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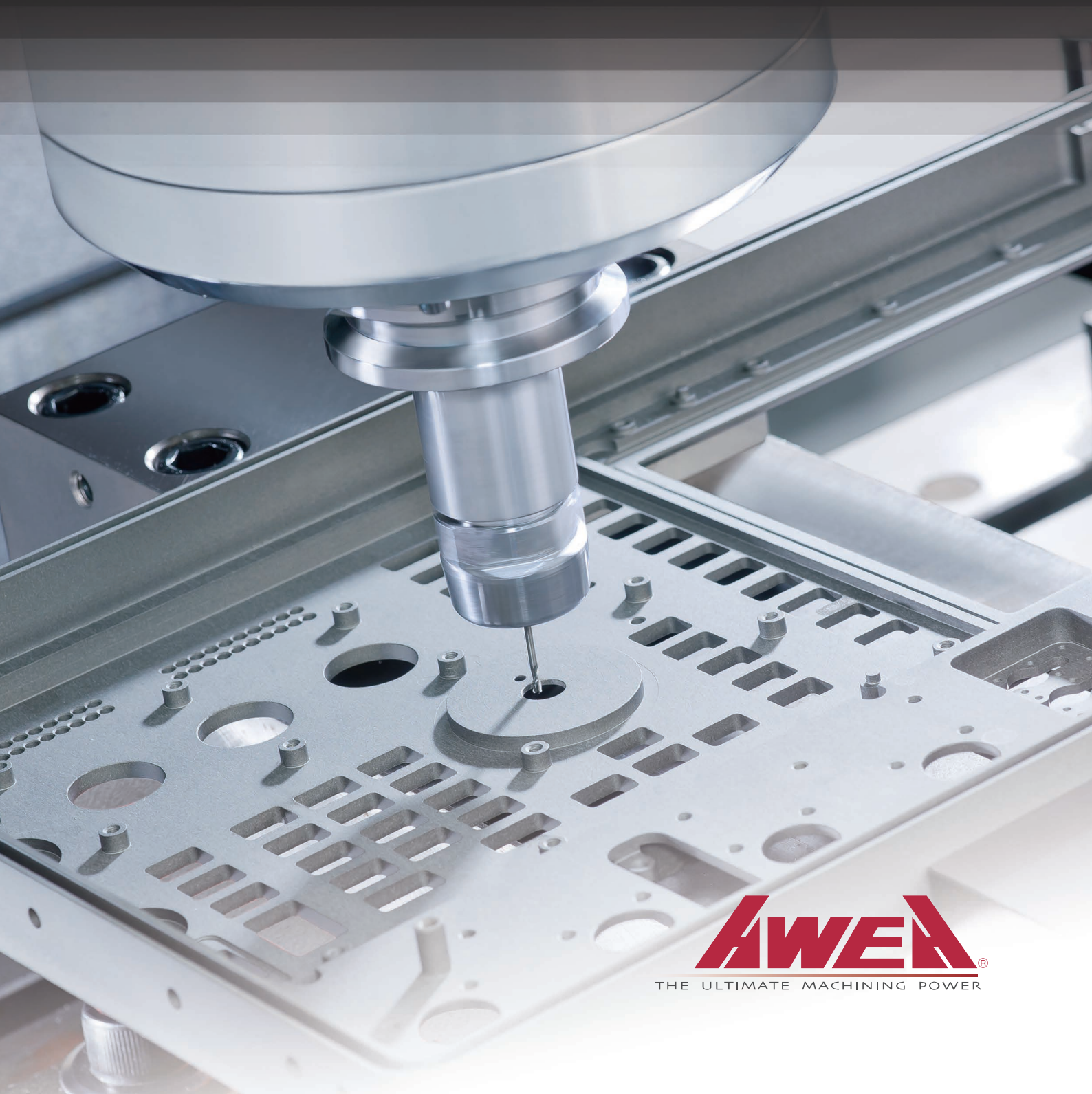
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NV SERIES

High Performance Vertical Machining Center



AWEA®

THE ULTIMATE MACHINING POWER

NV Series 650 / 850

High Performance Vertical Machining Center

Thanks to our advanced developing skills, the NV series are designed especially for high precision machine parts manufacturers. The NV series show high accuracy and high efficiency machining capability and the highest CP value among peer models.

- High speed and high performance direct-drive spindle design, which is developed to provide powerful cutting capacity and precise machining solutions.
- X, Y, Z axes are all adopted with high precision linear guide ways design to provide easy control and efficient movement.
- Highly efficiency 24T arm type magazine design provides fast and reliable tool change system.
- The embedded control panel and spacious operating area provide an ergonomic working environment.

