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NFV SERIES

SERIES

High Performance Vertical Machining Center



AWEDA[®]

THE ULTIMATE MACHINING POWER

NFV Series 1000 / 1250 / 1250B

High Performance Vertical Machining Center

Staying with AWEA's innovative technology, the NFV series is specially designed for high precision parts and mold machining industry. It offers excellent cost performance with high speed and high efficiency machining capacity.

- High speed high power direct-drive spindle design.
- High speed AICC2 and machining condition select provides the high speed contouring control and efficient machining capacity. (NFV-1000/ NFV-1250)
- X, Y, Z axes are adopted with super-rigidity roller type linear guide ways design to provide optimal control and rigidity.
- The latest FANUC 0i- MF control system.

- The NFV series adopts chain type chip conveyor as standard with high pressure chips flush coolant system, which provide the optimal chip removal capability.

NFV-1250
(X : 1,250 / Y : 620 / Z : 620 mm)



NFV
1250

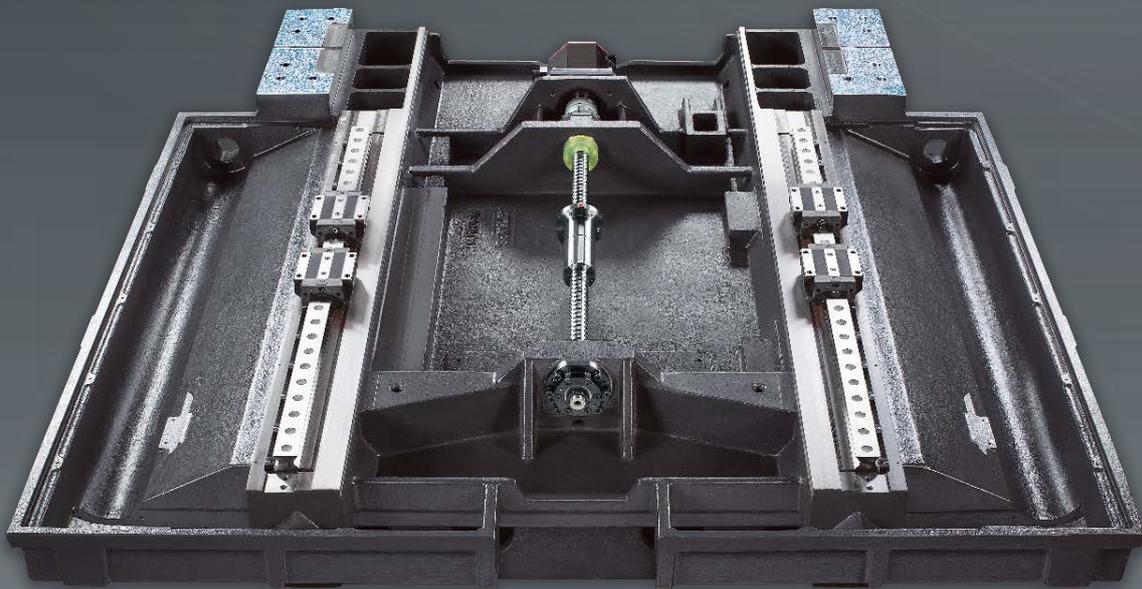


NFV Series 1000 / 1250 / 1250B

High Performance Vertical Machining Center

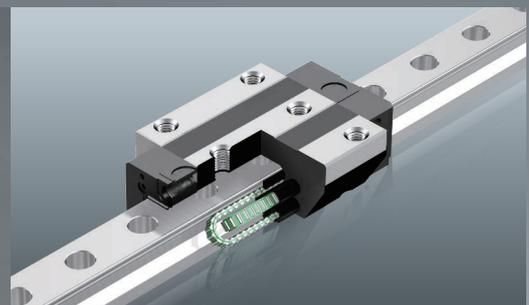
High Rigidity Structure

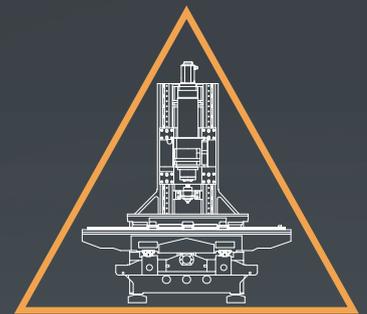
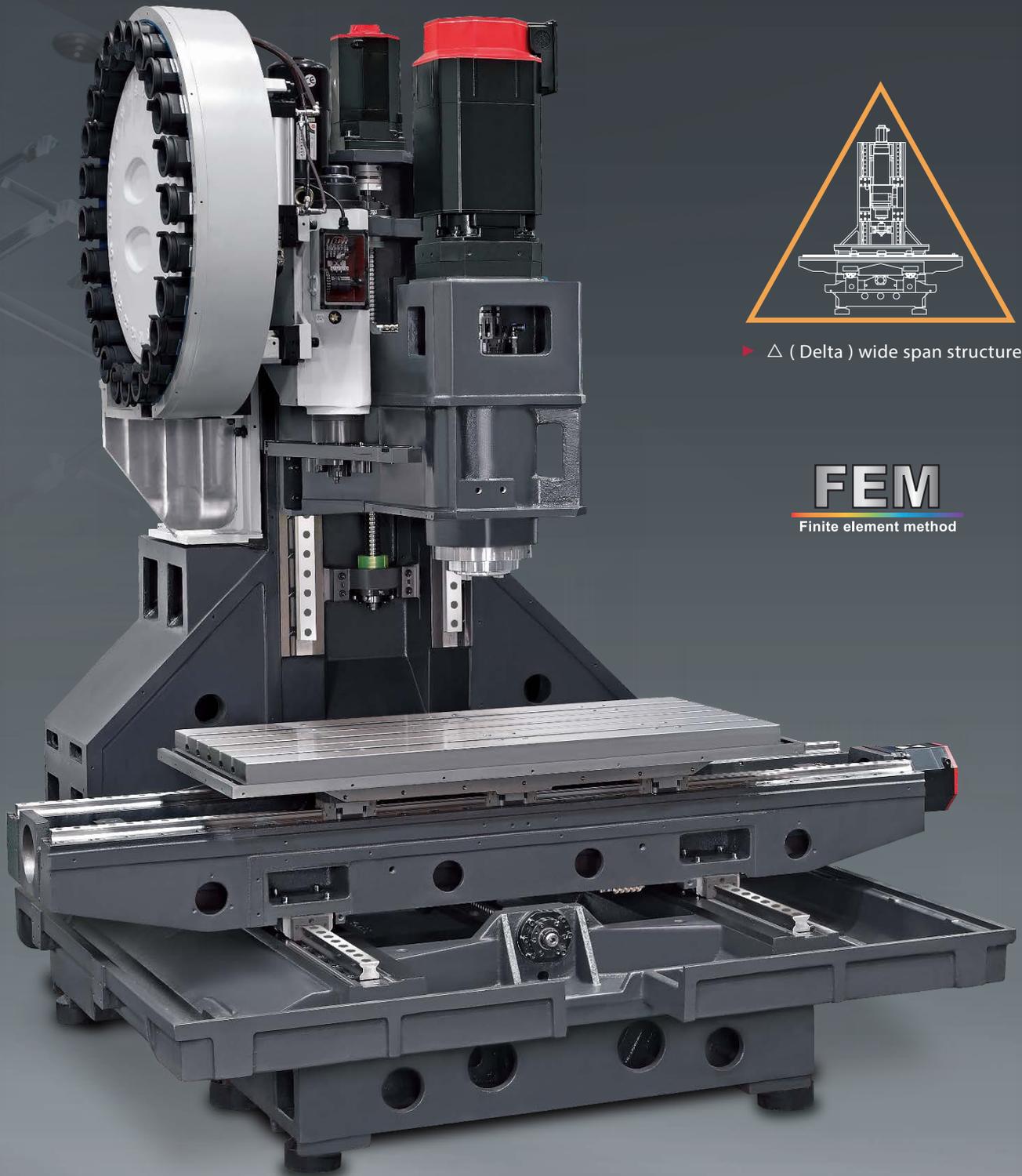
- The Finite Element Method (FEM) provides optimal machine design and light-weight structure advantage while ensuring high rigidity of machine.
- One-piece wide span column and base casting structure design.
- High precision linear guide way design is used in 3 axes to provide the optimum control and efficient movement. Also, base on the actual machining application, customers can either select roller type or ball type linear guide way.



