VMC B Series Vertical Machining Center Technical Parameters

Technical Parameters

Items	Unit	VMC 580B	VMC 850B	VMC 1100B	VMC 1300B		VMC 1600B	VMC 2100B
Worktable								
Worktable Size	mm	650×430	1000×500	1300×610	1400×700		1700×800	2200×800
T-slot Size	mm×pcs	14×3	18×5	18×5	18×5		22×5	22×5
Max load capacity	kg	300	600	1000	1000		2000	3000
Working Range								
X-axis Travel	mm	580	850	1100	1300		1600	2100
Y-axis Travel	mm	420	560	610	700		800	800
Z-axis Travel	mm	520	650	650	700		800	800
Spindle Nose to Worktable Max.	mm	620	800	800	850		940	1000
Spindle Nose to Worktable Min.	mm	100	150	150	150		140	200
Spindle								
Spindle Taper Shank	-	BT40	BT40	BT40	BT40	BT50	BT50	BT50
Spindle Speed	r/min	10000	10000	10000	10000	6000	6000	6000
Main Motor Torque	N.m	35.8	52.5	52.5	52.5	71.6	95.4	95.4
Main Motor Power	kW	7.5/11	11/15	11/15	11/15	15/18.5	15/18.5	15/18.5
Feed								
Feed Speed	mm/min	1-20000	1-20000	1-20000	1-10000		1-10000	1-10000
Rapid Traverse	m/min	48/48/48	45/45/30	45/45/30	24/24/20		24/24/20	18/18/18
Tool Magazine								
Tool Magazine type	-	ATC with robot arm	ATC with robot arm	ATC with robot arm	ATC with robot arm		ATC with robot arm	ATC with robot arm
Tool Magazine Capacity	Pcs	20	24	24	24	20	20	20
Max Tool Length	mm	300	300	300	300	300	300	300
Max Tool Weight	kg	8	7	7	7	15	15	15
Max Tool Diameter Full	mm	Φ80	Φ80	Φ80	Φ80	Φ133	Φ133	Φ133
Max Tool Diameter Adjacent	mm	Φ125	Φ150	Φ150	Φ150	Φ250	Φ250	Φ250
Tool Change Times	s	1.8	2.5	2.5	2.5	3.5	3.5	3.5
Positioning Accuracy								
Implement JISB6336 - 4 :2000 Standard Implement GB/T18400.4 -2010 Standard X Axis	mm	0.010	0.010	0.010	0.010		0.015	0.018
Implement JISB6336 - 4 :2000 Standard Implement GB/T18400.4 -2010 Standard Y Axis	mm	0.008	0.008	0.008	0.008		0.010	0.010
Implement JISB6336 - 4 :2000 Standard Implement GB/T18400.4 -2010 Standard Z Axis	mm	0.010	0.010	0.010	0.010		0.010	0.010
Repeat Positioning Accuracy								
Implement JISB6336 - 4 :2000 Standard Implement GB/T18400.4 -2010 Standard X Axis	mm	0.008	0.008	0.008	0.008		0.010	0.010
Implement JISB6336 - 4 :2000 Standard Implement GB/T18400.4 -2010 Standard Y Axis	mm	0.006	0.006	0.006	0.006		0.008	0.008
Implement JISB6336 - 4 :2000 Standard Implement GB/T18400.4 -2010 Standard Z Axis	mm	0.008	0.008	0.008	0.008		0.008	0.008
Total Power Capacity	kVA	18	25	25	37		37	37
Air Pressure	Mpa	0.5-0.7	0.5-0.7	0.5-0.7	0.5-0.7		0.5-0.7	0.5-0.7
Dimensions and Weight								
Dimensions(Length x width x height)	mm	2020×2700×2473	4200×2480×2950	4200×2480×2950	5026×2970×3361		5840×3340×3715	6705×3500×3910
Weight	kg	3500	5900	6100	9500		12400	17000
NC	-	FANUC	FANUC	FANUC	FANUC		FANUC	FANUC

Note: The parameters provided in the table are for reference only. In case of any change, please refer to the actual object.

The explanation, diagram and technical parameter are varying with continuous technology development without further notice.

通用技术沈阳机床
GENERTEC SHENYANG MACHINE TOOL

VMC B Series
Vertical Machining Center

Address: No.1.17-A, Kaifa Avenue, Shenyang Economic & Technological Development Zone, Shenyang, China
Service line: 400-615-9999
Scan QR code to follow official WeChat

VMC B series

Vertical Machine Center

Classic Types with a Good Market in China

VMC580B/850B/1100B
VMC1300B/1600B/2100B

Classical Structure Design

- Super wide beveled bed
- Split cover of Y-axis
- Multistage filtered chain plate chip conveyor

New Update and Improvement

- Improved the thermal stability of lead screw
- Improved the seal class of cover
- Reduced the thermal deformation of headstock

Product Introduction

VMC-B Series are developed in line with the market demand, pooled years of manufacturing experience and the latest high-end technology. All the time, we are committed to improving the level of product manufacturing and quality control. Working hard for you to get better machine tools.

The worktable of B Series is from 650x430mm to 2200x800mm, X-axis travel is from 580mm to 2100mm. The various configurations can meet the needs of customers in different areas.

High Configuration, Wide Applicability

- Large machining range
- Standard chain plate chip conveyor
- 11/15 kw main motor

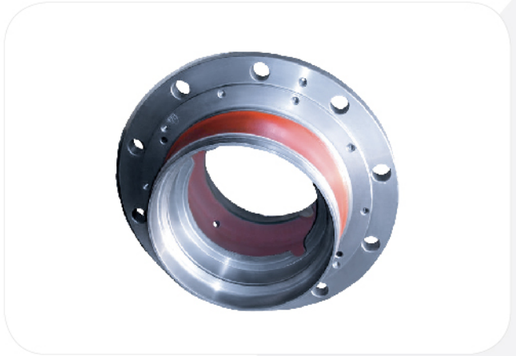
Vertical Drilling and Tapping DTC series

High-efficiency H series

Industrial iV series

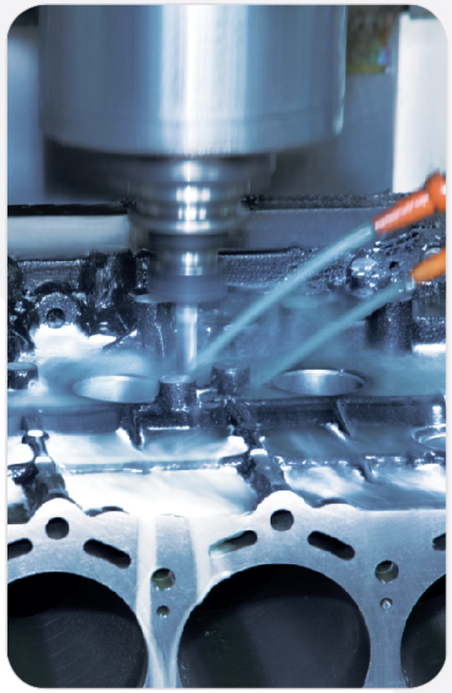
General Q Series

Classic Machining Case



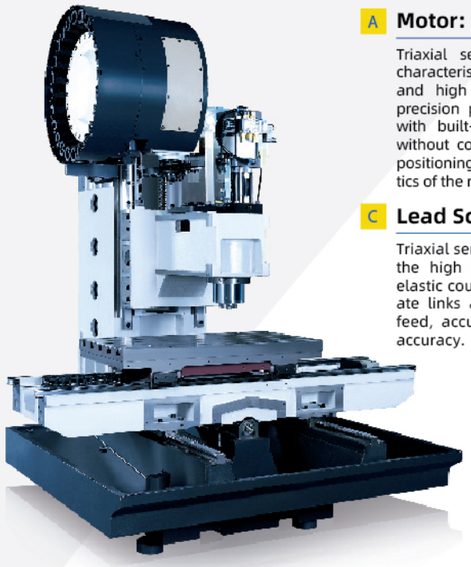
Material: Steel	Tool	Time
2 bore holes	Φ 60-80 boring tool	4'10''
10 drill holes	Φ 18 drill	4'28''
12 drill holes	Φ 8.5 drill	2'02''
12 tapping	M10 tap	3'50''

Material: Alloy Steel	Tool	Time
2 counter bore	Φ12 Vertical milling cutter	30s
2 drill holes	Φ10.7 Drill	32s
2 tapping	M12 Tap	58s



Classic Machine Tool with High Cost Performance

VMC 850B is an optimal product developed to meet the market needs. The design of super wide bed ensures the best supporting ability and stability of the machine tool. The large bevel structure of bed and split cover of Y-axis, makes chip removal convenient and quick.



