

Performance Large Series

Vertical Machining Centers

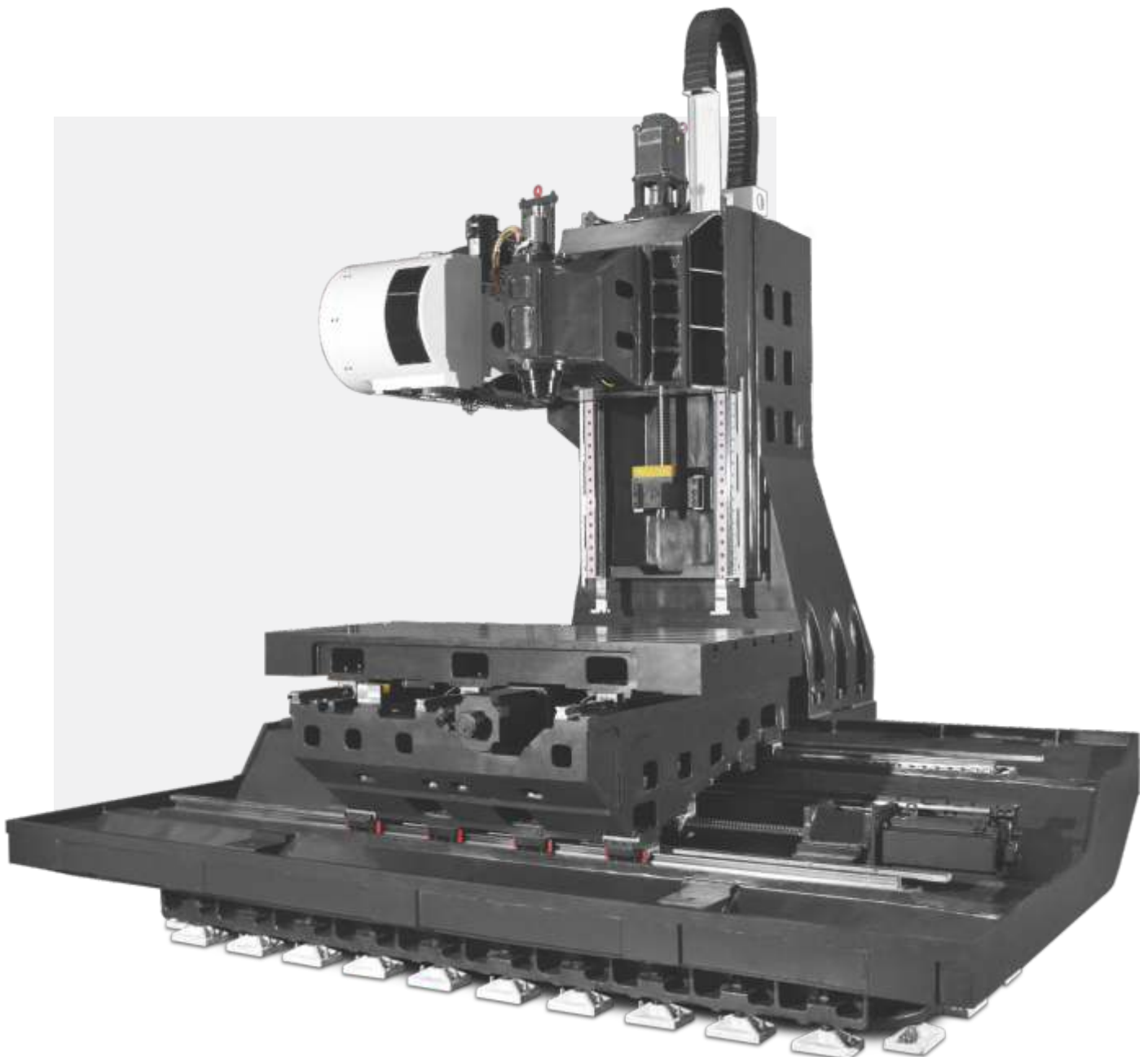


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OVERVIEW

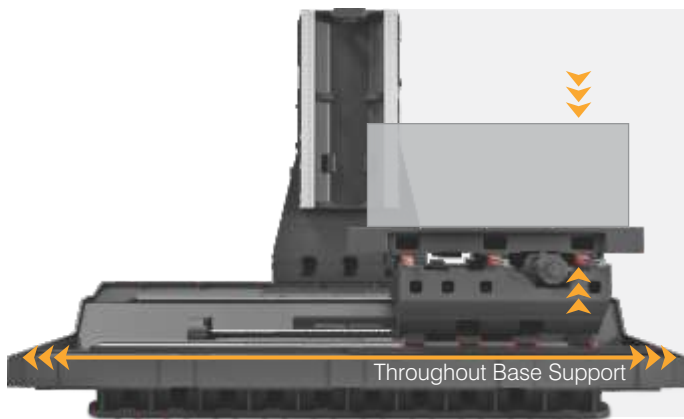
VMC Large Series have versatility and capacity to carryout maximum range of jobs. Especially large sized heavy components can be easily worked within the working envelop keeping total mechanical and thermal stability for structural parts. Special unique structure of broad base made out of graded casting dampens the effect of vibration delivering capability of high dynamics, better accuracy with precision and higher material removal rate. Such a complete design machine enables better stability for large sized component like injection moulds, forging dies, large plates supports manufacturers to keep pace with growing demand of market.





