

# **DYNAMILL** Series

*High Speed Machining Centres*



*DM PRO PRECIMAX | DM 1100 | DM 1400*

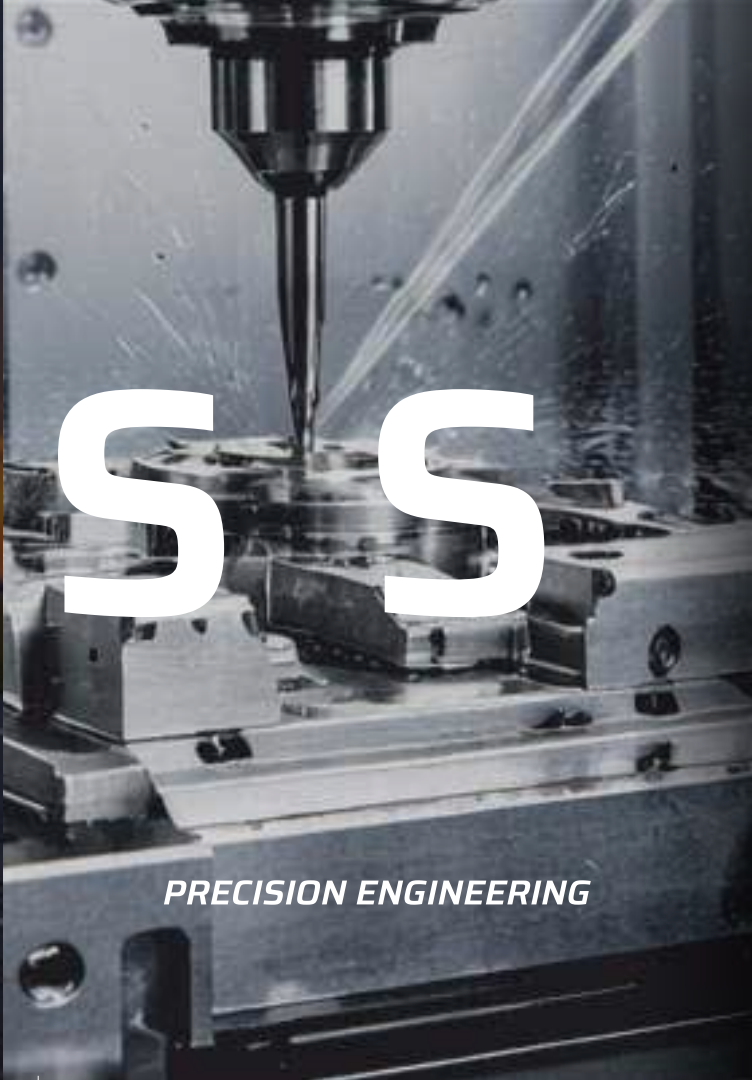


*DIE & MOULD*



# APPLICATIONS ACROSS INDUSTRIES

*CIVIL AVIATION*



*PRECISION 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

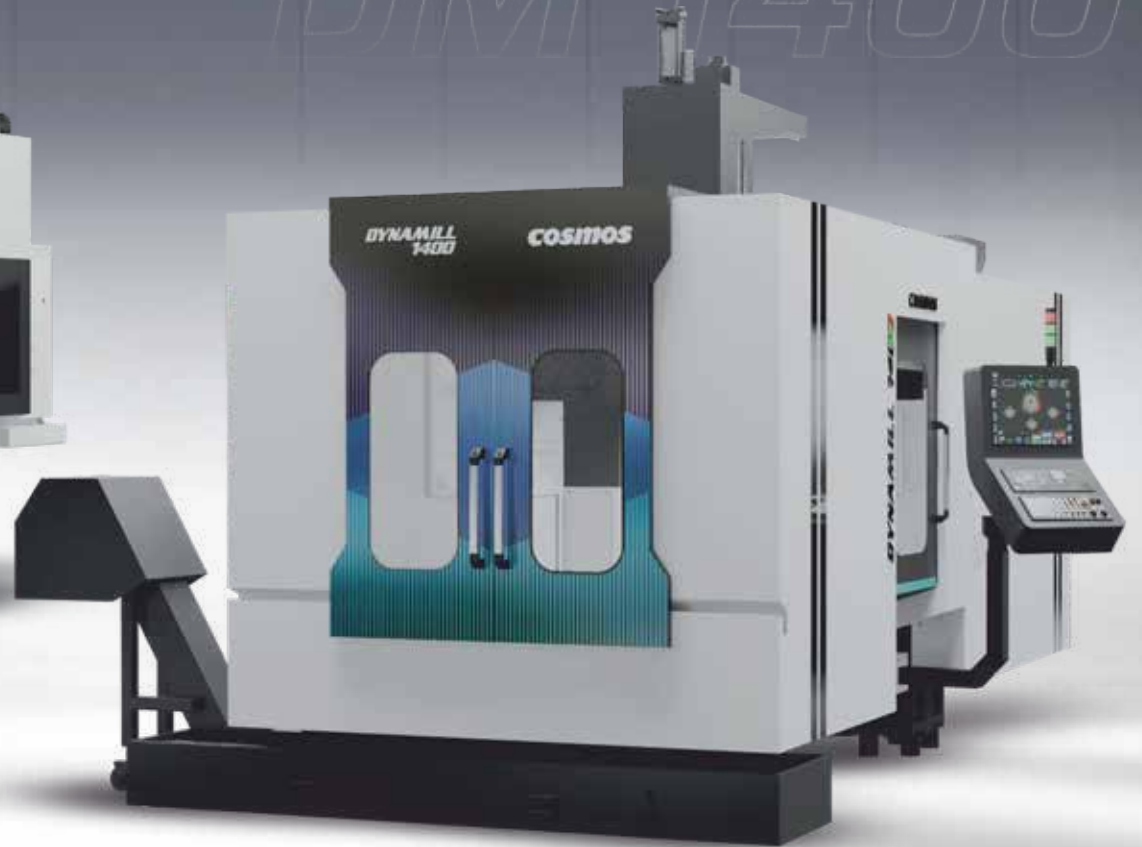


# *Dynamill Series*

*The DYNAMILL Series Machining Centres are designed for high Dynamics and accuracy as demonstrated in both surface finish quality and consistent precision.*

DM 1100

DM 1400



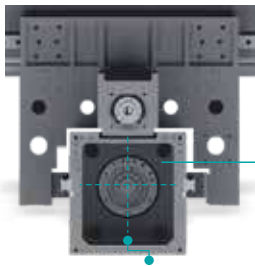
# Structural Architecture

**New DynaMill structure delivers optimal performance through:**

- Monolithic casting integrating bearing housing, motor brackets, and nut housing—minimising subassemblies and improving machine life.
- Centre-of-gravity aligned moving elements reducing deflection and vibration.
- High Z-axis responsiveness for dynamic high-speed machining.
- Rigid nested structure enhancing overall stiffness.
- Consistent accuracy in complex profile machining.

