

MEGAMILL Series

High Performance Double Column Machining Centres



M 2212 | M 2712 | M 3212 | M 2215 | M 2715 | M 3215 | M 2218 | M 3218 | M 4218 | M 3223 | M 4223

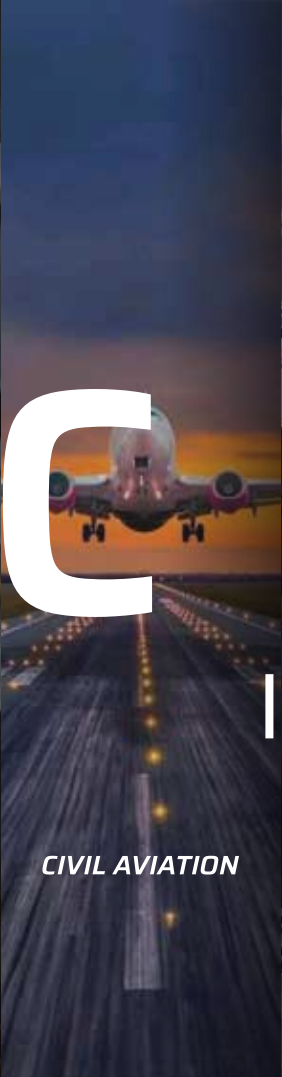
PRECISION ACROSS INDUSTRIES



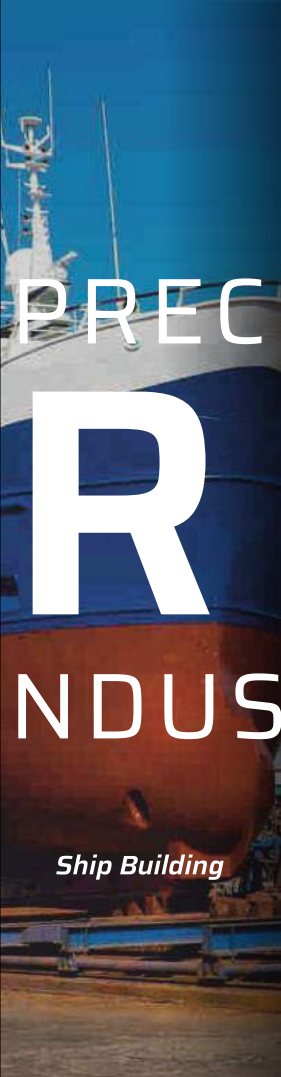
OIL & GAS



DIE & MOULD



CIVIL AVIATION



Ship Building



AUTOMOTIVE



PUMPS & VALVES



STEEL & ENERGY



General Engineering



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.

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



Casting



Machining



Fabrication



Powder Coating



Machine Assembly



Sheet Metal Assembly



Electrical & Controller Assembly



Final Quality Assurance & Dispatch



Product Range

A Robust Range of Vertical Machining Centres Engineered for Accuracy, Rigidity, and High Productivity.



Structural Architecture

Step Type Beam

Minimises deflection and improve stability which significantly improves the precision during cutting process.

Ball Screw

Precision-ground double nut ball screws with preloaded double nuts ensure smooth, accurate drive.

Heavy Duty Column

Wide-base column, combined with rib reinforcement maximises rigidity and cutting forces transfer.

Column Rested on Floor

Resting on the base, helps maximise rigidity and a more efficient force transfer.

