



Proudly Made in India

High Performance Vertical Machining Center

# CVM Series



Service Support  
9377566555

Single point contact for service matter.

Sales Support  
9662044983

We have wide range of imported and Indian products.



## COSMOS IMPEX INDIA PVT. LTD.

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**WITH THE UNITY DESIGN OF THE CVM AND A PASSIONATE TEAM WE HARNESS THE JAPANESE TECHNOLOGY FOR AXIS MOTORS AND DRIVES TO UNLEASH THE MOST VERSATILE MACHINING CENTER RANGE.**

**CVM**  
**The VMC Made in India for the World**

About the CVM Series,

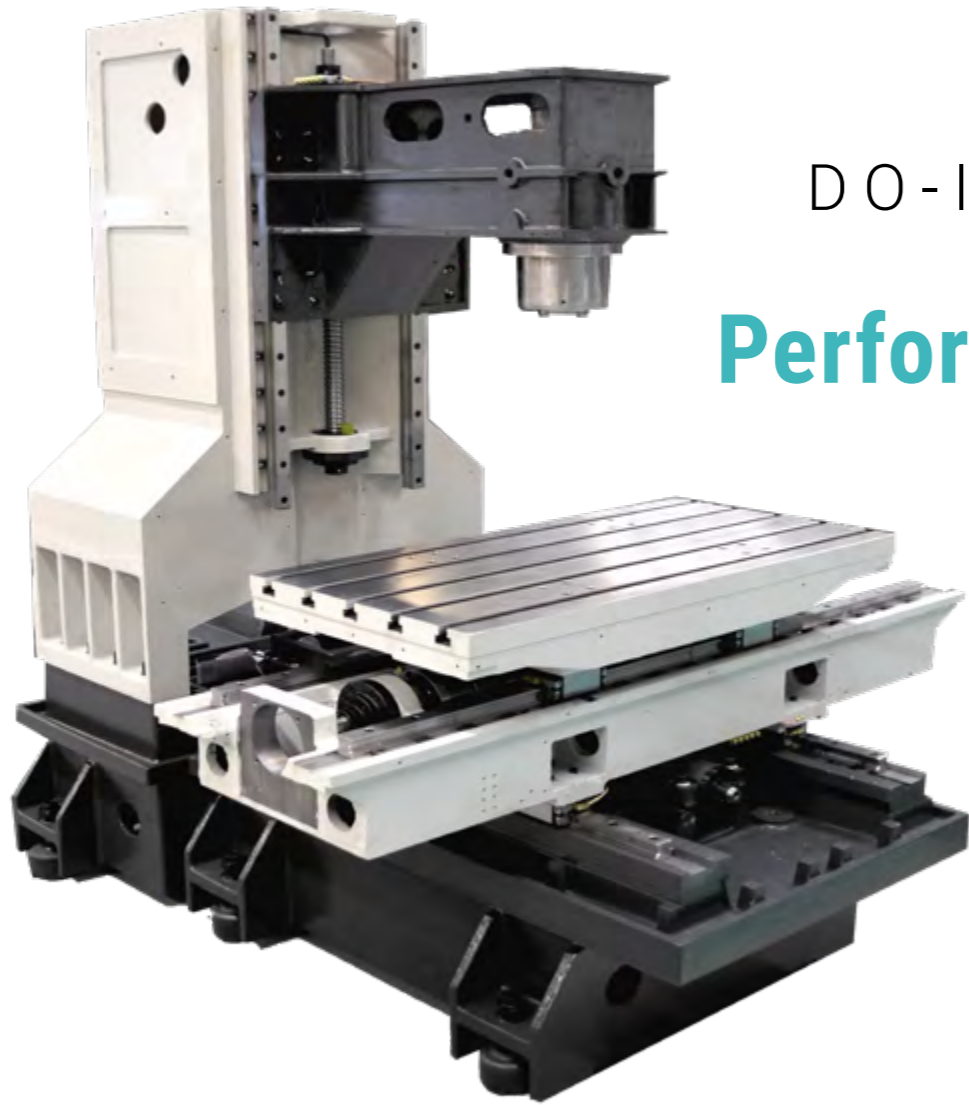
Harness the Power of our Versatile CVM's Series machining center built by passionate engineers , configured by leading technical teams and sold by The Cosmos Family. We left no stone unturned to bring you a machine which only could be imported . We are humbled by peaking customer satisfaction which is what Cosmos stands for.