WIDER MACHINE BASE

Unique T-Base construction design to deliver optimum surface quality during demanding cutting conditions and avoid problem of overhanging for heavy load of workpiece on table.



T- Base Design



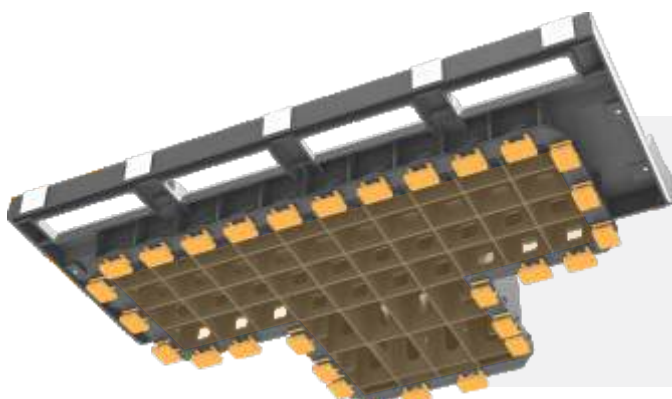
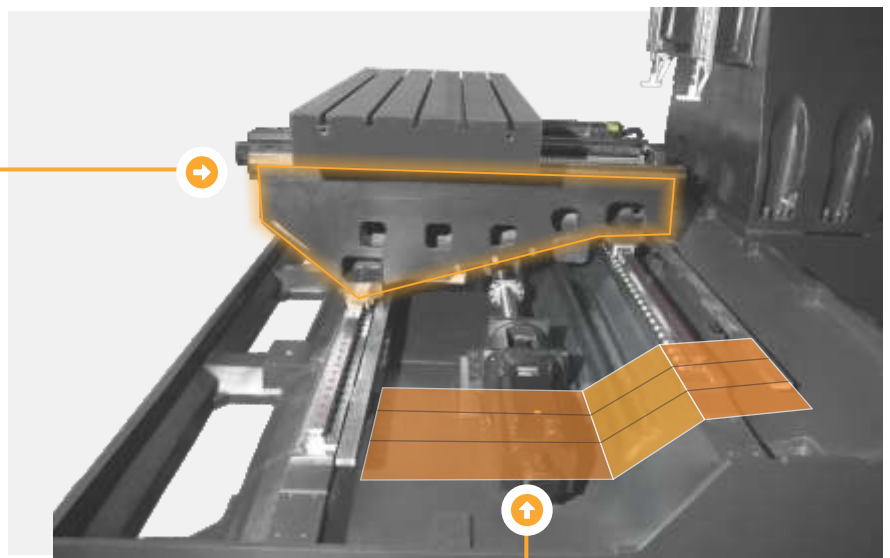
Conventional Design

TRIANGULAR SADDLE

Rigid triangular shape saddle provides excellent strength and stability during high cutting condition even for heavy weight components.

STEP-UP BED CONSTRUCTION

Step-up bed structure concept with widely spread guideways provides structural stability during demanding dynamic cutting condition for throughout Y-Axis movement. Add on to this such design creates condition of one side flow directly into chip conveyor enhancing efficient chip disposal



MULTIPLE BASE SUPPORT

Broader footprint covering entire structural moving parts ensures excellent stability and vibration free cutting during heavy cutting load conditions.

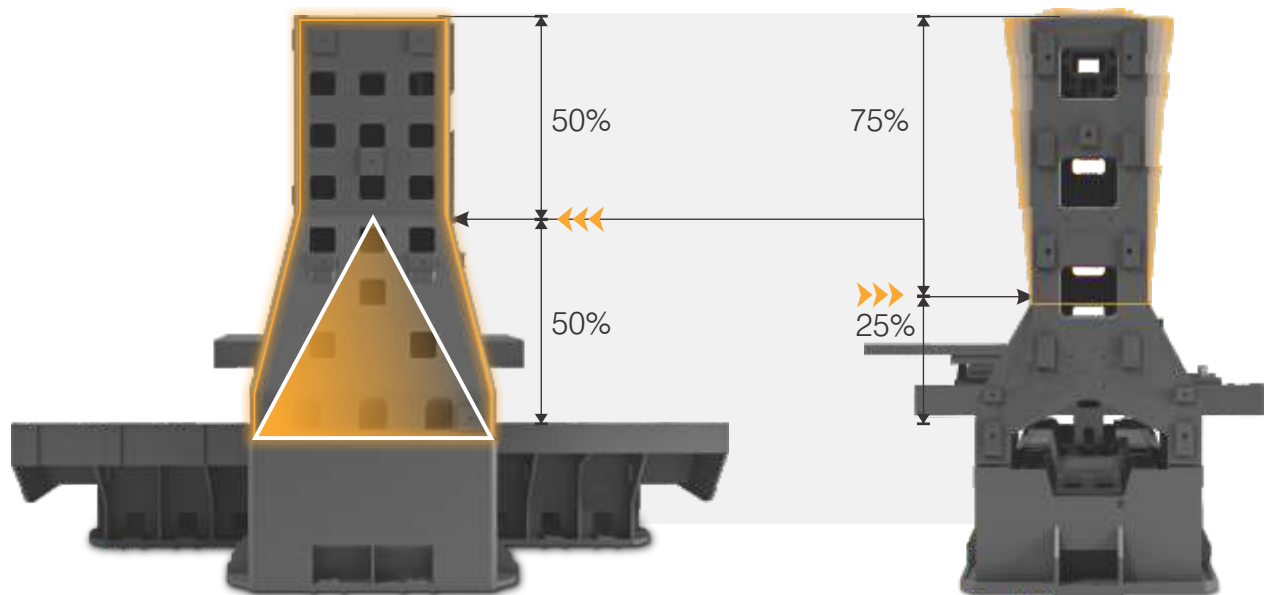
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BROADER COLUMN

Broad column construction upto 50% height of the column help for better stability & balancing during extreme conditions at Z-Axis.

