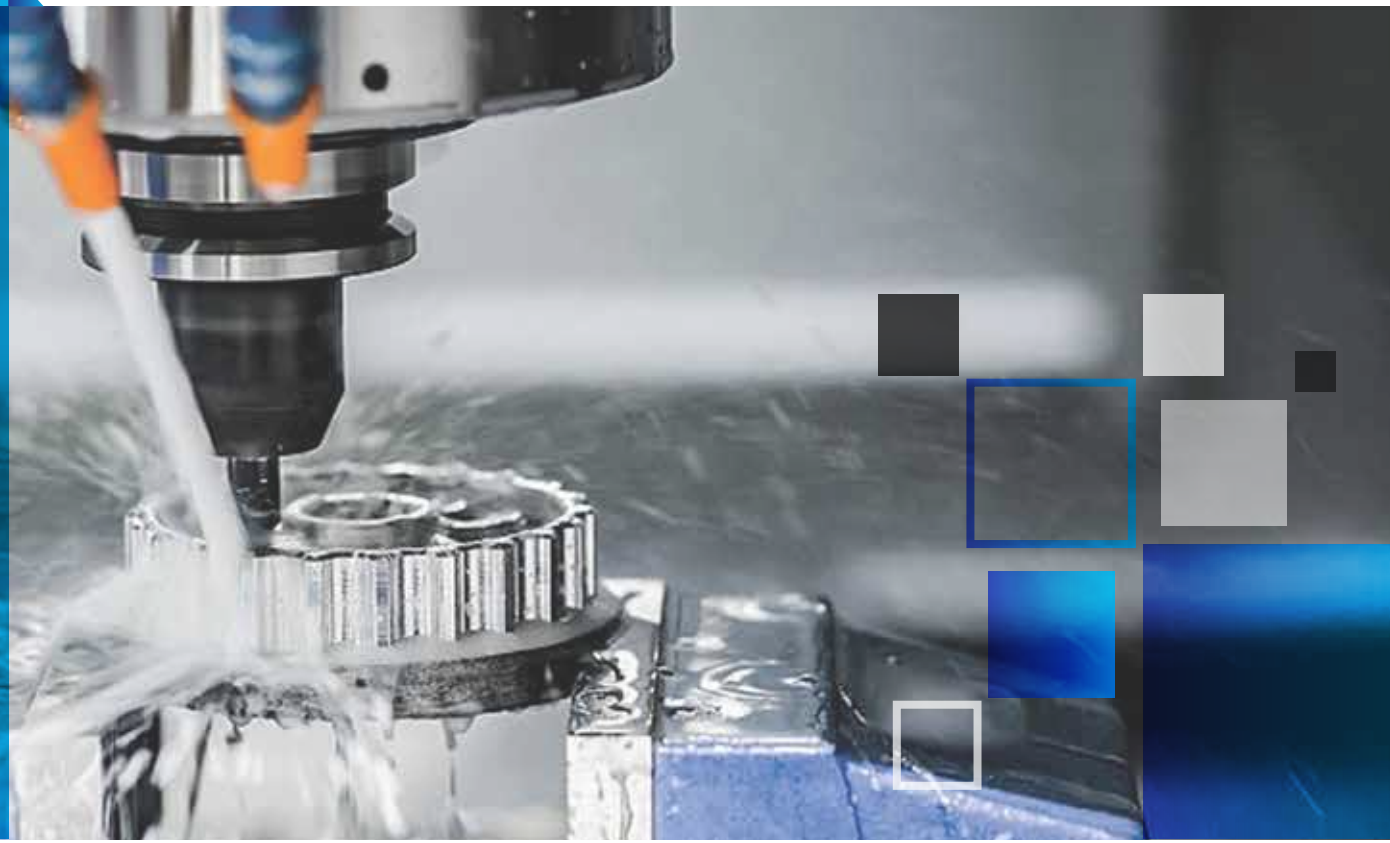
VMC SERIES

RAJSHREE AUTOMATION
AND CNC SERVICES



RAJSHREE AUTOMATION & CNC SERVICES

VMC 650 | VMC 850 | VMC 1160 | VMC1370
VMC1580 | VMC1890

FOR DETAILED INFORMATION, VISIT:

