

GSF SERIES



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GSF-E-202301

GSF SERIES

5-axis Gantry Type Machining Center

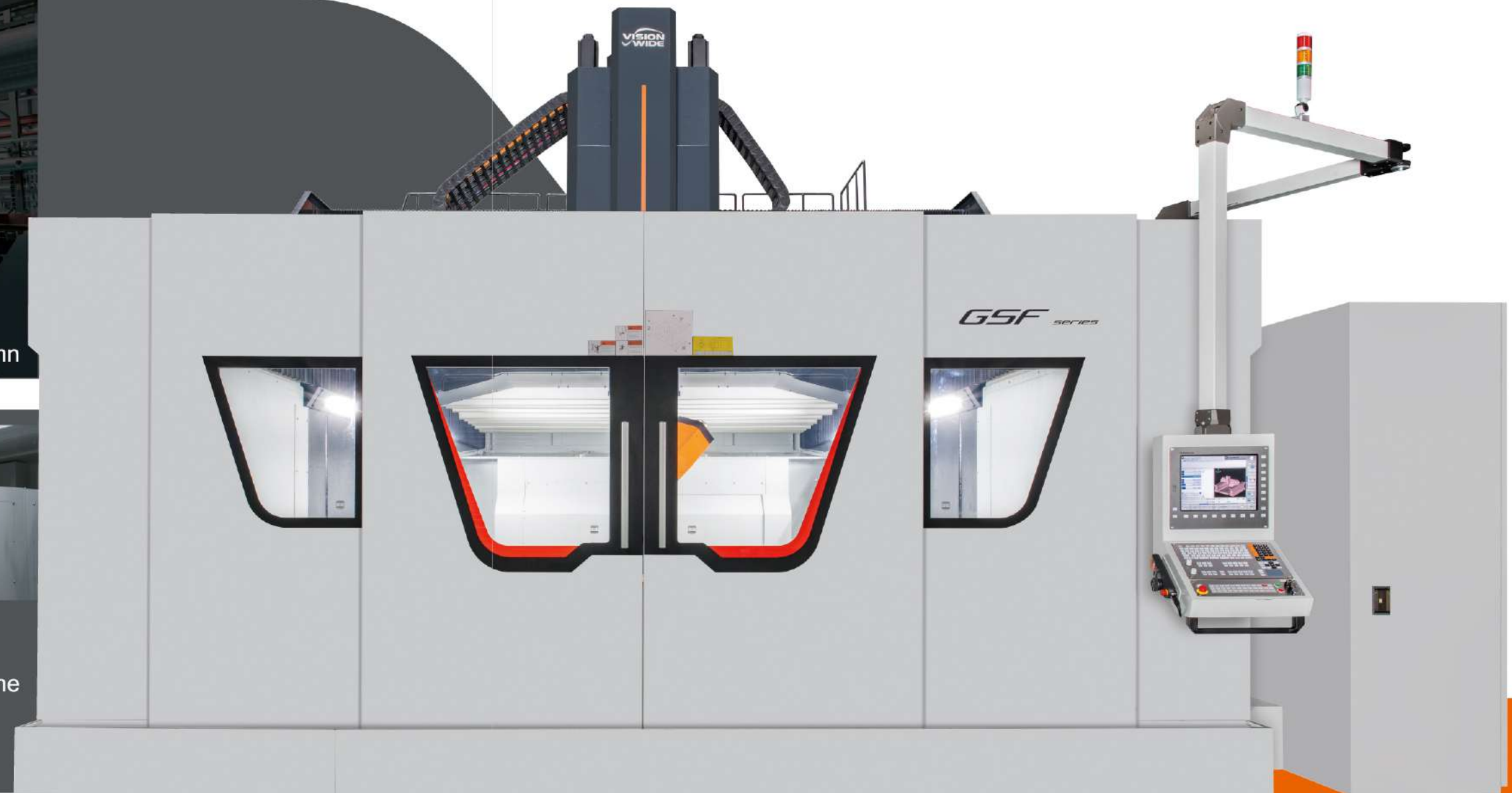


Cutting Application



Safe & Artistic Appearance

The design is coming from safety and convenience, combined with ergonomics and aesthetics, the minimalist design not only improves the maintenance convenience of the operator, but also more comprehensively improves the protection level.



Separate appearance of base and column

GSF-TC Series

Rotary Table (OPT.)



GSF-TC Series ▶ 1 Machine / 4 Steps

Milling & Turning

Tools and
workpiece setting

Milling &
Turning

Completion

Single-function machining centers ▶ 3 Machines / 8 Steps

Milling &
Drilling &
Tapping

Tools and
workpiece
setting

Milling &
Drilling &
Tapping

+

Turning

Tools and
workpiece
setting

Turning

+

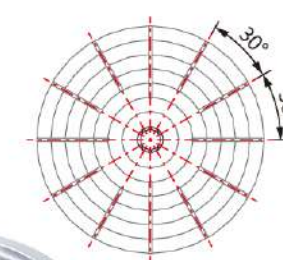
Finishing

Completion



High-Speed & High-Torque Rotary Table

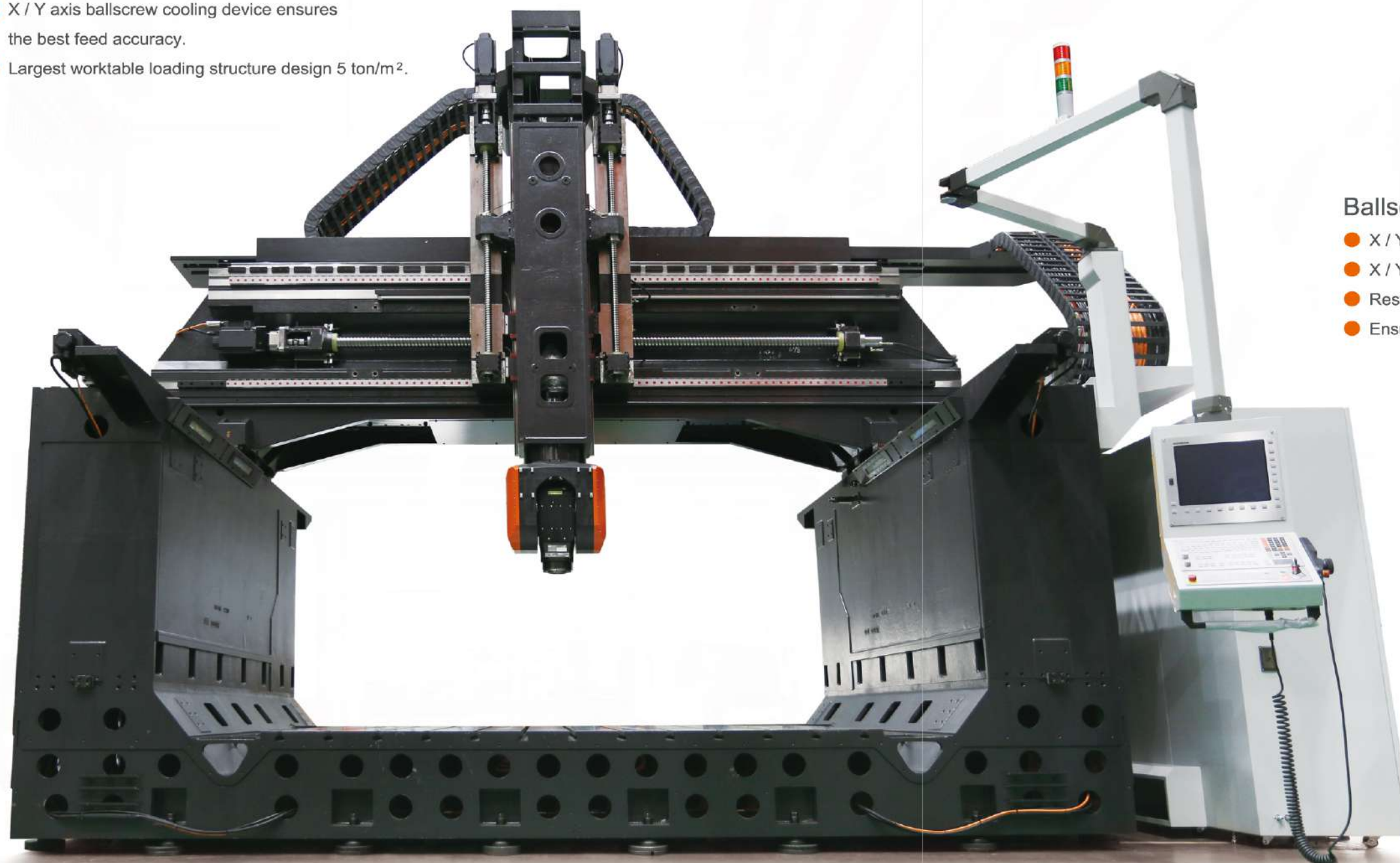
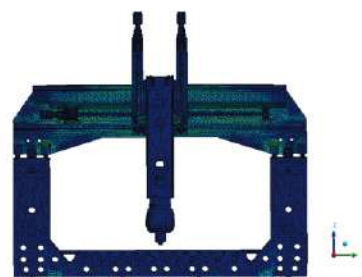
- Max. table load 5,000kg.
- Rotary table $\Phi 1,200 / \Phi 1,800 / \Phi 2,000$ mm.
- Linear scale rotation positioning.
- Min. indexing accuracy 0.001° .
- High accuracy: positioning accuracy $10''$, repeatability accuracy $6''$.