## Centro-Aligned Z-Axis with Spindle:

*The Heart of High-Performance Cutting*



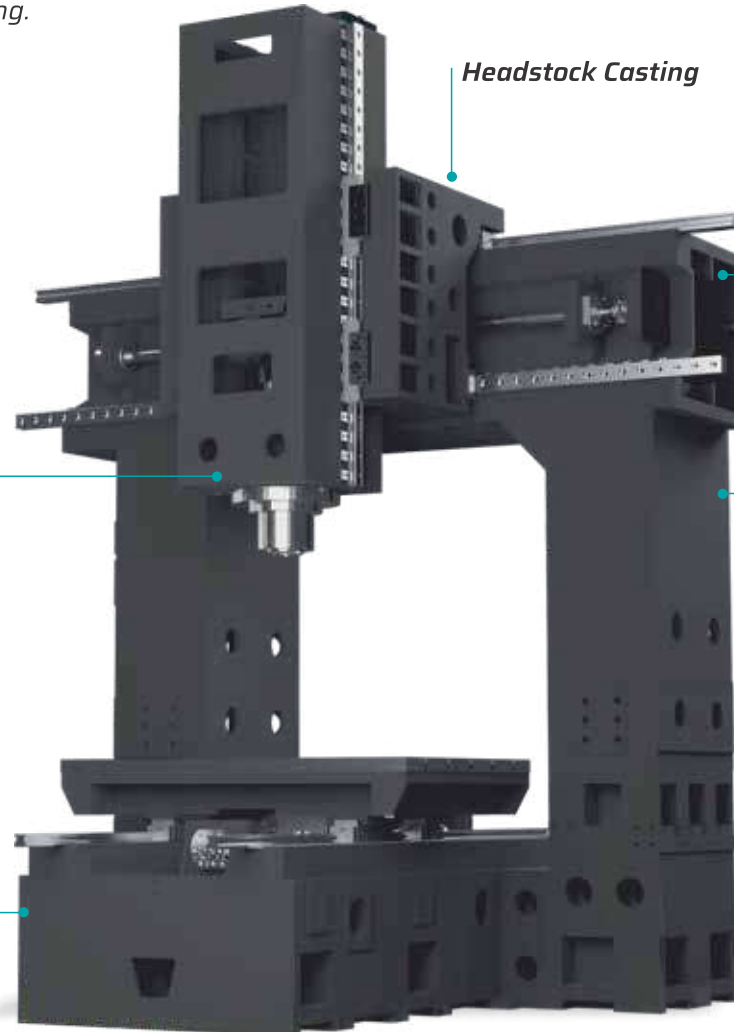
**Table Casing**



## Robust Single Casting Bed

*ensures high rigidity,  
excellent vibration absorption  
outstanding surface finishes.*

*Wide base ensures stability under heavy table loads at high speeds*



**Headstock Casting**

## Step Type Beam for Improved Cutting Stability

*The oversized beam is a step type construction with one LM guide way on the top and one at the front.*

## Mono Bridge Type Column Design

*The one-piece bridge column design provides symmetrical stability to the head stock adding much important value to Dynamill*



# Machine Features

## Ergonomics Design

- The full enclosure (without the top cover) provides a safe and clean operating environment. The top cover is optional and can be added to meet CE safety directives or specific machining needs.
- The swivel operation panel allows users to operate from any angle or position.
- A wide door width makes loading and unloading of the workpiece easier.
- Large windows on the door provide excellent visibility.

## Spindle Cooling

The DYNAMILL Series machine is the only one in its class with a heat-dissipating spindle chiller, maintaining tight control over the spindle, bearings, and motor. This reduces thermal growth, ensuring better spindle preload, stiffness, rigidity, tool life, surface finish, and part accuracy.

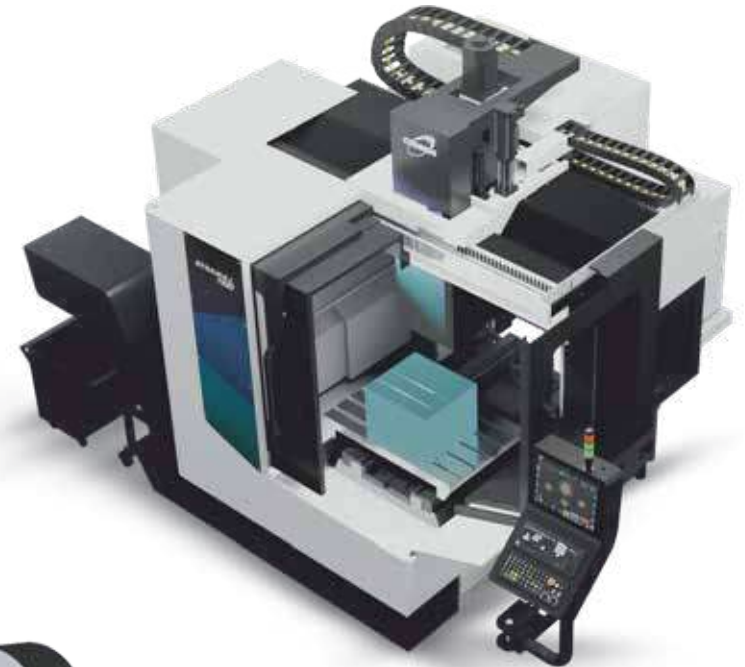
- Stiffness and rigidity for roughing and hard milling operations
- High-speed for small tools, finishing operations and graphite
- Thermal Control for Precision

