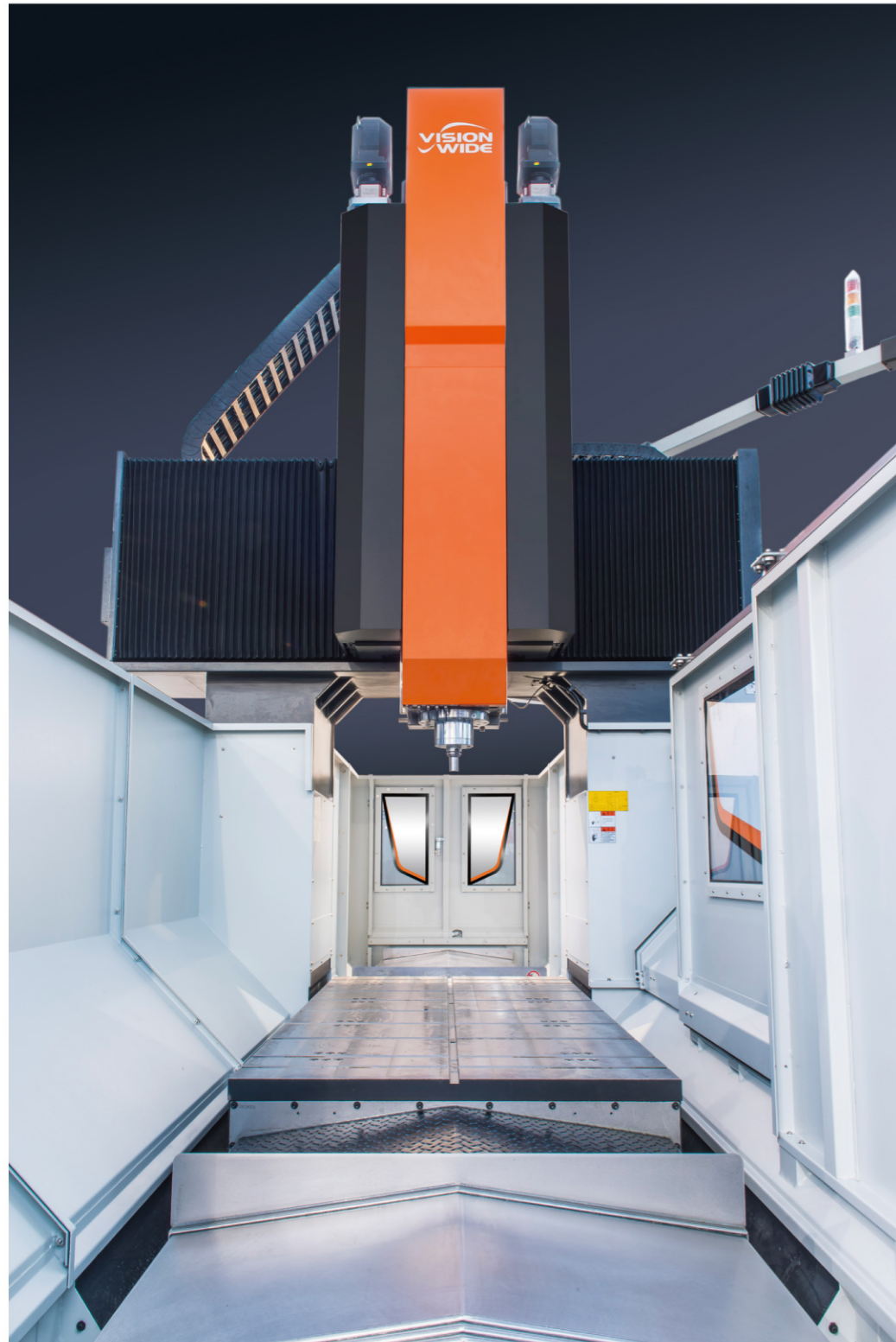
### Best Dynamic Geometric Accuracy and Rigidity Guaranteed

Best Force transfer Structure (BFS)  
Multi-Support Structure (MSS)

