

UNIMILL Series

5-axis Simultaneous Machining Centres



UM 400 (AX / AF) | UM 680 | UM 800

Crafting Machines of **Tomorrow**

Bringing precision and innovation to the forefront of industrial manufacturing, Cosmos has been a pioneer in the machine tool industry since 1987. Providing versatile and high-performance solutions, including vertical machining centres, drill tap centres, surface grinding machines, vertical lathes, and many more, Cosmos provides Indian and global industries with the latest technological advancements.

At Cosmos, growth is driven by more than just innovation; it's guided by a deeper purpose - bringing joy and meaning to people's lives. Every machine we create reflects this philosophy, blending precision with heart to ensure progress isn't just about staying ahead but about sparking happiness along the way. For us, every advancement is a step toward a future where innovation and 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 promises. They define our aspirations, guide our path, and reflect our commitment to excellence. By aligning with these, we strive to make a positive and lasting impact.

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

SINCERITY

Drives our relationships, building trust with every interaction.

DISCIPLINE

Ensures precision and excellence in all we do.

INTEGRITY

Forms the backbone of our identity, as we stand by our commitments.

ETHICAL PRACTICES

Underpin every decision, reflecting our moral compass.

HARMONY

Guides our teamwork, fostering collaboration across boundaries and providing best customer experience.

SUSTAINABILITY

Fuels our responsibility towards future generations.

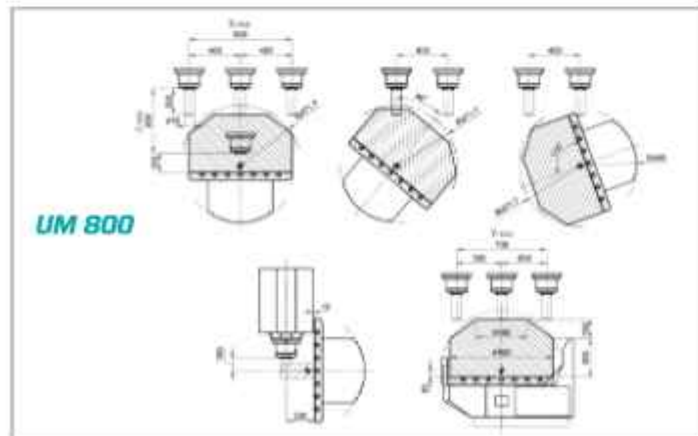
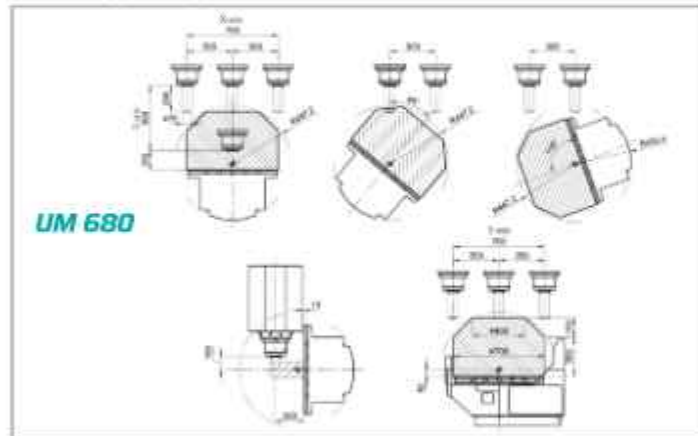
UM 5AX 680 / 800

Simultaneous Five Axis Machining Centres

Bed-mounted - 5-axis Table

- Fully Supported Table, is Bed-mounted at both ends by the base ensuring a stable foundation for the rotary axes.
- Both rotary axes are roller-cam driven to ensure high speed, zero backlash, and low friction, allowing efficient and smooth transmission with minimal heat generation for precise operation.

Working Range



Ergonomic Design

User-friendly Operation Space

- The operation space design ensures a minimum distance of 200mm for manual tool changes.

Swivel Operation Panel

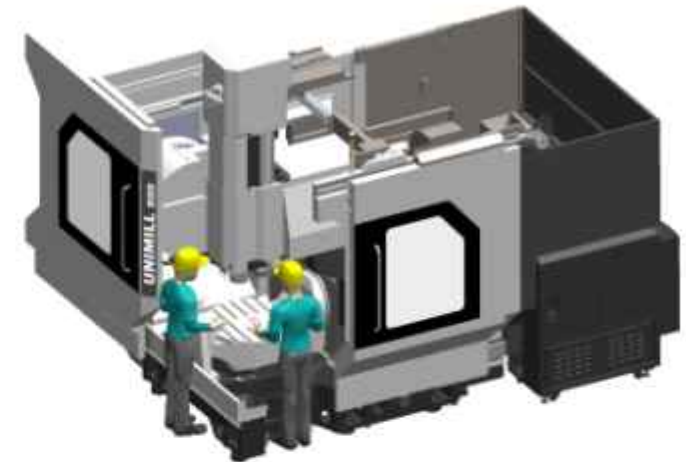
- Can be adjusted to any position and angle, providing flexibility for the operator.

