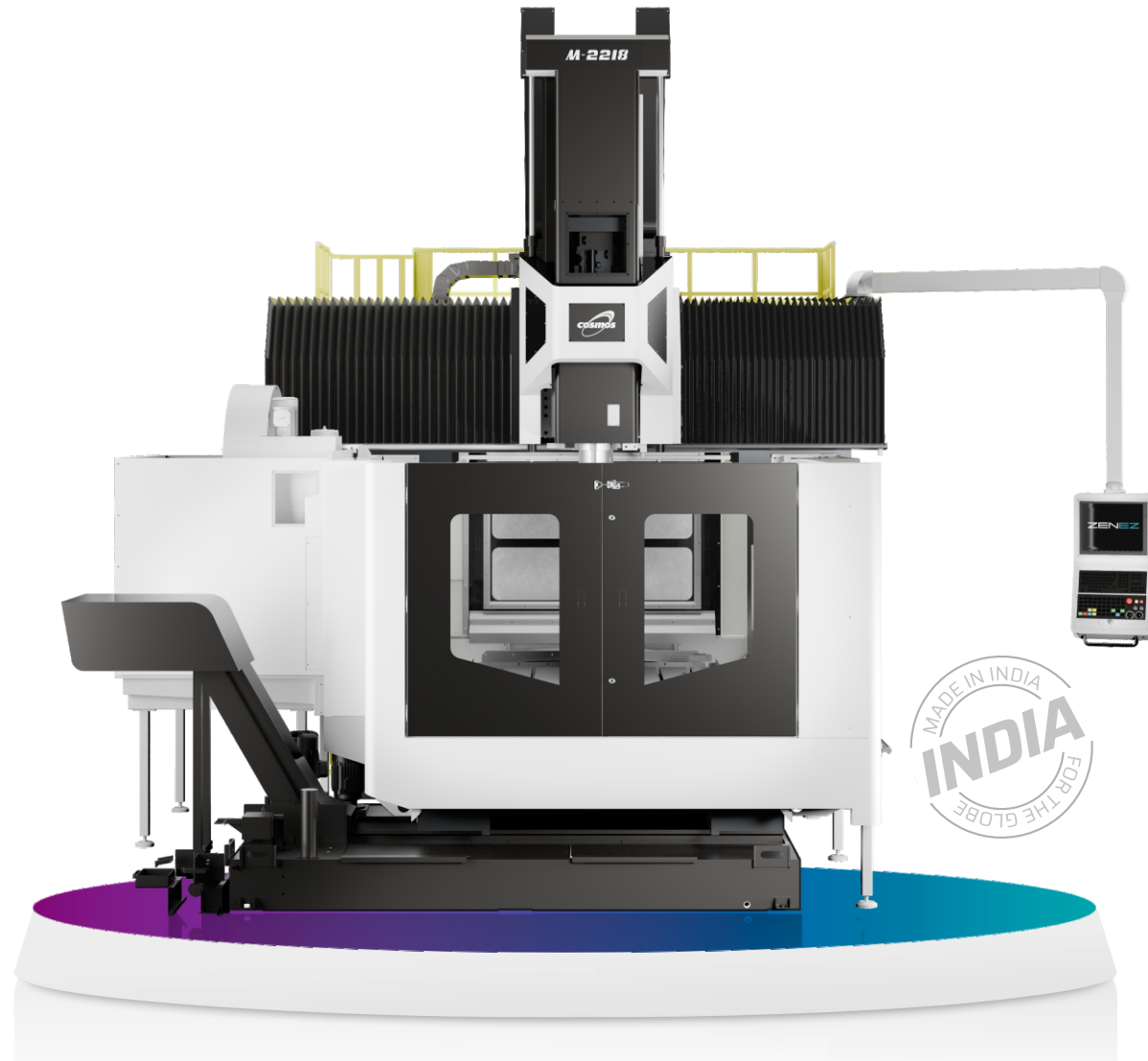


MEGAMILLSeries

High Performance Double Column Machining Centres



M 2011 | M 2214 | M 2714 | M 3214 | M 2218 | M 3218 | M 4218 | M 3223 | M 4223

Crafting Machines of Tomorrow

Crafting Machines of tomorrow : Cosmos, driven by passion & performance is dedicated in crafting CNC machines since 1987. We offer extensive product range designed to meet the diverse needs of modern industries. From high-performance Vertical Machining Centres and versatile Drill Tap Centres to precise Surface Grinding Machines and robust Vertical Lathes, our offerings empower businesses to achieve new heights of productivity and efficiency. Our solutions blend seamlessly with innovation to shape the future of manufacturing.