We assure you and all our customers that Cosmos will continue to bring forth only cutting edge products with class leading performance such that you will not have to look any further.

Sincerely ,

Team Cosmos.





## DO-IT-ALL WITH CVM Performance VMC

### Structure

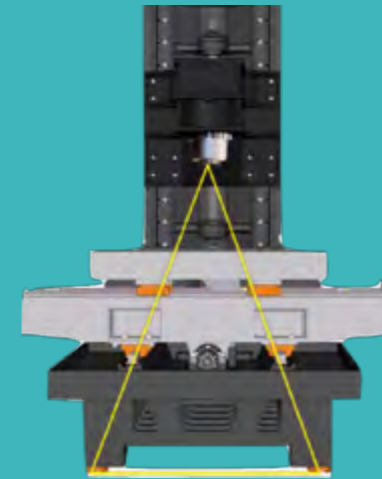
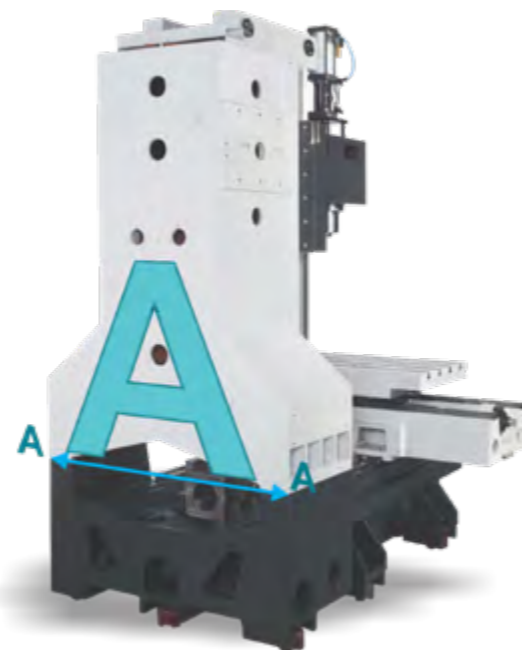
#### High Quality FG260 Grade Cast Iron for all Structural Elements

Fine grain structural composition provides excellent toughness and vibration absorbing characteristic to the machine.

### Wide A-Shaped Column

#### Extra wide base of column

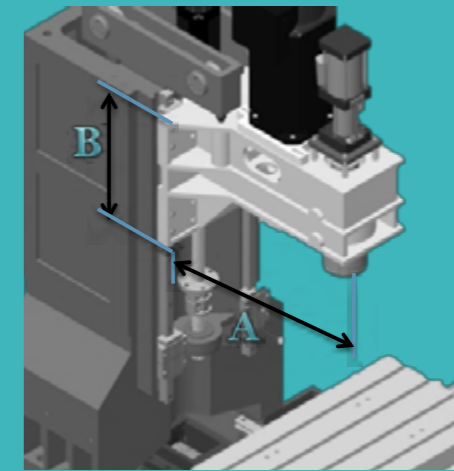
This delivers enhanced stability and efficient cutting force absorption without deflection, resulting in better cutting dynamics.



### Golden Triangular Frame Design

#### Ensure maximum bed width for superior kinematics

This design lowers the center of gravity thus improving the stability during cutting resulting in chatter free surface finish and increased tool life.



### Extended Headstock Guides

#### Extended A:B ratio ensures

You can put bigger component on the machine table.

It also improves the headstock rigidity during fast high feed cutting



### Automatic Tool Changer

#### 24 Tool Arm Type ATC

CVM series is equipped with high precision cam driven automatic tool changer for bi-directional quick tool selection.



### Cartridge Type Spindle

#### High Quality Imported Spindle

CVM spindles are built to stringent international standards by reputed manufacturers. They feature strong clamping force and fine balance for high speed and accuracy with minimum runout.

## Need For Unity Structure

During High Speed Machining, due to high acceleration and deceleration the ballscrew support bearing encounter large amount of physical and thermal stress. Frequent rapid movements during machining of production components results in large amount of jerks. During cutter engagement, interrupted cuts casting deformities, improper material the machine gets overloaded and higher impacts occur. The unity structure handles these conditions efficiently.

