

SE
SERIES



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SE-E-201910

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.

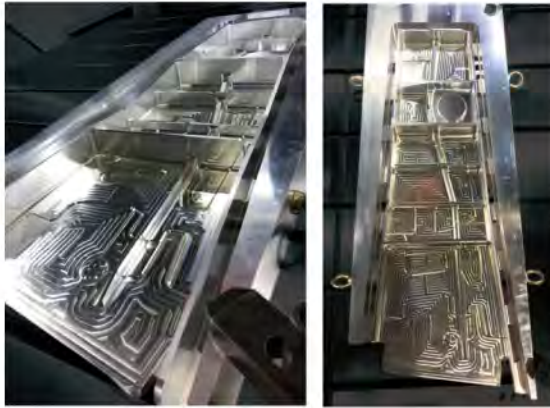
Extraordinary performance particularly meets mold processing, aluminum alloy machining and mass removal machining.

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



Aerospace Frame

1,425 x 680 x 75mm
Al6061
12,000RPM
9,000mm/min
D32 end mill
Ap: 10mm
Ae : 20mm



Aerospace Aluminum Frame High Speed Machining (HSM)

1,425 x 680 x 70 mm
A6061
10,500 rpm
24,000 mm/min
D25 End mill
2,000 cc/min
Cutting efficiency 100 cc/kW
(50% increase in productivity)



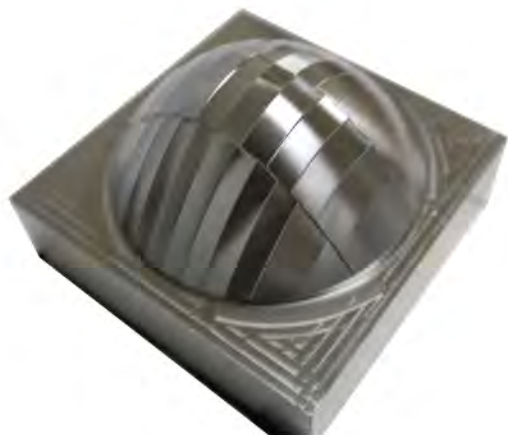
High Speed Mold Surface Finishing Car Headlight Mold

800 x 550 x 250 mm
P20
12,000 rpm
4,000 mm/min
D10 R5 Ball End
Ra 0.4 μ m
Contour Accuracy 0.04 mm



Mold Base High Speed and High Feedrate Cutting

800 x 500 x 250 mm
S45C Medium-carbon steel
2,000 rpm
10,000 mm/min
D40 R1 High Feed Tool
300 cc/min
Boring positioning accuracy 0.006 mm
(Pitch 400 x 700mm)
Vc 220 m/min



Speedy Mold Surface Finishing Automotive Light Reflector Core

160 x 160 x 100 mm
NAK 80
12,000 rpm
1,500 mm/min
D3 R1.5 Ball End
Ra 0.4 μ m
Contour Accuracy 0.04 mm

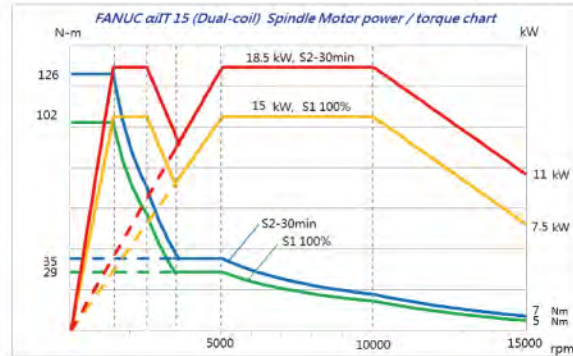


Precise Accuracy 3D Mold Cutting Mask Core

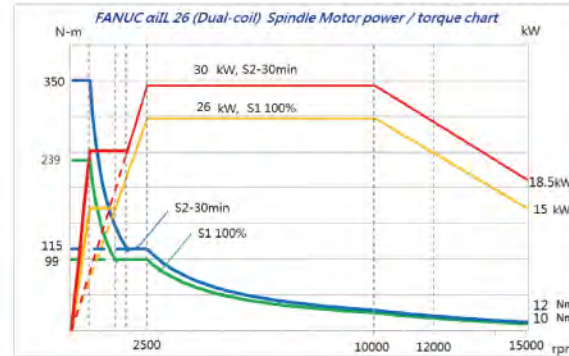
300 x 200 x 100 mm
S45C Medium-carbon steel
10,000 rpm
4,000 mm/min
D12 R6 Ball End
98.5% point error < 0.02mm
85.8% point error < 0.012mm

