

NC Unit Specification/FANUC Series

● : Standard ○ : Option

ITEM		Specification	0i-MF Plus
Controlled axis	Controlled axes		3 (X, Y, Z)
	Additional control axes	5 axes (Max.)	○
	Simultaneously controlled axes		4 axes
	Least input increment	0.001mm (0.0001 inch) / 0.001 deg	●
Operation functions	DNC operation	Included in RS232C interface	●
	DNC operation with memory card	CF card is required	●
	Wrong operation prevention		●
	Dry run		●
	Single block		●
Interpolation functions	Linear interpolation	G01	●
	Circular interpolation	G02, G03	●
	Dwell	G04	●
	Cylindrical interpolation	G07.1	●
	Helical interpolation	Circular + Linear 2 axes (Max.)	●
	Fine surface machining		●
	Single direction positioning	G60	●
	Reference position return	1st reference, G28 / 2nd reference, G30	●
Feed function	Reference position return check	G27	●
	Rapid traverse rate override	0%, 25%, 50%, 100%	●
	Feedrate override	0 ~ 200%	●
	Manual handle feed	X1, X10, X100	●
	Feed per minute	G94	●
	Feed per revolution	G95	●
	Override cancel		●
Auxiliary / Spindle function	AI contour control (AICC) II	200 Block	●
	Spindle override	0 ~ 150%	●
	Spindle orientation		●
	Rigid tapping		●
	Retraction for rigid tapping		●
Program input	Optional block skip	9EA	●
	Absolute/incremental programming	G90/G91	●
	Max. programmable dimension	±999,999.999mm (±99,999.9999 inch)	●
	Custom macro		●
	Canned cycle for drilling		●
	Programmable data input	G10	●
	Additional workpiece coordinate system	G54.1, P1~48 (48 pairs)	●
Tool function / Tool & Accuracy compensation	Tool offset pairs	400 pairs	●
	Tool life management		●
	Tool radius/Tool nose radius compensation		●
	Tool length measurement		●
	Backlash compensation		●
Data input / output & Interface	Memory card and USB interface		●
	Embedded Ethernet		●
	Data server		○
	Fast Ethernet		○
Others	Manual guide <i>i</i>		●
	iHMI with machining cycle		●
	Part program storage size	5120m (2 MB)	●
	No. of registerable programs	1000 ea	●
	Display unit	15" color LCD with Touch Panel	●



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Best technology and know-how

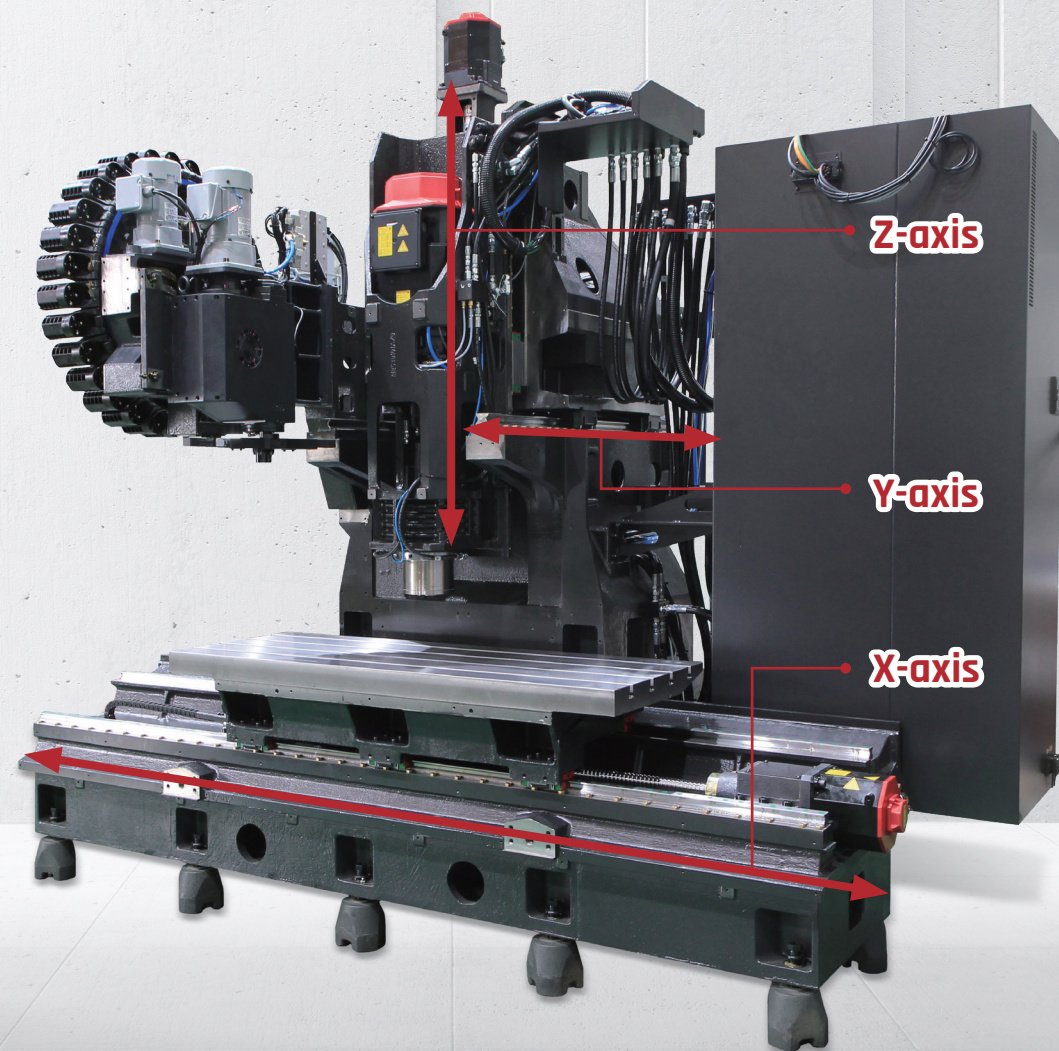


NV 5500 Series
Vertical Machining Center



Basic Structure

High Rigidity Body Structure for highest stability



Travel (X / Y / Z axis)