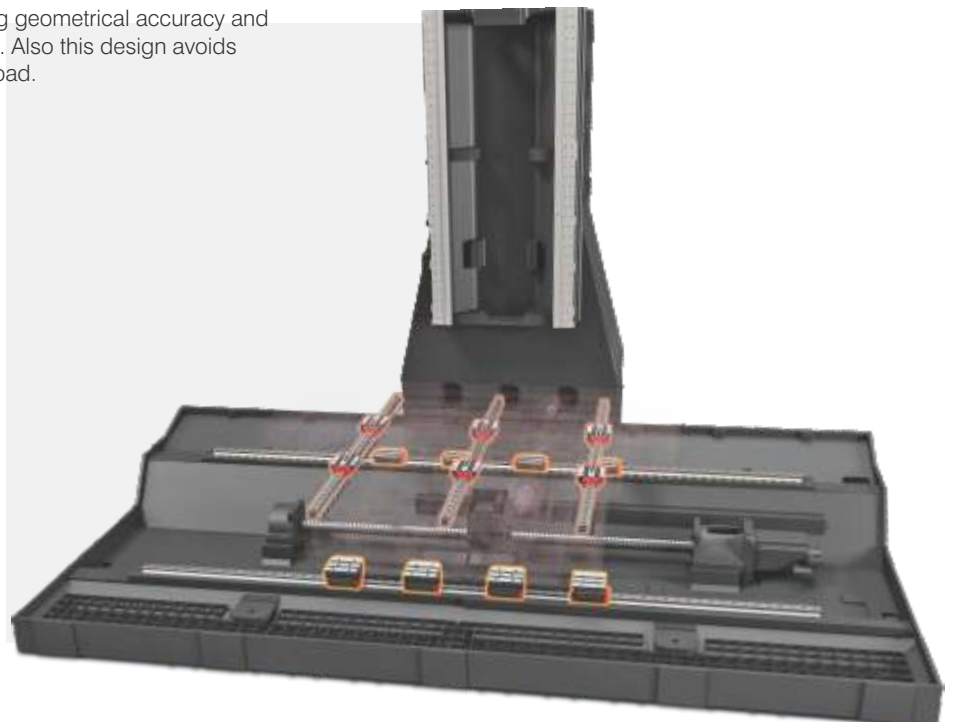
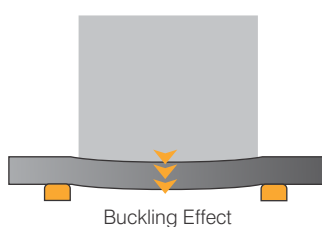
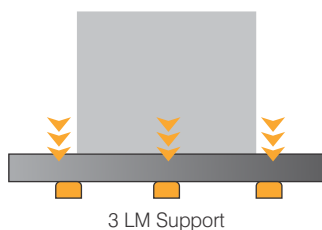
Headstock length almost equal to its width which reduces cantilever effect.

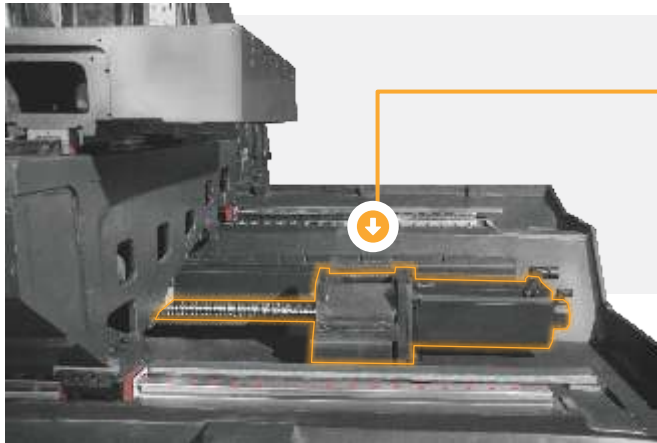


PRECISION LINEAR AXIS

X-Axis saddle moving on bed (Roller Type LM Guideways with 8-LM blocks).

Y-Axis supporting broad table movement on saddle (3- Roller Type LM Guideways with 6-LM blocks). These arrangement drastically increases stability in full working area during dynamic as well as static load conditions with higher machining rates while enhancing geometrical accuracy and surface quality of the machined workpieces. Also this design avoids buckling effect for bigger table with heavy load.