Headstock

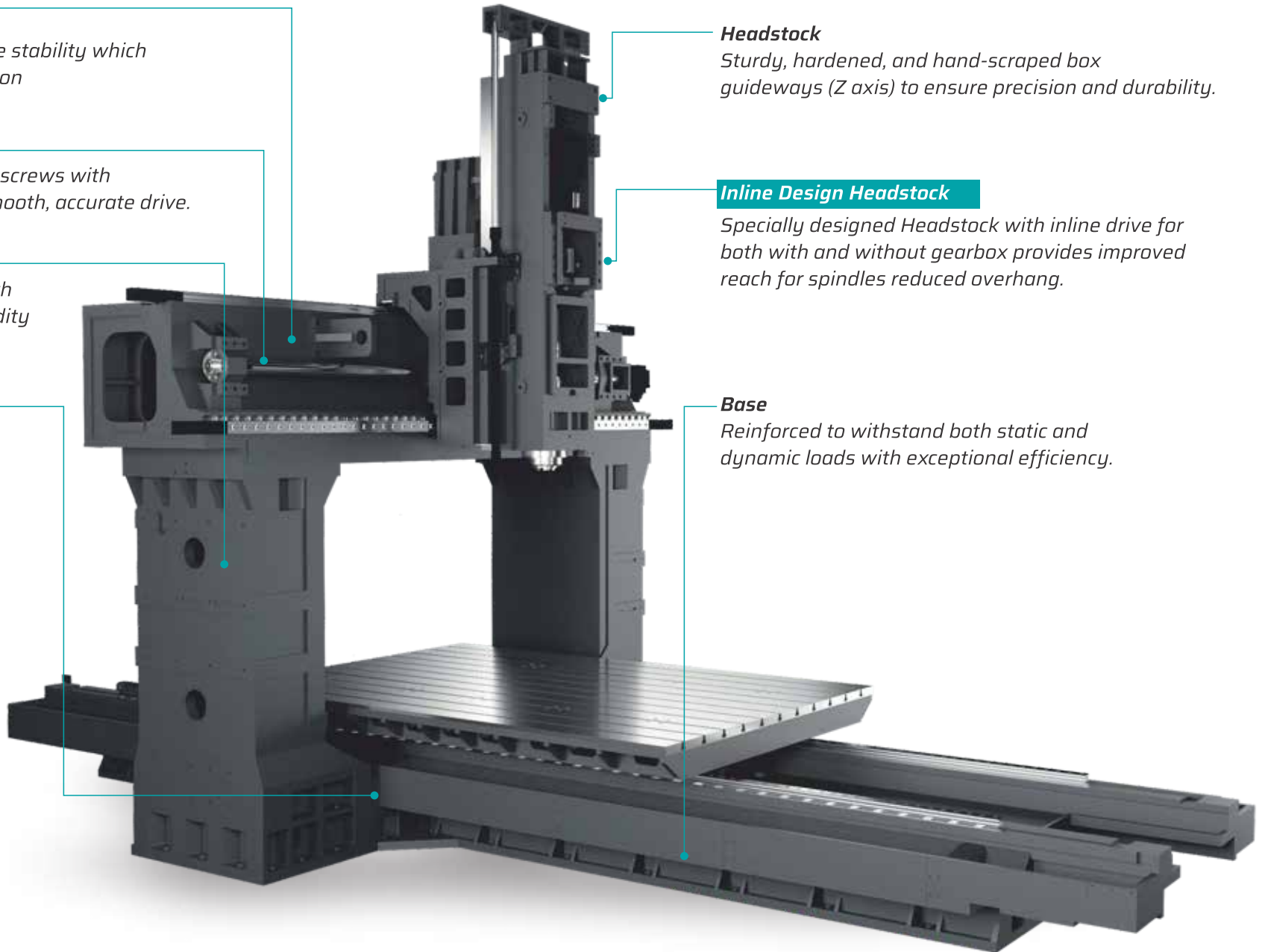
Sturdy, hardened, and hand-scraped box guideways (Z axis) to ensure precision and durability.

Inline Design Headstock

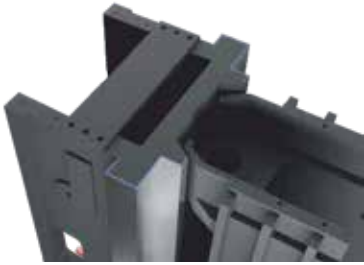
Specially designed Headstock with inline drive for both with and without gearbox provides improved reach for spindles reduced overhang.

Base

Reinforced to withstand both static and dynamic loads with exceptional efficiency.