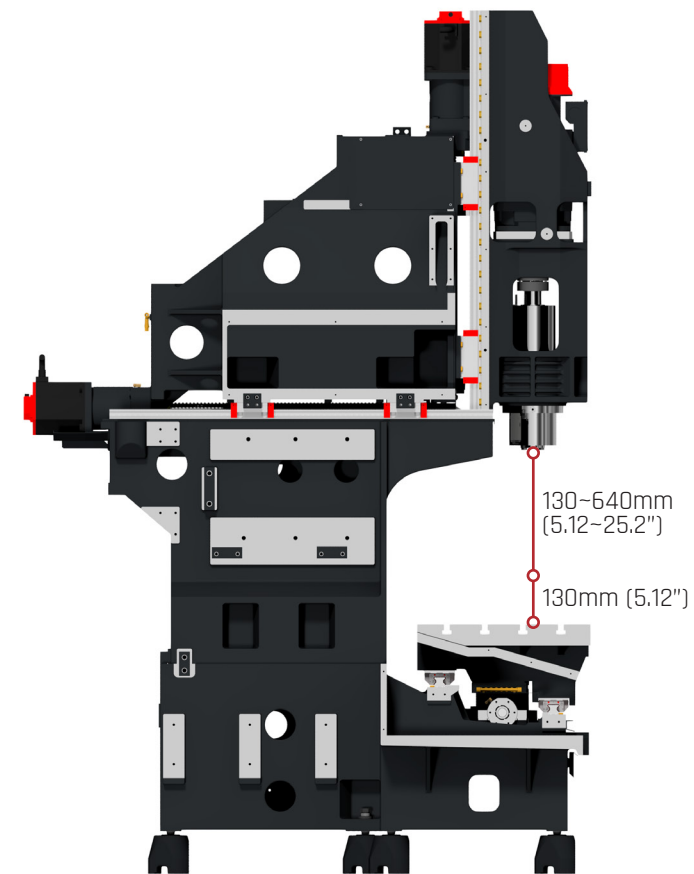
NV 5500L **1,400 / 570 / 510 mm**
(55.12" / 22.44" / 20.08")

NV 5500XL **1,800 / 570 / 510 mm**
(70.87" / 22.44" / 20.08")

Rapid Traverse (X / Y / Z axis)

NV 5500L **36 / 36 / 30 mm**
(1,417 / 1,417 / 1,181 ipm)

NV 5500XL **36 / 36 / 30 mm**
(1,417 / 1,417 / 1,181 ipm)



High Rigid Structure Design

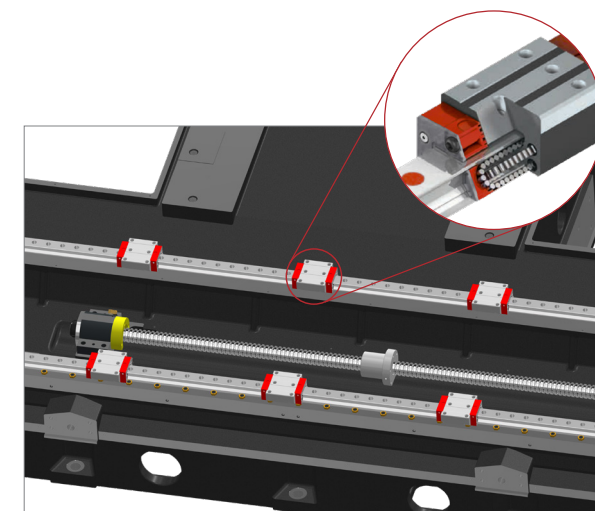
High rigidity base and extended casting column support structure design for high machining stability.

No stacking axis for table, the table only moves in X-axis prevent table overhang problem allowing higher stability of table movement and better machining quality result.

Guideway

High rigid roller type LM guideways are applied for all the axis feed, ensure high rigidity, high accuracy and speed of axis movement and also improve load capacity.

6 LM blocks on X-axis enhance machining rigidity and stability.



Table

Large working capacity

NV5500 series have wider workpiece mounting area compared to competitive machines within the same floor space.

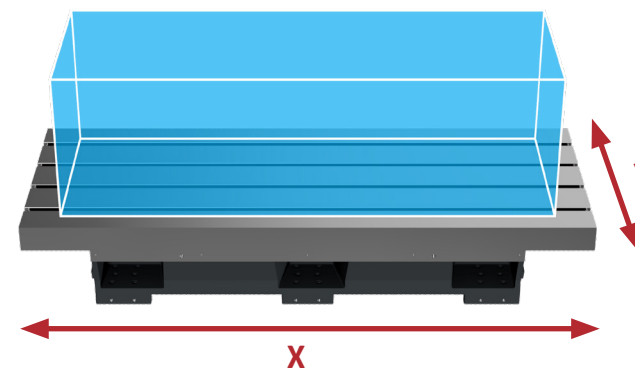


Table Size (X x Y)

NV 5500L **1,600 x 590 mm**
(62.99" x 23.23")

NV 5500XL **1,800 x 590 mm**
(70.87" x 23.23")

