TAPMILL Series

TM 500 | TM 700

TAPMILL

HIGH PRODUCTIVITY DRILL TAP CENTRES

Shaping The Future By Shaping Metal

Cosmos is a CNC machine tool manufacturer established in 1987, focused on developing practical machining solutions for production environments. The company began with the supply of advanced vertical machining centres and later expanded into the ***manufacturing*** *of* ***surface grinding machines, drill tap centres, vertical machining centres, vertical lathes****, and other CNC solutions.*

Today, Cosmos provides machining solutions ranging from entry-level production machines to advanced technology platforms. Machine development focuses on rigidity, accuracy, and long-term stability to support consistent performance in production environments.

With manufacturing rooted in India's industrial strength and aligned with global standards, Cosmos focuses on delivering machining solutions that support long-term customer relationships. This approach is guided by the company's core values of

Integrity, Meritocracy, Respect for Individuals, Dynamic Thinking, Creativity & Innovation, and Social Responsibility.












Manufacturing Excellence

Cosmos Manufacturing Unit 1

Comprehensive Machining, Fabrication & Assembly Hub

This facility forms the backbone of our manufacturing excellence, producing high-performance CNC machines with industry-leading accuracy and reliability.

Manufacturing Footprint
~15 acres

Workforce
~1200
Skilled Professionals

Cosmos Manufacturing Unit 2

Heavy Machinery Manufacturing & Final Integration

This unit plays a critical role in ensuring that every Cosmos machine delivers superior performance, longevity, and precision.

Manufacturing Footprint
~2.5 acres

Upcoming Manufacturing Facility
~25 acres

Workforce
~250 Skilled Professionals

OUR MANUFACTURING PROCESS

Casting

Machining

Fabrication

Powder Coating

Frame Assembly

Sheet Metal Assembly

Electrical & Controller Assembly

Final Machine Assembly & Dispatch

Why Tapmill Series?

High Productivity at Its Core

Engineered for fast machining with high acceleration and quick tool change, ensuring maximum output in minimum time.

Superior Structural Rigidity

Robust machine structure minimizes deflection under load, maintaining precision, accuracy, and long-term reliability.

Compact Yet Capable Design

Optimized footprint with powerful capabilities—ideal for space-efficient production setups.

Smart Automation Ready

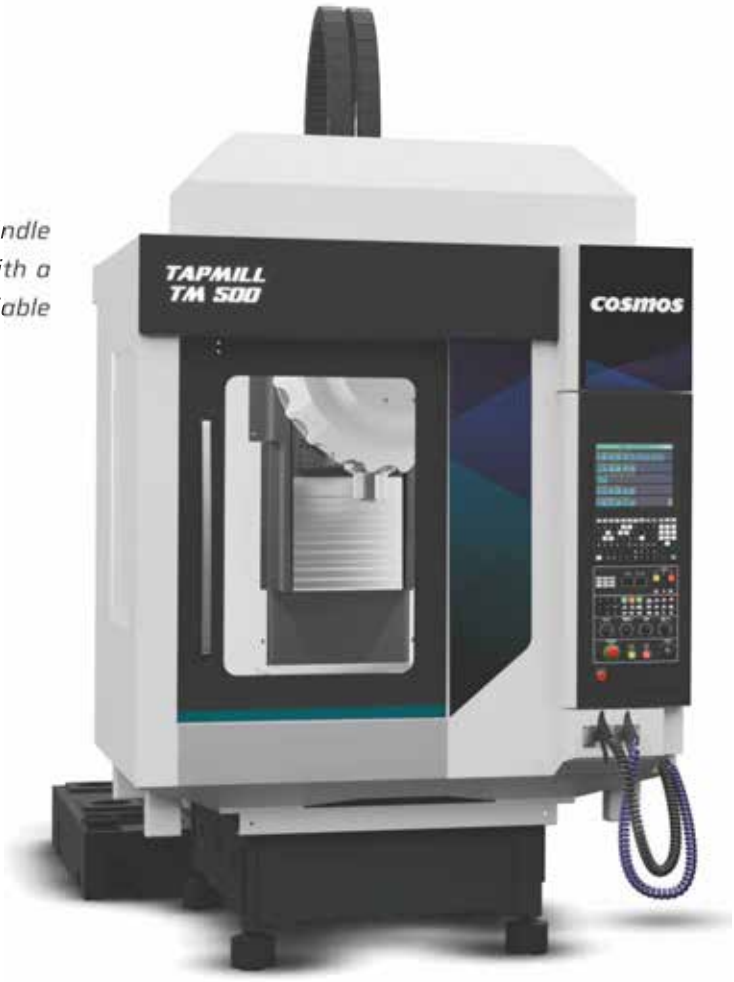
Equipped with rigid tapping, automatic lubrication, chip flushing, and multiple optional upgrades for enhanced productivity.

Key Features

FAST CYCLES. PERFECT FORM.

MILL-DRILL-TAP CENTERS

Designed for efficiency and precision, the BBT 30 Spindle machine features a compact, energy-efficient build with a small footprint, delivering exceptional speed and reliable performance to boost productivity.



For Mitsubishi Controller

Chip to Chip	**2 Sec.**
Tool to Tool	**1.5 Sec.**
Axes Acceleration	**1.5 G**
Rapid Rate	**60 m/min.**