### Advantage of this Unity Structure ?

01

Strengthens the structure by acting as a ribbing element.

02

Longer machine life because of better alignment of ballscrew and servo motor

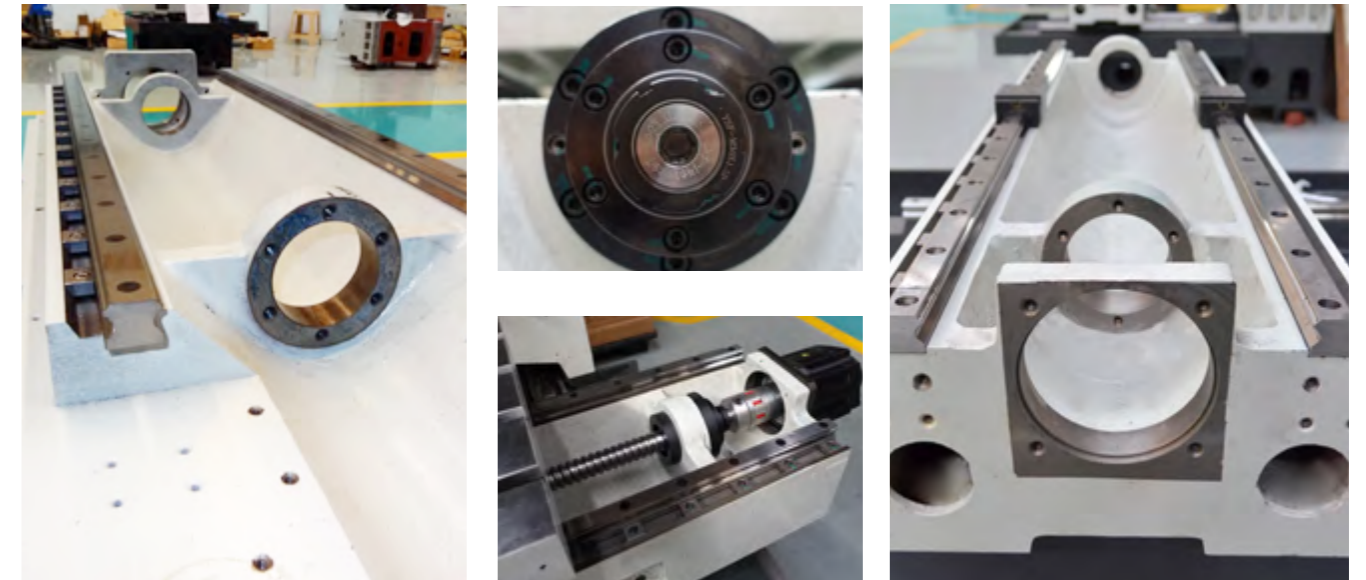
03

By eliminating joints and independent mountings we created Smooth flow path for all the vibrations and stresses to flow from the transmission to the larger base casting without interruption.

## What is Unity Structure ?

Unity Structure symbolises the United Elements of the machine. Everytime your table, saddle, headstock moves the ballscrew and nut get loaded and the load on them is transferred to the Bearing Housing, Nut housing, Axis Bearings