Max. Load Capacity

NV 5500L **1,000 kg** 2,204.6 lb

NV 5500XL **1,200 kg** 2,645.5 lb

Spindle

High-Precision & High-Performance Spindle

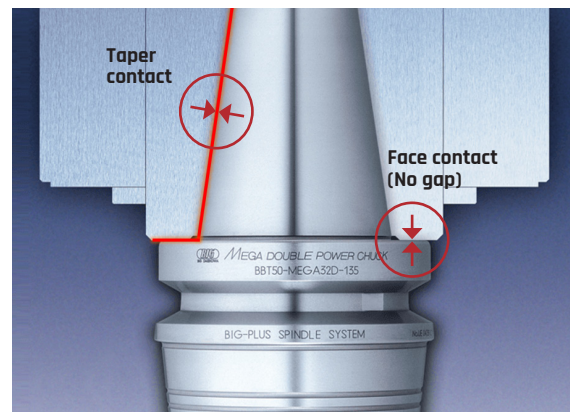
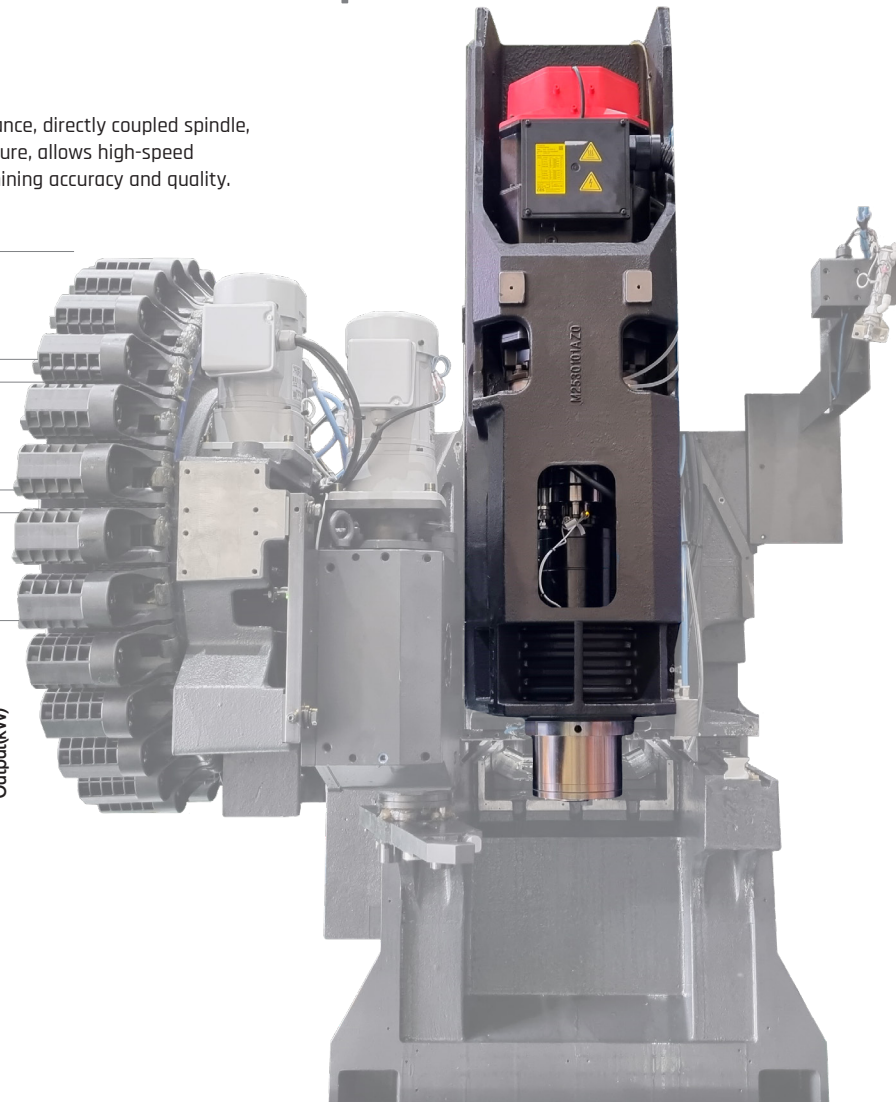
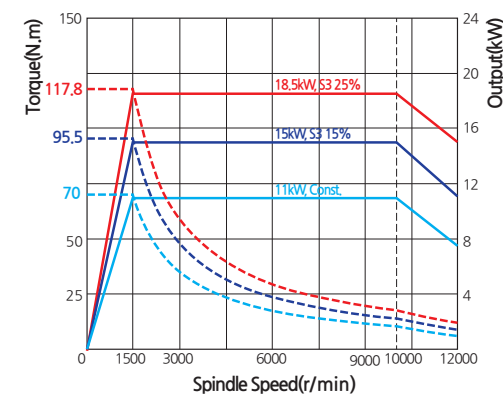
Direct Drive Spindle

NV Series machines are equipped with a high-performance, directly coupled spindle, with a maximum speed of 12,000 rpm as standard feature, allows high-speed processing with low vibration and noise, increase machining accuracy and quality.

Max. Spindle Speed
12,000 rpm

Max. Spindle Output
18.5 kW [24.8 Hp]

Max. Spindle Torque
117.8 N.m [86.9 ft.lbf]



Dual Contact Spindle

The Big Plus spindle system provides contact between the spindle face and the spindle taper of the tool holder simultaneously.

