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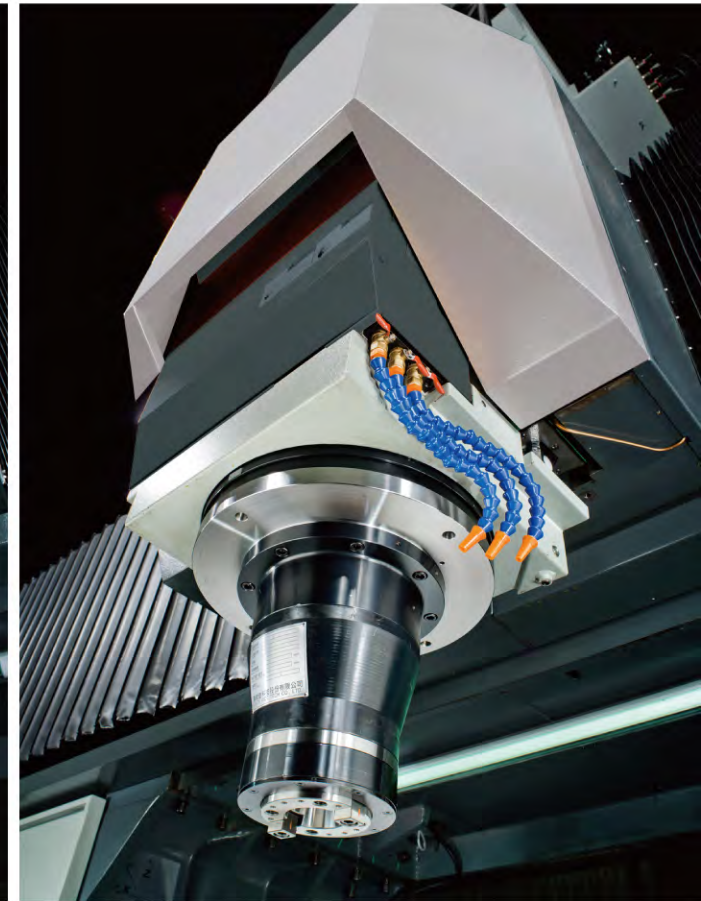
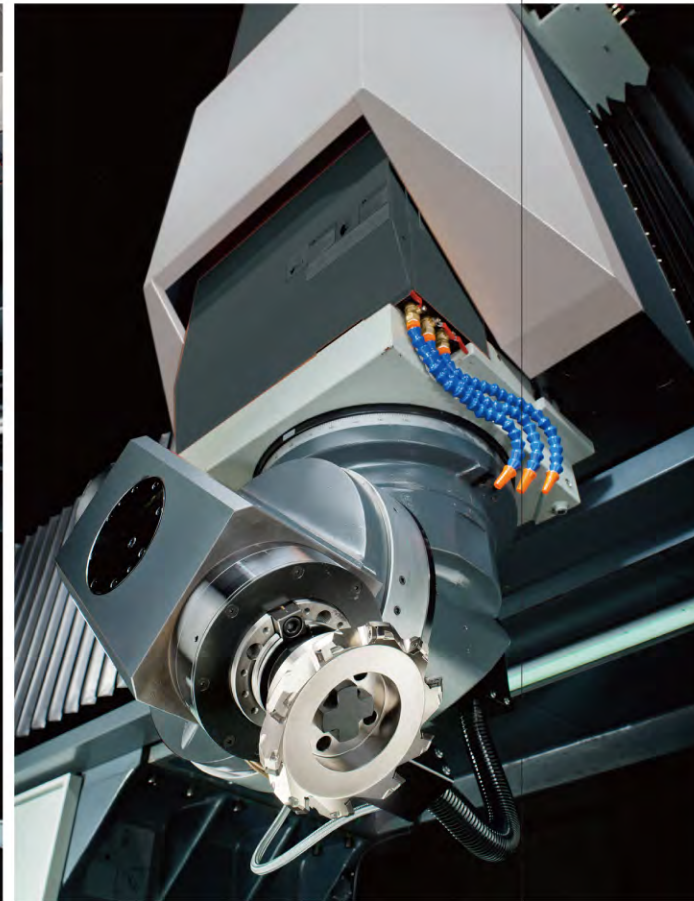


F-E-202301



High Efficiency Double Column Machining Center

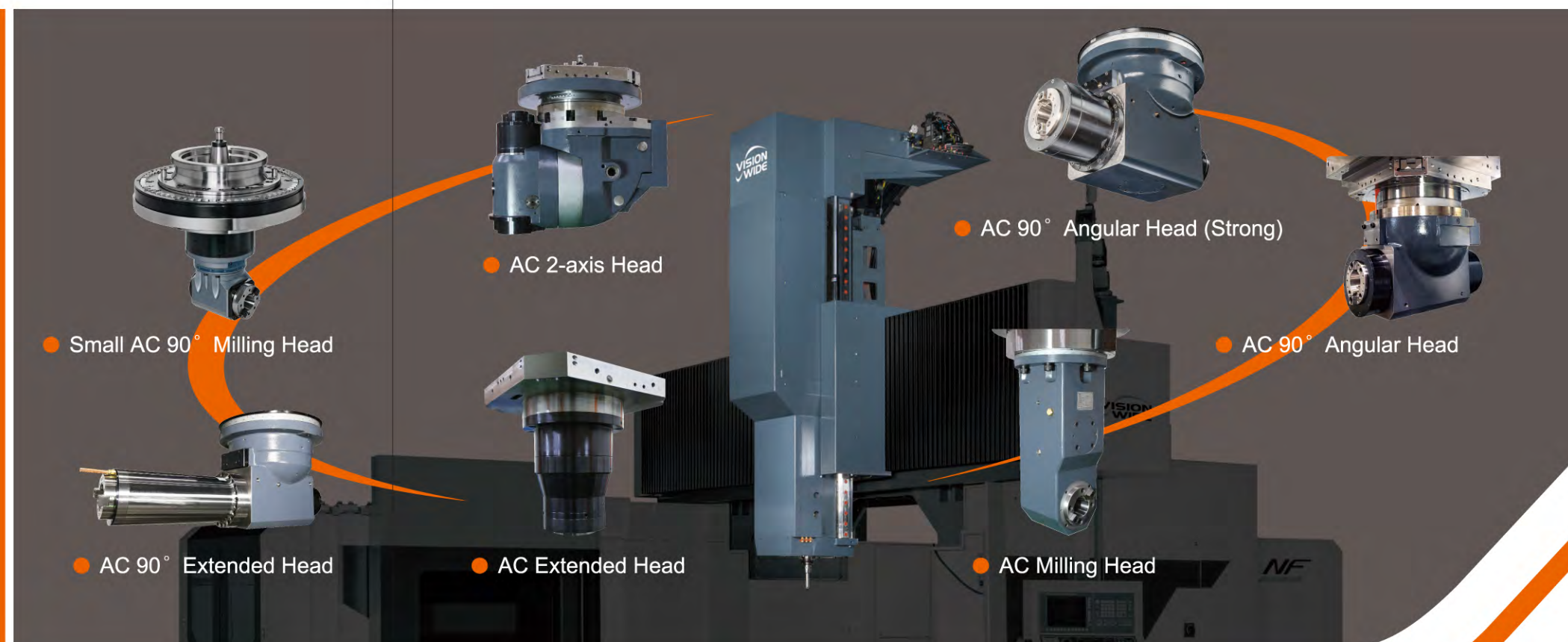




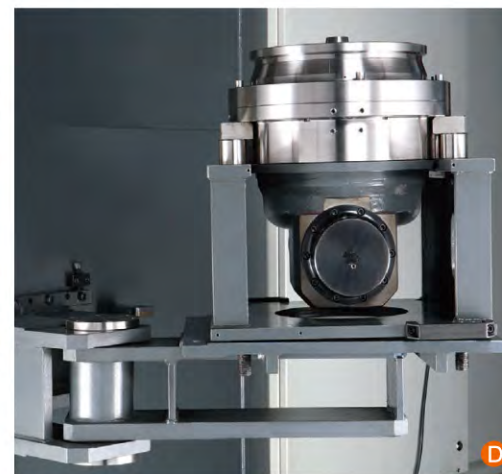
Modularization on Auto Multi-angle Machining Accessories

Diversely Modularized Head Attachments for Various Industries

- Heavy cutting: AC 90° head
- Multi-angle cutting: AC 2-axis head
- Deep milling: Extended AC 90° angle head
- Universal extended heads
- Small 90° head



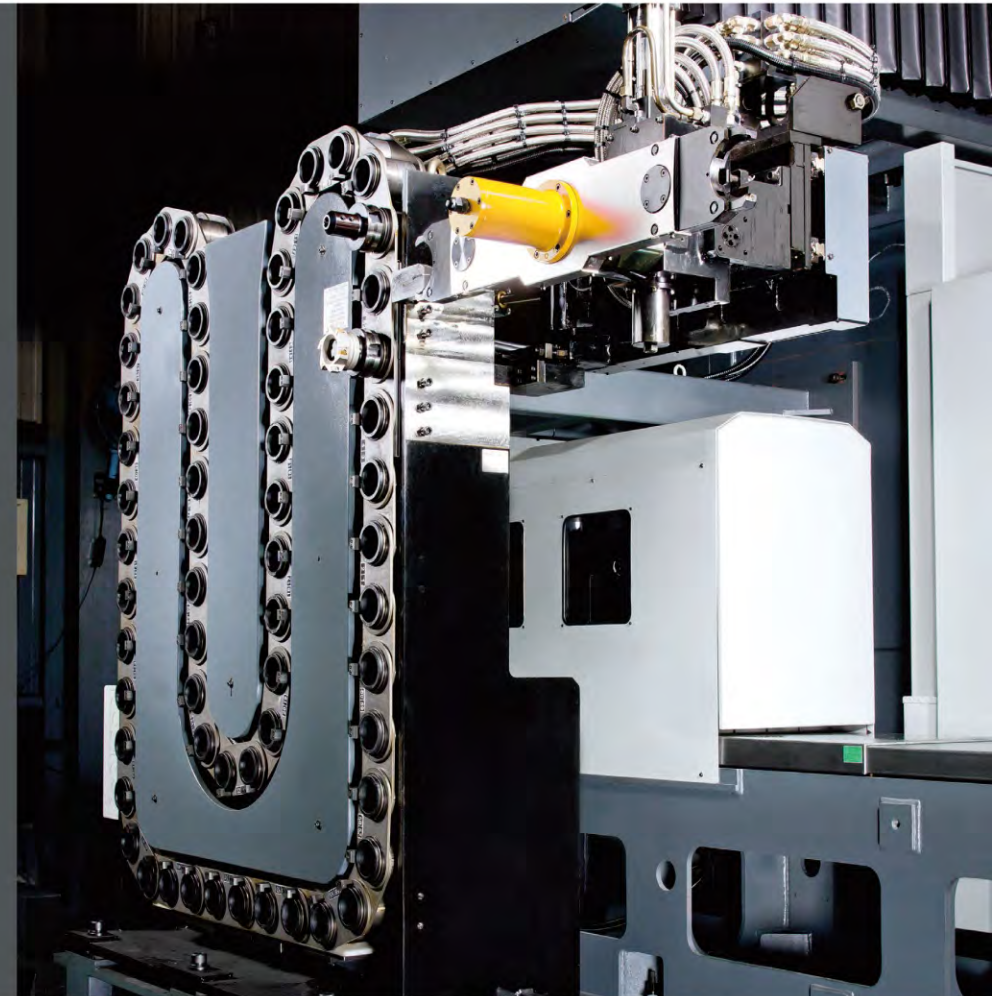
Attachment Magazine



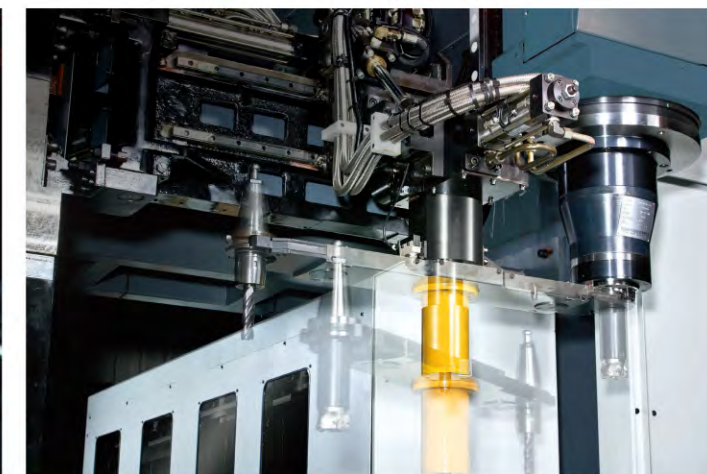
- A Auto swiveling arm type head bracket (on operation side)
- B Multi-heads magazine (at ATC side)
- C Auto swiveling arm type head bracket (on operation side)
- D Manual swiveling arm type head bracket (on operation side)

Various Type Tool Magazine

- Floor-standing vertical-horizontal type tool magazine(opt.)