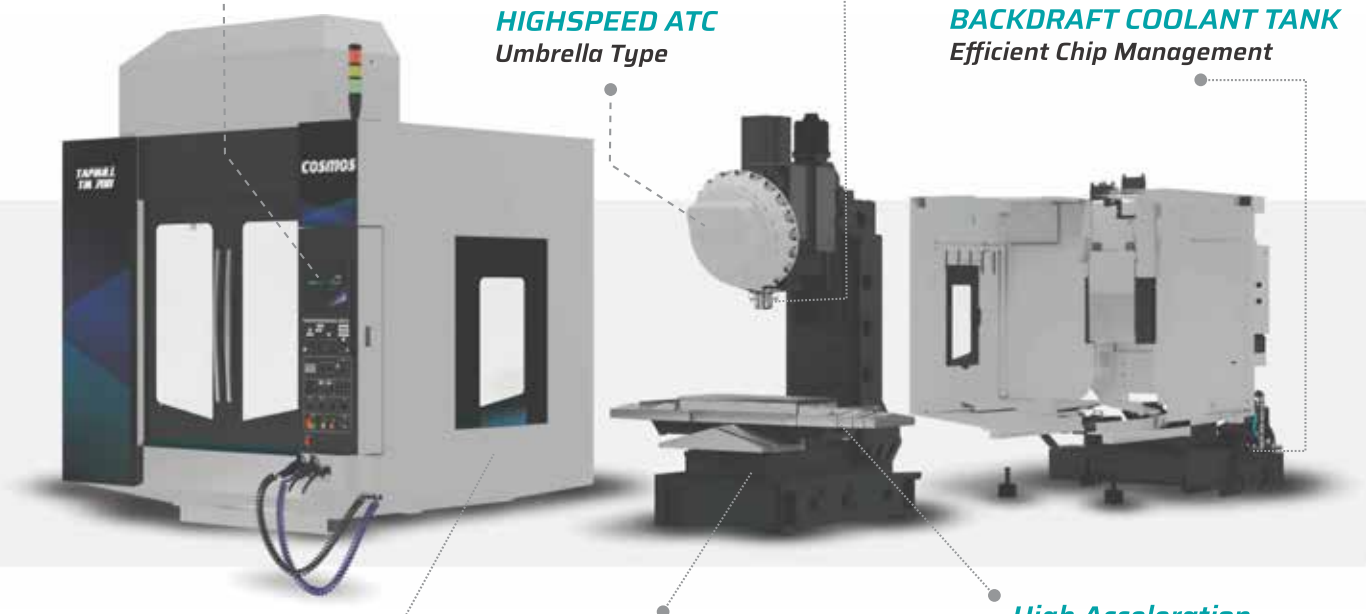
COMPACT FOOT PRINT

ZENEZ
User Friendly Control

HIGH QUALITY SPINDLE
Dual Contact BBT 30 Taper

HIGHSPEED ATC
Umbrella Type

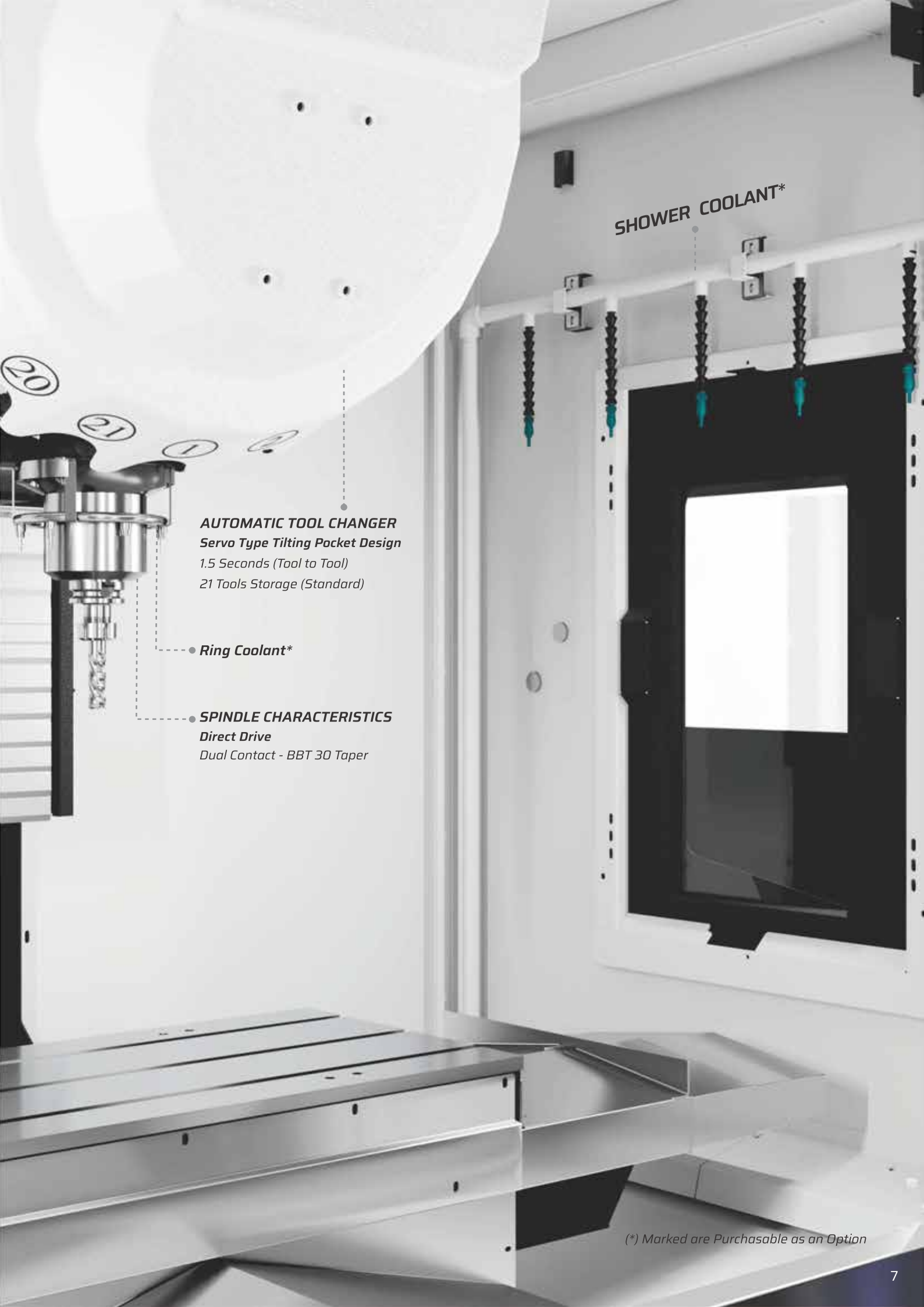
BACKDRAFT COOLANT TANK
Efficient Chip Management



High Acceleration
Acceleration of 1.5G

HIGHLY RIGID & STABLE STRUCTURE
Ensure Stability at high speeds.