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ABOUT US

Rajshree Automation and CNC Services (RACS) is a professional machine tool supplier engaged in developing , marketing and support all kinds of CNC machine tools. Based on our strong international machine tool development capability and mature experience, absorbing advanced technology from Taiwan and Europe. We sell high precision machine tools for parts manufacturing and mould manufacturing strictly in accordance with the newest international standard.

The company team is composed of professional and technical staff. The senior management have vast expertise in the CNC machine industry. We have long term cooperation's with international professional machine tool builders.

We imbued with vitality and full of confidence. We will adhere to people-oriented, innovation striving for excellence, providing customers with top products and top service as our purpose.

04

RIGID STRUCTURE

Steady Triangular Structure Casting

- Tested and analyzed by using the most advanced finite element method and utilizing the pressure distribution of the computer simulation structure, the vibration source analysis and design changes, the structure location and other important mechanical and physical change factors in order to ensure that the design of all mechanical parts is improved to the optimum.

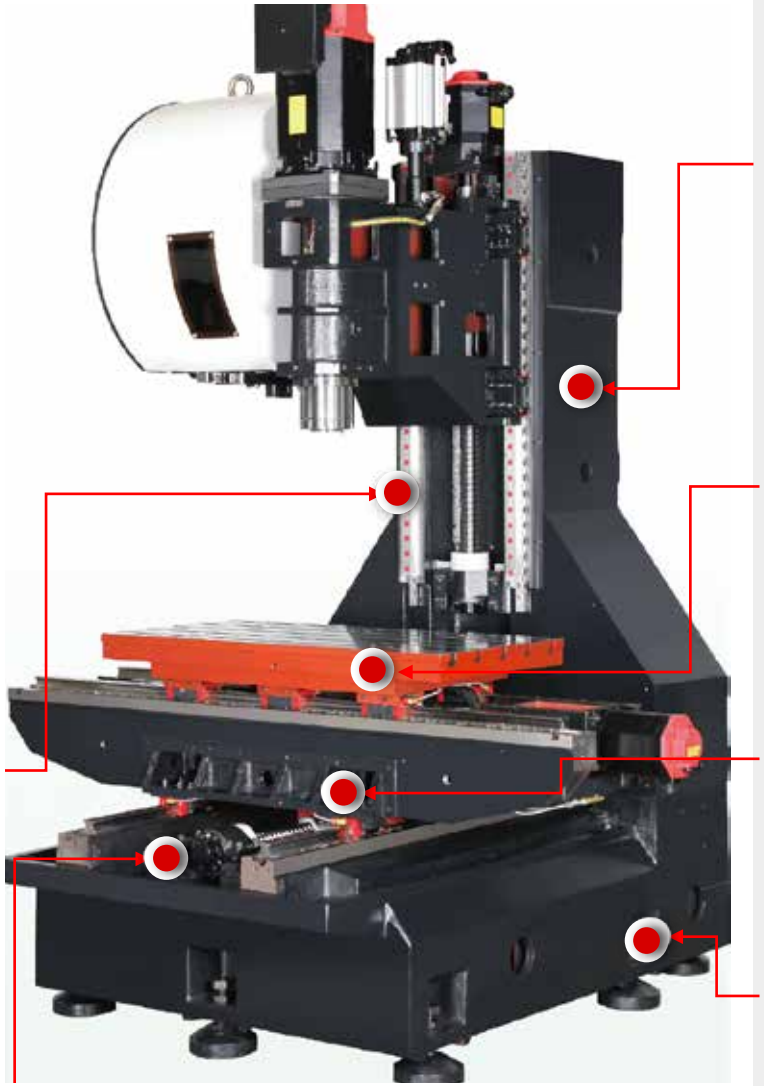
- The high-rigidity ultra-wide base and the chevron column are made of FC300 cast iron to enjoy good stability, high rigidity and fine firmness and provide the most stable heavy load supporting force, and the table is not overhung and has excellent rigidity and stability in combination with the strengthened design of all shafts.