NFV-1250 high rigidity bed

High rigidity roller type linear guide way which combines heavy cutting ability and fast movement with low abrasion ability completely improves rigidity and control of machine.





▶ Δ (Delta) wide span structure

FEM
Finite element method

NFV-1250B super-rigidity structure

NFV Series 1000 / 1250 / 1250B

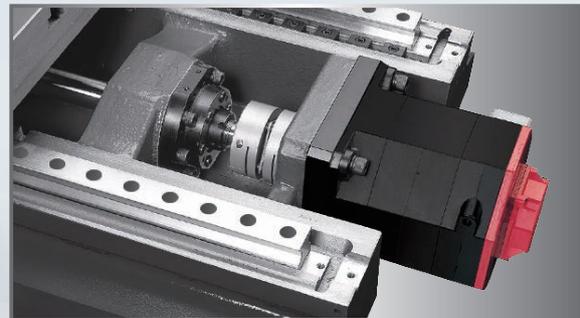
High Precision Axial Feeding System

- 3 axes are driven by FANUC absolute AC direct drive servo motor, which provides powerful thrust and fast acceleration and deceleration movement. It can greatly decrease motor load, and lower thermal expansion effects to minimum, while ensuring optimal performance and precision.
- The high precision twin rotating nut ball screws provide outstanding heavy-duty cutting and ensure precision and long life span.
- The one-piece ball screw motor mount and bearing box allows the cutting pressure to evenly distribute across the casting body, which increases the axial system overall rigidity and prevents the ball screw from deformation.

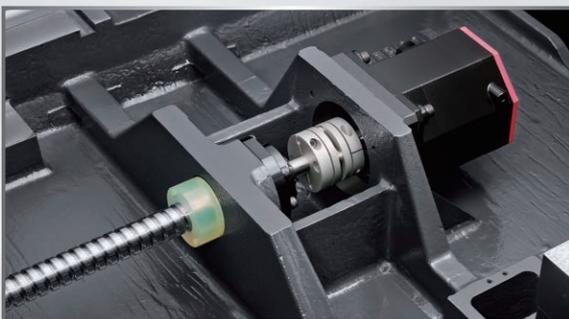
X/Y axes rapid feed rate **48** m/min.



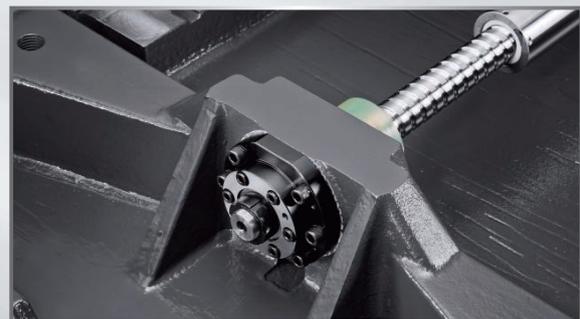
Twin rotating nut ball screw



Direct drive servo motor

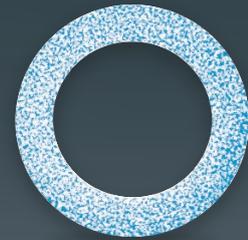


One-piece motor mount



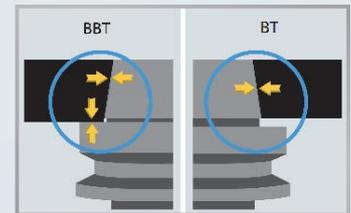
One-piece bearing box

High Performance Spindle System

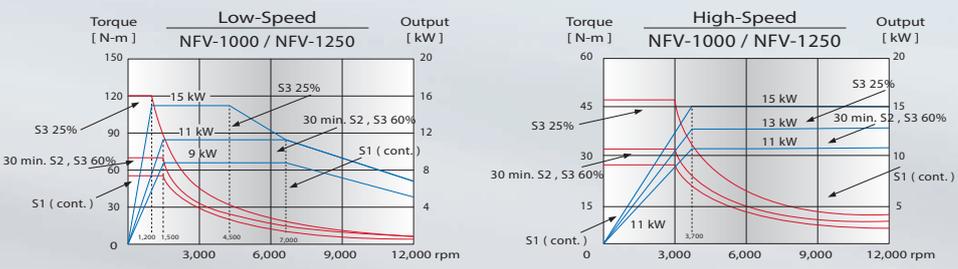


• The contact surfaces of spindle heads are all precisely hand scraped.