COMPACT FOOT PRINT
Space Saving Design



AUTOMATIC TOOL CHANGER
Servo Type Tilting Pocket Design
1.5 Seconds (Tool to Tool)
21 Tools Storage (Standard)

Ring Coolant*

SPINDLE CHARACTERISTICS
Direct Drive
Dual Contact - BBT 30 Taper

(*) Marked are Purchasable as an Option

Machine Ergonomics

Key Features

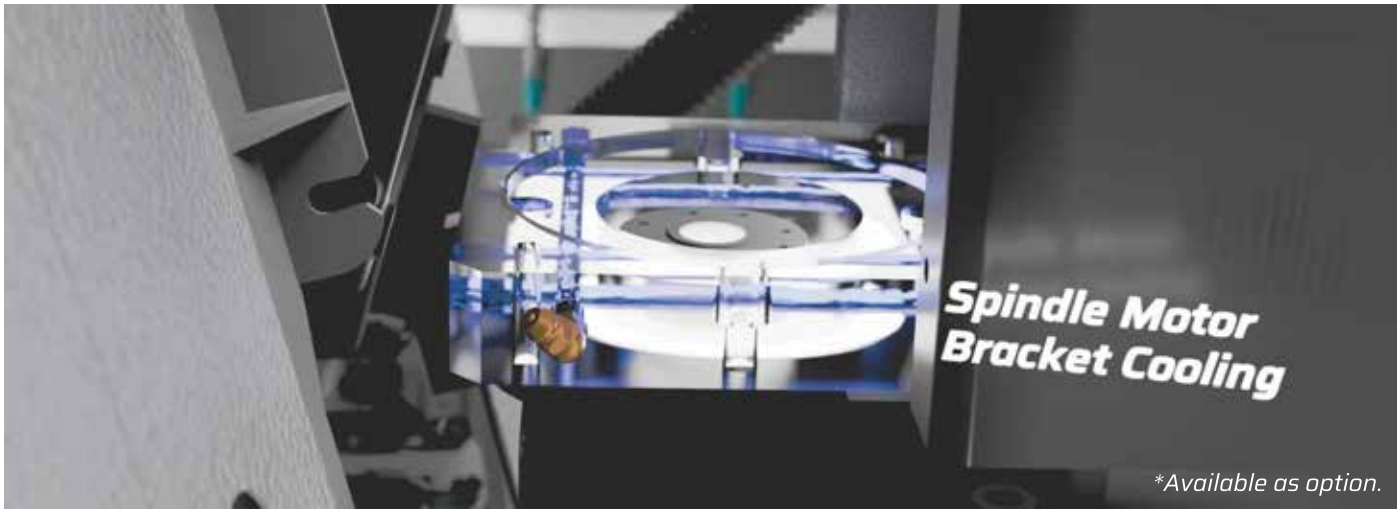
A waist-level worktable design that enhances operator comfort, efficiency, and safety across every shift.	*Open Three-Side Access for faster part changeover and simplified workholding.*
Clear Line of Sight to the cutting zone for better monitoring and safer operation.	*Reduces Operator Fatigue and sustains productivity through long production runs.*
Compact Low-Profile Structure maximises workshop floor space without compromising accessibility.	*Ergonomic Design Philosophy — built around the operator for improved safety and ease of use.*

Spindle Motor Cooling Bracket

A dedicated spindle motor bracket cooling system that ensures thermal stability, longer spindle life, and consistent machining performance.

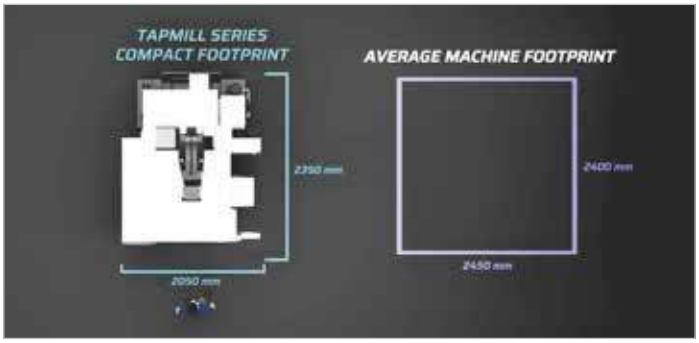
Key Features

Dedicated Bracket Cooling Channel circulates coolant directly around the spindle motor bracket for maximum heat dissipation.	*Reduces Thermal Displacement in the spindle, maintaining dimensional accuracy throughout long machining cycles.*	*Extends Spindle Bearing Life by keeping operating temperatures within optimal range even at high RPM.*
Protects Motor from Heat Build-Up during continuous-duty operations, reducing downtime and maintenance frequency.	*Consistent Surface Finish Quality achieved by eliminating thermally induced spindle errors during production runs.*	*Compact Integrated Design — cooling bracket is built into the spindle assembly for a clean, space-efficient solution with no external chiller unit required.*



Compact footprints

A smaller machine footprint that fits more machines in the same floor space — maximising workshop capacity without expansion.



STANDARD VMC LINEUP **10 Machines Max.**

TAPMILL SERIES **10 Machines +2 Extra**

+20% *More machines in same space*

— Key Features

01
Significantly Smaller Footprint
Than average VMCs, freeing up valuable floor space in your workshop.

02
Fit More Machines in the Same Space
install additional Tapmills where a conventional machine lineup would run out of room.

03
Higher Output per Square Metre
compact design directly increases production capacity without requiring a larger facility.

04
Ideal for Space-Constrained Facilities
scale up production without the cost or disruption of relocating or expanding your shop floor.

05
No Compromise on Rigidity
compact build retains a heavy-duty cast iron structure for stable, vibration-free machining performance.

06
Better Return on Investment
smaller footprint lowers the real estate cost per machine, making each unit more economical to operate.

Precision Machined Components Across Every Industry

Every industry has its own demands. Every component has its own complexity. We rise to meet both. Serving semiconductor, medical, automobile, EV, energy, and industrial sectors — our precision machining ensures every part is cut to perfection, built to perform, and ready to excel in the most demanding environments.