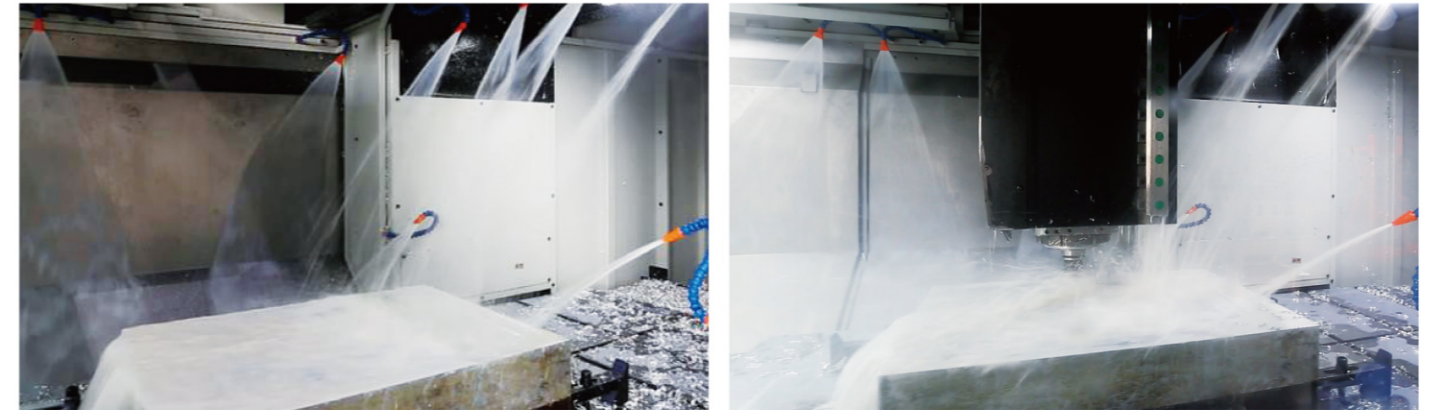
- 1000 mm wide column section ensured steadiness accuracy of machine under longtime using circumstances.
- And the anchor bolts of base were characterized with A-shape structural design to support Y axis and Z axis running steadily at high speed.



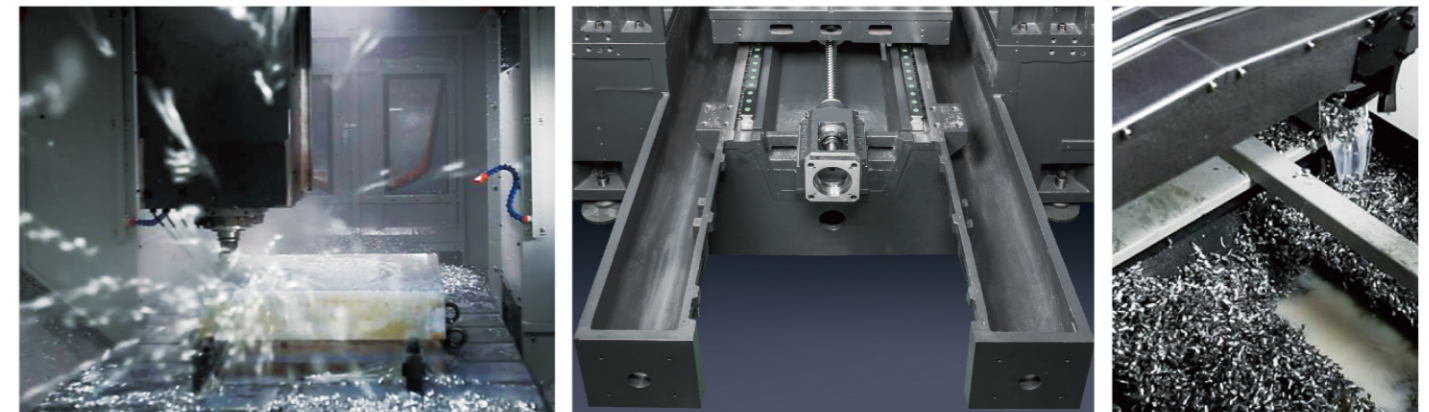
Mass Removal Capacity Reaches 7,000 cc/min.  
Take Customers' Need into Design



● Inclined side sheet metal guards enable removing chips quickly.



