

# AT / ATM Series

Vertical Line Series



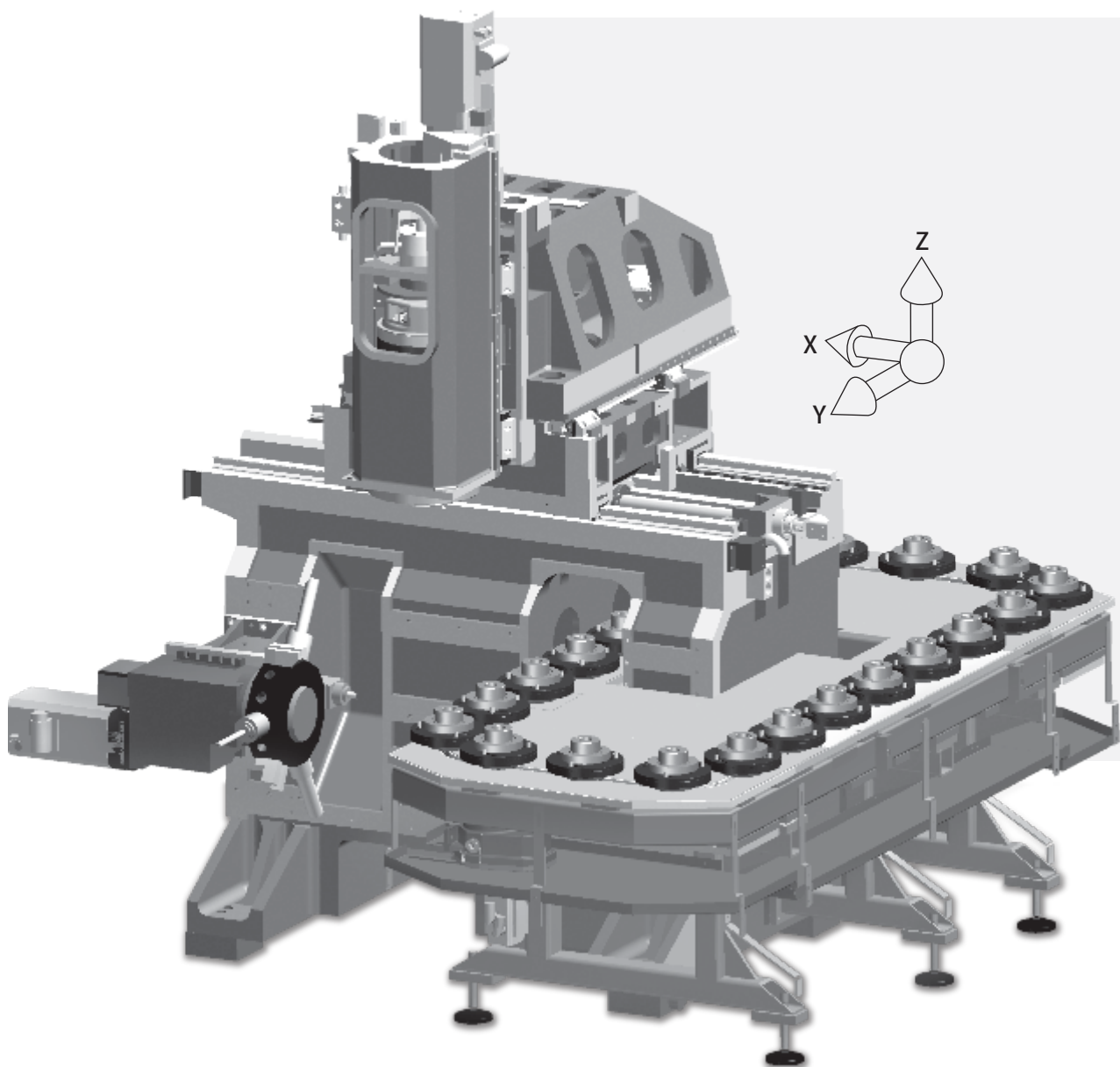
# Vertical Line Series

Machines

## OVERVIEW

Vertical Line series machines with automated job feeding feature and special high speed electro spindles are quite suitable for mass production jobs. With modular tooling concept these machines are capable of performing variety of operations in single setup like, Turning, Milling, Drilling & Tapping and even Grinding. Vertical Line easily replaces horizontal single spindle machines with automation of gantry loaders or robots because of its simplicity and compactness.

The concept of moving the inverted vertical spindle head in all axes and keeping the front space of base open for customization of tooling requirement makes this machine series unique. Vertical Line series machines are having a single piece rigid construction base which supports all moving and stationery components.