Spindle Power and Torque Charts | FANUC Controller

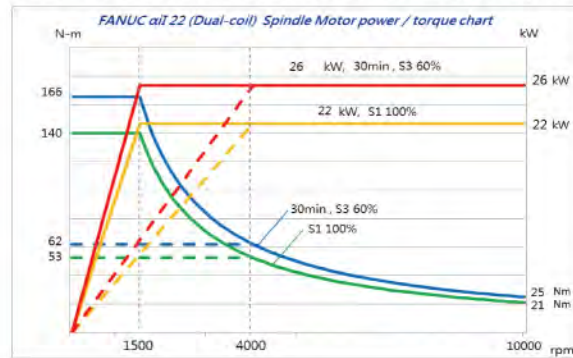
1. Fanuc α iT 15/ Direct-driven/ 15,000 rpm/ BBT-40
(Standard)



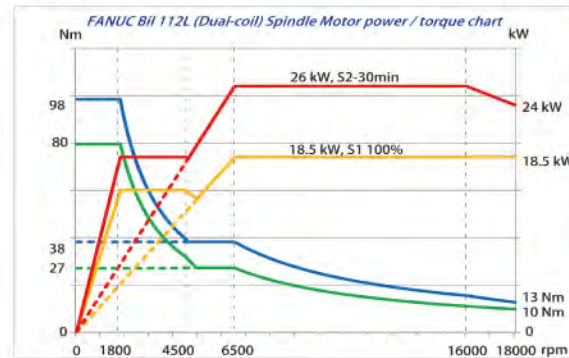
2. Fanuc α iL26/ Direct-driven/ 15,000 rpm / BBT-40
/ 12,000 rpm / BBT-50



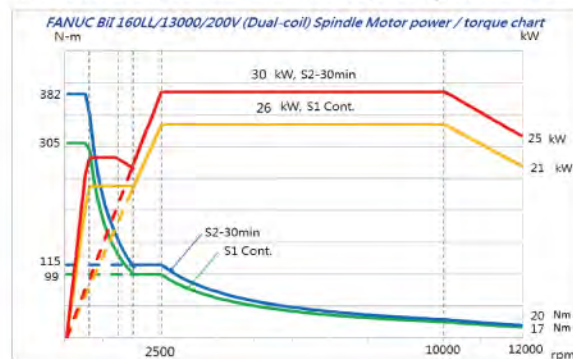
3. Fanuc α iL 22/ α iL22T/ Direct-driven/ 10,000 rpm/ BBT-50



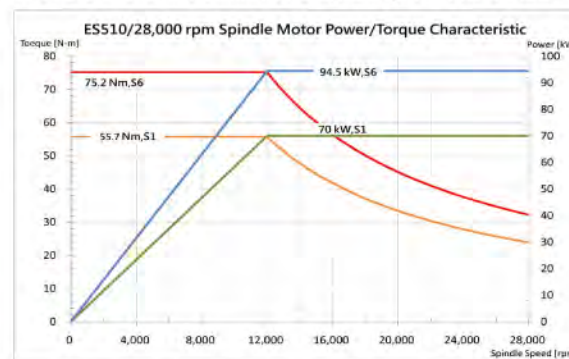
4. FANUC Bi112L/ Built-in/ 18,000 rpm/ HSK-A63



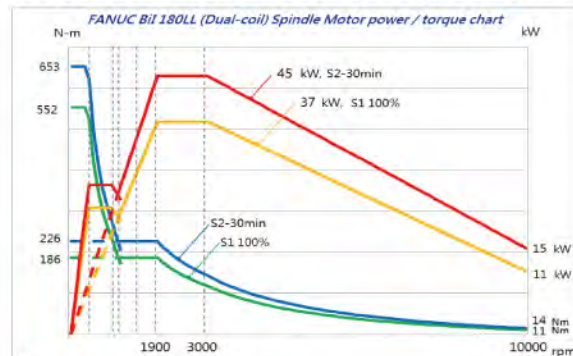
5. FANUC Bi160LL/ Built-in/ 12,000 rpm/ BBT-50



