

NXSeries

High Performance Double Column Vertical Machining Centers

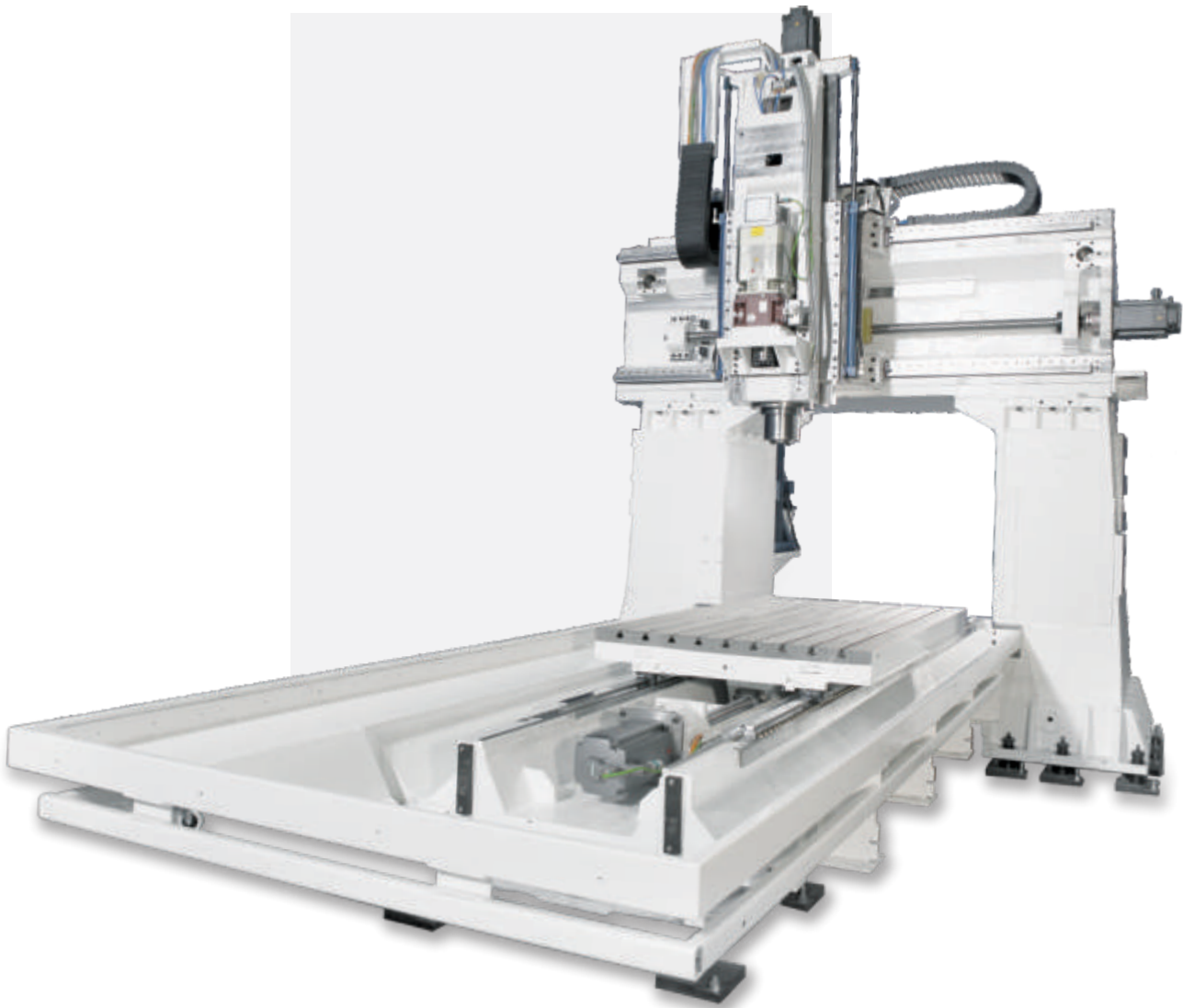


NX Series

High Performance Double Column Vertical Machining Center

OVERVIEW

Our Heavy Duty Double Column Vertical Machining Centers is ideal for multi axis heavy machining both in roughing and finishing operations of bigger components greatly increasing work envelop, permitting larger parts to be machined, and a wider range of tool lengths to be used in the same setup. Combination of this series design concept, achieved dynamics and accuracy results in very high quality surfacing even for complex workpiece such as injection moulds, forging dies, large plates, heavy engineering workpieces to help keep pace with growing market applications.