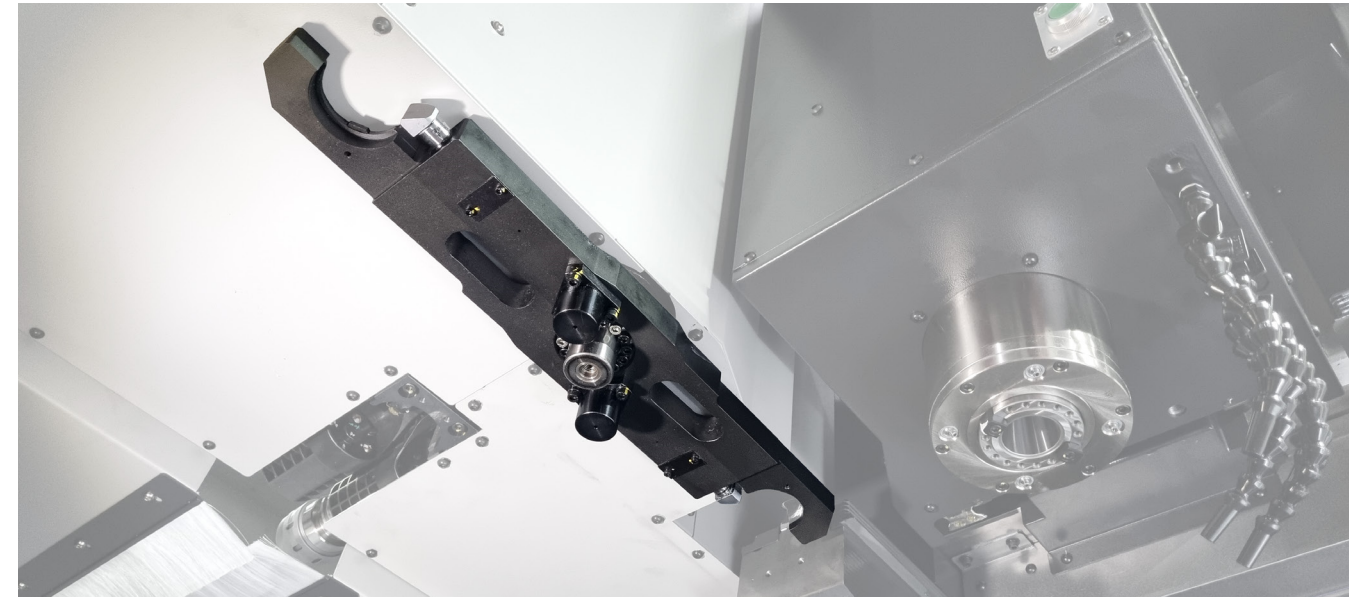
- ▶ Enhanced machining rigidity and minimize deflection.
- ▶ Better machining accuracy and improve surface finish.
- ▶ Extended tool life.
- ▶ Improve ATC repeatability.
- ▶ Compatible with existing tools (BT 40 or CAT40).

ATC & Tool Magazine

Minimize Non-cutting Time, Higher Productivity

High Speed ATC

Reliable and fast twin arm type auto tool changer with memory random tool selection method significantly reduce machining cycle time and increase productivity.



Tool Magazine

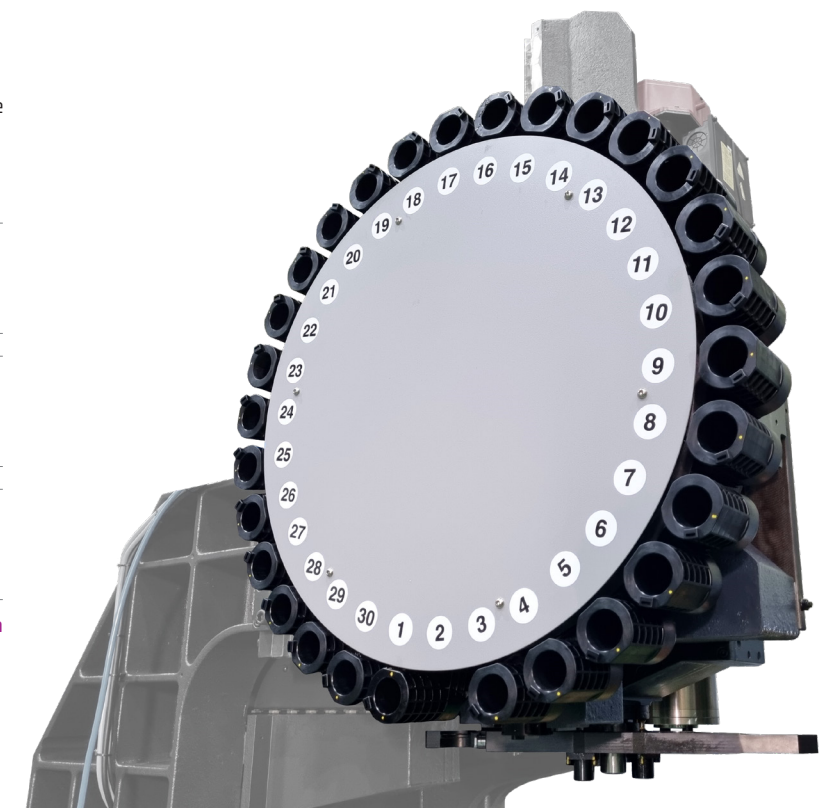
Highly reliable tool magazine holds up to 30 tools as standard to cover a wide range of tools selection ensure flexible machining conditions. The moving system is designed for shortest distance to improve tool change time.

Tool to Tool Time
2.5 Sec

Chip to Chip time
4.3 Sec

Tool Storage Capacity
30 ea [50 ea]

[] : Option



SMART Operation Features

Smart NV Series Machining Centers take operator convenience to the next level, offering unique machine design and a variety of key standard and optional features to handle a wide range of machining requirements.

