

# Compact Vertical Machining Center



**Compact | Agile | Precise !**

**BFW**

Bharat Fritz Werner

[www.bfwindia.com](http://www.bfwindia.com)



## High Speed Vertical Machining Center

Mach is a Futuristic, High Productive, Compact VMC for efficient machining of high volume small parts.

Mach comes with the following salient features:

**Compact:** Optimum space utilization with one of the lowest foot prints in it's class.

**Agile:** Rapid rates of 60 m/min & acceleration upto 2g for Z axis.

**Precise:** Excellent positioning accuracies.

**Rigid:** Sturdy machine, designed for optimum rigidity.

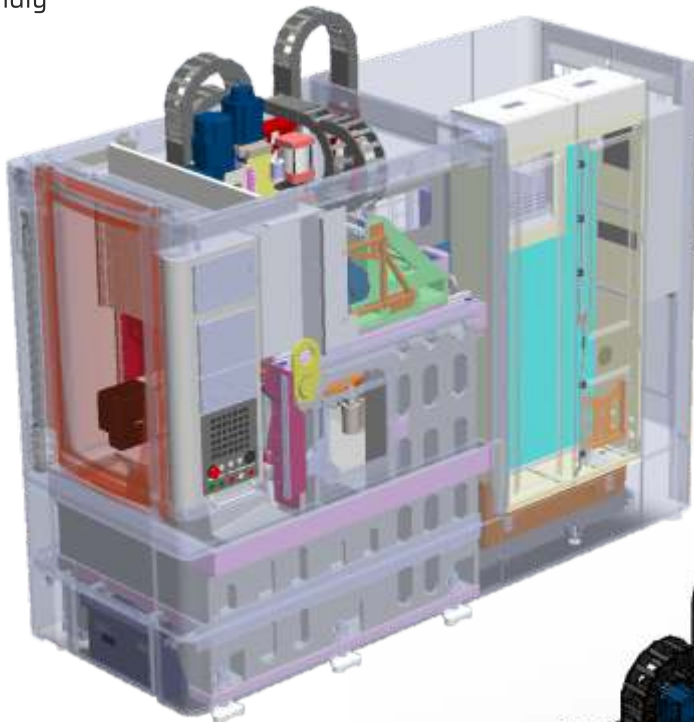
**Isolated machining zone:** All linear axes are overhead & machining zone is completely isolated.

**Chip disposal:** Bed is designed for most efficient chip evacuation.

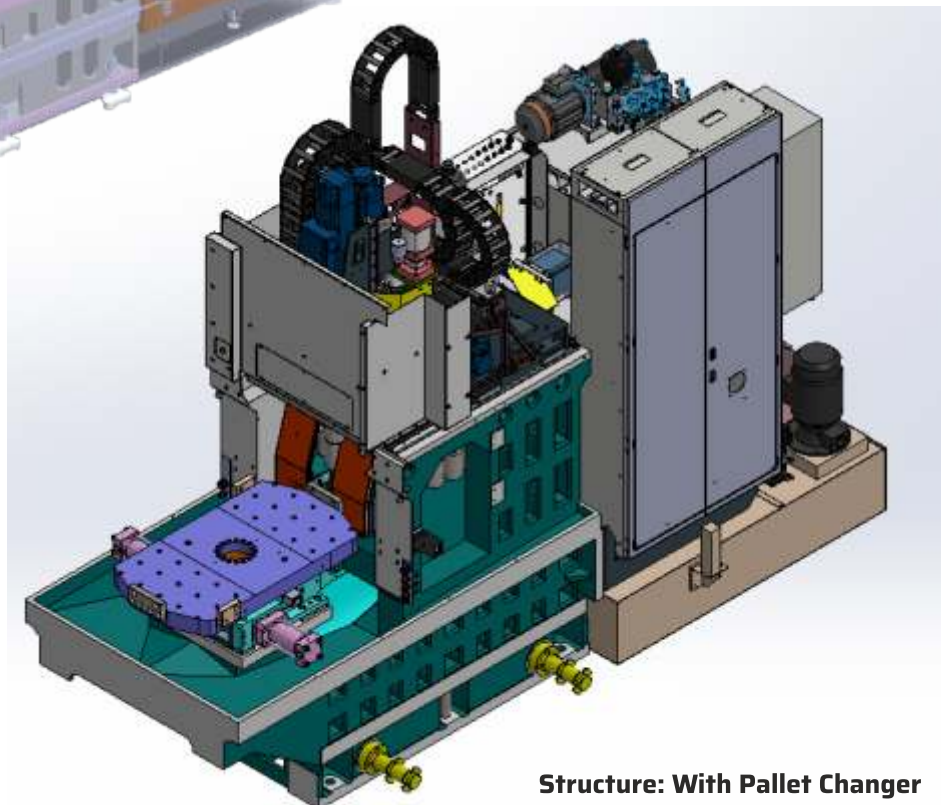
**Flexible:** Mach can be a stand-alone machine as well as fit perfectly into machining lines;  
Manual loading as well as Robot automation is feasible;

