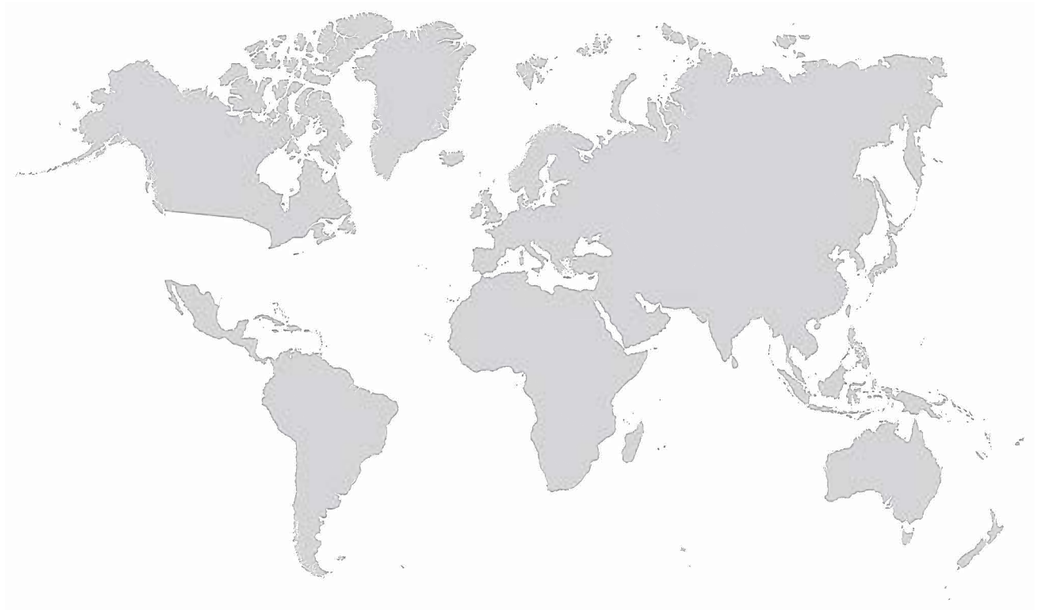
ORION
MACHINES

JIRFINE 喬鋒®



INTELLIGENT
PROCESSING SOLUTIONS

ORION
MACHINES

(11) 97103-0464

contato@orionmachines.com.br

Atendimento em todo o Brasil

Dongguan headquarters

Nanjing R&D bases

Ningxia R&D bases

Company profile

>>>>>

Jirfine Intelligent Equipment Co., Ltd., established in 2009, is a national-level specialized and innovative "Little Giant" enterprise engaged in the design, research and development, production, sales, and service of mid-to-high-end CNC machine tools, Jirfine successfully listed on the GEM Board of Shenzhen Stock Exchange in 2024. Our products are widely used in strategic industries such as aerospace, marine engineering, rail transit, automotive, semiconductors, and consumer electronics. Jirfine is committed to the mission of "making manufacturing more stable, precise, efficient, and intelligent," and aims to be a leading provider of CNC equipment with the vision of "building a century-old enterprise." The company supports the high quality development of China's manufacturing industry and contributes to the upgrade of "Made in China" to "Intelligent Manufacturing in China," helping the country transition from a major manufacturing power to a strong manufacturing power.

1700+ Employees	3 R&D Bases	200+ Patent
10000+ Customer service	10 Categories	20 Series

ORION

V-8B

VERTICALMACHININGCENTER

ORION

DETONATE PRODUCTIVITY

Features

>>>>>

- High rigidity main structure, analyzed through finite element analysis, has good seismic resistance, maintains stability and does not deform over the long term, ensuring the stability of high-speed processing.
- The spindle uses vibration-absorbing materials, effectively improving precision, and uses imported ceramic ball bearings, which provide high operational accuracy and low temperature rise. The short and thick pull stud make better rigidity and stronger cutting performance
- The X/Y/Z axes all use pre-tensioned rods

Application field

>>>>>

Inherited from the high-rigidity design of the V series, with a highrigidity internal circulation oil cooled spindle, the cutting performance is greatly improved. Regardless of any difficult to process materials, it can be easily processed, and it is the best choice for industries such as molds, hardware, auto parts, aviation, and medical equipment.

