Proudly Made in India

CNC MACHINE TOOLS

COSMOS IMPEX INDIA PVT. LTD. / www.cosmos.in

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High Performance Vertical Machining Center

CVM Series

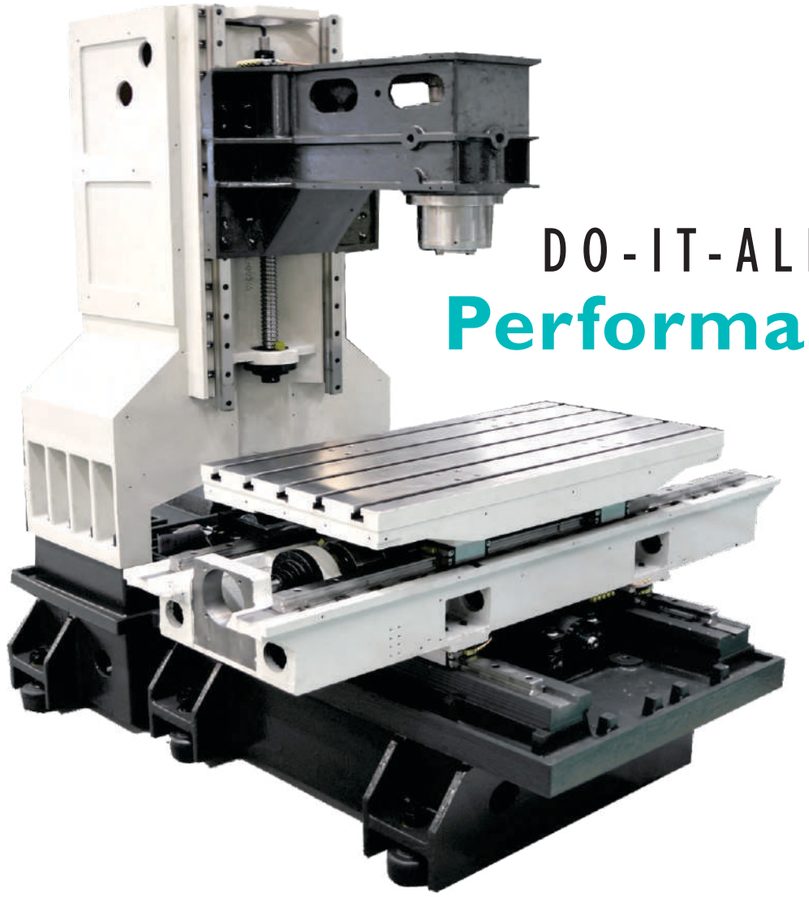
About the CVM Series,

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.



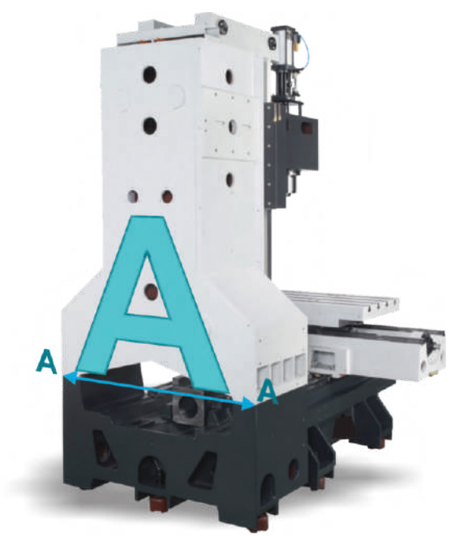
DO-IT-ALL WITH CVM
Performance VMC

Structure
High Quality FG260 Grade Cast Iron for all Stuctural Elements

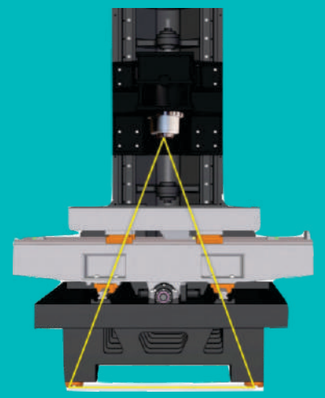
Fine grain structural composition provides excellent toughness and vibration absorbing characteristic to the machine.