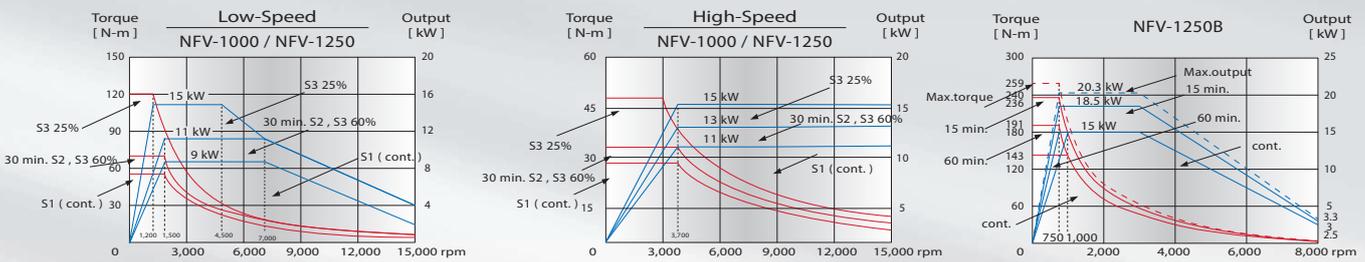
- Direct-drive spindle efficiently separates the heat generated from the motor, which reduces deformation, therefore increasing machining accuracy.
- The inner taper of the spindle conforms with BBT40 / BBT50 tool to provide a firmer grip to the tools which reduces the vibration from the tools.



BBT40 12,000 rpm Direct-drive Spindle **BBT40 12,000 rpm Direct-drive Spindle**



BBT40 15,000 rpm Direct-drive Spindle **BBT40 15,000 rpm Direct-drive Spindle** **BBT50 8,000 rpm Direct-drive Spindle**



Advanced Control System



FANUC Oi-MF

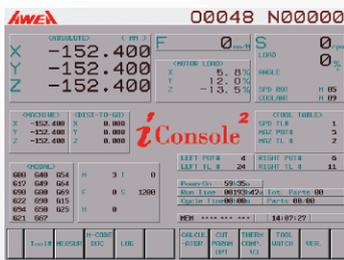
- USB port is available to transfer the NC programs to CF memory card.
- Embedded Ethernet is supported on the CNC main board, it can be connected to a PC to transfer the NC programs.

Machining condition select (std.)

From rough cutting to the fine finishing, the operator can select the optimum parameters with the excellent machining performance.

i Console Informative console system (opt.)

Multiple Functions Status Display



- Real time operation information
- Tool list
- Work piece measurement
- M code illustration
- PLC function
- Calculator
- CNC optimize parameter (Opt.)
- Spindle thermal compensation (Opt.)

Trouble Shooting



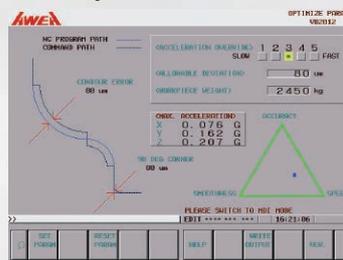
When the alarm appears, the program will display the breakdown cause and a troubleshooting procedure. Users can easily troubleshoot minor problems to save machine shutdown time.

Circular Work Piece Measurement



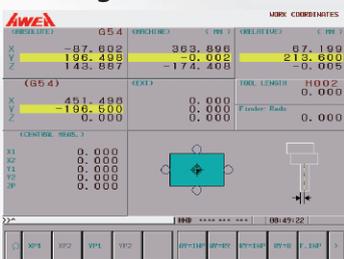
The circular work piece program can calculate the center coordinate of a work piece by measuring point A, B and C coordinates.

CNC Optimized Parameter



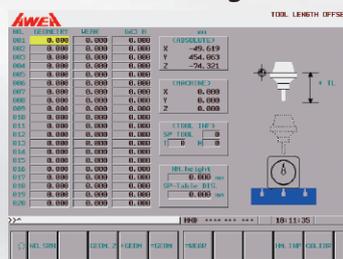
From rough cutting to fine machining, users can select different working modes, determine the allowable tolerance and the weight of the work piece, based on your desired working condition.

