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For more details visit our website  
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Maximus\_Apr24



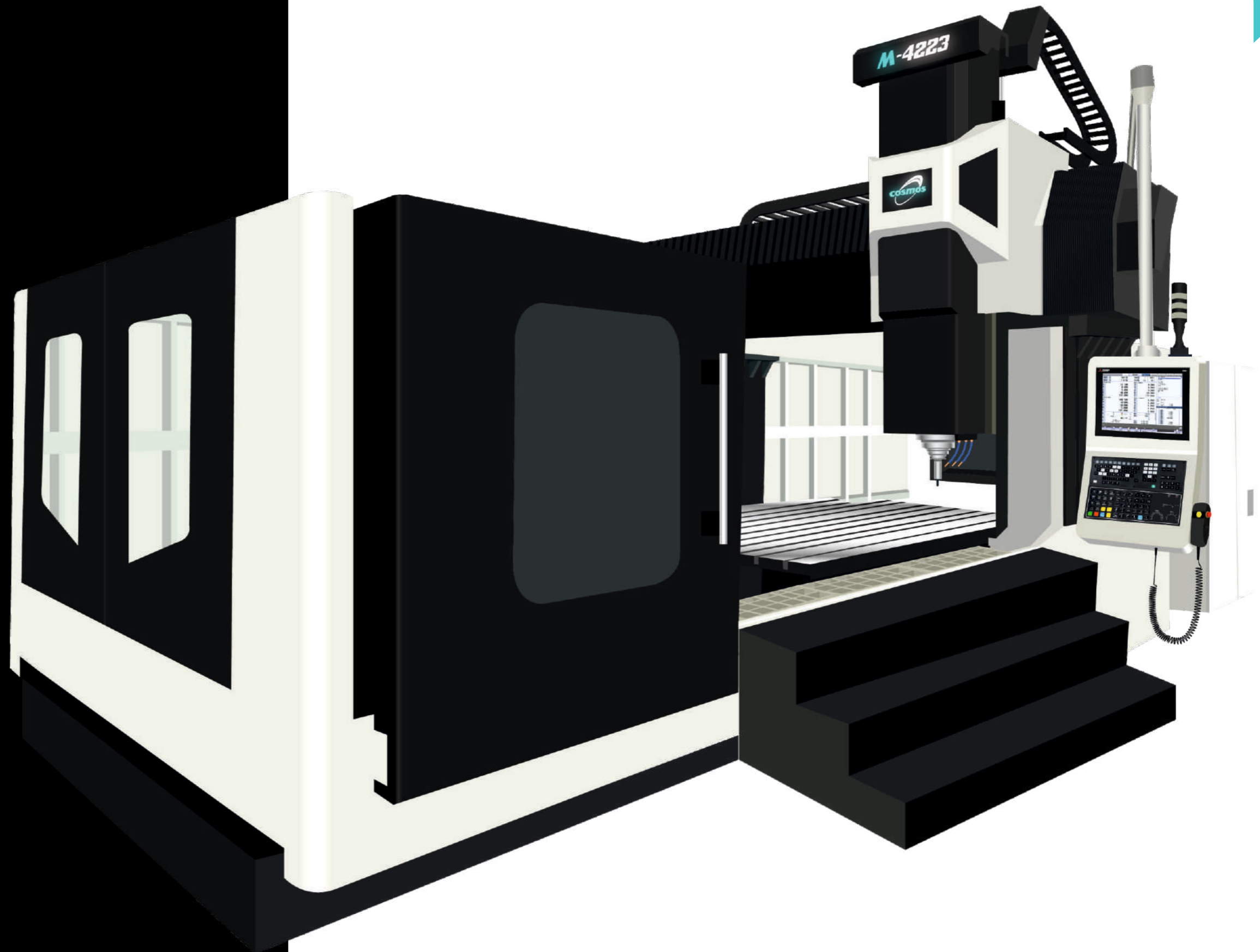
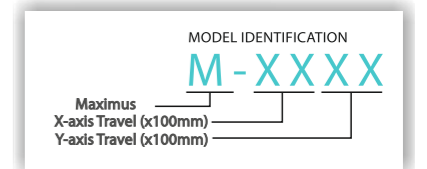
**MAXIMUS**  
Double Column Machine Center