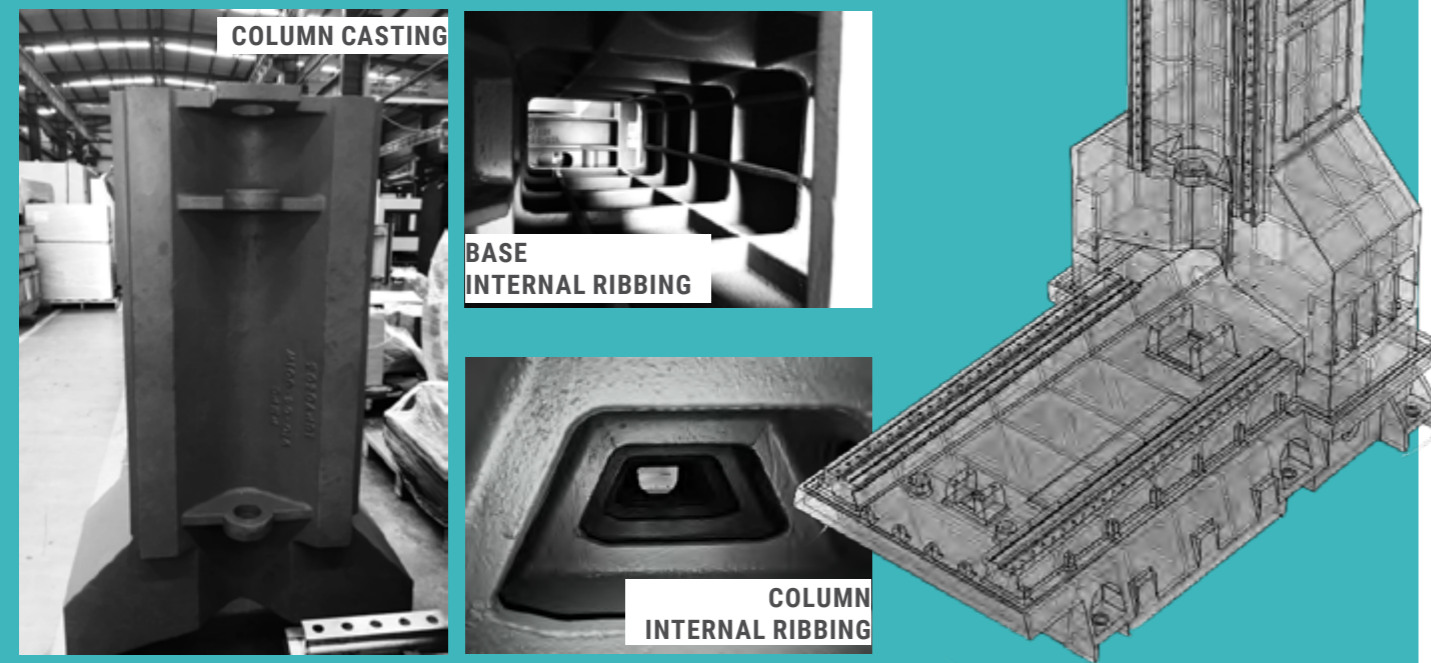
To Ensure excellent Kinematics and ensure the machine absorbs all the loads effectively we integrated these elements into our casting.



## Structure

### Scientifically Ribbed Casting

Another critical element resulting in great surface finish and high stability during high speed machining is the ribbed pockets. Resulting in excellent vibration dampening and improved tool life.





**100 %**

Inspection of all Components before entering assembly line  
Laser Calibration and Ballbar Tuning before disptach

Positioning Accuracy = 0.010mm  
Repeatability = +/- 0.003mm

**quality**  
MEANS DOING IT  
RIGHT WHEN NO ONE  
IS LOOKING.

**VDI3441**  
GERMAN STANDARD

**JIS6338**  
JAPANESE STANDARD

Cosmos strictly adheres to both Japanese and German Quality standards to assure the best in class performance and output

Our strict manufacturing process ensures positioning accuracy below 10 micron and repeatability within +/- 3 micron.



**Laser Calibration**

**100 % Laser calibration of all machines**  
We use State-of-the-art equipment for used by leading world manufacturers  
We assure you repeatability with accuracy.



**Ballbar Calibration**

**100 % Ballbar calibration of all machines**  
We ensure servo motors are perfectly tuned for perfect simultaneous movement  
Resulting in Circularity of below 10 Micron



**Quality Assurance**

**With complete records**  
Right from Casting stage, guaranting perfection at every stage of the assembly

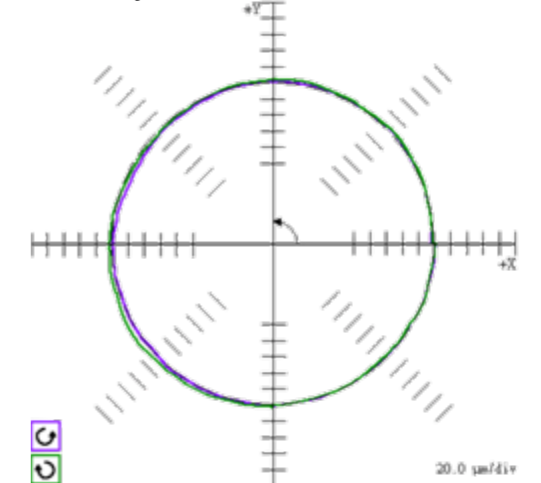
**Quality Assurance**

In process inspection guarantees every casting meets our stringent quality standards.