Bearing Housing

PLIF Cage

Valve Plate

Inverter Case

Bone Plate

Gear Box

Impeller

Gear Blank

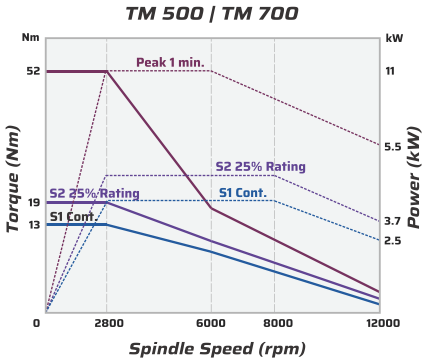
Spindle Options

Mitsubishi Controller

Standard

Direct Drive

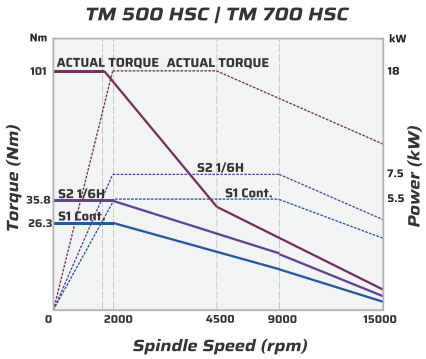
***12,000** rpm*



Power 3.7/5.5 kW | Torque 52 Nm

Optional

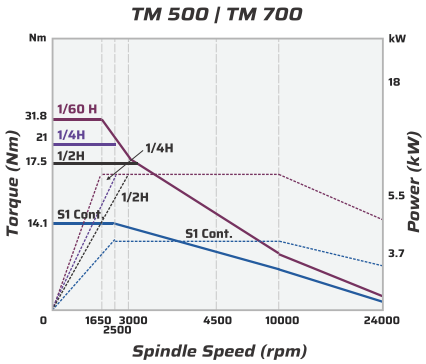
Direct Drive ***15,000** rpm*



Power 5.5/18 kW | Torque 101 Nm

Optional

Direct Drive ***24,000** rpm*



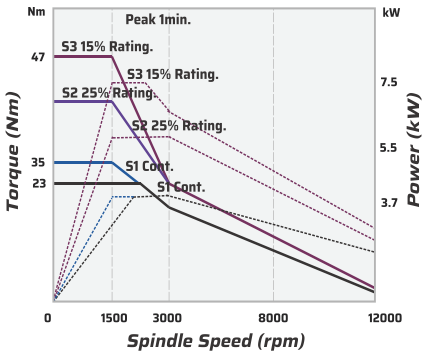
Power 3.7/5.5 kW | Torque 31.8 Nm

Fanuc Controller

Standard

Direct Drive

***12,000** rpm*

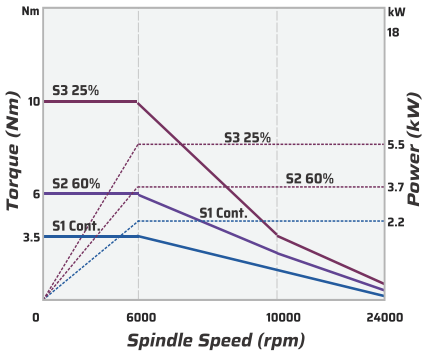


Power 3.7/5.5 kW | Torque 47 Nm

Optional

Direct Drive

***24,000** rpm*



Power 3.7/5.5 kW | Torque 10 Nm

Machine User Interface ZENEZ Control

Boost Your Profitability by Achieving the Maximum Performance with Ease

It focuses on customised dashboards and tools that help the operator to simplify his daily activity. The overall feature and package can reduce the time lost due to the complexity of the controller GUI; as a result, Zenez can significantly increase the machine output and profitability.

- *10.4-inch display or 15-inch display.*
- *Fully functional vertical and horizontal soft-keys for non-touch usage.*
- *Crystal type Machine Operating Panel.*

MITSUBISHI ELECTRIC

FANUC

Scroll
Scroll in lists - Tool & Work offset list, Program, Gcode List Parameter.

Tap
Tap to move the cursor or navigate through the menus.

Pinch
Zoom in and out of graphic content during simulation mode.

History

Diagnosis

User Manager

Cycle Time Analysis

Tool Magazine Management

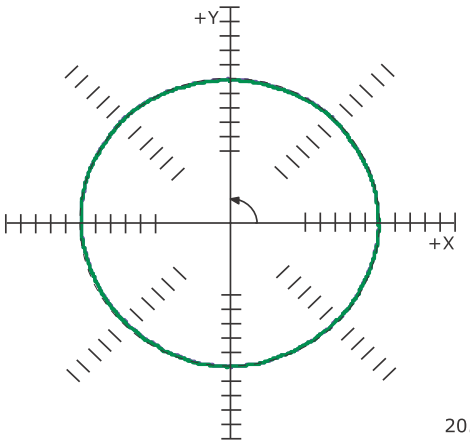
Preventive Maintenance Checklist


cosmos
ZENEZ
cosmos

Accuracy

Ball Bar Calibration Test

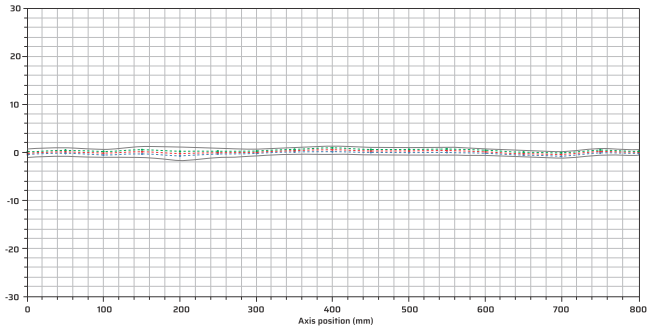
- Ball bar test (200 mm dia.) with circularity within 10µm.
- Every machine is Tested and calibrated.
- Ball bar testing for circularity verification.



BALL BAR CALIBRATION STANDARD : **ISO 230-4:2005**

Ball Bar Calibration Test

Item (Ball Bar Test)	
ISO 230-4	TM Series
Radius	100.00mm
Sampling Feedrate	1200 mm/min
Circularity	<-0.010mm
Max. Reversal	<0.002mm



LASER CALIBRATION STANDARD : **VDI 3441**

Laser Test

- Laser calibration done in 5 ***alternate bidirectional*** passes.
- Laser calibration test with full stroke travel.
- Smooth and stable machine motion validation.
- Close to zero backlash for high repeatability.