High Precision Guideway

Each linear guideway uses the quenched steel linear guideway, which is preloaded to achieve the zero clearance and the full load capacity in each direction.

High Precision C3 Ball Screw

The back clearance free, low noise and steady temperature rising control high-precision screw rod is used. The preloaded precision nut eliminates the back clearance.



1. Chevron Column

The high-strength column structure design is adopted to bear heavy cutting and high-speed running. With the supporting of ultra-large and ultra-wide column, the internally reinforced layout, the grid intersecting arrangement of rib plates, the anti-torque ability is strong, so that the product is suitable for heavy cutting .

2. Table

The ultra-thick and ultra-large table is arranged on X-axis flatwise, the weight is distributed uniformly on the table, and the rigidity and the bearing capacity are ultra-strong to ensure that the guideway of the machine tool is durable and holds precision for a long time.

3. Saddle

The double-T ultra-wide structure extends the contact span of the saddle, enhances the torsional strength, strengthens the dynamic stability and ensures speediness and stationarity.

4. Heavy cast iron base

With the ultra-wide supporting anchor, the supporting area is large; with the supporting of box structure, strong stability and good rigidity, the product is suitable for heavy cutting machining.

05

TOOL MAGAZINE

Disc type magazine

Tool changing time

Tool to tool (T1 ->T2): 2.9 sec (24 tools for BT-50)

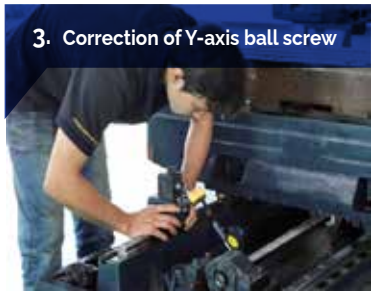
Tool to tool (T1 ->T2): 2.4 sec (24 tools for BT-40)

- The innovative ball cam mechanism is adopted, its partitioning precision is high, and the running speed is only second to that of the servo tool disc;
- The separating tool holder is supported with the tool disc to keep the verticality and clearance of the tool holding bar for a long time, and the tool removal action is smooth;
- The air compressor cylinder is located on the outside of the slide bar, and is convenient for the speed adjustment and repair of the cylinder;
- The tool disc is tightly mated with the sheet metal, and the underside chip proof ratio is higher than 90%;
- The magazine is supported by the imported linear bearing to ensure smooth and steady sliding;
- The magazine is supported by the imported linear bearing to ensure smooth and steady sliding;
- The magazine is light-weight, and the magazine castings are made of aluminum alloy, so that the product is light.

Specification		BT40	BT50
Max. Tool weight (kg)	mm	8	15
Max. Tool length (mm)	mm	350	350
Max. Tool Diameter (mm)	mm	Ø 80	Ø 110
	mm	Ø 130	Ø 200