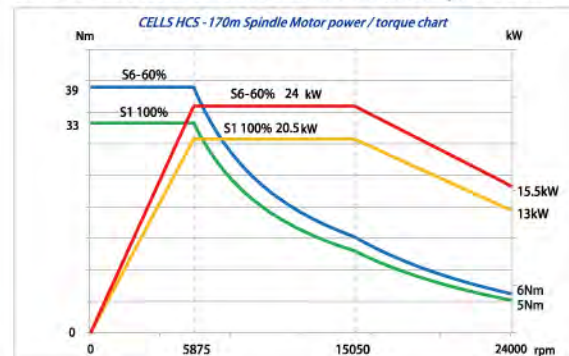
6. HSD ES 510 / Built-in / 28,000 rpm / HSK-A63



7. FANUC Bi180LL/ Built-in/ 10,000 rpm/ BBT-50

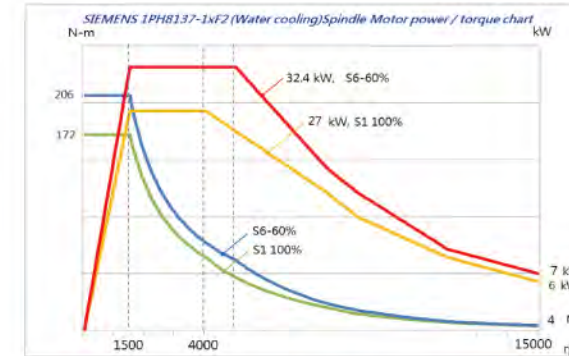


8. CELLS HCS-170m/ Built-in/ 24,000 rpm/ HSK-A63

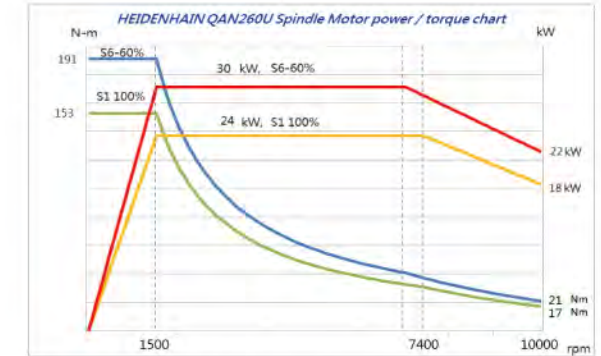


Spindle Power and Torque Charts | HAIDENHAIN Controller

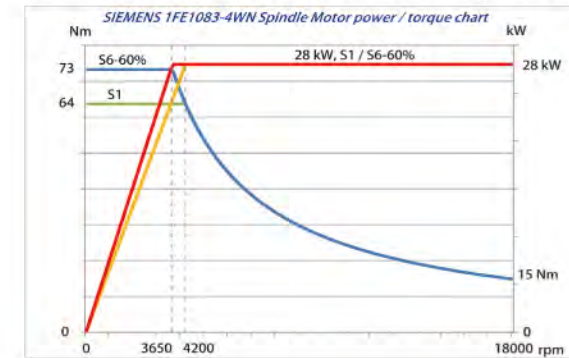
1. SIEMENS 1PH8137 / Direct-driven/ 15,000rpm / BBT-40
/ 12,000rpm / BBT-50
/ 12,000rpm / BBT-40



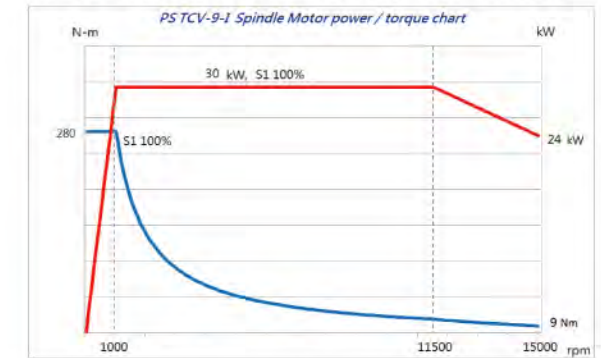
2. HEIDENHAIN QAN260U/ Direct-driven/ 10,000 rpm/ BBT-50