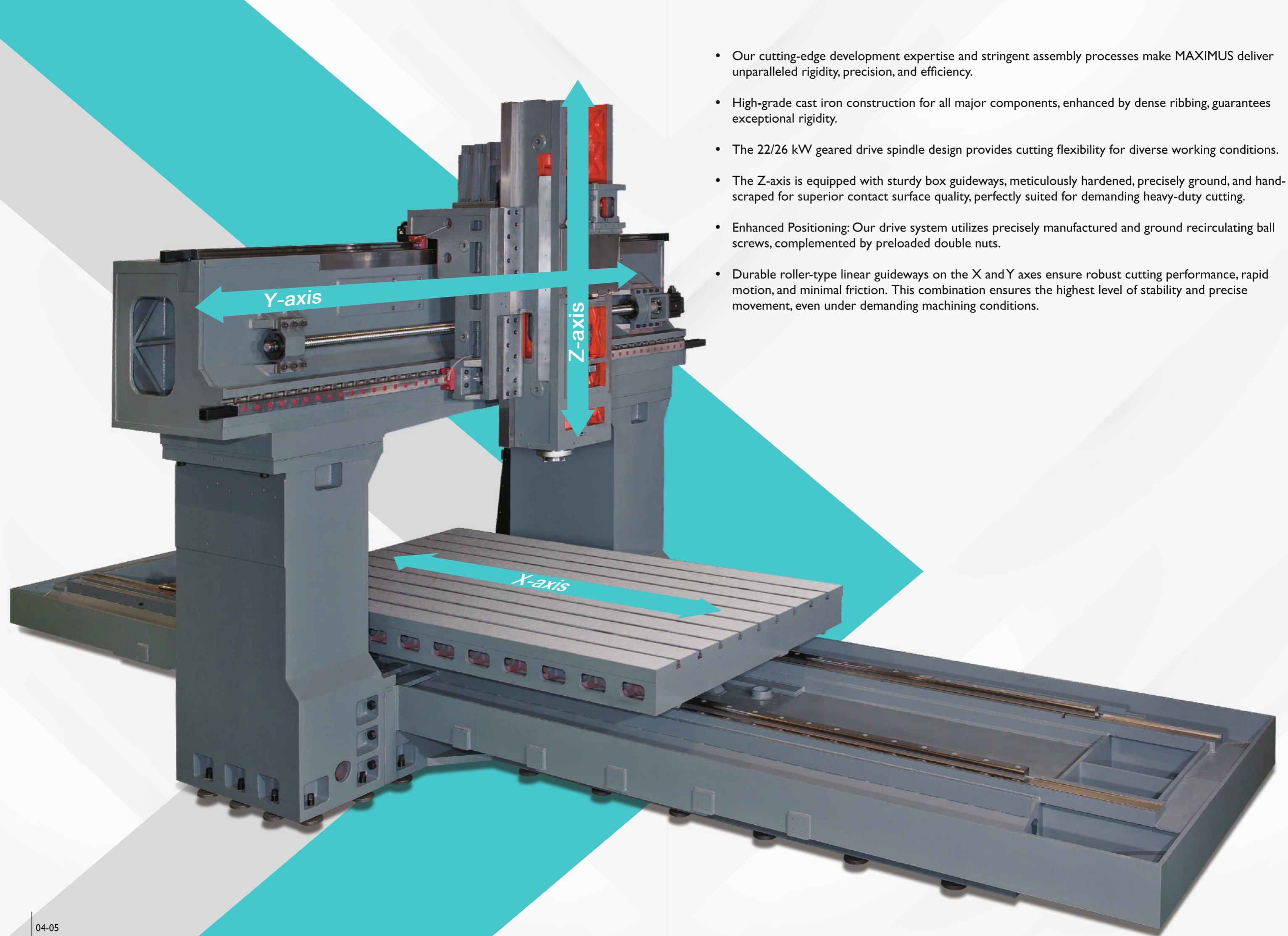
**COSMOS** proudly presents the

# MAXIMUS

CNC Bridge Type Vertical Machining Centers set new standards with their advanced machining features and capabilities.

- MAXIMUS is a high-power and high-torque generating machine, elevating cutting capabilities to deliver optimal results.
- Cutting-edge features like Zenez, Industry 4.0, and AI-enabled high-accuracy modes converge to set a new standard.
- MAXIMUS finds its ideal application in Precision Die & Mold, Aerospace, Energy, and Pump & Valve Industries, delivering exceptional performance.
- Equipped with a 90° head, MAXIMUS transforms into a 5-face machining center, ensuring versatility to meet both present and future demands.



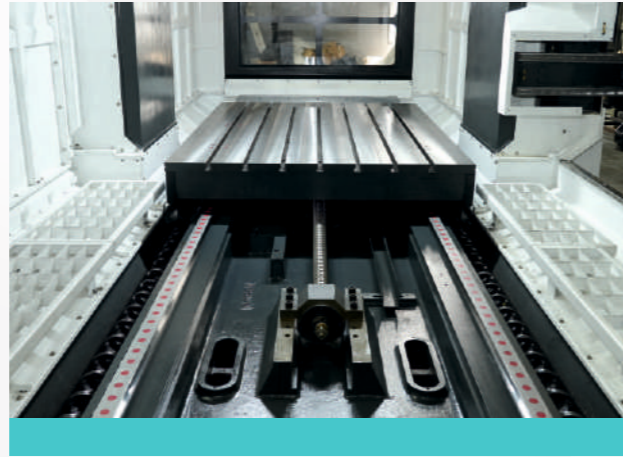


- Our cutting-edge development expertise and stringent assembly processes make MAXIMUS deliver unparalleled rigidity, precision, and efficiency.
- High-grade cast iron construction for all major components, enhanced by dense ribbing, guarantees exceptional rigidity.
- The 22/26 kW geared drive spindle design provides cutting flexibility for diverse working conditions.
- The Z-axis is equipped with sturdy box guideways, meticulously hardened, precisely ground, and hand-scraped for superior contact surface quality, perfectly suited for demanding heavy-duty cutting.
- Enhanced Positioning: Our drive system utilizes precisely manufactured and ground recirculating ball screws, complemented by preloaded double nuts.
- Durable roller-type linear guideways on the X and Y axes ensure robust cutting performance, rapid motion, and minimal friction. This combination ensures the highest level of stability and precise movement, even under demanding machining conditions.