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.

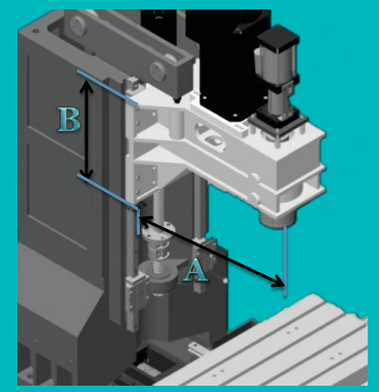


structure
Your Partner in Progress...



Golden Triangular Frame Design
Ensure maximum bed width for superior kinematics

This designs 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

Help retain spindle accuracy by preventing heacstock sag.

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 standars 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 decceration 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, interupted cuts casting deformities , improper material the machine gets overlaoded 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

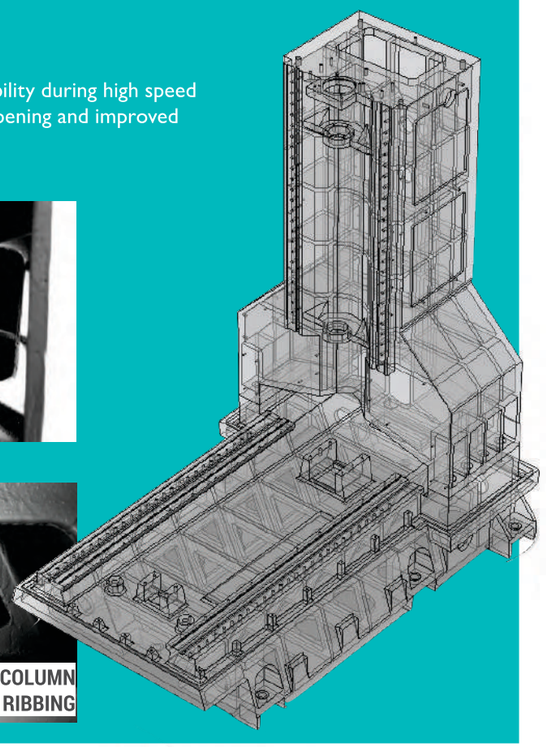
03

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.

Structure

Scientifically Ribbed Casting

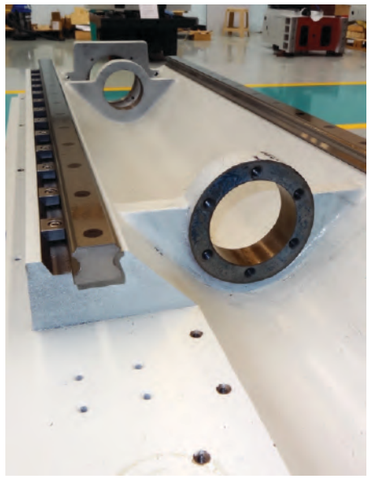
Another critical element resulting in great surface finish and high stability during high speed machining is the ribbed pockets. Resulting in excellent vibration dampening and improved tool life.

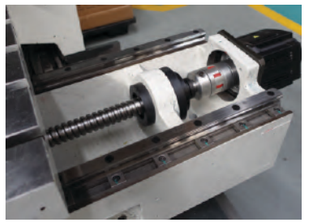


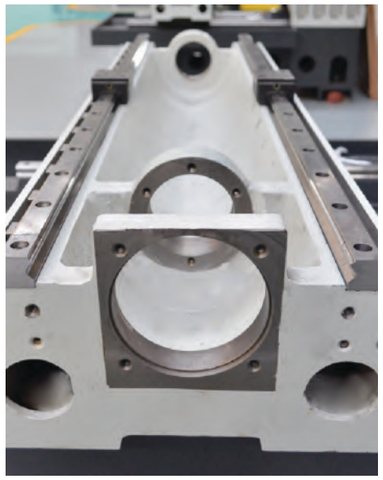
What is Unity Structure ?

Unity Strucutre 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 the these elements into our casting.