Double-door Opening

- The wider space of double-door opening makes workpiece easier to be loaded and unloaded.

Indication Light Bar

- The indication light bar shows the machines status, allowing constant monitoring of its operation.

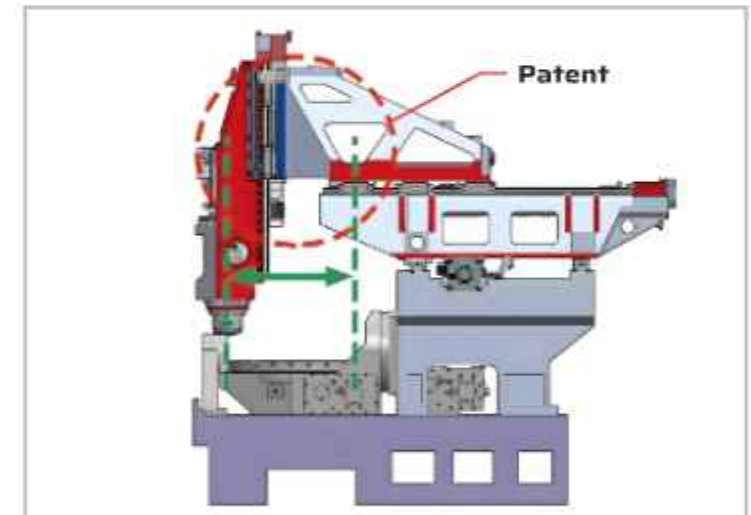
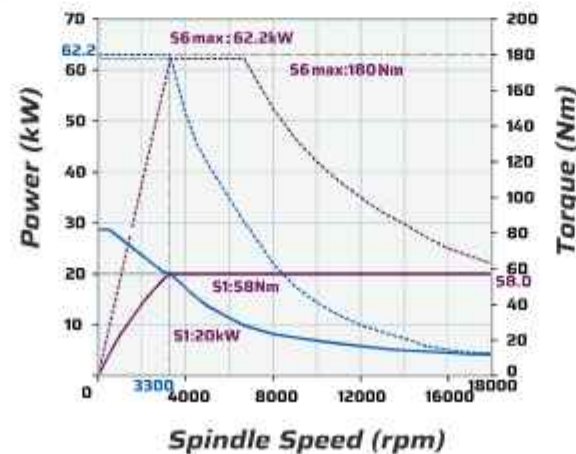


Distance of User Operation	UM 680	UM 800
r (Tool to user)	200	200
R (Table centre to user)	590	590
f (Tool to user)	280	280
F (Table centre to user)	630	630

High Speed Spindle HSK-A63

Direct-drive Spindle Speed up to 18,000 rpm

(Optional) 20 / 62.2kW, 58 / 180Nm



Full Stroke Support (Patent Applied)

- The Full Y-axis travel, supported to guarantee the most dynamic levelling accuracy and no bending and distortion problem.

UM 5AX 400 / 5AF 400

*Simultaneous Five Axis Machining Centre
Five Face Machining Centre (4+1 Axis Simultaneous)*