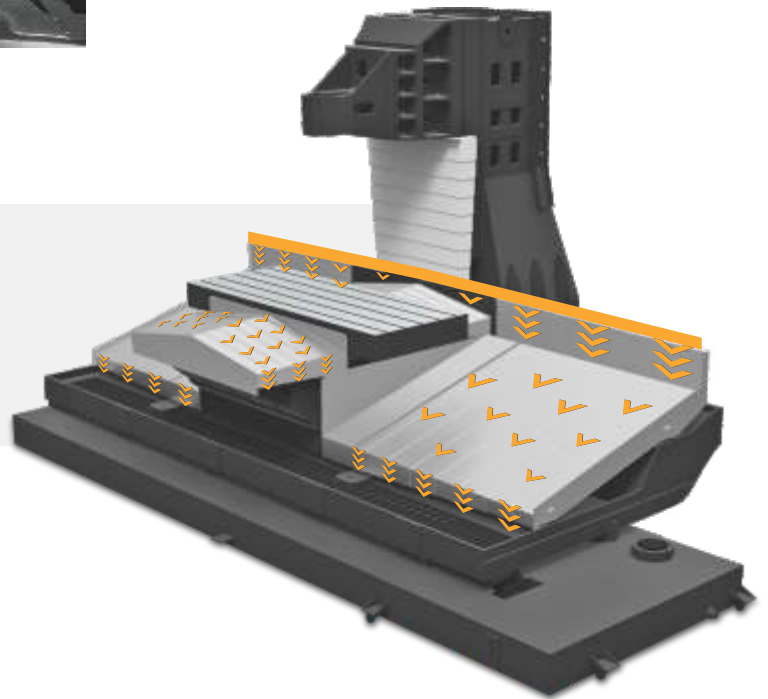


DIRECT COUPLED BALL SCREW

Recirculating precision class ball screw directly coupled with axis motor for long term accuracy

EFFICIENT CHIP FLOW

One side slope helps for efficient chip flow. With such design chips will directly fall down into conveyor with help of flush coolant and spindle around coolant system.



WIDE WORKING AREA

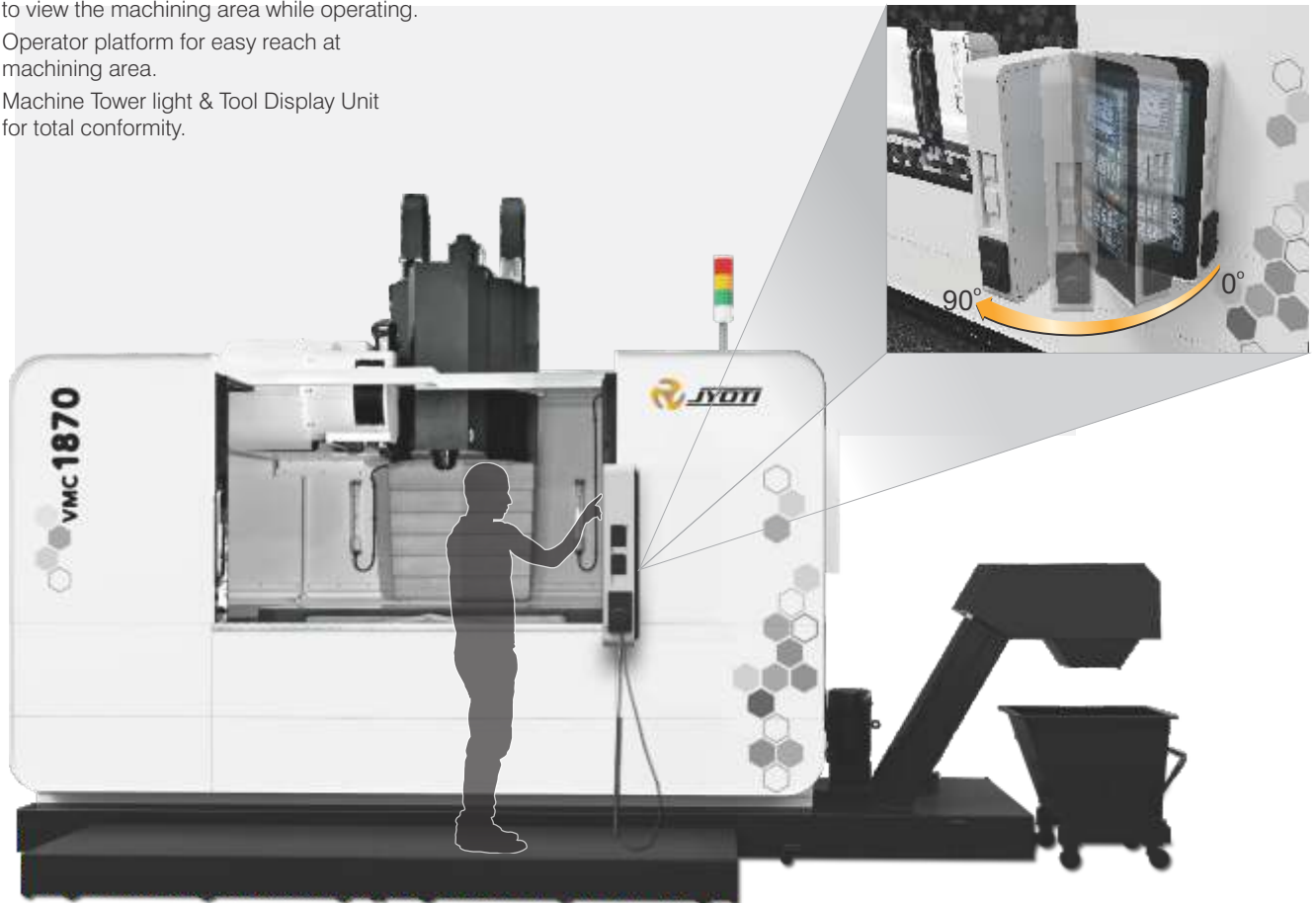


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ERGONOMIC DESIGN

- 90° tilting movement helps the operator to view the machining area while operating.
- Operator platform for easy reach at machining area.
- Machine Tower light & Tool Display Unit for total conformity.