GSF 1627/ 2227/ 2232 Series

Optimal Structural Rigidity Design

- Optimal Structural Rigidity Design.
- One piece casting design of column, base & table, which possesses the optimum force flow.
- Spindle, ram, beam & base are constructed in Pyramid structure ratio.
- X / Y / Z axis adopts linear way transmission to provide more stable precision performance.
- X / Y axis ballscrew cooling device ensures the best feed accuracy.
- Largest worktable loading structure design 5 ton/m².



X / Y axis

- Direct-driven transmission configures roller linear guide.
- Dual roller type linear way support provides the best dynamic stability.
- Enclosed linear scale provides the best positioning accuracy P0.01mm.
- Rapid traverse 32m/min.
- Cutting federate 20m/min.

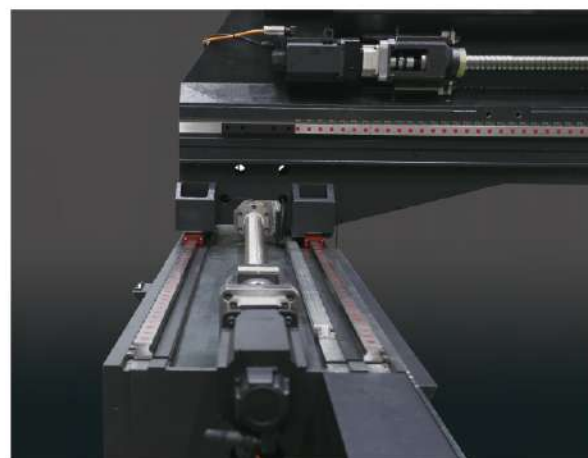
Ballscrew Cooling System

- X / Y axis transmission adopts a linear way.
- X / Y axis ballscrew adopts a hollow cooling design.
- Restrain the temperature rise and thermal deformation.
- Ensures the best feed accuracy and positioning accuracy.

High Structural Rigidity and Dynamic Milling Performance

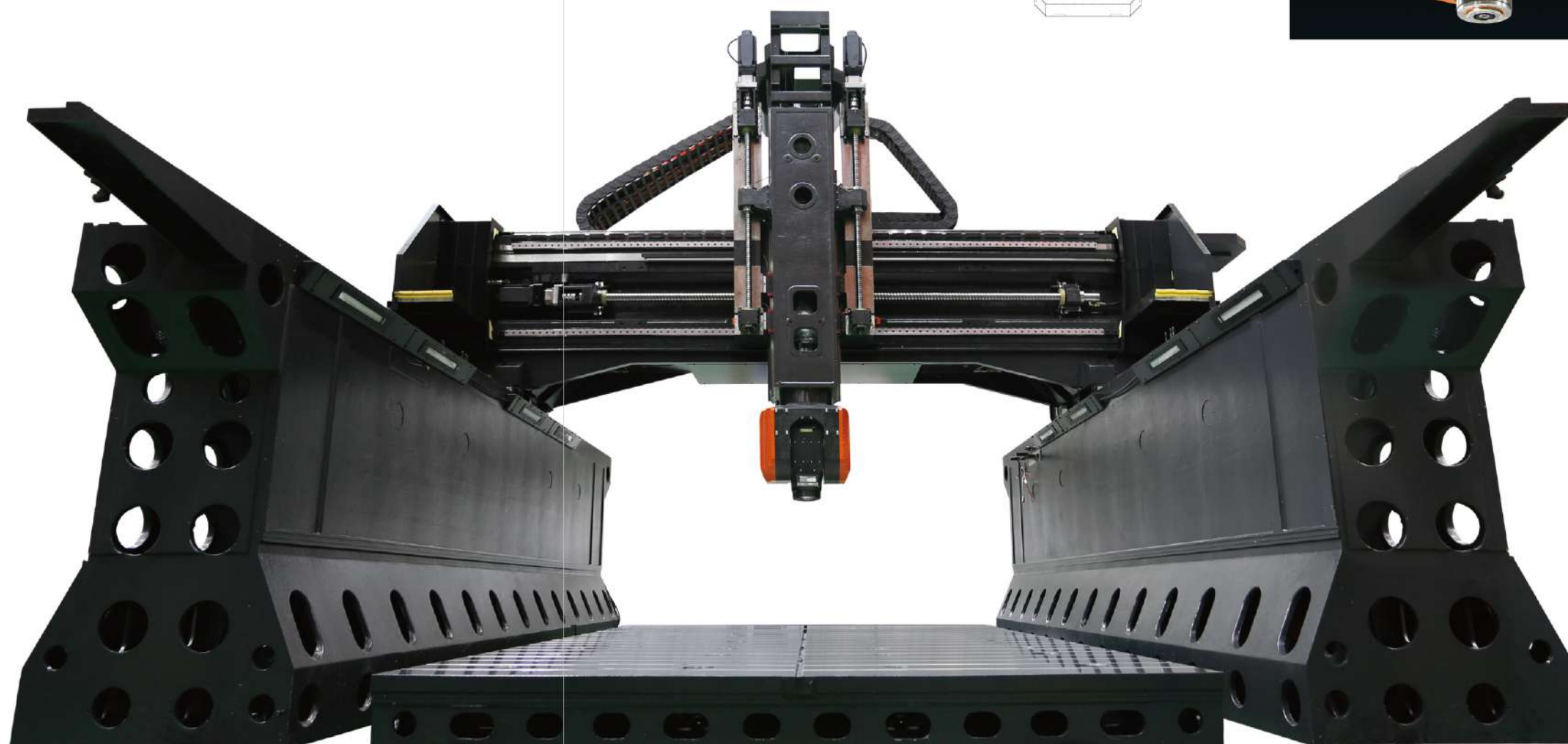
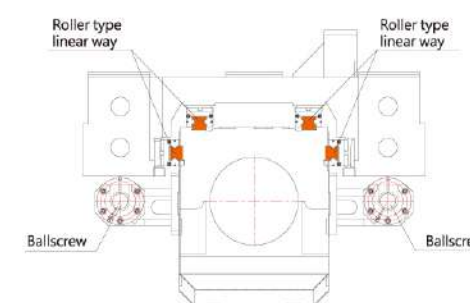
X / Y axis:

- Direct-driven transmission configures roller linear guide.
- Dual roller type linear way support provides the best dynamic stability.
- Enclosed linear scale provides the best positioning accuracy P0.01mm.
- X / Y axis ballscrew cooling device ensures the best feed accuracy.
- Rapid traverse 32m/min.
- Cutting federate 20m/min.
- Special supportive device of X axis provides the best accuracy performance for each position.
- Floor standing work table is available for medium, large and ultra large work piece machining.
- Foot type of column design provides the optimum stability and vibration-proof capability.