A Motor:

Triaxial servo motor, has smooth rotation characteristics, excellent acceleration ability and high reliability. High speed and high precision positioning control can be realized with built-in encoder. Z-axis is constructed without counterweight to further improve the positioning accuracy and dynamic characteristics of the machine tool.

B Tool Magazine:

The disc-type tool magazine is installed on the side of the column. When spindle reaching the tool changing position, ATC with gripper can accomplish returning and sending of the tool. ATC with a hobbing cam mechanism can operate at high speed without noise, making the tool change process fast and accurate.

C Lead Screw:

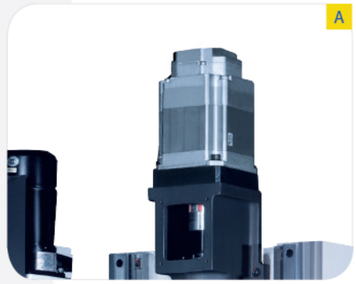
Triaxial servo motor is directly connected with the high precision ball screw through the elastic coupling, which can reduce intermediate links and realize gapless drive, flexible feed, accurate positioning and high driving accuracy.

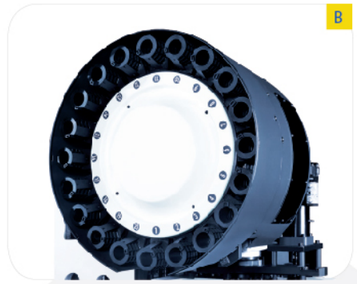
D Spindle:

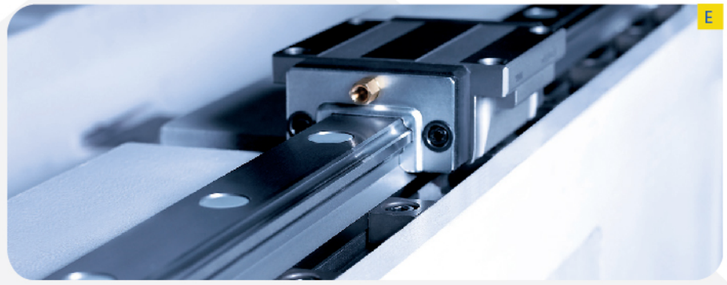
The spindle is produced by Taiwan manufacturers with high precision and high rigidity. Bearings are P4 special bearings for spindle. After the assembly is completed under constant temperature conditions, the dynamic balance correction and running test are passed to improve the service life and reliability of the spindle. The main driving system is driven by synchronous belt to ensure the accuracy of spindle rotation.

E Guide way:

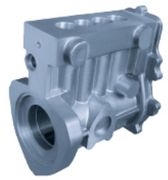
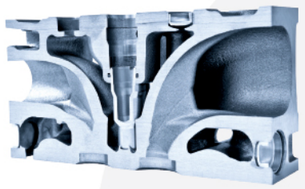
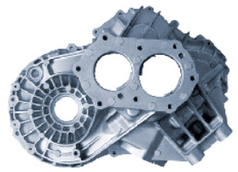
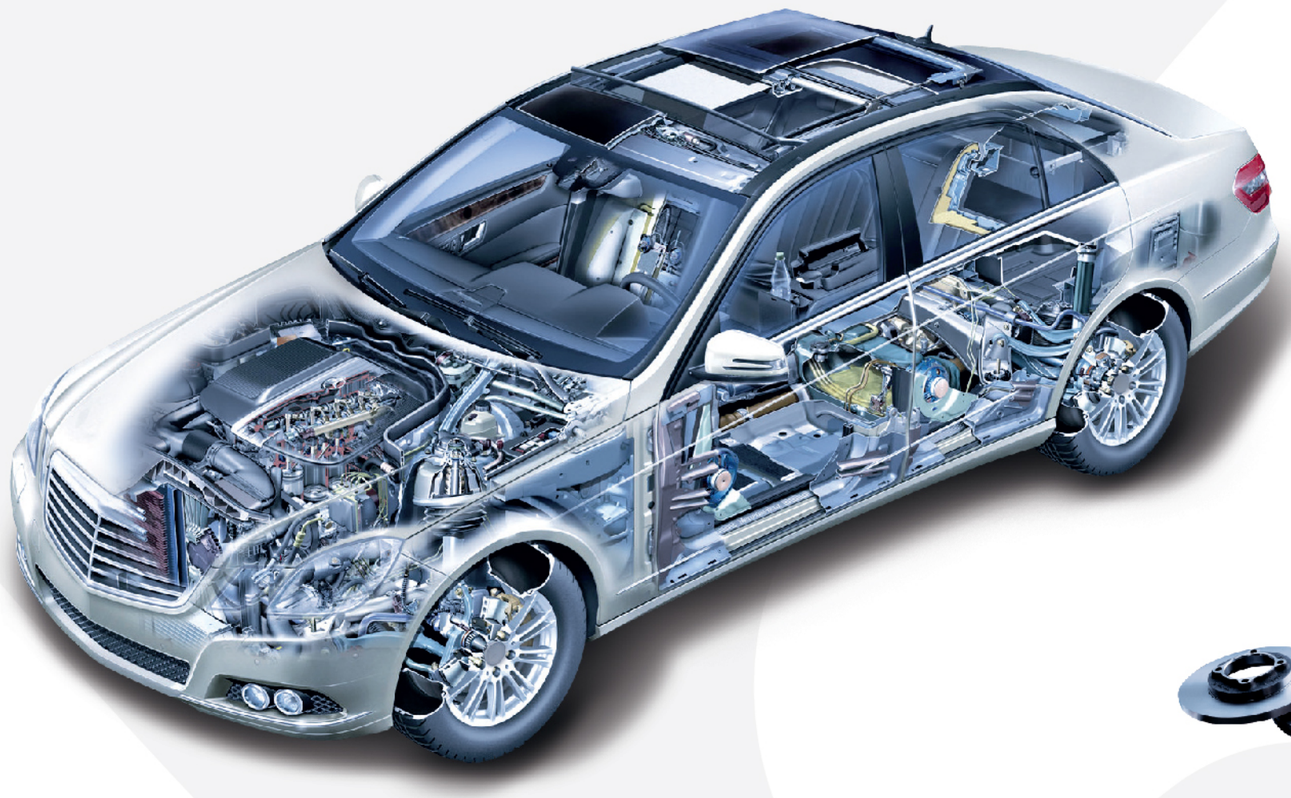
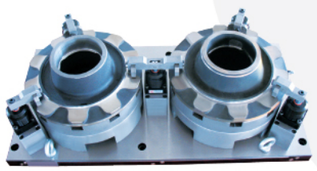
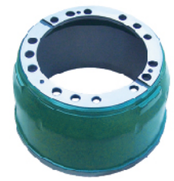
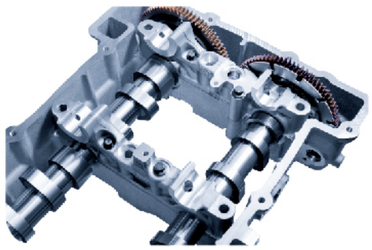
Triaxial guide way pair adopts imported linear rolling guide way, which can realize low kinetic and static friction force, high sensitivity, excellent servo drive performance and improve the precision and precision stability of the machine tool.



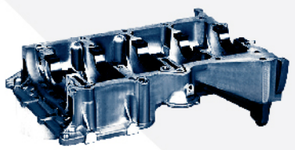
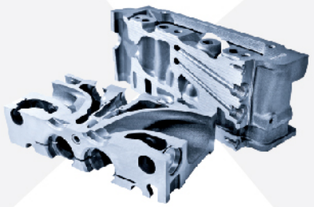




Provide perfect solutions for parts processing of multi-industry companies



Intelligentize Function

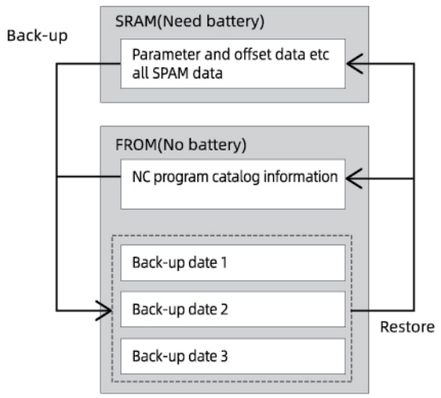
Automatic Homing of the Tool

By running the automatic homing macro-program of the tool magazine, the machine automatically completes the tool homing. Putting tool NO.1 into sleeve NO.1 and tool NO.2 into sleeve NO.2, by that analogy, so as to facilitate customers to master the actual use of the tool and correct the wrong tool number in time

Handwheel reversal → program reversal execution
Handwheel foreward → rogram foreward execution

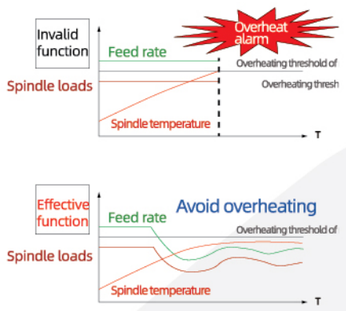
Handwheel Retrace Function

The manual handwheel can be used in automatic running (manual pulse generator) to move the program forward or backward. It is easy to detect errors in the program by actually making the machine tool action at the same time.