IMPROVED MAINTENANCE

TPM friendly units which required regular checking like pneumatics, electrical panel, lubrication are conveniently located for easy maintenance at the rear of the machine well within the reach of operator.

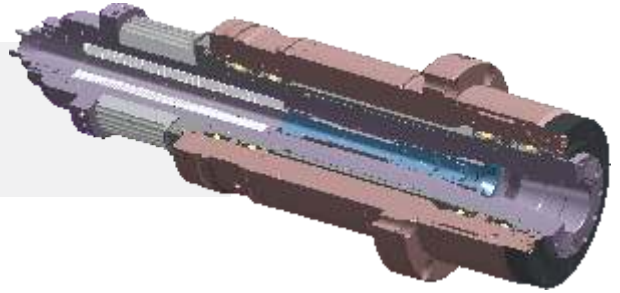


Ladder for easy reach to ATC for loading/unloading & Maintenance purpose



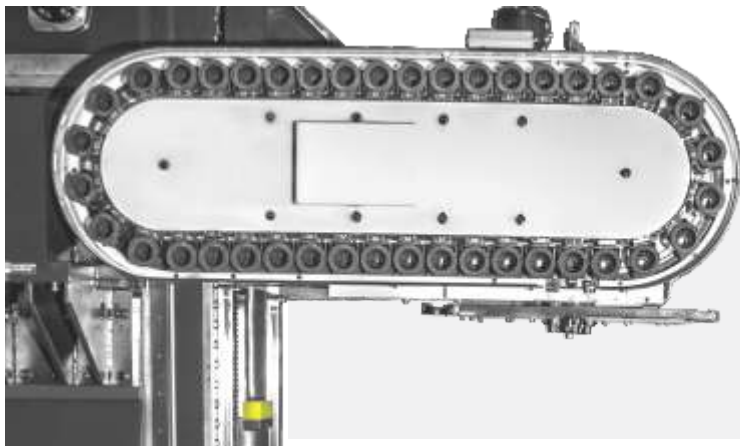
HIGH PERFORMANCE SPINDLE

All spindles are designed and manufactured in-house to achieve high reliability and consistency for better working life. Specially designed spindle with ceramic bearing also available to choose for continuous machining at higher rpm, especially for Die & Mould applications.

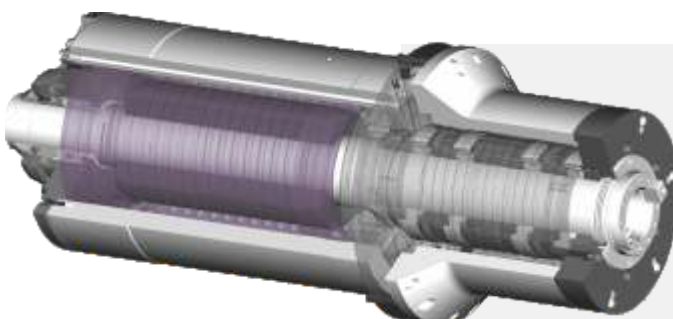


FAST AUTO TOOL CHANGER

The auto tool changer is a Twin Arm Type with Disc type tool magazine capable of storing 20 tools at a time. The tool change time is 2.4 seconds. An option of 24, 40 tool magazines are also available.



PRODUCTIVITY IMPROVEMENT OPTIONS



HIGH SPEED ELECTRO SPINDLE

High Speed High Torque Motorized Spindles with 12000/15000/18000 rpm are available which are manufactured in-house for high speed machining.

The peak speed for such spindles reaches in 2.5 secs while deceleration time is only 2 secs.

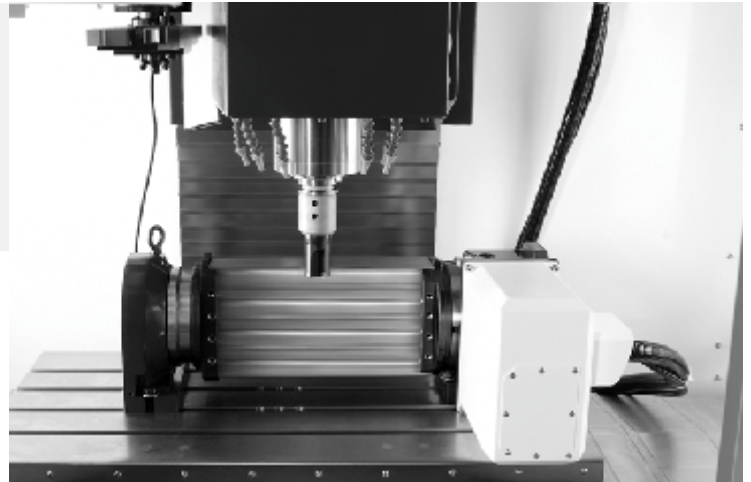
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PRODUCTIVITY IMPROVING OPTIONS

4th AND 5th AXIS CAPABILITY

For maximum application & contouring flexibility, 4th & 5th axis table with high resolution feedback system can be used to avoid multiple set-up & do multiple side machining in single set-up to reduce the over-all cycle time.