Fixed table as well as option of rotary & tilting rotary tables is available.

TPM - friendly



**Without Pallet Changer**



**Structure: With Pallet Changer**

# Spindle

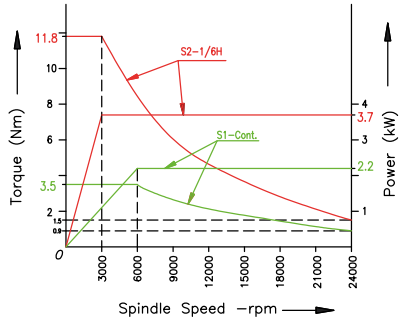


Inline spindle with cartridge-type design for ease of maintenance & replacement.

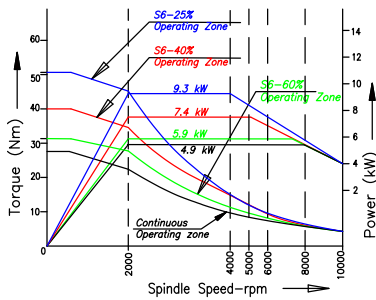
Spindle speeds up to 24,000 rpm.

Best acceleration:  
0 to 24,000 rpm in <1 sec!

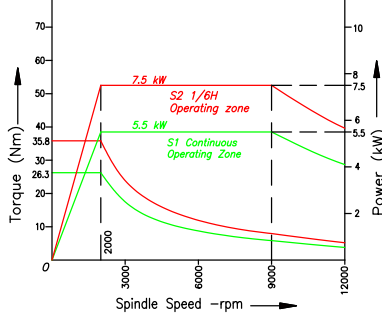
**Mach 32-54 | Mitsubishi**



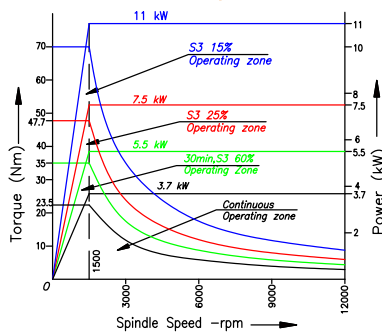
**Mach 54 | Siemens**



**Mach 54 | Mitsubishi**

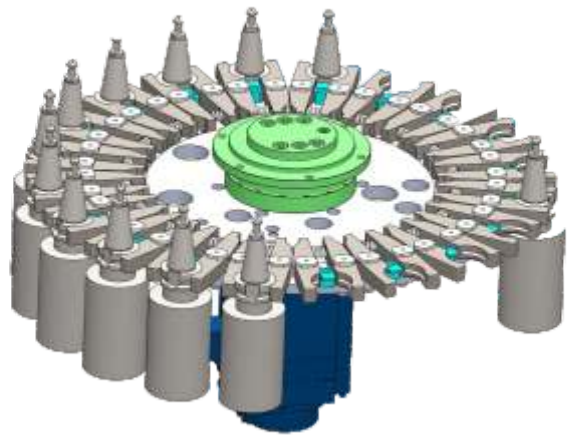


**Mach 54 | Fanuc**



# Tool Magazine

Specifications	Unit	Mach 32	Mach 54
No of Tools		8 (20)	22 (26)
Max tool weight	kg	3	3.5
Spindle taper		BT 30 (BBT 30/ HSK A50)	
Max tool dia	mm	70	80/ 140
Max tool length	mm	150	300
Chip-to-chip time	sec	4.4	3.9



# Applications



...MANY MORE!