Automatic Data Backup

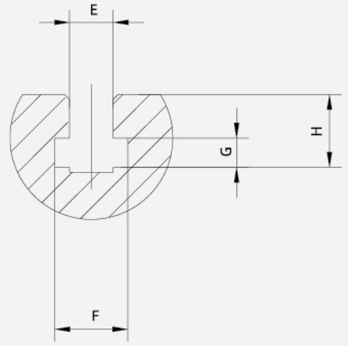
The data of all SRAM packages, such as parameters and biased data, are saved to FROM and automatically updated at a fixed period. Once lost, data can be retrieved to realize automatic data backup.



Intelligent Load Control of The Spindle (optional)

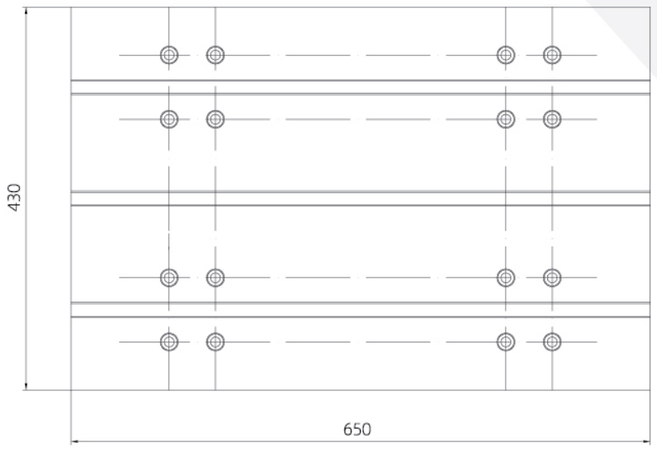
According to the load and temperature of the spindle, it can automatically control the feed speed to improve efficiency and protect the tool. Meanwhile, maximize the output capacity of the spindle while achieving a shorter machining cycle and a longer tool life.

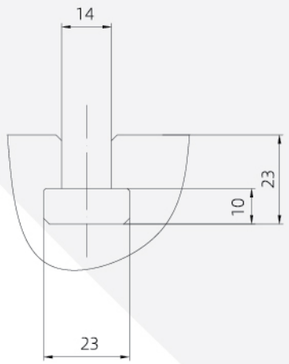
Worktable Size



Model	A	B	C	D	E	F	G	H
VMC850B	500	1000	50	100	18	30	12	30
VMC1100B	610	1300	105	100	18	30	12	30
VMC1300B	700	1400	100	125	18	30	12	30
VMC1600B	800	1700	100	150	22	40	16	38
VMC2100B	800	2200	100	150	22	40	16	38

VMC580B





VMC B Series

VMC H Series

Please look forward to the upgraded version ...

Configuration of the Machine Tool

Configuration	VMC 580B	VMC 850B	VMC 1100B	VMC 1300B	VMC 1600B	VMC 2100B
Triaxial ball screw	◆	◆	◆	◆	◆	◆
Triaxial guide						
X	linear rail	linear rail	linear rail	linear rail	linear rail	linear rail
Y	linear rail	linear rail	linear rail	linear rail	4linear rail	4linear rail
Z	linear rail	linear rail	linear rail	Hardway	Hardway	Hardway
Chip removal system						
Water tank	◆	-	-	-	-	-
Chain chip removal	◇	◆	◆	◆	◆	◆
Lubrication system	◆	◆	◆	◆	◆	◆
Pneumatic system	◆	◆	◆	◆	◆	◆
Pneumatic gun	◆	◆	◆	◆	◆	◆
Water gun	◇	◇	◇	◇	◇	◇
Heat and cold exchanger	◆	◆	◆	◆	◆	◆
Air conditioner of electric cabinet	◇	◇	◇	◇	◇	◇
Oil cooler	◇	◇	◇	◇	◇	◆
CNC system						
FANUC 0i-MF TAPE(5)β Motor	◆	◆	◆	◇	-	-
FANUC 0i-MF TAPE(1)β Motor	◇	◇	◇	◆	-	-
FANUC 0i-MF TAPE(1)α Motor	◇	◇	◇	◇	◆	◆
Internal cooling						
20BAR	◇	◇	◇	◇	◇	◇
30BAR	◇	◇	◇	◇	◇	◇
Safety door lock	◇	◇	◇	◇	◇	◇
Ethernet interface	◆	◆	◆	◆	◆	◆
Spindle configuration						
BT40 10000r/min	◆	◆	◆	◆	-	-
BT40 12000r/min Direct connection	◇	◇	◇	◇	-	-
BT40 15000r/min Direct connection	◇	◇	◇	-	-	-
BT50 6000r/min	-	-	-	◆	◆	◆
Tool measurement	◇	◇	◇	◇	◇	◇
Workpiece Inspection	◇	◇	◇	◇	◇	◇
Reserved robot interface	◇	◇	◇	◇	◇	◇
Automatic door	◇	◇	◇	◇	◇	◇
Reduction gearbox	-	-	-	◇ (BT50)	◇	◆
4th axis rotary table, motor module	◇	◇	◇	◇	◇	◇
Full enclosed protective cover	◇	◇	◇	◇	◇	◇

Note: ◆ standard configuration ◇ optional configuration

Technical parameter

Item		Unit	VMC 850H	VMC 1000H	VMC 1100H	VMC 1300H	VMC 1600H
Worktable							
Size		mm	1000×500	1200×500	1300×610	1400×700	1700×800
Max allowed loading		kg	600	600	1000	1250	1500
T slot size		mm×pcs	18×5	18×5	18×5	18×5	22×5
Machining range							
Max travel of table-X axis		mm	850	1000	1100	1300	1600
Max trave of slide-Y axis		mm	520	520	600	700	825
Max travel of spindle-Z axis		mm	540	540	600	700	700
Distance between spindle nose to worktable surface	Max	mm	660	660	720	850	850
	Min	mm	120	120	120	150	150
Distance between spindle center to guideway base		mm	648	648	737	820	932
Spindle							
Taper (7:24)			BT40	BT40	BT50	BT50	BT50
Max speed		r/min	8000	8000	6000	6000	6000
Output torque		N·m	78/143	78/143	105/191	105/191	105/191
Motor power		kW	11/15	11/15	11/15	11/15	11/15
Drive type			Synchronous toothed belt	Synchronous toothed belt	Synchronous toothed belt	Synchronous toothed belt	Synchronous toothed belt
Tools							
Tool holder model			MAS 403 BT40	MAS 403 BT40	MAS 403 BT50	MAS 403 BT50	MAS 403 BT50
Pull stud model			MAS 403 P40T-I	MAS 403 P40T-I	MAS 403 P50T-I	MAS 403 P50T-I	MAS 403 P50T-I
Feed							
Rapid traverse	X axis	m/min	48	48	48	36	36
	Y axis	m/min	48	48	48	36	36
	Z axis	m/min	48	48	48	24	24
3 axes moter power(X/Y/Z)		kW	1.8/3/3	1.8/3/3	3/3/3	3/3/3	3/3/3
3 axes moter torque(X/Y/Z)		N·m	11/20/20	11/20/20	20/20/27	20/20/36	20/20/36
Feed speed		mm/min	1-20000	1-20000	1-20000	1-20000	1-20000
Tool magazine							
Type			ATC	ATC	ATC	ATC	ATC
Mode			Nearest tool selection in bi-direction	Nearest tool selection in bi-direction	Nearest tool selection in bi-direction	Nearest tool selection in bi-direction	Nearest tool selection in bi-direction
Capacity		把	24	24	20	20	20
Max tool length		mm	300	300	300	300	300
Max tool weight		kg	7	7	15	15	15
Max too disk dia.	Full	mm	Φ80	Φ80	Φ133	Φ133	Φ133
	Adjacent	mm	Φ150	Φ150	Φ250	Φ250	Φ250
Tool change time (T-T)		s	2.5	2.5	3.5	3.5	3.5
The height between table to ground		mm	890	890	950	1055	1090
Machine weight		kg	6200	6400	7200	12000	14000
Total power capacity		KVA	25	25	25	37	37
Overall dimension (LxWxH)		mm	3800×2888×2900	4000×2888×2900	4250×2970×2915	4700×3100×3500	5400×3100×3500

Note:The parameters provided in the table are for reference only. In case of any change, please refer to the actual object

The explanation, diagram and technical parameter are varying with continuous technology development without further notice.