## ➤ The Base & 'X-Axis'

Our base and table assembly are substantially reinforced to withstand both static and dynamic loads with exceptional efficiency.

The X-axis is equipped with two German Schneeberger MR55 roller guideways. These guideways provide minimal friction, ensuring smooth and precise movement.



## ➤ The stepped Beam & 'Y-Axis'

The Y-axis features an oversized stepped beam construction, carefully engineered to enhance cutting stability.

This design incorporates two high-quality German Schneeberger MR65 guideways, with one mounted on top and another at the front.

This configuration minimizes deflection and significantly improves the precision of the cutting process.



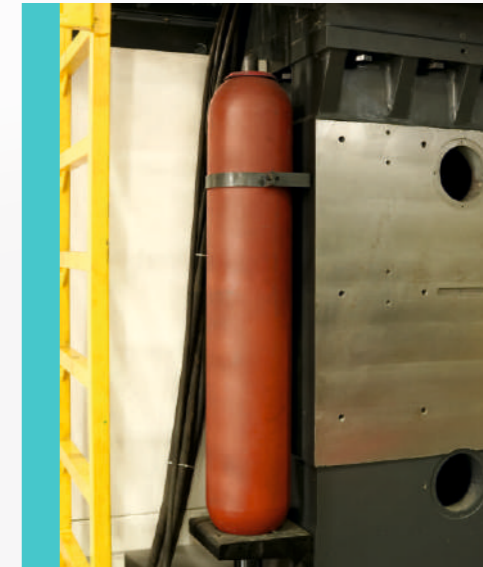
## ➤ Head Stock 'Z-Axis'

The Z-axis is equipped with sturdy box guideways that are induction-hardened, precisely ground, and meticulously hand-scraped to ensure superior contact surface quality.

The increased contact surface of the box guideway is perfectly suited for demanding heavy-duty cutting.



## ➤ Balancing and Accumulator:



The Z-axis movement is effectively balanced through the use of dual hydraulic cylinders and a nitrogen accumulator. A bladder accumulator is strategically employed to equalize hydraulic pressure fluctuations, effectively mitigating the impact of sudden power failures.

Specifically, the Hydac nitrogen bladder plays a pivotal role in precisely balancing the Z-axis and reducing the load on the Z-axis motor.

This system extends an additional benefit by securing the Z-axis position in the event of an unforeseen power interruption. It not only enhances Z-axis movements but also showcases remarkable flexibility and dynamic stability. Furthermore, it significantly contributes to energy conservation.

## ➤ Heavy duty Column Reduced Cutting Vibration

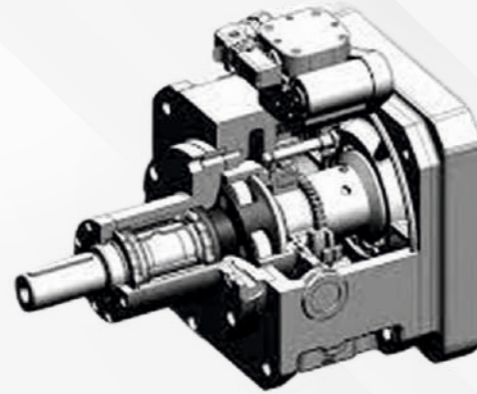
The heavy-duty column, in combination with scientific rib reinforcement, helps to maximize structural rigidity and provides a more efficient transfer of cutting forces to the machine base. This design reduces vibration and improves surface finish.