Rectangular Work Piece Measurement

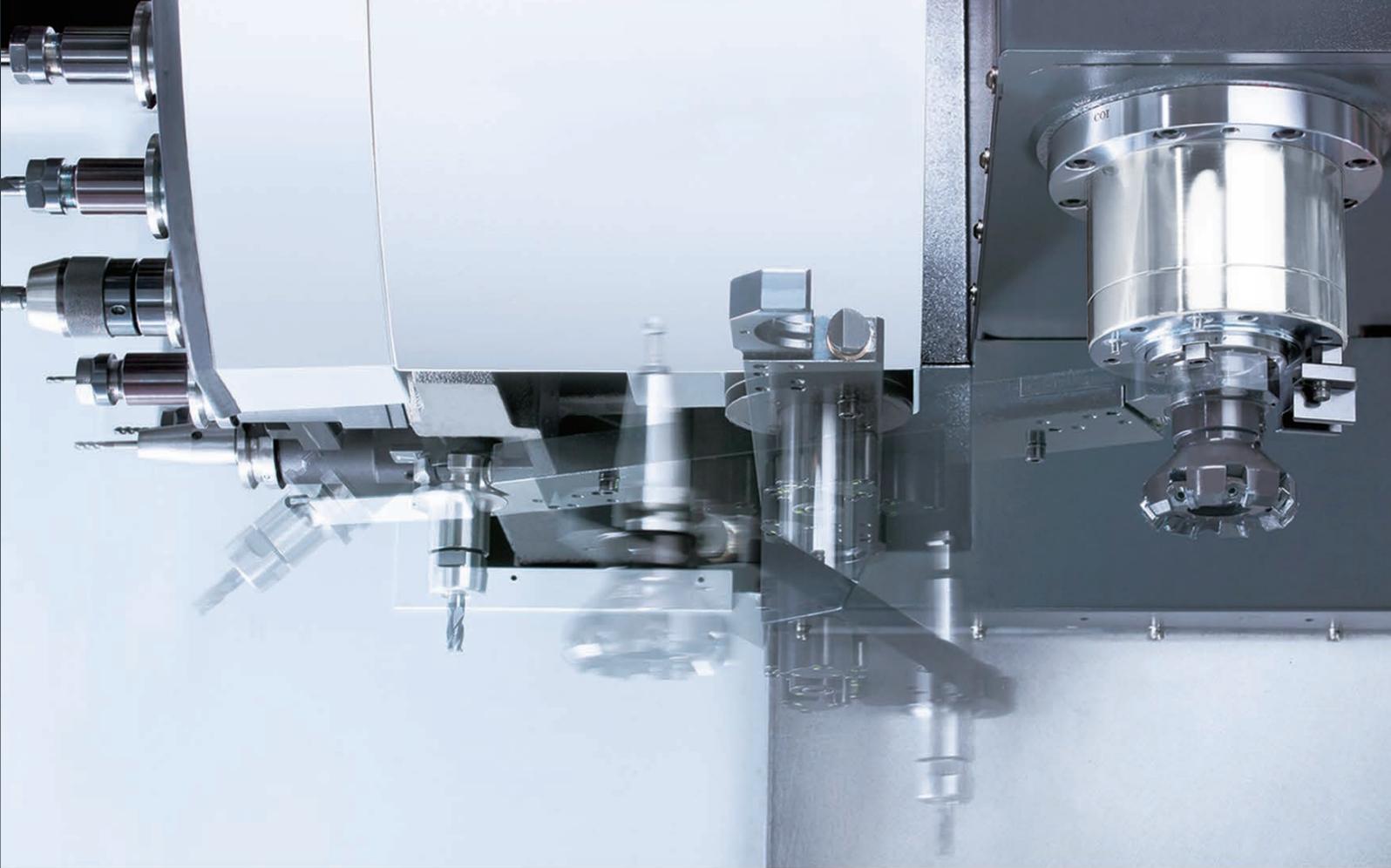


The rectangular work piece program can calculate the center coordinate and the slant angle of a work piece by measuring point A, B, C, D and E coordinates; the calculated center coordinate can be inputted into the work piece coordinate program (G54 ~ G59).

Manual Tool Length Measurement



After manually measuring the tool length, the controller will automatically calculate the tool tip position and input the data into the tool length offset table.