All Machines are fully inspected before dispatch to match of stringent quality standards.

Ball Bar & Laser calibration assures that every machine is perfectly tuned for performance.

**Circularity within 10micron**





**C3 Class Ballscrew**  
All axes use high precision, hardened and ground ballscrews to ensure consistent accuracy over the life of the machine. Directly drive coupling ensures transmission and high speed motion.



**LM Guideways System**  
Precision class Recirculating LM Guideways are used for quicker response and to ensure excellent positioning accuracy. Preloaded LM Guideways are employed on all axes, to take care of rigidity & long life.

## User Friendly Features (STANDARD)



**High Accuracy Servo**  
All axes are equipped with high performance Low Inertia servo motors and drives. Carefully configured to give you superior motion control and stiffness during high feed cutting.



**360° Machine Layout**  
Backside of the machine is completely enclosed, giving you the freedom to place your machine anywhere in your workshop. Giving your floor and machine a clean look



**Coolant & Air Gun**  
All machines are equipped with coolant and air gun, to ensure chip free machining area. To ensure no spillage nozzles have special holders.



**Portable MPG Unit**  
CVM is equipped with magnetic portable MPG/Hand-wheel, so operator can stick it anywhere when setting up the machine.

## Performance Boosters (OPTIONAL)



### Automatic measuring solutions

Range of tool and workpiece probes are available from Renishaw

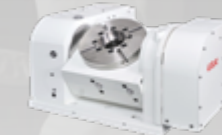
- Touch Probe for Tool Setting (without Cable)
- Automatic workpiece probes
- Laser tool probes
- Separate measuring station



### Selection of Rotary table - 4th & 5th Axis Solutions

Reliable solution for demanding application

- Table size 200 upto 320
- Worm gear / worm wheel solutions for high torque
- Production system, cradle arrangement also available
- Torque motor and roller-cam solutions for higher speeds



### Fixtures & Tooling Solutions



## Machine Monitoring IIoT

### Cosmos - Digifac - Industry 4.0

**16 hr/day**

Factory running 2 shifts

**10% Improvement**

10% of 16hr = 1.6hr/machine/day

**400 Rs/hr**

Average hourly rate realization

**1.6 hr/day Saving**

on 1 Machine

**1.6hr x 400rs/hr in 25 Days gets you 16000 Rs/month/machine in 1 year**

**10 Machines 19.2lakh  
30 Machines 57.6lakh**

### 10% Increase in machine utilisation is possible by Monitoring

1. Improved manufacturing efficiency
2. Reduced production wastage
3. Real-time shop floor visibility
4. Automatic data collection and analytics
5. Increased overall equipment efficiency
6. Shop-floor alerts and notifications