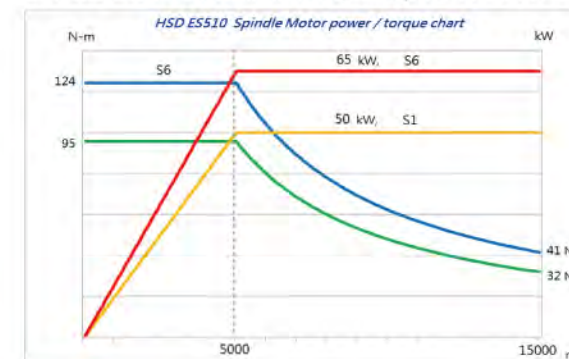
3. SIEMENS 1FE 1083/ Built-in/ 18,000 rpm/ HSK-A63



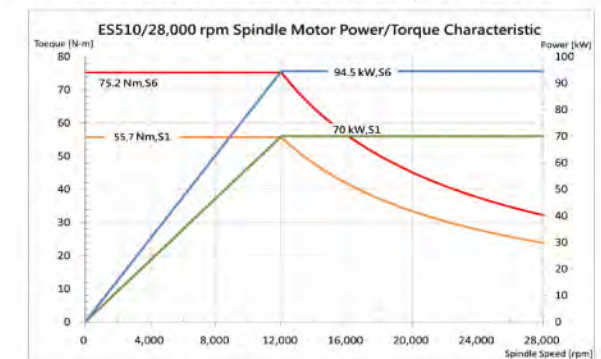
4. PS TCV-9-I / Built-in / 15,000 rpm / HSK-A100



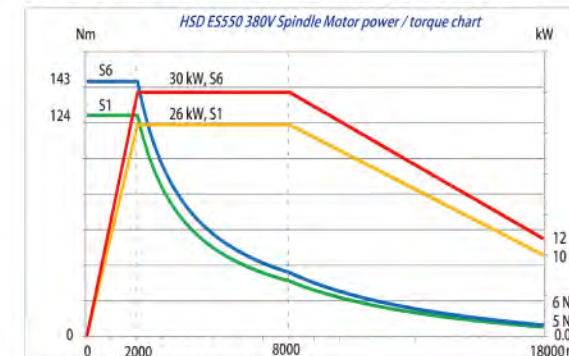
5. HSD ES 510 / Built-in / 15,000 rpm / HSK-A100



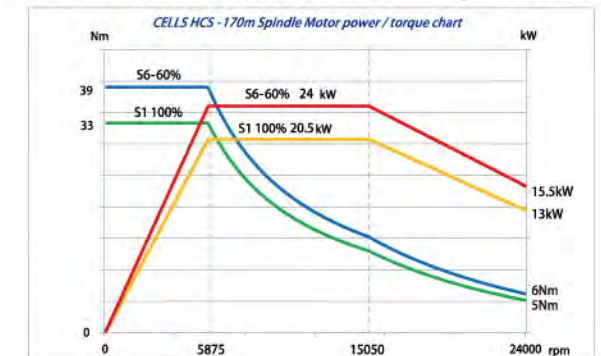
6. HSD ES 510 / Built-in / 28,000 rpm / HSK-A63



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



8. CELLS HCS-170m/ Built-in/ 24,000 rpm/ HSK-A63



Advanced Manufacture Technology for Better Dynamic Accuracy of Tool Center Point

High Responsive Transmission, HRT

- Triple thrust output
- High power and speedy responsive transmission
- Low temperature change of ballscrew

Ballscrew Fixed Preload, BFP

- Ballscrew maintained fixed pressure full time for pulling rigidity
- Maintain best repeatability accuracy

Double Positioning Rigidity, DPR

- Double thrust bearing support
- Double moving rigidity
- Precise positioning accuracy
- Response to speedier moving modes

Twin Ballscrew Drive, TBD

Twin ballscrews and servo motors achieve

- High torque
- Double transmission rigidity
- High positioning accuracy
- Oil-free hydraulic counter weight system reduces energy consumption



0.5G Acceleration Thrust

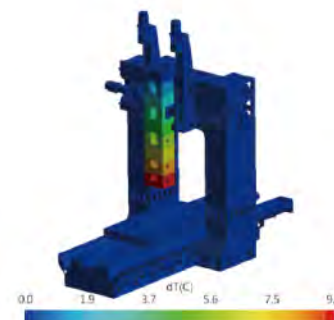
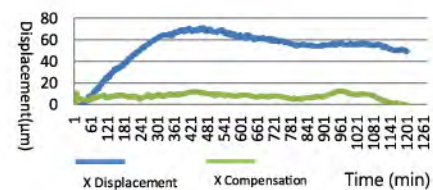
Thermal Friendly Accuracy