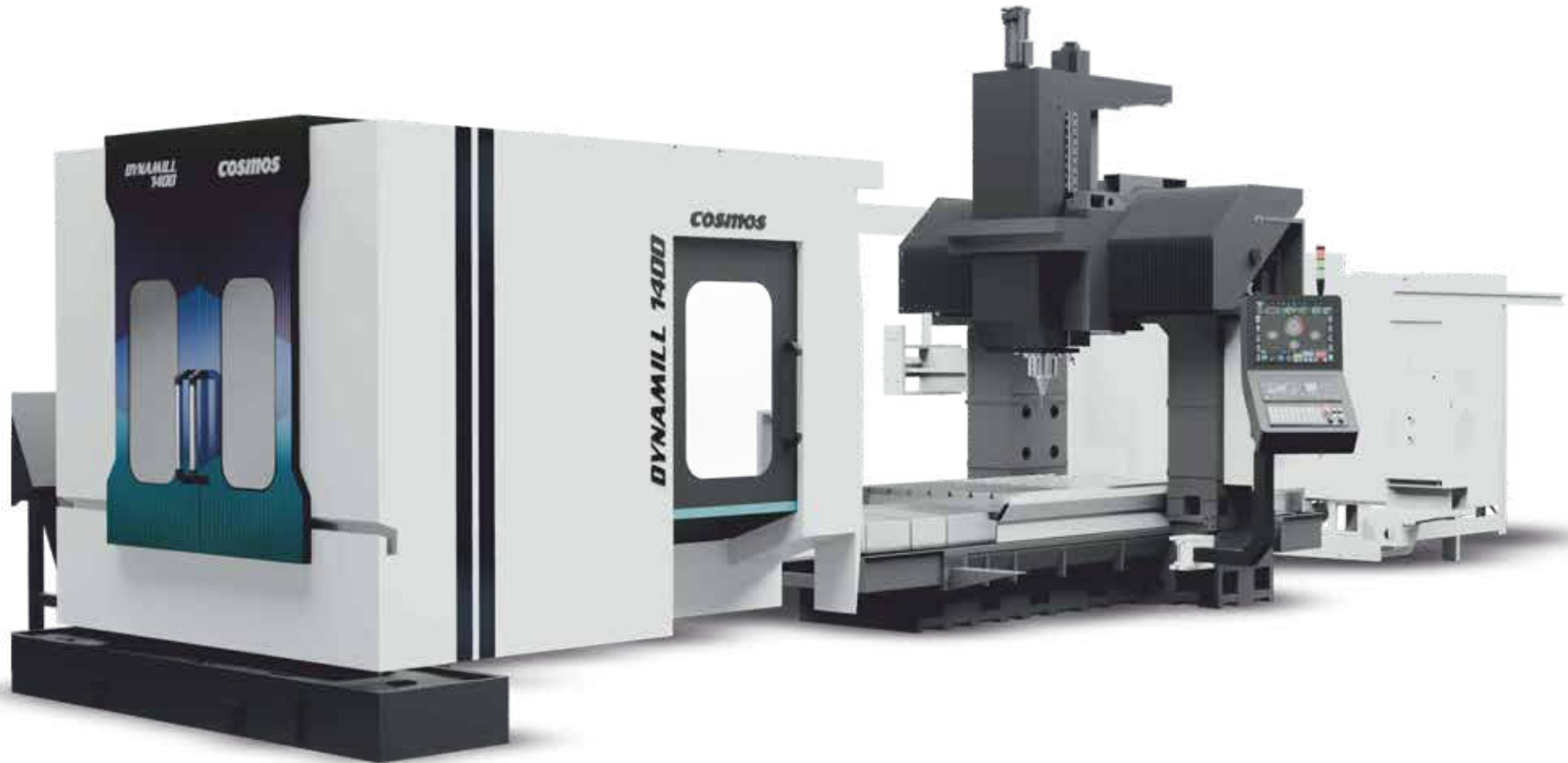
## Roller Type LM Guideways

All axes are equipped with LM roller guideways. These feature higher load capacity and greater rigidity even at high acceleration.

## Ball Screw Cooling (OPT)

The Ball Screw cooling option is available for more demanding applications ensuring constant temperature control in addition to Zenμ which is already working in the backend.





**Cutting Efficiency**

*Optimized spindle system enables high-speed material removal with stability and control.*

**Motion Accuracy**

*Precision-driven axis system ensures smooth interpolation and consistent positioning.*

**Load Handling**

*Robust guideway design supports heavy-duty machining without compromising accuracy.*

**Thermal Stability**

*Controlled heat management maintains dimensional consistency over long cycles.*

**Productivity**

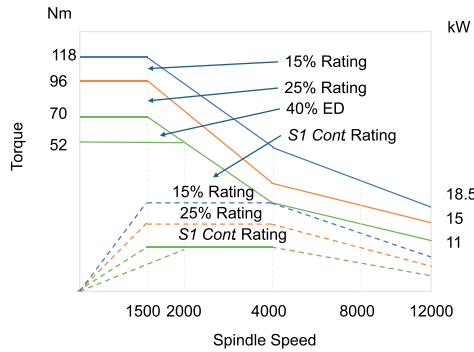
*Efficient tool handling and system coordination reduce idle time and improve throughput.*

