



F Series

High Efficiency Double Column Machining Center
High Precision Fixed beam 5-face Double Column
Machining Center

VISION WIDE

widen your cutting vision



Flexibility



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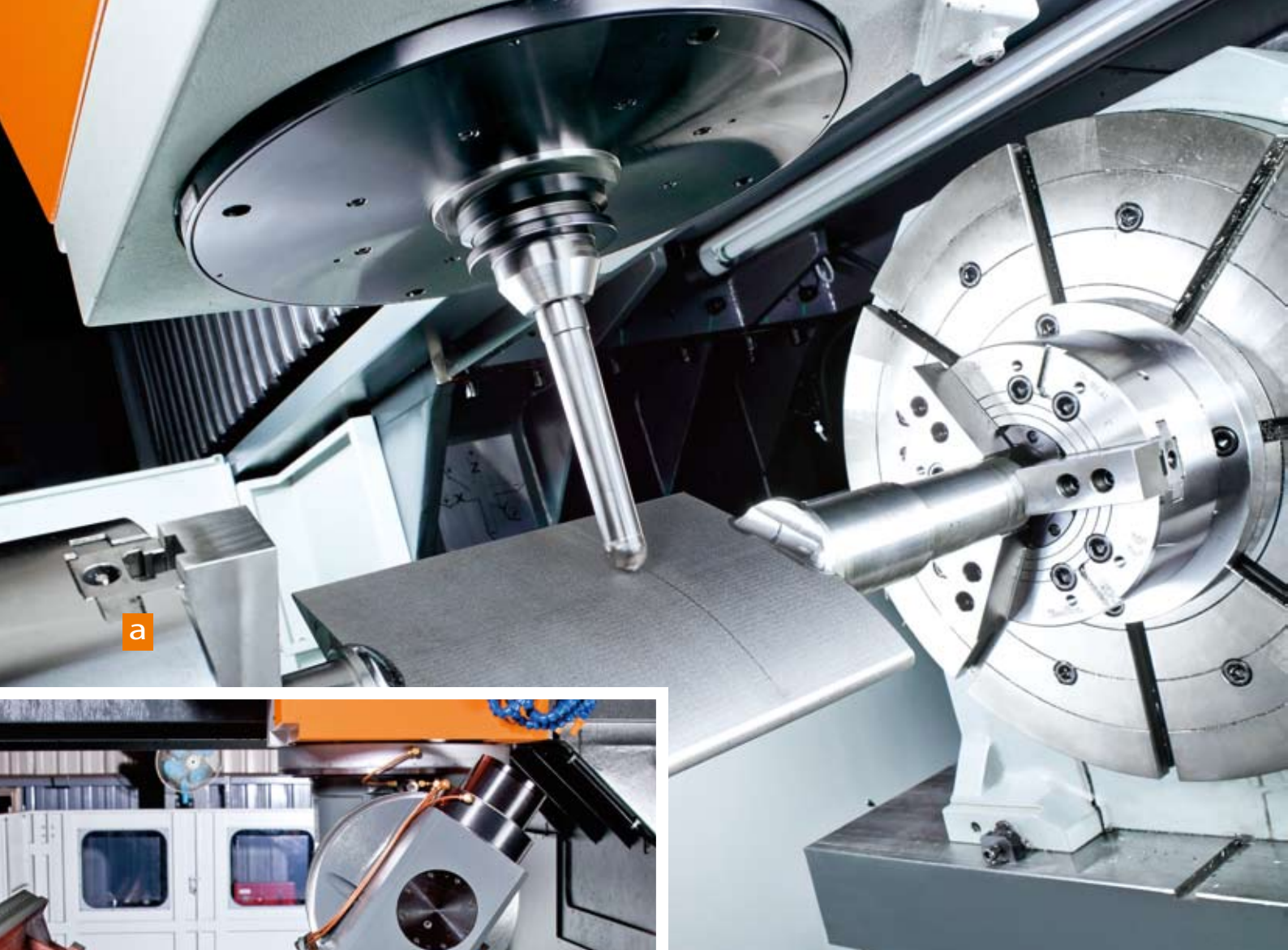
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Representative

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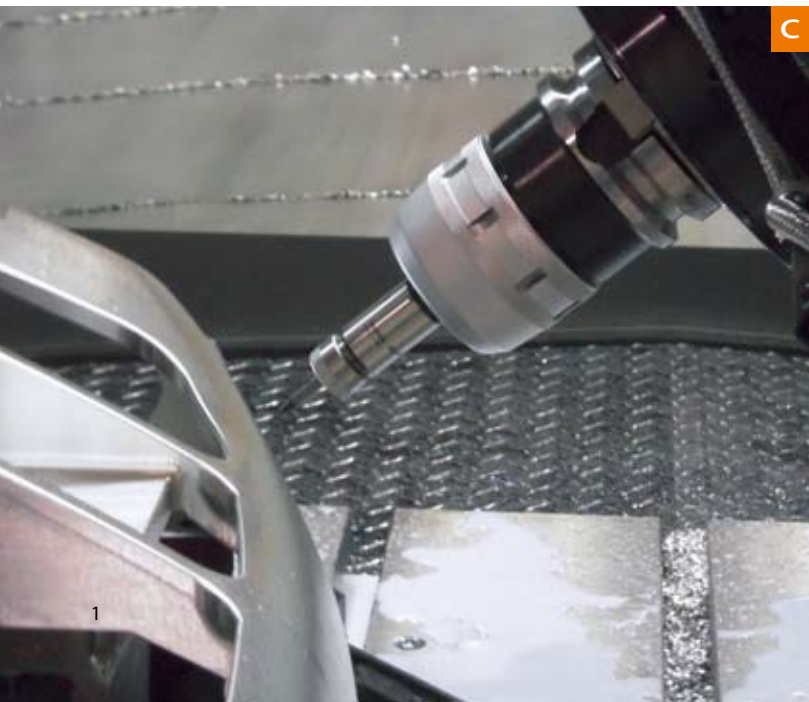
VISION WIDE TECH CO., LTD.



a



b



c

a. Machining with rotary table (4th device)

b. Machining with AC 2-axis head

c. High precision mold machining

F Series

High efficiency and performance double column machining center

With Vision Wide tradition in making high rigidity machine structure, F series not only plays a high precision indicator in 5-face machining centers but also provides a full range of high efficiency cutting performance through its rigid structure design and excellent geometric accuracy.

- Auto head attachments exchanging system
- Inspection by ISO-10791-2 standard
- Fully auto 5-face machining capacity
- Exclusive accessories for 5-face machining



Photo: NF-3223 model with enclosed splash guard (without roof), opt. auto swiveling arm type head bracket

F Series

Modularization on Auto multi-faced machining accessories



Photo: NF-3223 model with enclosed splash guard (without roof), opt. auto swiveling arm type head bracket

Full range of machine specification

- 4,000~6,000 gear type spindle
- Y-axis travel - NF series: 2,300/2,600/3,200 mm
3,000/3,300/3,900 mm
HF series: 3,500/4,000 mm
4,200/4,700 mm
- Z-axis travel (box way): 920/1,020mm
- Z-axis travel (linear way) can be expanded to 1,000/1,200/1,400mm
- Port width - NF series: 2,400/2,700/3,200mm
HF series: 3,500/ 4,000mm
- XYZ-axis roller type linear guide way supplied by Germany maker