Ambient temperature Compensation (ATC) 0.025 mm

Spindle Thermal Compensation (STC) 0.02 mm

● Tool Center Point Displacement(10,800 rpm)

● Deformation Compensation Performance



High Rigidity Structure

- BFS, Best Force Flow Structure
- TRC, Topology Rib Configuration
- MSS, Multi-Support Structure
- SRC, Structure Rigid Combination
- DWD, Dynamic Weight Distribution

Thermal Friendly Accuracy

- ATC, Ambient temperature Compensation
- STC, Spindle Thermal Compensation
- TFS, Thermal Friendly Structure

Precise Positioning Transmission

- DPR, Double Positioning Rigidity
- BFP, Ballscrew Fixed Preload
- TED, Twin Ballscrew Driven
- HRT, High Responsive Transmission



TBD / HRT

DPR / BFP

SRC

BFS

ATS / STC

Outstanding Rigidity Structure Fulfills Efficiency In Machining

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

Structure of Z-axis Head

- Box shape, symmetrical and thermal friendly structure enables outstanding rigidity and precise accuracy.
- Unbending and distortion-resistant characteristic supports whole z-axis travel and provides best straightness.



Configuration of M-Shaped Base and Table Provides Good Rigidity

- Upgraded structural stability and shockproof ability keeps structural dynamic rigidity on speedy moving.
- The shortest route design of force flow enables worktable and cutting load transmitted to ground.



● Efficient transmission of force flow

Multi-Support Structure (MSS) of Beam Ensures Dynamic Geometric Accuracy

- Large-span and 3 linear guideways of the beam: Level allocation of guideways ensures the center of Y axis end Z axis close to the beam and increases rigidity and accuracy.
- Roller type linear guideway with super high load capacity and 7 sliders allow better and equal force transmission, and ensure Y axis maintains best cutting rigidity and dynamic geometric accuracy on accelerating feeding.



Best Rigid Configuration of Head and Saddle

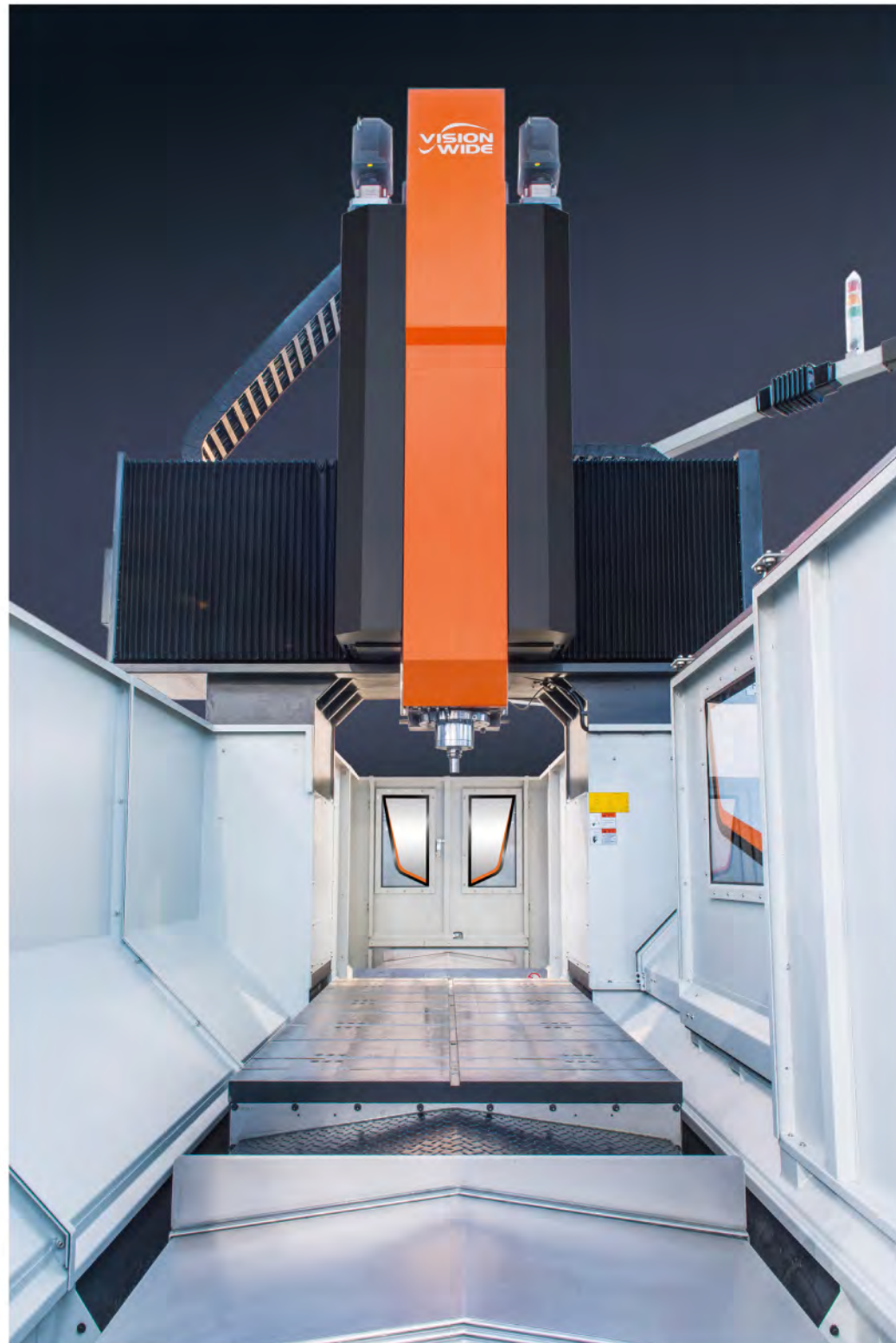
- Twin ballscrew drive enhances responsive speed and ballscrews' lifespan, and decreases motor's loading.
- Topology rib configuration balances strength and weight of the head.
- Symmetric structure of the head and saddle prevents X axis and Y axis's thermal deformation due to temperature increase.
- Enclosed configuration of the saddle provides best straightness and cutting rigidity.