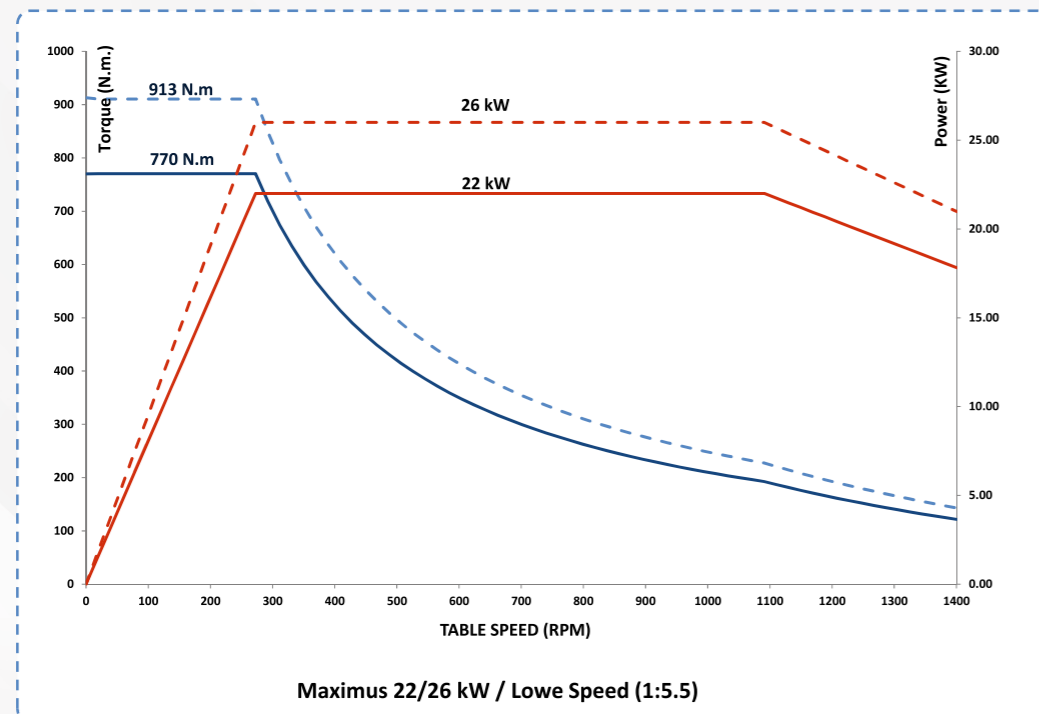
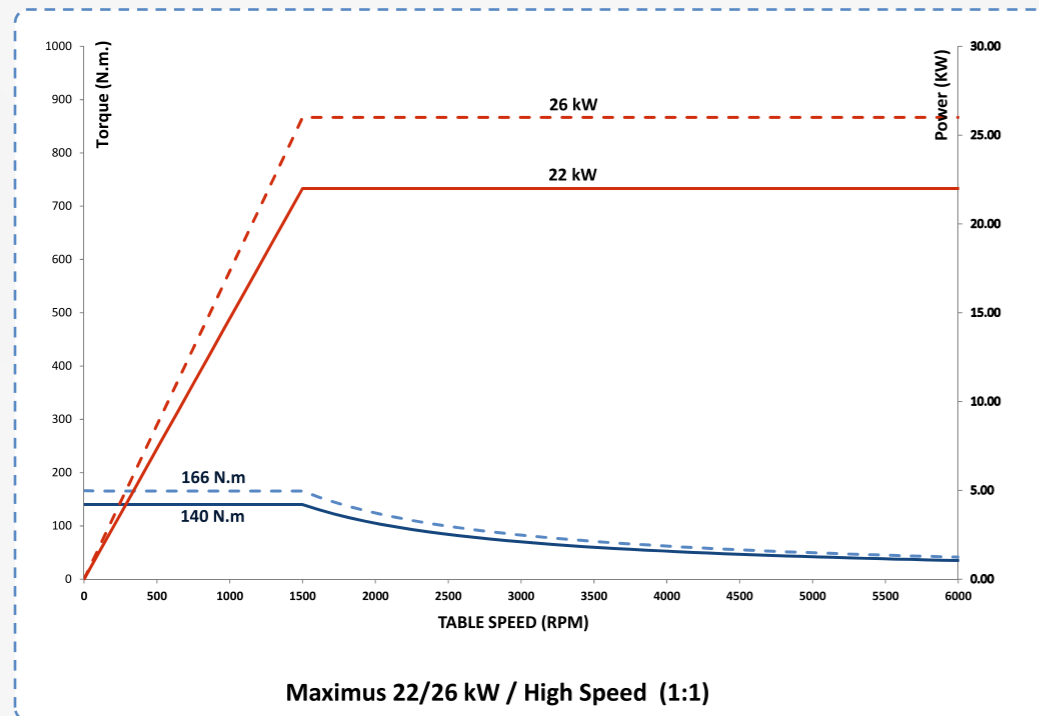
## Two Speed Gear Box GTP Gear Box (1:5.5)

A 22/26 kW spindle with a dual-stage gearbox head churns out a massive 913 Nm of torque.