# Machine Layout

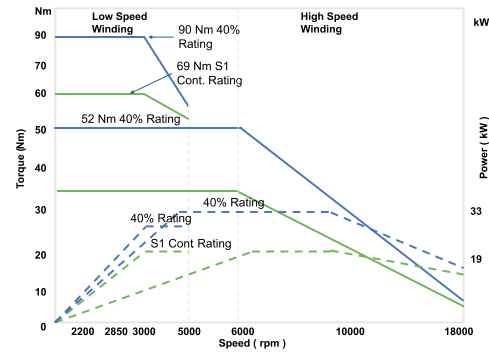
## High Performance Imported Spindle

### Mitsubishi Controller

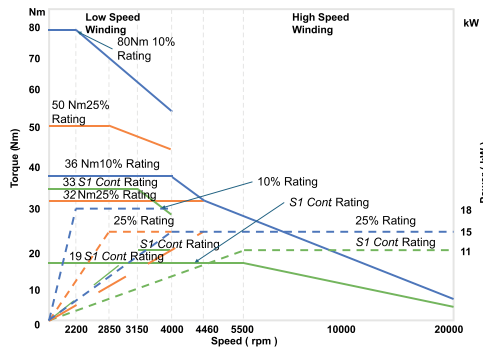
Power 11/15/18.5 kW | Torque 118 Nm  
DDS 12,000 rpm (STD)



Power 19/33 kW  
Built-in 18,000 rpm (OPT)

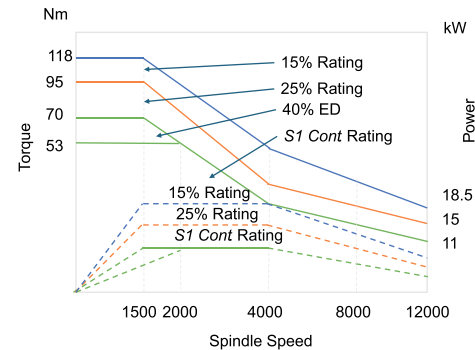


Power 11/15/18.5 kW  
Built-in 20,000 rpm (OPT)



### Fanuc Controller

Power 11/15/18.5 kW  
DDS 12,000 rpm (STD)



Sr. No.	Machine Model	H1	H2	L	D
1	DM 1100	2300	3200	~2800	3200
2	DM 1400	2400	3800	~3100	4200

# Machine Specifications

Items	Unit	DM 1100	DM 1400
<b>Travel</b>			
X axis	mm	1100	1400
Y axis	mm	700	1100
Z axis	mm	600	600
Distance Between Columns	mm	1100	1100
<b>Table</b>			
Dimension	mm	1050 x 700	1600x1000
Max. Load	kg	1000	3000
T-slot (width x pitch x number)	mm	18*125*5	18*140*7
<b>Spindle</b>			
Spindle Type (Standard)	-	Direct-drive	Direct-drive
Spindle Speed	rpm	12000	12000
Mitsubishi Motor Power	kW	11/15/18.5kW	11/15/18.5kW
Spindle Taper	-	BBT40	BBT40
<b>Feed Rate</b>			
Rapid Traverse (X/Y/Z)	m/min	32 m/min	32 m/min
Cutting Feed Rate	m/min	20 m/min	20 m/min
<b>ATC</b>			
ATC Type	-	Twin Arm	Twin Arm
Magazine Capacity	nos	24	24
Max. Tool Diameter / Next Pocket Empty	mm	150	150
Max. Tool Length	mm	300	300
Max. Tool Weight	kg	8	8
Tool Change Time (Tool to Tool)	Sec.	2.0	2.0
<b>Machine Weight</b>			
Machine Weight	kg	~7100	~12000
Power Requirement	kVA	35	35
Power Supply	-	415V/3 phase, 50-60Hz	415V/3 phase, 50-60Hz

## Standard Features

- Mitsubishi CNC M80V-Type A - 15' with Die-Mould Features (Fanuc CNC Oi-MF plus - 75")
- ZENEZ-V+HMI
- Cutting Air Blast
- Coolant Tank E Coolant Flushing System
- Coolant Gun Air Gun
- Dual Auger for Chip Exit
- Air Curtain
- Handheld Manual Pulse Generator (HMPG)
- Air Conditioner for Electric Cabinet
- Ethernet Interface for Data Transfer
- Automatic Centralised Lubrication System
- 3-Colour Signal Light
- Working Light
- Levelling Block and Screws
- Maintenance Tools & Manuals