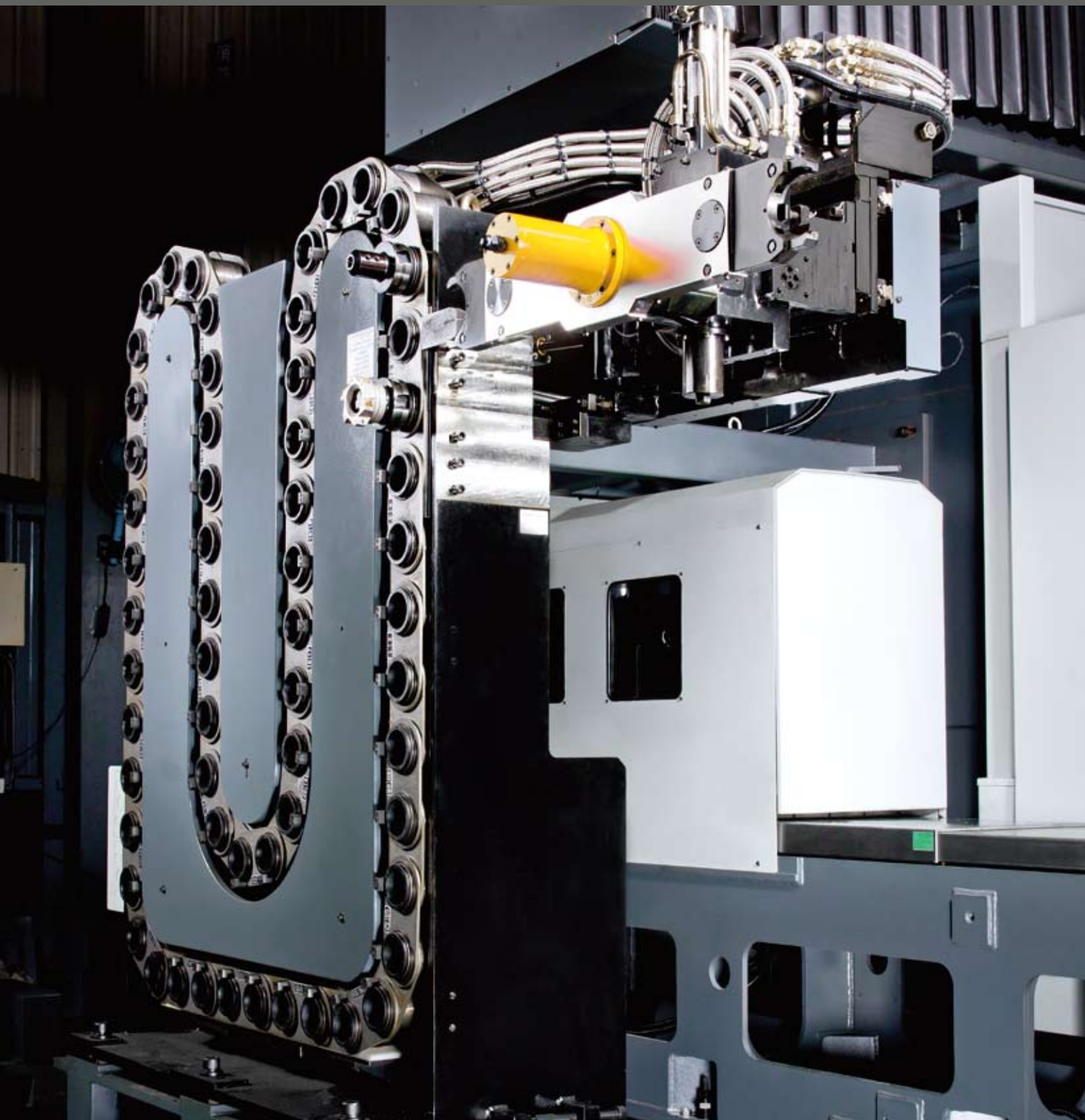
Diverse modularized head attachments

- Heavy cutting : AC 90 degree angular head
- Multi-faced cutting: AC 2-axis head
- Deep milling : AC 90 degree angular deep milling head
- Extended heads
- Small 90 degree angular head



F Series

Diversity machining module and function can be equipped



Various head storage unit



- a. Auto swiveling arm type head bracket (on operation side)
- b. One head auto head magazine outward
- c. Multi-heads magazine (on magazine side)
- d. Manual swiveling arm type head bracket (on operation side)

For NF-xx30/33/39 model / HF-xx42/47 model



Tool exchanging for head attachment

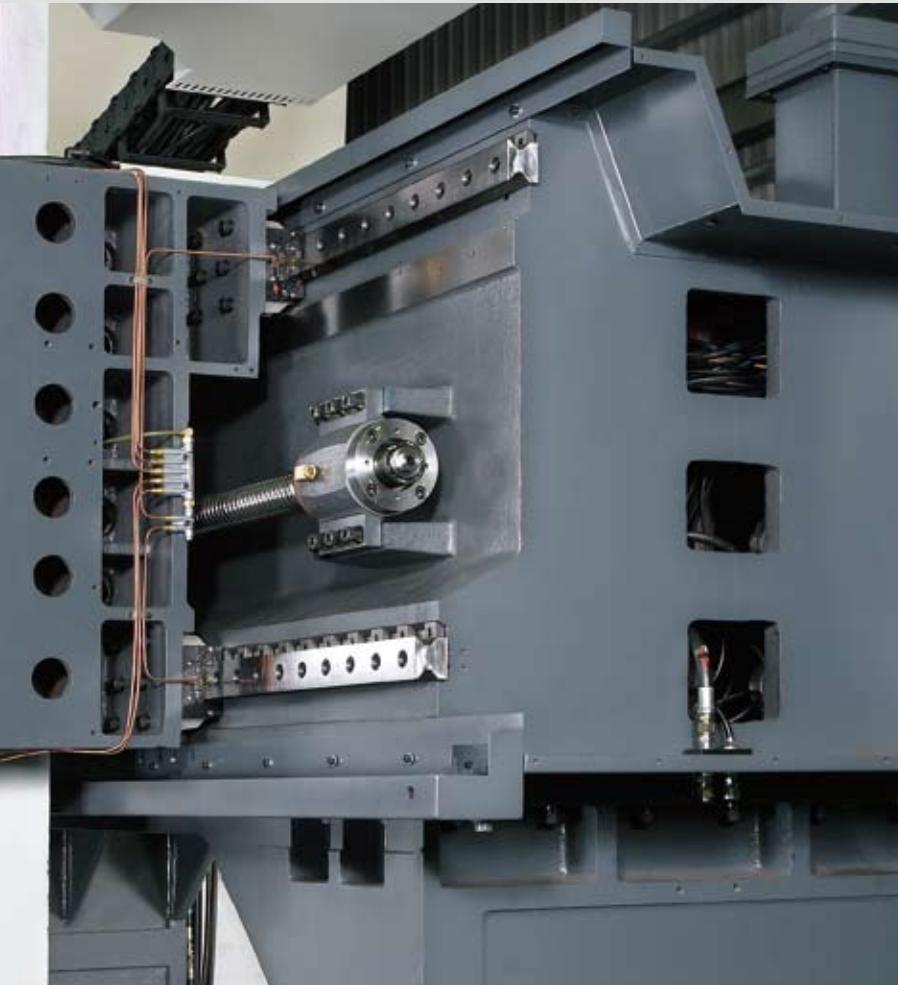


- a. Tool changing by Auto vertical-horizontal type tool magazine for AC 90 degree angular head
- b. Tool changing by Auto vertical-horizontal type tool magazine for vertical spindle

Note: AC 2-axis head/ extended head only for vertical type tool magazine

F Series

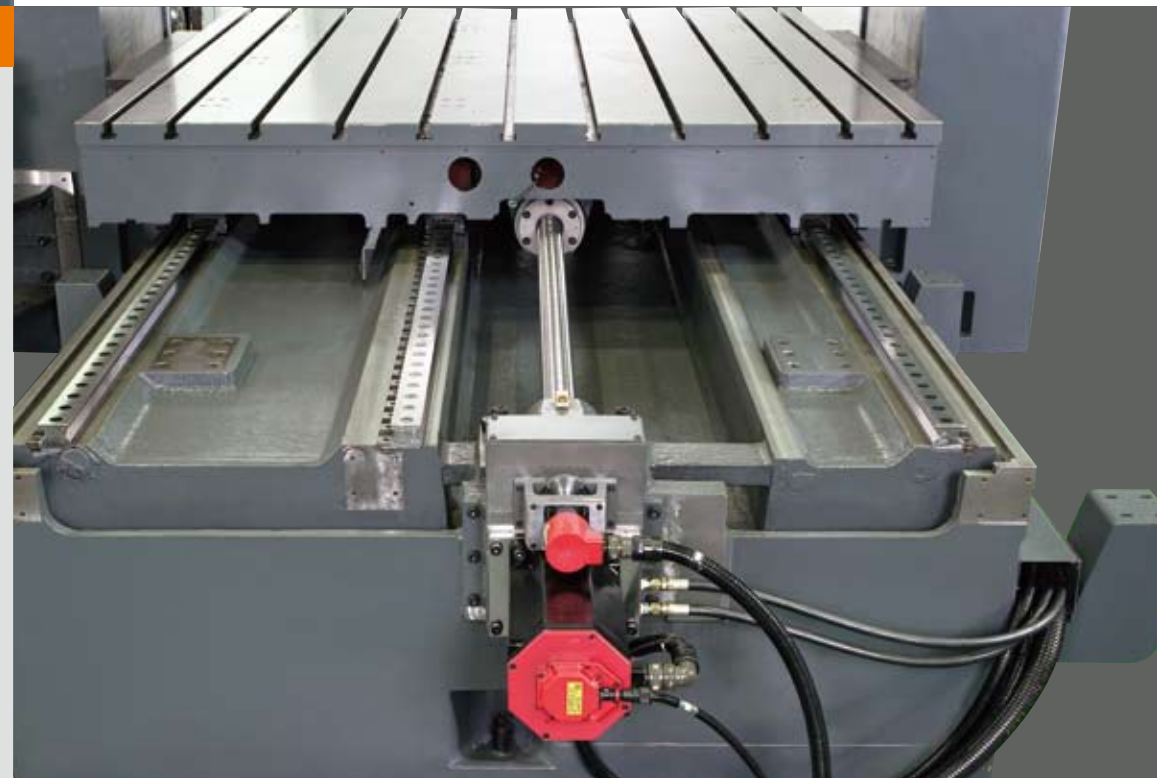
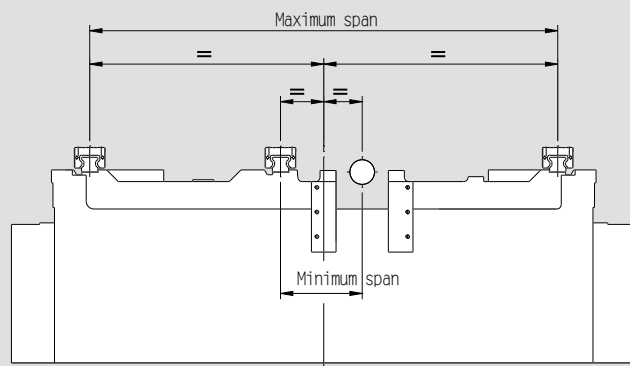
High rigid structure design



- More than 1,1m height of rigid stepped beam structure effectively enhances guide way span and provides Y-axis straightness and rigidity needed for heavy cutting.
- Y-axis with 65mm ultra-load guide way not only enhances more than 40% rigidity on higher cutting load but also extends longer lifetime.
- Symmetric 3 roller type linear guide ways design with large span with 2 guide way outside of the large span symmetry in the gravity of table load, intermediate guide way and drive screw with smallest span design, and symmetry in motion center to achieve full stroke movement straightness.