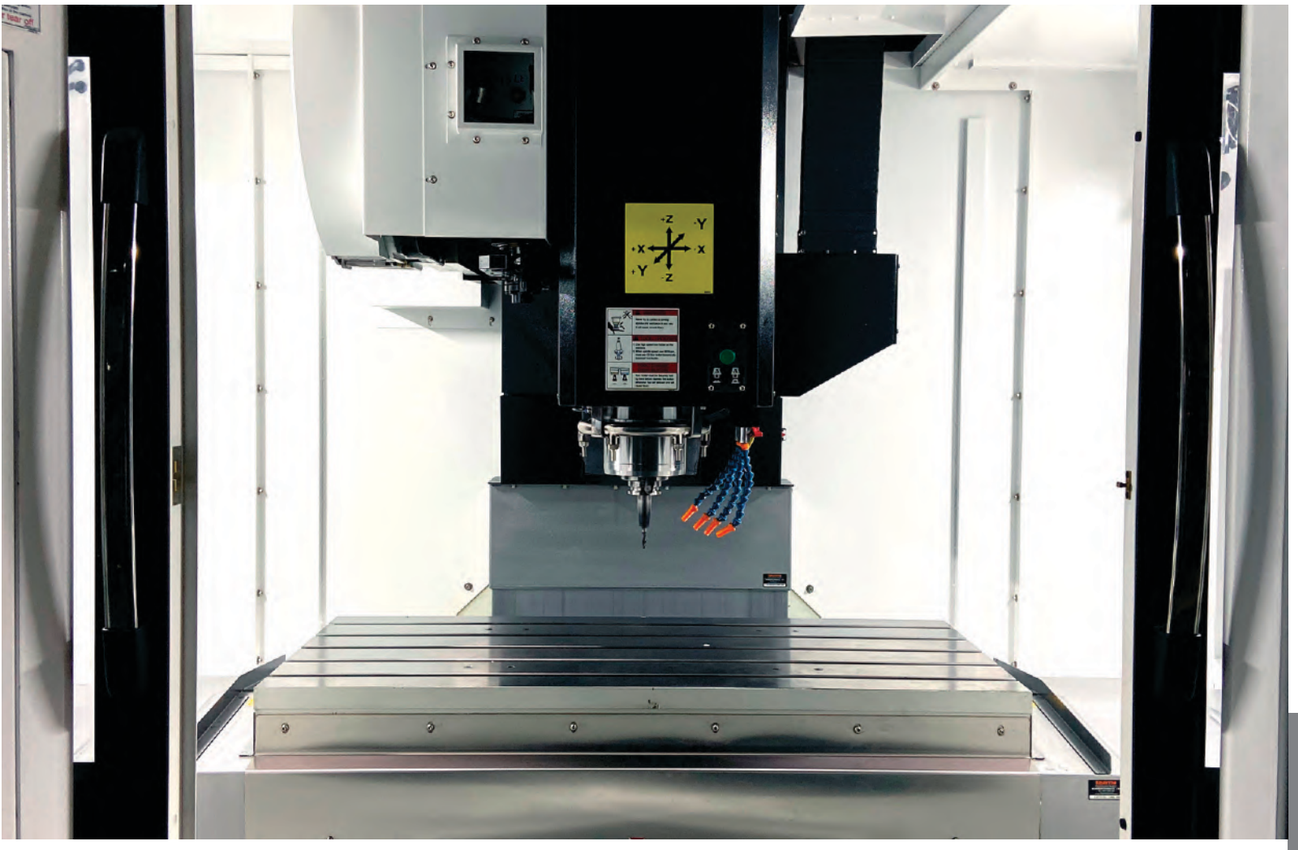






QUALITY ASSURANCE

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.



"The designer does not, as a rule, begin with some preconceived idea.
Rather, the idea is (or should be) the result of careful study and observation,
And the design a product of that idea."
-PAUL RAND

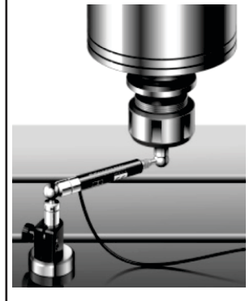
LASER CALIBRATION

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

Positioning Accuracy
within
10 micron
Repeatability
within
±3 micron

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



Circularity
within
10 micron

C3 Class Ball-screw

All axes use high precision, hardened and ground ball-screws to ensure consistent accuracy over the life of the machine. Directly drive coupling ensures transmission and high speed motion.