Item (Pitch Error compensation) VDI/DGQ 3441		Cosmos standard Tolerance TM Series
Positional Uncertainty	P	< = 0.010 mm
Mean Positional Scatter	Ps mean	< = 0.006 mm
Reversal Error	U max	<= 0.005 mm
Positional Deviation	P_A	<= 0.003 mm

Machining Capacity

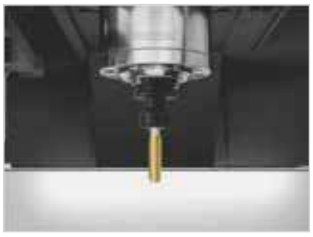
Factory Conditions

BT-30 TAPER DIRECT DRIVE SPINDLE On MS Material

TM 500 / TM 700

FACE MILL		MATERIAL REMOVAL	SPINDLE LOAD
Tool	63 mm	54 cc/min	90%
Cut (Width x Deep)	37.8 x 2		
Feedrate	600mm/min		
Spindle Speed	800rpm		

DRILL		MATERIAL REMOVAL	SPINDLE LOAD
Tool	21 mm	52 cc/min	74%
Cut (Deep)	40mm		
Feedrate	150mm/min		
Spindle Speed	1668rpm		



TAP		MATERIAL REMOVAL	SPINDLE LOAD
Tool	M16 x 2mm	-	75%
Spindle rpm	200rpm		
Feedrate	400mm/min		
Depth of Tap	30mm		

BT-30 TAPER DIRECT DRIVE SPINDLE On CAST IRON Material

TM 500 / TM 700

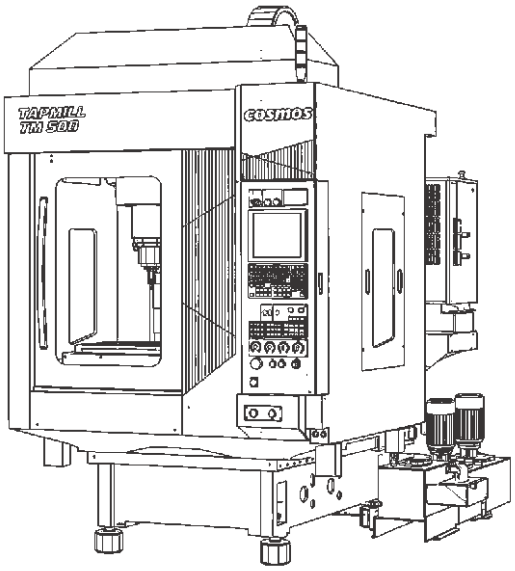
FACE MILL		MATERIAL REMOVAL	SPINDLE LOAD
Tool	63 mm	113 cc/min	95%
Cut (Width x Deep)	37.8 x 2.5		
Feedrate	1200mm/min		
Spindle Speed	1263rpm		

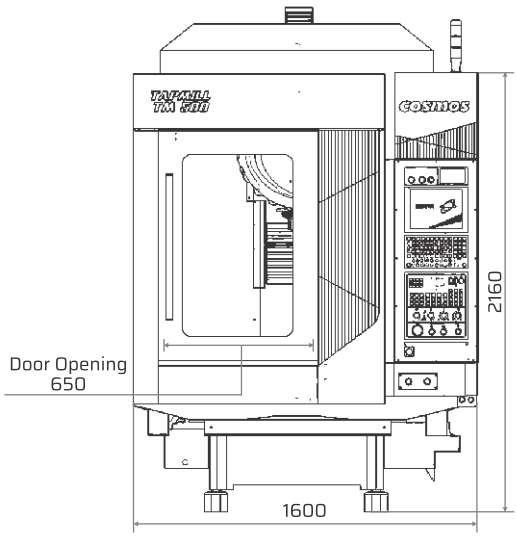
DRILL		MATERIAL REMOVAL	SPINDLE LOAD
Tool	21 mm	52 cc/min	50%
Cut (Deep)	40mm		
Feedrate	150mm/min		
Spindle Speed	1668rpm		

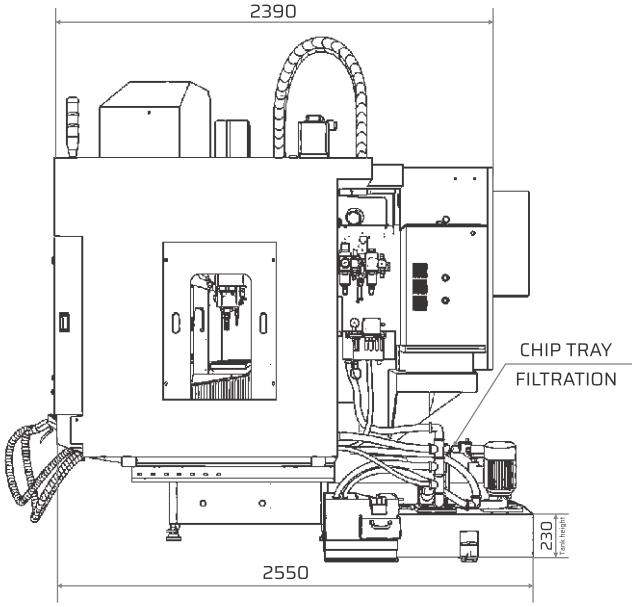
TAP		MATERIAL REMOVAL	SPINDLE LOAD
Tool	M20 x 3mm	-	120%
Spindle rpm	200rpm		
Feedrate	600mm/min		
Depth of Tap	40mm		