Automobile

Automation

Hardware industry

Aerospace

New energy

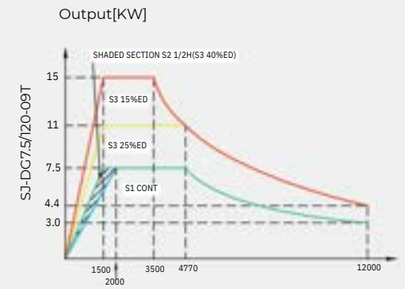
Medical industry

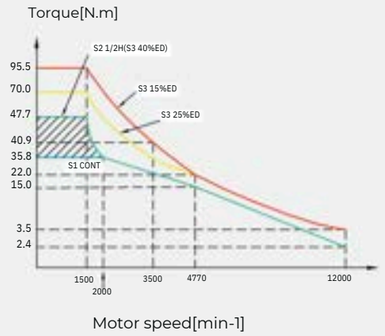
Communication

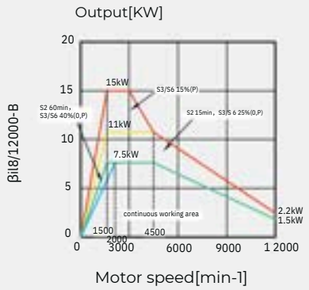
ORION

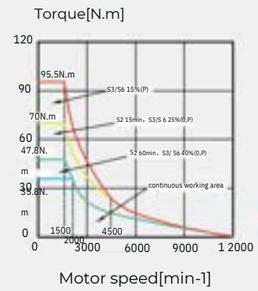
Spindle motor characteristic curve

>>>>>



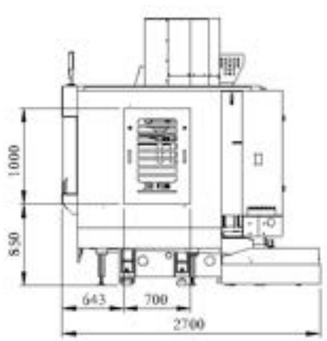


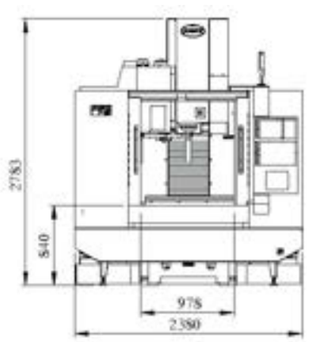


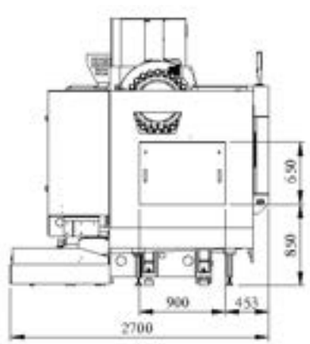


Appearance drawing

>>>>>







System configuration

DETONATE PRODUCTIVITY

>>>>>

Using the MITSUBISHI M80 system or FANUC 0i MF Plus, with nano unit calculations, high-precision smooth processing can be achieved; equipped with a high-speed PLC engine to enhance calculation speed and enable high-speed processing.

MITSUBISHI M80

AxisName	Motor Model	Motor Power	Max Torque
X	HG303	2KW	47N.m
Y	HG204	2KW	47N.m
Z	HG303B	3KW	64N.m
Spindle	SJ - DG7.5	7.5/ 15KW	95.5N.m

FANUC Oi MF PLus

AxisName	Motor Model	Motor Power	Max Torque
X	βiS 12	1.8KW	27N.m
Y	βiS1 2	1.8KW	27N.m
Z	βiS 22B	3KW	45N.m
Spindle	βiI8	7.5/ 15KW	95.5N.m