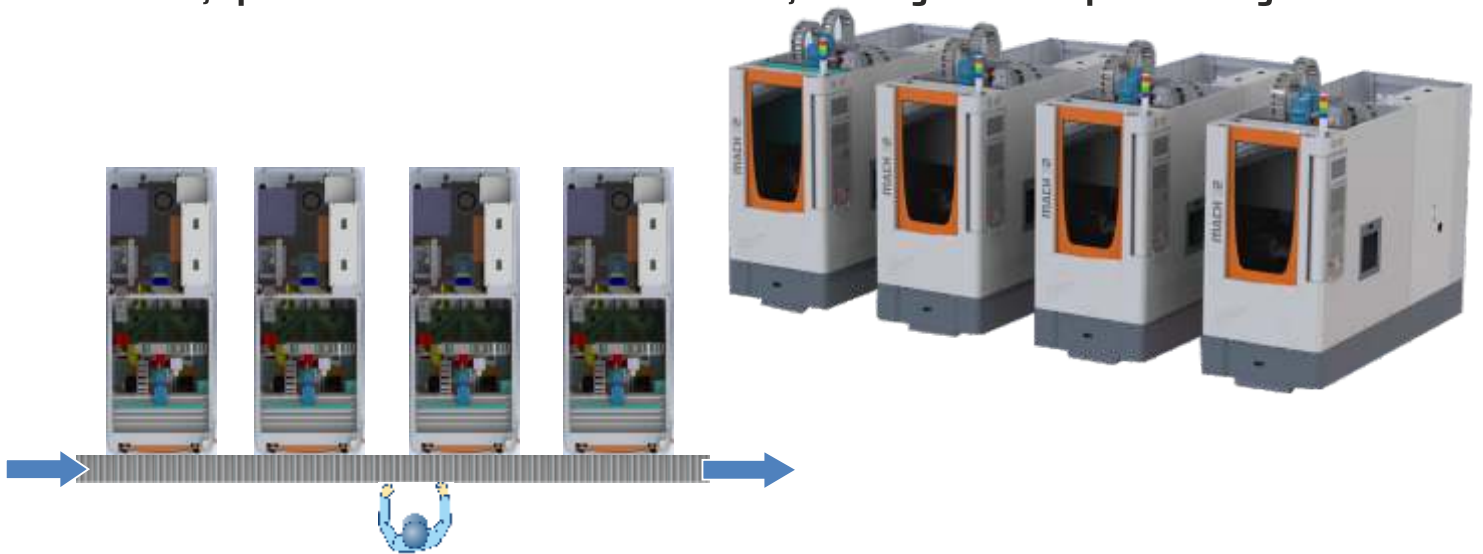
# Machining Lines

With its narrow body design, Mach fits perfectly in machining lines & machining cells. With machine elements accessible from front & rear sides of the machine, the distance between the machines can be as low as possible.