## Optional Features

- Mitsubishi CNC M830VS -15"
- ZENEZ-Supreme Series Platform
- HSK-A63 Taper
- Linear Scales XYZ (Fagor/Heidenhain)
- 3-Axis Ballscrew Cooling with Chiller
- 75000 rpm Air-oil Lubricated Direct Drive Spindle
- 18,000 & 20,000rpm Grease Lubricated Built-in Spindle
- Oil-Skimmer
- Workpiece & Tool Measurement Systems (Renishaw/Blum)
- Collision Monitoring System (Artis/Montronix)
- Coolant Through Spindle (20/30/70 Bar)
- Air Through Spindle (AT5)
- Chip Conveyor - Scraper
- Chip Conveyor- Chain Belt
- Oil Mist Collector
- Safety Door Lock
- 4th/5th Axis Interface

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

# Dynamill Pro Precimax

High-speed Precision Machining Solution



## Core Advantages

### Gantry-Level Rigidity

Double column structure ensures unmatched stability for heavy-duty and high-speed machining.

### High-Speed Precision

Optimized spindle and axis dynamics deliver faster cycles with consistent accuracy.

### Superior Surface Finish

Smooth motion control and advanced spindle design enable fine detailing and high-quality finishes.

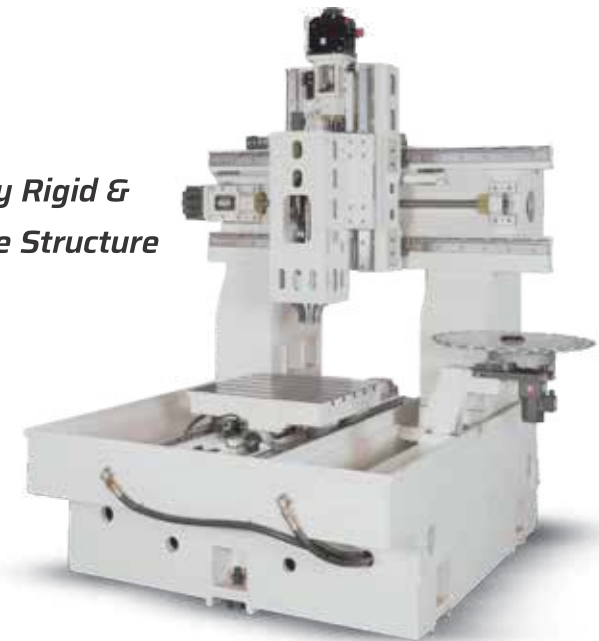
### Thermal Stability for Consistency

Engineered to minimize thermal distortion for reliable accuracy over long operating hours.

### Lower Cost per Part

Improved tool life, reduced cycle time, and higher productivity drive overall efficiency

Highly Rigid & Stable Structure



## Application



Semiconductor



Civil Aviation



Medical Equipment



Die & Mould

PRECIMAX

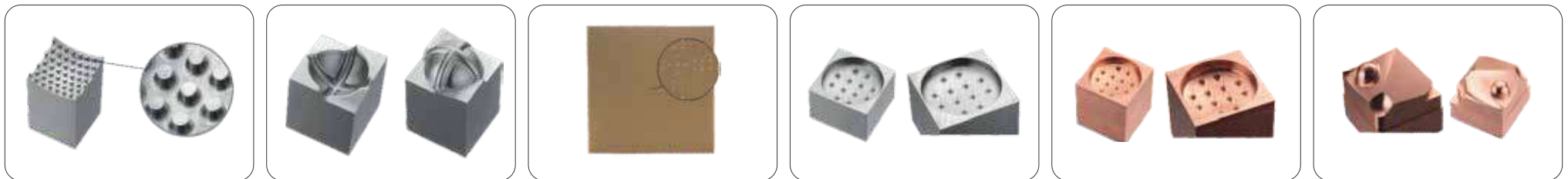
# Machine Specifications

Items	Unit	DM PRO PRECIMAX
Control		Mitsubishi/Fanuc
Travel	X x X-axis/Y x Y-axis/Z x Z-axis	mm 600/600/320
	Table top surface to spindle nose	mm 80-400
Table	Table work surface area (X-axis x Y-axis)	mm 600x600
	T-Slots (Size x Number x Centre)	18x4x150
	Max. work piece weight	kg 500
Feed rate	Rapid traverse rate X/Y/Z	m/min. 20/20/20
	Cutting feed rate	mm 1-15000
	Minimum input Increment	mm 0.001
Spindle	Spindle holder	HSK-E40
	Spindle motor	kW 4.6
	Spindle speed	rpm 24000/30000
	Cooling Lubrication	Oil/Grease
A.T.C	Tool magazine capacity	T 24
	Max. tool weight	kg 1.5
	Max. tool length	mm 150
	Tool selection	Armless
Others	Power	kVA 20
	Coolant tank capacity	L 250
	Net weight	Kg 6500
	Floor space	mm 2200x2700x2650