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



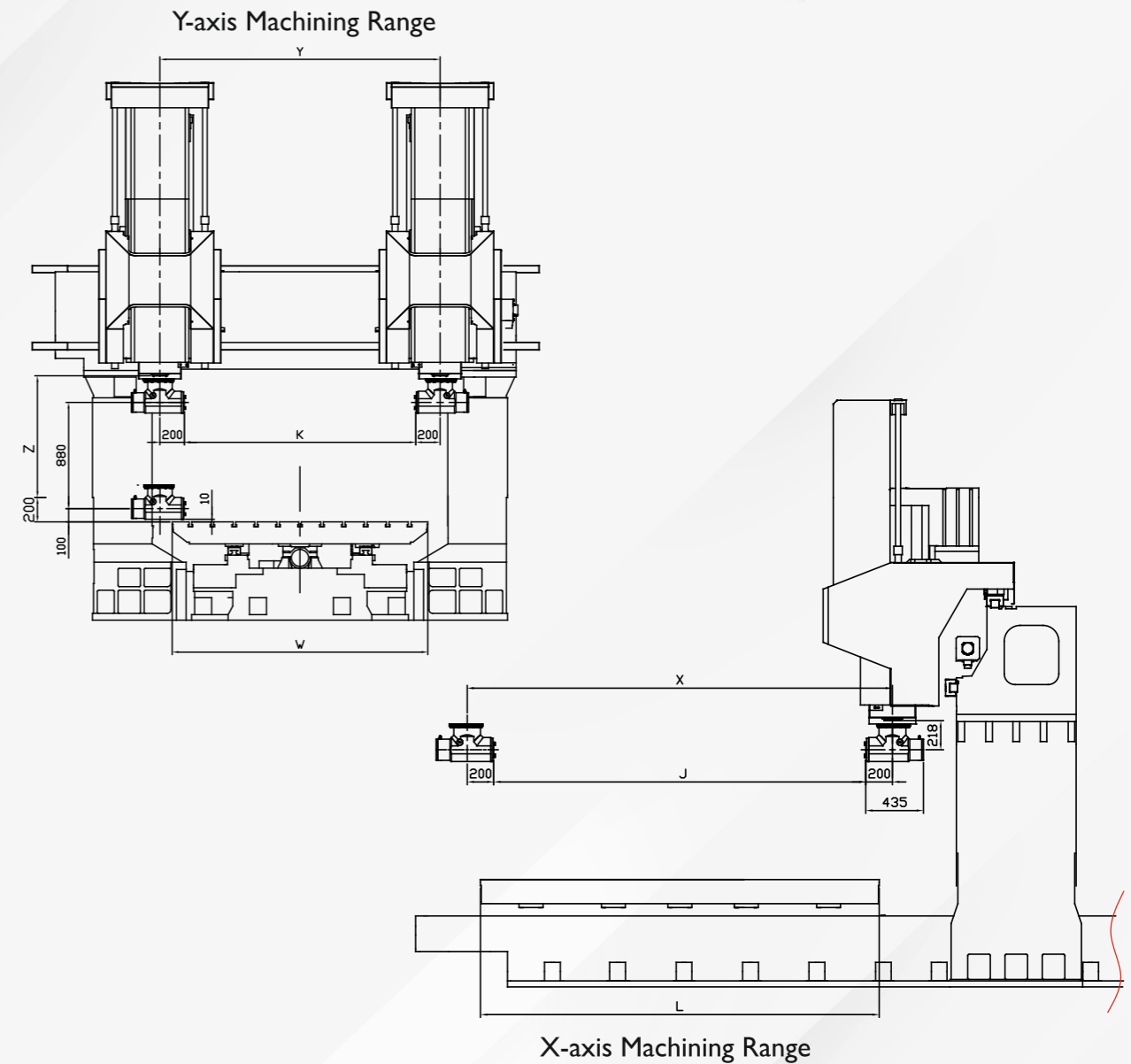
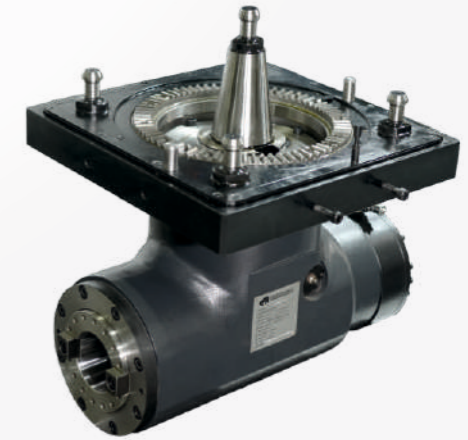
## Spindle Speed / Torque Diagram (Mitsubishi & Fanuc)



## Optional Accessories

### Manual 90° Head with Auto Indexing (90° x 4)

- Hydraulic Head Clamp with 4 Pull Stud
- Auto 90° Index
- Hydraulic Tool Clamp
- Parking Station with Manual Movement
- Cover for Hirth Coupling



Model	L	W	X	Y	Z	J	K
M-2218		1500		1800	1000 (200-1200)	1800	1400
M-2223	2000	2100	2200	2300			1900
M-2223		2100		2800			2400
M-3218		1500		1800		2800	1400
M-3223	3000	2100	3200	2300			1900
M-3223		2100		2800	2400		

## Optional Accessories

### Linear Scale for axes



#### FAGOR LINEAR SCALE FOR ACCURATE POSITIONING

Our Fagor linear scale offers precise position measurement for linear axes without the need for additional mechanical transfer elements. This eliminates potential errors in the transmission system.