● Water fall flushing system (Opt.)  
Chip clean flushing device under the beam



● Big diameter chip grooves and screws

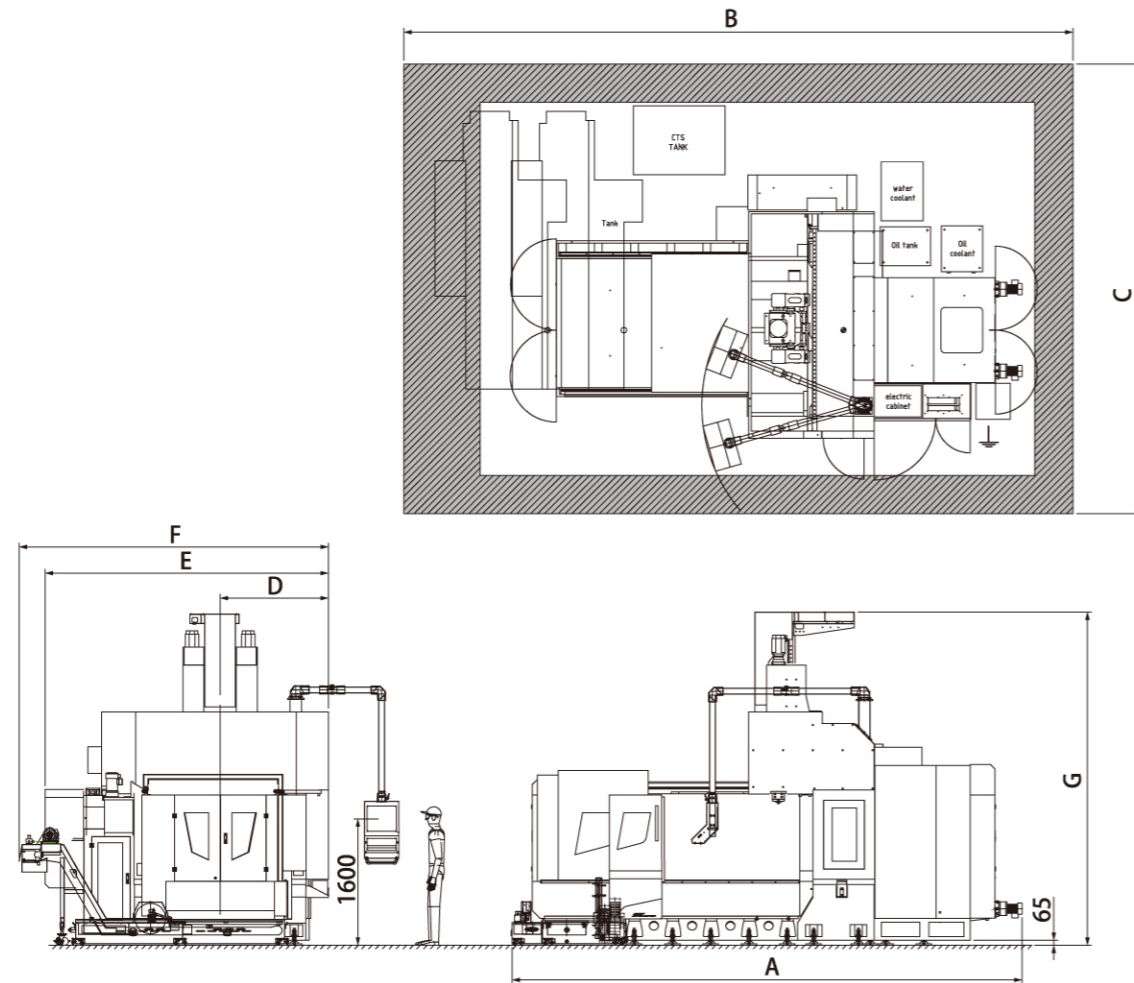


● Coolant through spindle (Opt.) ● Cutting fluid system (Std.)



● Dual belt type chip conveyor for mass aluminum chips removing.(Opt.)