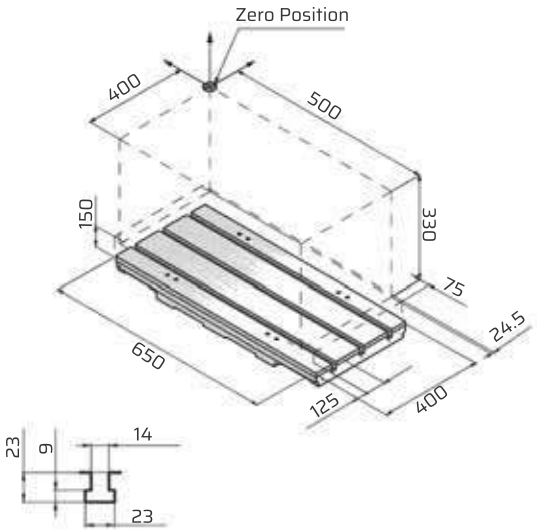
TAPMILL 500

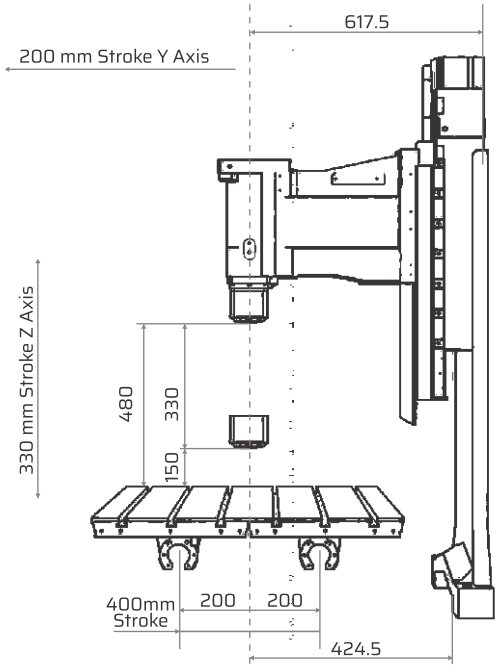

TAPMILL
TM 500
COSMOS


TAPMILL
TM 500
COSMOS

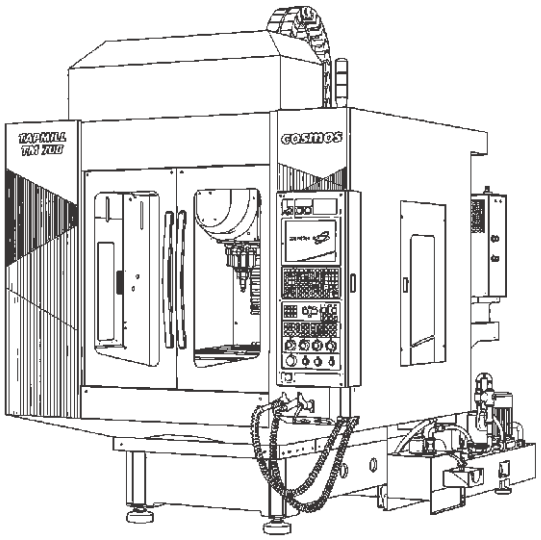

TAPMILL
TM 500
COSMOS
Door Opening
650
2160
1600

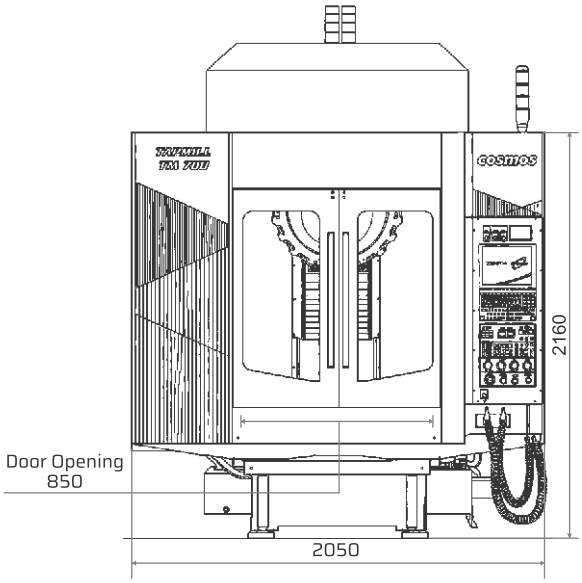

2390
CHIP TRAY
FILTRATION
230
Tank height
2550

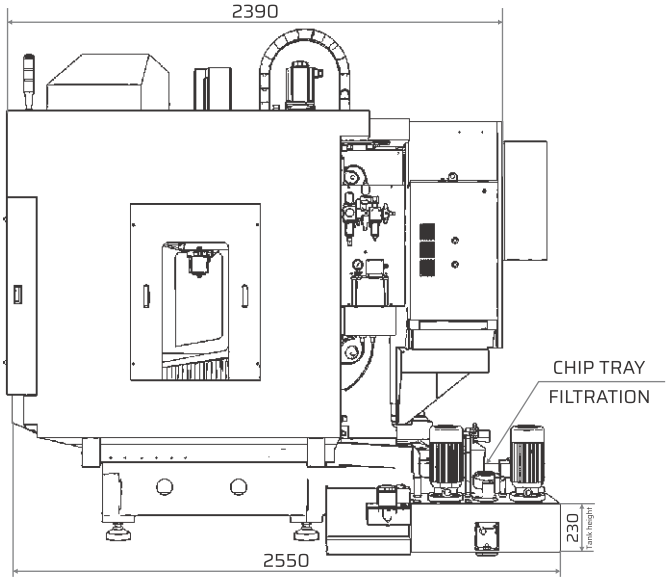

Zero Position
400
500
150
330
75
24.5
650
125
400
23
9
14
23

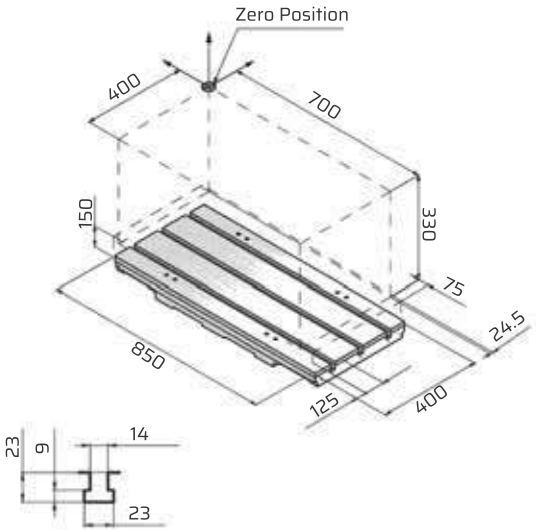

617.5
200 mm Stroke Y Axis
330 mm Stroke Z Axis
480
330
150
400mm
Stroke
200
200
424.5