- Horizontal tool change for AC 90° angular head (opt.)



- Vertical tool change for extended head (opt.)

High Speed.
High Precision.
High Efficiency.

High Efficiency and Performance Double Column Machining Center

Full range of machine specification

- X axis travel NF series: 3,100~10,100 mm
HF series: 4,100~10,100 mm
- Y axis travel NF series: 2,300 / 2,600 / 3,000 / 3,200 / 3,300 / 3,900 mm
HF series: 3,500 / 4,000 / 4,200 / 4,700 mm
- Z axis travel Box way: 920 / 1,020 mm
Linear way 1,000 / 1,200 / 1,400 mm
Enclosed box ram 1,000 / 1,200 / 1,400 mm
- Port width NF series: 2,400 / 2,750 / 3,250 mm
HF series: 3,550 / 4,050 mm



Enclosed sheet metal guard with roof (opt.)

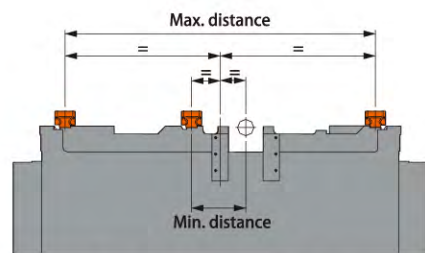


Enclosed sheet metal guard without roof (std.)

High Rigid Structure Design

- Optimal force streamlining in structural design and stress-strain analysis.
- Symmetrical heat conduction in box shape structure.
- MEEHANITE grade casting iron.
- Stress relief heat treatment.
- Parts machining stress eliminated by structure's natural frequency and resonance.
- Large size column gives the beam a strong support.

X-axis with 3 linear guideway



Ballscrew support device

- 3 roller type linear ways in X axis, 30% stiffness higher than ball type.
- Symmetric 3 roller type linear ways, high straightness in full stroke.
- Base with strong box-shape ribs allows the best dynamic accuracy under heavy workpiece load.

DCG, Driving at the Center of Gravity DPR, Dual Positioning Rigidity

Dual ballscrews and servo motors achieve double times of rigidity, and axial thrust driving force, raising 50% positioning accuracy and acceleration speed.

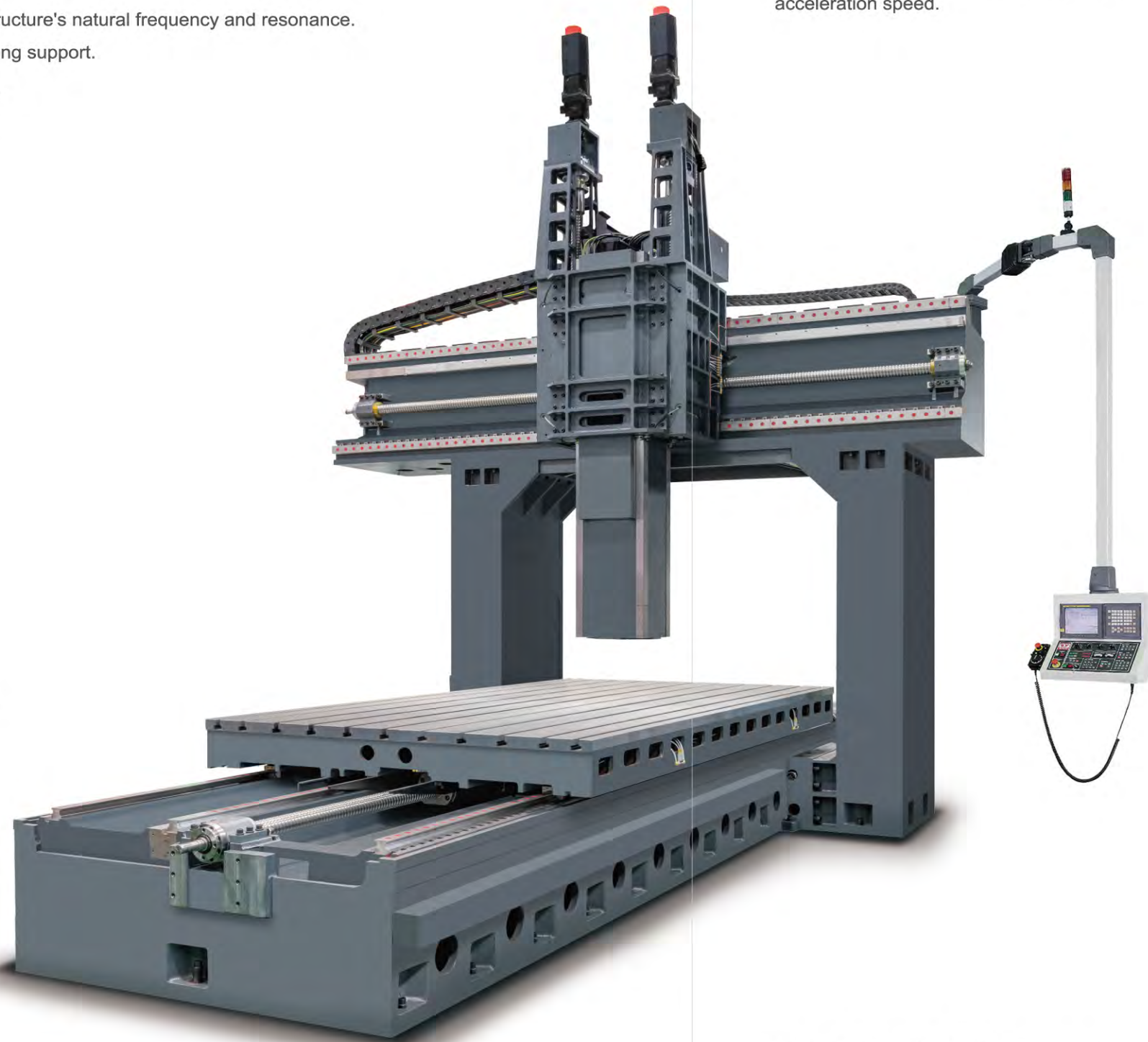
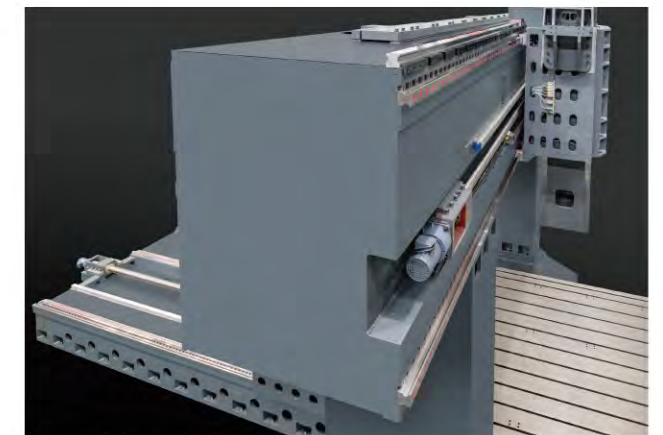
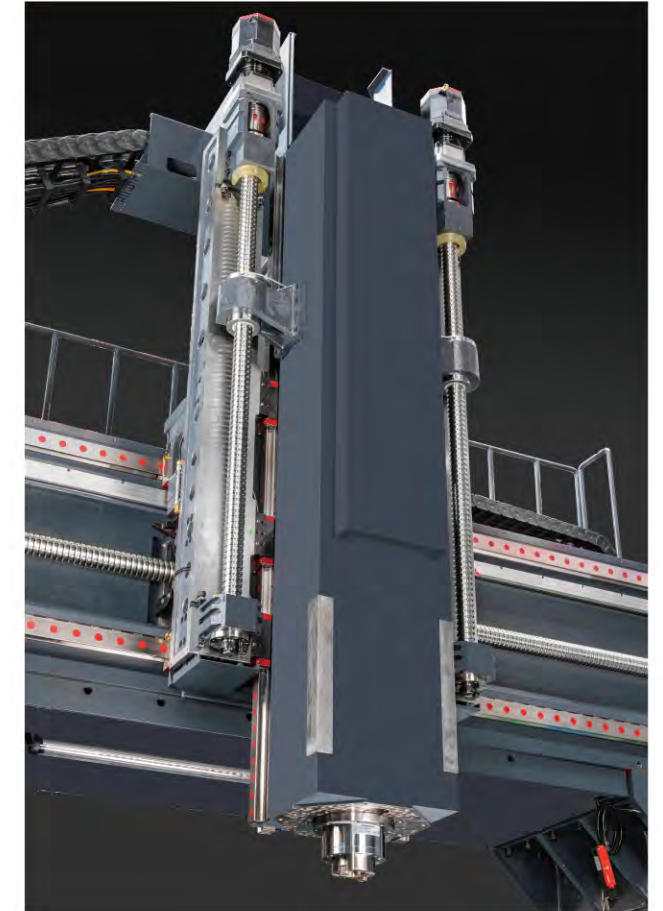


Photo : Z-axis with dual ballscrews (opt.)



Y-axis with 3 linear guideway (opt.)

- More than 1.1m widths of high rigid beam configured with stepper Y-axis of large span provides Y-axis the optimal dynamic straightness and rigidity of cutting.
- Y-axis with ultra-load guide way enhances more than 40% rigidity on higher cutting load and prolongs the lifetime.



F
series

High Speed.
High Precision.
High Efficiency.

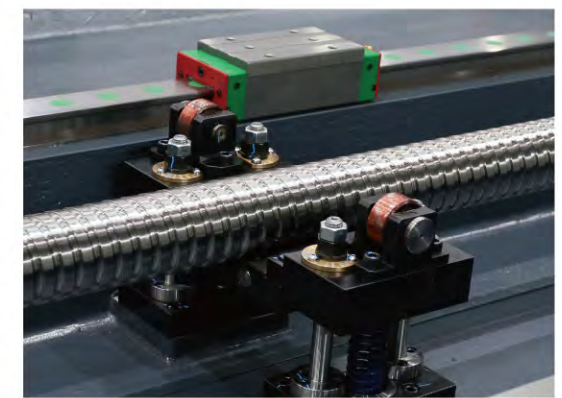
High Precision and High Performance Structure Achieves Best Feeding Thrust and Cutting Rigidity

XY Axis with Gear-driven Direct

- Less rotation error between motor and ballscrew
- Higher positioning accuracy
- Higher repeatability
- The gear reducer is adopted in X-axis and Y-axis to ensure the dynamic precision of servo motor and can be transmitted to the precision ballscrew under high loading operation.
- High power motor is configured to offer the maximum feeding thrust.

Ballscrew Supporter

- XY axis precision supporter mechanism prevents the sag of ballscrew, enhances higher positioning accuracy, and ensures ballscrew lifetime (X-axis travel>4m, Y-axis travel>3m)



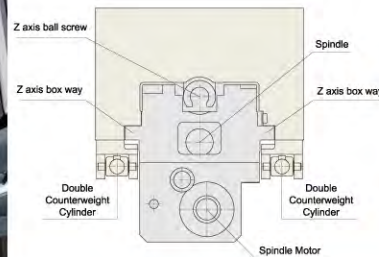
HRT High Responsive Transmission

- Backlash-free gearbox enhanced feeding thrust force.
- The dual thrust bearing support raises up 50% positioning accuracy.
- Low thermal expansion effect, maintain best repetitive accuracy.