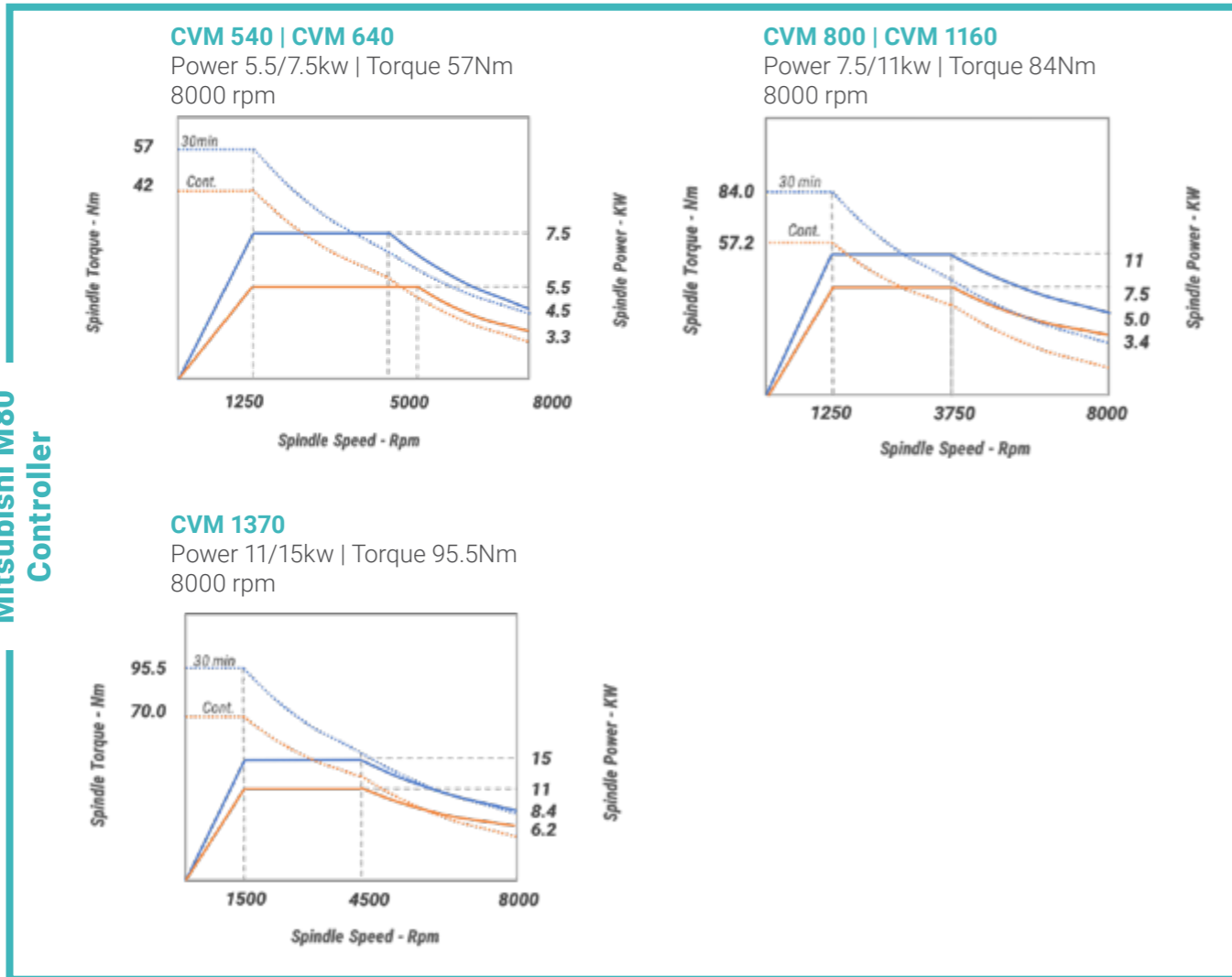


# Torque Power Diagram

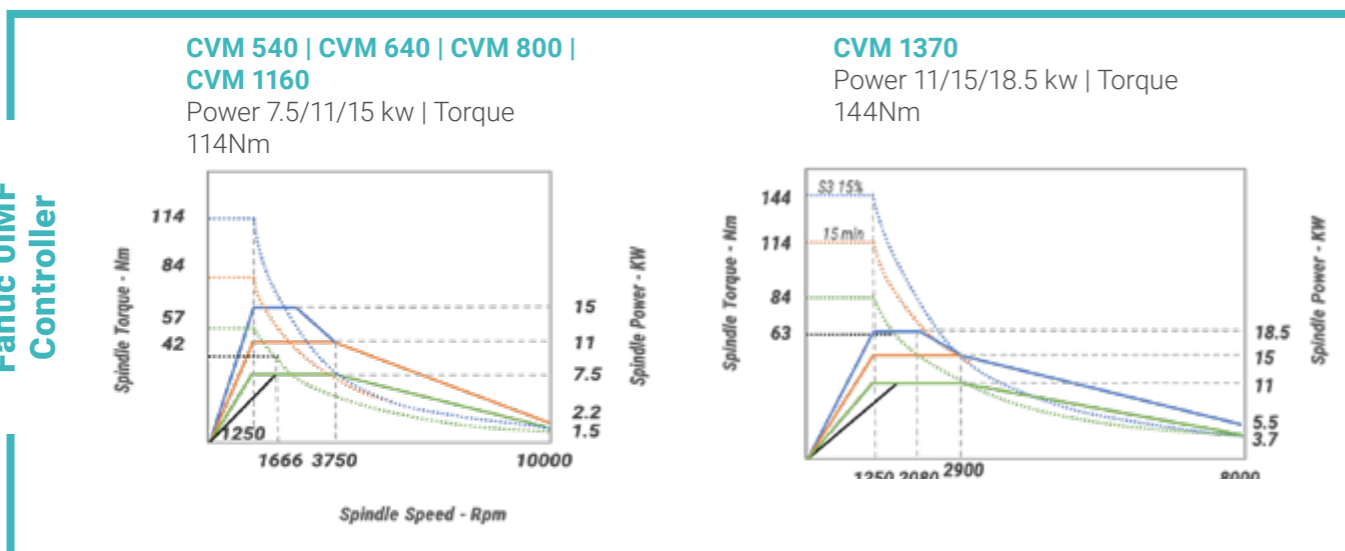
# COSMOS custom HMI



Mitsubishi M80 Controller



Fanuc OiMF Controller



**COSMOS** brings to you the latest **XENEX** Human Machine Interface. Loaded with wide range of functionalities, **XENEX** brings higher degree of control into your hands.

### User Features

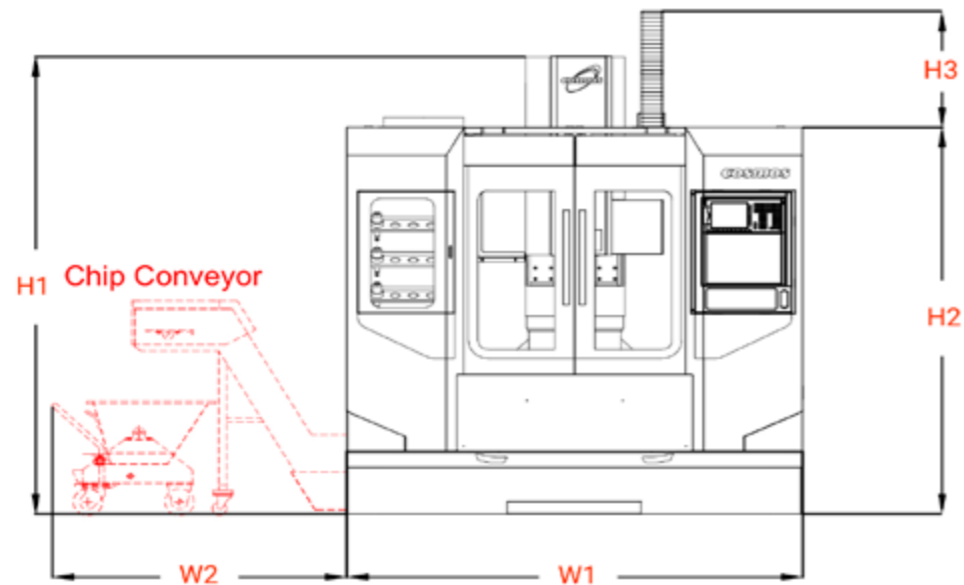
- All in one Dash Board
- Smart Tool Manager with easy tool setting
- Tool load & life monitoring with Intelligent tool data management