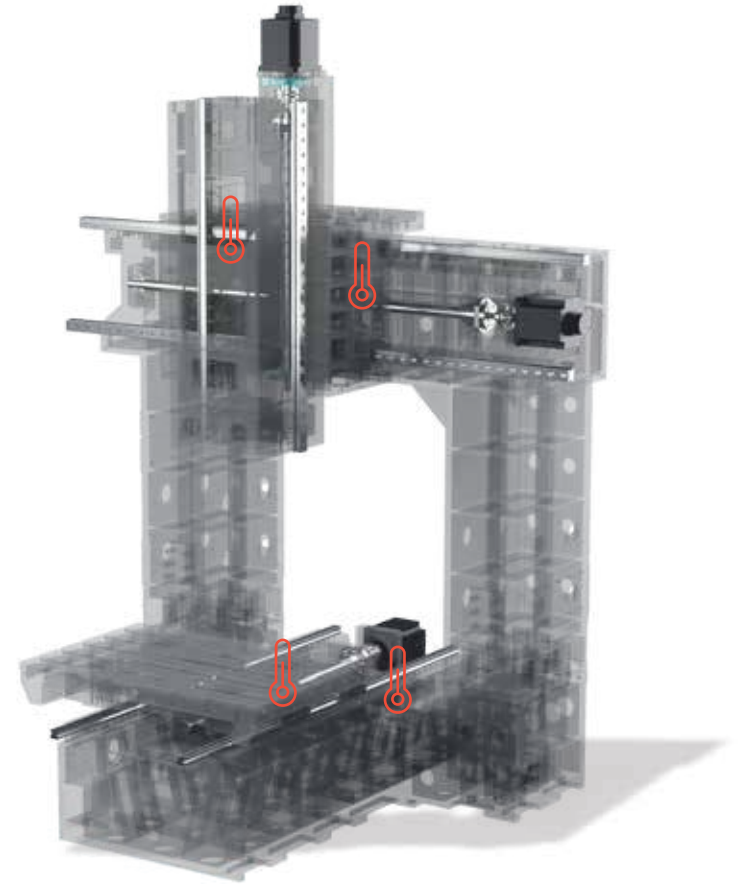
## Standard Accessories

- Organ type stainless steel telescopic
- Tool change magazine
- Tool measurement device
- Back flush device
- Second story type filter tank
- Built -in spindle.
- Spindle coolant system.
- Auto Lubrication system.
- Cutting oil coolant device
- Water Gun, side-way air blower, work lamp.
- Hand-on type operation box/26PIN hand wheel.
- RS232 9PIN INTERFACE.
- USB support.
- Auto power off system with alarm lamp.
- High speed high accuracy function FTP system.
- Transformer.
- Toolbox /operation manual / maintenance manual.

## Components

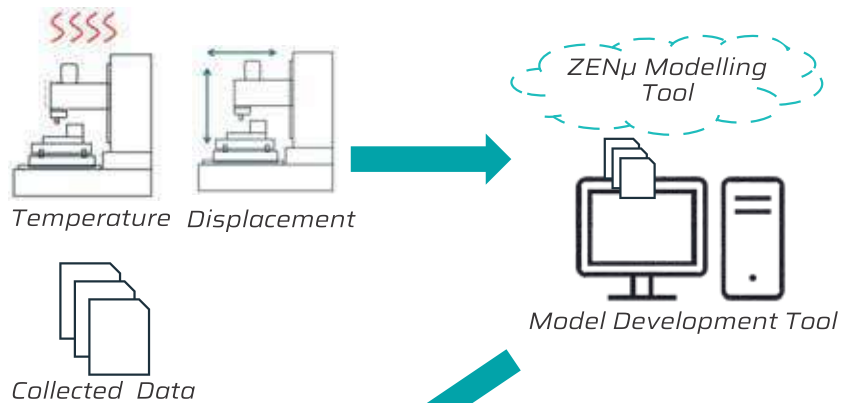


- Zenu is 'AI based' accuracy enhancement system that focuses on maintaining the tool centre point using AI algorithms.
- Using algorithms written in the module, the external zero point of X, Y and Z axis are shifted in multiple degrees of freedom to maintain the tool/centre point at a constant position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