Standard

FANUC Oi MF PLUS system
BT40-8000 rpm /BT50-6000 rpm
BT40-24pcs disc ATC/BT50-20pcs disc ATC
Chain chip conveyor

Optional

Chain chip conveyor
The 4th rotary table
Inner coolant through spindle
Motorized spindle
Tool measurement system
Automatic door
Multi-NC system
Air conditioner in electric cabinet

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通用技术沈阳机床
GENERTEC SHENYANG MACHINE TOOL

VMC H Series
Vertical Machining Center

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VMC H Series

Vertical Machining Center

Efficient vertical machining center for high-precision parts processing

VMC850H/1000H/1100H
VMC1300H/1600H

Good accuracy and accuracy retention

- Class C3 pre-stretching lead screw
- P-level roller guide way
- High-precision integral spindle

High rigidity and high stability

- High strength cast iron material
- Aging and annealing
- Reasonable structure design

High-performance spindle and high productivity

- Spindle 12000 rpm, high-speed cutting
- Spindle 8000 rpm, high torque cutting
- Rapid traverse 48m/min
- High acceleration performance

Introduction

VMC-H series machine tools are highly efficient vertical machining center for the auto industry, serving high-precision parts processing. It has high-precision, high-efficiency and high-rigidity. Through professional design analysis and optimization, they have excellent dynamic and static performance. It has high-speed or powerful spindle configurations, which can meet the needs of high-precision and high-stability processing. A great choice for automatic line.

Vertical Drilling and Tapping DTC series

General Q series

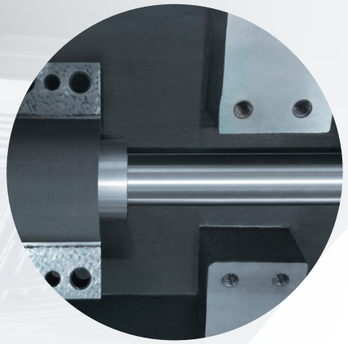
Industrial iV series

Classic B series

Good accuracy and accuracy retention

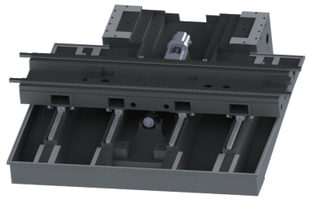
Class C3 pre-stretching lead screw

Class C3 precision lead screw is equipped as standard,the unique pre-stretching process is adopted to effectively reduce the influence of lead screw accuracy, strengthen the anti-deformation ability and accuracy retention



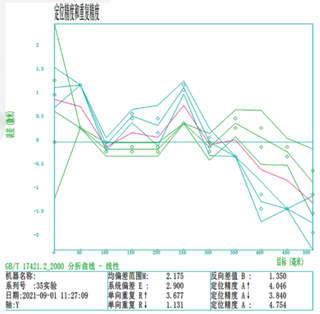
Advancement on manufacturing engineering

Axes assembly process standards have been further improved, including more than 20 items such as inspection bar and bearing preloading. The accuracy and stability of the machine tool have been further improved.



P-level roller guide way

High-rigid P-grade roller linear guide way is equipped as standard, models above 1300 are designed with four-guide way to ensure heavy load capacity during processing, large bearing capacity of machine tool, and good accuracy and accuracy retention.

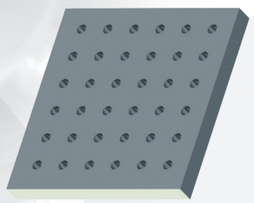


Strict acceptance criteria

The whole manufacturing process of VMC-H series includes more than 100 inspection control items, more than 200 total acceptance inspections. The precision parameters is increased by 20%. The precision of each machine tool is strictly inspected.

High-precision integral spindle

The spindle bearing uses P4 level special bearing. After the complete set of spindle is assembled under constant temperature, it has passed dynamic balance correction and working test. The spindle has the characteristics of high speed, high rigidity and high accuracy.



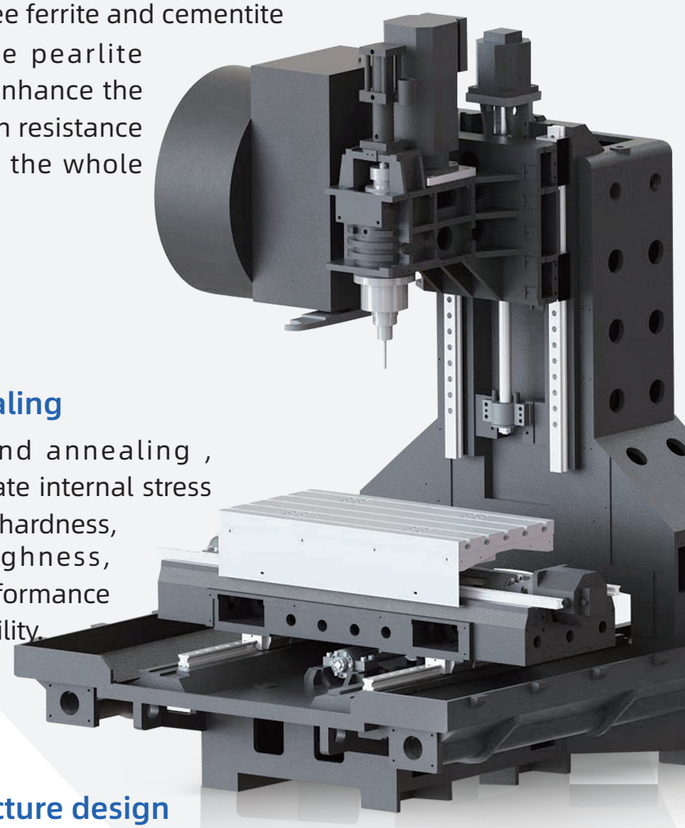
Processing accuracy IT6

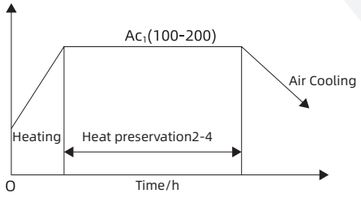
Step hole processing is carried out on a 300X300mm square material, preheat is carried out under rough machining status, the hole position and machining accuracy at different cutting stages can reach IT6 level.

High rigidity and high stability

High strength cast iron material

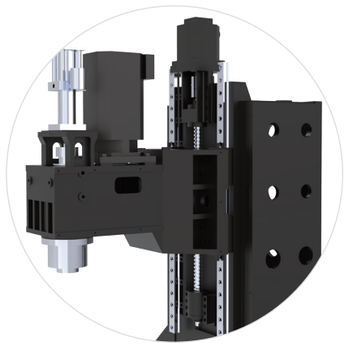
Optimize the proportion of element content in the casting material, adjust the grade and proportion of graphite length, adjust the proportion of free ferrite and cementite distributed on the pearlite matrix, effectively enhance the rigidity and vibration resistance of the casting and the whole machine





Aging and annealing

Through aging and annealing , castings can eliminate internal stress and defects, reduce hardness, improve part toughness, improve cutting performance and deformation ability.



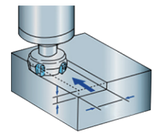
Reasonable structure design

Strengthen the structural design, effectively improve the rigidity, widen the span, improve the connection rigidity,improve the machining stability of the machine tool.

Rigidity improved

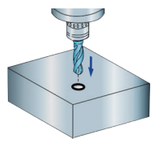
Cutting performance

Milling



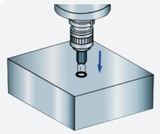
Carbon steel surface milng	Unit		
Tool		Φ80 face milling cutter	Φ80 face milling cutter
Milling depth	mm	6	4
Spindle speed	r/min	796	1353
Feed rate	mm/min	298	1055
Metal removal rate	cm^3/min	114	270

Drilling



Carbon steel drilling	Unit	
Tool		Φ50mm U Drils
Spindle speed	rpm	955
Feed rate	mm/min	115
Metal removal rate	cm^3/min	225

Tapping



Carbon steel tapping	Unit	
Tool		M30 Tap
Spindle speed	r/min	106
Feed rate	mm/min	371

High-performance spindle and high productivity

Multi-spindle configuration suitable for different working conditions

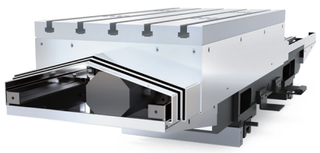
spindle configuration

Tapper hole	Max. r/min	Drive mode	Recommended conditions
BT40	8000 r/min	Belt drive	Cast iron and steel material processing (1100H and below)
BT40	12000 r/min	Direct drive	Mass drilling and tapping parts (1100H and below)
BT50	6000 r/min	Belt drive	heavy cutting parts (above 1100H)
BBT40	16000 r/min	Motorized spindle	High surface quality processing (1100H and below)

Processing condition selection

According to different loads, the optimal acceleration can be set to release full machine performance and improve the processing efficiency.