Easier Magazine Maintenance **Std.**

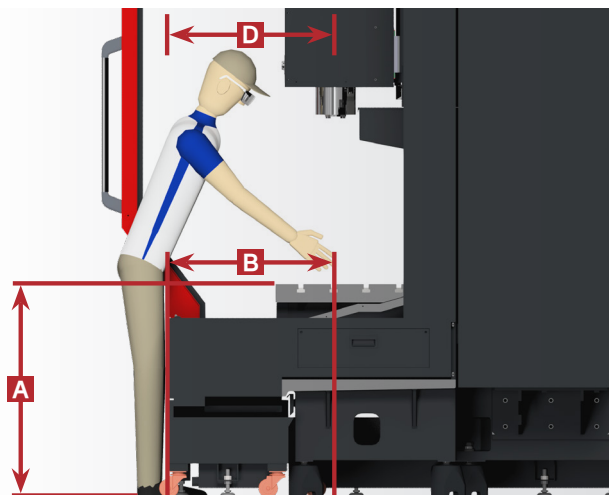
Tool magazine service door in the front of the machine for easier, faster and more convenient access.



Accessibility

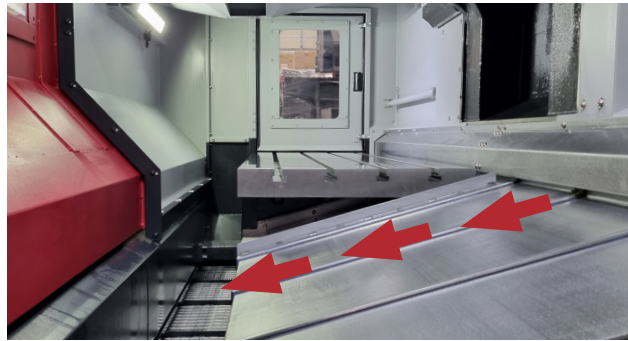
NV series is designed to have excellent access to the table, by lowered the table and the lowered end of front door, provide convenience to the operator when performing setup operations.

- A** Height of table top surface: 870mm (34.25")
- B** Distance from table center : 635mm (25")
- C** Door opening :
 - NV 5500L : 1,310mm (51.57")
 - NV 5500XL : 1,710mm (67.32")
- D** The spindle moves as Y-axis make it easier for the operator to access the spindle during maintenance.
Distance from spindle center : 350mm (13.78")



Slant Bed Design **Std.**

The moveable table as X-axis and the slant bed design allowing chips generated during machining to fall directly to chip conveyor without the need for installing internal screw conveyor. Such design enables superior chip dispose out of the machine, less noise and require less maintenance compared to machines that equip with internal screw conveyors.



Wide Opening Top Cover **Std.**

The wide-opening top cover allows easy crane access for efficient loading and unloading of workpieces.



Automatic Grease Lubrication System **Std.**

The standard grease lubrication reduces maintenance time and cost compared to oil lubrication. Since no lubrication oil mixes into the coolant tank, coolant life is significantly extended, eliminates the need for an oil skimmer.



Features

15 inch Touchscreen monitor **Std.**

NV5500 series operation panel enhances operating convenience by providing 15 inch touchscreen monitor with QWERTY keyboard layout. And also includes conversational programming software (Manual Guide i) and machining aid functions (IHMI) as standard features.



Renishaw Probe Ready **Opt.**

Renishaw optical receiver and Renishaw GUI software are installed for user convenience. Make it easier for users to connect their existing Renishaw measuring devices to SMART machine.



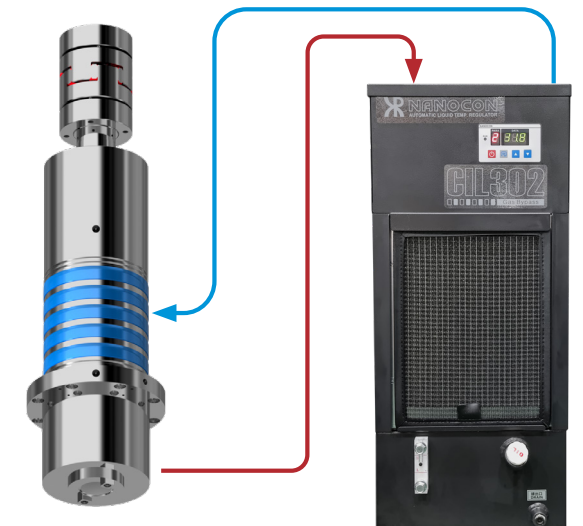
Tool and Workpiece Measurement Device **Opt.**

Tool measurement device automatically set tool lengths and diameters. And also can be used for broken tool detection. Workpiece measurement device offers users up to 90% reduction in workpiece set-up time.



Spindle Cooling System **Std.**

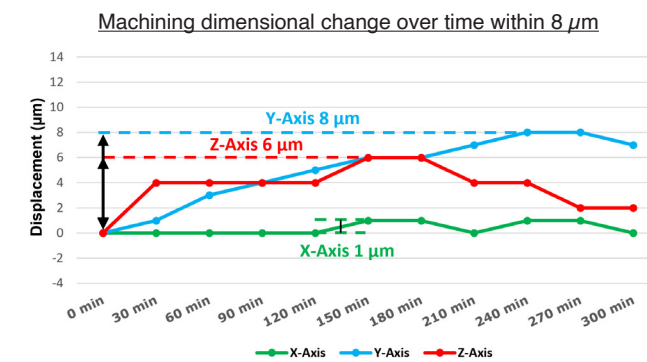
The Spindle cooling system minimizes thermal displacement, ensure maximum machining accuracy even during a long period of machining.