One-Piece Design of Beam and Columns

- To reduce vibration caused by speedy feeding, one-piece design fulfills the request of surface accuracy for mold high speed machining.
- 1,000 mm wide column section ensures steadiness accuracy, and anchor bolts of the base are characterized with A-shape structural design to support the machine running steadily at high speed.
- Concave anchor bolts ensure efficient force flow and support whole structure for best dynamic level accuracy at maximal load.



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.)

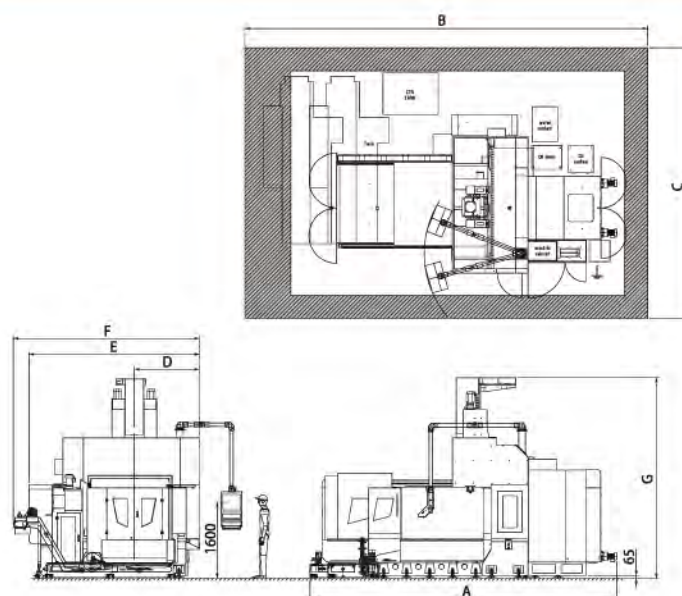


● Cutting fluid system (Std.)