Photo: NF-3233 model



- Full stroke supported design, thick and extra-wide design size of bed structure with highly rigid structure, increases table load capacity and workpiece movement dynamic level, reaches the cutting stability and enhances anti-vibration.
- One-piece casting column structure with stick column section size, effectively link the rigidity of beam and base, enhancing YZ axis machining rigidity.
- Bed (less than 5m), table, column, beam, saddle and spindle head are made of by high quality casting.
- The bed which X travel above 6m is welded by advanced carbon steel plate, through heat treatment to reduce internal stress and to ensure stability.



- a. Overhead pendulum type operation panel (opt.)
- b. Z-axis box way: 920/1,020mm(opt.)
- c. Z-axis linear way: 1,000 (opt.) /1,200/ 1,400mm (opt.)



Photo: NF-5226 model

F Series

High accuracy and high performance feeding system to achieve best feeding and cutting rigidity

- Gear reducer in X-axis ensures high load capacity. Dynamic precision of servo motor can convey to precision screw.
- With 9kW (FANUC) high power motor offers max force and high precision

XYZ axis with dual feedback positioning encoder

- Less rotation error between motor and screw
- Higher positioning accuracy
- Higher repeatability

Supporter mechanism

XY axis precision supporter mechanism prevent ball screw sag, enhance higher positioning accuracy, and ensure ball screw lifetime (X-axis travel>4m, Y-axis travel>3m)

Z-axis hydraulic counter balance system to ensure Z-axis high speed mechanism:

- High positioning accuracy / repeatability
- High acceleration/ deceleration
- Z-axis retract function at power failure
- Excellent performance for power saving

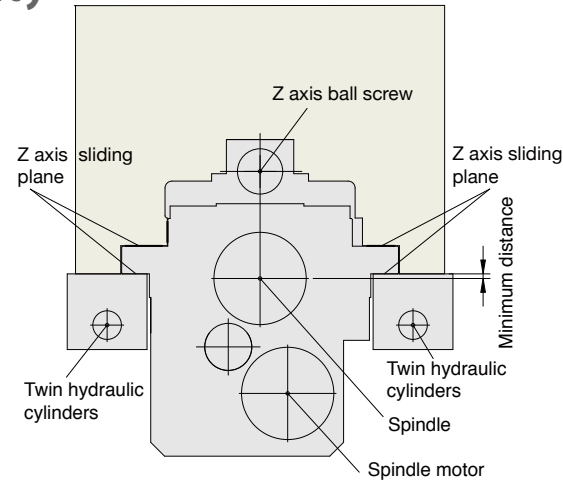


F Series

Optimal central symmetric spindle system design

Strong, stable, durable, and scalability

- Minimum distance between spindle center and Z-axis roller way not only shortens cutting lever arm but also significantly improves cutting rigidity.
- Symmetric spindle gravity configuration, Z-axis ball screw, spindle center and spindle motor configure at gravity point of Z-axis box structure centerline provide the best feed precision and thermal balance of Z-axis.
- Gear box of spindle assembled by Japan-made JIS-0 grade precision gears are with high precision, low noise and high efficiency transmission performance.
- 2-step gear type spindle provides high torque and high speed characteristics to ensure heavy cutting ability on surface finish of high speed cutting.
- Direct driven and built-in type high speed spindle with high rigidity and low friction roller linear way of Z-axis improve excellence performance of high acceleration/deceleration and micro feed.
- 3,300, 4,000, 5,500, 6,000, 8,000, 10,000 rpm spindle can be chosen according to different kind of machining requirements.



Heavy cutting ability

Face milling:

tool dia.:125mm
cutting feed:1,000mm
cutting width:100mm
cutting depth:6.5mm
removal rate:650cc/min

End milling:

tool dia.:63mmx9 inserts
cutting speed:800rpm
cutting feed:400mm/min
cutting depth:40mm
cutting width:20mm
removal rate:320cc/min

Gun drilling:

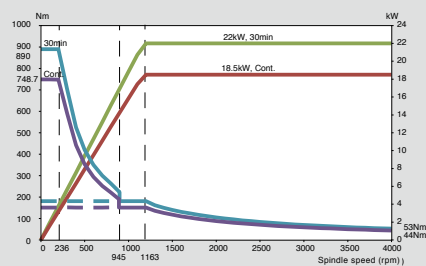
tool dia.:32mm
cutting speed:1,500rpm
cutting feed:500mm/min
cutting depth:30mm
removal rate:480cc/min
coolant through spindle

Test specification:22/26kw/6,000rpm spindle

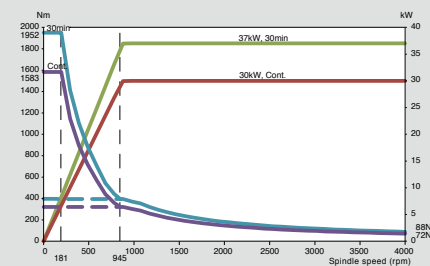


Spindle power and torque chart

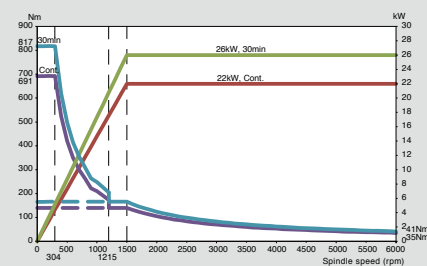
Fanuc 18 box way gear type 4000rpm



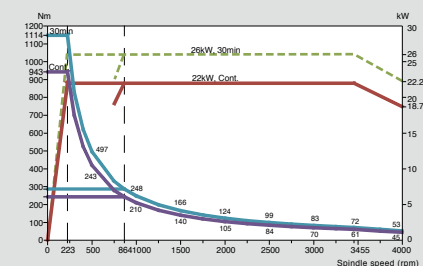
Fanuc 30 box way gear type 4000rpm



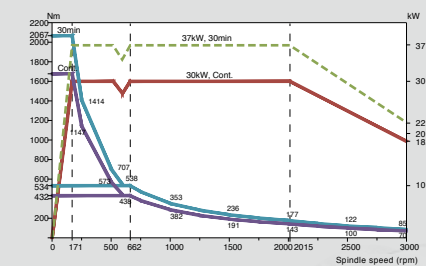
Fanuc 22 box way gear type 6000rpm



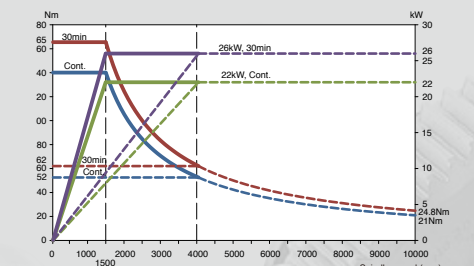
Fanuc 22 linear way gear type 4000rpm



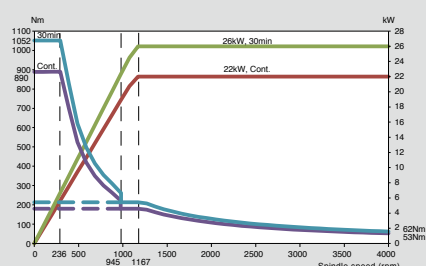
Fanuc 30 linear way gear type 3000rpm



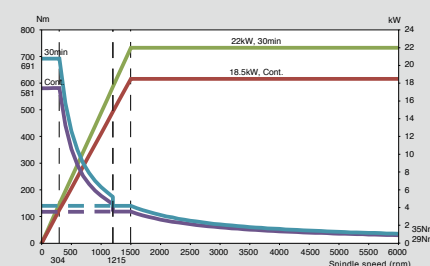
Fanuc 22-26/26kW direct driven 10000rpm



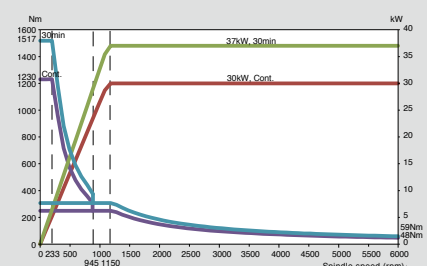
Fanuc 22 box way gear type 4000rpm



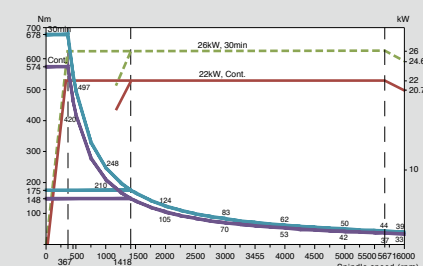
Fanuc 18 box way gear type 6000rpm



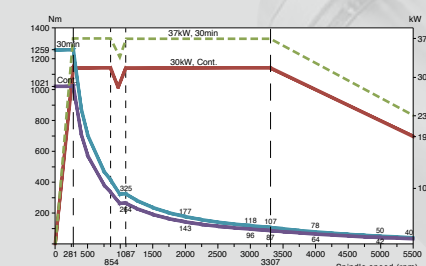
Fanuc 30 box way gear type 6000rpm



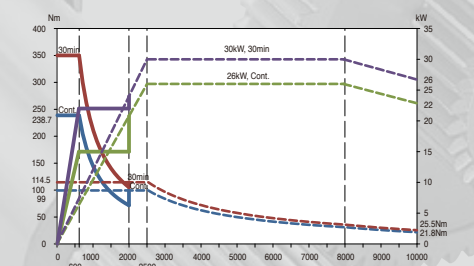
Fanuc 22 linear way gear type 6000rpm



Fanuc 30 linear way gear type 5500rpm



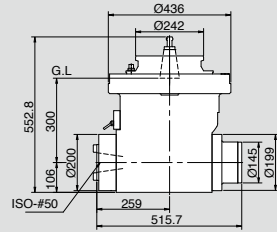
Fanuc 26iL-26/30kW direct driven 10000rpm