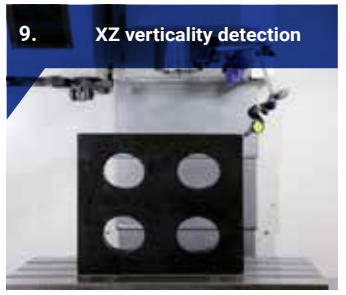
06

DETECTION DEVICE



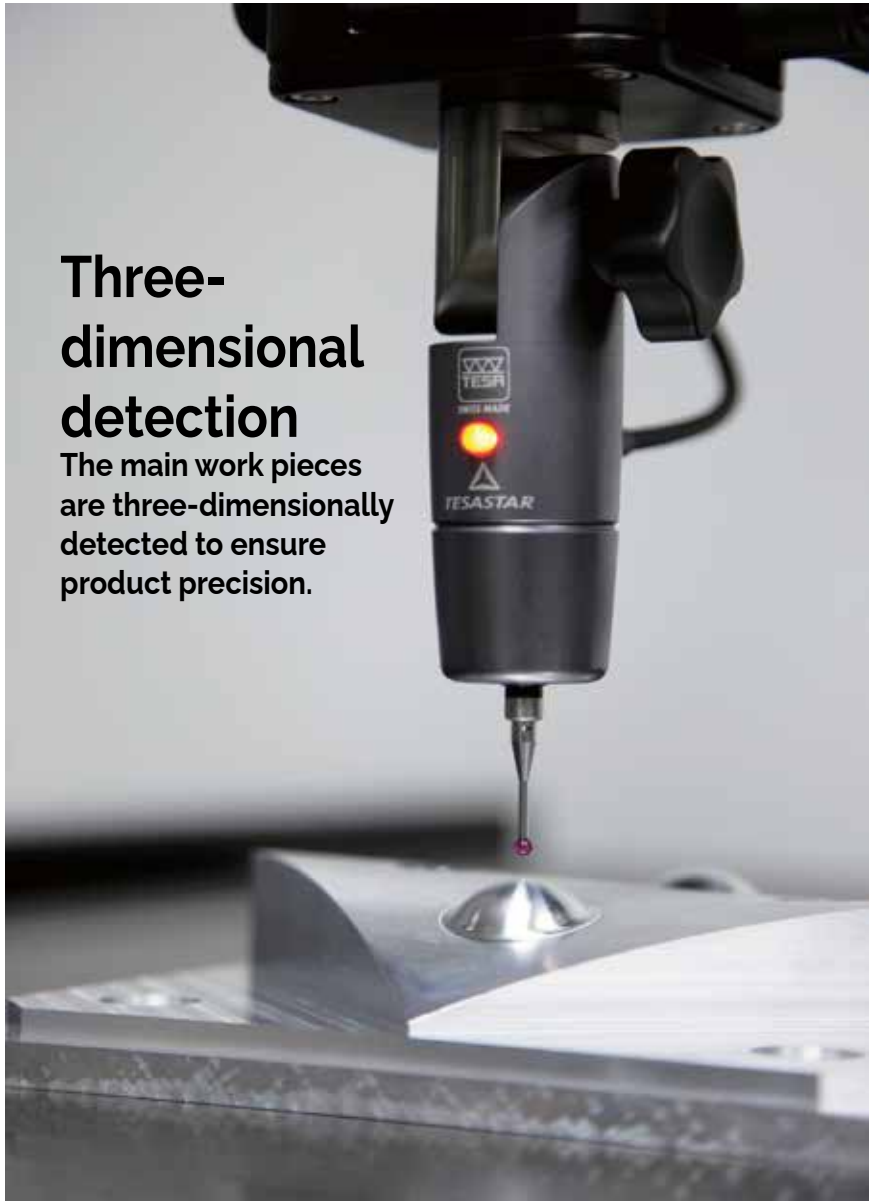
In order to ensure 100% pass of finished products, we at RAJSHREE uses best detection device to finish the comprehensive and systematic detection for each machine

1. The parallelism and flatness of the Z-axis ball screw shall be corrected within 0.01 mm.
2. The parallelism and flatness of the linear guideway shall be corrected within 0.01 mm
3. The parallelism and flatness of the Y-axis ball screw shall be corrected within 0.01 mm.
4. The flatness of the spindle plate shall be corrected within 0.005 mm.
5. The hardness measurement of the casting shall be up to HB200+20.
6. The roundness of the ball bar test shall be within 0.01 mm at 300mm.
7. The flatness of the table is within 0.015 mm
8. XY verticality shall be within 0.005 mm.
9. XZ verticality shall be within 0.01 mm.