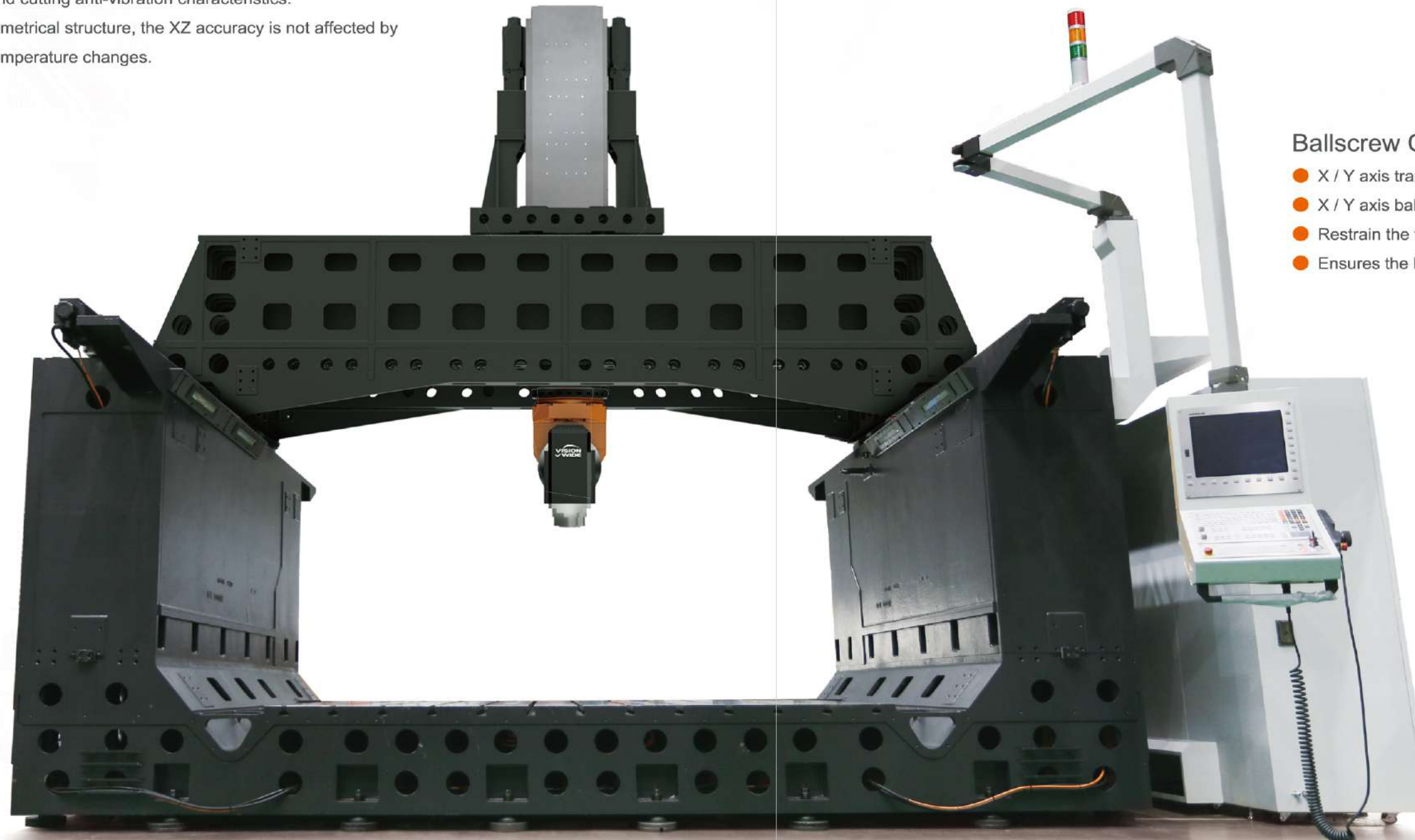
Z axis:

- Transmission adopts dual servo motor and dual ballscrew.
- No counter weight design enhances response speed.
- Enclosed linear scale provides the optimum positioning accuracy.
- 4 roller linear guides are configured to provide the optimum rigidity and accuracy.
- Feedrate 20m/min.
- Rapid traverse 20m/min.



GSF Box in Box Beam Structure Box-in-Box cross beam design

- One piece casting design of column, base & table, which possesses the optimum force flow.
- Spindle, ram, beam & base are constructed in Pyramid structure ratio.
- X / Y / Z axis adopts linear way transmission to provide more stable precision performance.
- X / Y axis ballscrew cooling device ensures the best feed accuracy.
- Largest worktable loading structure design 5 ton/m².
- Provides optimal cutting rigidity
- Double rigidity and cutting anti-vibration characteristics.
- In a thermal symmetrical structure, the XZ accuracy is not affected by environmental temperature changes.



X / Y axis

- Direct-driven transmission configures roller linear guide.
- Dual roller type linear way support provides the best dynamic stability.
- Enclosed linear scale provides the best positioning accuracy P0.01mm.
- Rapid traverse 32m/min.
- Cutting federate 20m/min.

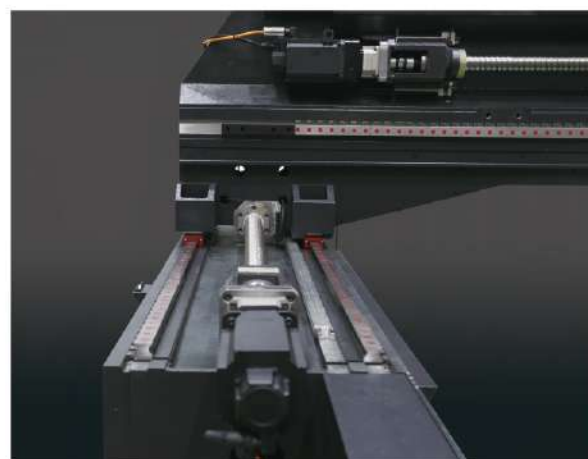
Ballscrew Cooling System

- X / Y axis transmission adopts a linear way.
- X / Y axis ballscrew adopts a hollow cooling design.
- Restrain the temperature rise and thermal deformation.
- Ensures the best feed accuracy and positioning accuracy.

High Structural Rigidity and Dynamic Milling Performance

X / Y axis:

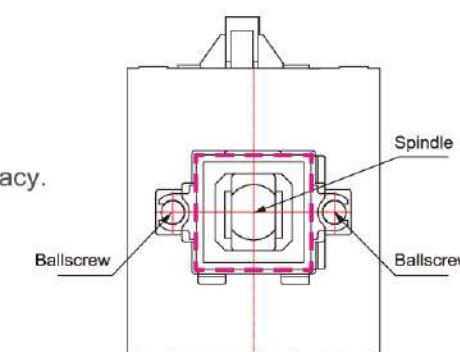
- Direct-driven transmission configures roller linear guide.
- Dual roller type linear way support provides the best dynamic stability.
- Enclosed linear scale provides the best positioning accuracy P0.01mm.
- X / Y axis ballscrew cooling device ensures the best feed accuracy.
- Rapid traverse 32m/min.
- Cutting federate 20m/min.
- Special supportive device of X axis provides the best accuracy performance for each position.
- Floor standing work table is available for medium, large and ultra large work piece machining.
- Foot type of column design provides the optimum stability and vibration-proof capability.



Z axis Box in Box (BIB) structure

Double rigidity and cutting anti-vibration characteristics. In a thermal symmetrical structure, the XZ accuracy is not affected by environmental temperature changes.

- Configure hydraulic oil independent cooling system, effectively control the working temperature of hydrostatic oil films.
- High rigidity provides a high cutting capability.
- The high damping property reduces the cutting vibration directly.
- No counter weight design enhances response speed.
- Enclosed linear scale provides the best positioning accuracy.
- 4 roller linear guides are configured to provide the optimum rigidity and accuracy.
- Rapid traverse 32m/min.
- Cutting federate 20m/min.



Machining Application



Aircraft C Shape Frame (half)
Size: L800 x W600 x H60 mm
Material: Al 6061

- D32 copy milling cutter
- Removal rate: 3,000 cc/min
- D20 end mill finishing
- 5-axis synchronized machining
- Internal pocket wall
- Inclined wall
- Reinforce rib top surface

Landing Gear
Size: 1,100 x 1,850mm
Material: Titanium Alloy

High efficiency machining :

- D63 helical cutter, grooving roughing, Ap 30mm, Ae 20mm.
- D50 Toroidal cutter, face milling finishing, Ae 40mm.
- D25 end mill tool, 5-axis synchronized finishing of the side wall
- Boring accuracy 0.02mm



**Similar Compressor Case
Verification Workpiece**
Size: D600mm x H400mm
Material: S45C



- 6 axes mill-turn & multi-task machine
- One-station machining
- High accuracy TCPM 0.04mm
- Rough turning -Top surface
- Spindle Speed: 100rpm
- Feed rate: 0.35mm/rev
- Cutting depth: 2mm
- Finishing - Counterbored Hole
- Finish Tool: D16 end mill
- Spindle Speed: 2,500rev/min
- Feed rate: 4,500mm/min

Alumina Frame
Size: L1,425 x W680 x H70 mm
Material: Al6061



- 24 m/min feedrate
- D25 end mill Equal TEA tool path
- High cutting depth 70mm. 2.8 times tool diameter-cutting depth ratio (D/Ap)
- Spindle speed : 10,500 rpm
- Feed rate : 24,000 mm/min
- Cutting capacity: 1,00 cc/min-kW