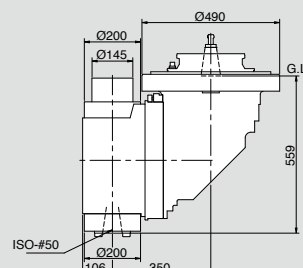
F Series

Auto multi-angle head attachment

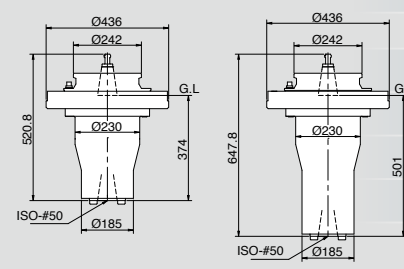
- B/C-axis auto 5° indexing
- C-axis auto 1° indexing
- Large diameter indexing mechanism
- Auto tool clamping device
- Flood coolant function
- AC 90° angular head with coolant through spindle



Tool clamping	Auto hydraulic clamping
Head clamping	Auto hydraulic clamping
C-axis indexing	Auto 1° /5°
Machining coolant	External nozzle/ coolant
Max. power	26 kW
Max. speed	3,000rpm

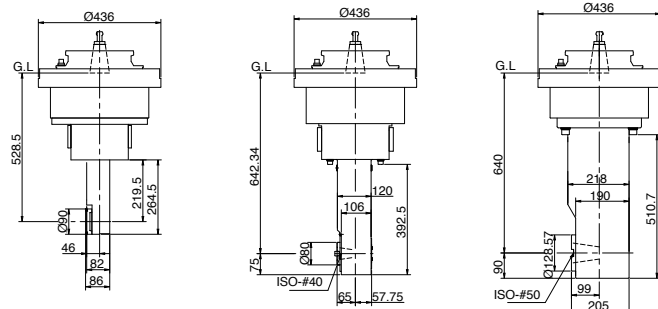


Tool clamping	Auto hydraulic clamping
Head clamping	Auto hydraulic clamping
C-axis indexing	Auto 1° /5°
B-axis indexing	Auto 5° (manual 1°)
Machining coolant	External nozzle
Max. power	26 kW
Max. speed	3,000rpm



Tool clamping	Auto hydraulic clamping
Head clamping	Auto hydraulic clamping
Max. power	26 kW
Max. speed	4,000rpm

Various types of milling head



Tool clamping	Manual
Head clamping	Auto hydraulic clamping
C-axis indexing	Auto 1° /5°
Max. power	26 kW
Max. speed	800rpm

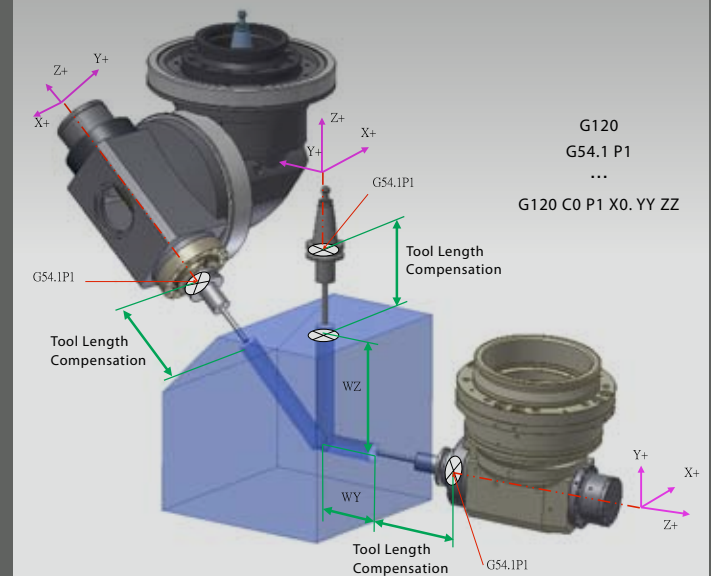
Intelligent multi-faced machining

Tool center point management (TCPM)

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.

Head attachment dimensions correction

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



FX500 5-face machining function

- V/H tool diameter correction
- V/H spindle origin correction
- V/H working coordinate affine transformation
- V/H 3D rigid tapping
- V/H manual interrupting

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.

Heavy cutting ability

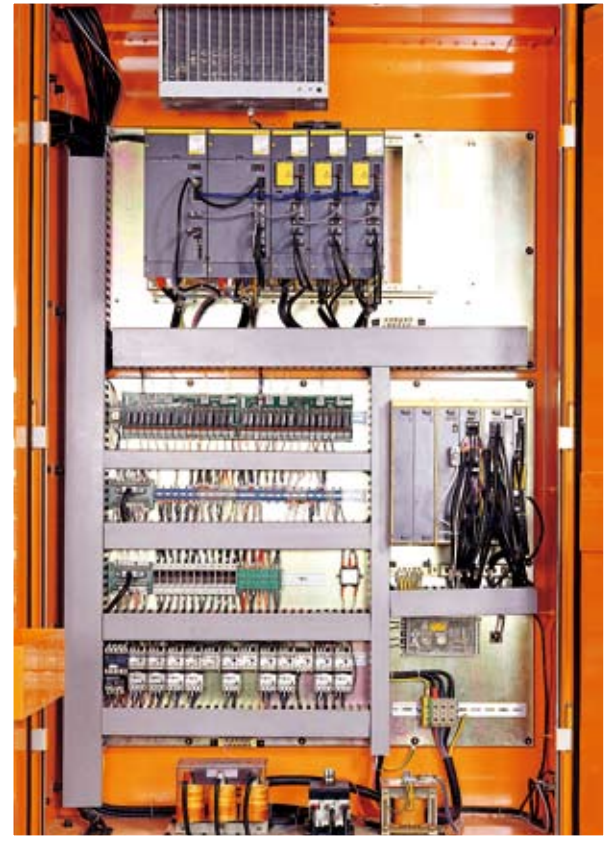
Through cutting depth test to show excellent heavy cutting rigidity

Head attachment	Extended head	90 degree angular head	2-axis head
Tool type	BT50 face milling tool-diameter Ø125/5 edge		
Cutting material	S45C		
Spindle speed(rpm)	600		
Machining width(mm)	100		
Feed rate(mm/min)	1,000		
Machining depth(mm)	5	7	6
Removal rate(cc/min)	500	700	600

test specification22/26kW/4,500 rpm spindle

F Series

Safe, friendly and reliable operation interface



- Safe and reliable electrical circuit design
- CE compliant safety circuit design
- CE compliant EU regulation electrical parts for whole machine
- Auto locking operation door protection switch
- Z-axis retract function at power failure
- Anti-interference design on motor power cables
- Overload and phase protecting device on servo motors
- 3-axis over travel and hardware limit protection
- Heat exchanger for electrical cabinet
- Main power protecting device
- EU regulation softkey operation panel
- Ethernet and RS232 interface
- USB port

- Side-mount tool magazine to save floor space, 32 tools magazine (40 or 60 tools magazine (opt.))
- Random tool change and special tool management
- Auto tool exchange, tool to tool 5 sec.
- Floor type vertical tool magazine for NF-xx30/33/39 & HF-xx42/47.

- a. Fast tool length measurement device at magazine side for mold cutting.
- b. Auto tool exchange, tool to tool 5 sec.
- c. Fluid nozzle for spindle provides best spray angle. (opt. for no head attachment)



- Sectional type design of sliding door type at operator's side extends the space for workpiece loading.
- Open-outward doors at both ends of the machine.
- Overhead pendulum type operation panel for users offers an easy-measuring, easy-programming, and safe working environment.

F Series

Intelligent machining

VW-FX software is designed to provide intelligent operation, efficient management and real time service.

Through network and cloud computing service to provide one to multi-machine program management, and real time monitoring the operational status of each machine.

VW-FX intelligent function

TOOL TABLE



Tool table data
Tools status refer to ATC

TOOL LOAD MANAGER



Over load alarm for each tool
Setting range 0~120%
No need any further external hardware

MACHINE STATUS

Fast mappings of I/O and program comment
Quick maintenance

MACHINING PARAMETER

Additions 3 parameters for machining
The best efficiency machining modules
The highest precision machining modules
The smoothest machining modules

TOOL COMPENSATION

Tool compensation data
Duty rate information

MANUAL TOOL COMPENSATION & MEASUREMENT



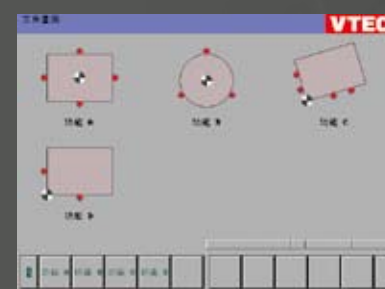
Fast tool compensation
Manual tool compensation

CALCULATOR



+ , - , X , ÷ arithmetic operations
Sine, cosine and tangent function
10 sets memory registering

WORK PIECE COORDINATE SEARCHING



Get the middle point of a rectangle geometry
Get the radius and center of a circular geometry
Calculate the tilted angle between a line and X axis
Get the corner of the included angle

WEB Site Login Cloud computing One computer manages multiple machines



HUB



One to multi-machine management

- NC program uploads & downloads
- Real time machining monitoring
- Alarm message
- Tool compensation table setting
- Workpiece coordinates table setting
- Marco parameter table
- Alarm by short message service (opt.)
- Machine utilization rate statement (opt.)