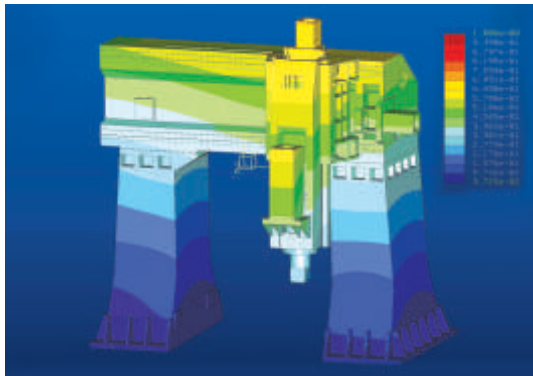
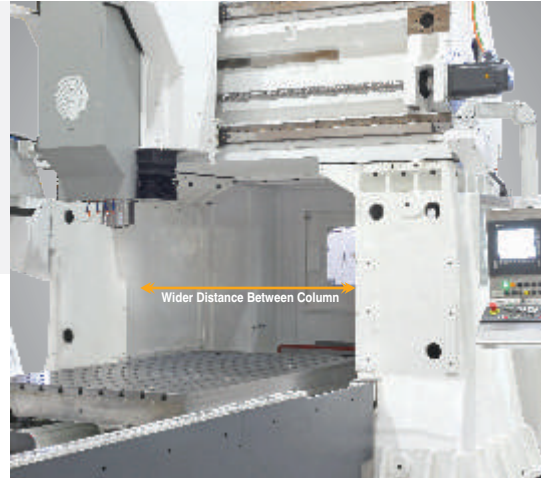
STRUCTURE : RIGIDITY AND ACCURACY

- Double Column structure with Y-Axis on rigid cross-beam, a moving table in X-Axis and Z-axis on Ram Type Head with better reach to table area.
- Structure made of Cast iron is capable to give high mechanical performance which maximizes structure rigidity and allows optimum harmonic stability and maximum damping during demanding cutting conditions.
- Machine can be placed on foundation with weight equally distributed over fixing points enabling extreme rigidity and very high geometrical stability.



WIDER GAP BETWEEN COLUMNS

- Wide gap maintained between both the columns enabling to accommodate and machine large size components.
- Designed even for large mould and mould base machining.
- Table load capacity upto 10 Ton.
- Greatly upgrades machining accuracy while lowering machining cost.

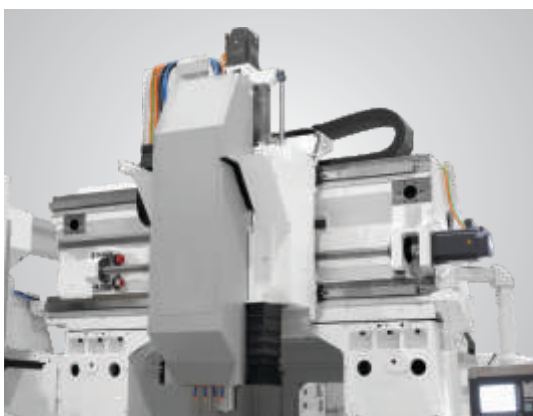
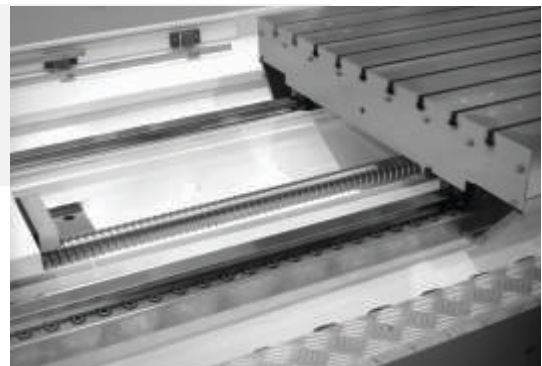


FINITE ELEMENT ANALYSIS

Entire structure has been designed and tested by stringent FEM analysis for optimum performance under practical working conditions.