Aerospace Titanium Alloy Structure
Size: L1,800 x W1,500 x H160mm
Material: Titanium Alloy

- Rough/Finish machining on one machine
- One set up finish all machining
- Universal head complete bevel machining
- With fixing workpiece design



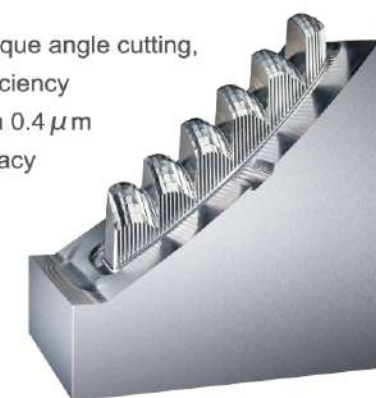
Headlight Mold
Size: L800 x W550 x H250mm
Material: P20 Die Steel

- 0.2G high acceleration mold finishing
- D25 High feed rough machining: F10,000 mm/min
- D10R5 High speed mold surface finish machining: S12,000 rpm, F4,000 mm/min
- Surface roughness: Ra0.4 μm
- 0.04 mm high contour accuracy



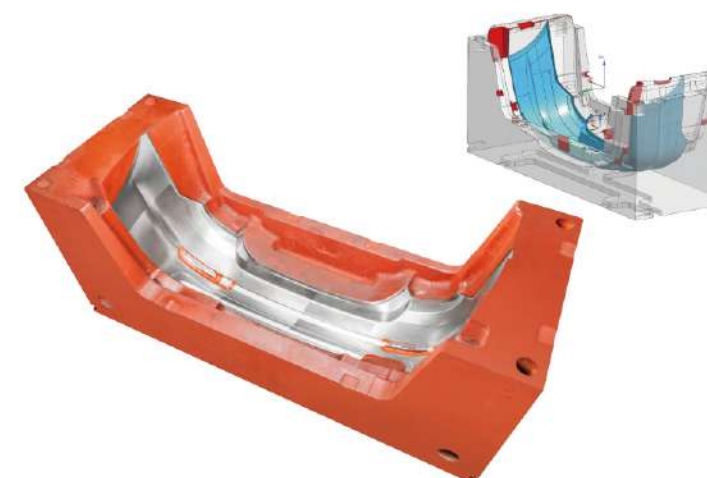
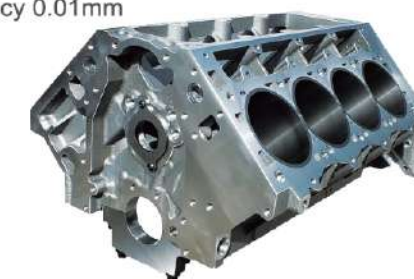
Automobile Light Mold
Size: L360 x W160 x H360mm
Material: 2311 Die steel

- Linear project cutting
- Multi inclined plan, oblique angle cutting, improve machining efficiency
- Surface roughness: Ra 0.4 μm
- 0.04mm contour accuracy



Automobile Engine
Size: W600 x L800 x H440mm
Material: Casting Aluminum

- Piston diameter D85 x L136mm
- Positioning accuracy 0.015mm
- Boring accuracy 0.02mm
- Conicity accuracy 0.01mm

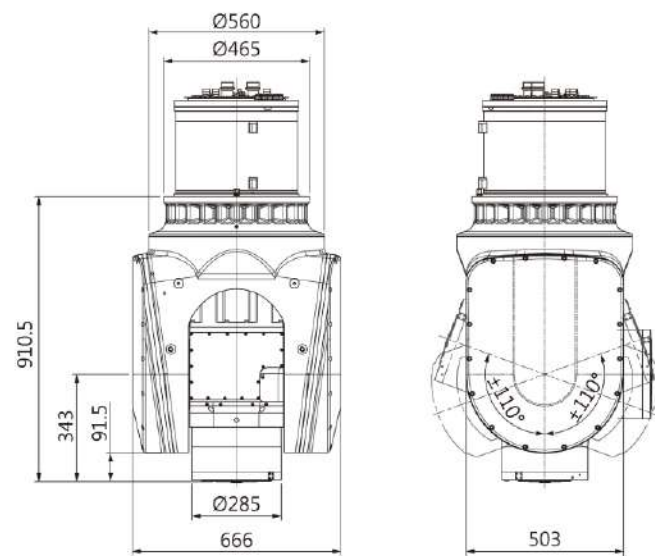


Bumper Mold
Size: L900 x W2,300 x H930mm
Material: FC300

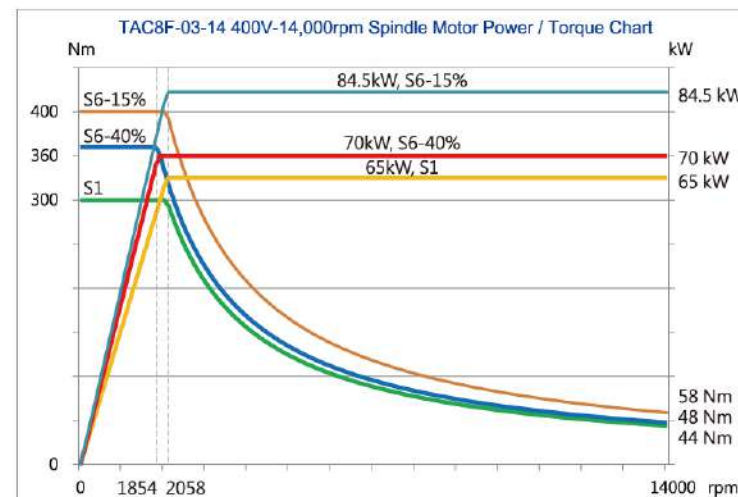
- 5-axis synchronized machining, 30% machining efficiency improved.
- Long spindle nose enhance the tool rigidity and reduce the cutting vibration.
- D20R10 ball end tool
- Project zig-zag cutting
- Spindle speed : 8,000rpm
- Feed rate : 5,000 mm/min

High-Torque Titanium Alloy Machining

- High torque spindle is adopted to enhance the machining efficiency.
- Built-in spindle configures direct-driven B/C axis.
- A long spindle nose design is adopted to decrease the interference area.
- B/C axis high rotary positioning accuracy $\pm 5''$
- B/C axis adopts double-fork design to provide the best rigidity.
- The hydraulic clamping of B/C axis is available for multi-angle machining.

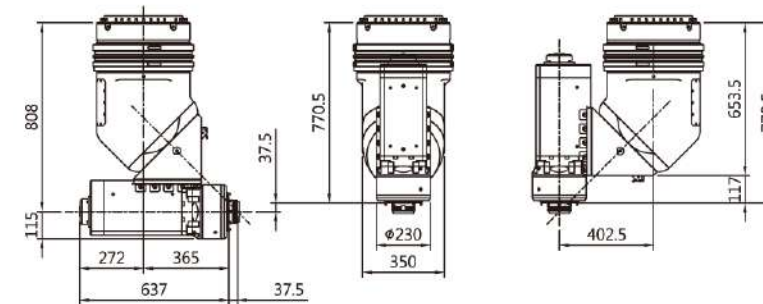


Spindle NO.	TAC8F-03-14	
Spindle Speed	rpm	14,000
Spindle Power(S1/S6/Max.)	kW	65 / 70 / 84.5
Spindle torque(S1/S6/Max.)	Nm	300 / 360 / 400
Spindle tool shank	-	HSK-A100
	B axis	C axis
Rotation range	°	$\pm 110^\circ$ $\pm 360^\circ$
Max. rotation speed	rpm	60 60
Positioning accuracy	sec	± 2.5 ± 2.5
Rapid torque	Nm	1,000 1,000
Max. torque	Nm	1,500 1,500
Clamping torque	Nm	6,000 6,000

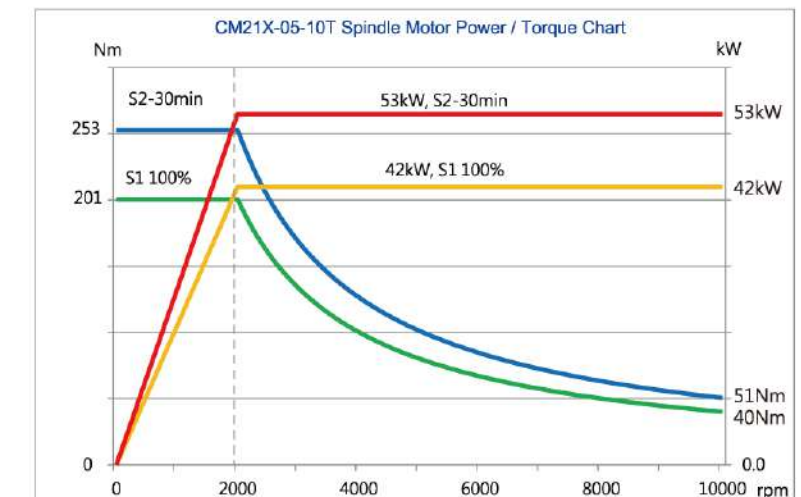


High-Torque Milling & Turning Machining

- B/C axis adopts built-in Torque Motor.
- High rotary acceleration.
- 45° inclination of rotation axis:
 - The shortest distance from spindle nose to table of B axis ensures the optimum rigidity.
 - The least interference between rotary head and work piece.
- Temperature rise protection of built-in motor.
- High resolution feedback system of B axis.