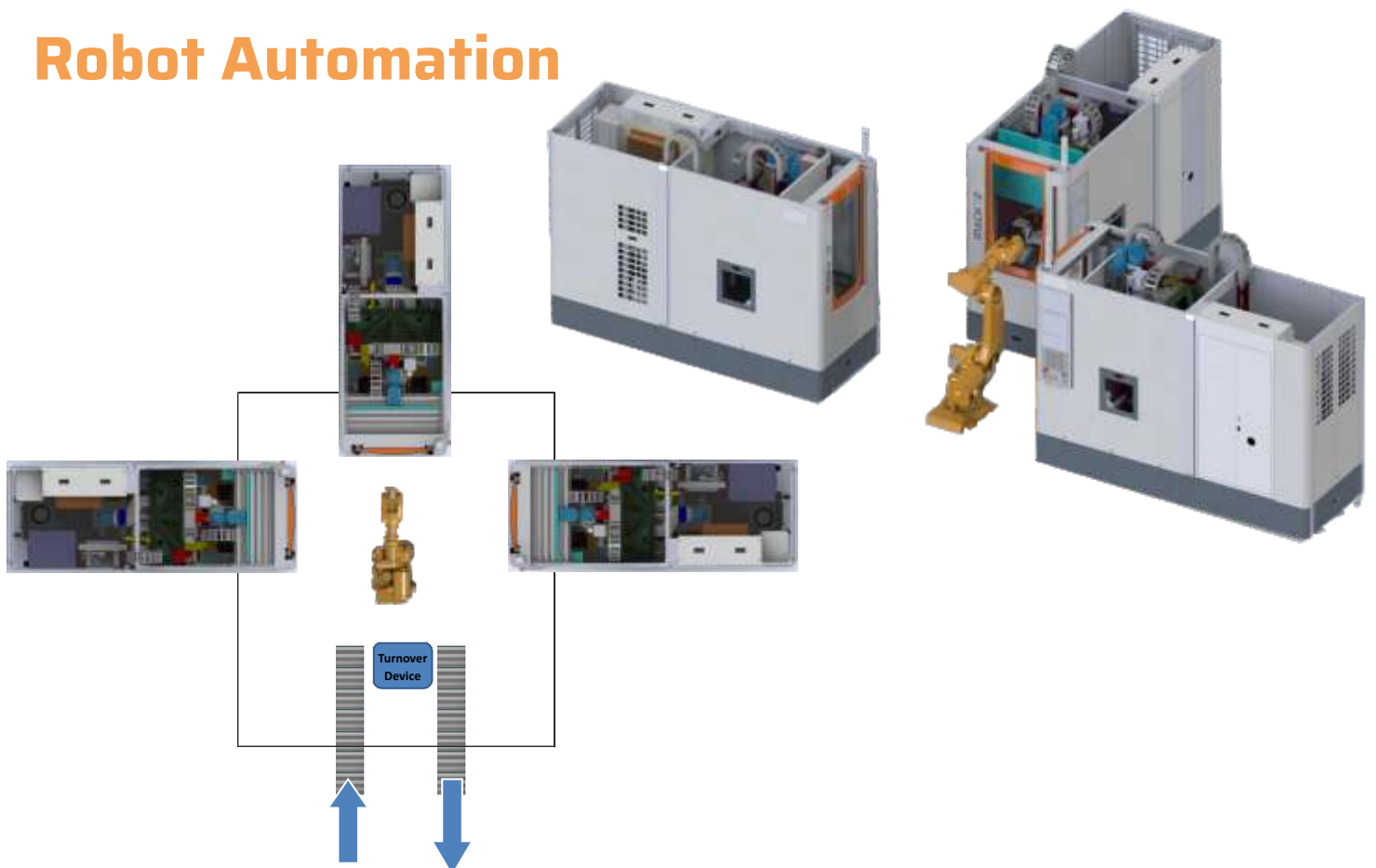
## Component conveyor:

**The sub-metre width of Mach 32 ensures shorter length of component conveyors.**

**With this, operator has to travel shorter distance, resulting in lesser operator fatigue.**

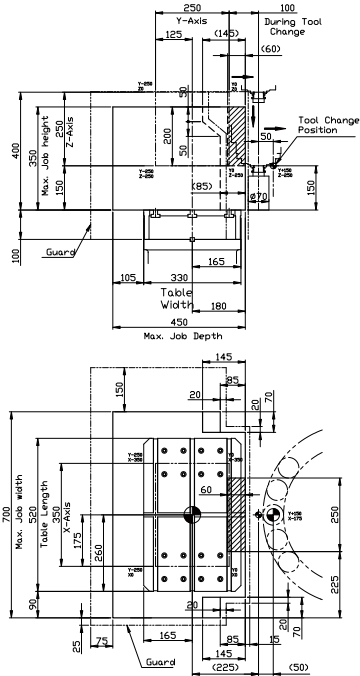


# Robot Automation

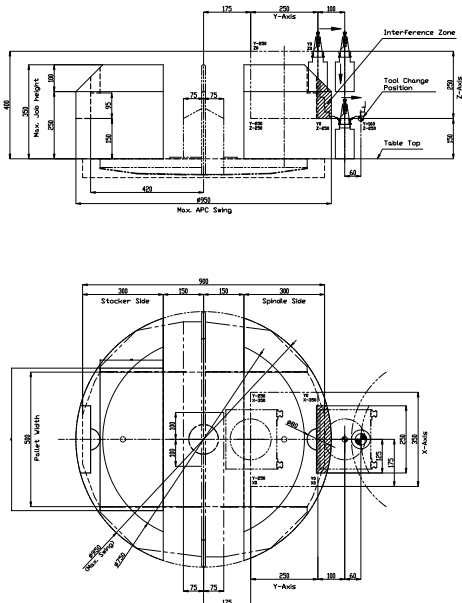


# Stroke Diagrams

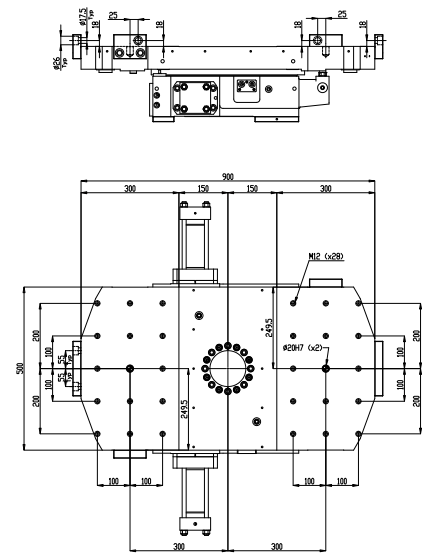
## MACH 32 without APC



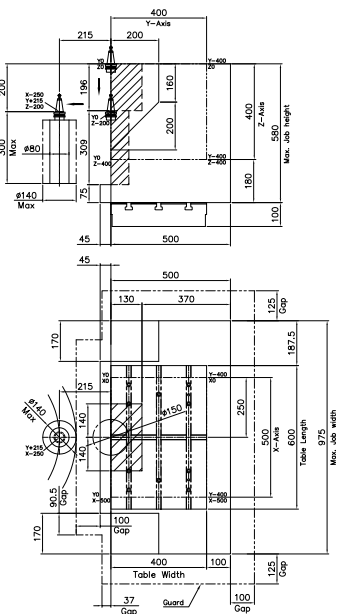
## MACH 32 with APC



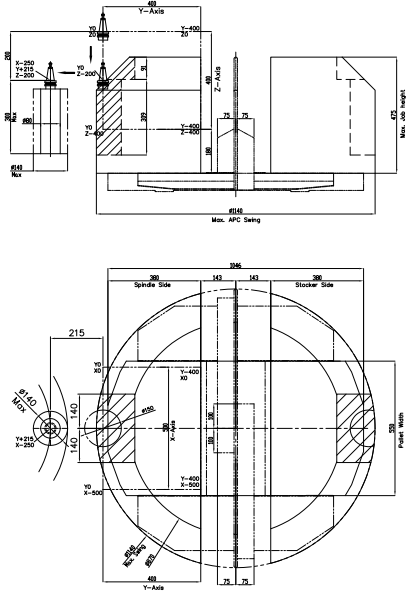
## MACH 32 Pallet Details



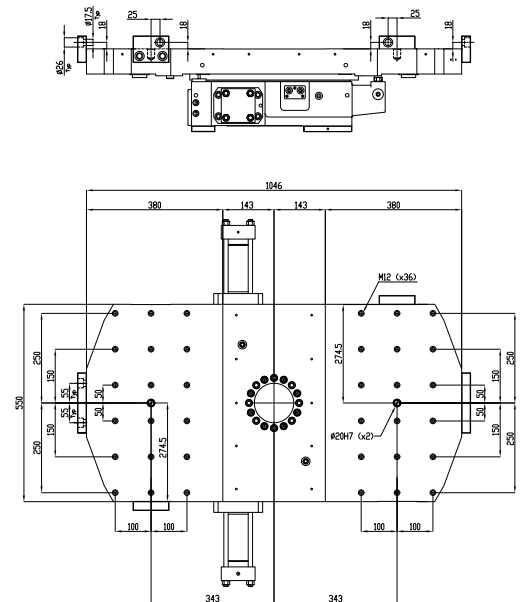
## MACH 54 without APC



## MACH 54 with APC



## MACH 54 Pallet Details





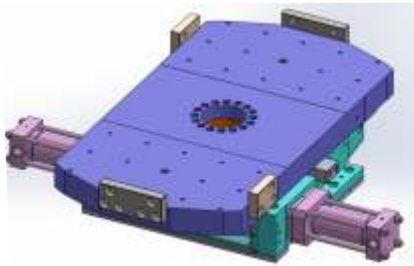
## Standard Features

- ▶ Electronic counterbalance for Z Axis.
- ▶ AC unit for electrical cabinet.
- ▶ Bellow covers for axes protection.
- ▶ Automatic centralised lubrication system.
- ▶ AC servo drives for all axes.
- ▶ Basic coolant system with bed wash & flood coolant.
- ▶ Coolant gun.