Heavy cutting

>>>>>

Tool: large fly-cutter D63
Material: 45# steel

Deep cut: 4mm
Tool spacing: 47.25mm
Speed: 1500r/min
Feed: 1500mm/min

Large thread tapping

>>>>>

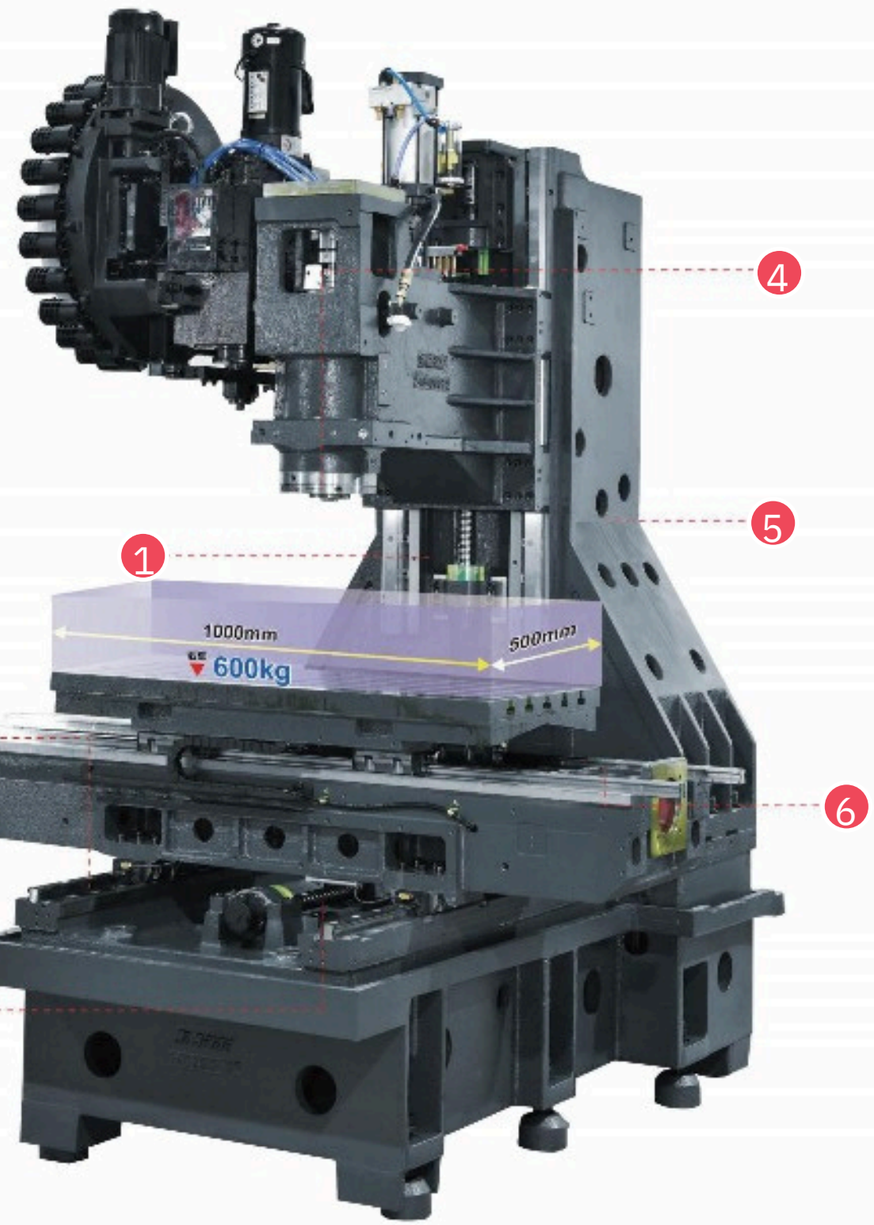
Material: 45# steel

Tapping limit: M24*3.0
Cutting depth: 35mm
Speed: 120r/min
Feed: 360mm/min

ORION

V SERIES VERTICALMACHININGCENTER

V-8B Model details display



The Z-axis uses a new pre-tensioned structure

which can suppress the thermal expansion of the lead screw and offset the thermal expansion of the spindle, further enhancing the stability of the Z-axis precision.

Design of Y-axis guide rail with large span

Increased the support rigidity, stability, and load capacity of the Y-axis.