Fully Upgraded

The latest models **v.s** Previous generation models

Maximum spindle output

NV-650 : 7.5 kW → 11 kW

NV-850 : 7.5 kW → 15 kW

Maximum spindle torque

NV-650 : 47.7 Nm → 70 Nm

NV-850 : 47.7 Nm → 95.5 Nm

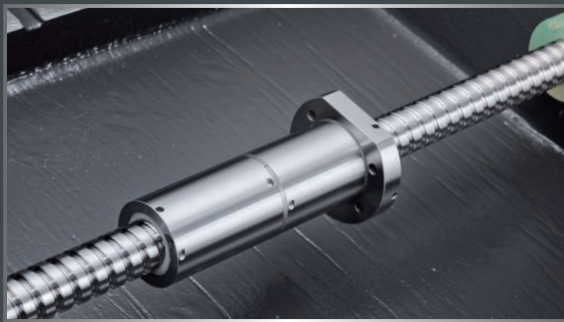




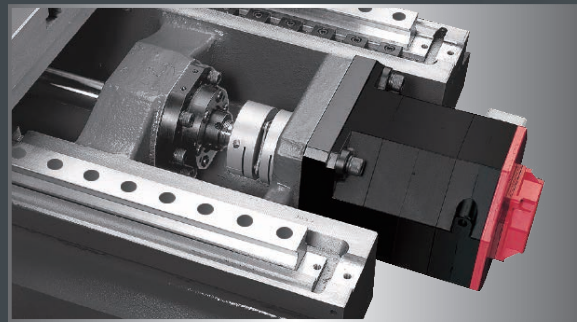
NV Series 650 / 850

High Performance Vertical Machining Center

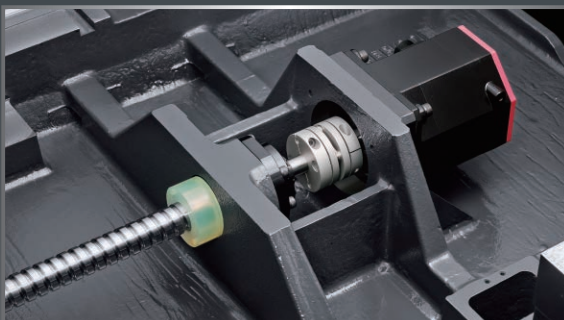
- The Finite Element Method (FEM) provides optimal machine design and light-weight structure advantage while ensuring high rigidity of machine.
- Δ (Delta) wide span column mechanism ensures stabilizing base during fast movement while increasing machining rigidity.
- Rib reinforced working table retracts vibration while increasing machining stability.
- The column and bed are all precisely hand scraped to ensure optimal assembly precision, structural strength, and balanced load.