07

DETECTION DEVICE

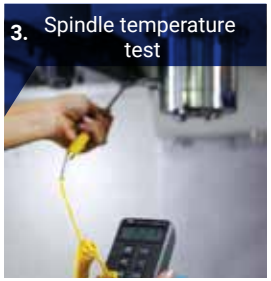


Three-dimensional detection

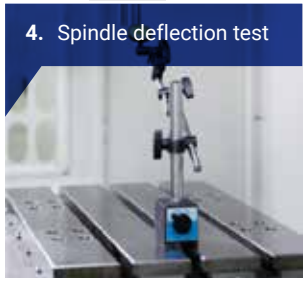
The main work pieces are three-dimensionally detected to ensure product precision.

1. Spindle pulling force test

2. Spindle shock test



3. Spindle temperature test



4. Spindle deflection test

1. **The spindle pulling force test is used for testing the tool pulling force.**
2. **Spindle shock test: the shock displacement is less than 3 μm at each speed.**
3. **Spindle temperature test: whether the spindle temperature is abnormal after the spindle runs for 24 hours**
4. **Spindle deflection test: the spindle deflection shall be within 0.005 mm at 300 mm.**
5. **Magazine load test: test the maximum load of the magazine and check for any abnormality**
6. **Spindle coupling test: the concentricity shall be within 0.005 mm.**

PRODUCT TESTING WITH METICULOSITY

5. Magazine load test

6. Spindle coupling detection

08

STANDARD

High-pressure backward flushing

Two vertical motors are installed, one is used for backward flushing on two sides, and the other is used for the machine to directly cool the machined work pieces. The new backward flushing chip removal design is adopted to rapidly and thoroughly remove the chips attached to the inside of the machine. The high-pressure backward flushing chip removal system mainly carries away the machining heat generated in the chips to ensure the machining precision and the surface smoothness of the work pieces as well as the machine precision

High-efficiency chip augers

The strip, block and particle chips cut from the metallic and non-metallic materials can be effectively removed, and the internal chips can be cleared in the machine.

Movable hand wheel

The movable hand wheel device is used, being convenient to operate and set.

Heat exchanger

The heat exchanger is used in the electrical box to ensure that the heat in the electrical box is extracted rapidly to maintain the temperature in the box and stabilize the operation of control system.

High-efficiency oil cooler

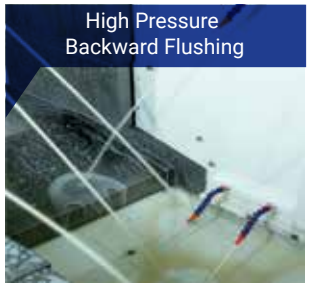
The high-efficiency oil cooler for the spindle effectively utilizes the recycling oil to take away the heat energy generated by the spindle running from the spindle through the refrigerating unit, so the spindle keeps operating at the normal temperature, thereby improving the machining precision, and ensuring the service life of the spindle.

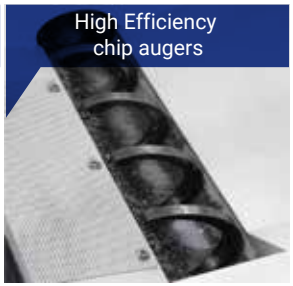
Automatic lubricating system

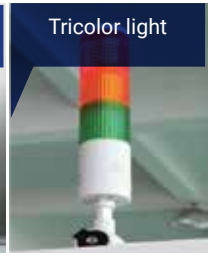
The positive displacement point-to-point lubrication is used to ensure that the lubricating oil is filled into each oil inlet and uniformly distributed on the machine.