The X / Y / Z axes all use pre-tensioned rods

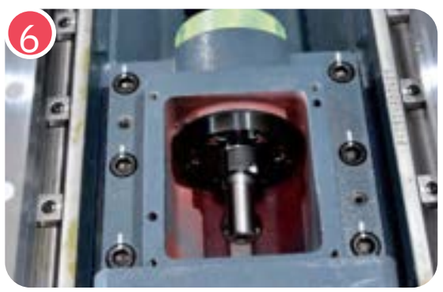
Effectively suppressed thermal expansion along the three axes, with better precision stability

The spindle uses vibration-absorbing materials

Effectively improving precision, and uses imported ceramic ball bearings, which provide high operational accuracy and low temperature rise. The short and thick pull stud make better rigidity and stronger cutting performance

The columns use a large-span truss box structure

Processing efficiency is stable



The three-axis component uses a lightweight design concept

Dynamic effect performance is better, efficiency improved

ORION

V-11 / V13

VERTICALMACHININGCENTER

ORION

DETONATE PRODUCTIVITY

Features

>>>>>

- By the analysis of FEA finite elements and reinforced body structure design provides better rigidity and thermal stability
- It has excellent dynamic precision performance and superior processing precision during rapid displacement
- Cylinder counterweight on Z-axis is adopted for good stability，high safety and low driving noise，thus effectively improve the service life of screw and stability and machining precision

Application field

>>>>>

It is suitable for small and medium-sized batch processing of various types of complex parts such as small and medium-sized boxes, plates, discs, valves, shells, molds, etc. The machine tool adopts high-precision linear rails and lead screws. The machine tool has better dynamic response, can realize high-speed cutting, low-speed and no crawling, and is widely used in precision parts 3C products, hardware, auto parts, and medical equipment industries.

Automobile

Hardware

3C

Precision parts

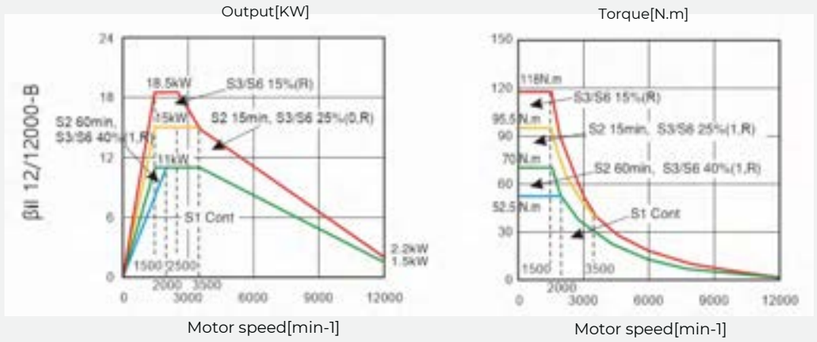
Medical

ORION

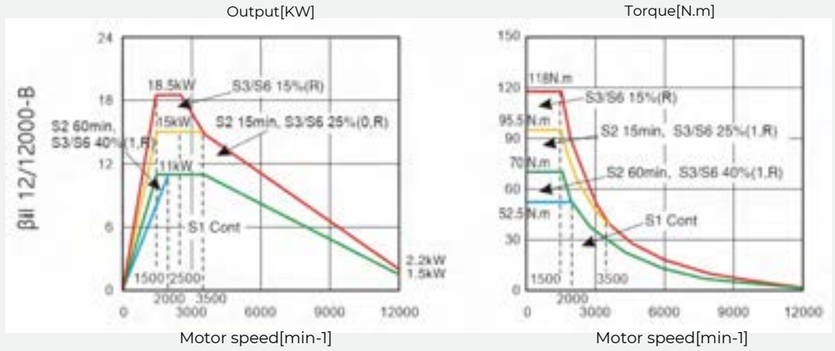
Spindle motor characteristic curve

>>>>>

V-11



V-13



Heavy cutting

>>>>>

Tool: large fly-cutter D63
Material: 45# steel

Deep cut: 4mm
Tool spacing: 47.25mm
Speed: 1500r/min
Feed: 1500mm/min

Large thread tapping

>>>>>

Material: 45# steel

Tapping limit: M24*3.0
Cutting depth: 35mm
Speed: 120r/min
Feed: 360mm/min

System configuration

>>>>>

Using the MITSUBISHI M80 system or FANUC 0i MF Plus, with nano unit calculations, high-precision smooth processing can be achieved; equipped with a high-speed PLC engine to enhance calculation speed and enable high-speed processing.