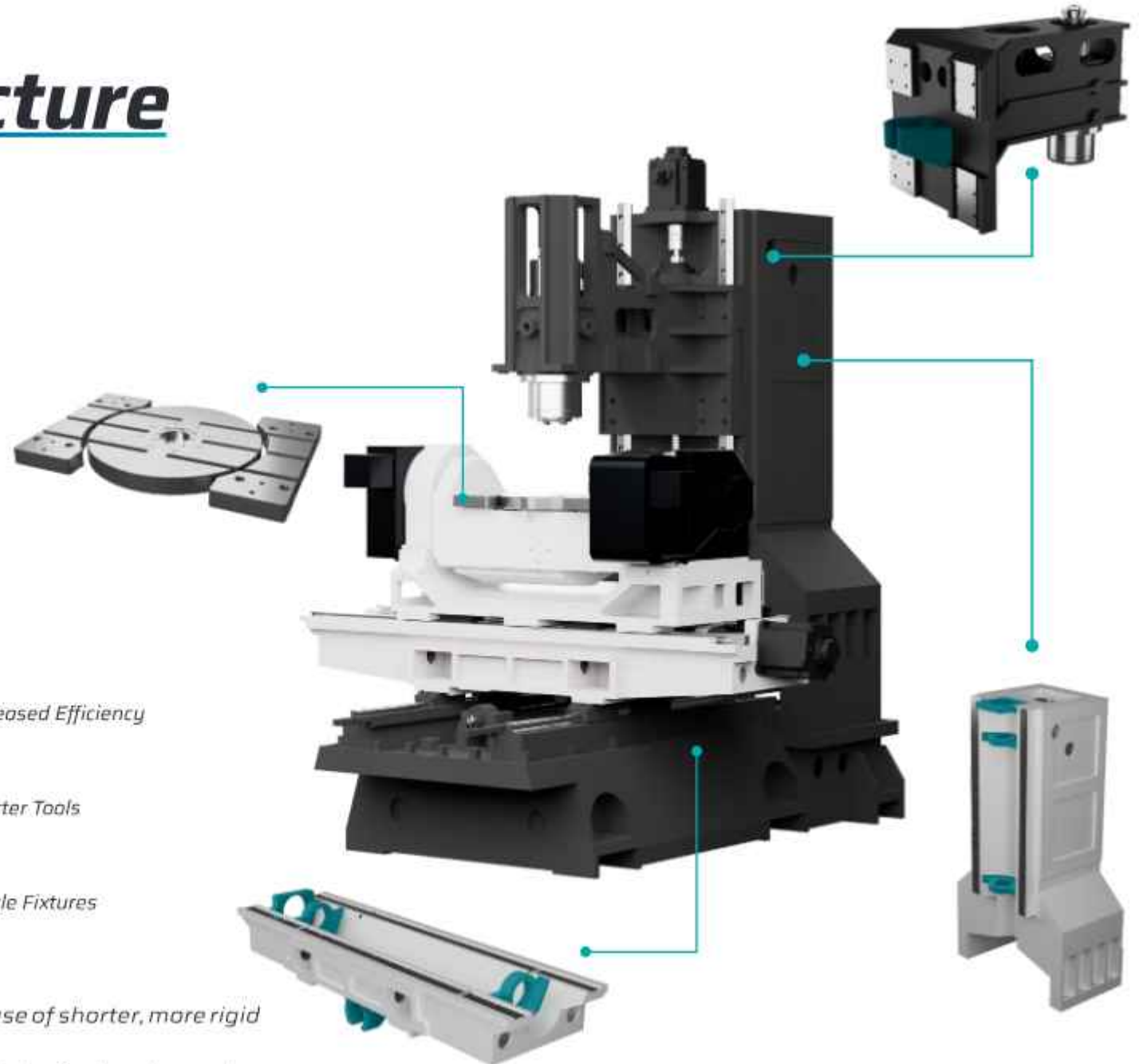
Complex Parts In '1 Setup'

- *Additional setups are eliminated reducing the potential for error and time spent repositioning a part. Provides access to all five sides of a prismatic workpiece, allowing more efficient machining.*
- *Being able to eliminate additional setup on prismatic workpiece.*
- *This technology is applicable across a wide range of applications and offers surprisingly affordable cost-effectiveness.*



Unity Structure

with Integrated Table



Single Setup



Increased Efficiency



Quicker Lead Time



Shorter Tools



Higher Accuracy



Single Fixtures

- *With 5-axis machining allows the use of shorter, more rigid cutting tool that can be angled.*
- *Toward the workpiece surface for faster feed and speeds.*

Fagor Controller



Automatic Kinematic Calibration

During the start-up of the machine or due to its continuous use or due to some incident, if recalibration is required, this controller can automatically do it.



HSSA (High Speed Surface Accuracy)

You can easily select the type of machining you want to obtain:

- As fast as possible (roughing)
- As accurate as possible
- The best surface quality



DMC (Dynamic Machining Control)

With this feature, the CNC automatically adapts the machining feed rate according to the tool force (load).



3+2 and 5-axis Machining

- Library of kinematics. Work in inclined planes, 3+2, 4+1 and continuous 5-axis RTCP machining.