Thermal Displacement

SMART NV5500's single column bridge type structure yields significantly superior result compare to konvensional machining center.

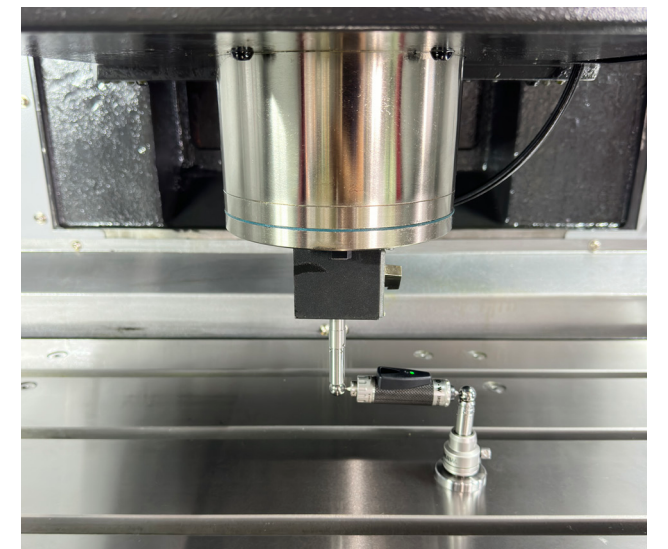
- Shorter warm-up time.
- Better thermal stability over long operation time.



Note:
 - Machine warm up 30 minutes.
 - Test at spindle speed: 8,000 RPM.
 - Room temperature range 20-24 degree Celsius.
 - The above result was tested by NV5500L. The above test result represent examples, and may not be obtained due to differences in cutting conditions.

Circularity

NV5500 series achieves excellence circularity result within 7 micron not only in the center position of the table but also the entire table stroke.



I Standard & Option Specifications

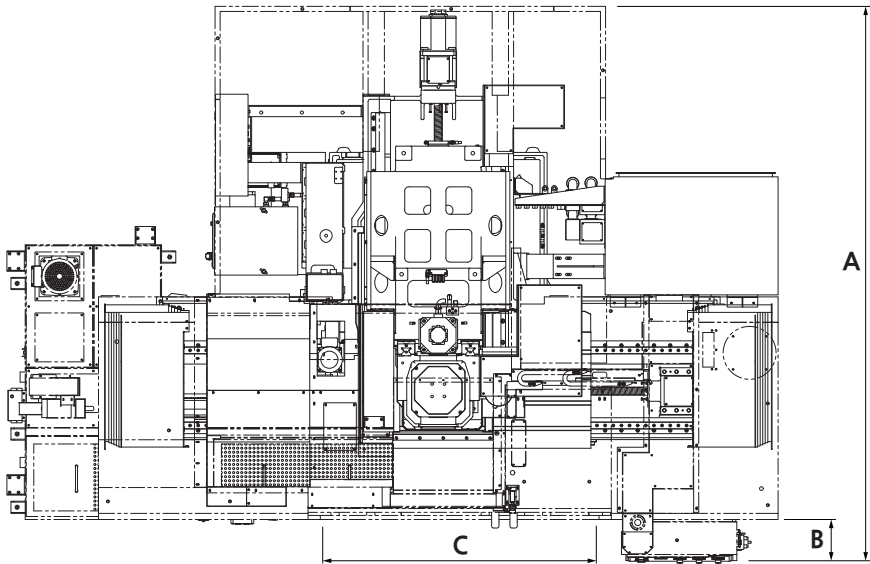
		● : Standard ○ : Option X : Not applicable	
		NV 5500L	NV 5500XL
Spindle			
12,000 rpm (DD)	18.5 kW, 117.8 N.m	●	●
15,000 rpm (DD)	18.5 kW, 117.8 N.m	○	○
20,000 rpm (Built-in)	22 kW	○	○
Spindle Cooling System		●	●
ATC			
Magazine Storage Capacity	30 ea	●	●
	50 ea	○	○
Tool Shank Type	BIG PLUS BT40	●	●
	BIG PLUS CAT40	○	○
	HSK-A63 (20K)	○	○
Table & Column			
T-Slot Table	18H8xP100 - 5EA	●	●
	18H8xP125 - 4EA	○	○
NC Rotary Table	4th axis, 4th & 5th axis	○	○
Raise Column	200mm	○	○
Coolant System			
Std. Coolant (Spindle nozzle)	1.1 kW	●	●
Through Spindle Coolant (TSC)	20 bar (290 psi)	○	○
	30 bar (435 psi)	○	○
	70 bar (1,015 psi)	○	○
Bed Flushing		○	○
Shower Coolant		○	○
Coolant Chiller		○	○
Paper Filtering System	Integrated to coolant tank	○	○
Chip Disposal			
Chip Conveyor	Hinge type (Side)	○	○
	Magnetic scraper type (Side)	○	○
Chip Bucket		○	○
Measurement & Automatic Operation			
Tool Measuring System	Renishaw	○	○
Workpiece Measuring System	Renishaw	○	○
Renishaw Optical Receiver (With GUI)	OMI-2T	○	○
Linear Scale	X / Y / Z axis	○	○
Auto Door		○	○
Auto Power Off		○	○
Accessories & Others			
Portable MPG	1 ea	●	●
Air Gun		○	○
Coolant Gun		○	○
Air Blower		○	○
Mist Collector		○	○
Air Conditioner		○	○
Oil Skimmer		○	○
4-Axis Interface Preparation	Pneumatic or hydraulic piping	○	○
Through Spindle Air (TSA)		○	○
Work Light	LED lamp	●	●
3 Color Signal Tower		●	●
Door Interlock		●	●
Leveling Blocks		●	●
Transformer		○	○

※ Specifications are subject to change without notice for improvement.