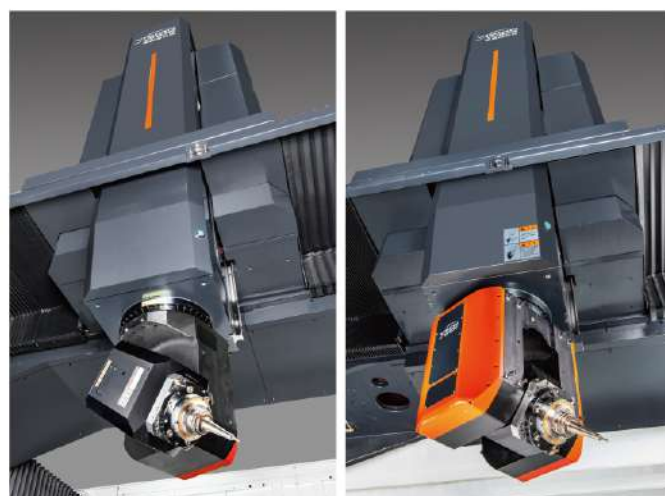


Spindle NO.	CM21X-05-10T	
Spindle Speed	rpm	10,000
Spindle Power(S1/S6)	kW	42 / 53
Spindle torque(S1/S6)	Nm	201 / 253
Spindle tool shank	-	HSK-T100
	B axis	C axis
Rotation range	°	$\pm 180^\circ$ $\pm 270^\circ$
Max. rotation speed	rpm	25 50
Positioning accuracy	sec	5 3
Repeatability accuracy	sec	3 2
Rapid torque	Nm	1,500 1,500
Max. torque	Nm	2,000 2,000
Clamping torque	Nm	6,000 6,000



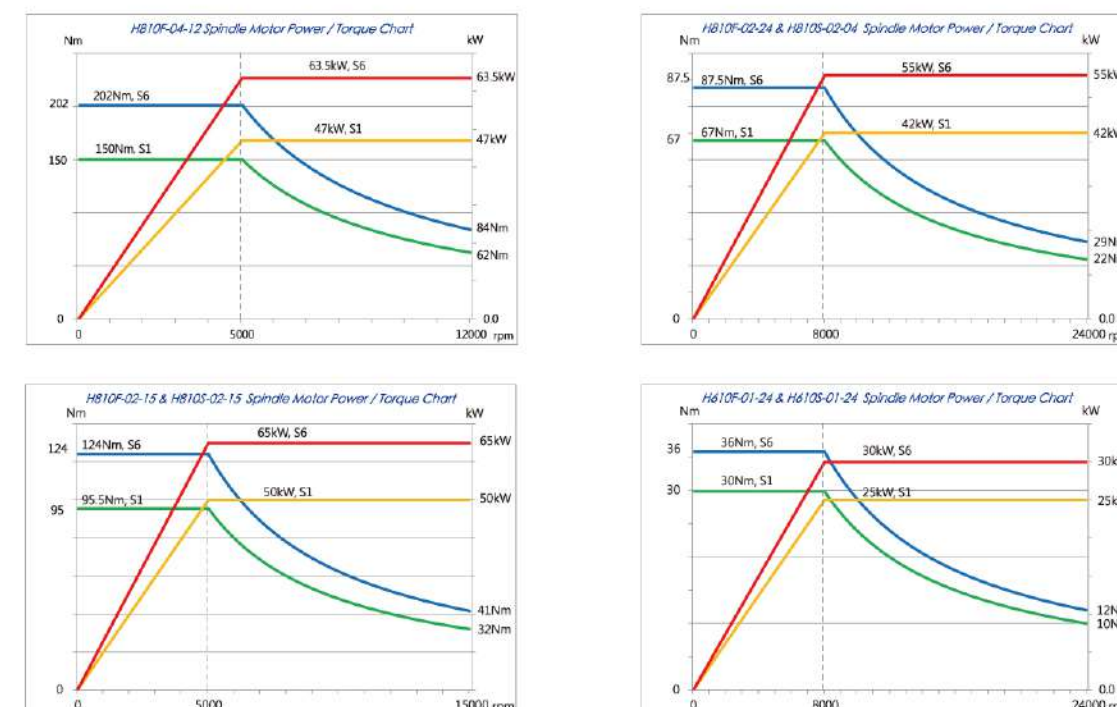
High-Speed & High-Precision Machining

- High speed spindle enhances the machining efficiency.
- Built-in spindle configures direct-driven B/C axis.
- Long spindle nose design is adopted to decrease the interference area.
- B/C axis high rotary positioning accuracy $\pm 5''$
- The hydraulic clamping of B/C axis is available for multi-angle machining.
- Single-fork design decreases the interference area.
- Double-fork design enhances the optimum rigidity.