Twin rotating nut ball screw



Direct-driv servo motor

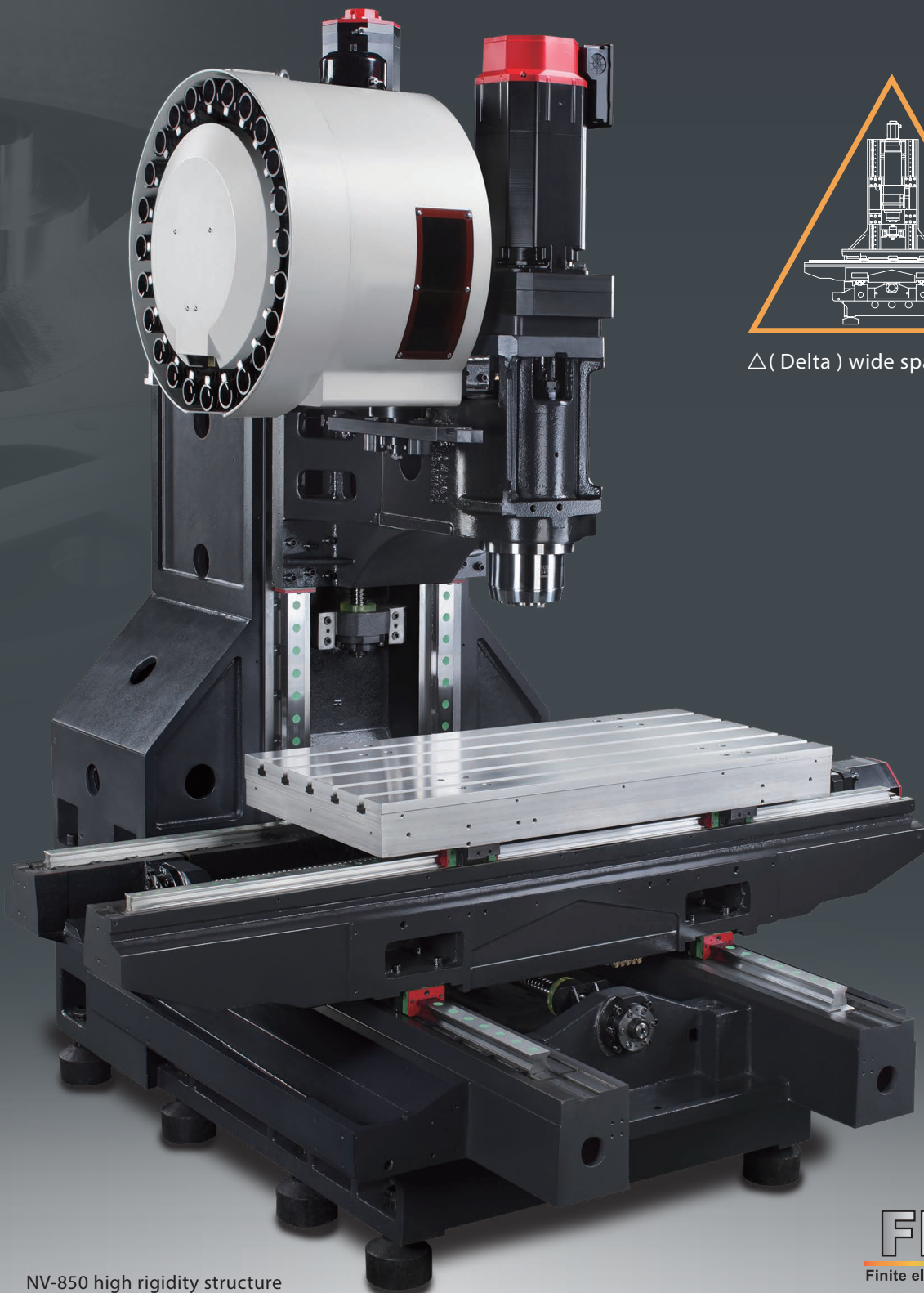


One-piece motor mount

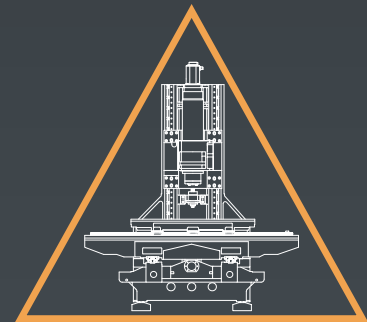


One-piece bearing box

- 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.



NV-850 high rigidity structure



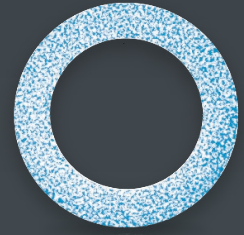
Δ (Delta) wide span structure

FEM
Finite element method

- 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.

High Performance Spindle System

- Direct-drive spindle efficiently separates the heat generated from the motor, which reduces deformation, therefore increasing machining accuracy.
- Floating type hydraulic tool release device eliminates pressure on the spindle bearing when releasing a tool.
- The contact surfaces between headstock and spindle are all precisely hand scraped to ensure optimal performance and precision.

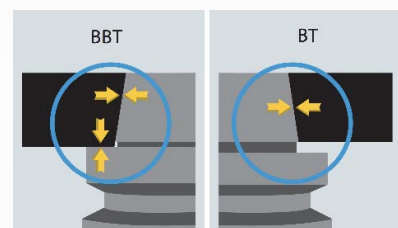


- ▶ The contact surfaces of spindle heads are all precision hand scraped.