LM Guide-ways System

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

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

Portable MPG Unit

CVM is equipped with magnetic portable MPG/ Handwheel, so operator can stick it anywhere when setting up the machine.

(Optional)

ZENEZ by COSMOS

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

- Machine Downtime for Record & Report
- Smart HOME-SCREEN
- Machine Condition Setting to Quick Switch servo tuning based on application & machining requirements
- Maintenance Checklist with alert
- OEE & Utilization Reports On-Machine
- Alarm Assistance
- Calculator
- Tool load & life monitoring

SCROLL

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

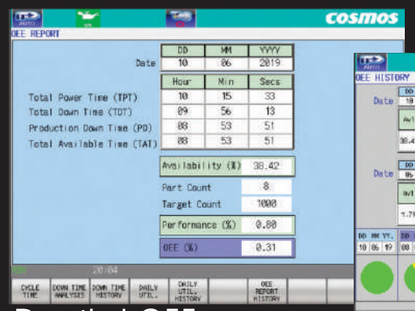
TAP

Tap to move cursor or navigate through the menus

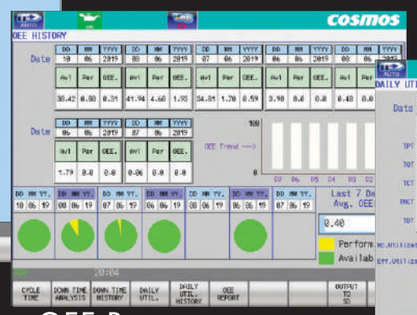
PINCH

Zoom-in & out of graphic content during simulation mode

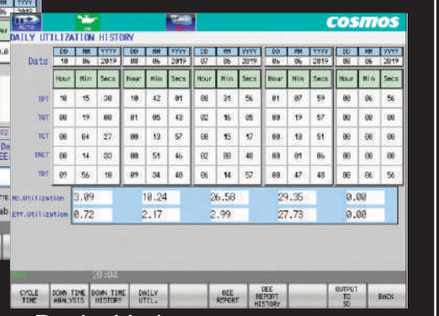
REPORTS ON DEMAND



Detailed OEE



OEE Report



Daily Utilization

* These screens are as per Mitsubishi, may look little different on Fanuc Controller

THE HOME SCREEN

STATUS VIEW

PROGRAM Status
SHOW TOOL LIFEstatus
ACTIVE MACHING CONDITION

ZENEZ MENU

PRE MACHINING APPS
DURING MACHINING APPS
POST MACHINING APPS
DIAGNOSIS APPS
MAINTENANCE APPS

AXIS LOAD METER

CNC VIEW

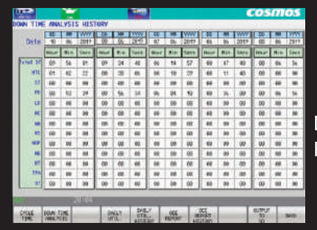
AXIS FEED-RATE
SPINDLE RPM
PROGRAM NAME
SEQUENCE NUMBER (N)
BLOCK NUMBER (B)
PROGRAM BUFFER
PROGRAM POSITION