MITSUBISHIM80

Axis Name	Motor Model	Motor Power	Max Torque
X	HG204	3KW	64N.m
Y	HG303	3KW	64N.m
Z	HG303B	3KW	64N.m
Spindle	SJ-DG11	11/ 18.5KW	118N.m

FANUC 0i MF PLUS

Axis Name	Motor Model	Motor Power	Max Torque
X	β_{iS} 22	3KW	45N.m
Y	β_{iS} 22	3KW	45N.m
Z	β_{iS} 22B	3KW	45N.m
Spindle	β_{iS} 12	11/ 18.5KW	118N.m

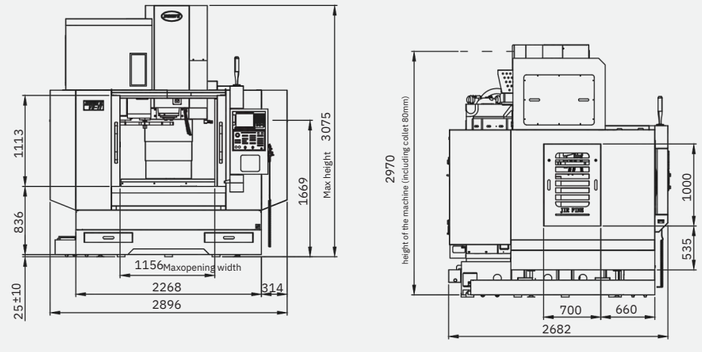
OPTIONALS OF FANUC SYSTEM

Axis Name	Motor Model	Motor Power	Max Torque
X	β_{iS} 22	3KW	45N.m
Y	β_{iS} 22	3KW	45N.m
Z	β_{iS} 22B	3KW	45N.m
Spindle	$\alpha_{iI8/1500}$	11/15KW	47.2N.m