Various Spindle Head Options

Box Way (Single Ballscrew)



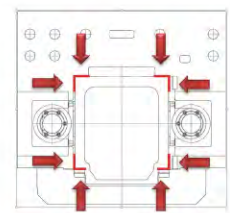
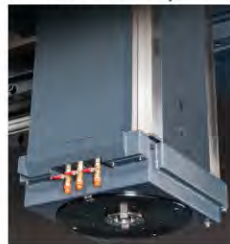
SCG, Symmetrical support at the Center of Gravity

- The guideway is closed to the spindle center to get the best cutting force support.
- The spindle is balanced by two symmetrical counterbalances.
- The spindle is located at the center of gravity of the Z axis.

High acceleration counterbalance driving

- Twin hydraulic cylinders with pressured Nitrogen assistance counterweight System to achieve high acceleration of the Z axis.
- Pressured Nitrogen accumulators with isolated oil and N2 offer saving power and a long lifetime.

Enclosed Box Way (Dual Ballscrews)



DCG, Driving at the Center of Gravity

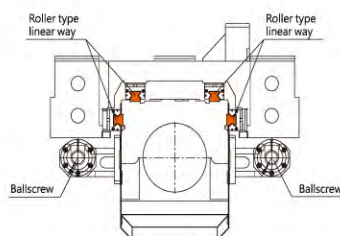
- The spindle is located at the driving center which is the center of gravity of the Z axis.
- Symmetrical guideway configuration at spindle center.

DPR, Dual Positioning Rigidity

- Dual ballscrews and servo motors driving.
- The dual thrust bearing support.
- Dual moving rigidity.
- High acceleration.
- Positioning accuracy increased by 50%

Embracing High damping bearing to allow bigger spindle power up to 30/37kW and 1200Nm transmission.
High Geometric accuracy on Z-axis straightness, less than 0.01mm/1m.

Linear Way (Dual Ballscrews)



DCG, Driving at the Center of Gravity

- The spindle is located at the driving center which is the center of gravity of the Z axis.
- Symmetrical guideway configuration at spindle center.

DPR, Dual Positioning Rigidity

- Dual ballscrews and servo motors driving.
- The dual thrust bearing support.
- Dual moving rigidity.
- High acceleration.
- Positioning accuracy increased by 50%

Lowest friction for higher acceleration and high-speed machining and acceleration for Die and mold machining.

Optimal Central Symmetric Spindle System Design Strong, Stable, Durable and Scalability

- Gear spindles are made from Japan-made JIS-0 grade.
- 2-step gear type spindle provides high torque and high speed characteristics to ensure heavy cutting ability on surface finish.
- Various high speed spindle can be chosen
4,000/ 6,000 rpm



Cutting Ability



Face milling:

Tool dia.:125mm
Cutting feed:1,000mm/min
Cutting width:100mm
Cutting depth:6mm
Removal rate:600cc/min



High feed machining:

Tool dia.:40mmx4 inserts
Cutting speed:2,400rpm
Cutting feed:10m/min
Cutting depth:1mm
Cutting width:32mm
Removal rate:320cc/min



Indexable insert drilling:

Tool dia.:32mm
Cutting speed:1,500rpm
Cutting feed:500mm/min
Cutting depth:30mm
Removal rate:400cc/min
Coolant through spindle

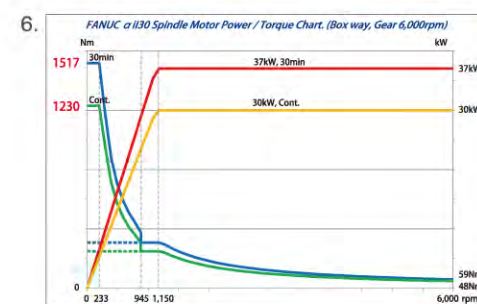
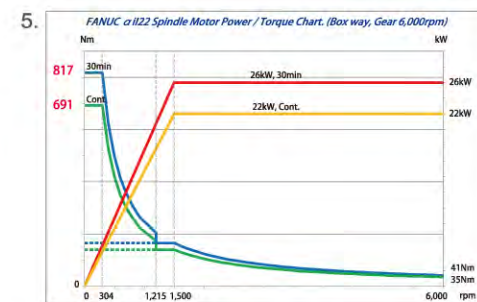
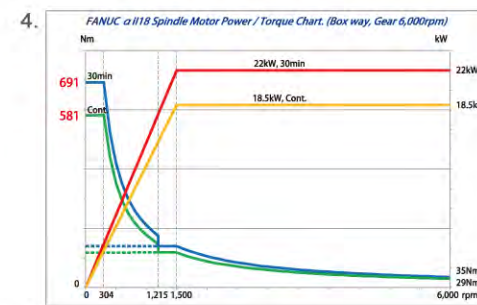
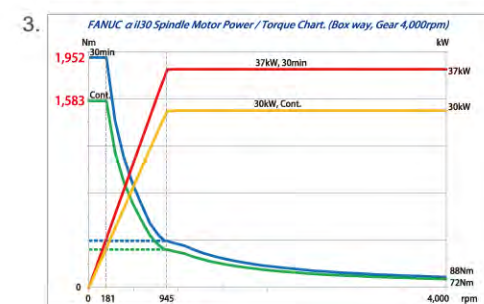
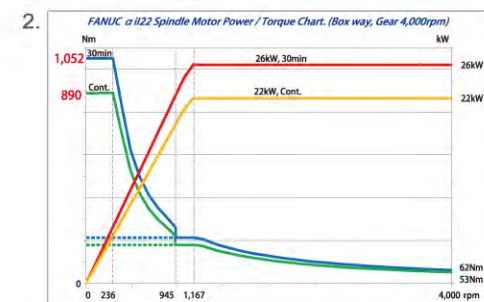
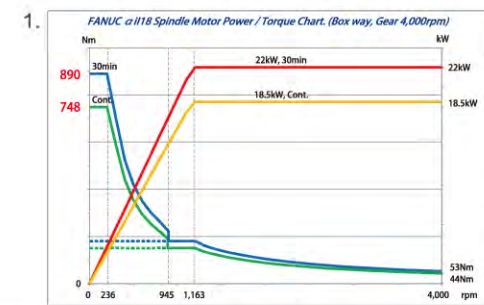
- Test specification: spindle power=22/26kW, speed=4,000rpm, material=S45C(mid carbon steel) position=1/2x (Z travel)

Spindle Power and Torque Charts

Box way/ single ballscrew

FANUC Controller

Drive type		Gear Spindle					
Pic. No.		1	2	3	4	5	6
Motor type	-	FANUC α il 18	FANUC α il 22	FANUC α il 30	FANUC α il 18	FANUC α il 22	FANUC α il 30
Speed	rpm	4,000	4,000	4,000	6,000	6,000	6,000
Power(Cont./30min.)	KW	18.5/ 22	22/ 26	30/ 37	18.5/ 22	22/ 26	30/ 37
Torque (Cont./30min.)	Nm	748.7/ 890	890/ 1052	1583/ 1952	581/ 691	691/ 817	1230/ 1517
Tool type	-	BBT50	BBT50	BBT50	BBT50	BBT50	BBT50

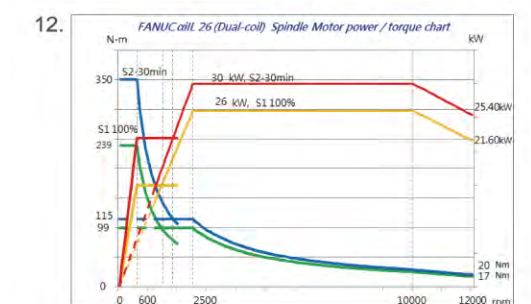
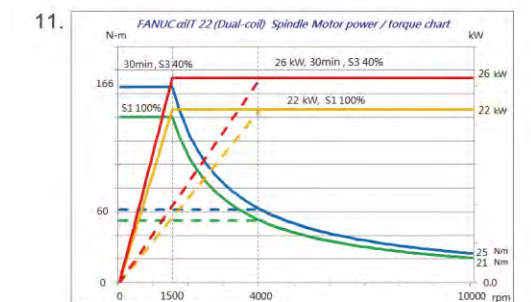
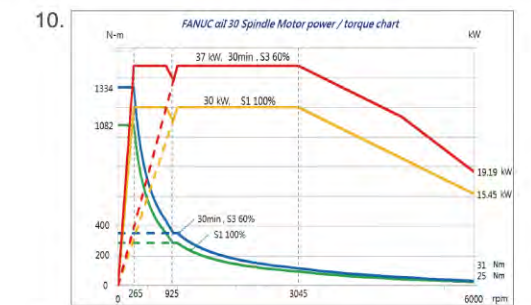
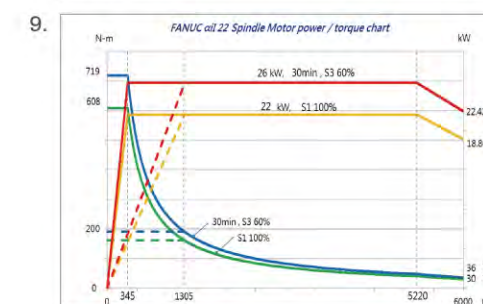
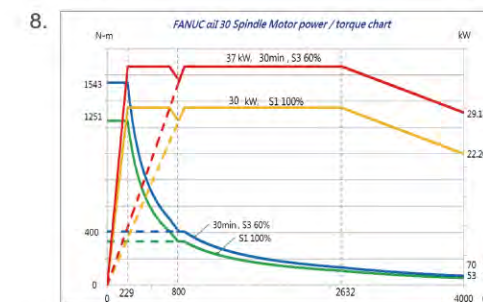
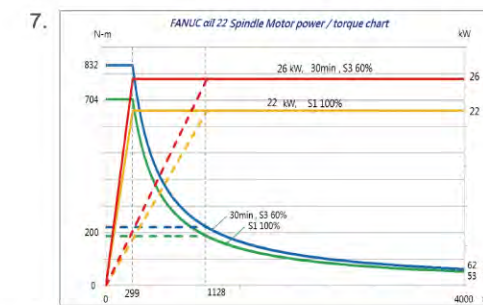


Spindle Power and Torque Charts

Linear way, Enclosed Box Ram/ Dual ballscrews

FANUC Controller

Drive type		Gear Spindle				Direct-Driven Spindle	
Pic. No.		7	8	9	10	11	12
Motor type	-	FANUC α il 22	FANUC α il 30	FANUC α il 22	FANUC α il 30	FANUC α il(T)22	FANUC α ilT 26
Speed	rpm	4,000	4,000	6,000	6,000	10,000	10,000/ 12,000
Power(Cont./30min.)	KW	22/ 26	30/ 37	22/ 26	30/ 37	22/ 26	26/ 30
Torque (Cont./30min.)	Nm	704/ 832	1,251/ 1,543	608/ 719	1,082/ 1,334	L: 140/ 166 H: 53/ 62	L: 239/ 350 H: 99/ 115
Tool type	-	BBT50	BBT50	BBT50	BBT50	BBT50	BBT50