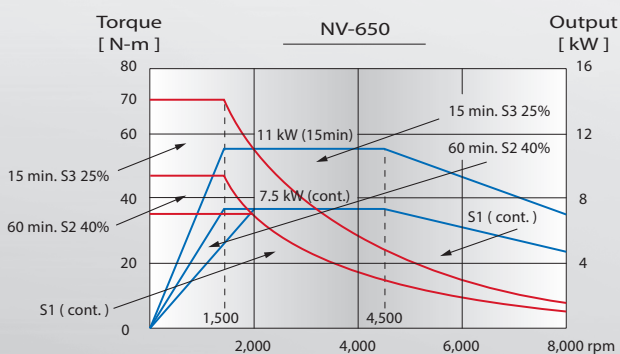


BBT dual contact spindle

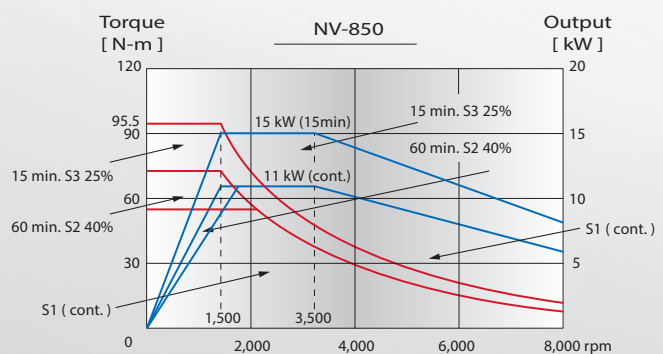
The BBT dual contact spindle ensures the spindle taper and face maintain contact with the tool holder to better meet the needs of heavy cutting.



BBT40 8,000 rpm Direct-drive Spindle

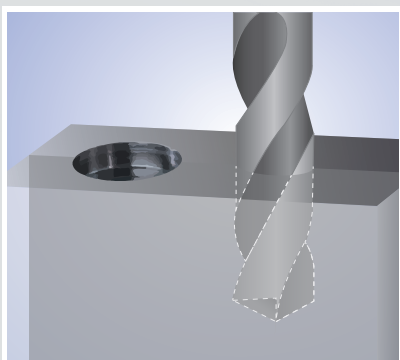


BBT40 8,000 rpm Direct-drive Spindle





Machining Capacity



Drilling

S45C

Material

1,300

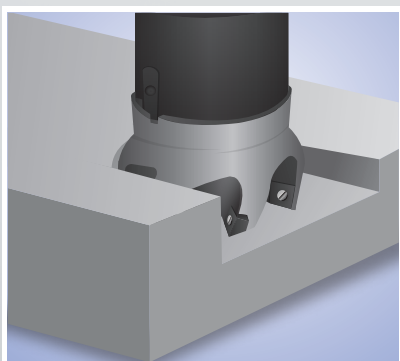
Speed (rpm)

Ø32 U-drill

Tool (mm)

400

Feed rate (mm/min)



Cutting

S45C

Material

10,000

Feed rate (mm/min)

300

Removal rate (cc/min)

Ø63

Tool (mm)

30 x 1.0

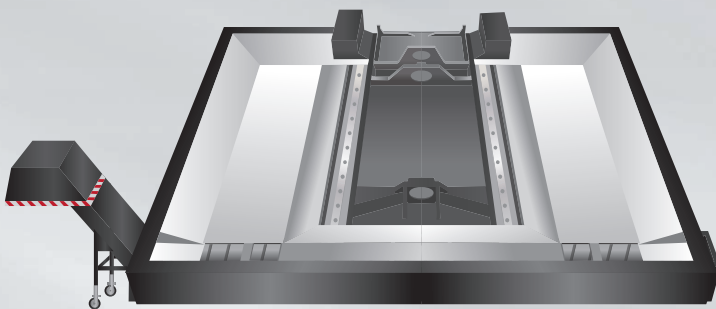
Cutting width x depth (mm)

*Test model : NV-850

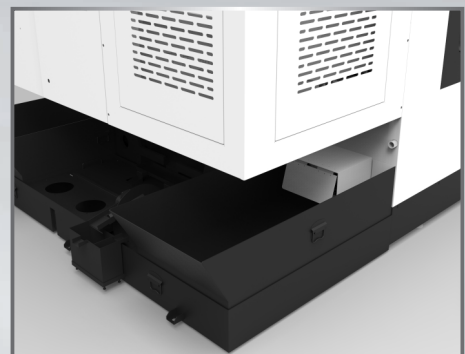


High Efficiency Chip Disposal System

- Standard chain type chip conveyor in the front greatly increases the chip evacuation efficiency. (NV-850)
- Standard equipped with chip flush coolant system evacuates the cutting chip efficiently.



▶ Chain type chip conveyor (NV-850)



▶ Rear type chip evacuation outlets (NV-650)



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.