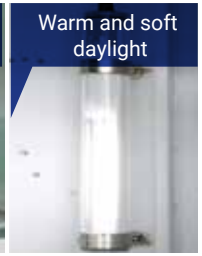
Tricolor light

The tricolor light is arranged at the conspicuous position of the machine. When the machine is out of order, the tricolor light gives warning to the operator









Nitrogen balance system

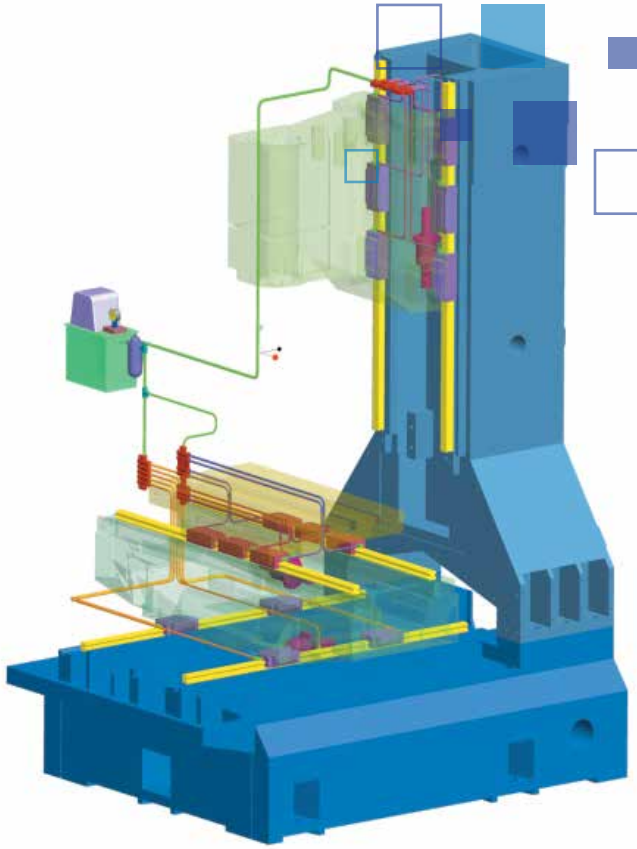
Z-axis uses the nitrous oxide balance system, which acts steadily and smoothly without shock; The nitrogen balance system is particularly suitable for VMC 1370 model and above; Even though the sudden power failure occurs without early warning, the headstock will not move down to ensure the tool life and the safety of work pieces.

Oil-water separator

The oil-water separator separates the oil from the mixture in the event of oil-water mixing, and ensures the quality of cutting fluid. The recovered oil can be reused to save the cost.

Warm and soft day lighting

One explosion-proof light is reasonably arranged on the two sides of the machine to fully ensure adequate lighting and protect the eyes from strong light.



Automatic Lubrication System

09 OPTIONAL

Laser tool setting gauge

The laser tool setting gauge can measure and detect the tool with the diameter as small as 0.003 mm at any point of the laser beam; the repeated accuracy can be ±0.1 μm in the specific environment; the level of protection is IP*8 in the rapid tool setting and breakage detection. (Continuous dive test)

On-line measuring apparatus

360-degree infrared transmission; level of protection: IP*8; one-way repeated accuracy: 1.0 μm; in the machine detection process, 90% non-cutting time is saved, and the process control is improved, so that the non-benefit tool setting and work piece aligning time is shortened. The work piece scrapping caused by the aligning error is eliminated. The work piece is accurately detected to reduce the offline detection non-cutting time after machining.

Manual tool setting gauge

High precision

The manual tool setting gauge has the repeated positioning precision of 1 μ m, the direct driving contact mode and high parallelism, and can measure the small diameter tool.

High leak proofness

The manual tool setting gauge has the level of protection of IP67, is waterproof, oil proof and cutting fluid resistant, has good leak proofness and keeps high precision for a long time

Ultra-long life

The tool setting operation can be performed for 3 million times, its tool setting surface is a replaceable contact surface, and the manual tool setting gauge can be ground, polished and titanized to extend the service life of the gauge

Energy-saving and environmentally friendly oil mist collector

It. has high filter efficiency and statically filters; it is stable and reliable, and has high maintenance cost and low noise; it has high safety, no spark, no high voltage risk and vulnerable components; it can rapidly collect and capture the oil mist and dust and greatly improves the working quality of the machine.