The aluminum housing of the linear scale provides protection for the scale, scanning carriage, and guideway, shielding them from chips, dust, and fluids. The scale is scanned using a non-contact photoelectric method, eliminating any mechanical wear and contact-related issues.

### Work Piece Measurement Probe :

Probe systems offer an excellent solution for enhancing the operational efficiency of machine tools.

Utilizing probes on CNC machines facilitates part identification and setup, enables measurements within the automated cycle, and verifies the dimensions of finished components.



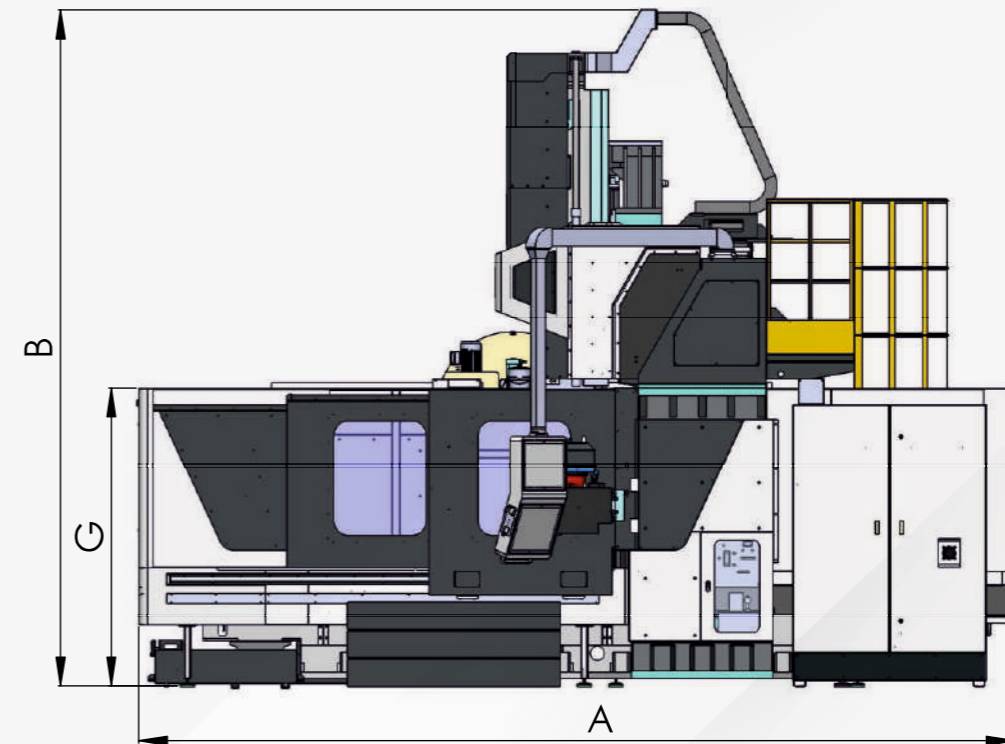
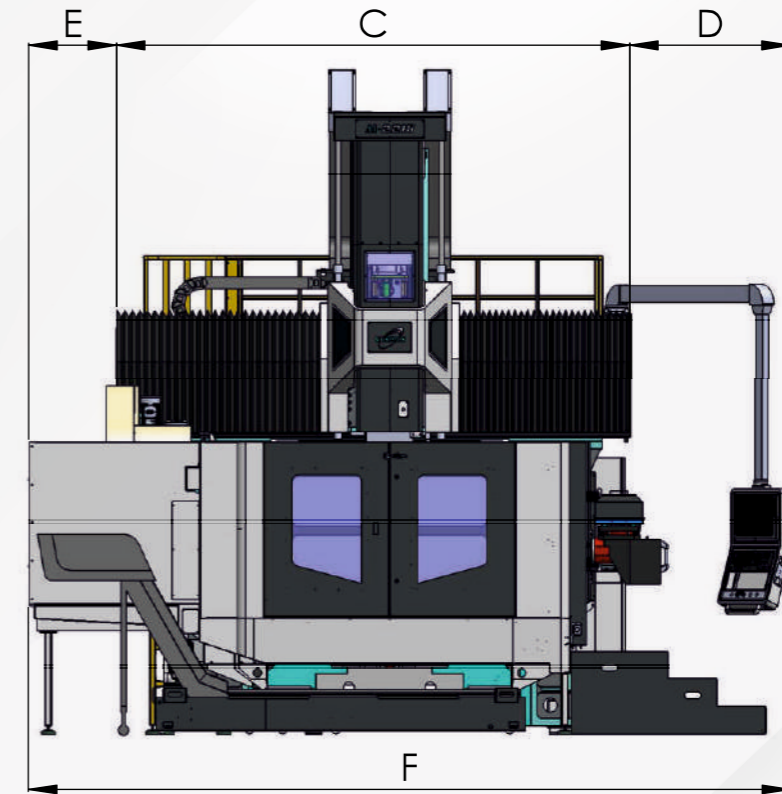
### Tool Length & Diameter Measurement Probe:

An innovative, cable-free solution for swift and precise on-machine tool setting and efficient broken tool detection, enhanced by superior communication capabilities.