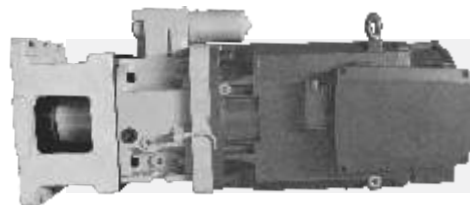


TOOL PROBE AND JOB PROBE

A wide choice of tool and surface-sensing probes as tool and job probes with infrared/radio/laser transmission technology are available for increased spindle utilization and reduce non productive time

COOLANT THROUGH SPINDLE

CTS provides high pressure filtered coolant directly to the cutting edge minimizing heat distortion, ensuring maximum productivity with today's high performance tooling. Highly recommend for jobs demanding deep hole drilling and tapping.

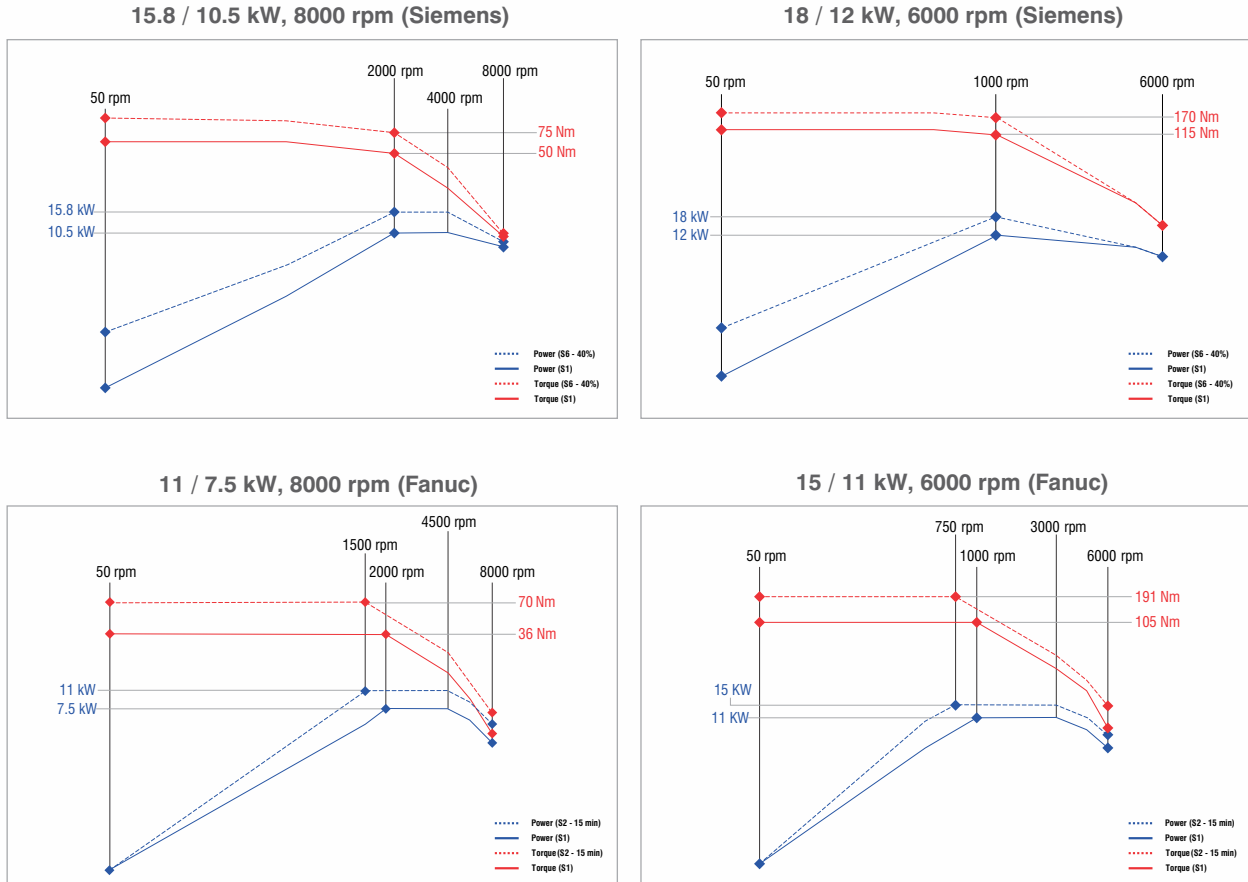


GEAR BOX

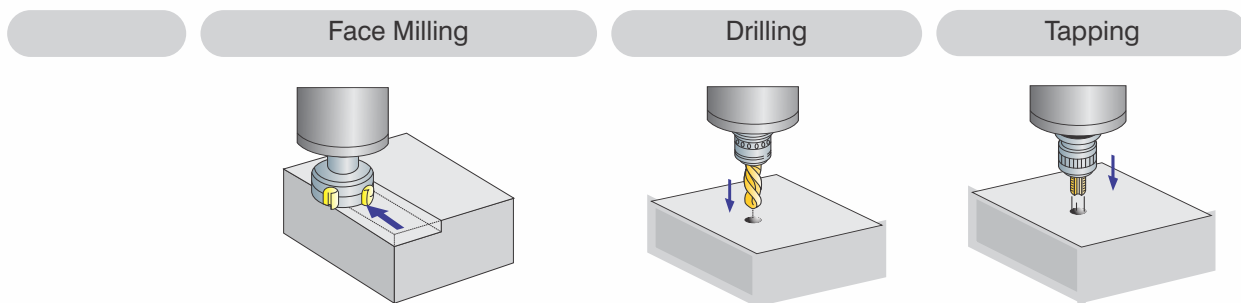