Load (kg)	Acceleration (g)		
	X	Y	Z
0-350	0.6	0.6	0.6
350-490	0.5	0.5	0.6
490-560	0.5	0.5	0.6



48m/min rapid traverse (VMC850H-VMC1100H)

Three-axes servo motor is directly drive the high-precision ball screw through elastic coupling to reduce intermediate links, achieve gapless transmission. The main supporting structure of the bearing drive parts can make a rapid move up to 48m/min, effectively ensuring the high-speed operation of the machine tool, reducing auxiliary time and improving processing efficiency.

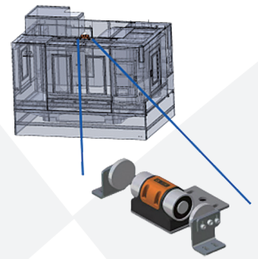
0.6G

High acceleration performance

The acceleration of Z axis can reach 0.6G, ensure the frequent and rapid movement of Z axis, achieve high acceleration performance, It is suitable for high-efficiency surface, drilling and tapping processing.

ATC+Large capacity tool magazine

During the process , the ATC has preselection function, accelerate the ATC tool change speed, shortened processing auxiliary time, which improves the processing efficiency. 24/20 large-capacity tool magazine can meet the needs of complex processing, improve the utilization rate of the machine tool.



Production with high safety and reliability

The front door is equipped with electromagnetic door lock to effectively ensure the safety during processing; The machine tool has a gas tank as standard, which can improve the stability of tool change, ensure the smooth operation of the machine tool and achieve high safety and high reliability during production.

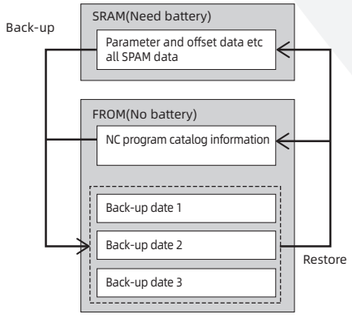
Intelligent function

Automatic tool homing

By running the ATC automatic homing program, the machine tool will automatically complete the tool homing, put the No. 1 tool into the No. 1 tool slot, put the No. 2 tool into the No. 2 tool slot etc., so that you can understand the tool status and correct the wrong tool number rightaway.

Intelligence electric panel

The electric panel occupies less space and the calorific value is lower. The motor is controlled by switch, no arc is generated. The safety factor is higher and service life is longer.

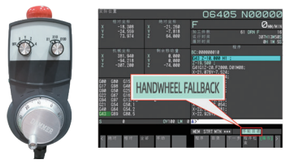


Automatic data backup

The data of all SRAM packages such as parameters and offset data are saved in FROM, and are automatically updated at a fixed period. Once lost, they can be retrieved to achieve automatic data backup.

Energy-saving control chip removal

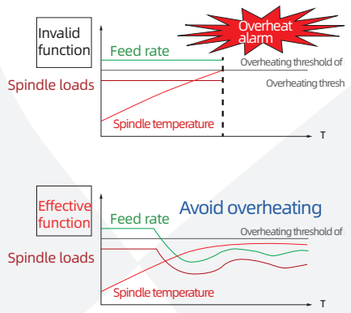
The running of spiral chip remover is set to be interval, the time of each running is 10 mins for 30 mins interval (can change according to actual requirements), this can not only satisfy the chip removal requirements of the machine, but also reduce the machine power consumption, so as to on one hand conserve energy/reduce emissions, and on the other hand reduce the manufacturing cost of the customers



Handwheel foreward → rogram foreward execution
Handwheel reversal → program reversal execution

Handwheel retrace function

Manual handwheel (manual pulse generator) can be used in automatic operation to make the program move forward or backward. The error of the program can be simply detected by actually making the machine tool act and execute it at the same time.



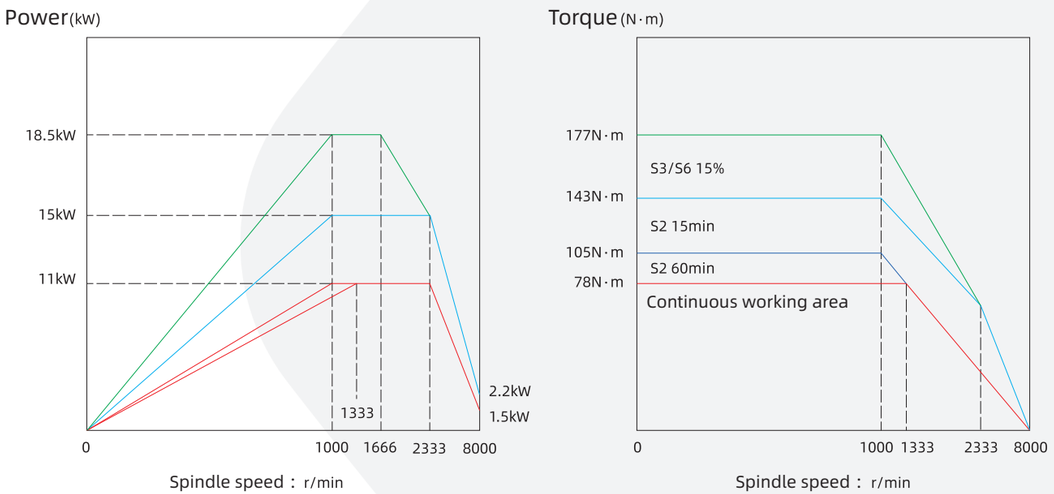
Spindle intelligent load control (optional)

The feed rate can be automatically controlled according to the temperature of the spindle load, which can improve efficiency and protect the tools. While avoiding overheating, the output capacity of the spindle can be maximized, the processing cycle can be shortened, and the tool life can be prolonged

High speed、high-performance spindle

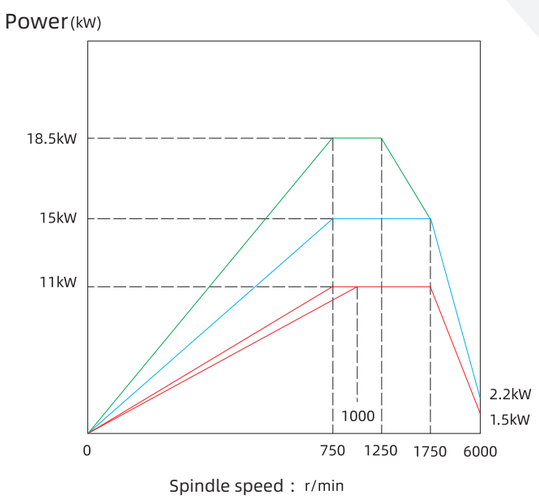
Spindle power-torque diagram（8000r/min）

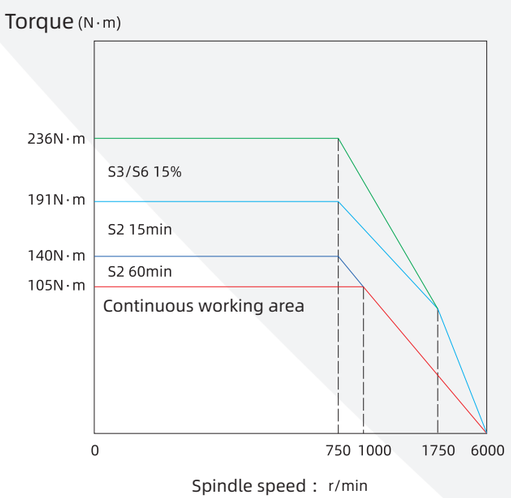
Standard



Spindle power-torque diagram（6000r/min）

Standard

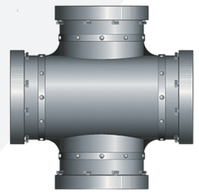




Application

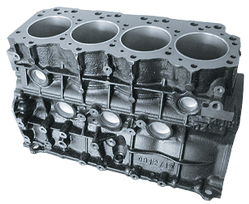
Motor shaft

Industry	New energy vehicles
Material	20CrMnTi
Process area	keyseat，drill
Model	VMC850H