- Cutting Load Visualizer
- Intelligence Maintenance Reminder
- Easy Diagnosis.
- Smart Cutting Condition Selector
- Mini OEETracker
- Power-Torque Calculator
- Downtime analysis

### Controller Features

- Mitsubishi M80
- 10.4" Colour Display
- Capacitive Multi Touch Display
- Intuitive Built in Functions
- Easy user screens designed for ease of operation
- Can be used with & without Touch Screen

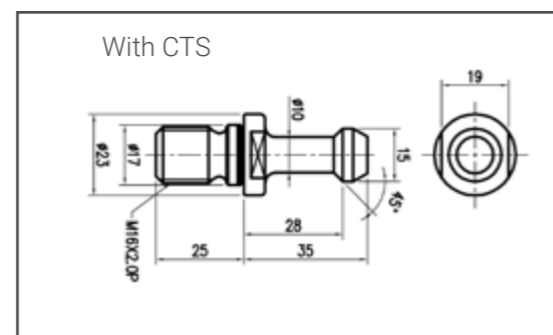
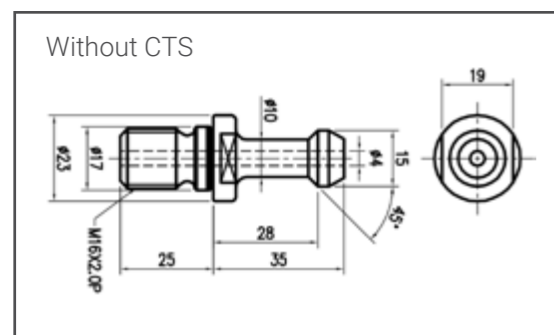
# Layout & Dimension