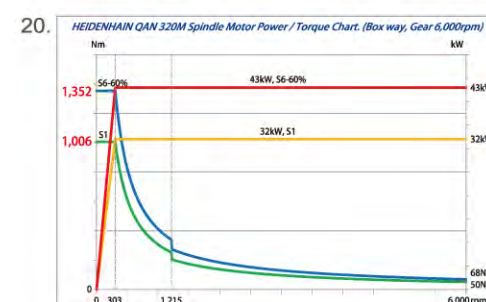
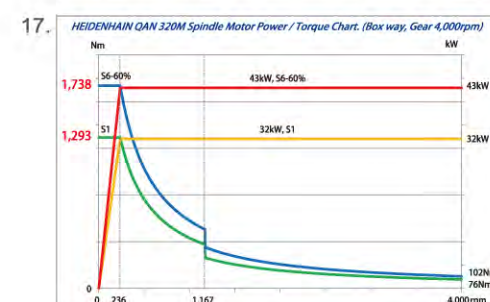
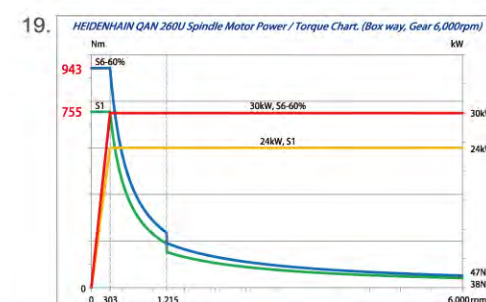
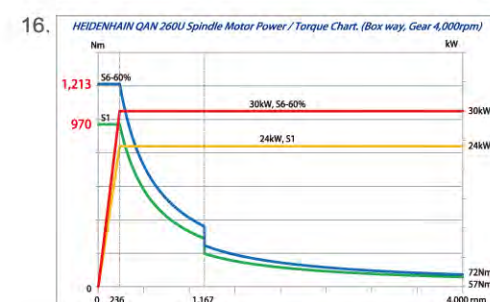
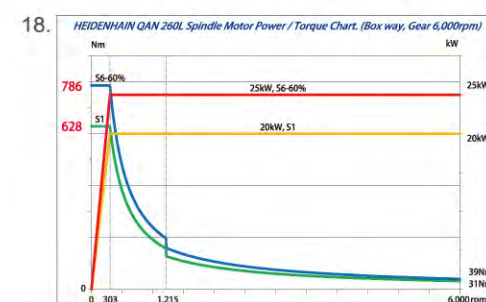
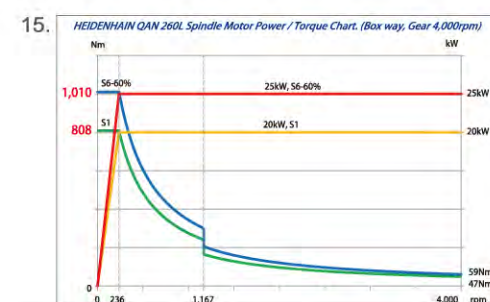


Spindle Power and Torque Charts

Box way/ single ballscrew

HEIDENHAIN Controller

Drive type		Gear Spindle					
Pic. No.		15	16	17	18	19	20
Motor type	-	QAN 260L	QAN 260U	QAN 320M	QAN 260L	QAN 260U	QAN 320M
Speed	rpm	4,000	4,000	4,000	6,000	6,000	6,000
Power(Cont./30min.)	KW	20/ 25	24/ 30	32/ 43	20/ 25	24/ 30	32/ 43
Torque(Cont./30min.)	Nm	808/ 1,010	970/ 1,213	1,293/ 1,738	628/ 786	755/ 943	1,006/ 1,352
Tool type	-	BBT-50	BBT-50	BBT-50	BBT-50	BBT-50	BBT-50

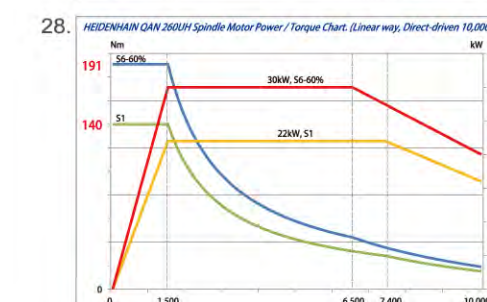
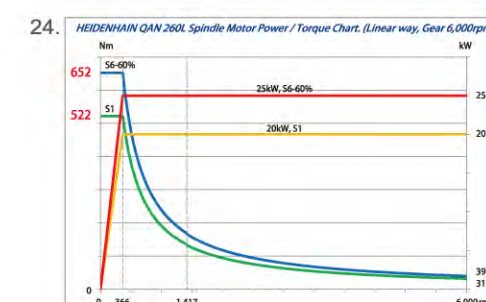
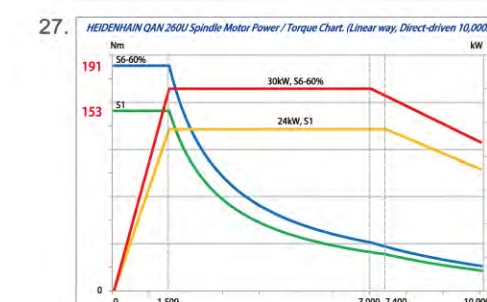
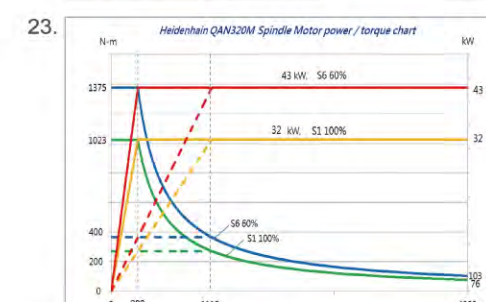
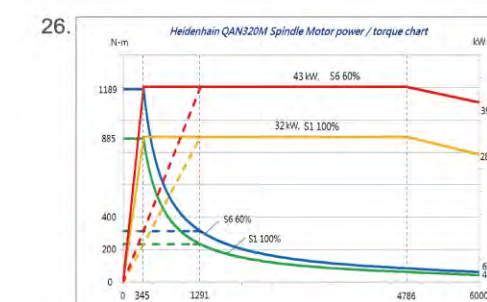
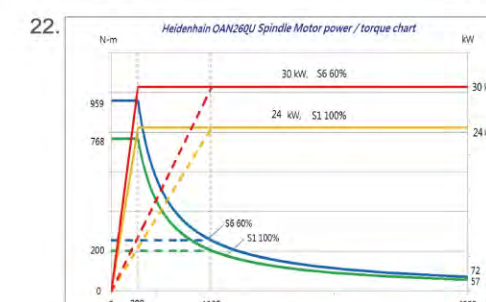
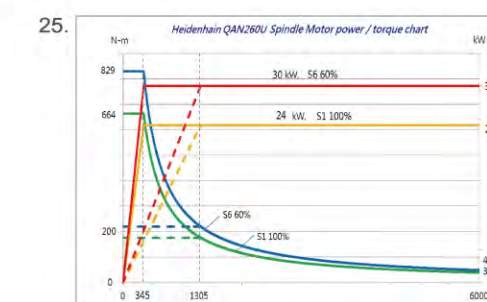
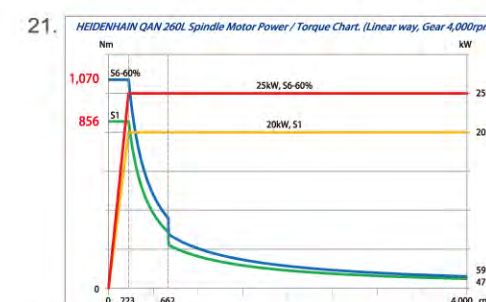


Spindle Power and Torque Charts

Linear way, Enclosed Box Ram/ Dual ballscrews

HEIDENHAIN Controller

Drive type		Gear Spindle						Direct-Driven Spindle	
Pic. No.		21	22	23	24	25	26	27	28
Motor type	-	QAN 260L	QAN 260U	QAN 320M	QAN 260L	QAN 260U	QAN 320M	QAN 260U	QAN 260UH
Speed	rpm	4,000	4,000	4,000	6,000	6,000	6,000	10,000	10,000
Power(Cont./30min.)	KW	20/ 25	24/ 30	32/ 43	20/ 25	24/ 30	32/ 43	24/ 30	22/ 30
Torque(Cont./30min.)	Nm	856/ 1,070	768/ 959	1,023/ 1,375	522/ 652	664/ 829	885/ 1,189	153/ 191	140/ 191
Tool type	-	BBT-50	BBT-50	BBT-50	BBT-50	BBT-50	BBT-50	BBT-50	BBT-50

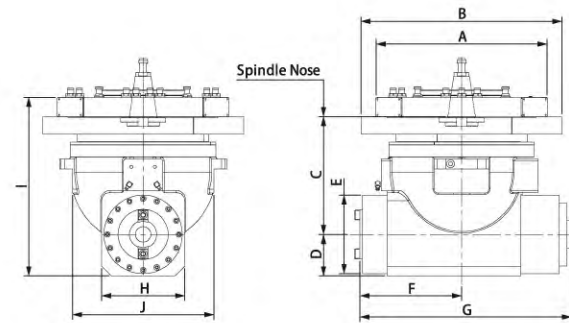


Auto Multi-Angle Head Attachment

AC 90° angular head



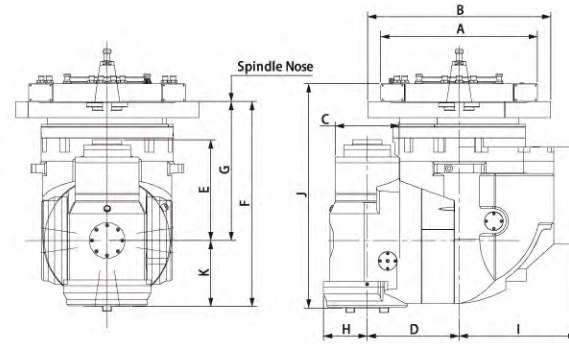
Item	AC 90° angular head	
	G2	G3
Max. speed	3,000rpm	5,000rpm
Max. power	26kW	
Tool clamping	Auto hydraulic clamping	
Head clamping	Auto hydraulic clamping	
C-axis indexing	Auto 1°/5°	
Machining coolant	External nozzle	External nozzle
Coolant Through Spindle(opt.)	20 bar. / 70 bar.	
A	Φ436	Φ435
B	Φ436	Φ512
C	300	300
D	100	106
E	Φ200	Φ200
F	259	259
G	515.7	539
H	212	212
J	Φ352	Φ360



AC 2-axis head



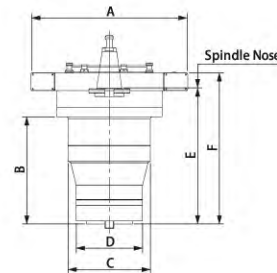
Item	AC 2-axis head	
	G2	G3
Max. speed	3,000rpm	4,000rpm
Max. power	26kW	
Tool clamping	Auto hydraulic clamping	
Head clamping	Auto hydraulic clamping	
C-axis indexing	Auto 1°	Auto 1°
B-axis indexing	Auto 5°	Auto 1°
Machining coolant	External nozzle	Spindle ring cutting coolant system
Coolant Through Spindle(opt.)	20 bar. / 70 bar.	
A	Φ436	Φ435
B	Φ436	Φ512
C	Φ200	Φ178
D	350	258
E	300	281
F	573.5	559
G	388.5	330
H	122.5	106
I	329.5	206
J	627.3	585
K	259	185



AC extended head



Item	AC extended head 300mm		AC extended head 420mm	
	G2	G3	G2	G3
Max. speed	4,000rpm	5,000rpm	4,000rpm	5,000rpm
Max. power	26kW			
Tool clamping	Auto hydraulic clamping			
Head clamping	Auto hydraulic clamping			
C-axis indexing	Auto 1°			
Machining coolant	External nozzle	External nozzle	External nozzle	External nozzle
A	Φ436	Φ435	Φ436	Φ435
B	300	300	427	427
C	Φ230	Φ230	Φ230	Φ230
D	Φ185	Φ185	Φ185	Φ185
E	374	381	501	501

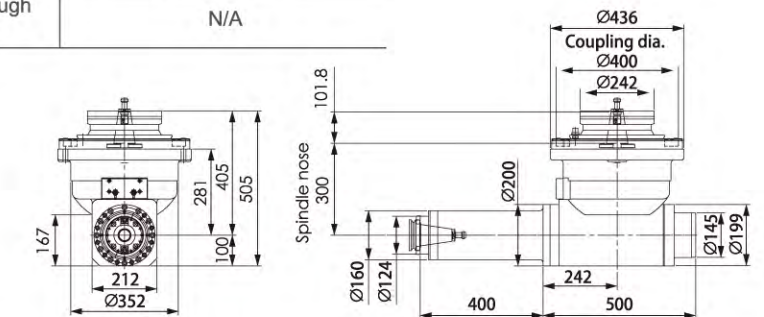


Powerful and Precision Boring Head Attachment

400mm AC 90° spindle extension head



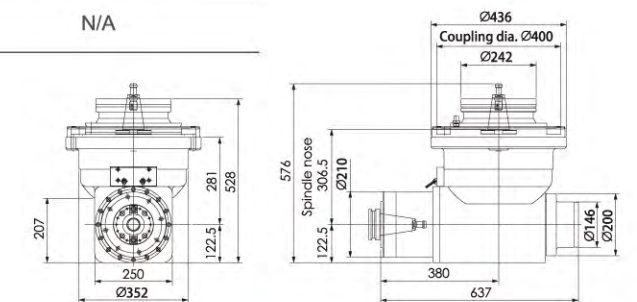
Item	400mm AC 90° spindle extension head
Max. speed	2000 rpm
Max. power	26 kW
Tool clamping	Manual hydraulic clamping
Head clamping	Auto hydraulic clamping
C-axis indexing	(1°) / 5°
Machining coolant	External nozzle
Coolant Through Spindle(opt.)	N/A



AC 90° angular head (Strong)



Item	AC 90° angular head (Strong)
Max. speed	3,000 rpm
Max. power	37 kW
Tool clamping	Auto hydraulic clamping
Head clamping	Manual /Auto hydraulic clamping
C-axis indexing	5°
Machining coolant	External nozzle
Coolant Through Spindle(opt.)	N/A



Intelligent Multi-face Machining

5-axis level tool point center management TPCM

Each type of head attachment with tool center point management, takes vertical workpiece as origin benchmark, and converts the workpiece coordinates to any new specified plane of workpiece coordinates automatically.