Pipe joints

Industry	Oil
Material	40CrNiMo
Process area	face mill, drill
Model	VMC850H



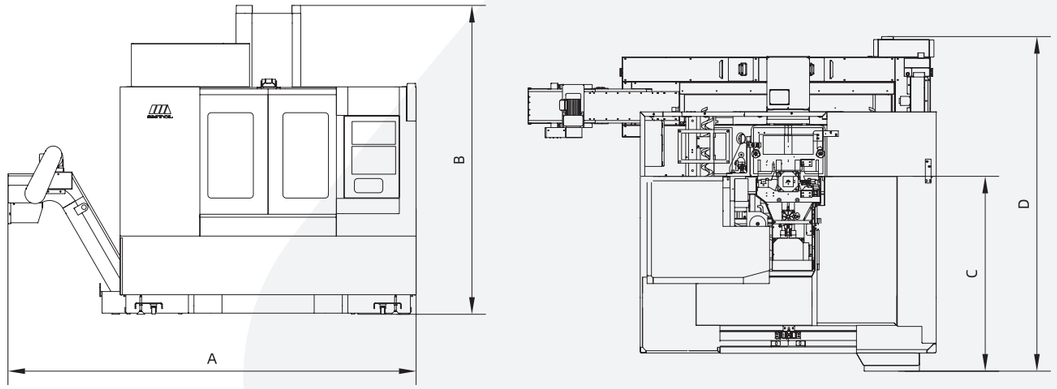
Engine Block

Industry	auto
Material	cast iron
Process area	face miill, drill,tap
Model	VMC1100H

Wheel-side Speed Reducer

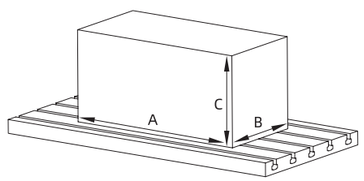
Industry	auto
Material	cast iron
Process area	face miill, drill
Model	VMC850H

Machine layout



Model	Unit	A	B	C	D
VMC850H	mm	3800	2900	1720	2888
VMC1000H	mm	4000	2900	1720	2888
VMC1100H	mm	4250	2915	1870	2970
VMC1300H	mm	4700	3500	2016	3100
VMC1600H	mm	5400	3500	2478	3100

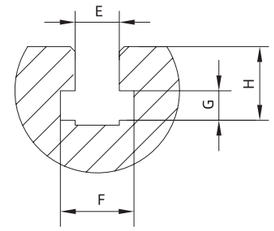
Machining space



Model	Unit	A	B	C
VMC850H	mm	850	520	540
VMC1000H	mm	1000	520	540
VMC1100H	mm	1100	600	600
VMC1300H	mm	1300	700	700
VMC1600H	mm	1600	825	700

Note: The machining space needs to consider the tool change path according to the real situation

Worktable size



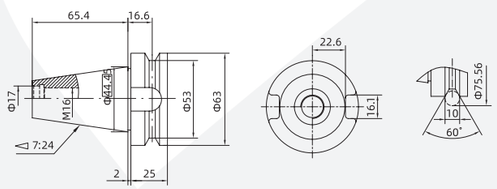
Model	Unit	A	B	C	D	E	F	G	H
VMC850H	mm	500	1000	50	100	18	30	12	30
VMC1000H	mm	500	1200	50	100	18	30	12	30
VMC1100H	mm	610	1300	105	100	18	30	12	30
VMC1300H	mm	700	1400	100	125	18	32	12	30
VMC1600H	mm	800	1700	100	150	22	40	16	38

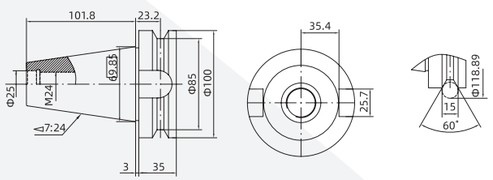
Tool holder

BT40 tool holder

BT50 tool holder

Unit: mm





通用技术沈阳机床
GENERTEC SHENYANG MACHINE TOOL

The explanation, diagram and technical parameter are varying with continuous technology development without further notice.

VMC Q Series
Vertical Machining Center

Technical parameter

Item		Unit	VMC 850Q	VMC 1000Q	VMC 1100Q
Worktable					
Size		mm	1000×500	1150×500	1300×610
Max allowed loading		kg	600	600	1000
T slot size		mmxpcs	18×5	18×5	18×5
Machining range					
Max travel of table-X axis		mm	850	1000	1100
Max trave of slide-Y axis		mm	500	500	620
Max travel of spindle-Z axis		mm	540	540	600
Distance between spindle nose to worktable surface	Max	mm	660	660	720
	Min	mm	120	120	120
Distance between spindle center to guideway base		mm	640	640	743
Spindle					
Taper (7:24)			BT40	BT40	BT40
Max speed		r/min	10000	10000	10000
Output torque		N·m	35.8/70 (S2 15 Min)	35.8/70 (S2 15 Min)	52.5/95.5 (S2 15 Min)
Motor power		kW	7.5/11	7.5/11	11/15
Drive type			Synchronous toothed belt	Synchronous toothed belt	Synchronous toothed belt
Tools					
Tool holder model			MAS 403 BT40	MAS 403 BT40	MAS 403 BT40
Pull stud model			MAS 403 P40T-I	MAS 403 P40T-I	MAS 403 P40T-I
Feed					
Rapid traverse	X axis	m/min	48	48	48
	Y axis	m/min	48	48	48
	Z axis	m/min	48	48	48
3 axes moter power(X/Y/Z)		kW	1.8/1.8/3	1.8/1.8/3	3/3/3
3 axes moter torque(X/Y/Z)		N·m	11/11/20	11/11/20	20/20/20
Feeding speed		mm/min	1-20000	1-20000	1-20000
Tool magazine					
Type			ATC with robot arm	ATC with robot arm	ATC with robot arm
Mode			Nearest tool selection in bi-direction	Nearest tool selection in bi-direction	Nearest tool selection in bi-direction
Capacity		Pcs	24	24	24
Max tool length		mm	300	300	300
Max tool weight		kg	7	7	7
Max too disk dia.	Full	mm	Φ80	Φ80	Φ80
	Adjacent	mm	Φ150	Φ150	Φ150
Tool change time (T-T)		s	2.5	2.5	2.5
The height between table to ground		mm	900	900	950
Machine weight		kg	5100	5400	6200
Total power capacity		KVA	18	18	25
Overall dimension (LxWxH)		mm	2400×2975×2840 (Exclude chip conveyor)	2700×2975×2840 (Exclude chip conveyor)	2940×3450×3050 (Exclude chip conveyor)

Note:The parameters provided in the table are for reference only. In case of any change, please refer to the actual object

Standard

FANUC 0i MF PLUS controller
Spindle 10000 r/min
BT40-24 PCS tool magazine
Water tank + Dual-spiral chip

Optional

Chain-type + Dual-spiral chip conveyor on the bed
The 4th rotary table
coolant through spindle
Motorized spindle

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VMC Q Series

Vertical Machining Center

General Vertical Machining Center

VMC850Q/1000Q/1100Q

Introduction

VMC-Q series machine tools are the new generation general vertical machining center through independent R&D for industrial areas such as general machinery, automobile, and so on. Through professional design and analysis software for scientific and reasonable analysis and optimization, as well as advanced manufacturing and testing technology for verification and improvement, the equipment has good cutting performance, which can satisfy the requirements of drilling and milling of various parts and provide the customers with the best processing experience.

High rigidity and stability design

- High strength integral cast bed
- Three-axis P-level roller guide way
- Large span herringbone column

Good precision and precision preservation

- Class C3 pre-stretching lead screw
- Thermal symmetry technology
- Error compensation technology

Safety, environment friendly, efficient productivity

- Three-axis rapid movement (48m/min)
- High-precision integral spindle
- Double spiral chip remover for bed

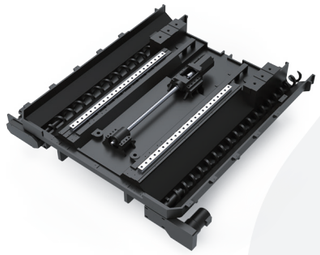
Vertical Drilling and Tapping DTC series