Key Features



Box Guides

The Z-axis is equipped with robust, induction-hardened box guideways that are precisely ground and carefully hand-scraped to ensure good surface quality. The enlarged contact surface of the guideways is perfectly suited for handling the demands of heavy-duty cutting.



Direct Drive Spindle (For M2218-4223)

BBT 50 Taper is standard with the 22/26 kW spindle motor and 6000 rpm.

Two Speed Gearbox (Only for 6000 rpm Spindle) 1:5.5 Ratio (For M2218-4223)

The 22/26 kW geared drive spindle delivers up to 770/913 Nm of torque, offering excellent cutting flexibility for diverse applications.



The gearbox with a high/low gear ratio handles both high-speed machining and heavy cutting applications.



Oil Separator

The integrated oil separator continuously separates tramp oil from the coolant, enhancing coolant life, maintaining machining performance, and preventing odor and bacterial contamination.



Step Type Beam for Improved Cutting Stability

The oversized beam is a step-type construction that allows for better stability during cutting.



Hydraulic Weight Balancing

The Z-axis movement is precisely balanced using dual hydraulic cylinders, ensuring smooth and stable operation across various loads.



Accumulator

Accumulator incorporated to regulate hydraulic pressure fluctuations, effectively mitigating the impact of sudden power disruptions.



Roller type LM guideways:

Heavy-duty roller type LM guideways ensure superior rigidity, exceptional load capacity, and stable high-precision performance for demanding machining applications.

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.


FANUC

MITSUBISHI ELECTRIC



 **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.
**Only Mitsubishi*



History



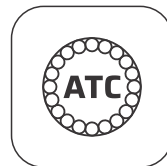
Diagnosis



User Manager



Cycle Time Analysis

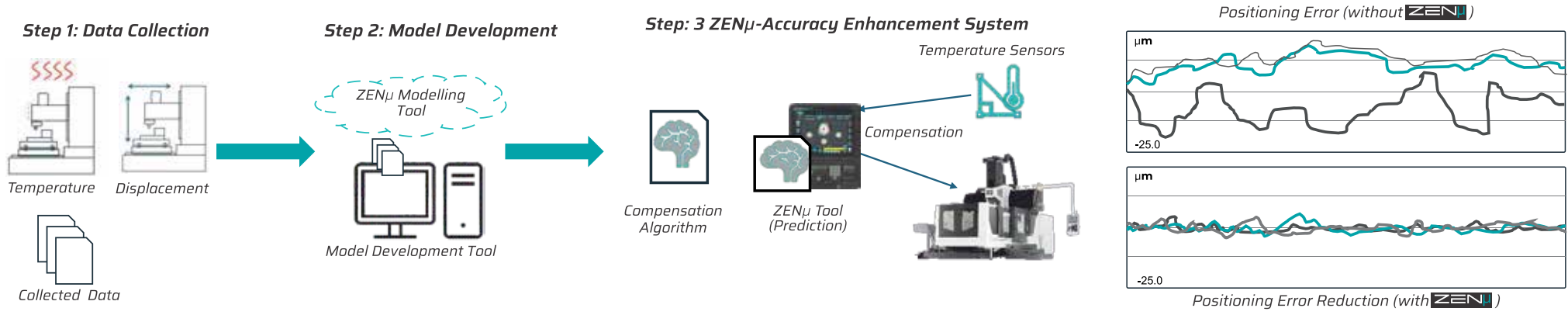


Tool Magazine Management



Preventive Maintenance Checklist

- Zenu is 'AI based' accuracy enhancement system that focuses on maintaining the tool centre point using AI algorithms.
- Using algorithms written in the module, the external zero point of X, Y and Z axis are shifted in multiple degrees of freedom to maintain the tool centre point at a constant position in the real time.