The cable-free design of the RTS allows it to be utilized as a stand-alone tool or seamlessly integrated into a multi-probe system, making it versatile for a wide array of applications. It empowers users with the ability to detect broken tools and rapidly measure the tool length and diameter for a diverse range of tools.

## Machine Dimensions



Model	A	B	C	D	E	F	G	H	J
M-2218	6200	4800	3700	1200	900	5800	2100	6000	8800
M-2223			4200			6300		6500	
M-3218	8200	4800	3700	1200	900	5800	2100	6000	10800
M-3223			4200			6300		6500	

## Optional Productivity Softwares

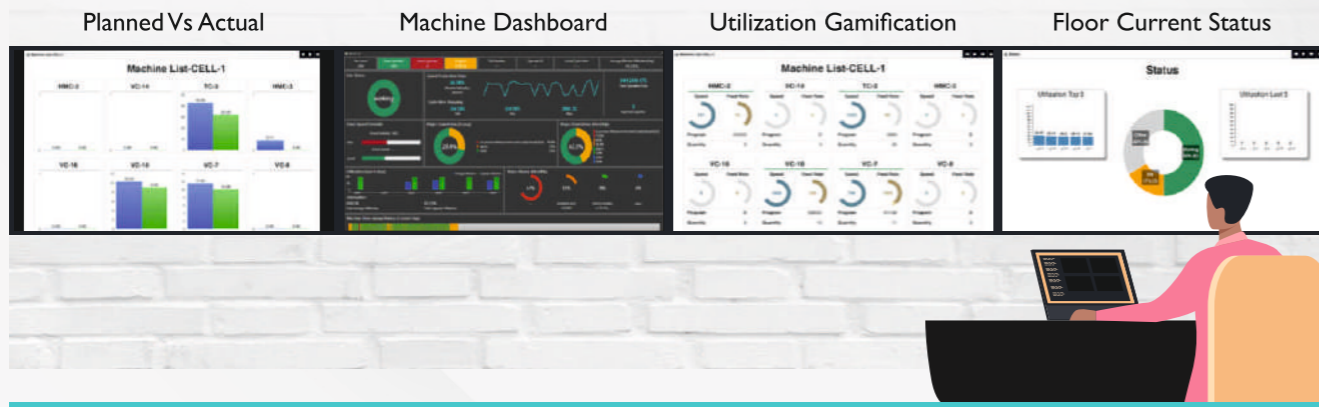
### digifac

#### INDUSTRY 4.0 (IIOT SOLUTION)

Monitor performance in real-time & spend less time reporting

Staying updated on your production performance is essential for your business. But you don't want to waste too much time trying to get the right information.

Use **DASHBOARD** to monitor all your production items in real-time. Display graphs and generate reports about different aspects of your value streams within seconds. Need to check KPIs from all systems and apps that you use in your plant? Login into the **DIGIFAC Web Portal**, a tool for factory management.

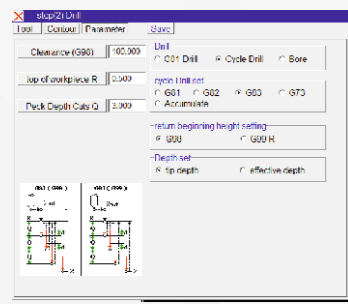


### ZENCAM

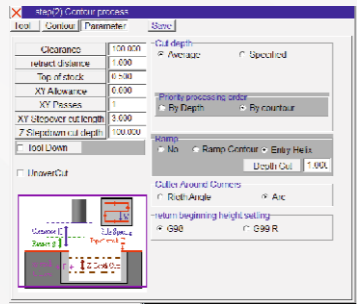
#### CAM SOLUTION

Easy | Smart | Economic | Versatile

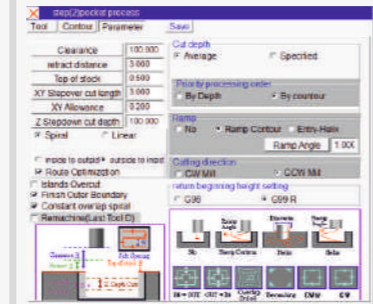
#### DRILL (DRILLING CYCLES)



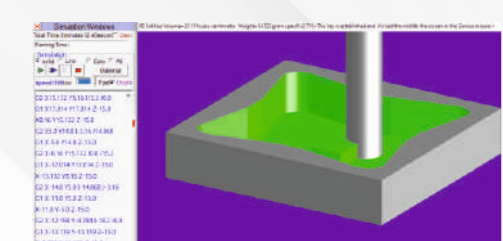
#### CONTOUR



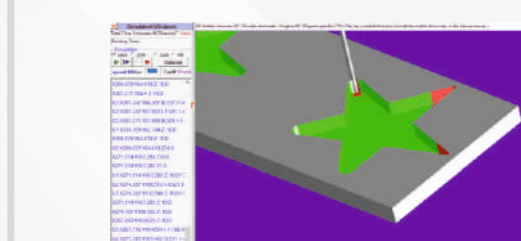
#### POCKET



#### POCKET MACHINING



#### PRE-MACHINING



#### Key Features

- 2.5 D machining • Toolpath for engraving • Pocket Milling • Contour Milling • Facing
- All Drilling, Boring, Tapping cycles • Thread mill cycle • Spiral machining • Rest machining
- Tool library creator • 4th Axis program (Only Positioning)

## ZENEZ Control

BOOST YOUR PROFITABILITY BY ACHIEVING THE MAXIMUM WITH EASE

ZENEZ Control helps connecting your operator & machine in a mutually beneficial bond. Now operators can utilize on board dashboards and tools to maximize your Profits.