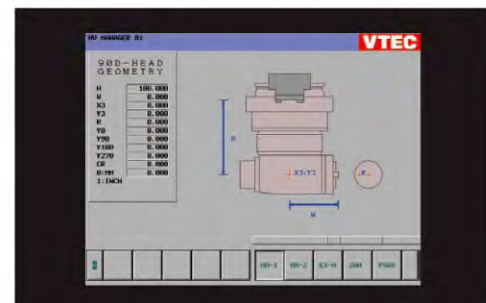
Auto coordinates tool axis 3D conversion

3-axis mechanical coordinates system can be automatically converted to machining coordinates system, easily achieving face milling, end milling, drilling and rigid tapping machining operations in different direction.

Head attachment dimensions correction

Intelligent compensation on each type of head attachments. The compensation including rotation center, tool size, workpiece coordinates system correction management. It greatly simplifies the complexity of programming and operation to achieve perfect auto multi-angle machining.

Auto Compensation Software



Auto compensation for attachment heads:

Auto compensating horizontal head center and spindle center.
Auto compensating mechanism mass center and revolution center.

3D coordinates management:

- 1.V/H tool length and diameter compensation.
- 2.V/H working coordinate affine transformation.
- 3.manual interrupting.
- 4.3D rigid tapping.

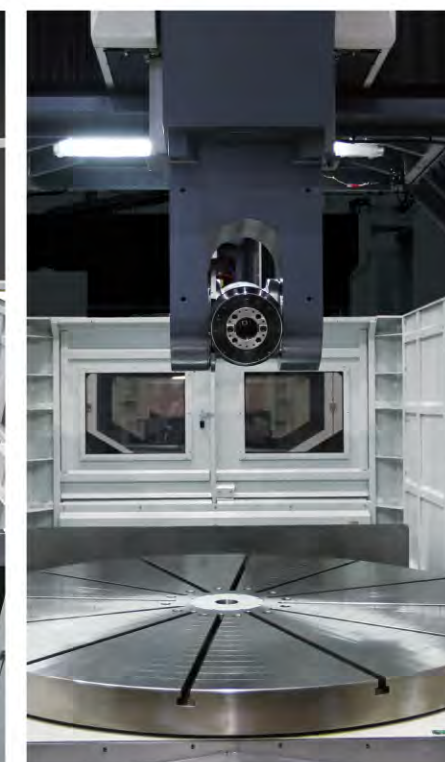
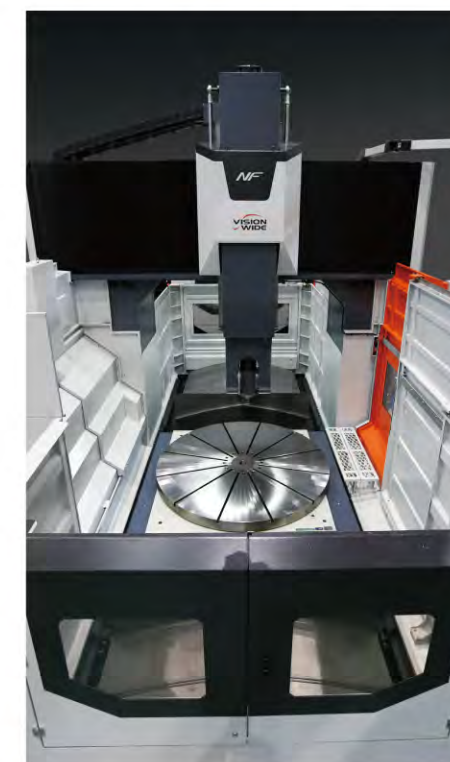
Heavy cutting ability

Cutting depth test demonstrated excellent heavy cutting rigidity

test specification: 22/26kW 4,000rpm spindle

Head attachment	Extended head	90 degree angular head	2-axis head
Tool type	BT-50 face milling tool-diameter $\phi 125/5$ edge		
Cutting material	S45C	S45C	
Spindle speed(rpm)	600	600	
Feed rate(mm/min)	1000	1000	
Machining width(mm)	100	100	
Machining depth	4	5	
Removal rate(cc/min)	400	500	

Double Column Machining Center Configures a Large Rotary Table Design



X axis	mm	2,200
Y axis	mm	2,300
Z axis	mm	1,400
Distance from Horizontal Spindle Nose to Table	mm	118~1,518
Distance from Vertical Spindle Nose to Table	mm	431~1,831
Table Dimension	mm	$\phi 1,800$
Table Load (Central Region)	kg	3,000
Min division accuracy	degree	0.001
Rated Torque	Nm	2,040
Max. Torque	Nm	3,800
Braking Torque	Nm	10,210
Max. Cutting Torque under Braking	Nm	7,000



Tool clamping type	Auto-hydraulic clamping
Head clamping type	Fixed
C axis angle	Fixed
B axis angle	$\pm 110^\circ$
B axis index	1°
Indexing precision	$\pm 0.03/300\text{mm}$
Indexing function	Auto angle positioning (B axis)
Lubrication	Bearing oil-air lubrication
CTS function	Available for 20/50 bar.
Spindle cooling	Oil cooling circulation
Max. cutting Power	26kW
Spindle speed	4,000rpm

Auto Head Storage Unit



● Table type head bracket



● Auto swiveling arm type head bracket (on operation side)

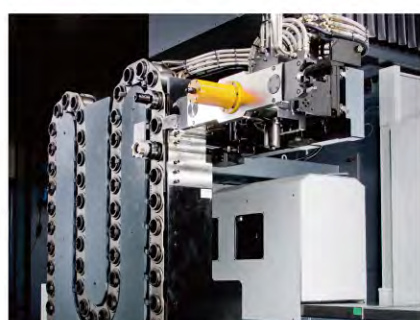


● Manual swiveling arm type head bracket(on operation side)



● Multi-heads magazine(magazine side)

Tool Magazine



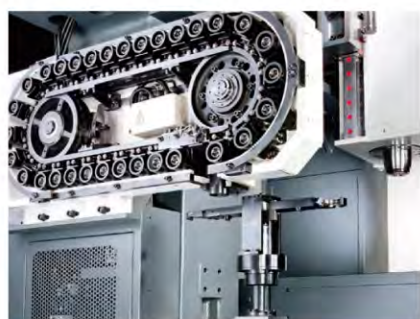
● Floor-standing vertical-horizontal type tool magazine(opt.)



● Extended head exchange on vertical type(opt.)



● Auto tool exchange, tool to tool 3 sec. in vertical type



● Vertical type tool magazine for less floor space, 32 tools magazine (40/ 60 tools opt.)



● Floor-standing vertical type tool magazine(opt.)



● Tool length measurement device at magazine side for mold cutting to change tool fast.(opt.)

CNC TalkBox

Monitoring Software for Supporting Multiple Controllers
Make Production Management Clear at A Glance



Intelligent Factory Management Can Be in Everywhere

CNC TalkBox possesses computing, storage and industrial Internet functions. After computing, the production information can be uploaded to the cloud database or mobile devices to achieve the less hardware managements and the optimal mobile data exchanging capacity.

Economic

Small hardware devices for rapid introduction of industrial Internet of Things (IoT).

Stable

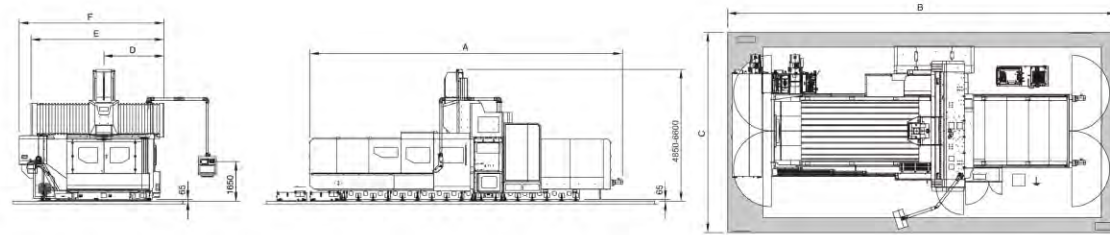
Timely record of production log is a benefit to analyze process and increase production capacity.

Expandable

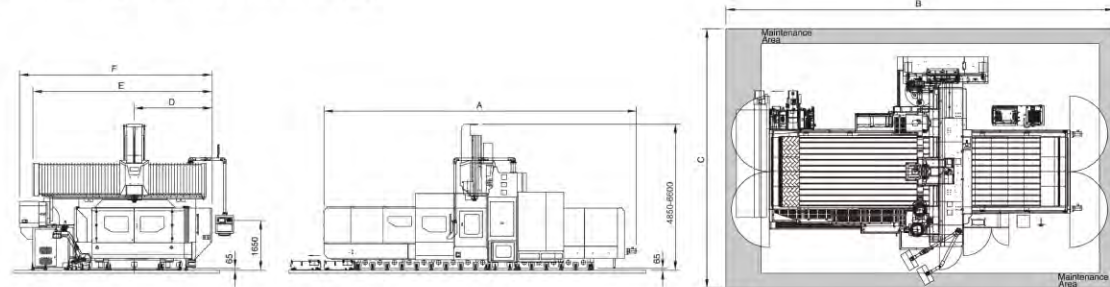
Complete data collection can make better decisions for process, dispatch, tool and material management.