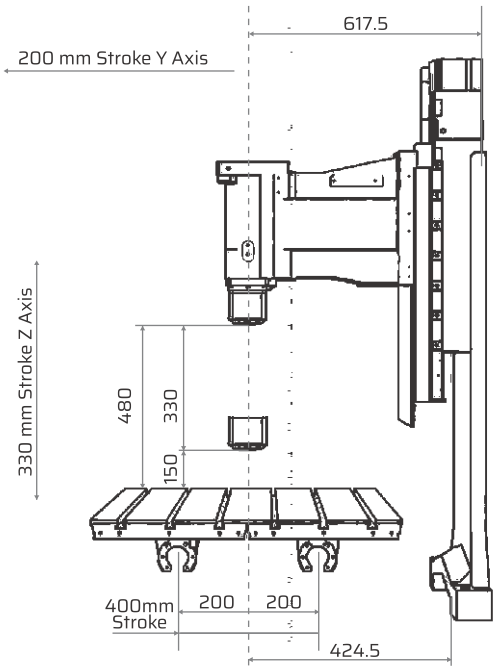

TAPMILL
TM 700
COSMOS


TAPMILL
TM 700
COSMOS


TAPMILL
TM 700
COSMOS
2160
Door Opening
850
2050

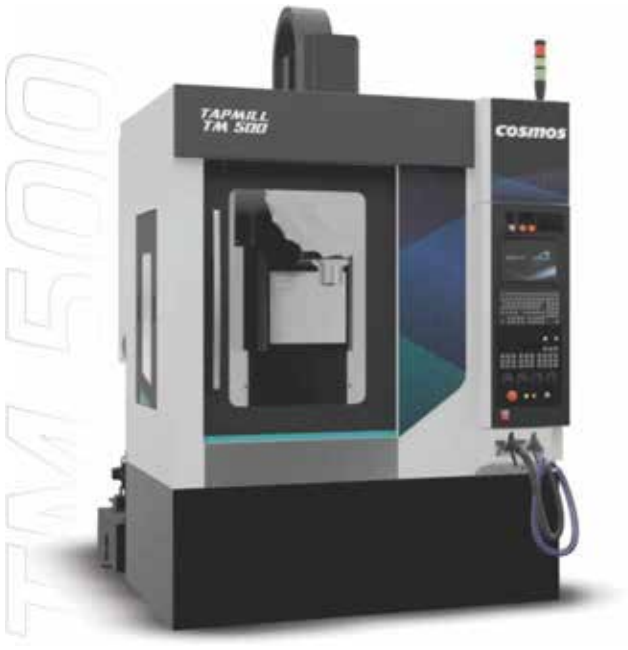

2390
CHIP TRAY
FILTRATION
230
Tank Height
2550


Zero Position
400
700
150
330
75
24.5
850
125
400
23
9
14
23


617.5
200 mm Stroke Y Axis
330 mm Stroke Z Axis
480
330
150
400mm
Stroke
200
200
424.5

Machine Specification

Description	Units	TM 500	TM 700
Travel			
X-Axis	mm	500	700
Y-Axis	mm	400	400
Z-Axis	mm	330	330
Table			
Spindle Nose to Table Surface	mm	150-480	150-480
Table Size	mm	650 x 400	850 x 400
No/Width/CD of T-Slots	mm	3 x 14 x 125	3 x 14 x 125
Max. Loading Capacity	kg	250	250
Spindle			
Spindle Motor Output	kW	3.7/5.5	3.7/5.5
Spindle Max Speed	rpm	12000	12000
Spindle Taper		BBT-30	BBT-30
Feed			
Rapid Feed of X Axis*	m/min	60	60
Rapid Feed of Y Axis*	m/min	60	60
Rapid Feed of Z Axis*	m/min	60	60
Cutting Feed Rate	m/min	20	20
ATC			
Tool Storage	nos	21	21
Max. Tool Diameter	mm	80	80
Max. Tool Length	mm	200	200
Max. Tool Weight	kg	3	3
Tool Change Time (Tool-to-Tool)	sec.	1.5	1.5
Accuracy			
Positioning	mm	0.01	0.01
Repeatablity (+/-)	mm	± 0.003	± 0.003
General			
Floor Space (LxD)	mm	1600 x 2390	2050 x 2390
Weight	kg	2400	2550
Power Capacity	kVA	10	10



Note: Specifications and features are subjected to change without prior notice. Please refer the offer document, offer document as precedence.

Contact sales team for more accessories and tooled-up proposal

**Marked specifications vary on controller selected*

Standard / Optional Features

● Standard ○ Optional

		TM 500	TM 700
Spindle	12,000 rpm Direct Drive BBT-30 Taper with Spindle Oil Cooler	●	●
	15,000 rpm Direct Drive BBT 30 Taper with Spindle Oil Cooler	○	○
	24,000 rpm Direct Drive BBT 30 Taper with Spindle Oil Cooler	○	○
	Rigid Tapping	●	●
	Spindle Air Blast	●	●
Controller	Mitsubishi M80 BV / Fanuc OiMF Controller with 10.4" Display	●	●
	Zenez HMI	●	●
	Heat Exchanger For Electric Cabinet	●	●
	Air Conditioner for Electric Cabinate	○	○
Tool Magazine	21 Tools ATC High Speed Servo ATC	●	●
	30 Tools ATC	○	○
Coolant & chip management	Oil Coolant Separator	●	●
	Chip Flushing System	●	●
	Rear Side Chip Outlet	●	●
	CTS System from 20 bar to 70 Bar Pressure	○	○
	Chip Conveyor	○	○
	Ring Coolant	○	○
	Scraper Conveyor With Drum filter	○	○
	Slat Type Conveyor	○	○
4th Axis/ 5th Axis	4th Axis Ready	○	○
	4th Axis interface with Drive	○	○
	CNC Rotary Tables (Range of Tables)	○	○
Tool Measuring System	Renishaw LTS	○	○
	Renishaw Primo Kit	○	○
Others	Manual Pulse Generator	●	●
	Air Gun & Coolant Gun	●	●
	Machine Operation & Maintenance Manuals	●	●
	Automatic Lubrication System	●	●
	Auto Door	○	○

High Productivity Solutions

Advanced Fixture Solutions

ROTARY MANUFACTURING SYSTEM

- *Ideal for multi face machining in single setup*
- *Rigid slave table ensures stability during machining at heavy load*
- *Option of rotary union for hydraulic and pneumatic fixtures*
- *Option of side support in lieu of Slave Table*

CNC TILTING ROTARY TABLE

- *Full flexibility with ±110° Tilting Angle*
- *Ideally suited for machining at compound angle for medical and aerospace industries*
- *Universal Base Plate for T-Slot pitches of 100mm, 125mm and 150mm*

CNC ROTARY TABLE

- *High Speed Rotation @ 33.3rpm*
- *Dual Lead Worm Drive*
- *Special Bearing Design.*

WORM WHEEL CONFIGURATION:

Worm Shaft: *Case hardened Alloy steel*

Worm Wheel: *Special high tensile brass alloy.*

*Now Available **STEEL WORM WHEEL** option for DOUBLE LIFE AND SMOOTHER MACHINING!!*

ZERO POINT SYSTEM

Key Benefits

- ***Instant Setup & Changeover***
  Reduce machine downtime with quick and effortless clamping.
- ***High Repeatability Accuracy***
  Ensures micron-level positioning every time you load a part.