- 10.4-inch Display or large 15-inch display
- MultiTouch User Interface
- Fully Functional Vertical and Horizontal Soft-keys for non-touch usage
- CrystalType
- Enhanced hardware to ensure Reliability

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

Tap  
Tap to move cursor or navigate through the menus

Pinch  
Zoom-in & out of graphic content during simulation mode

#### THE HOME SCREEN

- Status View
- Program Status
- Show Tool life status
- Active Maching 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

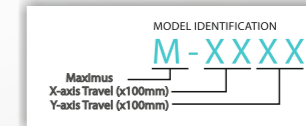


#### CNC View

- Axis Feed-rate
- Spindle rpm
- Program Name
- Sequence number (N)
- Block number (B)
- Program buffer
- Program Position
- Spindle Load Stat

#### Maintenance Alert

- Alert shows up if maintenance task are pending or one of the following is not normal
- Lubrication Level
  - Air Pressure
  - Coolant Level
  - Tool Clamp



## MACHINE SPECIFICATIONS

	MODEL	UNIT	M-2218	M-3223	M-4223
TABLE	Table Size	mm	2000x1500	3000x2100	4000x2100
	T-slots size	mm	22 x 180 x 7	22 x 180 x 11	22 x 180 x 11
	Maximum Load	tons	8	12	13
TRAVEL	X - Axis	mm	2200	3200	4200
	Y - Axis	mm	1800	2300 (2800)	2300 (2800)
	Z - Axis	mm	1000	1000	1000
SPINDLE	Spindle servo motor-cont/30min.	kW	22/26	22/26	22/26
	speed	rpm	6000	6000	6000
	Taper		7/27 taper ISO.50, BT-50	7/27 taper ISO.50, BT-50	7/27 taper ISO.50, BT-50
DISTANCES	Between two columns	mm	1900	2400	2400
	Spindle nose to table surface	mm	200~1200	200~1200	200~1200
FEED RATE	Minimum setting	mm/min	15 / 15 / 12	15 / 15 / 12	15 / 15 / 12
	Cutting feed rate	mm/min	1~10000	1~10000	1~10000
ATC	No of tools	pieces	24 (32/40)	24 (32/40)	24 (32/40)
	Tool change time-T to T (approx.)	sec	8 ( Arm type )	8 ( Arm type )	8 ( Arm type )
	Max. tool-diameter / length	mm	Ø 125/Ø 200 (Without adjacent tool)/length 350	Ø 125/Ø 200 (Without adjacent tool)/length 350	Ø 125/Ø 200 (Without adjacent tool)/length 350
	Max. tool weight	kg	15	15	15
COOLANT & LUBRICATION	Coolant tank volume	L	450	640	640
	Hydraulic tank volume	L	70	70	70
	Lubrication tank volume	L	8	8	8
MISCELLANEOUS	Power required	KVA	50	50	50
	Pressurized air	kg/cm <sup>2</sup>	7	7	7
	Hydraulics required	kg/cm <sup>2</sup>	70	70	70
	Machine weight ( approx. )	tons	22	29	32
	Controller		Fanuc OiMF ( Mitsubishi M80, Siemens 828D )	Fanuc OiMF ( Mitsubishi M80, Siemens 828D )	Fanuc OiMF ( Mitsubishi M80, Siemens 828D )

■ Specifications are subject to change without prior notice.

### Standard Accessories

- Mitsubishi / Fanuc OiMF
- Spindle speed 6000 RPM
- Geared head spindle with BT#50 spindle
- Spindle oil cooler
- X & Y axes with roller guide ways
- Z axis with box guide ways
- 24 tools ARM type ATC
- Manual pulse generator
- Coolant splash guard
- Two chip screw and one belt type chip conveyor and bucket

- Air conditioner for electrical cabinet
- Automatic lubrication unit
- Coolant system
- Spindle air blast
- Automatic power off
- Work lamp / Tower lamp
- Transformer

### Optional Accessories

- Siemens 828D
- 32/40 Tools ATC
- Linear scales for X, Y & Z axes
- Coolant thru spindle 20 bar
- Tool length measurement ( Renishaw TS-27 )
- Renishaw Probe ( Primo Kit ) or RMP 60
- Manual 90° head ( Auto 90x4 index / 3500 RPM )