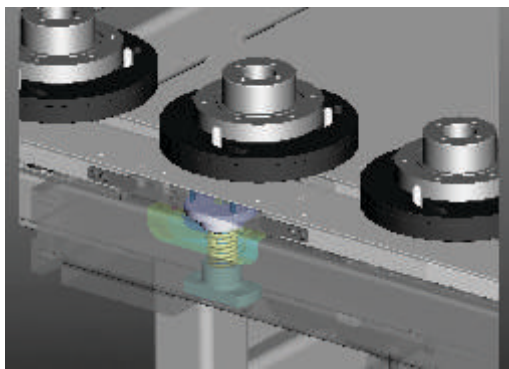
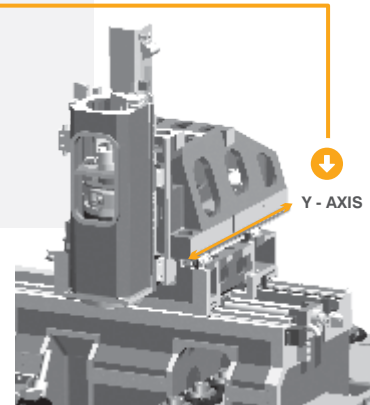
## STRUCTURE RIGIDITY

Using Finite Element Analysis, the rigidity of the structure is achieved in all frames showing a better improvement in torsion rigidity.



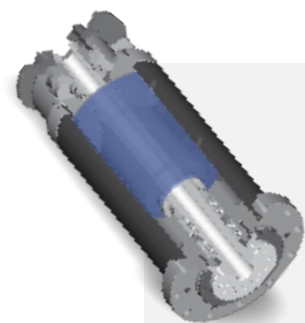
## Y-AXIS FOR TURNMILL

The most important and commendable feature of Vertical Line series is that the Turnmill machine comes with Y-Axis. This Y-axis on Headstock configuration provides high rigidity while performing off the centre machining operations, compared to the Y-axis configuration on Turret.



## PICK UP STATION

The pick up station is defined on the conveyor orientation and the jobs are picked up by the spindle from the conveyor pallets (orientation plates) from this programmed position. The spring tension below these conveyor pallets ensures perfect clamping on the chuck even when the work piece is not perfectly placed on the orientation plates.

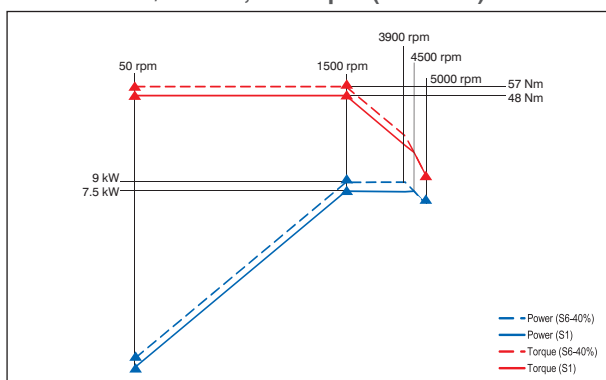


## HIGH SPEED ELECTRO SPINDLE

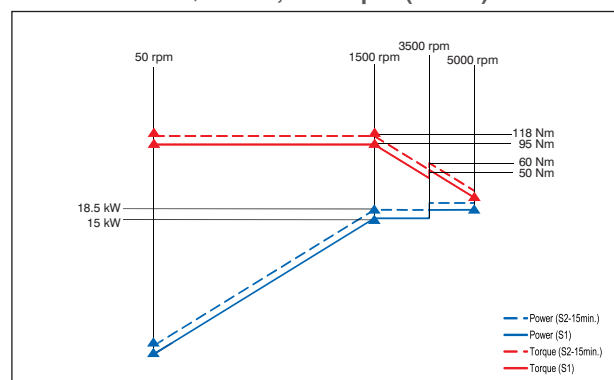
All vertical line series machines are equipped with high speed Electro Spindles. For turning and turnmill operations flat nose type Spindle with 5000 rpm is used. These spindles are of cartridge type construction and fitted directly in the headstock. Being high acceleration Built-in motor.

## POWER TORQUE DIAGRAM

9 / 7.5 kW, 5000 rpm (Siemens)



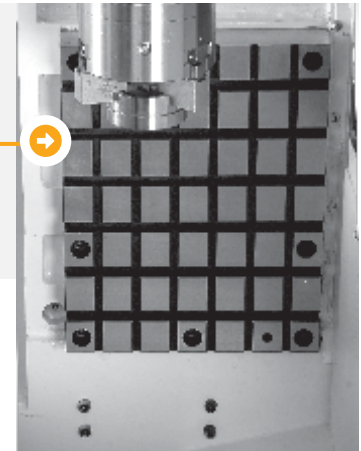
18.5 / 15 kW, 5000 rpm (Fanuc)



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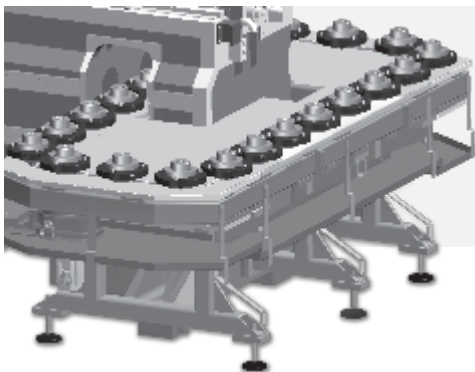
## MULTI FUNCTION CUSTOMIZED TOOL STATION

The multi function station on the front side of the machine base ensures maximum flexibility for customized tooling. This station can be equipped with different type of tooling options, like Rotary Milling Heads, Stationary Tool Heads, Grinding wheel heads and Drilling and Tapping Heads.