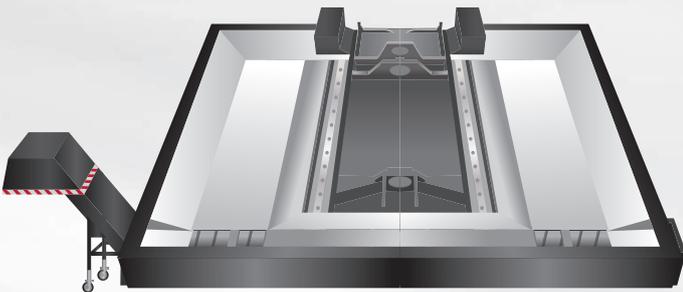


High Efficiency Chip Disposal System

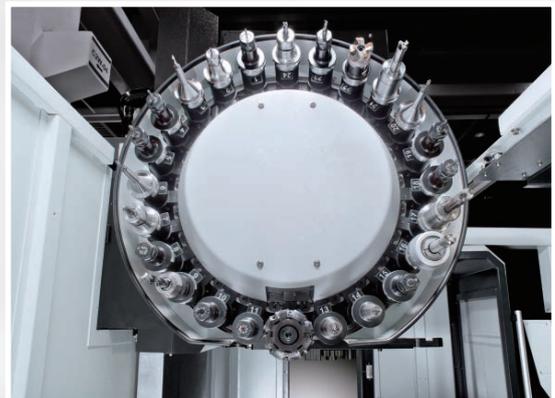
- All series adopt chain type chip conveyor as standard with high pressure chips flush coolant system, which provide the optimal chip removal capability.

High Speed ATC System

- All series are standard with 24T arm type ATC system which can easily fulfill various types of processing needs.
- Standard shortcut tool change function can shorten tool change time and increase working efficiency.



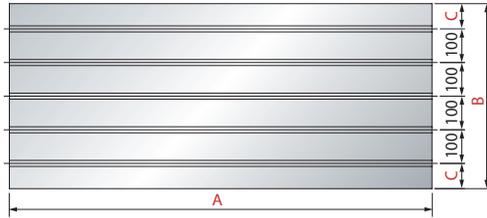
▶ Chain type chip conveyor



▶ 24T Disc type tool magazine

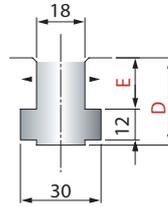
Dimensions

Table Dimensions



T-slot Dimensions

(Unit : mm)

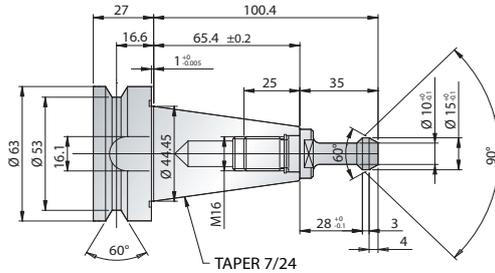


Models	No. of T-slot
NFV-1000	5
NFV-1250	5
NFV-1250B	5

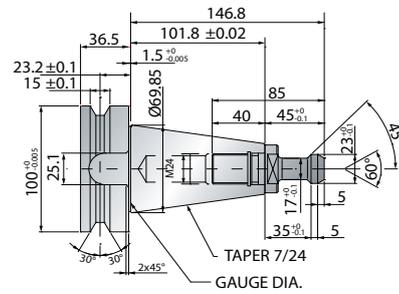
Models	A	B	C	D	E
NFV-1000	1,200	550	75	34	20
NFV-1250	1,350	620	110	37.5	24
NFV-1250B	1,350	620	110	37.5	24