PRECISION LINEAR AXES

- Precision Class Linear Motion (Roller Type) Guideways in X & Y Axis enabling higher rapids for better productivity and accuracy life.
- Z-Axis moves on Ram Type Head moving on Hardened and Ground Surface.
- Preloaded ballscrews with integrated system of compensation for expansion with Preloaded bearings to remove inversion backlash, axial stress and compensates effect of thermal expansion on ballscrews enabling a high quality of surfacing



MOVING RAM IN Z-AXIS

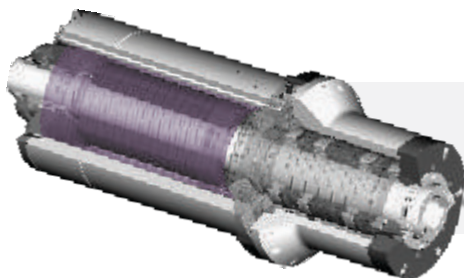
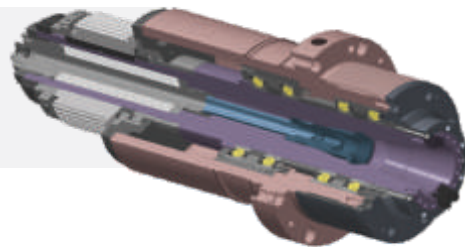
An exclusive design of moving RAM in Z-Axis increases the dynamic characteristics and ensures rigidity, stability and vibration free cutting, thus improving surface finish of machined component. Besides this such a construction helps in more rigid machining at greater extensions from headstock and creates a flexible machining condition helping easy reach of spindle on complex machining edges without much interference of axis elements.

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PERFORMANCE SPINDLE

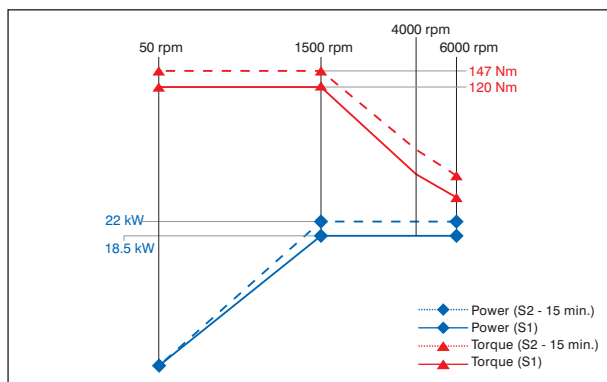
- High Torque Vertical Spindle has been designed and manufactured in-house at Jyoti CNC in a dedicated clean room facility having relative setup. These spindles are balanced and then extensively tested for performance. Angular contact bearing are used with life lubrication with properties of high speed and stability during heavy cutting loads.



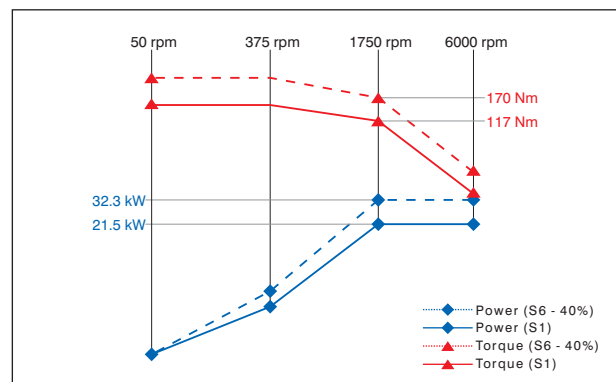
- High Power or High Torque Spindles with different taper options available to match different application needs.
- High Speed High Torque 10000 / 15000 / 18000 rpm motorized spindle are available which are manufactured in house for high speed machining.

POWER TORQUE DIAGRAM

22 / 18.5 kW, 6000 rpm (Fanuc)

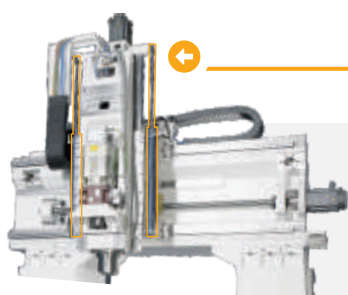
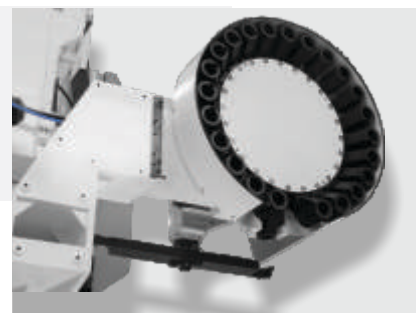


32.3 / 21.5 kW, 6000 rpm (Siemens)



AUTOMATIC TOOL CHANGER

- 24 Tool Arm Type ATC with disc type magazine for BT 50 taper.
- Options available of high tool storage capacity tool changers 40, 60 & 90, with relative spindle and taper.
- Tool magazine outside of working area.