VW-FRM Remote control

MACHINE STATUS MONITOR

Tools status refer to ATC
Duty rate information
Coordinates display
Running program display
Running function display

PROGRAM MANAGEMENT

NC memory file manager
Data Server file manager
Simple and quick transfer

TOOL COMPENSATION

Tool compensation data
Variable value setting in Macro

MACHINE PARAMETER

Built-in e-book for quick lookup
Easy parameter backup

FACTORY MANAGEMENT

Operation time counter
Duty rate counter
Machined parts counter

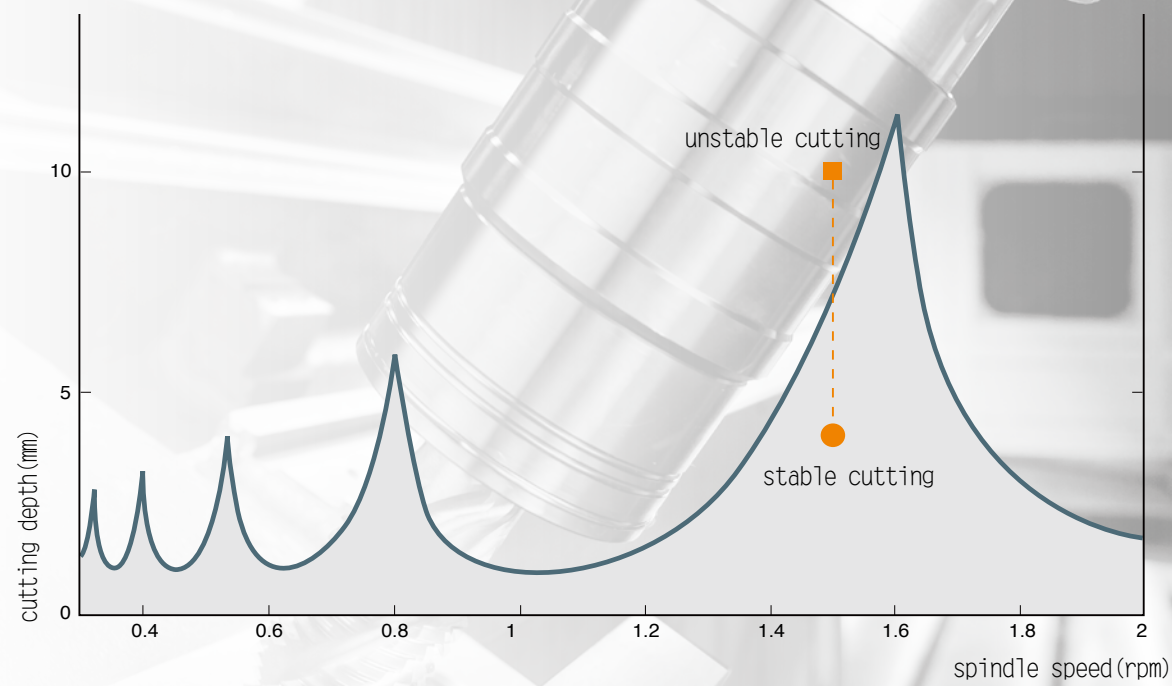
MACHINE STATUS DETECTING

Quick checking of machine status by a remote PC(Timer/Keep relay/Counter/Data)

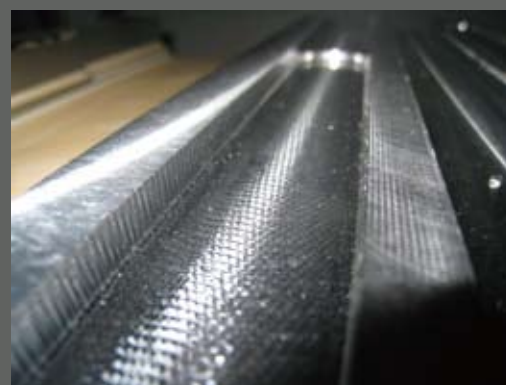
F Series

Optimal cutting application from the analyzation of the combination between CAD/CAM and LOBE analysis

To provide best cutting conditions and recommendations on combination between tool and machine.



Optimization of cutting accuracy



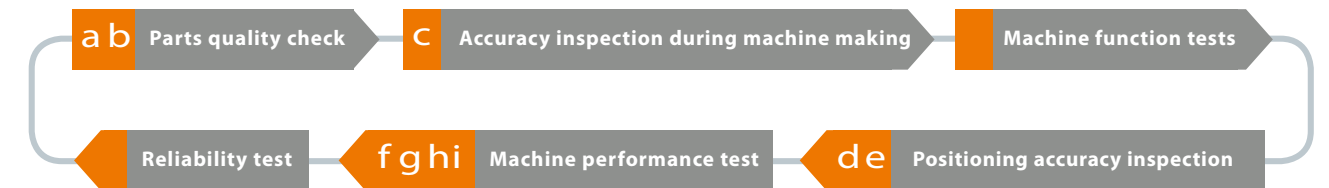
spindle speed: 2500rpm / cutting depth: 4mm



spindle speed: 3500rpm / cutting depth: 5mm

Complete quality check procedures to create high machine quality

We commit for "Quality First" by following P-D-C-A process in every production segment, using the advanced instruments and strict quality standards.



a. CMM inspection



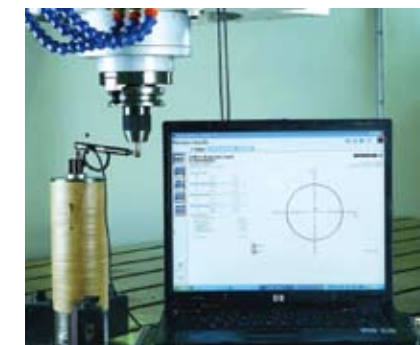
b. Laser Alignment inspection



c. Geometric accuracy inspection ISO 10791-2



d. Positioning accuracy inspection ISO 10791-4



e. 2-axis accuracy inspection ISO 10791-6



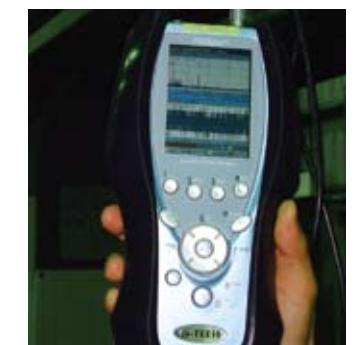
f. Dynamic accuracy cutting test ISO 10791-7



g. 3-D Mold cutting test



h. Heavy cutting test

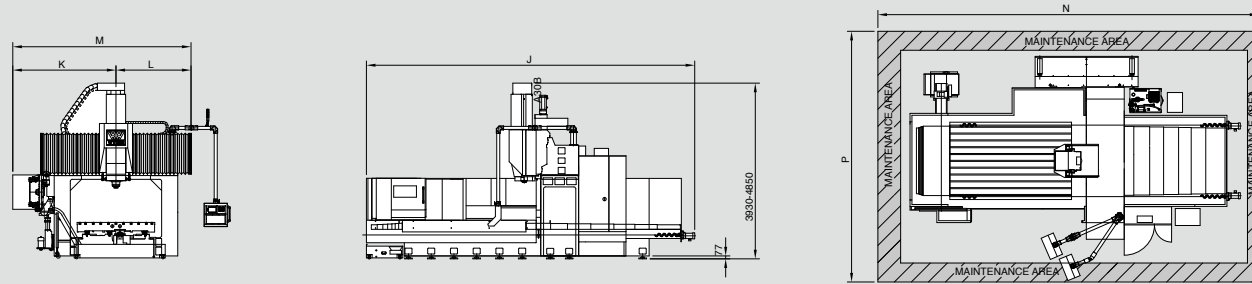


i. Noise and vibration test

Machine Dimension

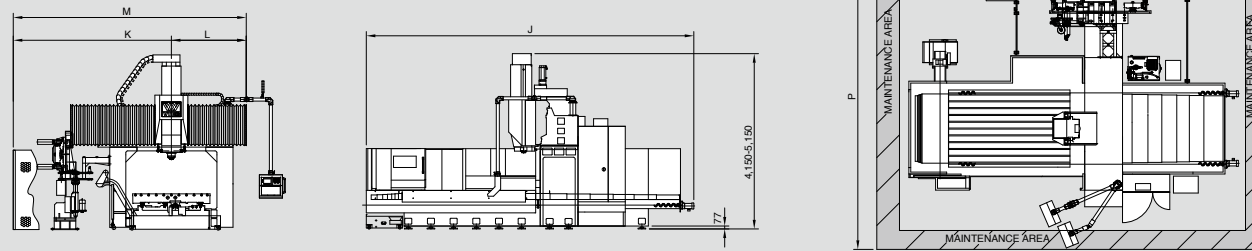
NF Series

NF-xx23/26/32 dimension (vertical type tool change)



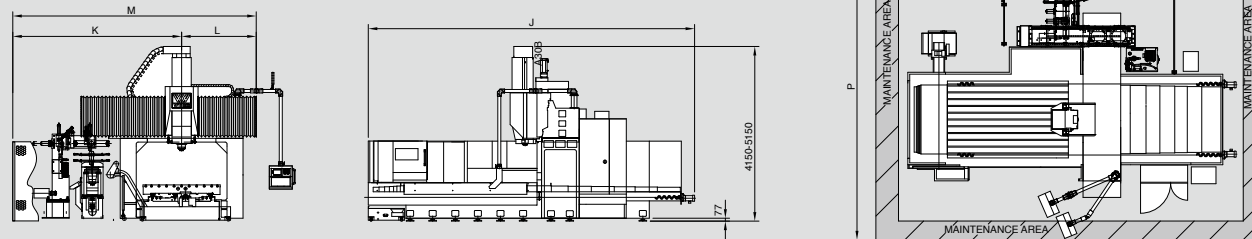
NF-xx30/33/39 dimension (floor-standing vertical type tool change)