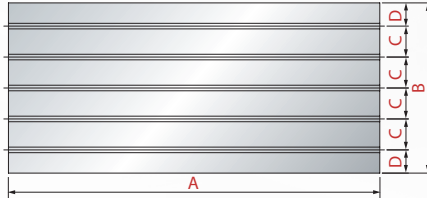


► 24T Disc type tool magazine

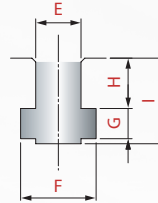
Dimensions

(Unit : mm)

Table Dimensions



T-slot Dimensions

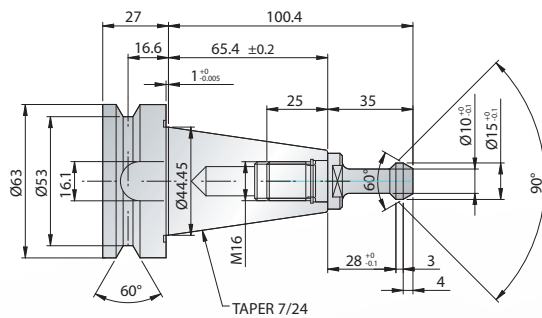


Models	no. of T-slot
NV-650	4
NV-850	5

Models	A	B	C	D	E	F	G	H	I
NV-650	750	510	100	105	14	24	10	15	25.5
NV-850	1,000	550	100	75	18	30	12	20	34

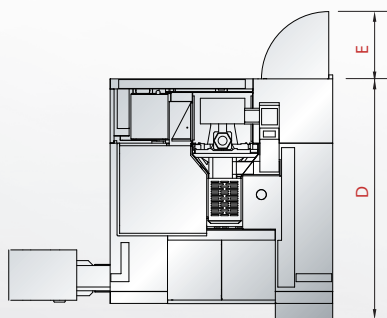
Tool Shank and Pull Stud Dimensions

BBT40

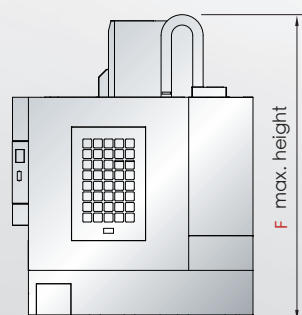
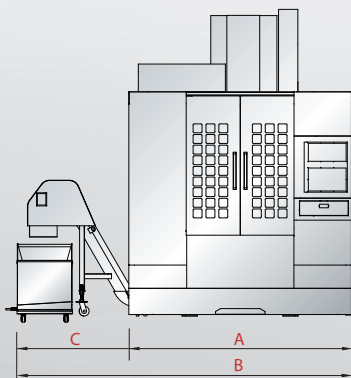


(Unit : mm)

Machine Dimensions



Models	A	B	C	D	E	F
NV-650	2,100	--	--	2,700	550	2,850
NV-850	2,250	3,380	1,130	2,430	680	3,100



Specifications are subject to change without notice.

		NV-650	NV-850
SPECIFICATIONS			
X-axis travel	mm	650	850
Y-axis travel	mm	510	550
Z-axis travel	mm	510	635
Distance from spindle center to column	mm	600	650
Distance from spindle nose to table center	mm	100 ~ 610	100 ~ 735
WORKING TABLE			
Table size (X direction)	mm	750	1,000
Table size (Y direction)	mm	510	550
T slot (Width x Distance)	kg	500	700
SPINDLE			
Spindle motor (cont. / 15 min.)	kW	7.5 / 11	11 / 15
Spindle speed	rpm	Direct-drive 8,000	
Max. torque	N-m	70	95.5
Spindle taper		BBT40	
FEED RATE			
X / Y axes rapid feed rate	m/min	36	36
Z-axis rapids feed rate	m/min	24	24
Cutting feed rate	m/min	1-10	
TOOL MAGAZINE			
Tool magazine capacity	T	24	
Max. tool length	mm	300	
Max. tool weight	kg	7	
Max. tool diameter / adj. pocket empty	mm	Ø 78 / Ø 150	
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/cm²	6	
Power requirement	kVA	20	30
Coolant tank capacity	liter	320	350
Machine weight	kg	4,200	6,500

Specifications are subject to change without notice.

Standard Accessories

- AICC contouring control / Machining condition select
- Spindle air curtain
- Coolant nozzle around spindle
- Gravity axis anti-drop function
- Centralized auto. lubricating system
- Fully enclosed splash guard w/ roof
- Coolant system with pump and tank
- Chain type chip conveyor (NV-850)

- Chips flush coolant system
- Heat exchanger for electrical cabinet
- Rigid tapping
- Automatic power-off system
- Alarm light
- Air gun / Water gun
- Leveling bolts & pads
- Transformer
- Tool kits

Optional Accessories

- Spindle cooling system
- X / Y / Z axes optical linear scale
- Oil skimmer
- CNC rotary table
- Coolant through the tool adapter
- Automatic tool length measurement
- Automatic work-piece measurement
- AC cooler for electrical cabinet