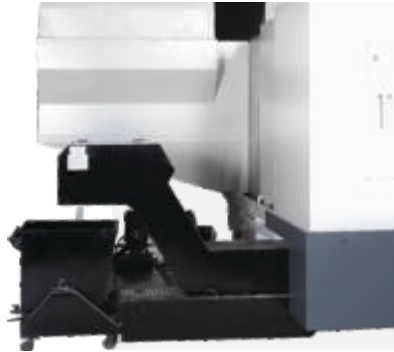


PREVENT FOR VERTICAL AXIS DROP

Hydraulic Counter Balance will positively hold pressurised load and will prevent the vertical drop during emergency stop, smooth motion during machine movement and better stability while actual machining at higher parameters



ERGONOMICS DESIGN



Operator panel with swing arm for easy accessibility to working area enabling better operator friendliness.



Two side spring conveyors discharge the swarf to a third cross conveyor located at the front of the machine.



Very large accessibility to the table and the workpiece from top and side of the machine thanks to a large opening of doors and possibility to load with lifting equipment



The Coolant nozzles around the Spindle face facilitates the manual adjustment of the nozzles for proper positioning of the coolant on the job while machining.

EASY MAINTENANCE

- Safeguard ensuring a safety of the machine, the operator and environment with options available
- Regular checking points like pneumatic, electrical panel, lubrication are conveniently located within the reach of operator.

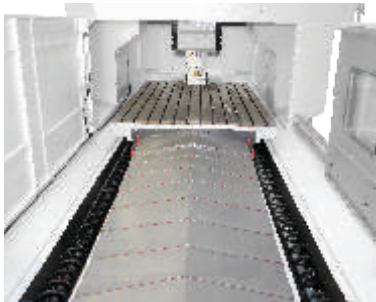
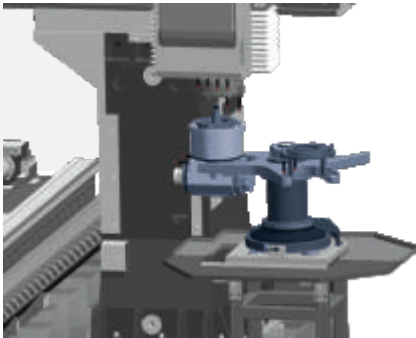
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PRODUCTIVITY IMPROVING OPTION

HEAD OPTIONS

90° Auto indexing head & Manual indexing head are available for 5-face machining application to eliminate multiple setup time and increase productivity.



KEY FEATURES

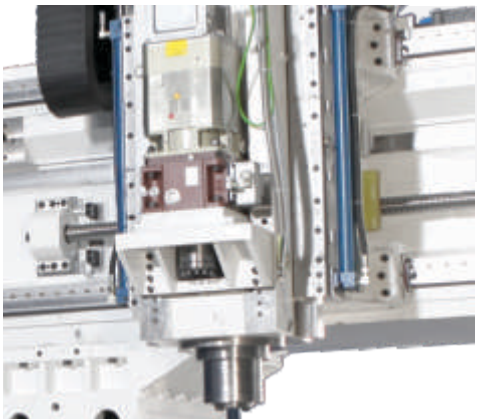
- Programmable indexing
- 5 face machining possible to eliminating multiple set-up time
- Tool clamping hydraulic
- Auto indexing position locked by 2-Piece Hirth coupling thus assuring the indexing position under stronger cutting condition.