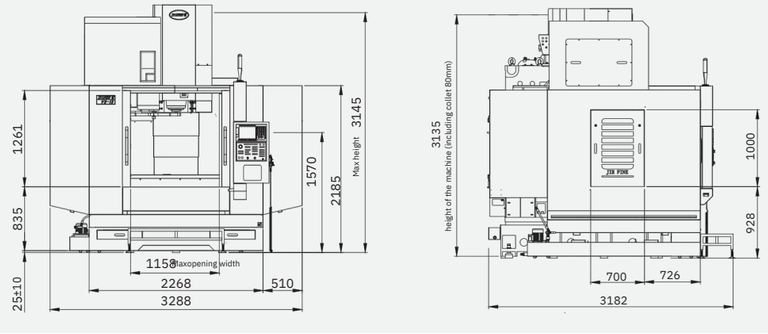
Appearance drawing

>>>>>

V-11



V-13



VH-85

VERTICALMACHININGCENTER

ORION

DETONATE PRODUCTIVITY

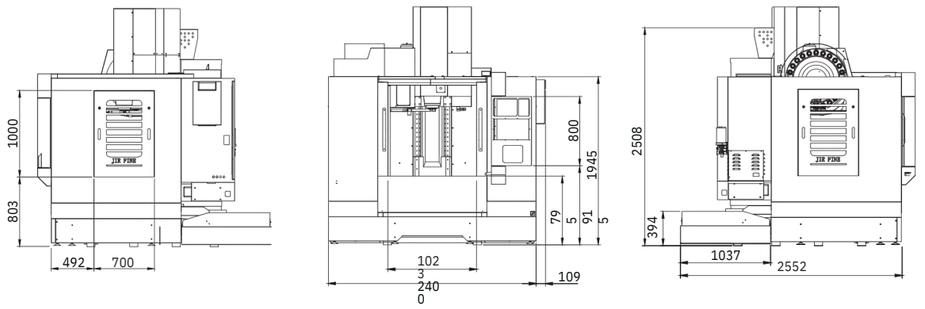
Features

>>>>>

- The machine body is made of high-grade castings, with design of box structure and multi stiffeners to improve rigidity
- The spindle adopts high-rigidity and high-precision ceramic ball bearings with ultra-low temperature rise characteristics to improve thermal elongation characteristics and cutting precision
- The chassis is widened,the span of X,Y and Z guide rail is increased to make the machine body more stable and shock-resistant

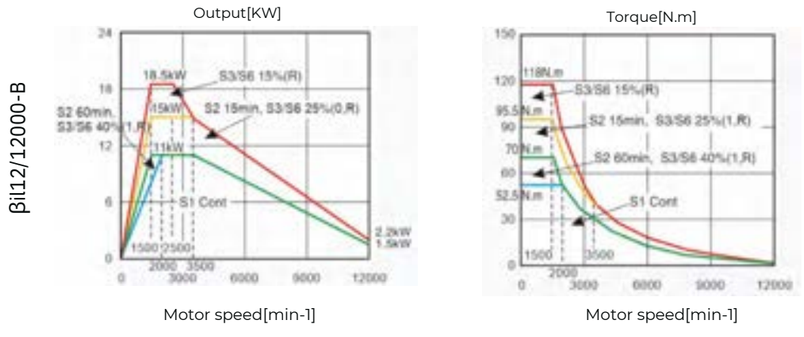
Appearance drawing

>>>>>



Spindle motor characteristic curve

>>>>>

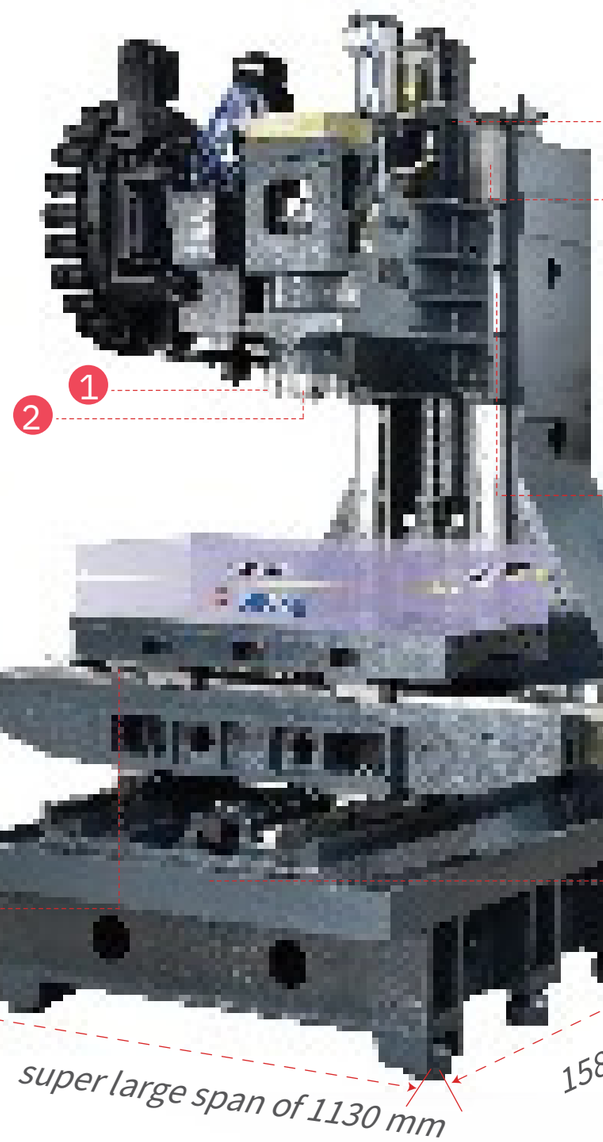


ORION

V SERIES VERTICAL MACHINING CENTER

VH-85 Model details display

Withthelarge span，high stability could be ensured in machining process

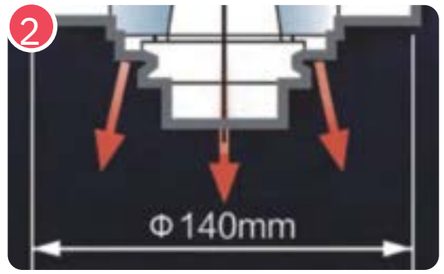


The Z-axis has no counterweight design, and it is equipped with a brake servo motor to improve the driving performance of the Z-axis, achieving high speed and optimal performance.