High-efficiency H series

Industrial iV series

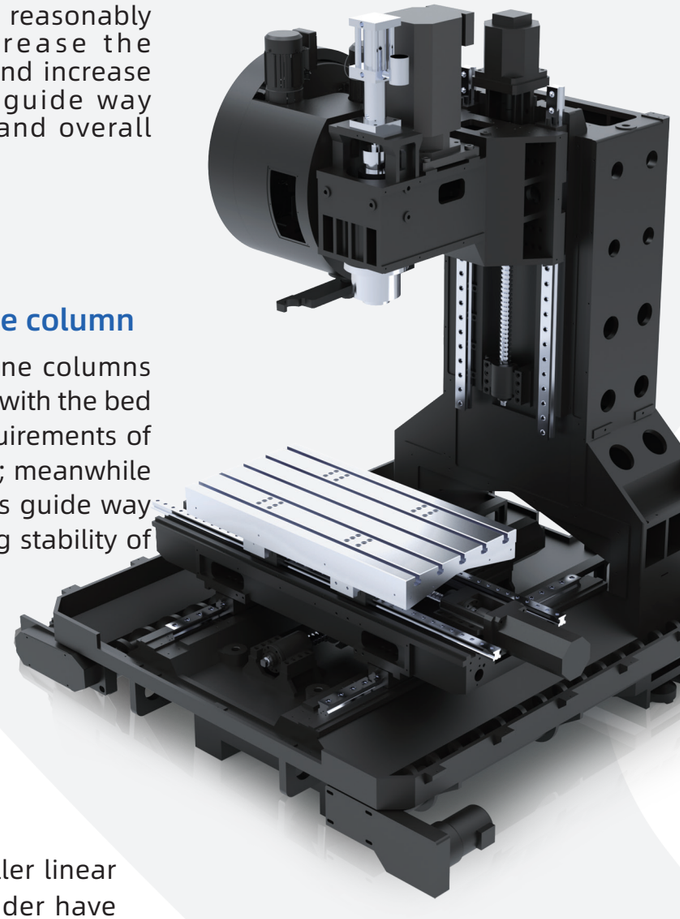
Classic B series

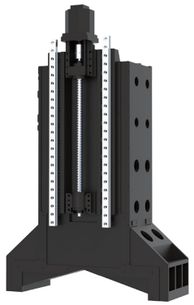
High rigidity and high stability design



High rigidity integrally casting bed

The spiral chip slot and the bed are integrally cast to increase the weight of the bed, reduce the overall center of gravity of the machine, reasonably arrange the ribs, increase the deformation resistance, and increase the span of the Y-axis guide way to enhance the rigidity and overall stability of the bed





Large span herringbone column

The large span herringbone columns and super rigid connection with the bed can satisfy the rigidity requirements of the columns during cutting; meanwhile increase the span of Z-axis guide way and improve the machining stability of the machine tool

Three-axis P-level roller guide way

Equipped with standard high-rigidity P-level roller linear guide way; the four acting directions on the slider have the same rated load; large bearing capacity and improved rigidity of the whole machine

Improve rigidity

VMC-Q Series — Increase 25%

Last generation

Cutting performance

Milling

Carbon steel surface milling	Unit		
Tool		Φ80 face milling cutter	Φ63 face milling cutter
Milling depth	mm	4	2.5
Spindle speed	r/min	560	1212
Feeding rate	mm/min	955	2500
Metal removal rate	cm^3/min	244	312

Drilling

Carbon steel drilling	Unit	
Tool		Φ40mm U Drils
Spindle speed	rpm	1212
Feeding rate	mm/min	111
Metal removal rate	cm^3/min	140

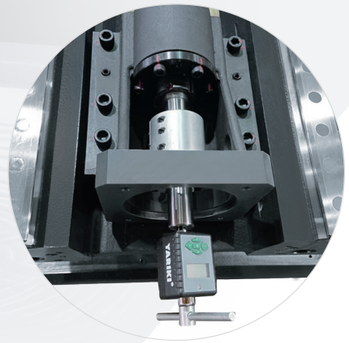
Tapping

Carbon steel tapping	Unit	
Tool		M24 Tap
Spindle speed	r/min	300
Feeding rate	mm/min	900

Superior accuracy and retension

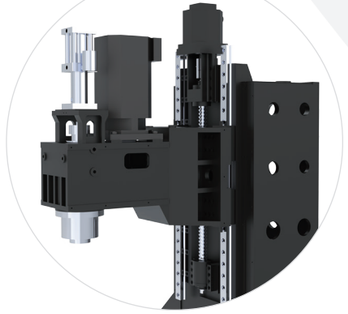
C3 class pre-stretching leadscrew

Equipped with standard C3 precision lead screw and adopted specific pre-stretching process, which can effectively reduce the influence of lead screw heating on transmission accuracy, improve the machine precision, and enhance deformation resistance/accuracy retention



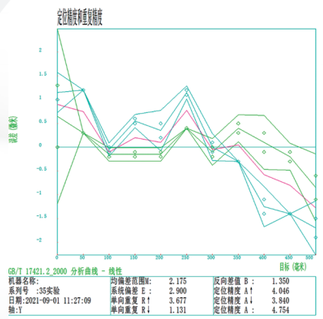
Quantitative manufacturing process

The manufacturing process should be largely quantified, so as to improve product consistency and accuracy retention. The quantifying contents include: the screw tightening torque, the starting torque of the lead screw, the bearing pre-tightening standard, and the scraping/grinding criterion, etc



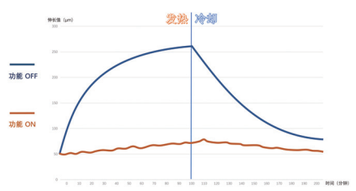
Thermal symnetr structure

The headstock adopts thermal symmetry structure design, which can improve the controllability of the thermal deformation. Meanwhile, designing physical temperature control structure and combining advanced thermal insulation technology can reduce the thermal deformation of the headstock and ensure its accuracy during processing



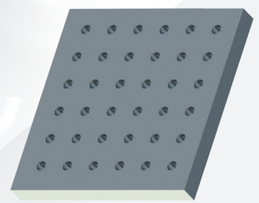
Strict ex-factory standard

The whole manufacturing process of VMC-Q series products includes >100 process inspection control items and >200 total acceptance test/inspection items. The precision of each ex-factory machine tool is strictly tested



Error compensation technology

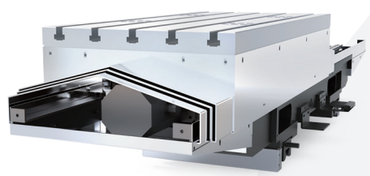
By detecting the offset from cold start to thermal stabilization, the relative position of the working position in the machine coordinate system can be corrected, and the position accuracy of the machined features of the parts relative to the inherent datum can be guaranteed.



Processing accuracy IT6 level

For the step hole processing on 300X300mm square material, the machine was preheated according to rough machining status to complete row/column hole processing and detect hole distance accuracy at different stages, in which the processing accuracy can reach IT6 level.

Safety, environmental protection, efficient productivity



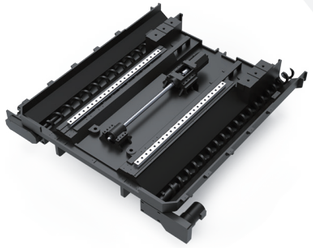
48m/min rapid movement

The direct connection of the three-axis servo motor with the high-precision ball screw through elastic coupling can reduce the intermediate stages and realize the gapless transmission as well as the reasonable main supporting structure for bearing transmission parts. The fast moving velocity can reach 48m/min, which can effectively guarantee the high-speed operation of the machine tool, reduce auxiliary time, and improve processing efficiency.

Processing conditions selection

According to different loads, the optimal acceleration can be set to give full play to the machine performance and improve the processing efficiency

Load (kg)	Acceleration (g)		
	X	Y	Z
0-350	0.6	0.6	0.6
350-490	0.5	0.5	0.6
490-560	0.5	0.5	0.6



Double spiral efficient chip removal

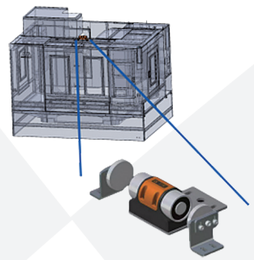
The machine is equipped with a double spiral chip remover. Combining with the chip removal groove, which is integrally cast with the bed, can effectively improve the chip removal efficiency of the machine and ensure chip removal process efficient and smooth

ATC+ large capacity tool magazine

The tool magazine has the preselection function, meanwhile the ATC tool change speed is faster, which can shorten the processing auxiliary time and improve the processing efficiency. 24 Pcs large-capacity tool libraries can meet the tools required for complex
processing, improving the machine utilization

High-precision integral spindle

The P4 special bearing for the spindle was adopted. After the complete set of spindle is assembled under constant temperature and the dynamic balance correction/running-in tests were all passed, The integral spindle has the characteristics of high speed, high rigidity and high accuracy.



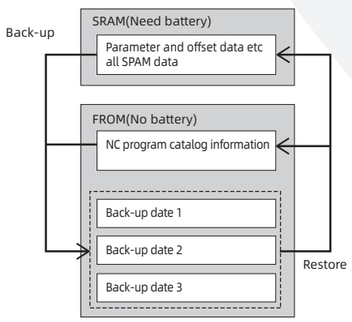
High safety and high reliability production

The front door of the protection room is equipped with the standard electromagnetic lock, which can effectively ensure the safety during machining. The gas storage device equipped with the machine can ensure the stability of tool change and the machine running smoothly, which realizes the high safety and high reliability production.