Machine Dimension | NF series

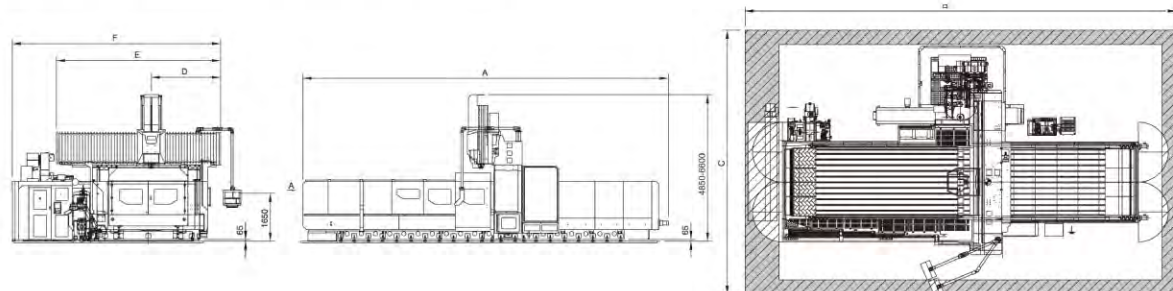
● NF-xx23/xx26/xx32 (vertical type tool change)



● NF-xx30/xx33/xx39 (floor-standing vertical type tool change)



● NF-xx30/xx33/xx39 (floor-standing vertical-horizontal type tool change)



Unit:mm

NF-xx23/xx26/xx32 (vertical type tool change)

MODEL	A	B	C	D	E	F
NF-XX23						
NF-3023	8,800	11,200				
NF-4023	10,800	13,200				
NF-5023	12,800	15,200	6,800	2,050	4,600	5,000
NF-6023	14,800	17,200				
NF-8023	19,900	22,000				
NF-10023	23,900	26,000				
NF-XX26						
NF-3026	8,800	11,200				
NF-4026	10,800	13,200				
NF-5026	12,800	15,200	7,200	2,250	4,900	5,400
NF-6026	14,800	17,200				
NF-8026	19,900	22,000				
NF-10026	23,900	26,000				
NF-XX32						
NF-3032	8,800	11,200				
NF-4032	10,800	13,200				
NF-5032	12,800	15,200	7,800	2,650	5,800	6,200
NF-6032	14,800	17,200				
NF-8032	19,900	22,000				
NF-10032	23,900	26,000				

NF-xx30/xx33/xx39 (floor-standing vertical type tool change)

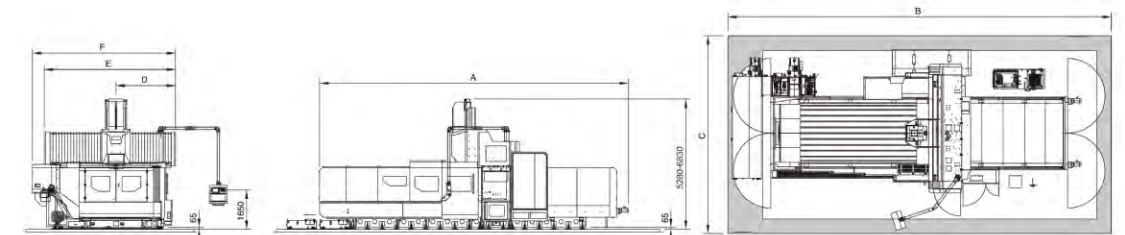
MODEL	A	B	C	D	E	F
NF-XX30						
NF-3030	8,800	11,200				
NF-4030	10,800	13,200				
NF-5030	12,800	15,200	8,500	2,500	5,600	6,100
NF-6030	14,800	17,200				
NF-8030	19,900	22,000				
NF-10030	23,900	26,000				
NF-XX33						
NF-3033	8,800	11,200				
NF-4033	10,800	13,200				
NF-5033	12,800	15,200	8,800	2,700	6,100	6,600
NF-6033	14,800	17,200				
NF-8033	19,900	22,000				
NF-10033	23,900	26,000				
NF-XX39						
NF-3039	8,800	11,200				
NF-4039	10,800	13,200				
NF-5039	12,800	15,200	9,400	3,000	6,800	7,400
NF-6039	14,800	17,200				
NF-8039	19,900	22,000				
NF-10039	23,900	26,000				

NF-xx30/xx33/xx39 (floor-standing vertical-horizontal type tool change)

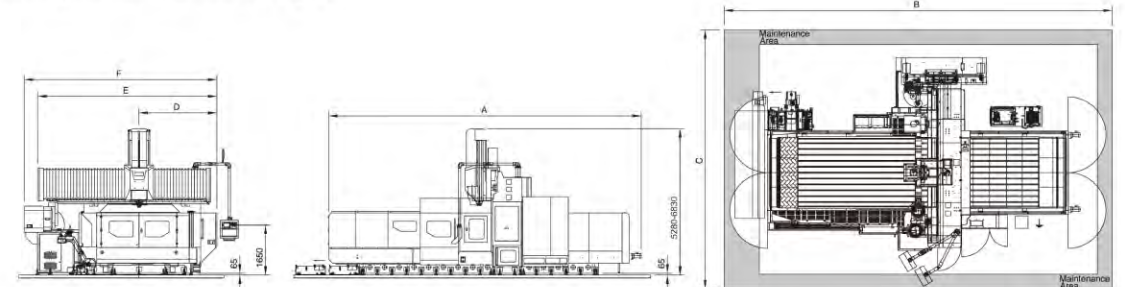
MODEL	A	B	C	D	E	F
NF-XX30						
NF-3030	8,800	11,200				
NF-4030	10,800	13,200				
NF-5030	12,800	15,200	9,000	2,300	5,300	6,900
NF-6030	14,800	17,200				
NF-8030	19,900	22,000				
NF-10030	23,900	26,000				
NF-XX33						
NF-3033	8,800	11,200				
NF-4033	10,800	13,200				
NF-5033	12,800	15,200	9,300	2,500	5,800	7,400
NF-6033	14,800	17,200				
NF-8033	19,900	22,000				
NF-10033	23,900	26,000				
NF-XX39						
NF-3039	8,800	11,200				
NF-4039	10,800	13,200				
NF-5039	12,800	15,200	10,000	2,800	6,400	8,100
NF-6039	14,800	17,200				
NF-8039	19,900	22,000				
NF-10039	23,900	26,000				

HF series

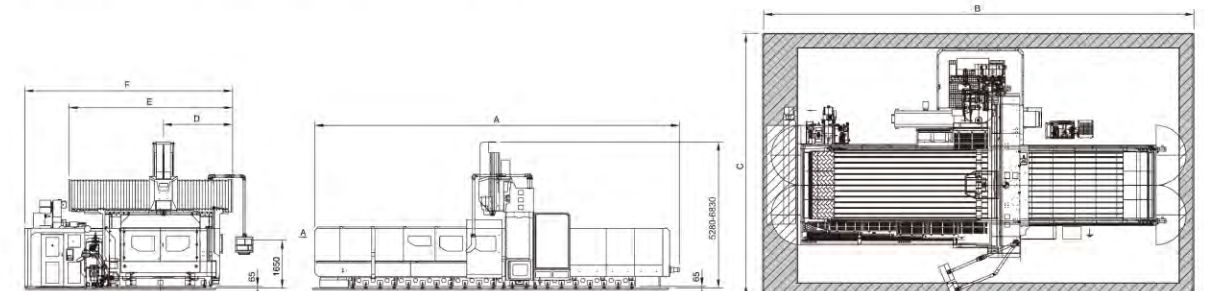
● HF-xx35/xx40(vertical type tool change)



● HF-xx42/xx47 (floor-standing vertical type tool change)



● HF-xx42/xx47 (floor-standing vertical-horizontal type tool change)



Unit:mm

HF-xx35/xx40 (vertical type tool change)

MODEL	A	B	C	D	E	F
HF-4035	10,600	14,000				
HF-5035	13,000	16,000				
HF-6035	15,000	18,000	8,200	2,570	5,850	6,050
HF-8035	19,250	23,000				
HF-10035	23,250	28,000				
HF-4040	10,600	14,000				
HF-5040	13,000	16,000				
HF-6040	15,000	18,000	8,700	2,820	6,350	6,550
HF-8040	19,250	23,000				
HF-10040	23,250	28,000				

HF-xx42/xx47 (floor-standing vertical type tool change)

MODEL	A	B	C	D	E	F
HF-4042	10,600	14,000				
HF-5042	13,000	16,000				
HF-6042	15,000	18,000	9,800	2,880	6,400	7,450
HF-8042	19,250	23,000				
HF-10042	23,250	28,000				
HF-4047	10,600	14,000				
HF-5047	13,000	16,000				
HF-6047	15,000	18,000	10,300	3,130	6,900	7,950
HF-8047	19,250	23,000				
HF-10047	23,250	28,000				

HF-xx42/xx47 (floor-standing vertical-horizontal type tool change)

MODEL	A	B	C	D	E	F
HF-4042	10,600	14,000				
HF-5042	13,000	16,000				
HF-6042	15,000	18,000	10,000	2,880	6,400	7,650
HF-8042	19,250	23,000				
HF-10042	23,250	28,000				
HF-4047	10,600	14,000				
HF-5047	13,000	16,000				
HF-6047	15,000	18,000	10,500	3,130	6,900	8,150
HF-8047	19,250	23,000				
HF-10047	23,250	28,000				

NF Specification | NF-xx23/30 Series

MODEL			Unit	NF-3023/ NF-3030	NF-4023/ NF-4030	NF-5023/ NF-5030	NF-6023/ NF-6030	NF-8023/ NF-8030	NF-10023/ NF-10030
TRAVEL									
X axis travel			mm	3,100	4,100	5,100	6,100	8,100	10,100
Y axis travel			mm	2,300 / 3,000					
Z axis travel	Box way / single ballscrew		mm	920 / 1,020(OPT.)					
	Linear way, Enclosed Box Ram/Dual ballscrews		mm	1,000(OPT.) / 1,200(OPT.) / 1,400(OPT.)					
Distance from spindle nose to table	Box way/ single ballscrew(2-step gear)	Z axis=920	mm	150-1,070(Standard column)				100-1,020(Standard column)	
		Z axis=1,020	mm	250-1,270(column+200mm)				200-1,220(column+200mm)	
	Linear way, Enclosed Box Ram/ Dual ballscrews (2-step gear/Direct-driven)	Z axis=1,000	mm	150-1,150(Standard column)				100-1,100(Standard column)	
		Z axis=1,200	mm	150-1,350(column+200mm)				100-1,300(column+200mm)	
		Z axis=1,400	mm	150-1,550(column+400mm)				100-1,500(column+400mm)	
Distance between columns (port width)			mm	2,400					
TABLE									
Table size			mm	3,000 x 2,050	4,000 x 2,050	5,000 x 2,050	6,000 x 2,050	8,000 x 2,050	10,000 x 2,050
T-slot(Width x Number x Pitch)			mm	28 x 11 x 200 (150)					
Max. table load			kg/m	13,000	16,000	20,000	22,000	24,000	26,000
SPINDLE									
Spindle power (cont./ 30 min.)			kW	18.5 / 22(22 / 26 OPT.)(30 / 37 OPT.)					
Spindle speed	Box way / single ballscrew	2-step gear	rpm	4,000 / 6,000(OPT.)					
		2-step gear	rpm	4,000(OPT.) / 6,000(OPT.)					
	Linear way, Enclosed Box Ram/ Dual ballscrews	Direct-driven	rpm	10,000(OPT.)					
Spindle taper			-	BBT-50					
FEED									
Cutting feed rate			mm/min	1-10,000				1-7,000	
Rapid traverse	X/Y(Y+700)		m/min	24 / 20(15)			15 / 20 (15)		
	Z:Box way / single ballscrew Z:Linear way/ Dual ballscrews		m/min	15					
	Z:Enclosed Box Ram/Dual ballscrews		m/min	12					
3 axis motor power(FANUC)(Z:Box way / single ballscrew)			kW	7 / 4.5 / 7		9 / 4.5 / 7			
3 axis motor power(FANUC)(Z:Linear way, Enclosed Box Ram/Dual ballscrews)			kW	7 / 4.5 / 4.5*2		9 / 4.5 / 4.5*2			
ACCURACY									
Positioning accuracy (JIS B6333)			mm	± 0.008 / Full travel		± 0.009 / Full travel		± 0.010 / Full travel	
Positioning accuracy (ISO-230-2 & VDI 3441)			mm	P0.015		P0.018		P0.026	P0.028 P0.032
Repeatability (JIS B6333)			mm	± 0.003					
Repeatability (ISO-230-2 & VDI 3441)			mm	Ps0.012		Ps0.015		Ps0.020	Ps0.022 Ps0.025
ATC									
ATC type/ capacity	Vertical type tool change		pcs	32 / 40(OPT.) / 60(OPT.)					
	Floor-standing type vertical tool change		pcs	32(OPT.) / 40(OPT.) / 60(OPT.)					
	Floor-standing type vertical-horizontal tool change		pcs	32(OPT.) / 40(OPT.) / 60(OPT.)					
Max. tool weight			kg	20					
Tool shank			-	BBT-50					
Pull stud			-	P50T-1					
GENERAL									
Power requirement			kVA	60					
Pneumatic requirement			kg/cm ²	6					
Machine net weight			kg	30,400 / 32,500	35,800 / 37,800	41,100 / 43,200	46,000 / 48,000	59,200 / 61,500	68,300 / 70,600
Dimensions (LxWxH)	Vertical type tool change		m	11.2 x 6.8 x 4.9	13.2 x 6.8 x 4.9	15.2 x 6.8 x 4.9	17.2 x 6.8 x 4.9	22 x 6.8 x 4.9	26 x 6.8 x 4.9
	Floor-standing vertical type tool change		m	11.2 x 8.5 x 4.9	13.2 x 8.5 x 4.9	15.2 x 8.5 x 4.9	17.2 x 8.5 x 4.9	22 x 8.5 x 4.9	26 x 8.5 x 4.9
	Floor-standing vertical-horizontal type tool change		m	11.2 x 9.0 x 5.2	13.2 x 9.0 x 5.2	15.2 x 9.0 x 5.2	17.2 x 9.0 x 5.2	22 x 9.0 x 5.2	26 x 9.0 x 5.2