Optional Accessories

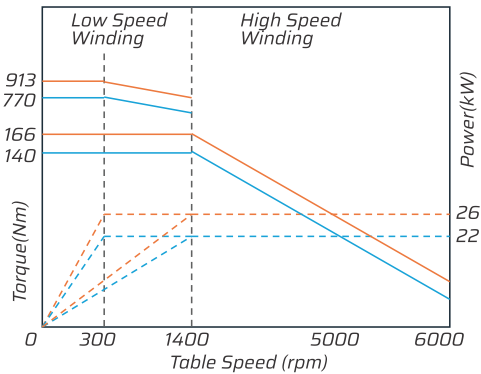
90° Angle Head

- Auto 5° Indexing
- Semi-Automatic Loading
- Hydraulic Head Clamp with 4 Pull Stud
- Hydraulic Tool Clamping (Manual Tool Change)
- Parking Station with Manual Movement
- Cover for Hirth coupling



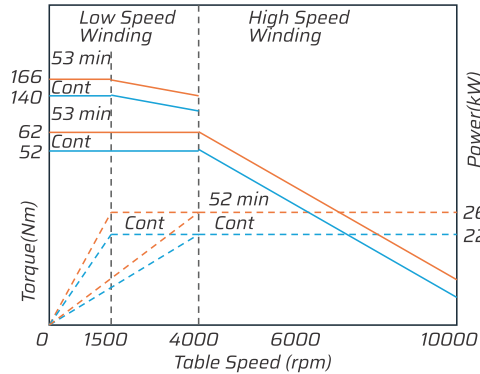
Spindle Speed / Torque Diagram

- 6,000 rpm with Gearbox (2218-4223)
- 22/26 kW
- Mitsubishi / Fanuc

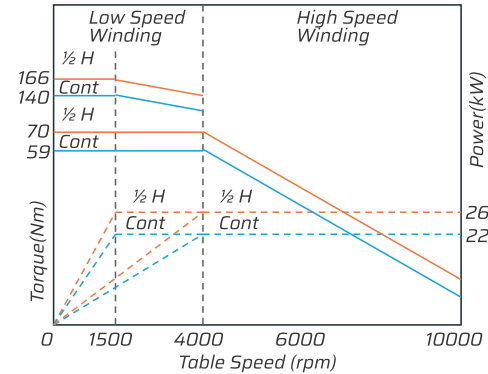


22/26 kW Low Speed (1:5.5), High Speed (1:1)