For +200mm column height, Z-axis linear way 1,000mm



NF-xx30/33/39 dimension (floor-standing vertical-horizontal type tool change)

For +200mm column height, Z-axis linear way 1,000mm



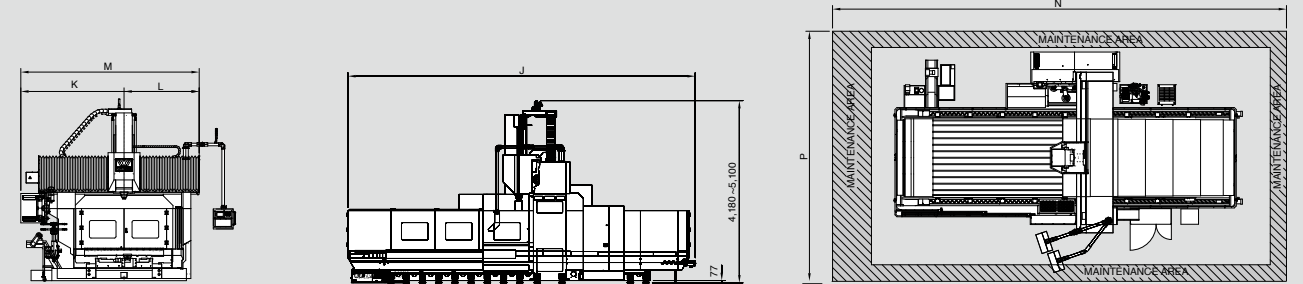
Technical Specification

Unit : mm

Model	J	K	L	M	N	P	Model	J	K	L	M	N	P
NF-2223	6,800				9,200		NF-3230	8,800				11,200	
NF-3223	8,800				11,200		NF-4230	10,800				13,200	
NF-4223	10,800				13,200		NF-5230	12,800	3,925	2,275	6,200	15,200	9,000
NF-5223	12,800	2,900	1,950	4,850	15,200	6,800	NF-6230	14,800				17,200	
NF-6223	14,800				17,200		NF-8230	19,900				22,000	
NF-8223	19,900				22,000		NF-10230	23,900				26,000	
NF-10223	24,900				26,000		NF-3233	8,800				11,200	
NF-3226	8,800				11,200		NF-4233	10,800				13,200	
NF-4226	10,800				13,200		NF-5233	12,800	4,075	2,425	6,500	15,200	9,300
NF-5226	12,800	3,100	2,100	5,200	15,200	7,200	NF-6233	14,800				17,200	
NF-6226	14,800				17,200		NF-8233	19,900				22,000	
NF-8226	19,900				22,000		NF-10233	23,900				26,000	
NF-10226	23,900				26,000		NF-3239	8,800				11,200	
NF-3232	8,800				11,200		NF-4239	10,800				13,200	
NF-4232	10,800				13,200		NF-5239	12,800	4,450	2,850	7,300	15,200	10,000
NF-5232	12,800	3,475	2,525	6,000	15,200	7,800	NF-6239	14,800				17,200	
NF-6232	14,800				17,200		NF-8239	19,900				22,000	
NF-8232	19,900				22,000		NF-10239	23,900				26,000	
NF-10232	23,900				26,000								

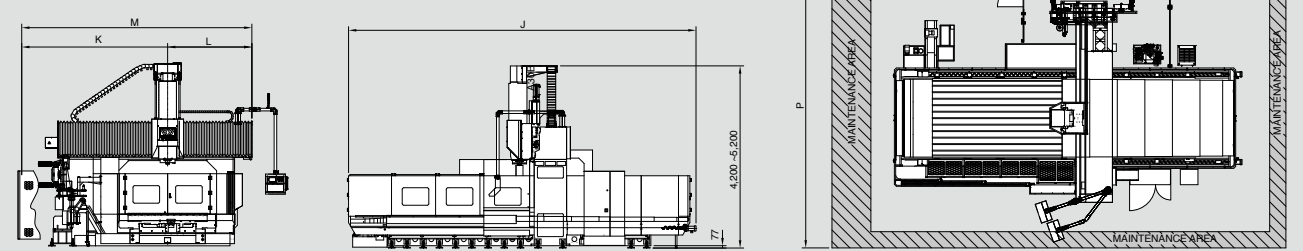
HF Series

HF-xx35/40 dimension (vertical type tool change)



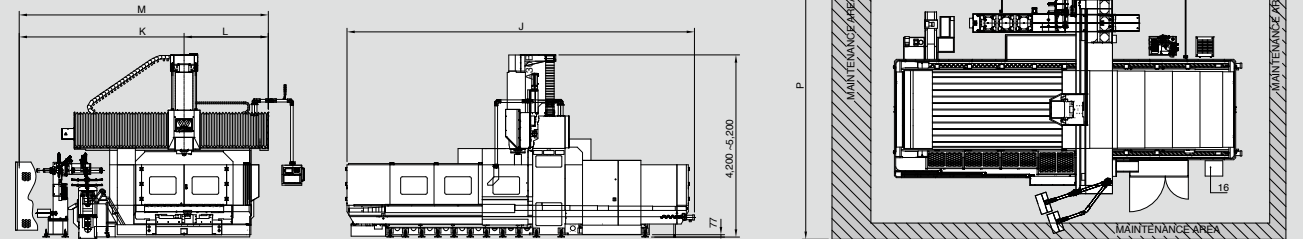
HF-xx42/47 dimension (floor-standing vertical type tool change)

For standard column height, Z-axis linear way 1,000mm



HF-xx42/47 dimension (floor-standing vertical-horizontal type tool change)

For standard column height, Z-axis linear way 1,000mm



Technical Specification

Unit : mm

Model	J	N	P	L	K	M	Model	J	N	P	L	K	M
HF-4235	10,800	14,000					HF-4247	10,800	14,000				
HF-5235	12,800	16,000					HF-5247	12,800	16,000				
HF-6235	14,800	18,000	8,200	2,570	3,480	6,050	HF-6247	14,800	18,000	10,000	3,130	4,820	7,950
HF-8235	19,500	23,000					HF-8247	19,500	24,000				
HF-10235	24,000	28,000					HF-10247	24,000	28,500				
HF-4240	10,800	14,000					HF-4242	10,800	14,000				
HF-5240	12,800	16,000					HF-5242	12,800	16,000				
HF-6240	14,800	18,000	8,700	2,820	3,730	6,550	HF-6242	14,800	18,000	10,000	2,880	4,770	7,650
HF-8240	19,500	24,000					HF-8242	19,500	23,000				
HF-10240	24,000	28,500					HF-10242	24,000	28,000				
HF-4242	10,800	14,000					HF-4247	10,800	14,000				
HF-5242	12,800	16,000					HF-5247	12,800	16,000				
HF-6242	14,800	18,000	9,400	2,880	4,570	7,450	HF-6247	14,800	18,000	10,500	3,130	5,020	8,150
HF-8242	19,500	23,000					HF-8247	19,500	24,000				
HF-10242	24,000	28,000					HF-10247	24,000	28,500				