At Cosmos, we believe in bringing joy and meaning to people's lives—a philosophy that drives everything we do. For us, every advancement is a step toward future where innovation & fulfilment go hand in hand.



**India's Largest
Exporter of Vertical
Machining Centres**



**Leading Business
Enterprise of
Tomorrow**



**Best Metal
Cutting Brand of
2024-25**

**Industries
We Serve**



Die & Mould



Aerospace



Medical Implants & Equipments



Automotive Industry



Pumps & Valves



Steel & Energy



Electronics & Semiconductors



Oil & Gas Industry

Core Values

At Cosmos, our guiding principles are not just statements—they are our promises. We believe in aligning with a vision to contribute to the nation's growth by creating opportunities, fostering innovation, and delivering excellence. Our commitment to quality and customer satisfaction drives us to build cutting-edge CNC solutions that empower industries and inspire progress.

At Cosmos, our values are the core of who we are.

SINCERITY | DISCIPLINE | INTEGRITY | ETHICAL PRACTICES | HARMONY | SUSTAINABILITY

MEGAMILL Series

The **MEGAMILL Series** CNC Bridge Type Vertical Machining Centres set a new benchmark in precision and performance, incorporating cutting-edge features and advanced capabilities.

The **MEGAMILL Series** excels in industries like **Precision Die & Mould, Aerospace, Energy, Pump & Valve**, and more, consistently delivering outstanding performance and reliability.



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

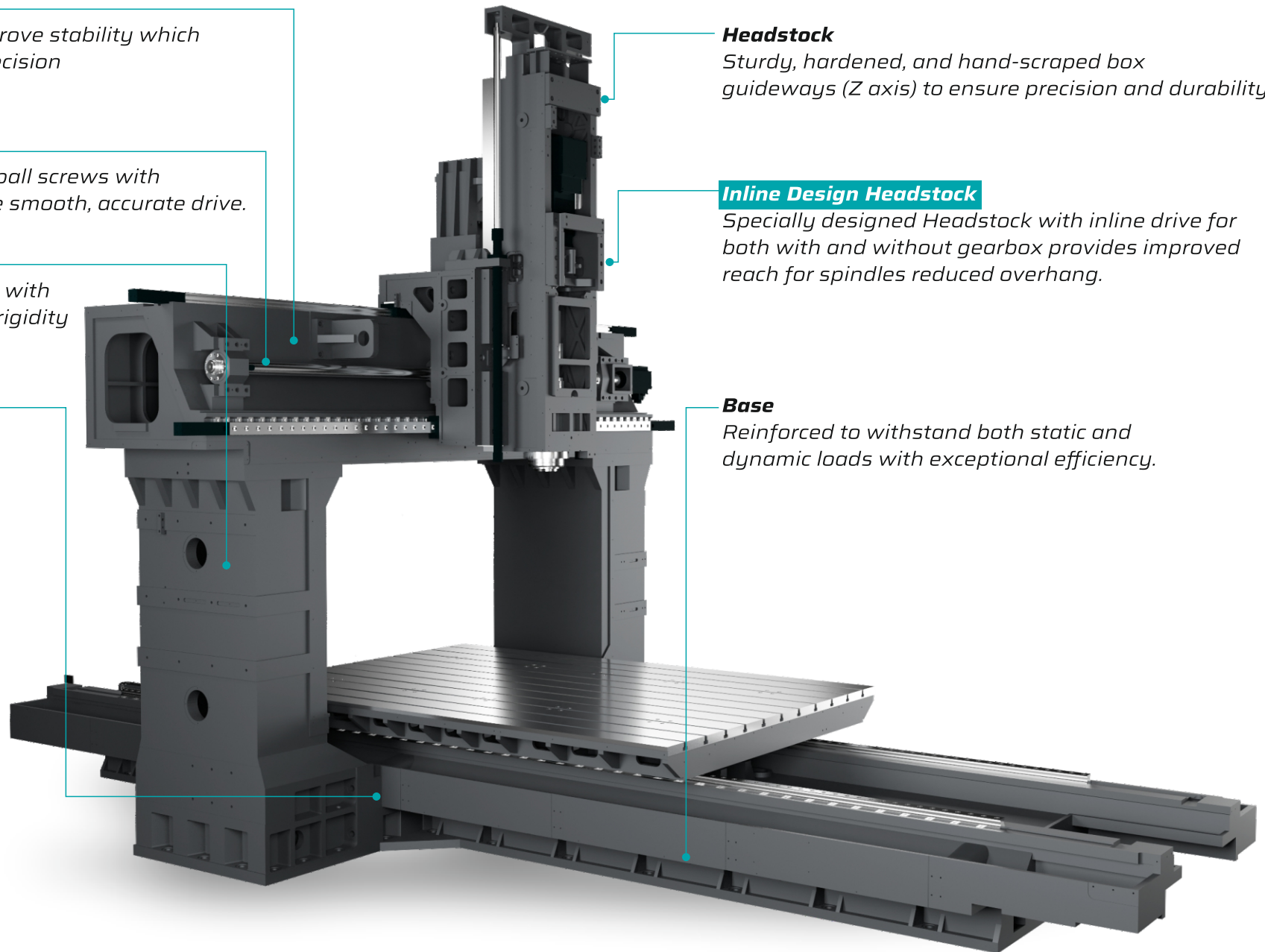
Sturdy, hardened, and hand-scraped box guideways (Z axis) to ensure precision and durability.