## HIGH SPEED SERVO TOOL TURRET

These auto job feeding machines can be fitted with Servo Turrets as per customized requirement. For turning machine simple 8 tool bidirectional servo turret can be fitted and for Turnmill, Bi directional 12 station Live Tool Servo Turret can be fitted. These turret options increase the flexibility in tooling and many complex jobs can be completed in single setup.



## AUTO JOB FEEDING ARRANGEMENT

The automatic job feeding arrangement is the unique feature of Vertical Line machines. For turning and turnmill options, the job could be fed by means of recirculating conveyor on which carrier plates are mounted for job orientation. These workpiece orientation plates are easily adjustable according to job diameter. Customized workpiece orientation plates are also available as an option, specially for odd shaped jobs.

## ADVANTAGES OF VERTICAL LINE MACHINES

- Job loading and unloading time is considerably reduced with the help of Automatic work piece loading.
- Very High rapid traverse combined with high speed spindle ensures reduced cycle time.
- Ideal chip flow (directly falls to the bottom chip conveyor) ensures ease for maintenance.
- More flexible tooling options for customized requirement.
- Compact foot print.
- Y-Axis on Turnmill for Off - Centre machining operations.



## TECHNICAL SPECIFICATION

<b>Capacity</b>		<b>AT 160</b>	<b>ATM 160</b>
Standard Chuck Size	mm	160	160
Maximum Turning Length	mm	200	200
Max. Turning Dia	mm	160	160
<b>Travels</b>			
Cross (X-Axis) Travel	mm	700*	700*
Longitudinal (Z-Axis) Travel	mm	300	300
Traverse (Y-Axis)	mm	N.A.	200
Rapid Feed	m/min	50	50
<b>Main Spindle</b>			
Spindle Motor Power (Siemens)	kW	9 / 7.5	9 / 7.5
Spindle Motor Power (Fanuc)	kW	18.5 / 15	18.5 / 15
Spindle Nose		Flat dia. 140	Flat dia. 140
Speed Range	rpm	50-5000	50-5000
C Axis Resolution	deg.	0.001 <sup>o</sup>	0.001 <sup>o</sup>
<b>Customized Tooling (Opt.)</b>			
Table Size	mm	340 x 430	340 x 430
<b>Turret</b>			
Type		Servo	Live Tool Servo
No. of Stations		8	12
Max. Boring Bar Dia.	mm	40	40
Tool Size (Cross Sectional)	mm	25 x 25	25 x 25
Max no. of Rotating Tools		N.A.	12
Live Tool Spindle Power (Siemens)	kW	N.A.	4.2
<b>Auto Loader</b>			
Type of Drive		AC servo	AC servo
Max. Job Size (dia. x height)	mm	160 x 200	160 x 200
Max Possible Job Weight	kg	10	10
Max No. of Job With Max Size		22	22
<b>Accuracy (as per VDI / DGQ 3441)</b>			
Positioning Uncertainty (P)	mm	0.010	0.010
Repeatability (Ps Medium)	mm	0.005	0.005
<b>Other Data</b>			
Weight (Approx.)	kg	5800	7300
Dimension (Approx.)	Length	mm	2500
	Width	mm	2550
	Height	mm	2600

### STANDARD FEATURES

- AC Spindle Drive
- AC SERVO Digital Drive
- Monoblock Structure
- L.M. Roller Guideways
- Hydraulic Chucking
- Auto Job Feeding with 22 Pallets
- Chip Conveyor
- Auto & Manual Coolant System
- Centralised & Programmable Lubrication
- Laser Calibrated Axis for highly precise positioning accuracy and Repeatability
- Electricals with Quality Devices & Panel with A.C.
- Controller Siemens 828D Basic T or Fanuc 0i TF

### POSSIBLE OPTIONS

- Customized Tool Station
- High Torque Spindle
- Air Seat Sensing for Job
- 12 Station Turret for AT
- Tool Display Unit
- Linear Glass Scale
- Tool Probe
- Tool Measurement System
- Poka Yoke for Component Loading
- Easy SMS System (Siemens)
- Fully Tooled Up Solutions to Meet The Customer Needs & Tool Life Management

Note : • All above information is subject to change arising out of continuous product improvement.  
 • The description 'standard' accessories / feature' conforms to its list; not the photo of machine shown in the catalogue.

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