Gear Box option with auto shifting mechanism available for special applications requiring high cutting torque at lower rpm for harder material.



POWER TORQUE DIAGRAM



CUTTING CAPABILITIES



Siemens 18/12 kW Motor Power

Material	(Cutter Dia, Dept of Cut X MRR)	(Dia X Feed)	(Size X Pitch)
Steel	Ø80 mm, 4.5 mm X 240 cu.cm/min	Ø45 mm X 0.16 mm/rev	M22 X 2.5 mm
Cast Iron	Ø80 mm, 5.5 mm X 425 cu.cm/min	Ø52 mm X 0.20 mm/rev	M27 X 3 mm
Aluminium	Ø125 mm, 4.25 mm X 625 cu.cm/min	Ø60 mm X 0.20 mm/rev	M30 X 3.5 mm

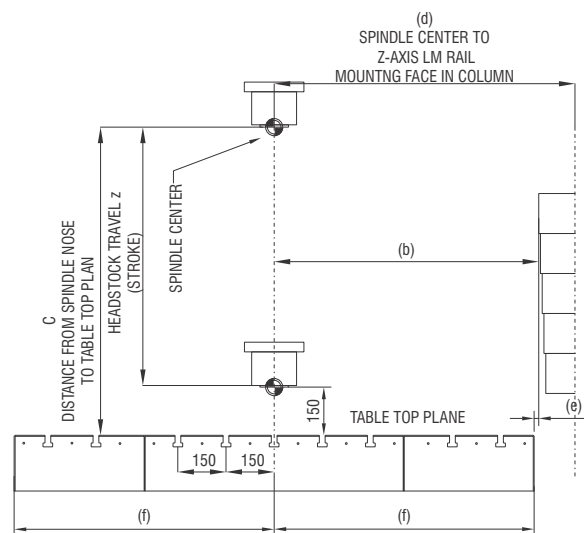
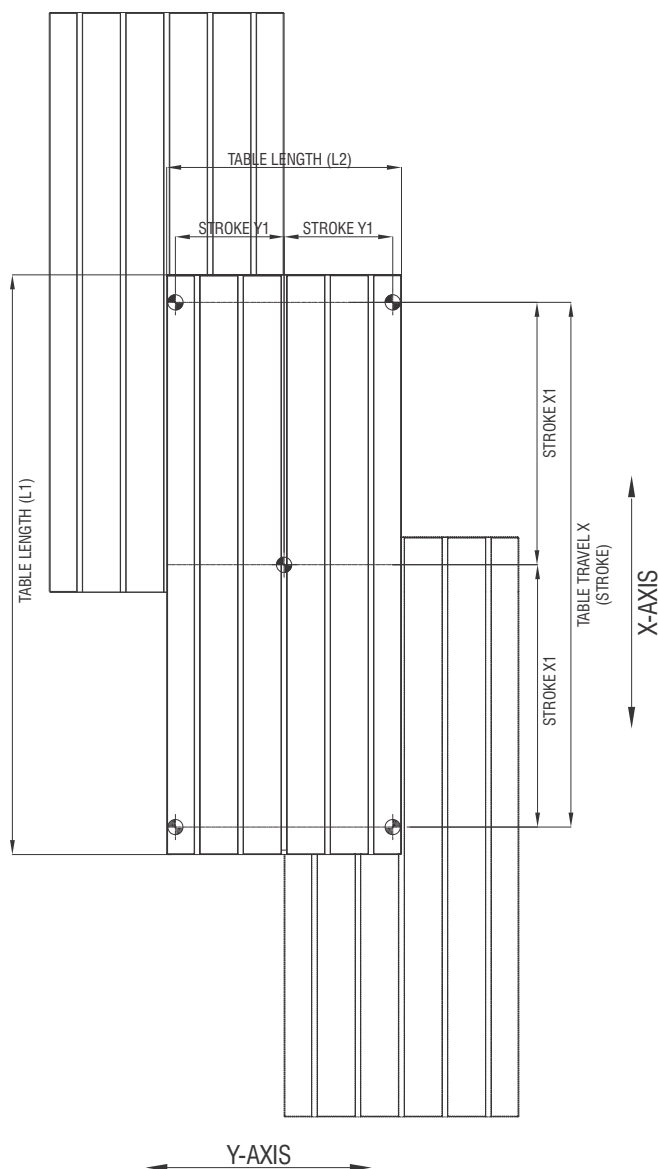
Fanuc 15/11 kW Motor Power