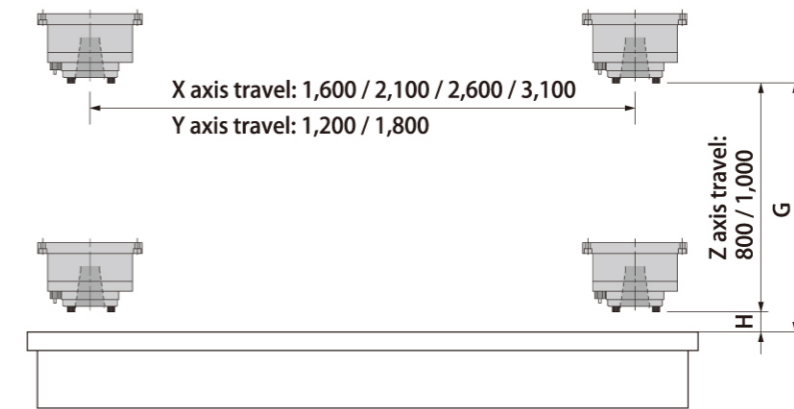
Machine Dimension



Unit:mm

Model	A	B	C	D	E		F	G	
					# 40	# 50		Z 800	Z 1,000(column+200)
SE-1612	5,280	7,400	6,280	1,450	3,450	3,700	3,800	4,410	4,810
SE-2112	6,280	8,200	6,280	1,450	3,450	3,700	3,800	4,410	4,810
SE-2612	7,440	9,600	6,280	1,450	3,450	3,700	3,800	4,410	4,810
SE-1618	5,400	8,000	7,180	1,800	4,150	4,400	4,600	4,500	4,900
SE-2118	6,400	9,000	7,180	1,800	4,150	4,400	4,600	4,500	4,900
SE-2618	7,400	10,000	7,180	1,800	4,150	4,400	4,600	4,500	4,900
SE-3118	8,400	11,000	7,180	1,800	4,150	4,400	4,600	4,500	4,900

Working Range

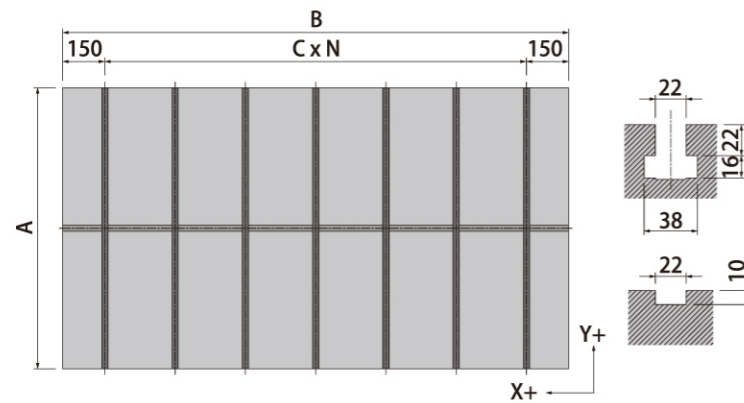


Unit:mm

Fanuc Distance from spindle nose to table	Z800 / Std.		Z1,000/Column+200mm	
	H	G	H	G
Direct drive 10,000 / 12,000rpm / #50	200	1,000	200	1,200
Direct drive 15,000rpm / #40 Built-in 20,000 / 24,000rpm / HSK-A63	210	1,010	210	1,210
Built-in 12,000rpm / #50	155	955	155	1,155
Built-in 28,000rpm / HSK-A63	270	1,070	270	1,270

HEIDENHAIN Distance from spindle nose to table	Z800 / Std.		Z1,000/Column+200mm	
	H	G	H	G
Built-in 15,000rpm / 30kW / HSK-A100	185	985	185	1,185
Direct drive 10,000/ 12,000rpm / #50 Built-in 18,000rpm / 26kW / HSK-A63	200	1,000	200	1,200
Direct drive 12,000rpm / #40 Direct drive 15,000rpm / #40 Built-in 20,000rpm / 28kW / HSK-A63	210	1,010	210	1,210
Built-in 15,000rpm / 50kW / HSK-A100	235	1,035	235	1,235
Built-in 24,000rpm / 30kW / HSK-A63 Built-in 28,000rpm / 70kW / HSK-A63	270	1,070	270	1,270

