



# RX Series

Vertical Machining Centers



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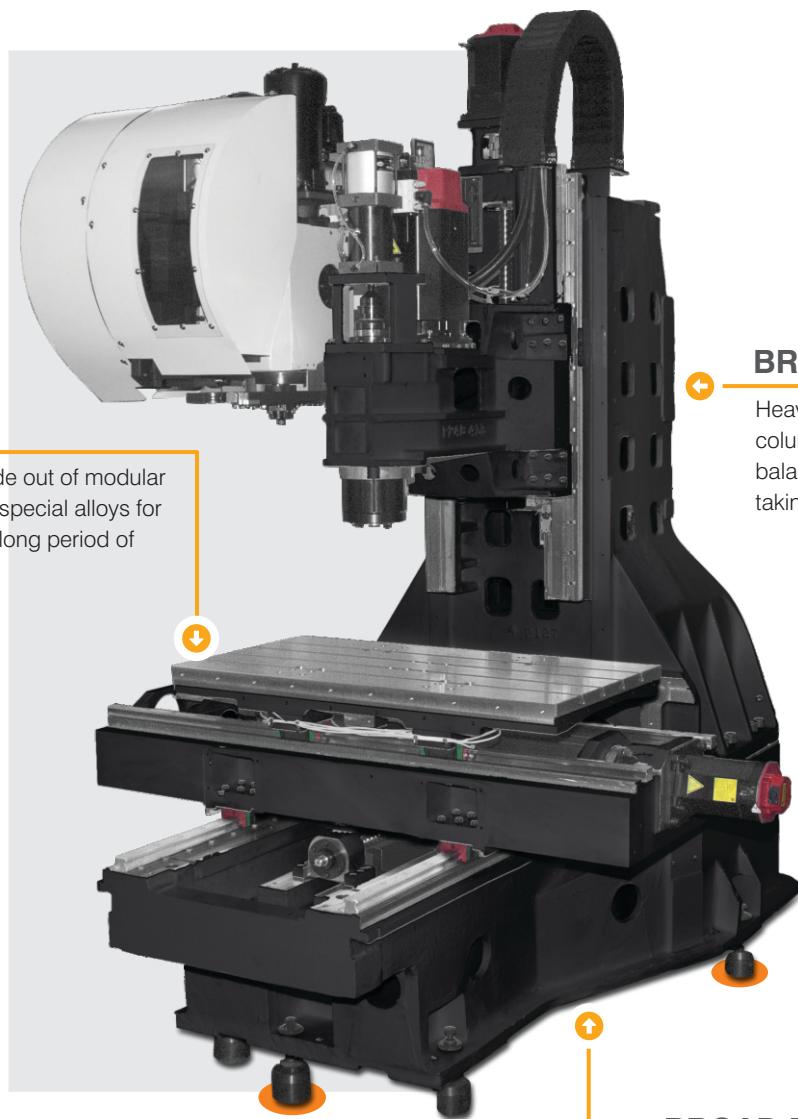
Vertical Machining Center

## OVERVIEW

To match the demand of greater accuracy and total reliability at higher speed, Jyoti has developed a special vertical machining center series called RX Series. These rigid machines are broad based rigid C-Type structured machines with moving table for easy access. The complete structure is FEA (Finite Element Analysis) proven with stringent analysis done by JYOTI. The high dynamic structure is capable for providing high speed drilling and tapping as well as full milling capabilities in a versatile package for high volume production with the help of High Rapid Traverse.

## TABLE

Table of the machine is made out of modular casting with the addition of special alloys for consistent accuracy over a long period of time.



### 3 - POINT LEVELING

Structure design with 3 point leveling concept eliminates twisting of bed for longer working life and provides higher base rigidity. This feature in RX Series, allows machine to be installed and re-located quickly and easily.

### BROADER COLUMN

Heavy extra broad construction of column helps for better stability & balancing the whole machine while taking heavy cutting load.