The three-axis span is enlarged, and the 45-type extended slider is used. Integrated fully sealed, high-torque bearing capacity of the best ball and ball chain steering and guiding design, making the operation smooth and smooth. Reasonable configuration enables the machine to exert extremely strong processing stability.

DETONATE PRODUCTIVITY

The spindle bearing adopts imported preloaded high-precision oblique angle ball bearing to ensure maximum rigidity and precision of the spindle; High torque AC servo spindle is adopted for strong cutting. It is especially suitable for high torque machining occasions,and can improve machining efficiency. Direct spindle is optioned and the speed can reach 15000 rpm at maximum.



Air sealing is adopted for the spindle

The top of the spindle adopts a labyrinth design to effectively prevent oil mist from entering the spindle, and with the spindle air curtain to blow air, the service life of the spindle is greatly improved.

Extended slide block for higher stability during processing.

In the design of herringbone column，honeycomb stiffeners are used to increase the torsional and flexural strength,to ensure high rigidity of connection with the machine body

The slide block of Z axis is extended and weight-bearing to enhance its rigidity and provide high accuracy and stability in machining process

With long travel length and heavy weight，the machine is stable，shock-resistant and runs with rigidity

VH-1380/1680/1890

VERTICALMACHININGCENTER

ORION

VH-1380/1680 Features

>>>>>

- The base adopts four-line rail design to improve rigidity and effectively avoid workpiece position deviation caused by large overhangs.
- The column adopts a super-large "herringbone"-shaped large-span design to improve stability.
- The spindle box adopts Jirfine's national patented built-in double-cylinder counterweight system to make processing more stable and efficient.

VH-1890 Features

>>>>>

- The spindle bearing adopts imported preloaded high-precision oblique angle ball bearing to ensure maximum rigidity and precision of the spindle
- High torque AC servo motor of spindle is adopted for strong cutting and it is especially suitable for high torque machining occasions
- The interior of the base adopts a staggered layout of solar ribs, which can provide excellent support rigidity and ensure the most stable dynamic precision.

Application field

>>>>>

The workpiece can automatically and continuously complete the processing of milling, drilling, boring, expanding, reaming, countersinking, tapping and other processes after one clamping. The machine tool is suitable for small and medium-sized boxes, plates, discs, valves, multi-variety and small batch processing of shells, molds and other complex parts are widely used in precision parts, 3C products, hardware, auto parts, and medical equipment industries.