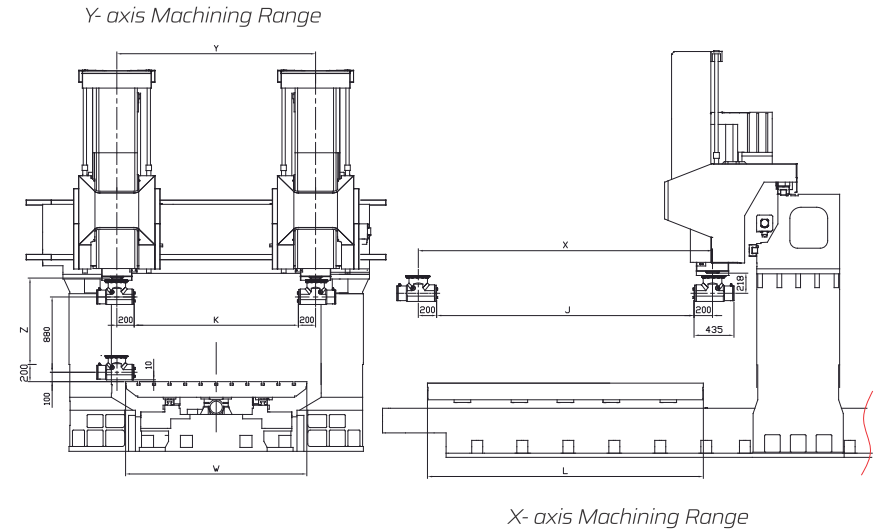
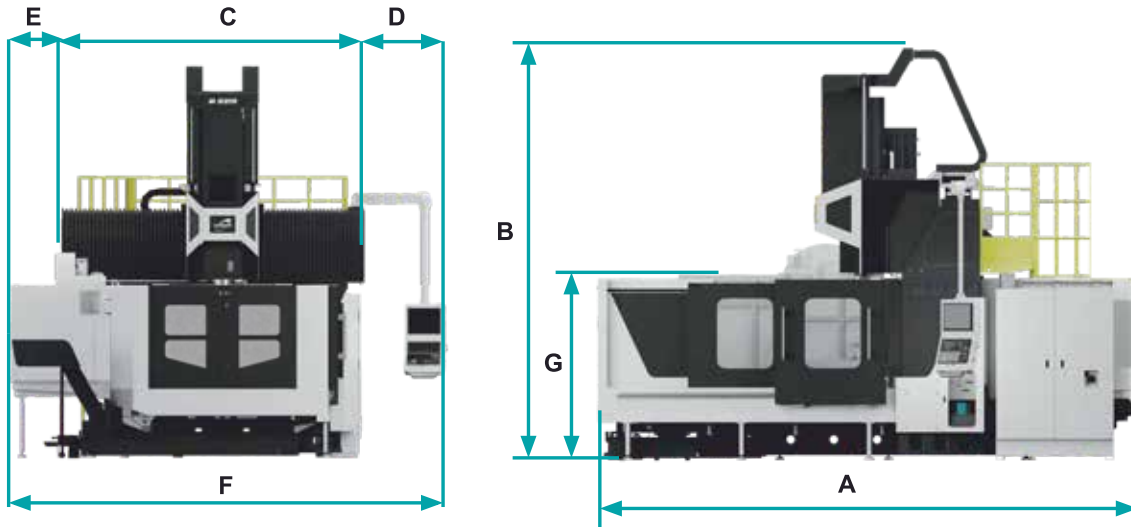
- 10,000 rpm (Opt)
- 22/26 kW
- Mitsubishi



- 10,000 rpm (Opt)
- 22/26 kW
- Fanuc



Machine Layouts



Model	A	B	C	D	E	G
M-2218	6200	4800	3700	1200	900	2100
M-3218	8200	4800	3700	1200	900	2100
M-4218	10200	4800	3700	1200	900	2100
M-3223	8200	4800	4200	1200	900	2100
M-4223	10200	4800	4200	1200	900	2100

Model	L	W	X	Y	Z
M-2218	2000	1500	2200	1800	
M-3218	3000	1500	3200	1800	
M-4218	4000	2100	4200	1800	1000
M-3223	3000	2100	3200	2300	
M-4223	4000	2100	4200	2300	

Machine Specifications

	SPECIFICATION	UNIT	M-2212	M-2712	M-3212	M-2215	M-2715	M-3215	M-2218	M-3218	M-4218	M-3223	M-4223	
TABLE	Table Size	mm	2000x1100	2500x1100	3000x1100	2000x1300	2500x1300	3000x1300	2000x1500	3000x1500	4000x1500	3000x2100	4000x2100	
	T-slots size	mm	22											
	Maximum Load	tons	4	6	6	4	6	6	8	10	12	12	13	
TRAVEL	X Axis	mm	2200	2700	3200	2200	2700	3200	2200	3200	4200	3200	4200	
	Y Axis	mm	1200			1500			1800			2300		
	Z Axis	mm	800						1000					
SPINDLE	Spindle motor (Mitsubishi)	kW	15/18.5					22/26						
	Spindle motor (Fanuc)	kW	15/18.5					22/26						
	Speed	rpm	6000/10000						6000 (8000, 10000)					
	Taper	type	BBT-50						BBT-50					
DISTANCES	Between two columns	mm	1300			1500			1900	1900	1900	2400	2400	
	Spindle nose to table surface	mm	150 - 950						200 - 1200					
FEED RATE	Rapid Rate(Mitsubishi)	m/min	20/20/15						15/15/12					
	Rapid Rate(Fanuc)	m/min	20/20/15						12/12/12					
	Cutting feed rate	mm/min	1 - 10000						1 - 10000					
ATC	Tool change time-T to T (approx.)	sec	4.5 (Arm type)											
	Max. tool-diameter /length	mm	Ø 110/Ø 220 (Without adjacent tool)/length 350											
	Max. tool weight	kg	15						18					
	No. of Tools	Nos.	24						24					
COOLANT & LUBRICATION	Coolant tank volume	L	640						640					
	Hydraulic tank volume	L	-						70					
	Lubrication Oil Volume	L	8						8					
MISCELLANEOUS	Power required	KVA	-						50					
	Pressurized air	Bar	5						7					
	Hydraulics required	kg/cm2	-						70					
	Machine Weight (approx)	tons	-			22	-		27.4	30	32	31	35	
	Controller	type	Mitsubishi M80, Fanuc DIMF											