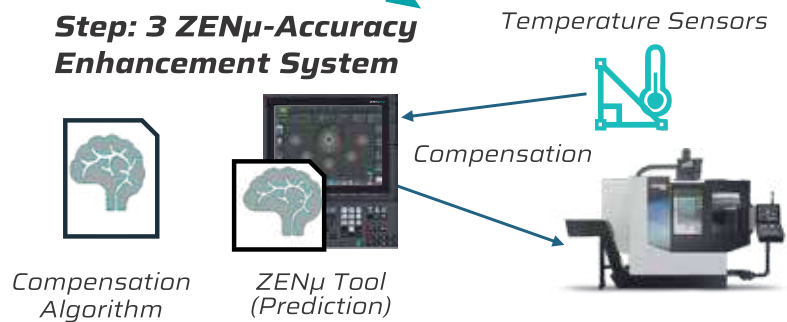


### Step 1: Data Collection

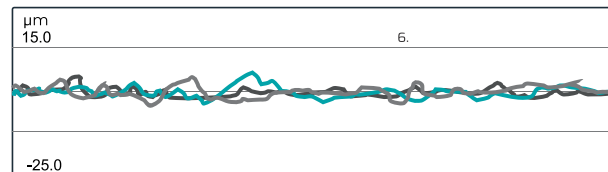
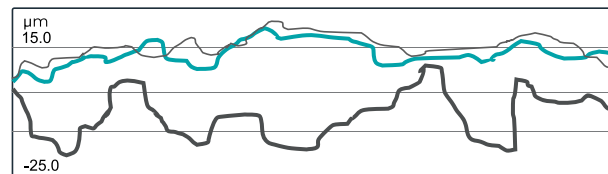
### Step 2: Model Development



### Step 3: ZEN $\mu$ -Accuracy Enhancement System



Positioning Error (without ZEN $\mu$ )



Positioning Error Reduction (with ZEN $\mu$ )

## 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.

### How can digifac improves OEE?

Overall Equipment Effectiveness (OEE) is a measure of machine performance that provides visibility to options for progress. OEE is used by manufacturers to specify, monitor, and then reduce production failures. Knowing the OEE value is important for one particular reason: it allows you to find out about your losses and identify the bottlenecks in your value stream. If you know exactly where you are wasting time on your assets and why this is happening, you can take the necessary actions to improve your overall performance.

## 10~25%

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

An OEE increase is achievable by digitizing production & planning, asset monitoring (cycle-times), reducing losses (program transfer, downtimes, breakdowns), etc.



# Digifac Software Features



## Dashboard Monitoring

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

**SMARTCONNECT**



## 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 Override 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.

# Other Product Range

**digifac**

**SMARTCONNECT+**

**CVM SERIES**



*High Performance Machining Centres*

**MEGAMILL SERIES**



*Double Column 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](http://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

☎ **63582 47046** ✉ [sales@cosmos.in](mailto:sales@cosmos.in) 🌐 [cosmos.in](http://cosmos.in)

**For PAN India Sales and Services Support**

☎ +91-966 2044 983

**Vadodara and MP**

☎ +91 70437 35005

**Ahmedabad**

☎ +91 95129 80022

**Pune, Kolhapur, Belgaum  
& Ch. Sambhaji Nagar**

☎ +91 98509 89476

**Mumbai**

☎ +91 70308 77977

**South Gujarat**

☎ +91 75740 01763

**Nashik**

☎ +91 96378 27722

**Bengaluru**

☎ +91 99022 00025

**Hyderabad**

☎ +91 75670 80452

**Chennai**

☎ +91 74859 12550

**Coimbatore and Keralam**

☎ +91 75748 23720

**Delhi & NCR**

☎ +91 93500 50200

**Noida & Ghaziabad**

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**Gurgaon & Bhiwadi**

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**Faridabad**

☎ +91 95999 10370

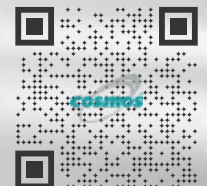
**Punjab**

☎ +91 98107 05736

☎ +91 93500 50200

**Rajkot and Saurashtra**

☎ +91 99740 61567



**\*Kindly Note:** These products are under revision for specifications upgrades. Request to kindly visit [cosmos.in](http://cosmos.in) to get all the latest information about our complete product range.