Material	(Cutter Dia, Dept of Cut X MRR)	(Dia X Feed)	(Size X Pitch)
Steel	Ø80 mm, 4.25 mm X 212 cu.cm/min	Ø45 mm X 0.14 mm/rev	M22 X 2.5 mm
Cast Iron	Ø80 mm, 5.25 mm X 383 cu.cm/min	Ø52 mm X 0.18 mm/rev	M27 X 3 mm
Aluminium	Ø125 mm, 4 mm X 586 cu.cm/min	Ø58 mm X 0.20 mm/rev	M30 X 3.5 mm

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INTERFERENCE DIAGRAM



Size	VMC1570	VMC1580	VMC1870	VMC1880
a	150	150	150	150
b	777.5	847.5	777.5	847.5
c	960	960	960	960
d	867	937	867	937
e	17.5	37.5	17.5	37.5
f	760	810	760	810
x	1510	1510	1810	1810
y	710	810	710	810
z	810	810	810	810
x1	755	755	905	905
y1	355	405	355	405
L1	1700	1700	2000	2000
L2	810	810	810	810

CONTROLLER FEATURES (SIEMENS 828D)

- M Dynamics Feed Forward Control
- High Resolution 10.4" Color Screen with Dynamic Graphic Display
- 5 MB User Memory
- Integrated QWERTY keyboard & Multi Functional Display
- High Speed Rigid Tapping & Thread Milling
- Linear, Circle, Helical & Universal NURBS Interpolation
- Powerful Servo Axis Motors with Super Precision Absolute Encoder
- Advanced Surface Finishing
- Inch/Metric Conversion
- Technology Cycles for Drilling/Milling Operations
- Tool Management for Monitoring of Tool life
- Tool Display Unit
- MPG Unit for Operator Easiness
- High Speed Fast Ethernet for Data Communication
- Communication & Data Management Via USB, CF Card & RS 232C
- User Friendly Built-in Calculator





TECHNICAL SPECIFICATION

Table		VMC 1570	VMC 1580	VMC 1870	VMC 1880
Table Size	mm	1700 X 810	1700 X 810	2000 X 810	2000 X 810
T-Slot Dimension	mm	5 X 18 X 150	5 X 18 X 150	5 X 18 X 150	5 X 18 X 150
Distance from Floor to Table	mm	1340	1340	1340	1340
Max. Load on Table	kgf	2000	2000	2500	2500
Capacity					
X-Axis Travel	mm	1510	1510	1810	1810
Y-Axis Travel	mm	710	810	710	810
Z-Axis Travel	mm	810	810	810	810
Dis. From Spindle Face to Table Top (Min.-Max.)	mm	150 - 960	150 - 960	150 - 960	150 - 960
Feed					
Rapid Traverse (X,Y & Z Axis)	m/min	20	20	20	20
Cutting Feed	m/min	10	10	10	10
Main Spindle					
Spindle Speed Range	rpm	8000	8000	8000	8000
Spindle Motor Power (Siemens 828D)	kW	15.8 / 10.5	15.8 / 10.5	15.8 / 10.5	15.8 / 10.5
Spindle Motor Power (Fanuc Oi MF)	kW	11 / 7.5	11 / 7.5	11 / 7.5	11 / 7.5
Front Bearing Bore	mm	70	70	70	70
Spindle Nose		BT 40	BT 40	BT 40	BT 40
Automatic Tool Changer					
Number of Tool		20	20	20	20
Max. Tool Dia. Pockets (All/Adj. Empty)	mm	80 / 125	80 / 125	80 / 125	80 / 125
Max. Tool Weight	kg	7	7	7	7
Max. Tool Length	mm	250	250	250	250
Accuracy (As Per VDI/DGQ 3441)					
Positioning Uncertainty (P)	mm	0.015	0.015	0.015	0.015
Repeatability (Ps Medium)	mm	0.008	0.008	0.008	0.008
Other Data					
Machine Weight # (Approx.)	kg	14800	15000	16370	16570
Machine Dimension # (Approx.) : Length	mm	3170	3310	3170	3310
Width	mm	4023	4023	4507	4507
Height	mm	3994	3994	3994	3994

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

STANDARD FEATURES

- Controller : Siemens 828D or Fanuc Oi MF
- AC Servo Spindle & Axis Drive
- L.M. Guideways Roller Type
- Auto & Manual Coolant System
- Centralized & Programmable Lubrication
- Laser Calibrated Axis for High Precise Positioning Accuracy
- Electrical with Quality Devices & Panel A.C.
- Flush Coolant System
- Head Coolant System
- Work Light

PRODUCTIVITY IMPROVING OPTIONS

- Chip Conveyor
- 10,000 rpm Spindle with Ceramic Bearing for Die- Mould Application
- High Speed Electro Spindle (12000, 15000, 18000 rpm)
- BT 50 Spindle with Higher Motor Power
- Gear Box
- 24 & 40 Tool ATC
- 4th & 5th Axis Option
- Tool Probe & Job Probe
- Linear Glass Scale
- Coolant Through Spindle
- 15" Touch Screen (Siemens)
- Extra Daylight Area (200mm)
- Coolant Gun
- Tool Tip Air Nozzle (For Dry Cutting)
- Oil Skimmer
- Spin Window
- Fully Toolled up Solutions to Meet the 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