The machines from 2212 to 3215 are offered with three headstock options and with the roller LM guideways

to suit different machining requirements: • Direct Drive (DDS) Head • Inline Gearbox Head • Belt Drive Head

Note: The models from 2218 to 4223 are equipped with box guideways on the Z axis.

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

Standard Accessories / Features

- Mitsubishi/Fanuc
- Crystal Keys for MOP
- Direct Drive Geared Spindle with BBT 50 Taper (M2218 - 4223)
- Spindle Speed - 6000 rpm
- Oil Chiller
- X & Y with Roller LM Guideways
- Z Axis with Roller LM Guideways (M-2212 - 3215)
- Z Axis with Box Guideways (M-2218 - 4223)
- 24 Tools ARM Type ATC
- Mobile MPG (Handheld wired unit)
- Coolant Splash Guard (Top Open)
- Two Chip Screw and One Belt Type Chip Conveyor with Bucket
- Air Conditioner for Electrical Cabinet
- Automatic Lubrication Unit
- Coolant System
- Spindle Air Blast
- Work Lamp
- Tower Lamp
- Step Down Transformer
- Auto Power Off
- Maintenance Ladder

Optional Accessories / Features

- Spindle Speed - 8000/10000 rpm
- 32/40 Tools ATC
- Linear Scales for X, Y, & Z Axes
- Coolant Through Spindle 20/40/70 Bar Pressure
- Tool Length Measurement System
- Work Piece Measurement System
- Semi-Automatic 90° Angle Head (M2218 - 4223)
- 500 mm Extended Beam (Recommended with 90° Angle Head)
- 4th Axis Rotary Tables
- Column Riser 200/300 mm
- Enclosed Guarding (Top Closed)
- Zenμ - AI base accuracy enhancement feature (thermal compensation)

Other Product Range

digifac

SMARTCONNECT+

CVM SERIES



High Performance Machining Centres

DYNAMILL SERIES



Monoblock Machining Center

V-TURN SERIES



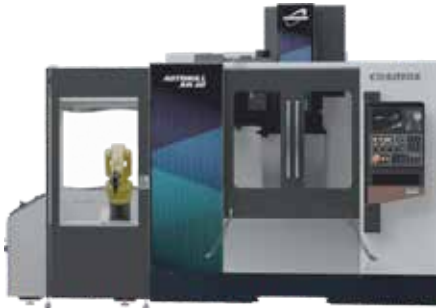
Vertical Turning Lathe

SMARTMILL & TAPMILL SERIES



High Speed Milling & Taping Center

AUTOMILL SERIES



Auto Tending Machining Center

GRINDING SERIES



Precision Surface Grinding Machines

**Kindly Note: Product development is a continuous process. Please visit www.cosmos.in to get our latest product range.*

YOUR PARTNER IN
PROGRESS 



Corporate Office

Cosmos House, Plot No. 85/2, Padra Road, Atladara, Vadodara, Gujarat - 390 012

Manufacturing Facilities

Plant - I

Cosmos Impex (India) Pvt. Ltd., Plot No. 847, 848 Village Ranu, Ta. Padra, Vadodara, Gujarat - 391 445

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.