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

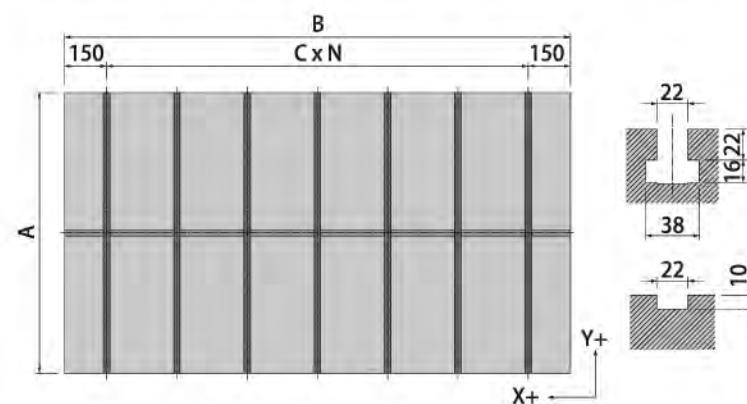
Machine Dimension



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

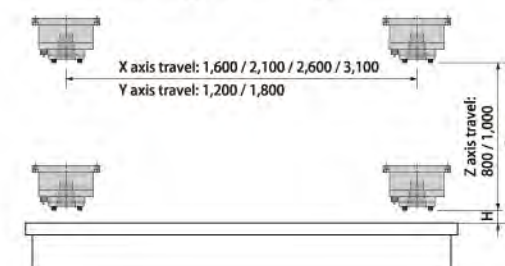
Dimension of Table and T-slot



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

Working Range

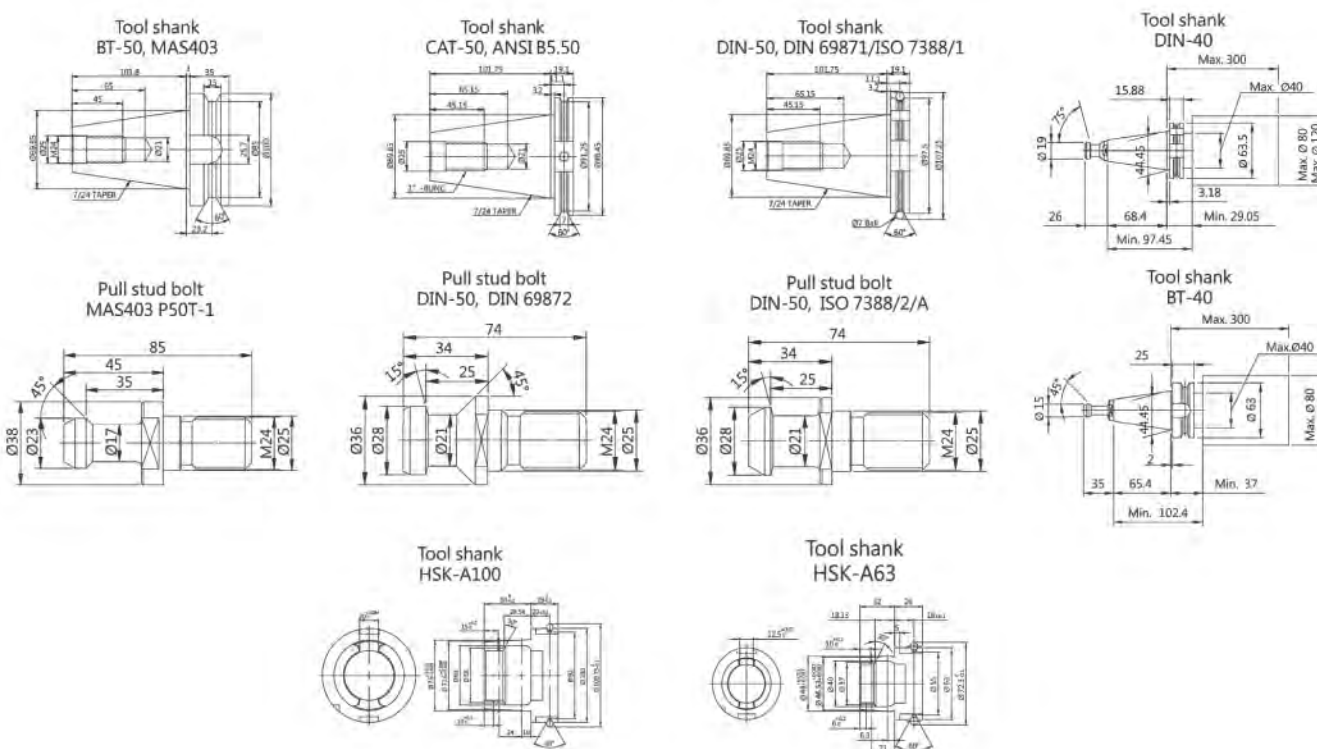


Unit:mm

Fanuc Distance from spindle nose to table	Z800 / Std.		Z1,000/Column+200mm	
	H	G	H	G
Direct drive 10,000 / 12,000rpm / #50 Built-in 10,000 / 12,000rpm / HSK-A100	200	1,000	200	1,200
Direct drive 15,000rpm / #40 Built-in 18,000 / 24,000rpm / HSK-A63	210	1,010	210	1,210
Built-in 24,000rpm / HSK-A63	235	1,035	235	1,235
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 18,000rpm / 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