Inline Design Headstock

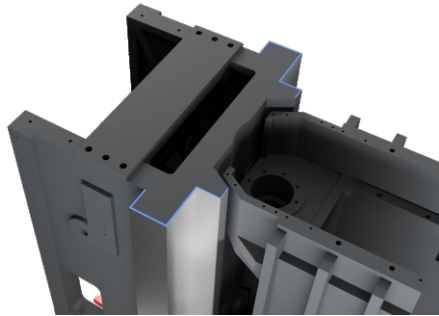
Specially designed Headstock with inline drive for both with and without gearbox provides improved reach for spindles reduced overhang.

Base

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

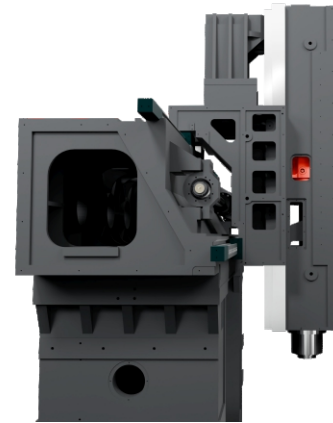


Key Features



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.



Step Type Beam for Improved Cutting Stability

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



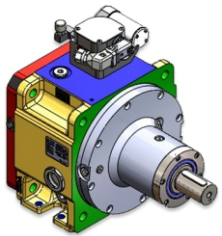
Direct Drive Spindle

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

The 22/26 kW geared drive spindle delivers up to 770/910 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.



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.

Machine User Interface

Boost Your Profitability by Achieving the Maximum with Ease

ZENEZ Control

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.

- Large 15-inch display
- Multi-touch User Interface
- Fully functional vertical and horizontal soft-keys for non-touch usage
- Crystal Type
- Enhanced hardware to ensure reliability

THE HOME SCREEN

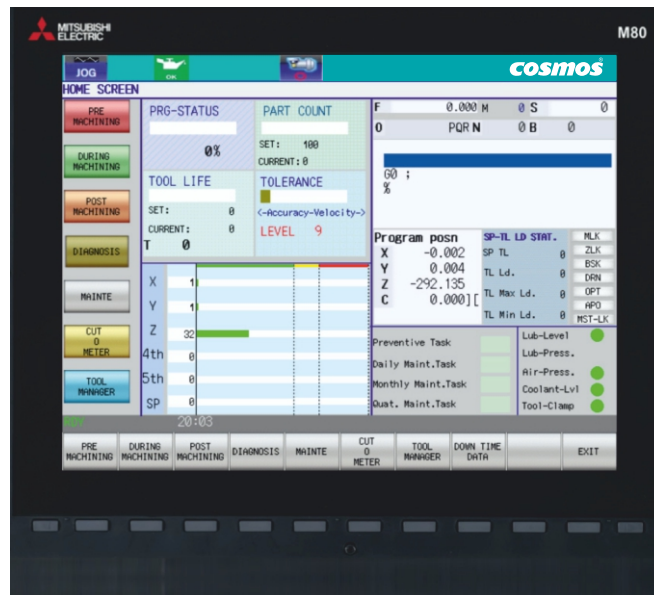
Status View

Program Status
Show Tool Life Status
Active Machining Condition
Part Count vs Total
Required