Laser tool setting gauge


Energy saving and environmental friendly oil mist collector


Cutting fluid cooling system


Fourth axis


Air conditioner cooler for electrical cabinet

Cutting fluid cooling system

It prevents the cutting fluid from being deteriorated, and effectively controls the cutting fluid to make up the requirement of the machine at the specified constant temperature to greatly improve the machining precision

Air conditioner cooler for electrical cabinet

The installation of air conditioner cooler can keep the temperature in the electrical cabinet constant to effectively stabilize the operation of control system.

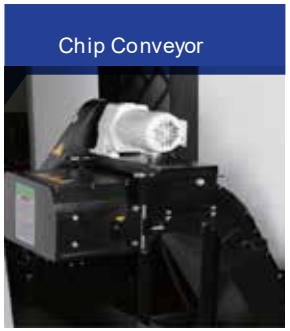
Optical ruler

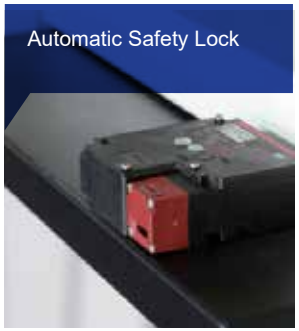
Absolutely reciprocating detection optical ruler powerful in the high precision positioning. (it can be installed on X/Y/Z-axis)

Fourth axis

It uses the high-precision gear for positioning to ensure that the partitioning precision is ±5 seconds. It has a precision structure assembled coupler not to float when partitioning. In combination with the fourth axis, it can machine multiple surfaces and reduce the non-machining time when the work pieces is loaded and unloaded.


On-Line measuring apparatus


Chip Conveyor


Automatic Safety Lock


Renishaw measuring contact Manual tool setting gauge


Optical Ruler

SPECIFICATION

Specification		VMC-650	VMC-850	VMC-1160
X/Y/Z Axis Travel	mm	600/500/500	800/500/500	1100/600/600
Distance from spindle nose to table surface	mm	110-610	150-650	120-720
Work Table Dimension	mm	800 x 500	1000 X 500	1200 x 600
T-Slot Dimension (Qty-Size-Spacing)	mm	5 –18–100	5 –18–100	5 –18 –100
Max. Working Table Load Capacity	Kg	450	600	900
Spindle Motor Power	Kw	7.5/11	7.5/ 11	11/ 15
Spindle Torque	NM	35/ 47.7	35/ 47.7	52.5/ 70
Spindle Speed	rpm	8000/ 10000/ 12000	8000/ 10000/ 12000	8000/ 10000/ 12000
Spindle Taper		BT40	BT40	BT40
Positioning Accuracy	mm	±0.005/300	±0.005/300	±0.005/300
Repeatability Accuracy	mm	±0.003/300	±0.003/300	±0.003/300
X/Y/Z – Axis Rapid Speed	m/min	36/36/24	36/36/24	36/36/24
Feed Speed	mm/min	1-10000	1-10000	1-10000
Dia of X/Y/Z – Axis Ball Screw	mm	Ø40	Ø40	Ø40
X/Y/Z–Axis motor servo power	KW	2/2/3	2/2/3	3/3/3
Roller Guideways Size	mm	35/35/35	35/35/35	45/45/45
Controller		Fanuc, Mitsubishi	Fanuc, Mitsubishi	Fanuc, Mitsubishi
Automatic Tool Changing System	T	24	24	24 (Optional)
Net Weight	Kg	5000	5200	7000
Outline Size	mm	2350x2850x2875	2700x2400x2500	2580x2700x3005