90° AUTO INDEXING HEAD

Taper Size	BT 50
Spindle Speed	3000 rpm
Max. Tool Length	300 mm
Spindle Power (Max.)	22 / 18.5 kW
Indexing Angle	At Every 5 Deg.
Head Clamping	Hydraulic
Indexing / Changing	Automatic

MANUAL HEAD (Horizontal Type)

Taper Size	BT 50
Spindle Speed	2000 rpm
Max. Tool Length	300 mm
Spindle Power (Max.)	22 / 18.5 kW
Head Clamping / Indexing	Manual



HIGH TORQUE GEARED HEAD

For higher torque at low rpm application, we offer geared head spindles which provides an edge during demanding applications like large size milling cutters, rigid tapping and large size boring operations.



TECHNICAL SPECIFICATION

Table		NX 2215	NX 3215	NX 3222	NX 4222
Table Size	mm	2200 x 1250	3000 x 1250	3000 x 2000	3500 x 2000
T-Slot Dimension	mm	9 x 18 x 125	9 x 18 x 125	12 x 22 x 160	12 x 22 x 160
Dist. From Floor to Table	mm	790	790	920	920
Max. Load on Table	kgf	6000	8000	10000	10000
Distance Between Column	mm	1600	1600	2500	2500
Capacity					
X-Axis Travel	mm	2200	3200	3200	4200
Y-Axis Travel	mm	1500	1500	2200	2200
Z-Axis Travel	mm	800 [1000]	800 [1000]	800 [1000]	800 [1000]
Dist. From Spindle Face to Table Top	mm	200	200	200	200
Rapid Traverse (X, Y & Z Axis)	m/min	20/20/15	15/20/15	15/15/15	15/15/15
Cutting Feed Rate	m/min	10	10	10	10
Main Spindle					
Spindle Motor Speed	rpm	6000	6000	6000	6000
Spindle Motor Power - Fanuc	kW	22 / 18.5	22 / 18.5	22 / 18.5	22 / 18.5
Spindle Motor Power - Siemens	kW	32.3 / 21.5	32.3 / 21.5	32.3 / 21.5	32.3 / 21.5
Front Bearing Bore	mm	100	100	100	100
Spindle Taper		BT-50	BT-50	BT-50	BT-50
Automatic Tool Changer					
No. of Tools		24	24	24	24
Max. Tool Dia.(Adj. Empty)	mm	254	254	254	254
Tool Dia. (All Pockets Full)	mm	127	127	127	127
Max. Tool Length	mm	350	350	350	350
Max. Tool Weight	kg	15	15	15	15
Change Time :					
Tool to Tool - Chip to Chip	Sec	6 - 15	6 - 15	6 - 15	6 - 15
Accuracy (as per VDI/DGQ 3441)					
Positioning Uncertainty (P)	mm	0.020	0.020	0.020	0.020
Repeatability (Ps Medium)	mm	0.008	0.008	0.008	0.008
Other Data					
Machine Weight (Approx.)	kg	26500	28500	34800	37100

STANDARD FEATURES

- The CNC System offered SIEMENS 828D or FANUC Oi MF
- AC Spindle Drive & SERVO Axis Drive
- L.M. Roller Type Guideways (X & Y Axis)
- Auto & Manual Coolant System
- Centralized & Programmable Lubrication
- Laser Calibrated Axis for High Precise Positing Accuracy and Repeatability.
- Electricals with Quality Devices & Panel with A.C.
- Work Light
- Chip Conveyor

PRODUCTIVITY IMPROVING OPTIONS

- Linear Glass Scale for Axes
- BBT Spindle Taper
- Coolant Through Spindle
- Extra Day light (200 mm)
- Z-Axis Travel (1000 mm)
- 40 / 60 / 90 Tool ATC
- Oil Mist Collector System
- Auto Indexing Head (Horizontal)
- Manual Horizontal Head
- Rotary Table
- Tool Probe & Job Probe
- Coolant Gun & Air Gun
- Geared Head
- High Speed Electro Spindle
- Higher Power Spindle
- Full Cover Enclosures
- Tool Tip Air Nozzle (For Dry Cutting)
- Visiport Window
- Manual Guide i (Fanuc)
- Easy SMS System (Siemens)
- Fully Tooled up Solution to Meet Customer Needs

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Note: Specified information are subject to change arising out of continuous product improvement without notice. The description standard accessories/feature conforms to its list; not the photo of machine show in the catalogue. Other controller will have different configuration. Machine images are shown with option.



ISO 9001 : 2008