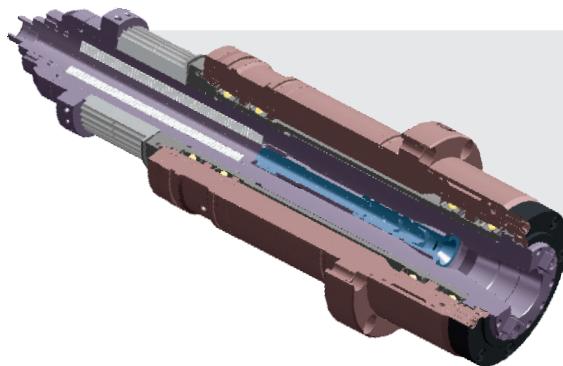
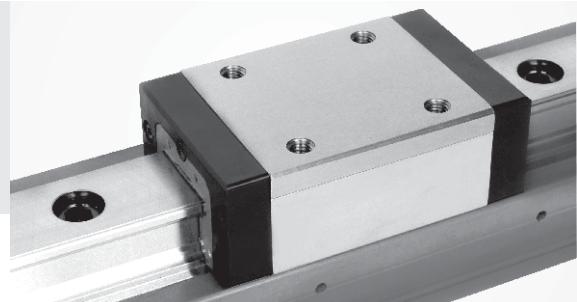
### BROAD RIGID BASE

Broad rigid base with heavy cross ribbing dampens the effect of vibrations.



## PRECISION LINEAR AXIS

High precision P-Class linear motion guideways and integrated ball screw assembly provides static and dynamic stiffness. High rapid rates up to **40 m/min** with high acceleration/deceleration for achieving higher productivity by reducing non-cutting time.



## HIGH PRECISION SPINDLE

The high precision belt driven spindle are designed and manufactured in-house at Jyoti. Jyoti has dedicated dust free, temperature controlled assembly shop where spindles are extensively tested for various performance criteria. Angular contact ball bearing provide higher axial load capacity for vibration-free cutting and optimum surface quality.

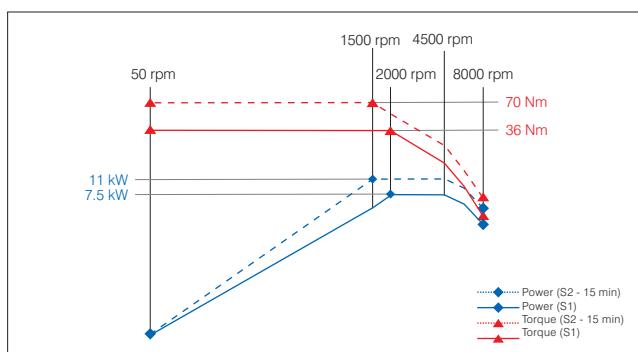


## AUTO TOOL CHANGER

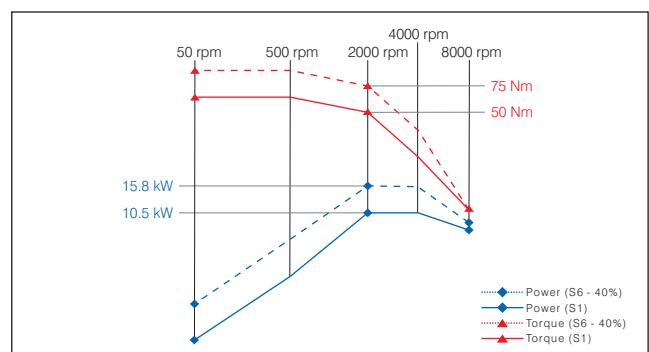
RX Series machines are equipped with Twin Arm with Disc Type tool magazine capable of storing 20 Tools at a time. The Tool change time is just **2.4 sec.** An option of 24 and 40 tool magazines are also available.

## POWER TORQUE DIAGRAM

**11 / 7.5 kW, 8000 rpm (Fanuc)**



**15.8 / 10.5 kW, 8000 rpm (Siemens)**



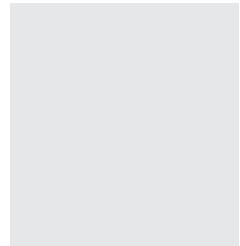
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## ERGONOMIC DESIGN

A **90° tilting** operating panel helps the operator to view the machining area while operating.  
Easy approach to the table for component loading/unloading.



## TPM FRIENDLY DESIGN

Units which required regular checking like Pneumatics, Lubrication etc. are conveniently located for easy maintenance at the rear of the machine well within the reach of operator.

## COOLANT SYSTEM

Flush coolant system for efficient chip removal from machine working area without disturbing production activity and minimizes the maintenance time.  
High pressure coolant flow from flexible nozzles surrounded the spindle easily wash away chips from table and increases the tool life.