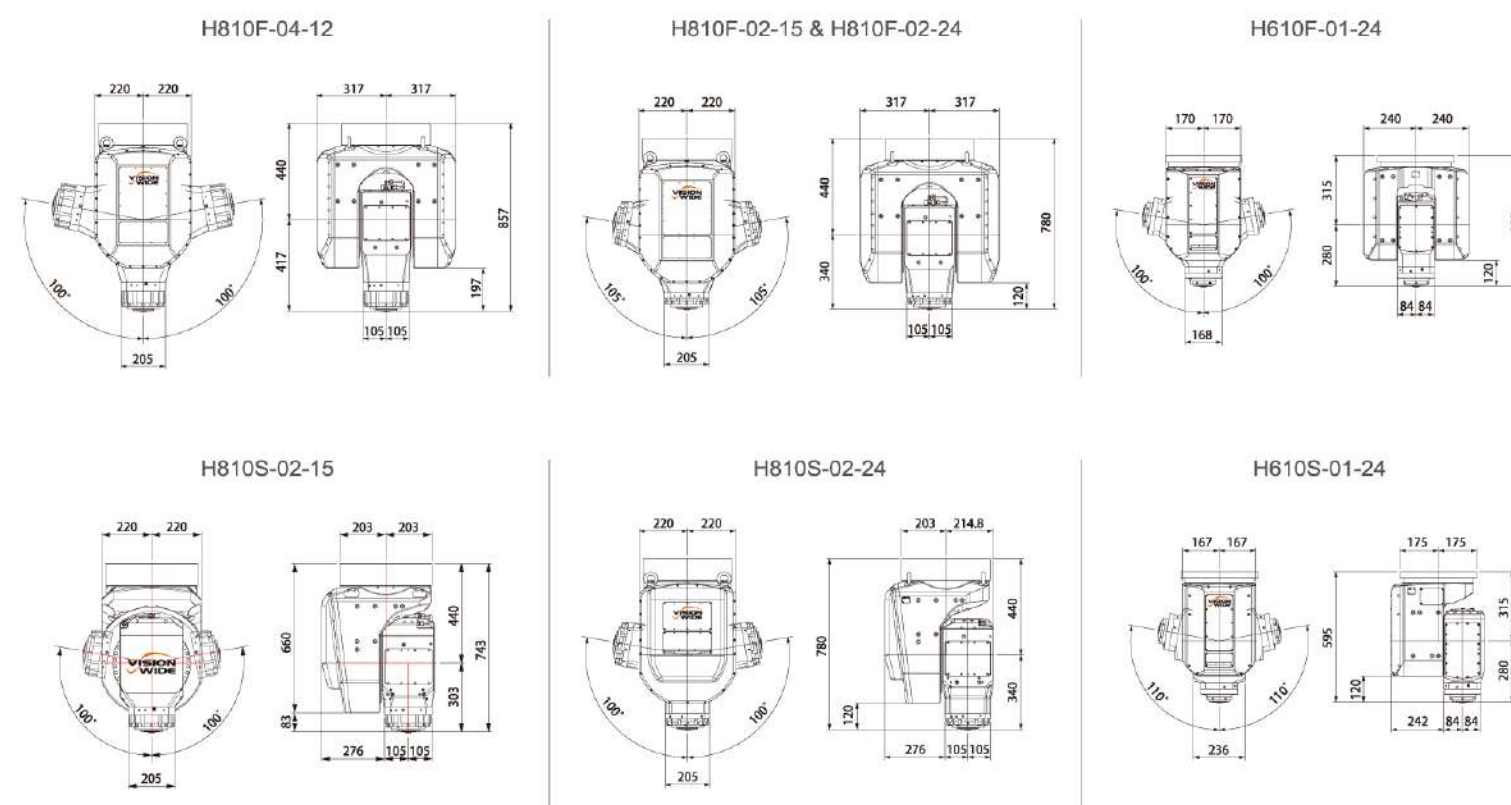


Spindle NO.		H810F-04-12		H810F-02-15		H810S-02-15		H810F-01-24		H810S-01-24		H610F-01-24		H610S-01-24	
Spindle Speed	rpm	12,000		15,000		15,000		24,000		24,000		24,000		24,000	
Spindle Power (S1/S6)	kW	47 / 63.5		50 / 65		50 / 65		42 / 55		42 / 55		25 / 30		25 / 30	
Spindle torque (S1/S6)	Nm	150 / 202		95.5 / 124		95.5 / 124		67 / 87.5		67 / 87.5		30 / 36		30 / 36	
Spindle tool shank	-	HSK-A100		HSK-A100		HSK-A100		HSK-A63		HSK-A63		HSK-A63		HSK-A63	
		B axis	C axis	B axis	C axis	B axis	C axis	B axis	C axis	B axis	C axis	B axis	C axis	B axis	C axis
Rotation range	°	± 100°	± 270°	± 105°	± 270°	± 100°	± 270°	± 105°	± 270°	± 100°	± 270°	± 100°	± 270°	± 110°	± 270°
Max. rotation speed	rpm	30	30	30	30	30	30	30	30	30	30	30	30	30	30
Positioning accuracy	sec	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Repeatability accuracy	sec	6	6	6	6	6	6	6	6	6	6	2	2.5	8	6
Rapid torque	Nm	622	539	782	688	391	688	622	622	311	539	230	330	230	330
Max. torque	Nm	1,414	1,250	1,414	1,250	707	1,250	1,414	1,414	707	1,250	480	680	480	680
Clamping torque	Nm	4,000	4,000	4,000	4,000	2,000	4,000	4,000	4,000	2,000	4,000	1,200	2,000	1,800	2,000
Propose															
Die & Mold		V		V		V									
Aluminum alloy				V		V		V		V		V		V	

Spindle Power and Torque Charts



Continuous 2-axis Head Dimension

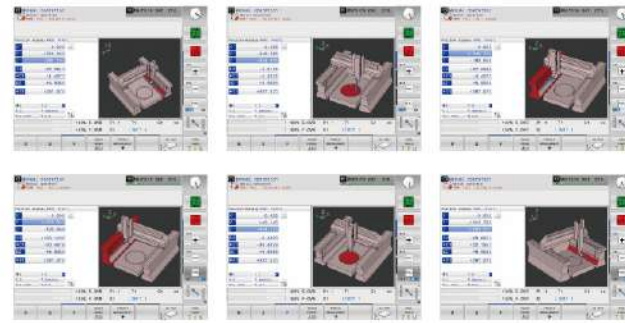


Intelligentization Control for Milling/Turning



Dynamic Collision Monitoring

- Auto program protection
- Minimize losses, maximize efficiency
- Manual/Auto mode are available



Coolant System



- Coolant ring nozzles



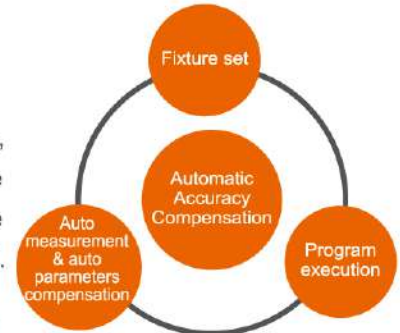
- CTS (Opt.)

Automatic Measurement & ATC



Automatic Accuracy Compensation

The "geometric error" is measured through the contact probe and the standard ball jig, the compensation control is performed according to the measurement result to reduce the measurement labors and errors of manual correction, the dynamic accuracy of the machine can be adjusted on time and the machining accuracy can be improved as well.

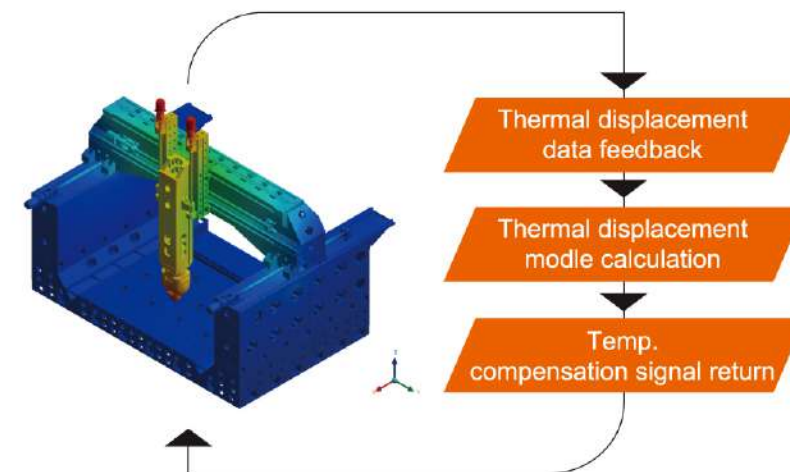


Automatic Temperature Compensation

ATC, Ambient Temperature Compensation

When the machining is processed under the non-fixed temperature environment and also the change of the thermal displacement of the machine structure, the accuracy of the machining products would be affected.

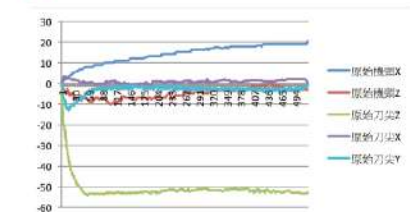
ATC is based on the thermal displacement phenomenon of the machine structure, through the temperature and feed position information returned by the sensor to calculate the thermal displacement value of the machine structure caused by the environmental temperature variation, and accurately control it.



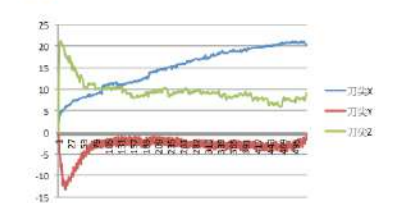
STC, Spindle Thermal Compensation

When the spindle is running at high speed, the heat arisen and result in the spindle thermal displacement, then affected the accuracy of the machining products. STC mainly focuses on the spindle temperature variation, the spindle temperature and position data would be turned through the sensor and the compensation can be controlled accordingly.