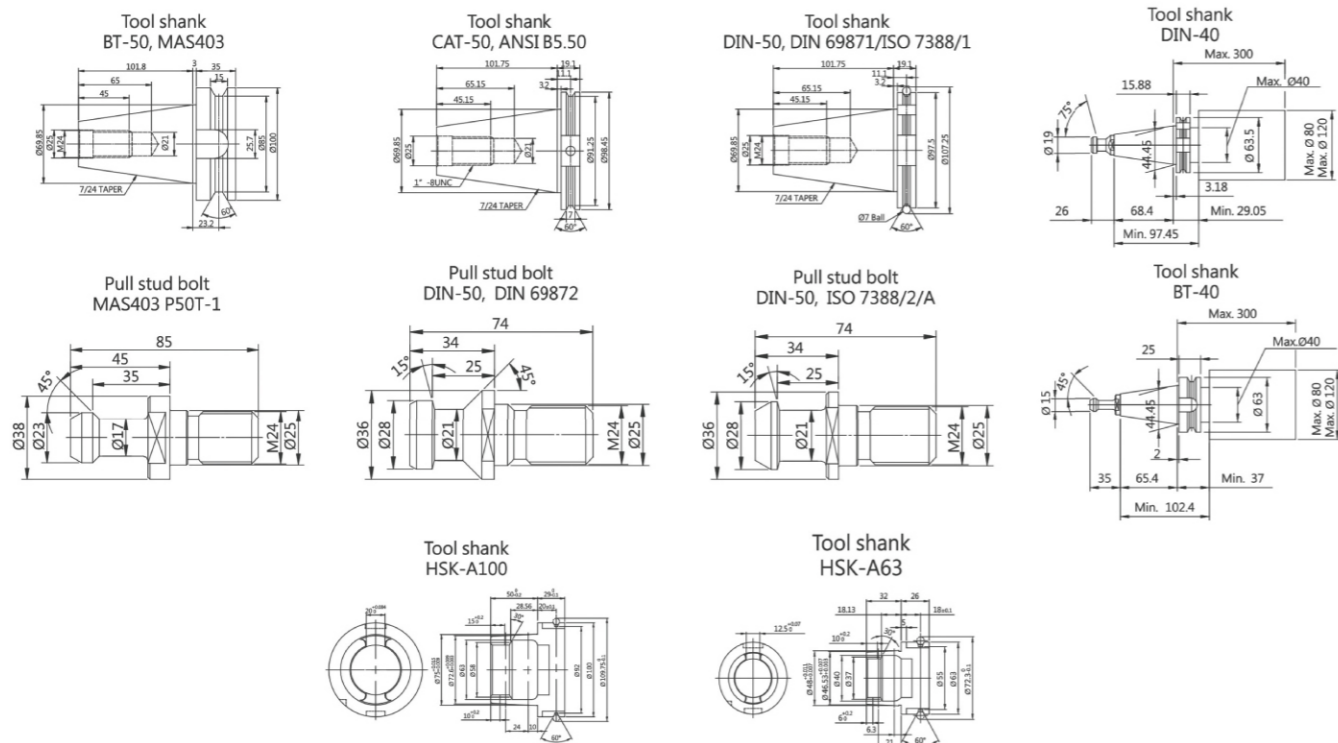
## Dimension of Table and T-slot



Unit:mm

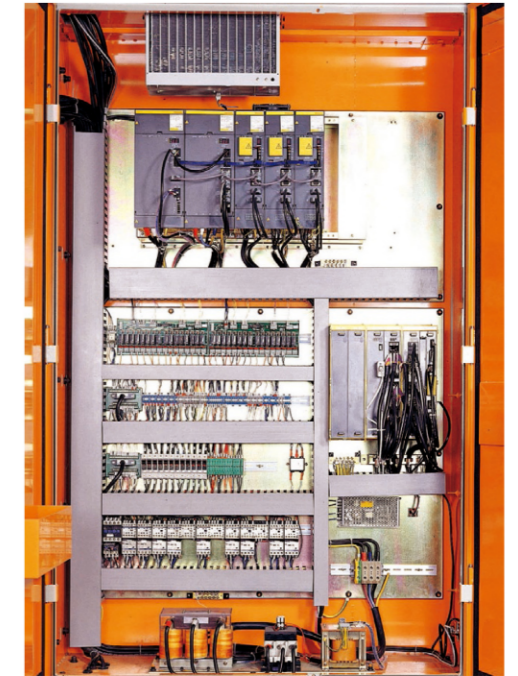
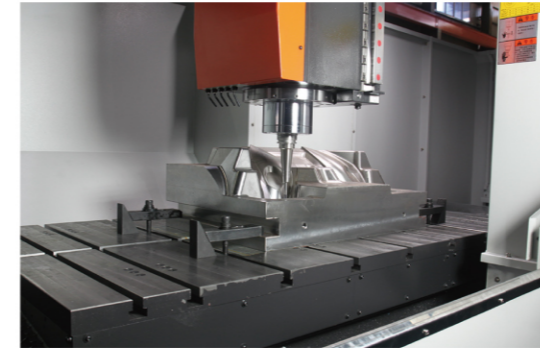
Model	A	B	C	N (pcs)
SE-1612	1,100	1,800	250	6
SE-2112	1,100	2,300	250	8
SE-2612	1,100	2,800	250	10
SE-1618	1,600	1,800	250	6
SE-2118	1,600	2,300	250	8
SE-2618	1,600	2,800	250	10
SE-3118	1,600	3,300	250	12