Automobile

Automation

Aerospace

Mold

Construction machinery

ORION

DETONATE PRODUCTIVITY

Mechanical specifications

>>>>>

ITEM		V-8B	V-11	V-13	VH-85
Travel					
X.Y.Z axis travel	m	820/550/550	1100/600/600	1300/700/700	850/550/550
Distancefromspindlenose to worktable	m	120-670	130-730	130-830	110-660
Distance from spindle center to Z-axis shield	m	540	625	750	560
Workbench	m				
Workbench size	mm	1000x500	1200x600	1400x700	1000x520
T-slot（sizexslot xspace）	mm	18x5x80	18x5x100	18x5x125	18x5x100
Maximum load of workbench	kg	600	800	850	600
Spindle					
Rotating speed	rpm	12000	8000/12000		10000/12000
Spindle Spinality	#	BT40	BT40/BBT40		BT40
Transfer method	#	Direct drive	Belt drive/Direct drive		Belt drive/Direct drive
Feed					
Three-axis cutting feed	mm/min	1-10000			
Three-axis rapid feed	m/min	48x48x48	36x36x36	24x24x24	36x36x36
Precision		GB/T20957.4-2007			
Positioning precision (X/Y/Z)	mm	0.008/0.006/0.006	0.008/0.006/0.006	0.010/0.007/0.007	0.008/0.006/0.006
Repeatability (X/Y/Z)	mm	0.005/0.004/0.004	0.005/0.004/0.004	0.006/0.004/0.004	0.005/0.004/0.004
Tool changing system					
Total number of tools	pcs	24	24/30	24	24
Max tool weight	kg	8	8	8	8
Max tool length	mm	300			
Max tool diameter（Full tool/adjacent empty tool）	mm	80/150			
Tool magazine form	#	Disc			
CNC system					
Control System	#	FANUC 0i MF Plus (Mitsubishi M80A/M80B)			
Spindle motor power	#	7.5/15	11/18.5		
Three-axis motor power	mm	2.0/2.0/3.0	3.0/3.0/3.0		
Others					
Required air pressure	kgf/cm3	≥6			
Electricity demand	KVA	20	25		20
Dimensions（L×W×H）	mm	2400x2700x2850	2900x2680x3050	3290x3210x3145	2500x2750x2790

ITEM		VH-1380	VH-1680	VH-1890
Travel				
X.Y.Z axis travel	m	1300/800/800	1600/800/800	1800/1000/800
Distancefromspindlenose to worktable	m	200-1000	200-1000	200-1000
Distance from spindle center to Z-axis shield	m	850	855	930
Workbench	m			
Workbench size	mm	1500x800	1800x800	2000X900
T-slot（sizexslot xspace）	mm	22x5x125	22x5x125	22x5x150
Maximum load of workbench	kg	1200	1500	2200
Spindle				
Rotating speed	rpm	6000		
Spindle Spinality	#	BT50		
Transfer Method	#	Belt type		
Feed				
Three-axis cutting feed	mm/min	1-10000		
Three-axis rapid feed	m/min	24x24x24	24x24x24	20x20x20
Precision		GB/T20957.4-2007		
Positioning Precision (X/Y/Z)	m	0.015/0.010/0.010	0.015/0.010/0.010	0.015/0.010/0.010
Repeatability (X/Y/Z)	m	0.010/0.008/0.008	0.010/0.008/0.008	0.010/0.008/0.008
Tool changing system	m			
Total number of tools	pcs	24		
Max tool weight	kg	15	15	18
Max tool length	mm	350	350	350
Max tool diameter（Full tool/adjacent empty tool）	mm	105/200	105/200	112/200
Tool magazine form	#	Disc（standard）		
CNC system				
Control System	#	FANUC 0i MF Plus (Mitsubishi M80A/M80B)		
Spindle motor power	#	11/15	15/18.5	
Three-axis motor power	mm	3.0/3.0/3.0		
Others				
Required air pressure	kgf/cm3	≥6		
Electricity demand	KVA	35	45	
Dimensions（L×W×H）	mm	4980*3355*3545	5065*3675*3625	5925*4070*3660

OPT

- Fourth axis
- Fifth axis
- CTS（coolant through spindle）
- Automatic tool setting instrument
- Workpiece Measuring Device
- Tool Measuring Device
- Chip removal machine
- Oil-water separation device

Applicable industries

- Optical scale
- 112000/15000rpm spindle
- 30/32T tool magazine
- Column heightening 200mm
- Mold
- Transportation
- Communication
- Foood
- Electronic
- Education
- Automation
- Apparel
- Aerospace
- Medical
- Machine made
- Optics

OPT

- Fourth axis
- Fifth axis
- CTS（coolant through spindle）
- Automatic tool setting instrument
- Workpiece Measuring Device
- Tool Measuring Device
- Chip removal machine
- Oil-water separation device

Applicable industries

- Optical scale
- 112000/15000rpm spindle
- 30/32T tool magazine
- Column heightening 200mm
- Mold
- Transportation
- Communication
- Foood
- Electronic
- Education
- Automation
- Apparel
- Aerospace
- Medical
- Machine made
- Optics

ORION