● Before



● After



Machine Dimension

Model	J	K	L	M	N	P
GSF-1627	4,520	3,750	3,550	7,300	6,900	8,600
GSF-2227	5,120				7,500	
GSF-3027	5,920				9,100	
GSF-4027	6,920				10,100	
GSF-5027	7,920				11,100	
GSF-6027	8,920				12,100	
GSF-2232	5,120	4,000	3,800	7,800	7,500	9,100
GSF-3032	5,920				9,100	
GSF-4032	6,920				10,100	
GSF-5032	7,920				11,100	
GSF-6032	8,920				12,100	

Unit:mm

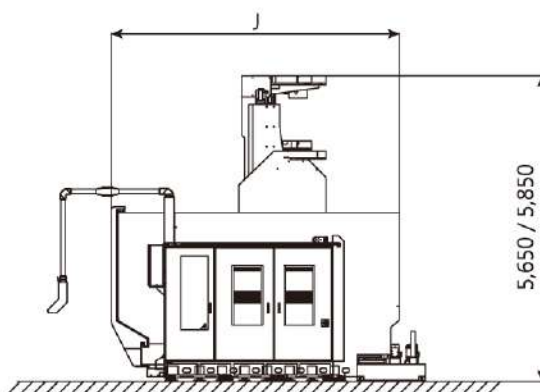
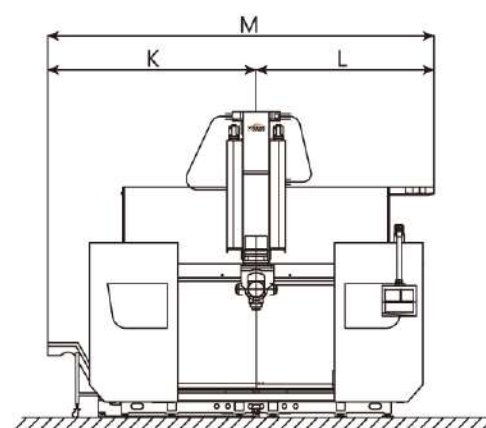
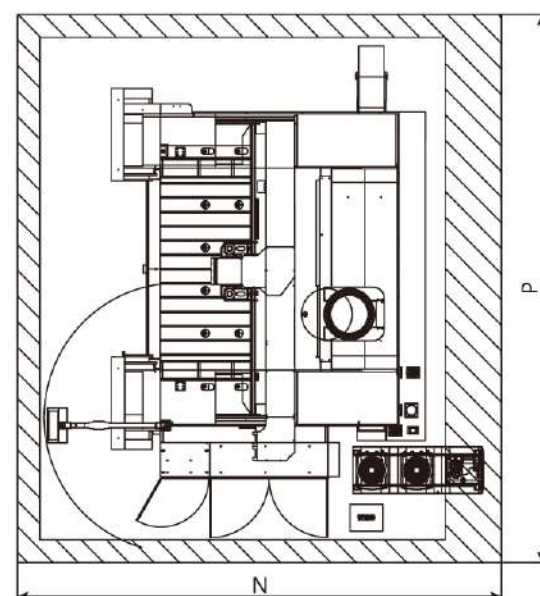
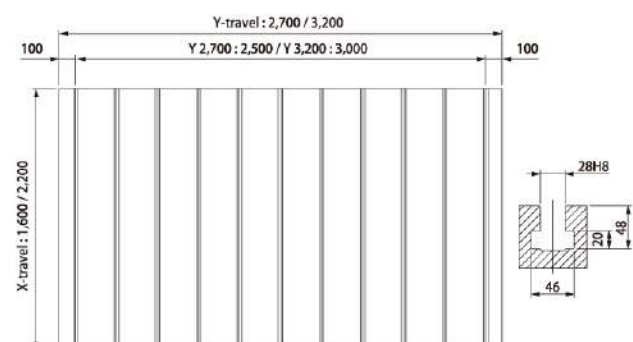
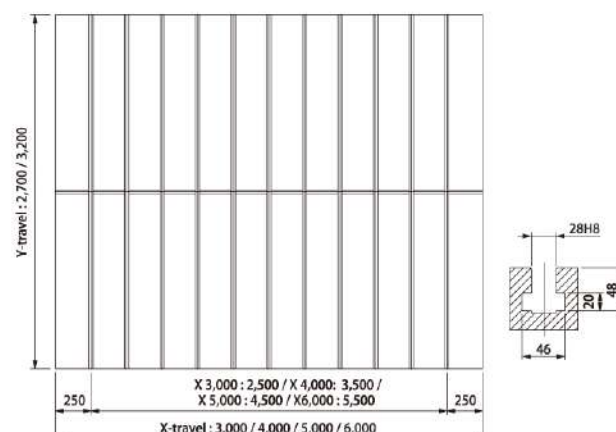


Table & T slot

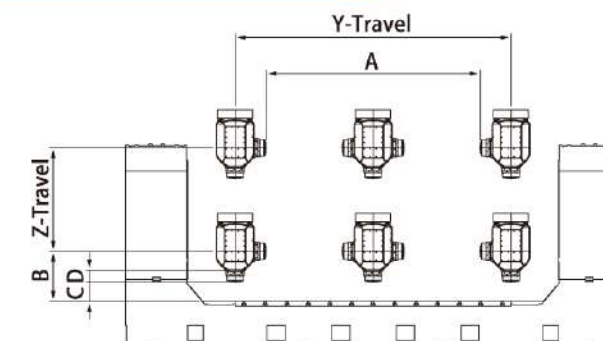
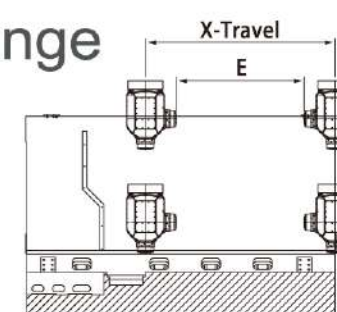
One piece structure of Base/Column/Table



Separate structure of Column/Table



Working Range



E	X axis travel					
Spindle NO.	1,600	2,200	3,000	4,000	5,000	6,000
TAC8F-03-14	914	1,514	2,314	3,314	4,314	5,314
CM21X-05-10T	-	-	2,310	3,310	4,310	5,310
H810F-04-12	766	1,366	2,166	3,166	4,166	5,166
H810F-02-15	920	1,520	2,320	3,320	4,320	5,320
H810S-02-15	994	1,594	2,394	3,394	4,394	5,394
H810F-01-24	920	1,520	2,320	3,320	4,320	5,320
H810S-01-24	920	1,520	2,320	3,320	4,320	5,320
H610F-01-24	1,040	1,640	2,440	3,440	4,440	5,440
H610S-01-24	1,040	1,640	2,440	3,440	4,440	5,440

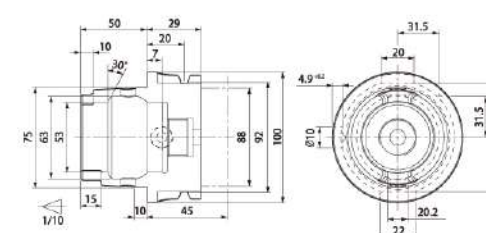
Unit:mm

Spindle NO.	Y axis travel	Z axis travel	A	B	C	D
TAC8F-03-14	2,700	1,000/1,200	2,014	453	110	915
	3,200	1,000/1,200	2,514			
CM21X-05-10T	2,700	1,000/1,200	2,010	162	200	117
	3,200	1,000/1,200	2,510			
H810F-04-12	2,700	1,000/1,200	1,866	578	160	197
	3,200	1,000/1,200	2,366			
H810F-02-15	2,700	1,000/1,200	2,020	578	240	120
	3,200	1,000/1,200	2,520			
H810S-02-15	2,700	1,000/1,200	2,090	578	275	83
	3,200	1,000/1,200	2,590			
H810F-01-24	2,700	1,000/1,200	2,020	578	240	120
	3,200	1,000/1,200	2,520			
H810S-01-24	2,700	1,000/1,200	2,020	578	240	120
	3,200	1,000/1,200	2,520			
H610F-01-24	2,700	1,000/1,200	2,140	503	225	120
	3,200	1,000/1,200	2,640			
H610S-01-24	2,700	1,000/1,200	2,140	503	225	120
	3,200	1,000/1,200	2,640			