## Tool Shank

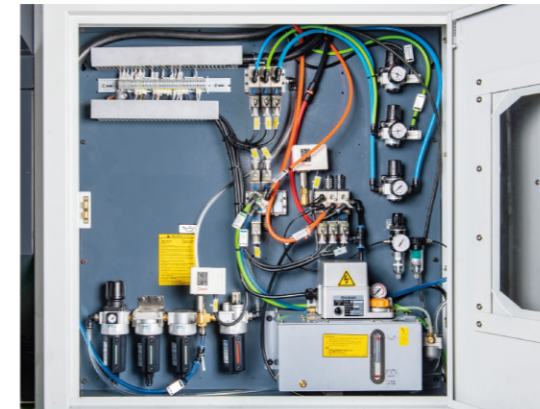


## Safe, Friendly and Reliable Interface

- Large door open space easy for loading work pieces.
- Protective safety door and followed CE regulation.
- Bright illumination and wide monitoring window.
- Strengthened acrylic glasses for safety, easy cleaning and wide vision.
- Swiveling arm type operation panel.



- Horizontal T-slots on work table for quick positioning and mold clamping



- Centralized auto lubrication system





## SE Specification | SE-xx12 Series

Model	Unit	SE-1612	SE-2112	SE-2612	
<b>TRAVEL</b>					
X axis	mm	1,600	2,100	2,600	
Y axis	mm	1,200	1,200	1,200	
Z axis	mm	800 / 1,000 ( columns + 200 )( Opt. )			
Distance from spindle nose to table	Direct-Driven( # 40 )	Z axis=800	210~1,010		
		Z axis=1,000	210 / 1,210 ( columns + 200 )		
Spindle center to column	mm	450			
Width between columns	mm	1,250			
<b>TABLE</b>					
Dimension	mm	1,800 x 1,100	2,300 x 1,100	2,800 x 1,100	
T-slot ( Dimension x Number x Pitch)-Y axis direction	mm	22 x 7 x 250	22 x 9 x 250	22 x 11 x 250	
Max. table load	kg	8,000	10,000	12,000	
<b>SPINDLE</b>					
Spindle motor (continuous/30 minute rated)	kW	15 / 18.5			
Spindle speed	rpm	15,000			
Spindle taper	-	BBT-40			
Spindle output torque (Cont. /S6-40%)	Nm	L: 102 / 126 H: 29 / 35			
<b>FEED</b>					
Cutting feedrate	mm/min	1~24,000			
Rapid traverse	m/min	XYZ: 24 / 30 ( Opt. )			
X,Y,Z power capacity (FANUC)	kW	X:4.5, Y:4.5, Z:4.5x2			
<b>ACCURACY</b>					
Repeatability	Refer to JIS B6333	mm	±0.004 / Full travel		
	Refer to VDI 3441	mm	P0.007		
Positioning accuracy	Refer to JIS B6333	mm	±0.001		
	Refer to VDI 3441	mm	Ps0.003		
<b>ATC</b>					
ATC capacity	Vertical	pcs	24 / 20(Opt.) / 32(Opt.) / 40(Opt.)		
Max. tool weight*1		kg	HSK-A63 / BBT-40: 8 kg / HSK-A100 / BBT-50: 15kg		
Max. tool length		mm	HSK-A63 / BBT-40: 300 / HSK-A100 / BBT-50: 300		
Max. tool size (Full/ next pockets empty)		mm	HSK-A63 / BBT-40: φ 75 ( φ 130 ) / HSK-A100 / BBT-50: φ 125 ( φ 250 )		
<b>OTHERS</b>					
Electric power consumption		kVA	55		
Pneumatic input pressure		kg/cm <sup>2</sup>	6		
Air flow rate		L/Min	900		
Machine net weight		kg	15,500	17,500	19,500
Machine gross weight		kg	18,500	20,500	23,500
Max. floor space (LxWxH)		m	7.4 x 6.3 x 4.4	8.2 x 6.3 x 4.5	9.6 x 6.3 x 4.5

※ All specifications and designs are subject to change without notice.