ZENEZ Menu

Pre-Machining APP
During Machining APP
Post Machining APP
Diagnosis APP
Maintenance APP
Tool Manager APP

Axis Load Meter



CNC View

Axis Feed Rate
Spindle rpm
Program Name
Sequence Number (N)
Block Number (B)
Program Buffer
Program Position
Spindle Load Stat

Maintenance Alert

An alert shows up if maintenance tasks are pending or one of the following is not normal:
Lubrication Level
Air Pressure
Coolant Level
Tool Clamp



Scroll
Scroll in lists - Tool and 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.

Optional Accessories

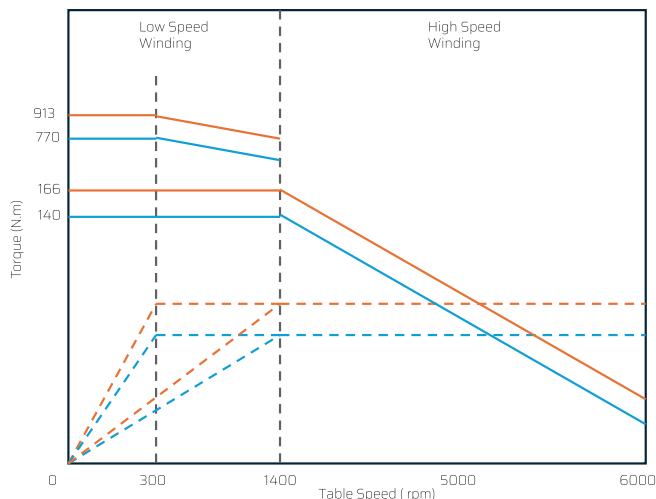
90° Angle Head

- 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

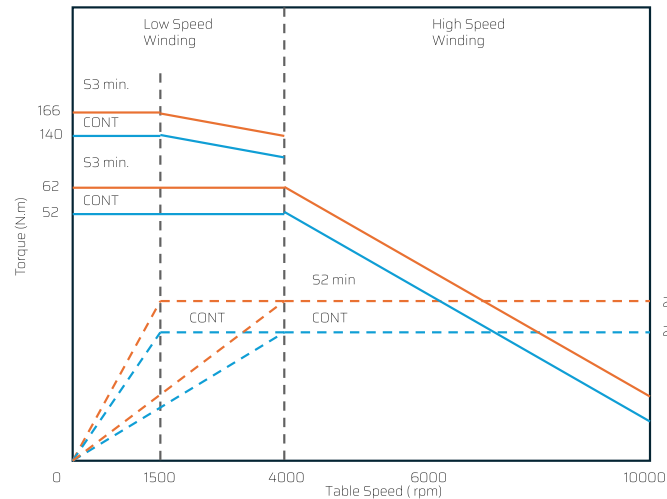


Spindle Speed / Torque Diagram

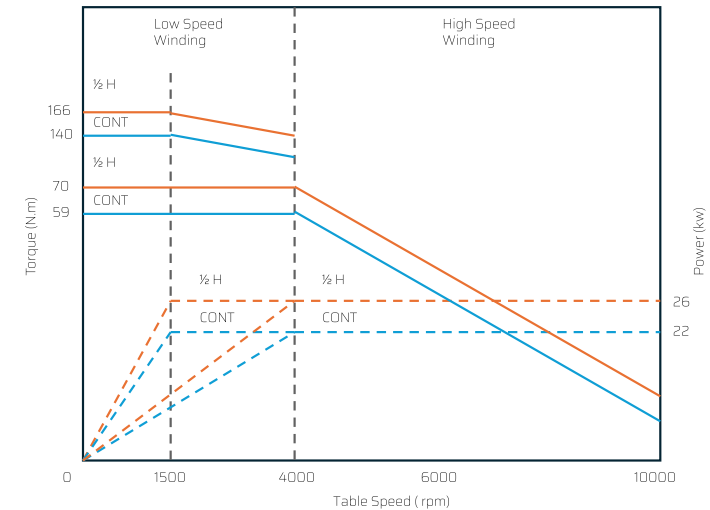
- 6,000 rpm with Gearbox
- 22/26 kW
- Mitsubishi / Fanuc