## Machine Layout



	W1	W2	H1	H2	H3	DEPTH
CVM 540	1865	-	2402	1827	650	2307
CVM 640	2150	1410	2560	2020	770	2045
CVM 800	2424	1410	2645	2092	661	2197
CVM 1160	2890	1410	2940	2250	750	2245
CVM 1370	3497	1410	2685	2347	769	2580

## Pull Stud Drawing



SPECIFICATIONS	UNIT	CVM-540	CVM-640	CVM-800	CVM-1160	CVM-1370
X - AXIS TRAVEL	mm	550	650	800	1100	1300
Y - AXIS TRAVEL	mm	400	450	500	650	700
Z - AXIS TRAVEL	mm	450	500	500	600	700
SPINDLE NOSE TO TABLE SURFACE	mm	100-550	100-600	100-600	150-750	150-850
SPINDLE CENTER TO COLUMN SURFACE	mm	445	500	520	650	740
TABLE DIMENSION	mm	750 x 430	800 x 450	1000 x 500	1250 x 550	1450 x 650
MAXIMUM LOAD	Kg	200	400	600	1000	1500
TABLE T-SLOT	mm	14 x 3 x 100	18 x 4 x 100	18 x 5 x 100	18 x 5 x 100	18 x 5 x 125
SPINDLE SPEED	rpm	8000	8000	8000	8000	8000
SPINDLE POWER MITSUBISHI (Cont / Int)	KW	5.5 / 7.5	5.5 / 7.5	7.5 / 11	7.5 / 11	11 / 15
SPINDLE POWER FANUC (Cont / Int)	KW	7.5 / 11	7.5 / 11	7.5 / 11	7.5 / 11	11 / 15
SPINDLE POWER SIEMENS (Cont / Int)	KW	7 / 15	9 / 22	9 / 22	9 / 22	11 / 22
TAPER		BT 40	BT 40	BT 40	BT 40	BT 40
RAPID RATE	m/min	48	36	36	30	24
CUTTING FEED RATE	m/min	10	10	10	10	10
ATC TYPE		ARM TYPE	ARM TYPE	ARM TYPE	ARM TYPE	ARM TYPE
NO OF TOOLS		24	24	24	24	24
MAXIMUM TOOL LENGTH	mm	250	250	250	250	250
MAXIMUM TOOL WEIGHT	KG	8	8	8	8	8
TOOL DIAMETER (with adjacent tool)	mm	Ø80	Ø80	Ø80	Ø80	Ø80
TOOL DIAMETER (without adjacent tool)	mm	Ø130	Ø130	Ø130	Ø130	Ø130
TOOL CHARGING TIME (tool to tool)	sec	2.5	2.5	2.5	2.5	2.5
POSITIONING ACCURACY	mm	0.01	0.01	0.01	0.01	0.01
REPEATABILITY	mm	± 0.003	± 0.003	± 0.003	± 0.003	± 0.003
FLOOR SPACE	WxD	1860 x 2300	2150 x 2050	2450 x 2150	2850 x 2360	3500 x 2580
NET WEIGHT (with ATC)	KG	3400	4500	4800	6100	8500
POWER CAPACITY	KVA	20	20	25	25	30

### Standard Features

- Fanuc 0iMF , Mitsubishi M80 , Siemens 828D Controller (any one)
- Ethernet for program transfer
- 24 Tool Arm Type Tool Changer
- Belt drive spindle
- Z-axis servo brake
- LM Guideways on all axes
- Full splash guard
- Rigid tapping
- Portable MPG
- Heat Exchanger for Electrical panel
- Air and Coolant gun
- Automatic lubrication system
- Coolant system

### Optional Features

- Oil coolant separat
- Chip Tray
- Operation lamp
- Work lamp
- Leveling pad
- Maintenance kit
- Operation and maintenance manual
- 10000 rpm spindle
- Spindle oil cooler
- Chip conveyor
- Chip flushing
- Air conditioning for electrical panel
- Coolant thru spindle
- Productivity Boosters