- ▶ Air gun.
- ▶ Manual pulse generator.
- ▶ Three tier lamp.
- ▶ Work light.
- ▶ 12000rpm spindle (Mach 32) / 8000 rpm spindle (Mach 54)
- ▶ 8 tools magazine (Mach 32)
- ▶ 22 tools magazine (Mach 54)

## Optional Features

- ▶ 24000rpm spindle.
- ▶ Chiller for spindle.
- ▶ Automatic front door.
- ▶ Flexible to accommodate various table configurations - Fixed table / Rotary table / Rotary Production System / Tilting Rotary table.
- ▶ 20 tools magazine (Mach 32) 26 tool magazine (Mach 54)
- ▶ Coolant through spindle @ 16 bar with hydro-cyclone filtration.
- ▶ Rotary Auto Pallet Changer.
- ▶ Interface for robot automation.
- ▶ Online hydraulics with APC

Rotary Auto Pallet Changer



Rotary Production System

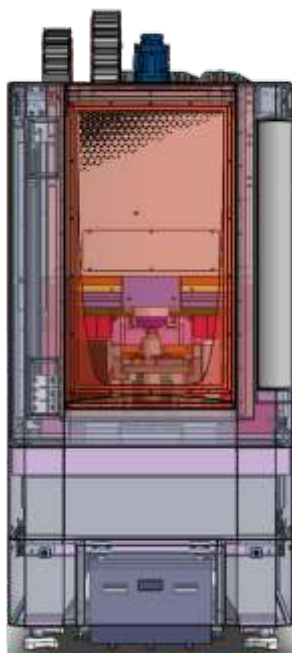


Tilting rotary table

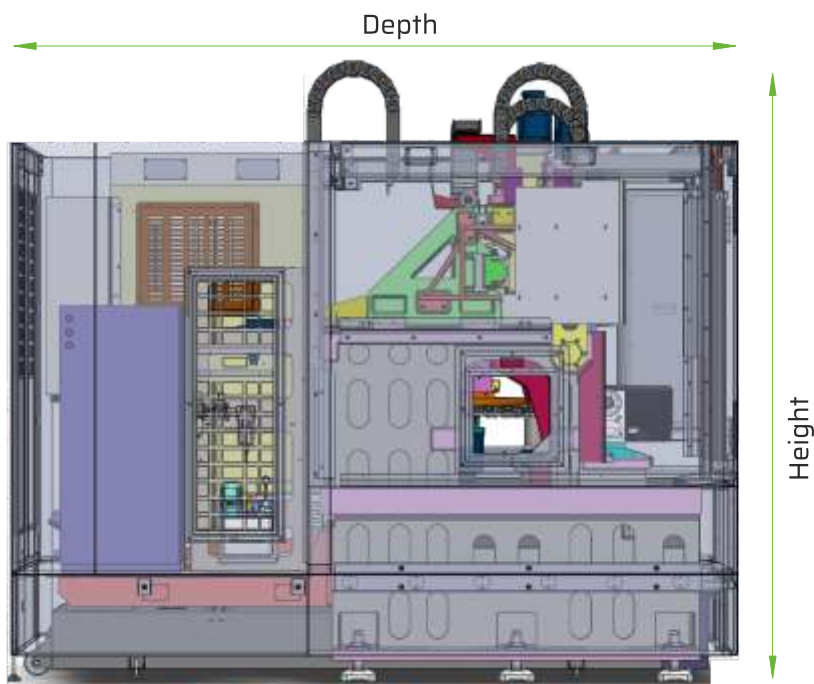


## Machine Dimensions

	Width	Depth	Height
Mach 32	995	3200	2500
Mach 32 APC	1200	3750	2500
Mach 54	1280	3650	2940
Mach 54 APC	1455	4120	2940