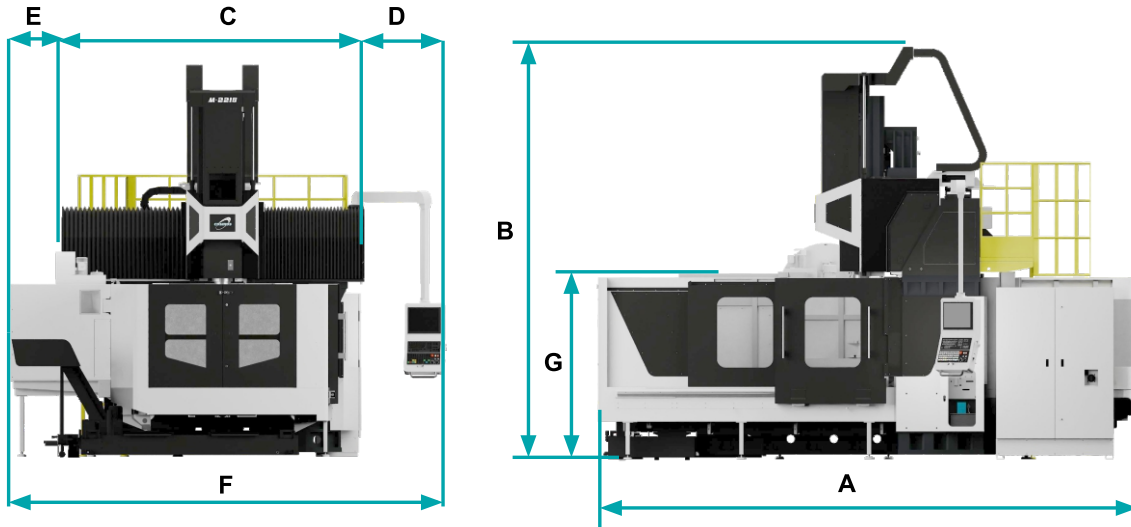
- 10,000 rpm (Opt)
- 22/26 kW
- Mitsubishi



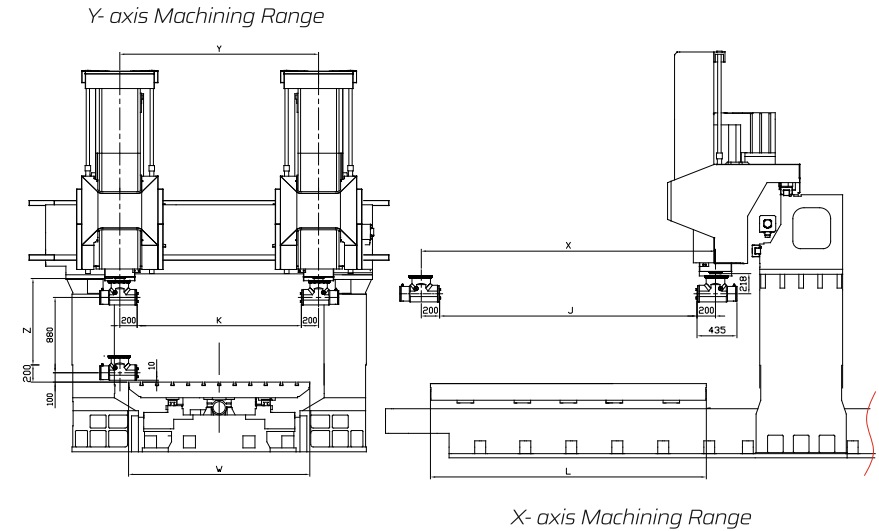
- 10,000 rpm (Opt)
- 22/26 kW
- Fanuc



Machine Layouts



| <i>Model</i> | <i>A</i> | <i>B</i> | <i>C</i> | <i>D</i> | <i>E</i> | <i>G</i> |
|--------------|----------|----------|----------|----------|----------|----------|
| M-2011 | 6720 | 4100 | 1970 | 920 | 900 | 2100 |
| M-2214 | 7050 | 4090 | 2060 | 910 | 900 | 2100 |
| M-2714 | 8050 | 4090 | 2060 | 910 | 900 | 2100 |
| M-3214 | 9050 | 4090 | 2060 | 910 | 900 | 2100 |
| 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 |