NF Mechanical Specifications

MODEL	Unit	NF-2223	NF-3223/30	NF-4223/30	NF-5223/30	NF-6223/30	NF-8223/30	NF-10223/30	NF-3226/33	NF-4226/33	NF-5226/33	NF-6226/33	NF-8226/33	NF-10226/33	NF-3232/39	NF-4232/39	NF-5232/39	NF-6232/39	NF-8232/39	NF-10232/39							
TRAVEL																											
X axis	mm	2,200	3,200	4,200	5,200	6,200	8,200	10,200	3,200	4,200	5,200	6,200	8,200	10,200	3,200	4,200	5,200	6,200	8,200	10,200							
Y axis	mm	2,300/ 3,000								2,600/ 3,300								3200/ 3,900									
Z axis	Box way	920/ 1,020(opt.)								920/ 1,020(opt.)								920/ 1,020(opt.)									
	Linear way	1,000(opt.)/ 1,200(opt.)/1,400(opt.)								1,000(opt.)/ 1,200(opt.)/1,400(opt.)								1,000(opt.)/ 1,200(opt.)/1,400(opt.)									
Distance from spindle nose to table	Box way (2-step gear/Belt-driven)	Z axis=920	150-1,070				100-1,020				150-1,070				100-1,020												
		Z axis=1,020	150-1,170(column +100mm)				100-1,120(column +100mm)				150-1,170(column +100mm)				100-1,120(column +100mm)												
	Z axis=1,000	135-1,135(column +100mm)				85-1,085(column +100mm)				135-1,135(column +100mm)				85-1,085(column +100mm)													
	Z axis=1,200	135-1,335(column +300mm)				85-1,285(column +300mm)				135-1,335(column +300mm)				85-1,285(column +300mm)													
Linear way (2-step gear/Direct-driven)	Z axis=1,400	135-1,535(column +500mm)				85-1,485(column +500mm)				135-1,535(column +500mm)				85-1,485(column +500mm)													
	Z axis=1,400	135-1,535(column +500mm)				85-1,485(column +500mm)				135-1,535(column +500mm)				85-1,485(column +500mm)													
Distance from spindle center to column	mm	455								455								455									
Distance between columns (port width)	mm	2,400								2,700								3,200									
TABLE																											
Dimension	mm	2,000 × 2,050	3,000 × 2,050	4,000 × 2,050	5,000 × 2,050	6,000 × 2,050	8,000 × 2,050	10,000 × 2,050	3,000 × 2,450	4,000 × 2,450	5,000 × 2,450	6,000 × 2,450	8,000 × 2,450	10,000 × 2,450	3,000 × 2,450	4,000 × 2,450	5,000 × 2,450	6,000 × 2,450	8,000 × 2,450	10,000 × 2,450							
T-slot(Width x Number x Pitch)	mm	28 x 11 x 200 (150)								28 x 13 x 200 (150)								28 x 13 x 200 (150)									
Max. table load	kg	9,000	13,000	16,000	20,000	22,000	24,000	26,000	13,000	16,000	20,000	22,000	24,000	26,000	13,000	16,000	20,000	22,000	24,000	26,000							
SPINDLE																											
Spindle motor(cont./30 min. rated)		kW	18.5/22(22/26 opt.)(30/37 opt.)								18.5/22(22/26opt.)(30/37opt.)								18.5/22(22/26opt.)(30/37opt.)								
Spindle speed	Box way	2-step gear	4,000/6,000(opt.)								4,000/6,000(opt.)								4,000/6,000(opt.)								
		Belt-driven	8,000(opt.)/10,000(opt.)								8,000(opt.)/10,000(opt.)								8,000(opt.)/10,000(opt.)								
	Linear way	2-step gear	22/26kW: 4,000/ 6,000(opt.) ; 30/37kW: 3,000(opt.)/5,500(opt.)				22/26kW: 4,000/6,000(opt.) ; 30/37kW: 3,000(opt.)/5,500(opt.)				22/26kW: 4,000/6,000(opt.) ; 30/37kW: 3,000(opt.)/5,500(opt.)				22/26kW: 4,000/6,000(opt.) ; 30/37kW: 3,000(opt.)/5,500(opt.)												
	Direct t-driven	rpm	10,000(opt.)								10,000(opt.)								10,000(opt.)								
Spindle taper			ISO NO. 50								ISO NO. 50								ISO NO. 50								
FEED																											
Cutting feed rate		mm/min	1-7,000								1-7,000								1-7,000								
Rapid traverse		m/min	X:24, Y:20, Z:15	X:24, Y:20/15 Z:15	X:18, Y:20/15, Z:15	X:12.5, Y:20/15, Z:15	X:10, Y:20/15, Z:15	X:8, Y:20/15, Z:15	X:24, Y:20/15, Z:15	X:18, Y:20/15, Z:15	X:12.5, Y:20/15, Z:15	X:10, Y:20/15, Z:15	X:8, Y:20/15, Z:15	X:24, Y:15/12, Z:15	X:18, Y:15/12, Z:15	X:12.5, Y:15/12, Z:15	X:10, Y:15/12, Z:15	X:8, Y:15/12, Z:15	X:24, Y:15/12, Z:15	X:18, Y:15/12, Z:15	X:8, Y:15/12, Z:15						
3 axis motor power (FANUC) (Z:box way/linear way)		kW	X:7, Y:4, Z:7/4			X:9, Y:4, Z:7/4			X:9, Y:4, Z:7/4			X:7, Y:4, Z:7/4			X:7, Y:4, Z:7/4			X:9, Y:4, Z:7/4									
ACCURY(X, Y, Z) (Measured by laser instrument)																											
Positioning accuracy	Refer to JIS B6333	mm	± 0.005/300, ± 0.015 Full travel								± 0.005/300, ± 0.015 Full travel								± 0.005/300, ± 0.015 Full travel								
	Refer to ISO 10791-2		P0.022	P0.042				P0.045				P0.022				P0.045				P0.022				P0.045			
Repeatability	Refer to JIS B6333	mm	± 0.003								± 0.003								± 0.003								
	Refer to ISO 10791-2		Ps0.025	Ps0.033				Ps0.035				Ps0.025				Ps0.033				Ps0.025				Ps0.033			Ps0.035
ATC																											
ATC type/capacity	Vertical type tool change	pcs	40 / 60 (opt.)								40 / 60 (opt.)								40 / 60 (opt.)								
	Floor-standing type vertical tool change	pcs	40 (opt.) / 60 (opt.)								40 (opt.) / 60 (opt.)								40 (opt.) / 60 (opt.)								
	Floor-standing type vertical-horizontal tool change	pcs	32 (opt.) / 40 (opt.) / 60 (opt.)								32 (opt.) / 40 (opt.) / 60 (opt.)								32 (opt.) / 40 (opt.) / 60 (opt.)								
Max. tool weight		kg	18								18								18								
Tool shank		-	BT 50/ CAT 50								BT 50/ CAT 50								BT 50/ CAT 50								
Pull stud		-	P50T-1								P50T-1								P50T-1								
OTHERS																											
Power requirement		KVA	60								60								60								
Pneumatic requirement		kg/cm ²	6								6								6								
Machine net weight		kg	29,000	33,400/34,900	38,400/40,400	43,400/45,400	48,000/50,400	56,000/60,400	64,000/70,400	36,400/38,400	41,400/43,900	46,400/48,900	51,000/53,900	60,000/63,900	69,000/73,900	40,500/42,500	44,500/48,000	50,500/54,000	55,500/58,500	64,500/68,500	73,500/78,500						
Machine gross weight		kg	32,000	37,100/38,600	43,400/45,400	48,400/50,400	53,000/55,400	62,000/66,400	70,000/76,400	40,100/42,100	46,400/48,900	51,400/53,900	56,000/59,900	66,000/69,900	75,000/79,900	44,500/46,500	49,500/53,000	55,500/59,000	60,500/63,500	70,500/74,500	79,500/84,500						
Max. space (LxWxH)	Vertical type tool change	m	9.2x6.8x4.9	11.2x6.8x4.9	13.2x6.8x4.9	15.2x6.8x4.9	17.2x6.8x4.9	22x6.8x4.9	26x6.8x4.9	11.2x7.2x4.9	13.2x7.2x4.9	15.2x7.2x4.9	17.2x7.2x4.9	22x7.2x4.9	26x7.2x4.9	11.2x7.8x4.9	13.2x7.8x4.9	15.2x7.8x4.9	17.2x7.8x4.9	22x7.8x4.9	26x7.8x4.9						
	Floor-standing type vertical tool change		11.2x8.5x4.9	13.2x8.5x4.9	15.2x8.5x4.9	17.2x8.5x4.9	22x8.5x4.9	26x8.5x4.9	11.2x8.8x4.9	13.2x8.8x4.9	15.2x8.8x4.9	17.2x8.8x4.9	22x8.8x4.9	26x8.8x4.9	11.2x9.4x4.9	13.2x9.4x4.9	15.2x9.4x4.9	17.2x9.4x4.9	22x9.4x4.9	26x9.4x4.9							
	Floor-standing type vertical-horizontal tool change		11.2x9.0x5.2	13.2x9.0x5.2	15.2x9.0x5.2	17.2x9.0x5.2	22x9.0x5.2	26x9.0x5.2	11.2x9.3x5.2	13.2x9.3x5.2	15.2x9.3x5.2	17.2x9.3x5.2	22x9.3x5.2	26x9.3x5.2	11.2x10x5.2	13.2x10x5.2	15.2x10x5.2	17.2x10x5.2	22x10x5.2	26x10x5.2							

All specifications can be modified without any notice.

Standard Accessory

- FANUC 0iMD controller
- 4,000rpm 2-step gear type spindle (Z-axis box way)
- Spindle oil cooler
- Twin hydraulic cylinders with pressured air assistance balancing system
- X, Y-axis ball screw support device (X-axis 4m above)
- Centralized auto lubrication system
- Independent lubrication oil collector
- Air blast through spindle
- Wash gun and pneumatic interface
- Cutting coolant system
- 40 tools magazine & arm type ATC
- Enclosed splash guard (without roof) (X < 8m)
- Four piece splash guard (X ≥ 8m)
- Swiveling arm type operation panel
- Screw type chip conveyor on table sides
- Caterpillar type chip conveyor
- Heat exchanger for electrical cabinet
- Working lamp
- Operation cycle finish and alarm light
- Movable manual pulse generator
- Footswitch for tool clamping
- RS232 and RJ45 interface
- XYZ-axis absolute pulse coder feedback
- XYZ-axis travel hardware limits protection
- Spindle overloading protected by software
- Auto power off
- Vision Wide FX graphical user interface
- Foundation pads and bolts kits
- Adjustment tool and tool kits
- Technical manuals (operation, maintenance manual and circuit diagram)

Optional Accessory & Function

- 6,000rpm 2-step gear type spindle
- 8,000/ 10,000rpm direct driven/ belt type spindle
- Z-axis travel 1,020mm (box way spindle, for gear/ belt type spindle) (Unavailable with vertical-horizontal type auto tool change, multi-heads magazine on magazine side)
- Z-axis travel 1,000/1,200/1,400mm (linear way spindle, for gear/ direct driven type spindle)
- 100/ 200/ 300/ 400/ 500 mm higher column
- Spindle ring cutting coolant device (for no head attachment)
- Coolant through spindle system 20/70 bar (Vertical spindle)
- Coolant through tool holder interface
- Coolant through tool holder 5/20 bar cutting fluid interface
- Oil skimmer
- Oil mist cooling device
- 60 tools magazine & arm type ATC
- Enclosed splash guard with roof (for NF-xx23/26)
- Four piece splash guard (X<8m)
- Enclosed splash guard (without roof) (X ≥ 8m)
- Overheadpendulum type operation panel
- Chip auger on table sides
- Chip cart
- Air conditioner for electrical cabinet
- XYZ-axis linear scale
- 3-axis independent manual pulse generator
- Sub working table
- Rotary table
- Interface preparation for fourth axis
- Z-axis retract function at power failure
- Auto tool length measurement
- Auto workpiece measurement
- Transformer
- Auto warm up