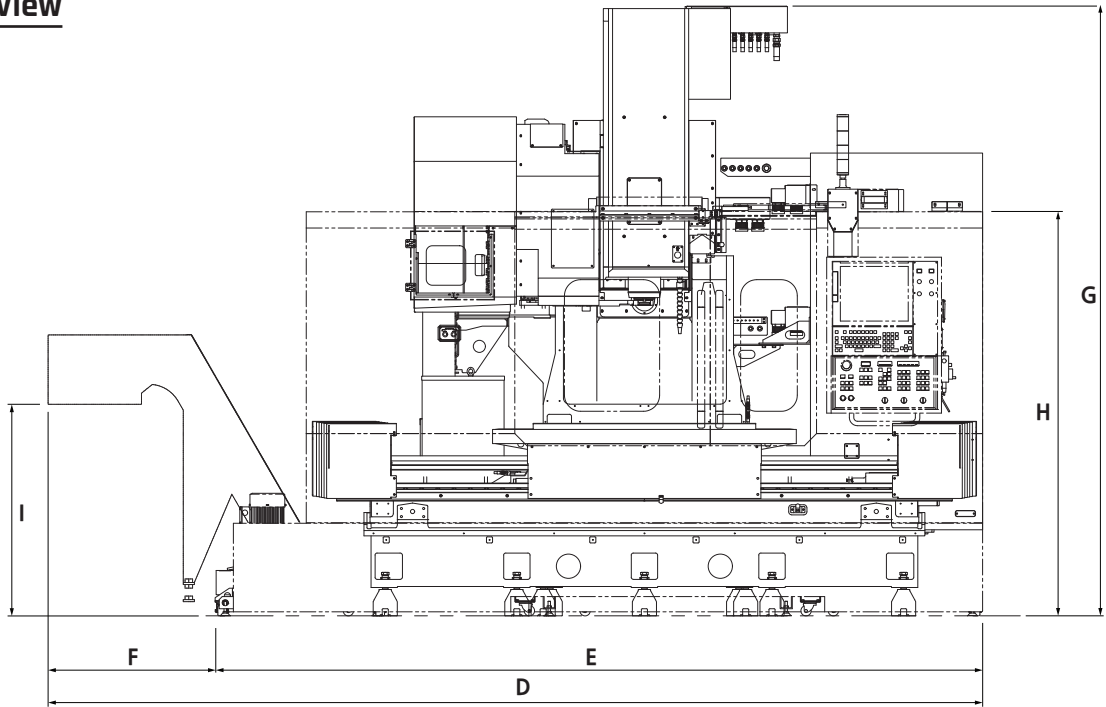
※※ Please contact Smart Machine Tool for detailed specification.

I Machine Dimensions

Top View



Front View

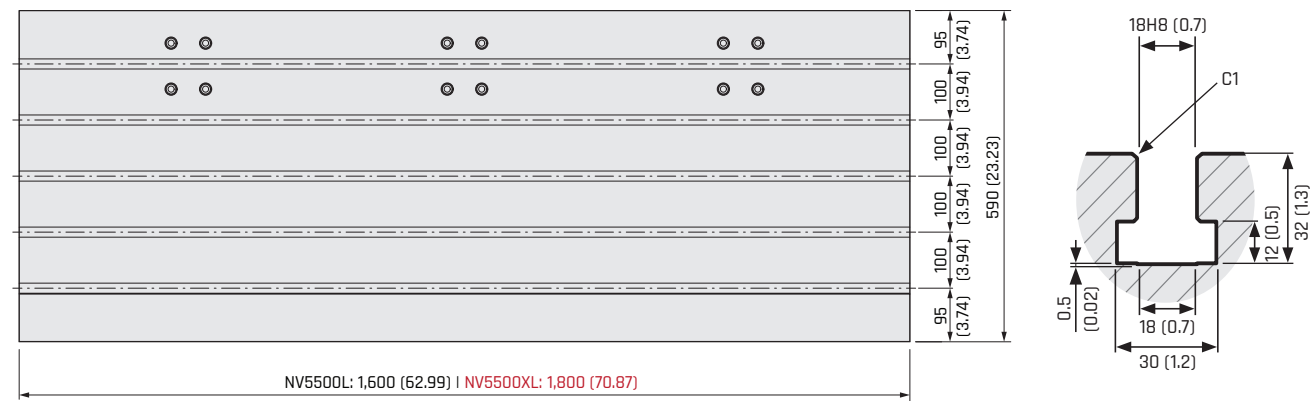


Unit : mm (inch)

Model	A (Width)	B	C (Door opening)	D (Length)	E	F	G (Height)	H	I (Chip conveyor height)
NV 5500L	2,670 (105.12)	202 (7.95)	1,310 (51.57)	4,515 (177.76)	3,850 (151.57)	665 (26.18)	2,950 (116.14)	1,995 (78.54)	995 (39.17)
NV 5500XL	2,835 (111.61)	367 (14.45)	1,710 (67.32)	5,115 (201.38)	4,450 (175.20)				