MAINTENANCE ALERT

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

MACHINE DOWNTIME

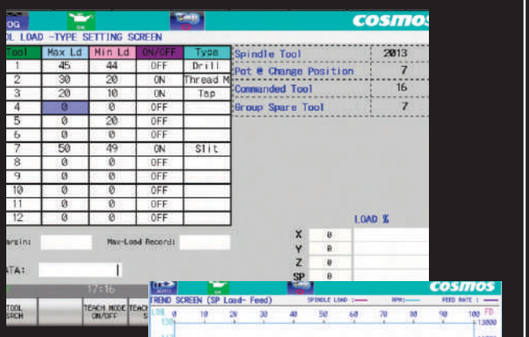
DOWN TIME ENTRY SCREEN



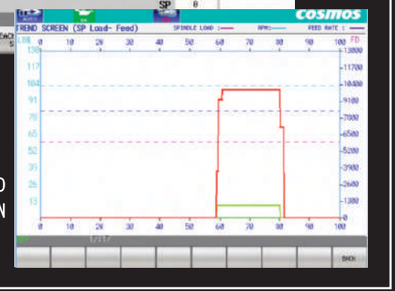
DOWNTIME ANALYSIS & HISTORY

TOOL LOAD SETTING

NOW SET MAX. & MIN. LOAD FOR EACH TOOL

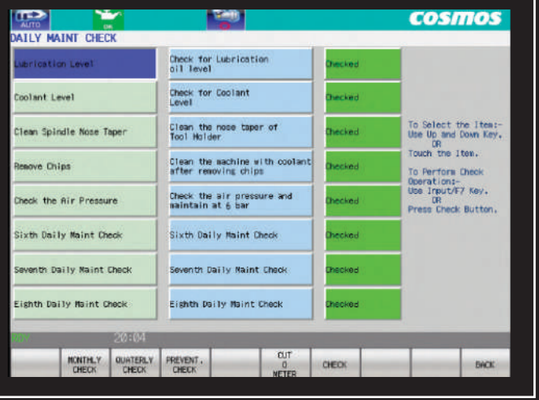


TEACH LOAD FUNCTION



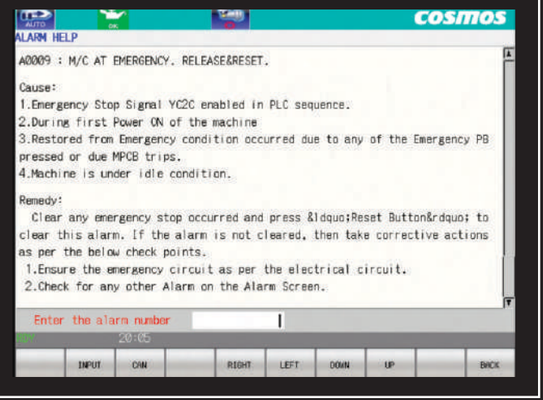
MAINTENANCE

DAILY | MONTHLY | QUATERLY CHECKLIST



ALARMS HELP

PROVIDES GUIDANCE TO RESET THE ALARM

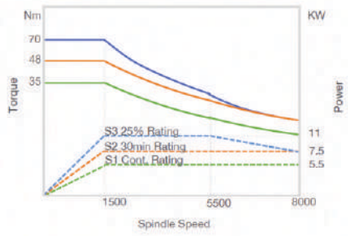


TORQUE POWER DIAGRAM

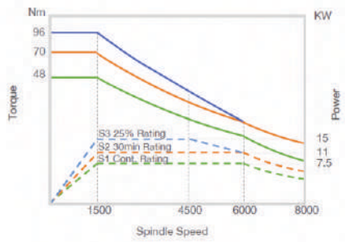
STANDARD SPINDLE MOTORS

MITSUBISHI CONTROLLER

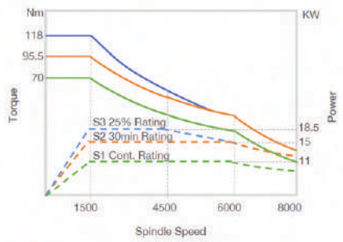
CVM 640
Power 5.5/7.5/11kw | Torque 70 Nm | 10000 rpm