Optional accessory for auto head attachment

- Z-axis travel 1,000/1,200/1,400mm (linear way spindle head)
- Auto head magazine on magazine side (for vertical-horizontal type auto tool change, multi-heads head magazine on magazine side)
- Auto AC90 degree angular head/ AC 2-axis head/AC extended head
- Auto AC milling head/ small head/ customized head attachment
- Vertical-horizontal type tool change 32/40/60 tool magazine (for NF-xx30/33/39 model)
- Manual swiveling arm type head bracket on operation side (one head attachment)
- Auto swiveling arm type head bracket on operation side (one head attachment, one cover)
- Auto head magazine on magazine side (for NF-xx30/33/39 model)
- AC90 degree angular head coolant through spindle system 20bar

HF Mechanical Specifications

MODEL		Unit	HF-4235/42	HF-5235/42	HF-6235/42	HF-8235/42	HF-10235/42	HF-4240/47	HF-5240/47	HF-6240/47	HF-8240/47	HF-10240/47	
TRAVEL													
X axis		mm	4,200	5,200	6,200	8,200	10,200	4,200	5,200	6,200	8,200	10,200	
Y axis		mm	3,500/ 4,200						4,000/ 4,700				
Z axis		mm	920/ 1,020(opt.)						920/1,020(opt.)				
Box way			1,000(opt.)/ 1,200(opt.)/ 1,400(opt.)						1,000(opt.)/ 1,200(opt.)/ 1,400(opt.)				
Linear way													
Distance from spindle nose to table		Box way (2-step gear/Belt-driven)	Z axis=920	280-1,200						280-1,200			
			Z axis=1,020	180-1,200						180-1,200			
		Linear way (2-step gear/Direct-driven)	Z axis=1,000	165-1,165						165-1,165			
Z axis=1,200	165-1,365(column+200mm)						165-1,365(column+200mm)						
			165-1,565(column+400mm)						165-1,565(column+400mm)				
Distance from spindle center to column		mm	453						453				
Distance between columns (port width)		mm	3,500						4,000				
TABLE													
Dimension		mm	4,000 × 3,000	5,000 × 3,000	6,000 × 3,000	8,000 × 3,000	10,000 × 3,000	4,000 × 3,500	5,000 × 3,500	6,000 × 3,500	8,000 × 3,500	10,000 × 3,500	
T-slot(Width x Number x Pitch)		mm	28 x 13x 250 (150)						28 x 15 x 250 (150)				
Max. table load		kg	20,000	24,000	28,000	32,000	36,000	20,000	24,000	28,000	32,000	36,000	
SPINDLE													
Spindle motor(cont./30 min. rated)		kW	22/26(30/37opt.)						22/26(30/37opt.)				
Spindle speed		Box way	2-step gear	4,000/6,000(opt.)						4,000/6,000(opt.)			
			Belt-driven	8,000(opt.)/10,000(opt.)						8,000(opt.)/10,000(opt.)			
		Linear way	2-step gear	22/26kW: 4,000/6,000(opt.) ; 30/37kW: 3,000(opt.)/5,500(opt.)						22/26kW: 4,000/6,000(opt.) ; 30/37kW: 3,000(opt.)/5,500(opt.)			
			Direct-driven	10,000(opt.)						10,000(opt.)			
Spindle taper			ISO NO. 50						ISO NO. 50				
FEED													
Cutting feed rate		mm/min	1-7,000						1-7,000				
Rapid traverse		m/min	X:10, Y:10, Z:12						X:10, Y:10, Z:12				
3 axis motor power (FANUC) (Z:box way/linear way)		kW	X:9, Y:4, Z:4						X:9, Y:4, Z:4				
ACCURACY (X, Y, Z) (Measured by laser instrument)													
Positioning accuracy		Refer to JIS B6333 Refer to ISO 10791-2	± 0.005/300, ± 0.015 Full travel						± 0.005/300, ± 0.015 Full travel				
			P0.035	P0.045		P0.050		P0.035		P0.045		P0.050	
Repeatability		Refer to JIS B6333 Refer to ISO 10791-2	± 0.003						± 0.003				
			Ps0.028	Ps0.035		Ps0.040		Ps0.028		Ps0.035		Ps0.040	
ATC													
ATC type/capacity		Vertical type tool change	40 / 60 (opt.)						40 / 60 (opt.)				
		Floor-standing type vertical tool change	40 (opt.) / 60 (opt.)						40 (opt.) / 60 (opt.)				
		Floor-standing type vertical-horizontal tool change	32 (opt.) / 40 (opt.) / 60 (opt.)						32 (opt.) / 40 (opt.) / 60 (opt.)				
Max. tool weight		kg	18						18				
Tool shank		-	ISO NO. 50						ISO NO. 50				
Pull stud		-	P50T-1						P50T-1				
OTHERS													
Power requirement		KVA	65						65				
Pneumatic requirement		kg/cm ²	6						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	58,000/60,000	64,000/66,000	70,000/72,000	84,000/86,000	100,000/101,000	
Machine gross weight		kg	61,000/63,000	68,000/70,000	75,000/77,000	91,000/93,000	107,000/108,000	62,000/64,000	69,000/71,000	76,000/78,000	92,000/94,000	108,000/110,000	
Max. space (LxWxH)		Vertical type tool change	14x8.2x5.1	16x8.2x5.1	18x8.2x5.1	23x8.2x5.1	28x8.2x5.1	14x8.7x5.1	16x8.7x5.1	18x8.7x5.1	24x8.7x5.1	28.5x8.7x5.1	
		Floor-standing type vertical tool change	14x9.4x5.1	16x9.4x5.1	18x9.4x5.1	23x9.4x5.1	28x9.4x5.1	14x10x5.1	16x10x5.1	18x10x5.1	24x10x5.1	28.5x10x5.1	
		Floor-standing type vertical-horizontal tool change	14x10x5.2	16x10x5.2	18x10x5.2	23x10x5.2	28x10x5.2	14x10.5x5.2	16x10.5x5.2	18x10.5x5.2	24x10.5x5.2	28.5x10.5x5.2	

All specifications can be modified without any notice.

Standard Accessory

- FANUC 0iMD controller
- 4,000rpm 2-step gear type spindle (Z-axis box way)
- Spindle oil cooler
- Twin hydraulic cylinders with pressured air assistance balacing system
- X, Y-axis ball screw support device (X-axis 4m above)
- Centralized auto lubrication system
- Independent lubrication oil collector
- Air blast through spindle
- Wash gun and pneumatic interface
- Cutting fluid cooling system
- 40 tools magazine & arm type ATC
- Four piece splash guard
- Swiveling arm type operation panel
- Screw type chip conveyor on table sides
- Caterpillar type chip conveyor
- Heat exchanger for electrical cabinet
- Working lamp
- Operation cycle finish and alarm light
- Movable manual pulse generator
- Footswitch for tool clamping
- RS232 and RJ45 interface
- XYZ-axis absolute pulse coder
- XYZ-axis travel hard limits protection
- Spindle overloading protected by software
- Auto power off
- Vision Wide FX graphical user interface
- Foundation pads and bolts kits
- Adjustment tool and tool kits
- Technical manuals (operation, maintenance manual and circuit diagram)

Optional Accessory & Function

- 6,000rpm 2-step gear type spindle
- 8,000/ 10,000rpm direct driven/ belt type spindle
- Z-axis travel 1,020mm (box way spindle, for gear/ belt type spindle) (Unavailable with vertical-horizontal type auto tool change, multi-heads magazine on magazine side)
- Z-axis travel 1,000/1,200/1,400 mm (linear way spindle, for gear/ direct driven type spindle)
- 200/ 300/ 400/ 500/ 600/ 800 mm higher column
- Spindle ring cutting coolant device (for no head attachment)
- Coolant through spindle system 20/70 bar (Vertical spindle)
- Coolant through tool holder interface
- Coolant through tool holder 5/20 bar cutting fluid interface
- Oil skimmer
- Oil mist cooling device
- 60 tools magazine & arm type ATC
- Enclosed splash guard (without roof)
- Overhead pendulum type operation panel
- Chip auger on table sides
- Chip cart
- Air conditioner for electrical cabinet
- XYZ-axis linear scale
- 3-axis independent manual pulse generator
- Sub working table
- Rotary table
- Interface preparation for fourth axis
- Z-axis retract function at power failure
- Auto tool length measurement
- Auto workpiece measurement
- Transformer
- Auto warm up

Optional accessory for auto head attachment

- Z-axis travel 1,000/1,200/1,400mm (linear way spindle head) (for vertical-horizontal type auto tool change, multi-heads head magazine on magazine side)
- Auto AC90 degree angular head/ AC 2-axis head/AC extended head
- Auto AC milling head/ small head/ customized head attachment
- Vertical-horizontal type tool change 32/ 40/ 60 tool magazine (for HF-xx42/47 model)
- Manual swiveling arm type head bracket on operation side (one head attachment)
- Auto swiveling arm type head bracket on operation side (one head attachment, one cover)
- Auto head magazine on magazine side (for HF-xx42/47 model)
- AC90 degree angular head coolant through spindle system 20bar