* Max. tool length : 450 mm, Max. support torque : 2.5 kgf-m

NF Specification | NF-xx26/33 Series

MODEL			Unit	NF-3026/ NF-3033	NF-4026/ NF-4033	NF-5026/ NF-5033	NF-6026/ NF-6033	NF-8026/ NF-8033	NF-10026/ NF-10033
TRAVEL									
X axis travel			mm	3,100	4,100	5,100	6,100	8,100	10,100
Y axis travel			mm	2,600 / 3,300					
Z axis travel	Box way / single ballscrew		mm	920 / 1,020(OPT.)					
	Linear way, Enclosed Box Ram/Dual ballscrews		mm	1,000(OPT.) / 1,200(OPT.) / 1,400(OPT.)					
Distance from spindle nose to table	Box way/ single ballscrew(2-step gear)	Z axis=920	mm	150-1,070(Standard column)				100-1,020(Standard column)	
		Z axis=1,020	mm	250-1,270(column+200mm)				200-1,220(column+200mm)	
	Linear way, Enclosed Box Ram/ Dual ballscrews (2-step gear/Direct-driven)	Z axis=1,000	mm	150-1,150(Standard column)				100-1,100(Standard column)	
		Z axis=1,200	mm	150-1,350(column+200mm)				100-1,300(column+200mm)	
		Z axis=1,400	mm	150-1,550(column+400mm)				100-1,500(column+400mm)	
Distance between columns (port width)			mm	2,750					
TABLE									
Table size			mm	3,000 x 2,450	4,000 x 2,450	5,000 x 2,450	6,000 x 2,450	8,000 x 2,450	10,000 x 2,450
T-slot(Width x Number x Pitch)			mm	28 x 13 x 200 (150)					
Max. table load			kg/m	13,000	16,000	20,000	22,000	24,000	26,000
SPINDLE									
Spindle power(cont./ 30 min.)			kW	18.5 / 22(22 / 26OPT.)(30 / 37OPT.)					
Spindle speed	Box way / single ballscrew	2-step gear	rpm	4,000 / 6,000(OPT.)					
	Linear way, Enclosed Box Ram/ Dual ballscrews	2-step gear	rpm	4,000(OPT.) / 6,000(OPT.)					
		Direct-driven	rpm	10,000(OPT.)					
Spindle taper			-	BBT-50					
FEED									
Cutting feed rate			mm/min	1-10,000				1-7,000	
Rapid traverse	X/Y(Y+700)	m/min	24 / 20(15)			15 / 20 (15)			
	Z:Box way / single ballscrew Z:Linear way/ Dual ballscrews	m/min	15						
	Z:Enclosed Box Ram/Dual ballscrews	m/min	12						
3 axis motor power(FANUC)(Z:Box way / single ballscrew)			kW	7 / 4.5 / 7		9 / 4.5 / 7			
3 axis motor power(FANUC)(Z:Linear way, Enclosed Box Ram/Dual ballscrews)			kW	7 / 4.5 / 4.5*2		9 / 4.5 / 4.5*2			
ACCURACY									
Positioning accuracy (JIS B6333)			mm	± 0.008 / Full travel		± 0.009 / Full travel		± 0.010 / Full travel	
Positioning accuracy (ISO-230-2 & VDI 3441)			mm	P0.015		P0.018		P0.026	P0.028 P0.032
Repeatability (JIS B6333)			mm	± 0.003					
Repeatability (ISO-230-2 & VDI 3441)			mm	Ps0.012		Ps0.015		Ps0.020	Ps0.022 Ps0.025
ATC									
ATC type/ capacity	Vertical type tool change		pcs	32 / 40(OPT.) / 60(OPT.)					
	Floor-standing type vertical tool change		pcs	32(OPT.) / 40(OPT.) / 60(OPT.)					
	Floor-standing type vertical-horizontal tool change		pcs	32(OPT.) / 40(OPT.) / 60(OPT.)					
Max. tool weight			kg	20					
Tool shank			-	BBT-50					
Pull stud			-	P50T-1					
GENERAL									
Power requirement			kVA	60					
Pneumatic requirement			kg/cm ²	6					
Machine net weight			kg	36,400 / 38,400	41,400 / 43,900	46,400 / 48,900	51,000 / 53,900	60,000 / 63,900	69,000 / 73,900
Dimensions (LxWxH)	Vertical type tool change		m	11.2 x 7.2 x 4.9	13.2 x 7.2 x 4.9	15.2 x 7.2 x 4.9	17.2 x 7.2 x 4.9	22 x 7.2 x 4.9	26 x 7.2 x 4.9
	Floor-standing vertical type tool change		m	11.2 x 8.8 x 4.9	13.2 x 8.8 x 4.9	15.2 x 8.8 x 4.9	17.2 x 8.8 x 4.9	22 x 8.8 x 4.9	26 x 8.8 x 4.9
	Floor-standing vertical-horizontal type tool change		m	11.2 x 9.3 x 5.2	13.2 x 9.3 x 5.2	15.2 x 9.3 x 5.2	17.2 x 9.3 x 5.2	22 x 9.3 x 5.2	26 x 9.3 x 5.2

* Max. tool length : 450 mm, Max. support torque : 2.5 kgf-m

NF Specification | NF-xx32/39 Series

MODEL			Unit	NF-3032/ NF-3039	NF-4032/ NF-4039	NF-5032/ NF-5039	NF-6032/ NF-6039	NF-8032/ NF-8039	NF-10032/ NF-10039
TRAVEL									
X axis travel			mm	3,100	4,100	5,100	6,100	8,100	10,100
Y axis travel			mm	3,200 / 3,900					
Z axis travel	Box way / single ballscrew		mm	920 / 1,020(OPT.)					
	Linear way, Enclosed Box Ram/Dual ballscrews		mm	1,000(OPT.) / 1,200(OPT.) / 1,400(OPT.)					
Distance from spindle nose to table	Box way/ single ballscrew(2-step gear)	Z axis=920	mm	150-1,070(Standard column)				100-1,020(Standard column)	
		Z axis=1,020	mm	250-1,270(column+200mm)				200-1,220(column+200mm)	
	Linear way, Enclosed Box Ram/ Dual ballscrews (2-step gear/Direct-driven)	Z axis=1,000	mm	150-1,150(Standard column)				100-1,100(Standard column)	
		Z axis=1,200	mm	150-1,350(column+200mm)				100-1,300(column+200mm)	
		Z axis=1,400	mm	150-1,550(column+400mm)				100-1,500(column+400mm)	
Distance between columns (port width)			mm	3,250					
TABLE									
Table size			mm	3,000 x 2,450	4,000 x 2,450	5,000 x 2,450	6,000 x 2,450	8,000 x 2,450	10,000 x 2,450
T-slot(Width x Number x Pitch)			mm	28 x 11 x 200 (150)					
Max. table load			kg/m	13,000	16,000	20,000	22,000	24,000	26,000
SPINDLE									
Spindle power(cont./ 30 min.)			kW	18.5 / 22(22 / 26OPT.)(30 / 37OPT.)					
Spindle speed	Box way / single ballscrew	2-step gear	rpm	4,000 / 6,000(OPT.)					
	Linear way, Enclosed Box Ram/ Dual ballscrews	2-step gear	rpm	4,000(OPT.) / 6,000(OPT.)					
		Direct-driven	rpm	10,000(OPT.)					
Spindle taper			-	BBT-50					
FEED									
Cutting feed rate			mm/min	1-10,000				1-7,000	
Rapid traverse	X/Y(Y+700)		m/min	24 / 15 (15)			15 / 15 (15)		
	Z:Box way / single ballscrew Z:Linear way/ Dual ballscrews		m/min	15					
	Z:Enclosed Box Ram/Dual ballscrews		m/min	12					
3 axis motor power(FANUC)(Z:Box way / single ballscrew)			kW	7 / 4.5 / 7		9 / 4.5 / 7			
3 axis motor power(FANUC)(Z:Linear way, Enclosed Box Ram/Dual ballscrews)			kW	7 / 4.5 / 4.5*2		9 / 4.5 / 4.5*2			
ACCURACY									
Positioning accuracy (JIS B6333)			mm	± 0.008 / Full travel		± 0.009 / Full travel		± 0.010 / Full travel	
Positioning accuracy (ISO-230-2 & VDI 3441)			mm	P0.015		P0.018		P0.026	P0.028 P0.032
Repeatability (JIS B6333)			mm	± 0.003					
Repeatability (ISO-230-2 & VDI 3441)			mm	Ps0.012		Ps0.015		Ps0.020	Ps0.022 Ps0.025
ATC									
ATC type/ capacity	Vertical type tool change		pcs	32 / 40(OPT.) / 60(OPT.)					
	Floor-standing type vertical tool change		pcs	32(OPT.) / 40(OPT.) / 60(OPT.)					
	Floor-standing type vertical-horizontal tool change		pcs	32(OPT.) / 40(OPT.) / 60(OPT.)					
Max. tool weight			kg	20					
Tool shank			-	BBT-50					
Pull stud			-	P50T-1					
GENERAL									
Power requirement			kVA	60					
Pneumatic requirement			kg/cm ²	6					
Machine net weight			kg	40,500 / 42,500	44,500 / 48,000	50,500 / 54,000	55,500 / 58,500	64,500 / 68,500	73,500 / 78,500
Dimensions (LxWxH)	Vertical type tool change		m	11.2 x 7.8 x 4.9	13.2 x 7.8 x 4.9	15.2 x 7.8 x 4.9	17.2 x 7.8 x 4.9	22 x 7.8 x 4.9	26 x 7.8 x 4.9
	Floor-standing vertical type tool change		m	11.2 x 9.4 x 4.9	13.2 x 9.4 x 4.9	15.2 x 9.4 x 4.9	17.2 x 9.4 x 4.9	22 x 9.4 x 4.9	26 x 9.4 x 4.9
	Floor-standing vertical-horizontal type tool change		m	11.2 x 10 x 5.2	13.2 x 10 x 5.2	15.2 x 10 x 5.2	17.2 x 10 x 5.2	22 x 10 x 5.2	26 x 10 x 5.2