Tool Shank and Pull Stud Dimensions

BBT40

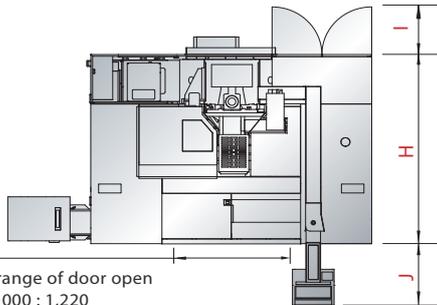


BBT50

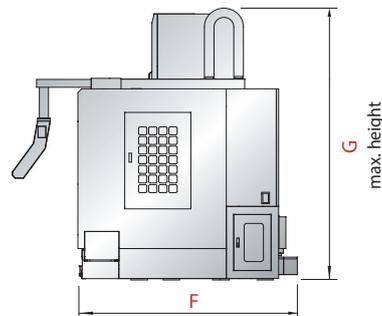
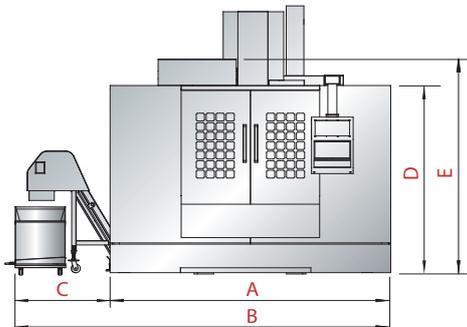


Machine Dimensions

(Unit : mm)



Max. range of door open
NFV-1000 : 1,220
NFV-1250/NFV-1250B : 1,420



Models	A	B	C	D	E	F	G	H	I	J
NFV-1000	3,100	4,150	1,050	2,180	2,490	2,430	3,100	2,190	550	710
NFV-1250	3,400	4,450	1,050	2,310	2,700	2,540	3,210	2,240	550	710
NFV-1250B	3,400	4,450	1,050	2,310	2,700	2,540	3,210	2,240	550	710

Specifications are subject to change without notice.

		NFV-1000	NFV-1250	NFV-1250B
SPECIFICATIONS				
X-axis travel	mm	1,020	1,250	1,250
Y-axis travel	mm	550	620	620
Z-axis travel	mm	635	620	620
Distance from spindle center to column	mm	650	790	790
Distance from spindle nose to table center	mm	100 ~ 735	100 ~ 720	100 ~ 720
WORKING TABLE				
Table size (X direction)	mm	1,200	1,350	
Table size (Y direction)	mm	550	620	
Table load capacity	kg	700	1,000	
SPINDLE				
Spindle taper		BBT40		BBT50
Spindle motor (S1 / S2 , S3 60% / S3 25%)	kW	11 / 13 / 15		15 / 18.5 / 20.3
Spindle speed	rpm	Direct-drive 12,000 / 15,000 (opt.)		Direct-drive 8,000
FEED RATE				
X / Y axes rapid feed rate	m/min.	36	48	36
Z-axis rapids feed rate	m/min.	24	32	24
Cutting feed rate	m/min.	1 - 10		
TOOL MAGAZINE				
Tool magazine capacity	T	24		24
Max. tool length	mm	300		350
Max. tool weight	kg	7		15
Max. tool diameter / adj. pocket empty	mm	Ø 78 / Ø 150		Ø 105 / Ø 200
ACCURACY				
Positioning accuracy (JIS B 6338)	mm	± 0.01 / Full Travel		
Positioning accuracy (VDI 3441)	mm	P ≤ 0.01		
Repeatability (JIS B 6338)	mm	± 0.002		
Repeatability (VDI 3441)	mm	Ps ≤ 0.007		
GENERAL				
Control system		FANUC 0i - MF		
Pneumatic pressure requirement	kg/cm ²	6		
Power requirement	kVA	30	40	
Coolant tank capacity	liter	400	460	
Machine weight	kg	7,000	8,000	8,500

Specifications are subject to change without notice.

Standard Accessories

- AICC2 function / Machining condition select (NFV-1000/NFV-1250)
- Spindle air curtain
- Spindle cooling system
- Gravity axis anti-drop function
- Coolant nozzle around spindle
- Chips flush coolant system
- Chain type chip conveyor
- Coolant system with pump and tank
- Centralized automatic lubricating system
- Transformer
- Fully enclosed splash guard w/ roof
- Alarm light
- Heat exchanger for electrical cabinet
- Oil skimmer
- Automatic power-off system
- Air /water gun system
- Leveling bolts & pads
- Tool kits

Optional Accessories

- 15,000 rpm direct drive spindle (NFV-1000/NFV-1250)
- Coolant through spindle (NFV-1000/NFV-1250)
- X / Y / Z axes optical linear scale
- CNC rotary table
- Coolant through the tool adapter
- Auto. tool length measurement
- Auto. work-piece measurement
- AC cooler for electrical cabinet