## EFFICIENT CHIP REMOVAL

Efficient Chip Evacuation made flexible by chip tray location either at side or at rear, which can be selected as per plant layout requirement.  
Also chip conveyor option available for uninterrupted production.



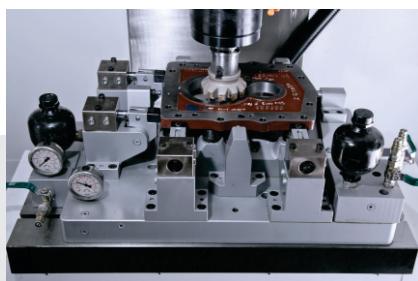


## AUTOMATIC PALLET CHANGER

Keeping in mind customer's requirement for reducing total production time, JYOTI offers Vertical Machining Centers with Auto Pallet Changer equipped with spindle of 8000 rpm. Hydraulic fixture can be interface to reduce job setup time.



A maintenance free linear type work piece changer mechanism is a special feature of machine to improve productivity, which is ballscrew driven and hydraulically clamping for accurate positioning. Hydraulic Fixture or Rotary Table can be interface on both pallet.



### RAX 20 - Specifications

Working Table size (each pallet)	800 X 485 mm	Max. Spindle Speed (Taper)	8000 rpm (BT 40)
No. of Pallet	2	Spindle Power - Fanuc	11 / 7.5 kW
Table Load Capacity	400 kg X 2	Spindle Power - Siemens	15.8 / 10.5 kW
Pallet Changing Time	20 Sec.	Tool Storage Capacity	20 Tools
Travel (X / Y / Z Axis)	820 / 510 / 510 mm	Weight (Approx) #	6600
Rapid Traverse (X / Y / Z Axis)	40 m/min	Dimensions (L x W x H) #	3600 x 3525 x 2750 mm

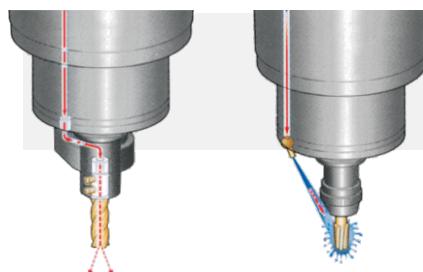
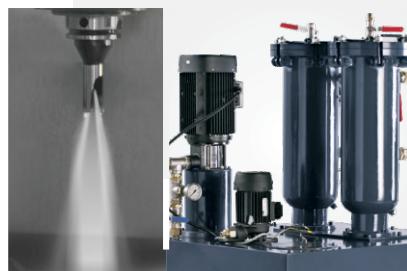
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## PRODUCTIVITY IMPROVING OPTIONS

These series can be efficiently interfaced with productivity improving options such as coolant through spindle, tool probe, job probe, linear glass scale, rotary table and other options to achieve better surface finish, reduced cycle time and improved process capabilities.

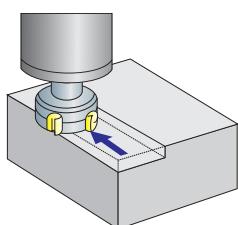


## OIL MIST SPRAY

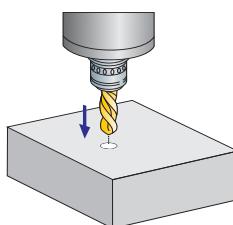
Air / Oil Mist Spray available through spindle and also available by external nozzle for dry cutting applications.

## CUTTING CAPABILITIES

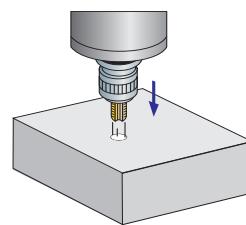
### Face Milling



### Drilling



### Tapping



### Siemens 15.8 / 10.5 kW Motor Power

Material	(Cutter Dia, Dept of Cut X MRR)	(Dia X Feed)	(Size X Pitch)
Steel	<b>Ø63 mm</b> , 3.0 mm X 92 cu.cm\min	<b>Ø36 mm</b> X 0.10 mm/rev	<b>M16</b> X 2.0 mm
Cast Iron	<b>Ø63 mm</b> , 4.0 mm X 137 cu.cm\min	<b>Ø40 mm</b> X 0.10 mm/rev	<b>M24</b> X 3.0 mm
Aluminium	<b>Ø63 mm</b> , 5.5 mm X 587 cu.cm\min	<b>Ø42 mm</b> X 0.20 mm/rev	<b>M30</b> X 3.5 mm