* Max. tool length : 450 mm, Max. support torque : 2.5 kgf-m

* NF-3239, Y7

HF Specification | HF-xx35/42 Series

MODEL			Unit	HF-4035/ HF-4042	HF-5035/ HF-5042	HF-6035/ HF-6042	HF-8035/ HF-8042	HF-10035/ HF-10042
TRAVEL								
X axis travel			mm	4,100	5,100	6,100	8,100	10,100
Y axis travel			mm	3,500 / 4,200				
Z axis travel	Box way / single ballscrew		mm	920 ; 1,020(OPT.)				
	Linear way, Enclosed Box Ram/Dual ballscrews		mm	1,000(OPT.) ; 1,200(OPT.) ; 1,400(OPT.)				
Distance from spindle nose to table	Box way/ single ballscrew(2-step gear)	Z axis=920	mm	270-1,190(Standard column)				
		Z axis=1,020	mm	170-1,090(Standard column)				
	Linear way, Enclosed Box Ram/ Dual ballscrews (2-step gear/Direct-driven)	Z axis=1,000	mm	270-1,270(Standard column)				
		Z axis=1,200	mm	270-1,470(column+200mm)				
		Z axis=1,400	mm	270-1,670(column+400mm)				
Distance between columns (port width)			mm	3,550				
TABLE								
Table size			mm	4,000 x 3,000	5,000 x 3,000	6,000 x 3,000	8,000 x 3,000	10,000 x 3,000
T-slot(Width x Number x Pitch)			mm	28 x 13 x 250 (150)				
Max. table load			kg/m	20,000	24,000	28,000	32,000	36,000
SPINDLE								
Spindle power(cont./ 30 min.)			kW	22 / 26(30 / 37OPT.)				
Spindle speed	Box way / single ballscrew	2-step gear	rpm	4,000 / 6,000(OPT.)				
	Linear way, Enclosed Box Ram/ Dual ballscrews	2-step gear	rpm	4,000(OPT.) / 6,000(OPT.)				
		Direct-driven	rpm	10,000(OPT.)				
Spindle taper			-	BBT-50				
FEED								
Cutting feed rate			mm/min	1-7,000				
Rapid traverse	X/Y(Y+700)		m/min	24 / 15 (15)	15 / 15 (15)			
	Z:Box way / single ballscrew		m/min	15				
	Z:Linear way/ Dual ballscrews							
	Z:Enclosed Box Ram/Dual ballscrews		m/min	12				
3 axis motor power(FANUC)(Z:Box way / single ballscrew)			kW	9 / 4.5 / 7				
3 axis motor power(FANUC)(Z:Linear way, Enclosed Box Ram/Dual ballscrews)			kW	9 / 4.5 / 4.5*2				
ACCURACY								
Positioning accuracy (JIS B6333)			mm	± 0.013/ Full travel			± 0.015/ Full travel	
Positioning accuracy (ISO-230-2 & VDI 3441)			mm	P0.040		P0.045		P0.050
Repeatability (JIS B6333)			mm	± 0.003				
Repeatability (ISO-230-2 & VDI 3441)			mm	Ps0.028		Ps0.035		Ps0.040
ATC								
ATC type/ capacity	Vertical type tool change		pcs	32 / 40(OPT.) / 60(OPT.)				
	Floor-standing type vertical tool change		pcs	32(OPT.) / 40(OPT.) / 60(OPT.)				
	Floor-standing type vertical-horizontal tool change		pcs	32(OPT.) / 40(OPT.) / 60(OPT.)				
Max. tool weight			kg	20				
Tool shank			-	BBT-50				
Pull stud			-	P50T-1				
GENERAL								
Power requirement			kVA	65				
Pneumatic requirement			kg/cm ²	6				
Machine net weight			kg	57,000 / 59,000	63,000 / 65,000	69,000 / 71,000	83,000 / 85,000	99,000 / 100,000
Dimensions (LxWxH)	Vertical type tool change		m	14 x 8.2 x 5.1	16 x 8.2 x 5.1	18 x 8.2 x 5.1	23 x 8.2 x 5.1	28 x 8.2 x 5.1
	Floor-standing vertical type tool change		m	14 x 9.4 x 5.1	16 x 9.4 x 5.1	18 x 9.4 x 5.1	23 x 9.4 x 5.1	28 x 9.4 x 5.1
	Floor-standing vertical-horizontal type tool change		m	14 x 10 x 5.2	16 x 10 x 5.2	18 x 10 x 5.2	23 x 10 x 5.2	28 x 10 x 5.2

* Max. tool length : 450 mm, Max. support torque : 2.5 kgf-m

HF Specification | HF-xx40/47 Series

MODEL			Unit	HF-4040/ HF-4047	HF-5040/ HF-5047	HF-6040/ HF-6047	HF-8040/ HF-8047	HF-10040/ HF-10047
TRAVEL								
X axis travel			mm	4,100	5,100	6,100	8,100	10,100
Y axis travel			mm	4,000 / 4,700				
Z axis travel	Box way / single ballscrew		mm	920 ; 1,020(OPT.)				
	Linear way, Enclosed Box Ram/Dual ballscrews		mm	1,000(OPT.) ; 1,200(OPT.) ; 1,400(OPT.)				
Distance from spindle nose to table	Box way/ single ballscrew(2-step gear)	Z axis=920	mm	270-1,190(Standard column)				
		Z axis=1,020	mm	170-1,090(Standard column)				
	Linear way, Enclosed Box Ram/ Dual ballscrews (2-step gear/Direct-driven)	Z axis=1,000	mm	270-1,270(Standard column)				
		Z axis=1,200	mm	270-1,470(column+200mm)				
		Z axis=1,400	mm	270-1,670(column+400mm)				
Distance between columns (port width)			mm	4,050				
TABLE								
Table size			mm	4,000 x 3,500	5,000 x 3,500	6,000 x 3,500	8,000 x 3,500	10,000 x 3,500
T-slot(Width x Number x Pitch)			mm	28 x 15 x 250 (150)				
Max. table load			kg/m	20,000	24,000	28,000	32,000	36,000
SPINDLE								
Spindle power(cont./ 30 min.)			kW	22 / 26(30 / 37OPT.)				
Spindle speed	Box way / single ballscrew	2-step gear	rpm	4,000 / 6,000(OPT.)				
		2-step gear	rpm	4,000(OPT.) / 6,000(OPT.)				
	Linear way, Enclosed Box Ram/ Dual ballscrews	Direct-driven	rpm	10,000(OPT.)				
		Spindle taper		-	BBT-50			
FEED								
Cutting feed rate			mm/min	1-7,000				
Rapid traverse	X/Y(Y+700)		m/min	24 / 15 (15)	15 / 15 (15)			
	Z:Box way / single ballscrew Z:Linear way/ Dual ballscrews		m/min	15				
	Z:Enclosed Box Ram/Dual ballscrews		m/min	12				
	3 axis motor power(FANUC)(Z:Box way / single ballscrew)		kW	9 / 4.5 / 7				
3 axis motor power(FANUC)(Z:Linear way, Enclosed Box Ram/Dual ballscrews)			kW	9 / 4.5 / 4.5*2				
ACCURACY								
Positioning accuracy (JIS B6333)			mm	±0.013/ Full travel			±0.015/ Full travel	
Positioning accuracy (ISO-230-2 & VDI 3441)			mm	P0.040		P0.045		P0.050
Repeatability (JIS B6333)			mm	±0.003				
Repeatability (ISO-230-2 & VDI 3441)			mm	Ps0.028		Ps0.035		Ps0.040
ATC								
ATC type/ capacity	Vertical type tool change		pcs	32 / 40(OPT.) / 60(OPT.)				
	Floor-standing type vertical tool change		pcs	32(OPT.) / 40(OPT.) / 60(OPT.)				
	Floor-standing type vertical-horizontal tool change		pcs	32(OPT.) / 40(OPT.) / 60(OPT.)				
Max. tool weight			kg	20				
Tool shank			-	BBT-50				
Pull stud			-	P50T-1				
GENERAL								
Power requirement			kVA	65				
Pneumatic requirement			kg/cm ²	6				
Machine net weight			kg	58,000 / 60,000	64,000 / 66,000	70,000 / 72,000	84,000 / 86,000	100,000 / 101,000
Dimensions (LxWxH)	Vertical type tool change		m	14 x 8.7 x 5.1	16 x 8.7 x 5.1	18 x 8.7 x 5.1	24 x 8.7 x 5.1	28.5 x 8.7 x 5.1
	Floor-standing vertical type tool change		m	14 x 10 x 5.1	16 x 10 x 5.1	18 x 10 x 5.1	24 x 10 x 5.1	28.5 x 10 x 5.1
	Floor-standing vertical-horizontal type tool change		m	14 x 10.5 x 5.2	16 x 10.5 x 5.2	18 x 10.5 x 5.2	24 x 10.5 x 5.2	28.5 x 10.5 x 5.2

* Max. tool length : 450 mm, Max. support torque : 2.5 kgf-m

NF / HF Standard & Optional Accessories

Standard

- 1 FANUC 0iMF PLUS controller
- 2 Box way 4,000rpm 2-step gear type spindle
- 3 Z axis travel 920mm (Box way)
- 4 Spindle oil cooling system
- 5 Air blast through spindle
- 6 Footswitch for tool clamping
- 7 XYZ-axis absolute pulse coder feedback
- 8 XYZ-axis travel hard limits protection
- 9 Twin hydraulic cylinders with pressured Nitrogen assistance counterweight system
- 10 X, Y axis ballscrew support device (X axis ≥ 4m, Y axis ≥ 3m)
- 11 Cutting fluid cooling system
- 12 Centralized auto lubrication system
- 13 Independent lubrication oil collector
- 14 Vertical type tool magazine 32 tools
- 15 Enclosed sheet metal guard without roof (NF series X axis ≤ 6m)
- 16 Four piece sheet metal guard (NF series X axis ≥ 8m) (all HF series)
- 17 Swiveling arm type operation panel
- 18 Movable manual pulse generator
- 19 Screw type chip conveyor on table sides
- 20 Caterpillar type chip conveyor / Water tank
- 21 Heat exchanger for electrical cabinet
- 22 Wash gun and pneumatic interface
- 23 Vision Wide FX graphical user interface
- 24 Auto power off function
- 25 RJ45 interface
- 26 Working lamp
- 27 Operation cycle finish and alarm light
- 28 Spindle overloading protected by software
- 29 Foundation pads and bolts kits
- 30 Adjustment tool and tool kits
- 31 Technical manuals (operation, maintenance manual and circuit diagram)

Optional

- 1 FANUC 31 IB / HEIDENHAIN TNC640 / SIEMENS 828D / SIEMENS ONE / MITSUBISHI M80 TypeA / MITSUBISHI M830
- 2 Box way :6,000rpm 2-step gear type spindle
- 3 Linear way/Enclosed Box Ram 4,000/6,000rpm 2-step gear type spindle 10,000rpm direct driven type spindle
- 4 Z axis travel 1,020mm (Box way)
- 5 Z axis travel 1000/1200/1400mm(Linear way/Enclosed Box Ram)
- 6 Column heighten 200/400/600/800mm
- 7 Spindle ring cutting coolant device (for no head attachment)
- 8 Coolant through spindle system 20/70 bar
- 9 The interface of coolant through spindle
- 10 Coolant through tool holder interface
- 11 Switch for tool clamping
- 12 Spindle and structure temperature thermal compensation system
- 13 XYZ axis linear scale feedback
- 14 Oil skimmer
- 15 Oil mist cooling device
- 16 Oil mist recycle device
- 17 Vertical type tool magazine 40/60 tools
- 18 Floor-standing vertical type tool magazine 32/40/60 tools
- 19 Floor-standing vertical-horizontal type tool magazine 32/40/60 tools
- 20 Four piece sheet metal guard (NF series X axis ≤ 6m)
- 21 Enclosed sheet metal guard without roof (NF series X axis ≥ 8m) (all HF series)
- 22 Enclosed sheet metal guard with roof (NF series X axis ≤ 6m) (not for NF-xx32/39 and HF series)
- 23 3-axis independent manual pulse generator (only for FANUC)
- 24 Wireless remote control manual pulse generator
- 25 Helical bladed screw conveyor on table sides
- 26 Chip cart
- 27 Air conditioning for electrical cabinet
- 28 Auto measurement system
- 29 Rotary table
- 30 Sub working table
- 31 Interface reserved for fourth axis
- 32 Transformer
- 33 Auto warm up
- 34 Tool axis retract function at power failure

Optional accessories for auto head attachments

- 1 Auto AC 90 degree angular head/ AC 2 axis head/ AC extended head
- 2 Auto AC milling head/ small head/ customized head attachment
- 3 Floor-standing vertical-horizontal type tool magazine 32/40/60 tools (For NF-xx30/33/39, HF-xx42/47 series)
- 4 Manual swiveling arm type head bracket on operation side(one head attachment)
- 5 Auto swiveling arm type head bracket on operation side(one head attachment, one cover)
- 6 Multi-heads magazine (For NF-xx30/33/39, HF-xx42/47 series)
- 7 Auto AC 90 degree angular head/ AC 2 axis head/ AC extended head offered the CTS system

※For the specification of each model, please contact our sales representatives.