## SE Specification | SE-xx18 Series

Model	Unit	SE-1618	SE-2118	SE-2618	SE-3118	
<b>TRAVEL</b>						
X axis	mm	1,600	2,100	2,600	3,100	
Y axis	mm	1,800	1,800	1,800	1,800	
Z axis	mm	800 / 1,000 ( columns + 200 )( Opt. )				
Distance from spindle nose to table	Direct-Driven( # 40 )	Z axis=800	210~1,010			
		Z axis=1,000	210 / 1,210 ( columns + 200 )			
Spindle center to column	mm	450				
Width between columns	mm	1,840				
<b>TABLE</b>						
Dimension	mm	1,800 x 1,600	2,300 x 1,600	2,800 x 1,600	3,300 x 1,600	
T-slot ( Dimension x Number x Pitch)-Y axis direction	mm	22 x 7 x 250	22 x 9 x 250	22 x 11 x 250	22 x 13 x 250	
Max. table load	kg	8,000	10,000	12,000	14,000	
<b>SPINDLE</b>						
Spindle motor (continuous/30 minute rated)	kW	15 / 18.5				
Spindle speed	rpm	15,000				
Spindle taper	-	BBT-40				
Spindle output torque (Cont. /S6-40%)	Nm	L: 102 / 126 H: 29 / 35				
<b>FEED</b>						
Cutting feedrate	mm/min	1~24,000				
Rapid traverse	m/min	XYZ: 24 / 30 ( Opt. )				
X,Y,Z power capacity (FANUC)	kW	X:4.5, Y:4.5, Z:4.5x2				
<b>ACCURACY</b>						
Repeatability	Refer to JIS B6333	mm	±0.004 / Full travel			
	Refer to VDI 3441	mm	P0.007			
Positioning accuracy	Refer to JIS B6333	mm	±0.001			
	Refer to VDI 3441	mm	Ps0.003			
<b>ATC</b>						
ATC capacity	Vertical	pcs	24 / 20(Opt.) / 32(Opt.) / 40(Opt.)			
Max. tool weight*1		kg	HSK-A63 / BBT-40: 8 kg / HSK-A100 / BBT-50: 15kg			
Max. tool length		mm	HSK-A63 / BBT-40: 300 / HSK-A100 / BBT-50: 300			
Max. tool size (Full/ next pockets empty)		mm	HSK-A63 / BBT-40: φ 75 ( φ 130 ) / HSK-A100 / BBT-50: φ 125 ( φ 250 )			
<b>OTHERS</b>						
Electric power consumption		kVA	55			
Pneumatic input pressure		kg/cm <sup>2</sup>	6			
Air flow rate		L/Min	900			
Machine net weight		kg	17,500	19,500	23,500	27,500
Machine gross weight		kg	20,500	22,500	26,500	31,000
Max. floor space (LxWxH)		m	8.0 x 7.2 x 4.5	9.0 x 7.2 x 4.5	10.0 x 7.2 x 4.5	11.0 x 7.2 x 4.5

※ All specifications and designs are subject to change without notice.

## Standard Accessory

- 1 Fanuc 0i MF PLUS controller
- 2 15,000 rpm direct driven spindle (BBT-40)
- 3 Z travel 800 mm
- 4 Spindle cooling system
- 5 24 Tools magazine with arm type ATC
- 6 Centralized auto lubrication system
- 7 Independent lubrication oil collector
- 8 Air blast through spindle
- 9 Wash gun and pneumatic interface
- 10 Cutting fluid cooling system
- 11 Enclosed sheet metal guard with roof
- 12 Screw type chip conveyor on table sides
- 13 Caterpillar type chip conveyor
- 14 Heat exchanger for electrical cabinet
- 15 Swiveling arm type operation panel
- 16 Working lamp
- 17 Operation cycle finish and alarm light
- 18 Movable manual pulse generator
- 19 RJ45 interface
- 20 Footswitch for tool clamping
- 21 XYZ-axis Linear Scales(Fagor)
- 22 Auto power off function
- 23 Spindle cutting load software protection
- 24 XYZ-axis travel hard limits protection
- 25 Foundation pads and bolts kits
- 26 Adjustment tool and tool kits
- 27 Z-axis retract function at power failure
- 28 Thermal compensation System
- 29 Technical manuals  
(operation, maintenance manual and circuit diagram)