### Fanuc 11 / 7.5 kW Motor Power

Material	(Cutter Dia, Dept of Cut X MRR)	(Dia X Feed)	(Size X Pitch)
Steel	<b>Ø63 mm</b> , 2.0 mm X 62 cu.cm\min	<b>Ø30 mm</b> X 0.10 mm/rev	<b>M14</b> X 2.0 mm
Cast Iron	<b>Ø63 mm</b> , 3.0 mm X 100 cu.cm\min	<b>Ø36 mm</b> X 0.10 mm/rev	<b>M22</b> X 2.5 mm
Aluminium	<b>Ø63 mm</b> , 4.0 mm X 427 cu.cm\min	<b>Ø36 mm</b> X 0.20 mm/rev	<b>M27</b> X 3.0 mm



## TECHNICAL SPECIFICATION

Table		RX 10	RX 20	RX 30
Table Size	mm	800 X 500	1000 X 530	1200 X 550
T-Slot Dimension	mm	4 X 14 X 100	4 X 14 X 100	5 X 18 X 100
Distance from Floor to Table	mm	965	965	1025
Max. Load on Table	kgf	400	400	900
<b>Capacity</b>				
X - Axis Travel	mm	600	820	1020
Y - Axis Travel	mm	450	510	600
Z - Axis Travel	mm	510	510	610
Dis. From Spindle Face to Table Top	mm	150 - 660	150 - 660	125 - 735
<b>Feed</b>				
Rapid Traverse (X, Y & Z Axis)	m/min	40	40	30
Cutting Feed	m/min	10	10	10
<b>Main Spindle</b>				
Spindle Speed	rpm	8000	8000	8000
Spindle Motor Power - Siemens	kW	15.8 / 10.5	15.8 / 10.5	15.8 / 10.5
Spindle Motor Power - Fanuc	kW	11 / 7.5	11 / 7.5	11 / 7.5
Front Bearing Bore	mm	70	70	70
Spindle Nose		BT - 40	BT - 40	BT - 40
<b>Automatic Tool Changer</b>				
Number of Tool		20	20	20
Max. Tool Dia. Pockets (All/Adj. Empty)	mm	80 / 125	80 / 125	80 / 125
Max. Tool Weight	kg	7	7	7
Max. Tool Length	mm	250	250	250
<b>Accuracy (as per VDI/DGQ 3441)</b>				
Positioning Uncertainty (P)	mm	0.010	0.010	0.010
Repeatability (Ps Medium)	mm	0.005	0.005	0.005
<b>Other Data</b>				
Machine Weight (Approx) #	kg	5350	5450	6000
Machine Dimension (Approx) #: Length	mm	2625	2625	2900
Width	mm	2100	2100	2550
Height	mm	2750	2750	2900

# Refer Machine Detailed Layout for overall machine dimensions & space requirements.

### STANDARD FEATURES

- The CNC System offered FANUC 0i MF or SIEMENS 828D Basic M.
- AC Servo Spindle Drive
- AC Servo Axis Drive
- L.M. Guideways
- Work Light
- Auto & Manual Coolant System
- Centralized & Programmable Lubrication
- Laser Calibrated Axis for High Precise Positioning Accuracy
- Electricals with Quality Devices & Panel A.C.
- 8000 rpm, BT-40 Spindle

### PRODUCTIVITY IMPROVING OPTIONS

- Chip Conveyor
- 24 & 40 Tool ATC
- 11/15 kW Spindle Motor Power
- 4<sup>th</sup> Axis Rotary Table & Production System
- Coolant Gun
- Air Gun
- Extra Daylight Area (200 mm)
- SK-40 Taper in lieu BT-40
- Coolant Through Spindle
- Tool Probe & Job Probe
- Linear Glass Scale
- Auto Door
- Oil Skimmer
- Machine Tower Light
- Spin Window
- Shopmill (Siemens)
- Manual Guide-i (Fanuc)
- Easy SMS System (Siemens)
- Fully Toolled up Solutions to Meet the Customer Needs

**JYOTI CNC AUTOMATION LTD.**

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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.