End Support

Slave Table

- *SLT-200/250 (Pneumatic/Hydraulic)*

Tailstock

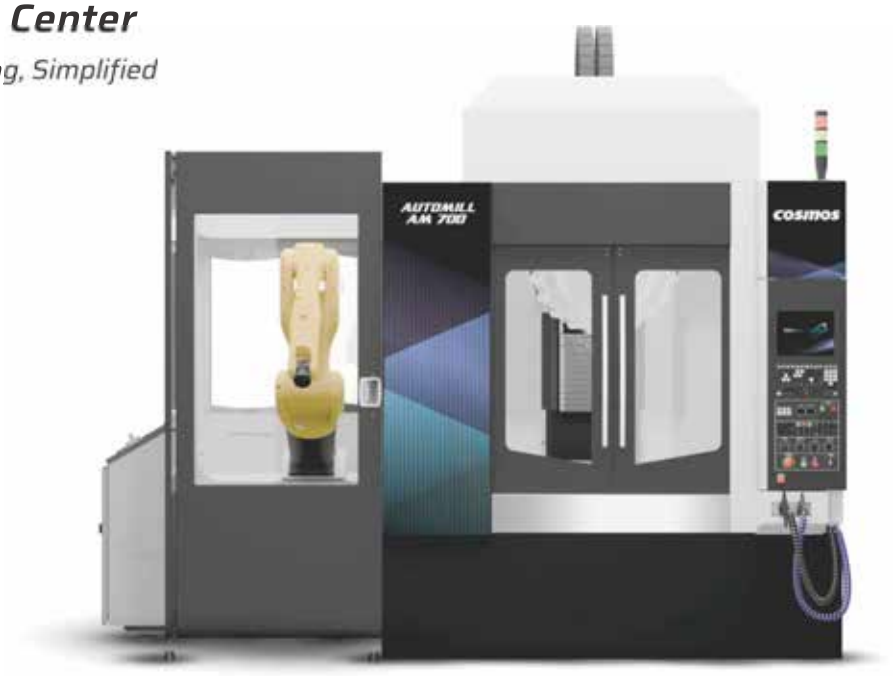
- *TSA-160/185 (Manual/Pneumatic/Hydraulic)*

Auto Tending Machining Center

Automill : The Future of Manufacturing, Simplified

Key Features

- *No Programming Required*
- *Quick Part Changeovers*
- *3D Visualisation*
- *Fast and Accurate Calibration*
- *Smart Task Automation*
- *Collision Avoidance*



*The AutoMill Series is an **all-in-one, self-loading machining system designed** to simplify complex manufacturing workflows. It integrates high-performance hardware with an intuitive "Easy Management" interface, allowing operators to achieve greater precision with minimal manual intervention.*

By effectively bridging the gap between hardware and software, the system provides a flexible solution that maintains high speed and consistency across both large-scale production runs and agile, varied projects. Ultimately, the AutoMill is engineered to scale output and maximize overall facility productivity.

ROBORATOR VI 5

Designed for high speed robotic loading & unloading.

7 Kg 6th Axis Robot

5 Drawers
(600mm X 400mm X 80mm)

AVNI

Designed to handled two machines with a single robot.

12 kg 6th Axis Robot
(optional 25 kg and 35 kg capacities)

SOFTBOXY

800x600x100mm
(Optional 1000x800X100mm)

Industry 4.0 IOT Solution digiFAC | dF+

All-in-One Digital Data Monitoring Solution for Manufacturing Industries

What is digifac?

The digiFAC is an IIoT (industrial IoT) platform that can integrate various signals from all kinds of controller-based machines, including CNCs, Injection Moulding Machines, and Press Machines, and analyze them automatically to generate accurate real-time reports. With the least human intervention, it collects the information directly from the machines and helps you get the maximum benefit from your assets and enhance productivity.

Why digifac?

- *Industry-Leading: Production efficiencies and agility.*
- *Highly expert team members.*
- *Phenomenal solutions to take your company to the next level.*
- *User-friendly Interface; use features as per dedicated roles/users.*
- *Transparent, quick, and real-time data availability that can help you make fast decisions.*
- *To improve OEE.*
- *Increase your productivity by 20%.*
- *ROI within 3-4 months.*
- *To maintain your OTD.*
- *To reduce lead time, setting time, and deliver on time.*

SMARTCONNECT

Digifac Software Features

Dashboard Monitoring

- *Live information of the entire factory.*
- *Categorise machines (Unit-wise).*
- *View regular Utilisation of the machine.*

Alarm Analysis

- *Alarm history by code or machine.*
- *Time and duration of all alarms generated by a separate machine.*

Tool Cutting Time Information

- *No more unidentified dry-runs.*
- *Program path optimisation in-sight.*
- *Tool usage clarity.*

Production Information (Utilisation)

- *Detailed production information report.*
- *An automated daily production report.*
- *All reports are available in Excel format.*

Downtime Analysis

- *See total machine downtime.*
- *Monitor downtime and the reasons for it (Macro Downtime Feature).*
- *Focus and can easily get the classified major losses/downtimes and work on optimisation.*

Email Alerts

- *Set a time for machines' idle condition and receive or get alarm notification on email.*
- *Management Reporting:*
  Receive daily production report and downtime analysis report by email on daily basis.

Other Product Range

CVM SERIES

High Performance Machining Centres

SMARTMILL SERIES

High Speed Milling Center

DYNAMILL SERIES

Monoblock Machining Center

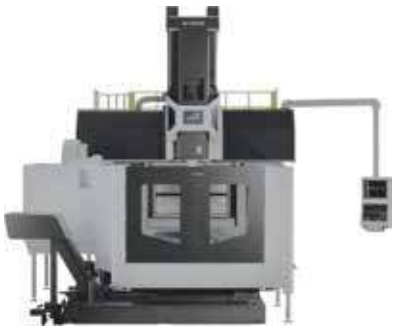
V-TURN SERIES

Vertical Turning Lathe

GRINDING SERIES

Precision Surface Grinding Machines

MEGAMILL SERIES



Double Column Machining Center

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Plant - II
Plot No. 68-B, Sigil Compound, Padra Road, Atladara, Vadodara, Gujarat - 390 012

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*__Kindly Note__: These products are under revision for specifications upgrades.
Request to kindly visit cosmos.in to get all the latest information about our complete product range.