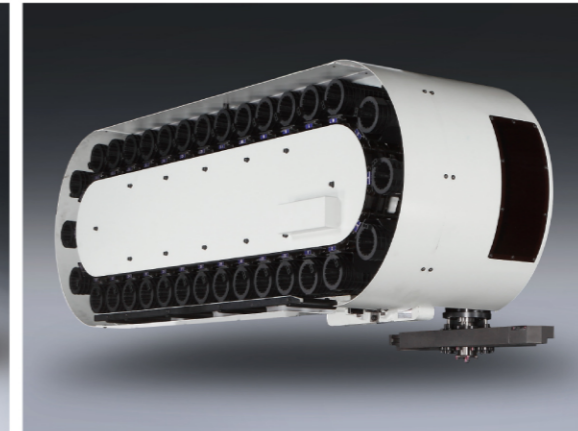
## Optional Accessory & Function

- 1 FANUC 31 iB; HEIDENHAIN TNC 620/640 Controllers
- 2 Built-in spindle  
20,000/ 2,4000/ 2,8000 rpm(HSK-A63);  
8,000/12,000 rpm(50#, HSK-A100)
- 3 Built-in spindle only for Heidenhain controller:  
15,000 rpm (50#, HSK-A100)
- 4 Direct driven spindle 10,000/12,000 rpm (50#, HSK-A100)
- 5 Rapid traverse (X/Y/Z) 30 m/min
- 6 Z axis travel 1,000 mm
- 7 Column higher 200 mm
- 8 Spindle ring cutting coolant device (Built-in spindle excluded)
- 9 Coolant through spindle system 20/70 bar
- 10 Reserved interface for coolant through spindle system
- 11 Oil skimmer
- 12 Oil mist cooling device
- 13 Oil mist recycling device
- 14 20T tools magazine carousel type;
- 15 32T/40T tool magazine arm type ATC  
Enclosed sheet metal guard (without roof)
- 16 Worktable fluid flushing function
- 17 Helically bladed screw conveyor on table sides
- 18 Chip cart
- 19 Air conditioner for electrical cabinet
- 20 Transformer
- 21 Reserved interface for 4th axis
- 22 Auto tool length measurement
- 23 Auto coordinate measurement
- 24 Spindle load hardware protection
- 25 XYZ-axis Linear Scales (HEIDENHAIN)
- 26 CE Regulation

※ Vision Wide retains the right to modify product specification and related information.  
If you have any question, please contact us.



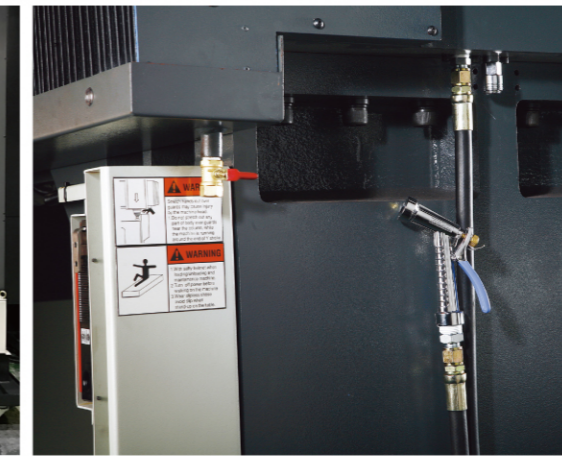
● 24 T Tool Magazine (Std.)



● 32 / 40 T tool magazine (Opt.)



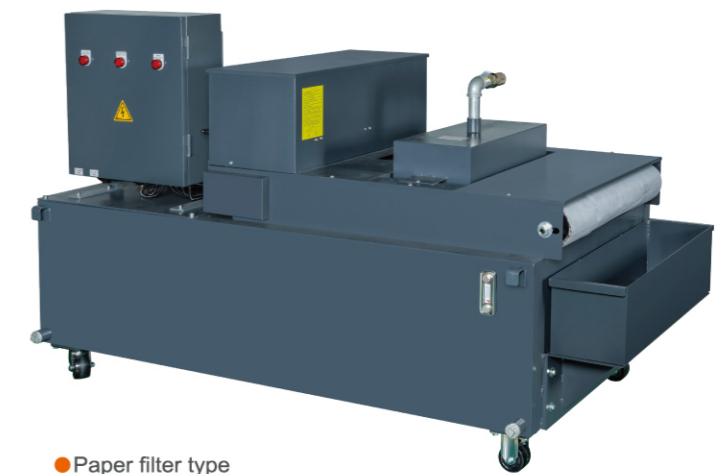
● Modularized cart for oil cooling device and hydraulic unit(Std.)



● Wash gun and pneumatic interface (Std.)



● Canister type filter



● Paper filter type