We have the right to change the above specifications without notice

VERTICAL MACHINING CENTER VMC 650/850/1160

SPECIFICATION

Specification		VMC-1370	VMC-1580	VMC-1890
X/Y/Z Axis Travel	mm	1300/700/650	1500/800/700	1800/900/700
Distance from spindle nose to table surface	mm	180-830	160-860	160-860
Work Table Dimension	mm	1400 x 700	1600 X 800	1900 x 900
T-Slot Dimension (Qty-Size-Spacing)	mm	5 – 18 – 125	5 – 22 – 135	5 – 22 – 150
Max. Working Table Load Capacity	Kg	1250	1600	1800
Spindle Motor Power	Kw	11/ 15	15	18.5
Spindle Torque	NM	52.5/ 70	70	
Spindle Speed	rpm	8000/ 10000	6000/ 8000	6000/ 8000
Spindle Taper		BT40	BT50	BT50
Positioning Accuracy	mm	±0.005/300	±0.005/300	±0.005/300
Repeatability Accuracy	mm	±0.003/300	±0.003/300	0.003/300
X/Y/Z – Axis Rapid Speed	m/min	30/30/24	24/24/24	24/24/24
Dia of X/Y/Z – Axis Ball Screw	mm	Ø 40/ 40/ 50	Ø 50/ 50/ 50	Ø 50/ 50/ 63
X/Y/Z–Axis motor servo power	KW	3/3/3	3/3/3	3/3/3
Roller Guideways Size	mm	45/45/55	55/45/55	55/45/55
Controller		Fanuc, Mitsubishi	Fanuc, Mitsubishi	Fanuc, Mitsubishi
Automatic Tool Changing System	T	24 (Optional)	24 (Optional)	24 (Optional)
Net Weight	Kg	9200	14000	16500
Outline Size	mm	3600x2600x2800	4350x3760x3600	4600x3200x4000

We have the right to change the above specifications without notice

VERTICAL MACHINING CENTER

VMC – 1370/1580/1890

CONFIGURATIONS

Standard and optional configurations

Machine Model			VMC-650	VMC-850	VMC-1160
Spindle	6000	Belt Type	○	○	○
	8000	Belt Type	●	●	●
	10000	Belt Type / Direct Drive	○	○	○
	Spindle Cooling	Oil Chiller	○	○	○
ATC	Side Mount	24 Tools	●	●	○
Chip Processing equipment	Auger	2/3	○	○	○
	Conveyor		○	○	○
CNC Controller	Mitsubishi M80 B		●	●	●
	Mitsubishi M80 A		○	○	○
	Fanuc- Oi MF		○	○	○
Others	Door Lock		○	○	○
	MPG		●	●	●
	Panel AC		●	●	●
	Air Gun/ Coolant Gun		●	●	●

● Standard ○ Optional

We have the right to change the above specifications without notice

CONFIGURATIONS

Standard and optional configurations

Machine Model			VMC-1370	VMC-1580	VMC-1890
Spindle	6000	Belt Type	○	●	●
	8000	Belt Type	○	○	○
	10000	Belt Type / Direct Drive	○	○	○
	Spindle Cooling	Oil Chiller	○	○	○
ATC	Side Mount	24 Tools	○	○	○
Chip Processing equipment	Auger	2/3	○	○	○
	Conveyor		○	○	○
CNC Controller	Mitsubishi M80 B		●	●	●
	Mitsubishi M80 A		○	○	○
	Fanuc- Oi MF		○	○	○
Others	Door Lock		○	○	○
	MPG		●	●	●
	Panel AC		●	●	●
	Air Gun/ Coolant Gun		●	●	●

● Standard ○ Optional

We have the right to change the above specifications without notice

WORKPIECE SAMPLES

Display of machine and finished products

PARTNERS

Partners & Quality Components

RAJSHREE only uses high-quality, precision components in the manufacture of machine tools. While this step is more expensive, building quality components into our machines is the only way to achieve the quality results and long service life our customers have come to expect.

RAJSHREE AUTOMATION AND CNC SERVICES

Precautions:

- Due to product improvement and development, specification is subjected to change without further notice.
- Materials and pictures are for reference only, please refer to the actual product.
- Contact RAJSHREE sales office for questions regarding catalog content.
- Actual machine standard features may differ in some details from machines shown in catalog images.

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