CVM 800 | CVM 1160
Power 7.5/11/15kw | Torque 96 Nm | 10000 rpm

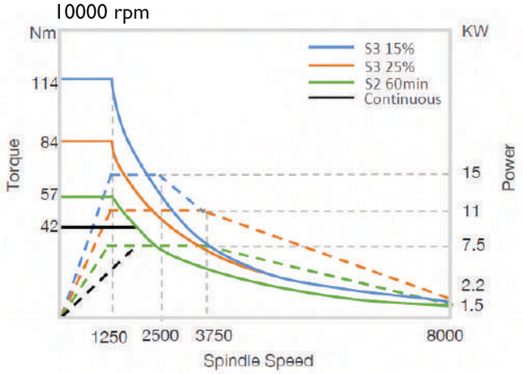


CVM 1370
Power 11/15/18.5kw | Torque 118 Nm | 8000 rpm

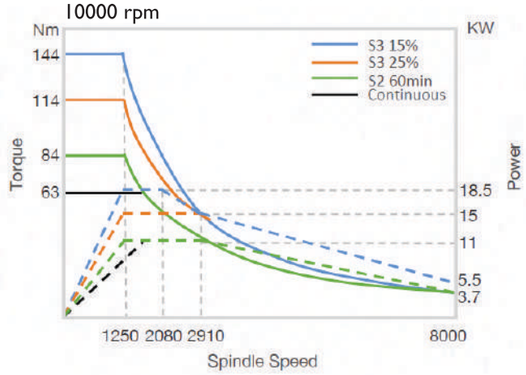


FANUC CONTROLLER

CVM 640 | CVM 800 | CVM 1160
Power 7.5/11/15 kw | Torque 95 Nm | 10000 rpm

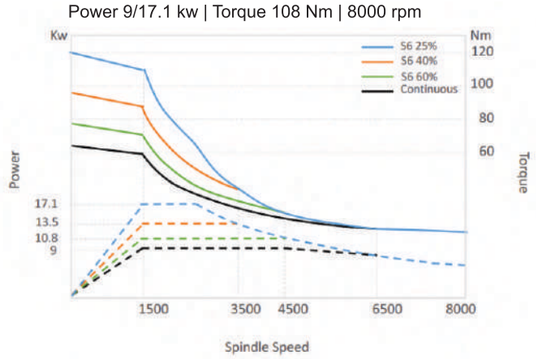


CVM 1370
Power 11/15/18.5 kw | Torque 118 Nm | 10000 rpm

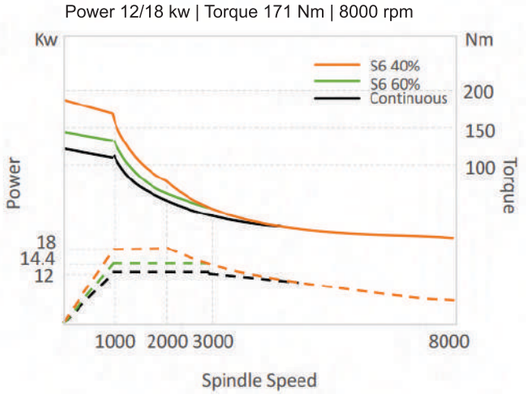


SIEMENS CONTROLLER

CVM 640 | CVM 800 | CVM 1160
Power 9/17.1 kw | Torque 108 Nm | 8000 rpm



CVM 1370
Power 12/18 kw | Torque 171 Nm | 8000 rpm



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
- Seperate 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 arrangment also available
- Torque motor and roller-cam solutions for higher speeds