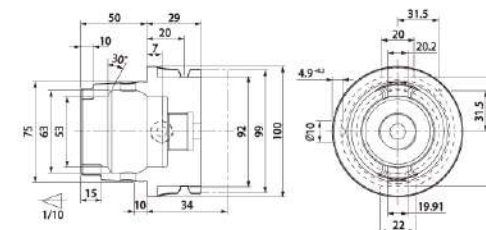
Unit:mm

Tool Shank & Pull Stud

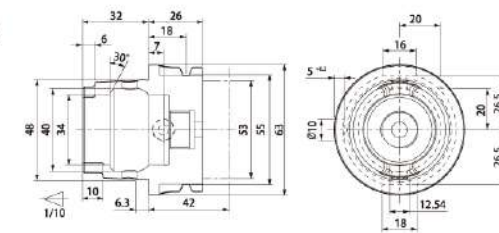
HSK-A100



HSK-T100



HSK-A63



GSF Specification | GSF-xx27

MODEL		Unit	GSF-1627	GSF-2227	GSF-3027	GSF-4027	GSF-5027	GSF-6027	
TRAVEL									
X axis		mm	1,600	2,200	3,000	4,000	5,000	6,000	
Y axis		mm	2,700						
Z-axis		mm	1,000 / 1,200						
Distance from spindle nose to table	TAC8F-03-14	mm	Z1,000: 110~1,110 / Z1,200: 110~1,310						
	CM21X-05-10T	mm	-		Z1,000: 200~1,200 / Z1,200: 200~1,400				
	H810F-04-12	mm	Z1,000: 160~1,160 / Z1,200: 160~1,360						
	H810F-02-15	mm	Z1,000: 240~1,240 / Z1,200: 240~1,440						
	H810S-02-15 (STD.)	mm	Z1,000: 275~1,275 / Z1,200: 275~1,475						
	H810S-01-24	mm	Z1,000: 240~1,240 / Z1,200: 240~1,440						
	H810F-01-24	mm	Z1,000: 240~1,240 / Z1,200: 240~1,440						
	H610F-01-24	mm	Z1,000: 225~1,225 / Z1,200: 225~1,425						
Distance between columns (port width)		mm	3,400						
TABLE									
Dimension		mm	1,600 x 2,700	2,200 x 2,700	3,000 x 2,700	4,000 x 2,700	5,000 x 2,700	6,000 x 2,700	
T-slot (Dimension x Number x Pitch)		mm	28x11x250			28x15x250	28x19x250	28x23x250	
Max. table load		kg/m ²	5,000						
SPINDLE									
			H810S-02-15						
Spindle motor (S1/S6)		kW	50 / 65						
Spindle speed		rpm	15,000						
Tool shank		-	HSK-A100						
Spindle Torque (S1/S6)		Nm	95.5 / 124						
FEED									
Cutting federate		mm/min	1-20,000						
Rapid traverse(X/Y/Z)		m/min	XY:32 / Z:20						
ACCURACY									
Positioning accuracy (JIS-B6333)		mm	±0.005 / Full travel		±0.007 / Full travel			±0.007 / Full travel	
Positioning accuracy (VDI3441)		mm	P0.008			P0.010	P0.012	P0.015	
Repeatability (JIS-B6333)		mm	±0.002						
Repeatability (VDI344)		mm	PS0.006				PS0.008	PS0.012	
ATC									
ATC capacity		pcs	20 / 32 / 40 / 60						
Max. tool size (Full tools)		mm	HSK-A63: Φ75 / HSK-A100: Φ125						
Max. tool size (Next pocket empty)		mm	HSK-A63: Φ130 / HSK-A100: Φ250						
Max. tool length		mm	300						
Max. tool weight		kg	HSK-A63: 8 / HSK-A100: 15						
OTHER									
Electric power consumption		kVA	130						
Pneumatic input pressure		kg/cm ²	6						
Net weight		kg	39,000	44,000	43,500	52,500	61,000	70,500	
Machine gross weight		kg	43,500	48,500	48,000	57,500	66,500	76,500	
Max. floor space (L x W x H)		m	6.9x8.6x5.5	7.5x8.6x5.5	9.1x8.6x5.5	10.1x8.6x5.5	11.1x8.6x5.5	12.1x8.6x5.5	

Standard accessories and function

- HEIDENHAIN TNC640 controller
- HEIDENHAIN DCM (Dynamic Collision Monitoring)
- HST810x15,000 rpm/HSK-A100
- 2-axis head central monitoring protection system:
Spindle and motor temperature monitoring
B/C-axis motor temperature monitoring
Spindle cutting load software protection
- 2-axis Head rotation error mechanism chain correction

- Z-axis travel 1,000 mm
- Spindle and structure temperature
- thermal compensation system
- Air blast through spindleSpindle cooler system
- Spindle ring cutting coolant device
- Cutting fluid cooling system
- X axis ball screw support device (axis 4m above)
- X axis dual linear scale, Y/Z-axis linear scale
- XYZ-axis travel hard limits protection
- X/Z axis is driven by dual ballscrew and
Y axis is driven by single ballscrew.

- Centerized auto lubrication system
- Independent lubrication oil collector for 3-axis
- Wash gun & pneumatic interface
- Enclosed sheet metal guard without roof
- Vertical type tool magazine 20T
- Screw type chip conveyor on table sides
- Caterpillar type chip conveyor / Water tank
- Swiveling arm type operation panel
- Air conditioner for electrical cabinet
- Working lamp
- Operation cycle finish and alarm light

GSF Specification | GSF-xx32

MODEL		Unit	GSF-2232	GSF-3032	GSF-4032	GSF-5032	GSF-6032
TRAVEL							
X axis		mm	2,200	3,000	4,000	5,000	6,000
Y axis		mm	3,200				
Z-axis		mm	1,000 / 1,200				
Distance from spindle nose to table	TAC8F-03-14	mm	Z1,000: 110~1,110 / Z1,200: 110~1,310				
	CM21X-05-10T	mm	-	Z1,000: 200~1,200 / Z1,200: 200~1,400			
	H810F-04-12	mm	Z1,000: 160~1,160 / Z1,200: 160~1,360				
	H810F-02-15	mm	Z1,000: 240~1,240 / Z1,200: 240~1,440				
	H810S-02-15 (STD.)	mm	Z1,000: 275~1,275 / Z1,200: 275~1,475				
	H810S-01-24	mm	Z1,000: 240~1,240 / Z1,200: 240~1,440				
	H810F-01-24	mm	Z1,000: 240~1,240 / Z1,200: 240~1,440				
	H610F-01-24	mm	Z1,000: 225~1,225 / Z1,200: 225~1,425				
Distance between columns (port width)		mm	3,900				
TABLE							
Dimension		mm	2,200 x 3,200	3,000 x 3,200	4,000 x 3,200	5,000 x 3,200	6,000 x 3,200
T-slot (Dimension x Number x Pitch)		mm	28x13x250	28x11x250	28x15x250	28x19x250	28x23x250
Max. table load		kg/cm ²	5,000				
SPINDLE							
Spindle motor (S1/S6)		kW	50 / 65				
Spindle speed		rpm	15,000				
Tool shank		-	HSK-A100				
Spindle Torque (S1/S6)		Nm	95.5 / 124				
FEED							
Cutting federate		mm/min	1-20,000				
Rapid traverse(X/Y/Z)		m/min	XY:32 / Z:20				
ACCURACY							
Positioning accuracy (JIS-B6333)		mm	±0.005 / Full travel	±0.007 / Full travel			±0.008 / Full travel
Positioning accuracy (VDI3441)		mm	P0.008		P0.010	P0.012	P0.015
Repeatability (JIS-B6333)		mm	±0.002				
Repeatability (VDI344)		mm	PS0.006			PS0.008	PS0.012
ATC							
ATC capacity		pcs	20 / 32 / 40 / 60				
Max. tool size (Full tools)		mm	HSK-A63: Φ75 / HSK-A100: Φ125				
Max. tool size (Next pocket empty)		mm	HSK-A63: Φ130 / HSK-A100: Φ250				
Max. tool length		mm	300				
Max. tool weight		kg	HSK-A63: 8 / HSK-A100: 15				
OTHER							
Electric power consumption		kVA	130				
Pneumatic input pressure		kg/cm ²	6				
Net weight		kg	46,000	45,500	55,000	64,000	73,500
Machine gross weight		kg	50,500	50,000	60,000	69,500	79,500
Max. floor space (L x W x H)		m	7.5x9.1x5.5	9.1x9.1x5.5	10.1x9.1x5.5	11.1x9.1x5.5	12.1x9.1x5.5

- Movable manual pulse generator
- RJ45 interface
- Footswitch for tool clamping/unclamping
- Remote monitoring software-standard
- Auto power off function
- Tool axis retract function at power failure
- Foundation pads and bolts kits
- Adjustment tool and tool kits
- Technical manuals
(operation, maintenance manual and circuit diagram)

Option accessories and function

- SIEMENS 840D SL controller
- HST810x12,000 rpm/HSK-A100
- HST810x24,000 rpm/HSK-A63
- HSD810x24,000 rpm/HSK-A63
- Automatic correction software of rotary axis error
- Spindle cutting vibration protection device
- Z-axis travel 1,200 mm
- Vertical type tool magazine 32T
- Coolant through spindle system: 20/ 60 bars
- The interface of coolant through spindle
- Coolant through spindle system 20 / 60 bars+
air through 6 bars
- Oil skimmer
- Oil mist cooling device
- Enclosed sheet metal guard with roof
- Helical blade screw conveyor on table sides
- Dual belt type chip conveyor / Water tank
- Foot pad above chip groove
- Chip cart
- Sub working table
- Auto tool length measurement
- Auto workpiece measurement
- Transformer
- Transformer and Voltage Stabilizer
- Oil mist recycle device
- Adaptive Feed Control (AFC)
- Auto warm up