Visual and Modern Navigation



Drop-down Menus



Customisation



Ergonomic Keyboard



Works with a Mouse



Built-in Calculator

Machine Specifications

Specifications	Units	Simultaneous 5 Axis			
		UM 400 (5AF)	UM 400 (5AX)	UM 680	UM 800
X-axis	mm	700	700	700	800
Y-axis	mm	510	510	700	700
Z-axis	mm	600	600	500	500
A-axis	degree	+30 / -120	+30 / -120	+120 / -120	+120 / -120
C-axis	degree	360	360	360	360
Spindle Nose to Table Surface	mm	71-671	71-671	150-650	150-650
Spindle Nose to Table Surface	mm	Rectangle 620 x 410, Table with 410 Dia Rotating Table	Rectangle 620 x 410, Table with 410 Dia Rotating Table	Dia. 680	Dia. 800
Maximum Loading Capacity	mm	200 / 150	200 / 150	500 / 300	800 / 800
Spindle Speed	rpm	10,000 (12,000)	12,000	15,000	18,000
Spindle Type	-	Belt Drive (Direct Drive)	Direct Drive	Direct Drive	Direct Drive
Mitsubishi Motor Power	kW	11 / 15 / 18.5	11 / 15 / 18.5	11 / 42	20 / 62.2
Spindle Taper	-	BBT 40 / HSKA63	BBT 40 / HSKA63	BBT 40 / HSKA63	BBT 40 / HSKA63
Controller	-	Mitsubishi, Fanuc	Fagor	Fagor	Fagor
Rapid Traverse Rate	m/min	30	30	48	48
Cutting Feed Rate	m/min	10	10	20	20
Tool Nos. Capacity	Nos	30	30	32	32
Max. Tool Length	mm	250	250	250	250
Max. Tool Weight	kg	7	7	7	7
Tool Dia. (with Adjacent Tool)	mm	80	80	75	75
Tool Dia. (without Adjacent Tool)	mm	150	150	127	127
Tool Changing Time (Tool to Tool)	mm	2.5	2.5	-	-
Positioning Accuracy	mm	0.01	0.01	0.01	0.01
Positioning Repeatability	mm	+/- 0.003	+/- 0.003	+/- 0.003	+/- 0.003
Indexing Accuracy (Rotary/Tilting)	inch	15° / 20°	15° / 20°	15° / 11°	15° / 11°
Machine Weight	kg	7	7	7	7
Power Requirement	kVA	7	7	7	7

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

UM 5AX 400, UM 5AF 400

Standard Accessories

- Mitsubishi M80 Controller (UM 5AF)
- Spindle Speed: 10,000 rpm BBT-40 Belt Drive (UM 5AF)
- Fagor Controller (UM 5AX)
- Spindle Speed: 12,000 rpm BBT-40 Direct Drive (UM 5AX)
- Built in 4th & 5th Axis Trunnion Table
- ATC 30 Tools
- Automatic Lubrication System
- Spindle Air Blast
- Rollout Chip Tray
- Chip Flushing
- Ring Coolant
- Inbuilt Coolant System
- Coolant Gun & Air Gun
- Oil & Coolant Separator
- Manual Pulse Generator

Optional Features

- Coolant through Spindle
- Chip Type Chip Conveyor & Bucket
- Air Conditioner for Electrical Cabinet
- Auto Power Off
- Linear Scales for all Axes
- Rotary Encoder

UM 680, UM 800

Standard Accessories

- Fagor 5-axis Controller
- Tilting and Rotary Table
- ATC 32 Tools
- Spindle Cooler
- Spindle Air Blast
- Standard Enclosed Splash Guard (no roof)
- Steel Belt Type Chip Conveyor
- Oil Skimmer
- Hydraulic Pressure System
- Levelling Blocks and Bolts
- Tool Kits
- Operation Manual

Optional Features

- Siemens 5-axis Controller
- Angle Encoder
- ATC 48/60 Tools
- Built-in Spindle
- Tool Length Measurement System
- Workpiece Measurement System
- Oil Mist Cutting System
- Oil Mist Collector
- CTS

Our Other Machine Series

- ***CVM Series***
High Performance Vertical Machining Centres
- ***SMARTMILL / TAPMILL Series***
High Productivity Machining Centres
- ***AUTOMILL Series***
Machining Centres with Integrated Workpiece Management
- ***MEGAMILL Series***
High Performance Double Column Machining Centres
- ***DYNAMILL Series***
High Speed Machining Centres
- ***H-TURN / V-TURN Series***
Horizontal / Vertical Turning Lathes
- ***SURFGRIND / CREEPGRIND Series***
High Performance Surface / Creep Feed Grinding Machines



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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