Intelligent function

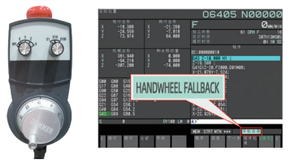
Automatic tool homing

By running the tool magazine automatic homing macro program, the machine automatically completes tool homing. I.e., put No.1 tool into No.1 tool sleeve and No.2 knife into No.2 knife sleeve, and so on. This can be convenient for customers to know the actual use of tools and correct the wrong tool number in time



Automatic databack-up

Save all the data such as parameters and offset data etc. in SRAM package into FROM, and automatic update at fixed time.Once lost, they can be retrieved, so that automatic data backup can be realized.



Handwheel foreward → rogram foreward execution
Handwheel reversal → program reversal execution

Handwheel retrace function

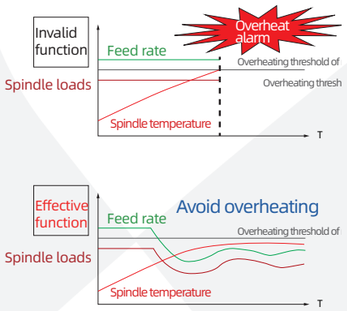
Manual handwheel (manual pulse generator) can be used in automatic operation to make the program move forward or backward. The error of the program can be simply detected by actually making the machine tool act and execute it at the same time.

Intelligence electric panel

The electric panel occupies less space and the calorific value is lower. The motor is controlled by switch, no arc is generated. The safety factor is higher and service life is longer.

Energy-saving control chip removal

The running of spiral chip remover is set to be interval, the time of each running is 10 mins for 30 mins interval (can change according to actual requirements), this can not only satisfy the chip removal requirements of the machine, but also reduce the machine power consumption, so as to on one hand conserve energy/reduce emissions, and on the other hand reduce the manufacturing cost of the customers



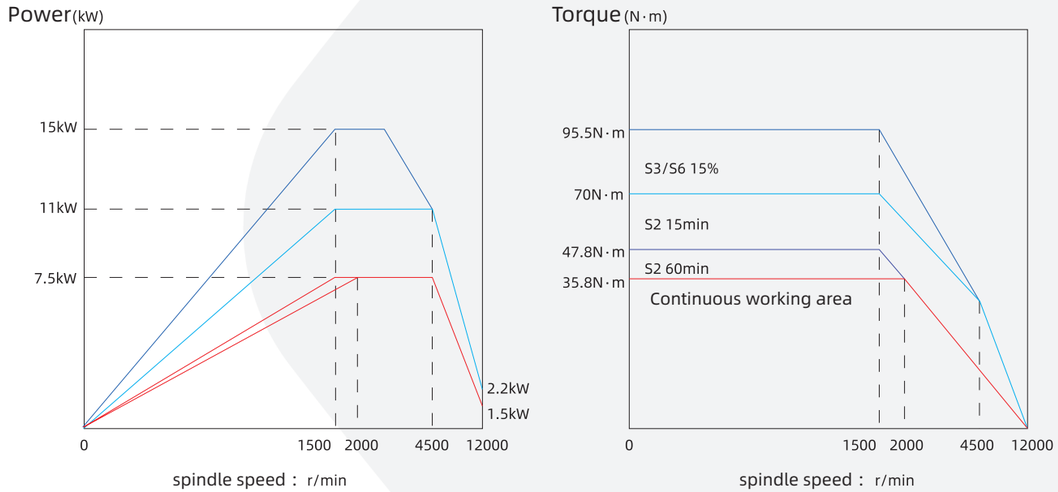
Spindle intelligent load control (optional)

The feed rate can be automatically controlled according to the temperature of the spindle load, which can improve efficiency and protect the tools. While avoiding overheating, the output capacity of the spindle can be maximized, the processing cycle can be shortened, and the tool life can be prolonged

High speed、high-performance spindle

Spindle power torque diagram

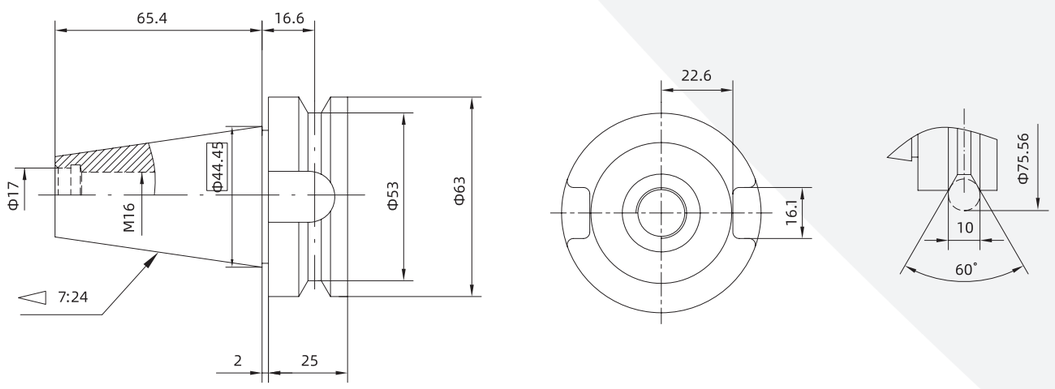
Standard



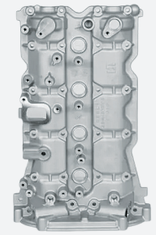
Tool holder type

BT40 Tool holder

Unit：mm



Application



Cylinder cover

Industry	Automobile
Material	Aluminum
Processing site	Surface milling、draw bore
Machine	VMC850Q

Secondary planet carrier

Industry	Gear
Material	20CrMnTi
Processing site	Milling circular column
Machine	VMC850Q

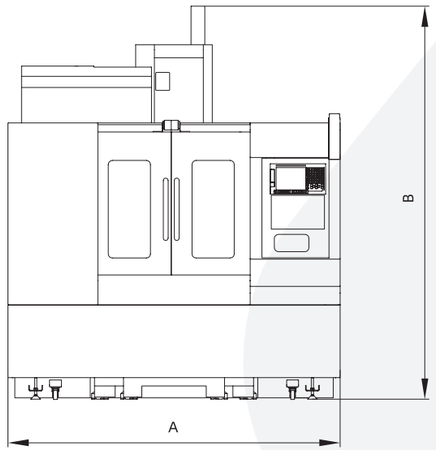
BT40 Toolholder

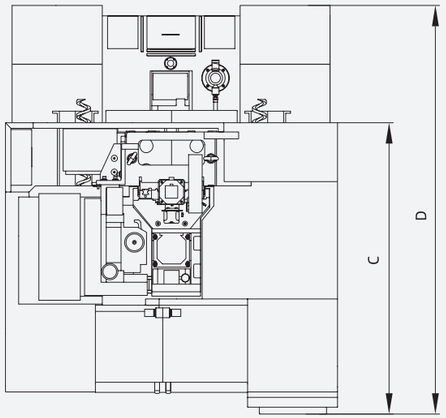
Industry	Tool
Material	20CrMnTi
Processing site	Milling keyway
Machine	VMC850Q

Value

Industry	Valve
Material	Steel
Processing site	Milling surface、drilling、tapping
Machine	VMC850Q

Machine layer





Model	Unit	A	B	C	D
VMC850Q	mm	2400	2840	2105	2975
VMC1000Q	mm	2700	2840	2105	2975
VMC1100Q	mm	2940	3050	2430	3450

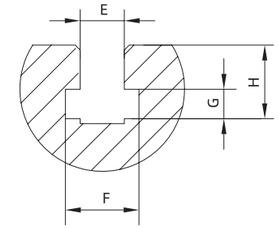
◆ The water tank maintenance space needs to be pre-provided at the rear of the machine, the size is 1000mm

◆ The left and right sides of the machine need to be pre-given for the opening and closing space of the door maintenance, the size is 650mm

◆ The distance from the CRT to the ground should be 1650mm

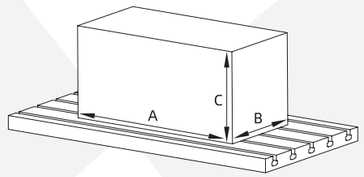
◆ Standard configuration is water tank, the size of the option chain-type conveyor “A” should be increased accordingly.

Worktable size



Model	Unit	A	B	C	D	E	F	G	H
VMC850Q	mm	500	1000	50	100	18	30	12	30
VMC1000Q	mm	500	1150	50	100	18	30	12	30
VMC1100Q	mm	610	1300	105	100	18	30	12	30

Machining space



Model	Unit	A	B	C
VMC850Q	mm	850	500	540
VMC1000Q	mm	1000	500	540
VMC1100Q	mm	1100	620	600

Note:The machining space needs to consider the tool change path of the tool according to the actual situation