Tool Shank



SE Specification | SE-xx12 Series

Model			Unit	SE-1612	SE-2112	SE-2612
TRAVEL						
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	mm	210~1,010		
		Z axis=1,000	mm	210 / 1,210 (columns + 200)		
Spindle center to column			mm	450		
Width between columns			mm	1,250		
TABLE						
Dimension			mm	1,800 x 1,000	2,000 x 1,000	2,800 x 1,000
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
SPINDLE						
Spindle motor (continuous/30 minute rated)			kW	15 / 18.5		
Spindle speed			rpm	1,5000		
Spindle taper			-	BBT-40		
Spindle output torque (Cont. /S6-40%)			Nm	L: 102 / 126 H: 29 / 35		
FEED						
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		
ACCURACY						
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			
ATC						
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)			
OTHERS						
Electric power consumption		kVA	55			
Pneumatic input pressure		kg/cm ²	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
TRAVEL							
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	mm	210~1,010			
		Z axis=1,000	mm	210 / 1,210 (columns + 200)			
Spindle center to column			mm	450			
Width between columns			mm	1,250			
TABLE							
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
SPINDLE							
Spindle motor (continuous/30 minute rated)			kW	15 / 18.5			
Spindle speed			rpm	1,5000			
Spindle taper			-	BBT-40			
Spindle output torque (Cont. /S6-40%)			Nm	L: 102 / 126 H: 29 / 35			
FEED							
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			
ACCURACY							
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				
ATC							
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)			
OTHERS							
Electric power consumption			kVA	55			
Pneumatic input pressure			kg/cm ²	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

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Standard Accessory

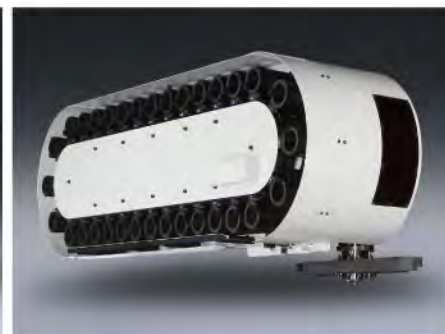
- 1 Fanuc Oi MF controller
- 2 15,000 rpm direct driven spindle (BBT-40)
- 3 Z travel 800 mm
- 4 Spindle cooling system
- 5 24 Tools magazine with arm type ATC
- 6 Centralized auto lubrication system
- 7 Independent lubrication oil collector
- 8 Air blast through spindle
- 9 Wash gun and pneumatic interface
- 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);
10,000/12,000 rpm(50#, HSK-A100)
- 3 Built-in spindle only for Heidenhain controller:
15,000 rpm (50#, HSK-A100)
- 4 Built-in spindle 28,000 rpm (HSK-A63) for Heidenhain controller
- 5 Direct driven spindle 10,000/12,000 rpm (50#, HSK-A100)
- 6 Rapid traverse (X/Y/Z) 30 m/min
- 7 Z axis travel 1,000 mm
- 8 Column higher 200 mm
- 9 Spindle ring cutting coolant device (Built-in spindle excluded)
- 10 Coolant through spindle system 20/70 bar
- 11 Reserved interface for coolant through spindle system
- 12 Oil skimmer
- 13 Oil mist cooling device
- 14 Oil mist recycling device
- 15 20T tools magazine carousel type;
32T/40T tool magazine arm type ATC
- 16 Enclosed sheet metal guard (without roof)
- 17 Worktable fluid flushing function
- 18 Helically bladed screw conveyor on table sides
- 19 Chip cart
- 20 Air conditioner for electrical cabinet
- 21 Transformer
- 22 Reserved interface for 4th axis
- 23 Auto tool length measurement
- 24 Auto coordinate measurement
- 25 Spindle load hardware protection
- 26 XYZ-axis Linear Scales (HEIDENHAIN)
- 27 CE Regulation



● 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.)

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

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