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

Machine Specifications

| | SPECIFICATION | UNIT | M-2011 | M-2214 | M-2714 | M-3214 | M-2218 | M-3218 | M-4218 | M-3223 | M-4223 |
|-----------------------|-----------------------------------|--------|--|-----------|-----------|-----------|------------|-----------|-----------|-----------|-----------|
| TABLE | Table Size | mm | 2200x900 | 2000x1200 | 2500x1200 | 3000x1200 | 2000x1500 | 3000x1500 | 4000x1500 | 3000x2100 | 4000x2100 |
| | T-slots size | mm | 22 | | | | | | | | |
| | Maximum Load | tons | 2.4 | 4 | 6 | 6 | 8 | 10 | 12 | 12 | 13 |
| TRAVEL | X Axis | mm | 2000 | 2200 | 2700 | 3200 | 2200 | 3200 | 4200 | 3200 | 4200 |
| | Y Axis | mm | 1100 | 1400 | | | 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 (8000, 10000) | | | | | | | | |
| | Taper | type | BT-50 | | | | BBT-50 | | | | |
| DISTANCES | Between two columns | mm | 1100 | 1400 | 1400 | 1400 | 1900 | 1900 | 1900 | 2400 | 2400 |
| | Spindle nose to table surface | mm | 140- 940 | 70 - 870 | | | 200 - 1200 | | | | |
| FEED RATE | Rapid Rate | m/min | 15/15/12 | | | | | | | | |
| | Cutting feed rate | mm/min | 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 | 18 | | | | | | | | |
| | No. of Tools | Nos. | 24 | | | | | | | | |
| COOLANT & LUBRICATION | Coolant tank volume | L | 640 | 640 | 640 | 640 | 450 | 450 | 450 | 640 | 640 |
| | Hydraulic tank volume | L | 70 | | | | | | | | |
| | Lubrication Oil Volume | L | 8 | | | | | | | | |
| MISCELLANEOUS | Power required | KVA | 50 | | | | | | | | |
| | Pressurized air | Bar | 7 | | | | | | | | |
| | Hydraulics required | kg/cm2 | 70 | | | | | | | | |
| | Machine Weight (approx) | tons | 16 | 18 | 20 | 22 | 22 | 26.5 | 31 | 29 | 32 |
| | Controller | type | Mitsubishi M80, Fanuc OiMF | | | | | | | | |

Standard Accessories / Features

- Mitsubishi/Fanuc
- Crystal Keys for MOP
- Direct Drive Geared Spindle with BBT 50 Taper (M2218 - 4223)
- Belt Drive Spindle with BT 50 Taper (M2011 - 3214)
- Spindle Speed - 6000 rpm
- Oil Cooler for Spindle and Gearbox
- X & Y with Roller Guideways
- Z Axis with Box Guideways
- 24 Tools ARM Type ATC
- Manual Pulse Generator
- 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)
- Gearbox for M2011 - 3214
- Zenp - AI base accuracy enhancement feature (thermal compensation)

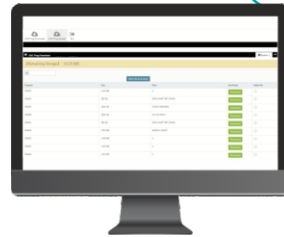
Note: Specifications and features are subject to change without prior notice. Please refer to the offer document, as it has precedence.

diFiAc FEATURES



Dashboard Monitoring

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



Program Transfer

- ▶ Upload programs from the computer to machines directly.
- ▶ Download programs and edit them from anywhere around the globe.



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.
- ▶ Shorter cycle-times (if modified).
- ▶ Eliminate NVA air time and improve your process.



Feed-rate Override and Underride Report

- ▶ Monitor adjustments in real-time.
- ▶ Understand impact on cycle times, output & efficiency.
- ▶ Records to speed up production or breaks ensures transparency and control.
- ▶ Ensuring faster production doesn't sacrifice precision.



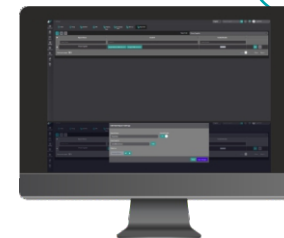
Production Information (Utilisation)

- ▶ 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.



Live OEE Monitoring

- ▶ Automate data collection and reporting.
- ▶ Imagine and display real-time OEE on the shop floor.
- ▶ Execute cross-functional daily reviews and conversation sessions.
- ▶ Use Root-Cause Analysis.

SMARTCONNECT+



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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