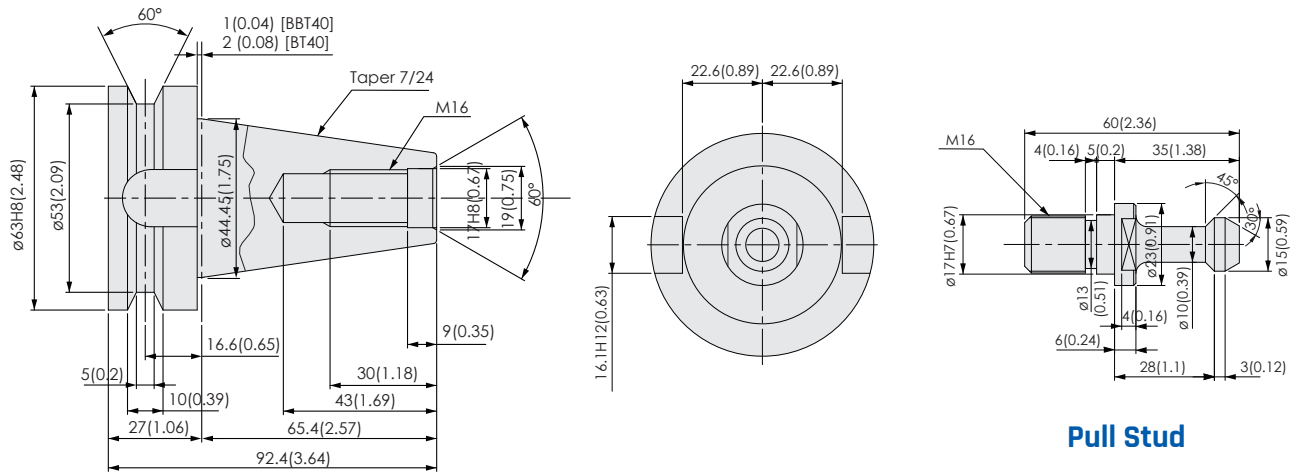
I Table & Tool Shank Dimensions

Table & T-Slot

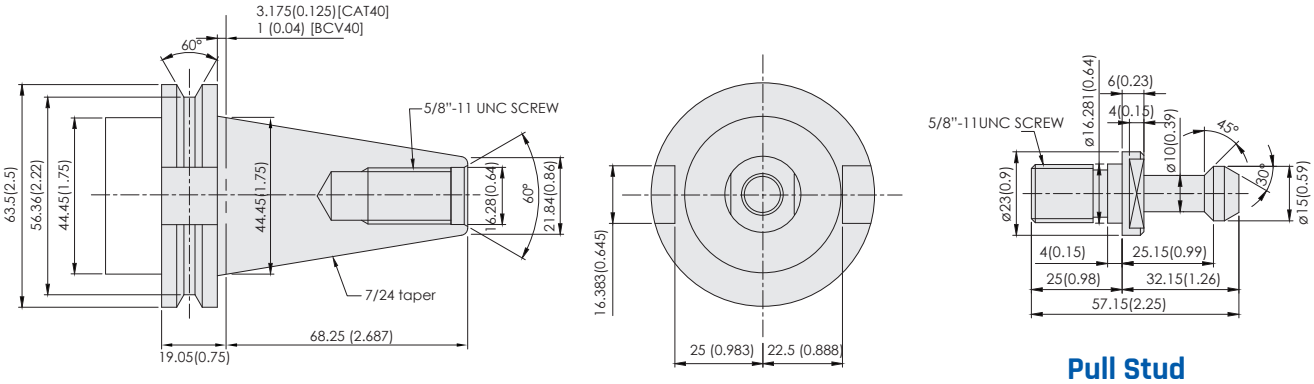


Tool Shank

BBT40



CAT40



I Machine Specifications

[] : Option

DESCRIPTION				NV 5500L	NV 5500XL
FEED	Travel Distance	X axis	mm(inch)	1,400 (55.12)	1,800 (70.87)
		Y axis	mm(inch)	570 (22.44)	
		Z axis	mm(inch)	510 (20.08)	
	Rapid Traverse Rate	X axis	m/min(ipm)	36 (1,417)	
		Y axis	m/min(ipm)	36 (1,417)	
		Z axis	m/min(ipm)	30 (1,181)	
	Distance From Spindle Nose to Table Top		mm(inch)	130~640 (5.12~25.2)	
	Slide Type		-	LM Roller Guide	
TABLE	Table Size		mm(inch)	1,600 x 590 (62.99 x 23.23)	1,800 x 590 (70.87 x 23.23)
	Table Loading Capacity		kg(lb)	1,000 (2,204.62)	1,200 (2,645.55)
	T Slot (WxP / No. of Slots)		mm(inch)	18H8 x P100 (0.71 x 3.94) - 5 ea [18H8 x P125 (0.71 x 4.92) - 4 ea]	
SPINDLE	Taper		-	ISO #40	
	Max. Spindle Speed		rpm	12,000	
	Spindle Output		kW(Hp)	18.5 / 15 / 11 (24.8 / 20.1 / 14.8)	
	Max. Spindle Torque		N.m(ft.lbs)	117.8 (86.9)	
	Type of Tool Shank		-	BBT 40 [CAT 40]	
ATC	Tool Storage Capacity		ea	30	
	Max. Tool Diameter	Continuous	mm(inch)	ø80 (3.15)	
		Without Adjacent Tools	mm(inch)	ø125 (4.92)	
	Max. Tool length		mm(inch)	300 (11.81)	
	Max. Tool Weight		kg(lb)	8 (17.64)	
	Method of Tool Selection		-	Memory Random	
	Tool Changing Time	Tool-to-Tool	sec	2.5	
		Chip-to-Chip	sec	4.3	
POWER SUPPLY	Electric Power Supply		kVA	40	
MACHINE DIMENSION	Height		mm(inch)	2,950 (116.14)	
	Length		mm(inch)	3,850 (151.57)	4,450 (175.20)
	Width		mm(inch)	2,670 (105.12)	2,835 (111.61)
	Weight		kg(lb)	7,800 (17,196)	8,500 (18,739)
Control	NC System		-	Fanuc Oi-MF Plus	