Width



Depth

Height

# Technical Specifications



Specifications	Unit	Mach 32	Mach 54
<b>Traverse</b>			
Long/ Trans./ Vert - X/Y/ Z	mm	350 x 250 x 250	500 x 400 x 400
Spindle nose to table top min/ max	mm	150 - 400	180 - 580
Table height from the floor	mm	880	810
Rapid traverse X/ Y/ Z	m/ min	60	50 (60)
<b>Spindle - Std</b>			
Spindle taper	type	BT 30 (BBT30/ HSKA50)	BT 30 (BBT30/ HSKA50)
Power, cont./S2 10 min	kW	2.2/ 3.7	5.5/ 7.5 - Mitsubishi 3.7/ 5.5/ 7.5 - Fanuc 4.9/ 7.4/ 9.3 - Siemens
Torque, cont./ S2 10 min	Nm	3.5/ 11.8	26.3/ 35.8 - Mitsubishi 23.5/ 35/ 47.7 - Fanuc 27/ 40/ 52 - Siemens
Spindle speed	rpm	12000	8000 (12000)
<b>Spindle - Option (with Chiller)</b>			
Power, cont./S2 10 min	kW	2.2/ 3.7	2.2/ 3.7
Torque, cont./ S2 10 min	Nm	3.5/ 11.8	3.5/ 11.8
Spindle speed	rpm	15000 (20000/ 24000)	15000 (20000/ 24000)
<b>Table</b>			
Size	mm	520 x 330	600 x 400 (900 x 400)
Table type -T slot (No. x size x pitch)	mm	3 x 14 x 125	3 x 14 x 125
Load capacity	kg	250	400
<b>Pallet</b>			
Size	mm	500 x 280 (M12 holes)	550 x 380 (M12 holes)
Load capacity	kg	160	200
Load height	mm	980	810
Pallet change time	sec	10	10
<b>Automatic Tool Changer</b>			
Tool change system	type	Direct pick-up	Direct pick-up
Tool storage capacity - Standard (Optional)	No	8 (20)	22 (26)
Pull stud	type	MAS-403 P30T-1	MAS-403 P30T-1
Maximum tool dia (All pockets full / adj. pockets empty)	mm	70	80/140
Maximum tool length	mm	150	300
Maximum tool weight	kg	3	3.5
Tool to tool time	sec	2	2
Chip-to-chip time (C-C)	sec	4.4	3.9
<b>Accuracy as per ISO 230 - 2</b>			
Positioning A	mm	0.009	0.009
Repeatability	mm	0.007	0.007
<b>Installation data</b>			
Floor space (with APC) W x D	mm x mm	995 x 3200 ( 1200 x 3750)	1280 x 3650 ( 1455 x 4120)
Machine height (H)	mm	2500	2940
Basic machine weight (with APC)	kg	3500 (4000)	4700 (5050)
Total connected load (basic Std machine)	kVA	17	25
Compressed air	bar	6	6
Power supply		3 Phase 415 V, 50 HZ	3 Phase 415 V, 50 HZ
CNC system	make	Mitsubishi M80	Mitsubishi M80/ Siemens 828D/ Fanuc Oi MF

Values within parenthesis are optional

## Associates in India

Ahmedabad : Spinak Engineering , 9824033277  
 Bengaluru: JR Rao & Co, 9844102252  
 Bengaluru: Upnal CNC, 9341310391  
 Chennai: PN Engineering - 9840096822  
 Coimbatore: Astra Engineers, 9626269998  
 Ernakulam: Prompt Machine Tools, 9846056446  
 Hubballi: Nano Machine Tools, 9379276004  
 Indore: Alif Industrial Sales, 9329842594  
 Jalandhar: GRD Innovation Solutions, 9780153601

Jamshedpur: IMTS, 9334804275  
 Kanpur: Response Engineers, 9838070906  
 Kolhapur: Ganesh Technologies, 9822095229  
 Krishna: Mr K Sarath Kumar, 9908674736  
 Nagpur: AK Enterprises, 9373124916  
 Nashik: Smart Services, 09823019761  
 Vishakhapatnam: C& I Systems, 9848127436  
 Vapi: Deep Engineering, 9825610842  
 Belgaum: VI Machine Tools, 9343833266

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