Fixtures & Tooled Up Solutions

Machine Monitoring IIoT

Cosmos - Digifac - Industry 4.0

16 hr/day

Factory running 2 shifts

400 Rs/hr

Average hourly rate realization

10% Improvement

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

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

1,92,000 Rs

10 Machines

19.2lakh

30 Machines

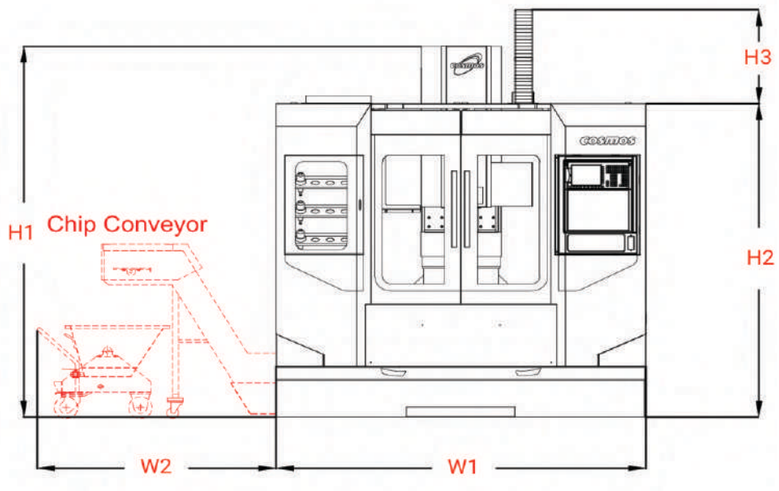
57.6lakh

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

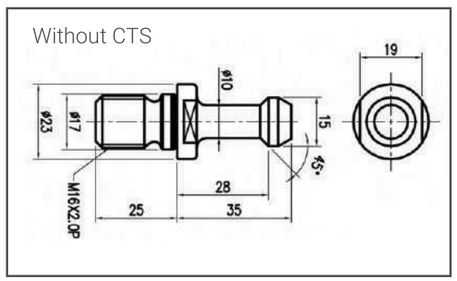
Layout & Dimension

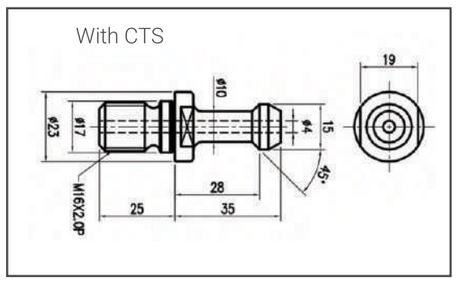
Machine Layout



	W1	W2	H1	H2	H3	DEPTH
CVM 640	2150	1410	2600	2050	800	2050
CVM 800	2450	1410	2650	2100	700	2200
CVM 1160	2900	1410	3000	2300	750	2650
CVM 1370	3500	1410	3100	2400	800	2800

Pull Stud Drawing





SPECIFICATIONS	UNIT	CVM-640	CVM-800	CVM-1160	CVM-1370
X - AXIS TRAVEL	mm	650	800	1100	1300
Y - AXIS TRAVEL	mm	450	500	650	700
Z - AXIS TRAVEL	mm	500	500	600	700
SPINDLE NOSE TO TABLE SURFACE	mm	100-600	100-600	150-750	150-850
SPINDLE CENTER TO COLUMN SURFACE	mm	540	560	705	770
TABLE DIMENSION	mm	800 x 450	1000 x 500	1250 x 600	1450 x 650
MAXIMUM LOAD	Kg	400	600	1000	1500
TABLE T-SLOT	mm	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
SPINDLE POWER MITSUBISHI (Cont / Int)	KW	5.5 / 7.5 / 11	7.5 / 11 / 15	7.5 / 11 / 15	11 / 15 / 18.5
SPINDLE POWER FANUC (Cont / Int)	KW	7.5 / 11 / 15	7.5 / 11 / 15	7.5 / 11 / 15	11 / 15 / 18.5
SPINDLE POWER SIEMENS (Cont / Int)	KW	9 /17	9 /17	9 /17	12 / 18
TAPER		BT 40	BT 40	BT 40	BT 40
RAPID RATE	m/min	36	36	30	24
CUTTING FEED RATE	m/min	10	10	10	10
ATC TYPE		ARM TYPE	ARM TYPE	ARM TYPE	ARM TYPE
NO OF TOOLS		24	24	24	24
MAXIMUM TOOL LENGTH	mm	250	250	250	250
MAXIMUM TOOL WEIGHT	KG	8	8	8	8
TOOL DIAMETER (with adjacent tool)	mm	Ø80	Ø80	Ø80	Ø80
TOOL DIAMETER (without adjacent tool)	mm	Ø150	Ø150	Ø150	Ø150
TOOL CHARGING TIME (tool t o tool)	sec	2.5	2.5	2.5	2.5
POSITIONING ACCURACY	mm	0.01	0.01	0.01	0.01
REPEATABLILITY	mm	± 0.003	± 0.003	± 0.003	± 0.003
FLOOR SPACE	WxD	2150 x 2450	2450 x 2200	2800 x 2650	3500 x 2800
NET WEIGHT (with ATC)	KG	4500	4800	6100	8500
POWER CAPACITY	KVA	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
- Oil coolant seperator
- Chip Tray
- Operation lamp
- Work lamp
- Leveling pad
- Maintenance kit
- Operation and maintenance manual

Optional Features

- 10000 / 12000 Rpm Spindle
- 12000 rpm Spindle Direct Drive Spindle
- Spindle Oil cooler
- Chip conveyor
- Chip flushing
- Air conditioning for electrical panel
- Coolant through spindle (CTS)
- 4th & 5th Axis Rotary Table
- 4th Axis Enable
- 4th Axis Interface