

Research Institute

Nanjing NingQing CNC Machine Tool Manufacture Co.,Ltd

of Tools
2019

Technology

NingQing

NingQing CNC

About us

History

In 1989, Ningqing was established as a private technical enterprise In 1999, VMC started for production
In 2002, Obtained ISO9001:2000 certificate
In 2004, Gantry type milling center started for production
In 2006, Annual output over 500 sets, gantry series milling center entered European market
In 2010, Gantry series milling center annual output over 60 sets
In 2013, First 5 axis gantry type milling center entered aerospace market and gained repeat order From 2014, Crossbeam moving gantry milling center series gained No. 1 market share

Production development

Own more than 100 professional technicians.
More than 100 developing experiences in designing CNC machine, hydraulic machine as well as special machine series.
Own complete department system of designing, technical application, manufacture as well as sale and after sales service.
With advanced 3D design ability, simulating dynamic and static limited elements analysis ability, quickly developing cycle on new products.

Manufacturing capacity

With 30,000 square workshops in headquarter/Nanjing, 20,000 square meters modern workshops/Hunan;
More than ten thousands equipments manufacturing experience, nearly a thousand machine tools output annually.
Own over hundred sets processing equipments, including intellectual production lines of 5-face gantry milling center, high precise gantry grinding machine, and other processing equipments.
High precision testing instruments, such as laser collimator, vibration measure instrument, 3D laser interferometer, ball bar inspector and etc. to ensure the higher production level.

Products range

- (5 axis, 3+2 axis, 5 face) crossbeam/column moving gantry milling center
- Column moving vertical milling center
- VMC/HMC
- Tapping center, Engraving & milling center
- High speed forging mold milling machine
- CNC tool grinding machine



ISO 9001:2000



CE Certificate



Main modern manufacturing/R&D base



New modern manufacturing base branch in Hunan



5 axis crossbeam moving gantry milling center

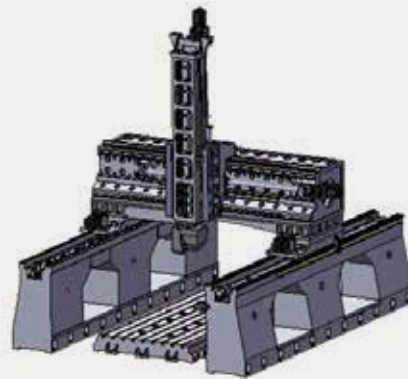
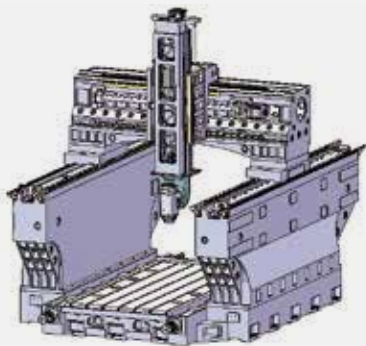
Not the only choice from Europe, high level 5 axis machines can be also made in China

Not the only choice from Europe
high level 5 axis machine
also can be Made in China



One-body structure: 16, 20 series

Separated structure: 25, 30, 35 series



5 Axis crossbeam moving gantry milling center

Iron casting structure. Quenched worktable to HRC48–52 with better precision stability and less wearing.

Adopts THK high speed/precision ball screw and heavy duty linear guide way, Z axis with four large size roller type guide ways, ensure the machine with good rigidity, high accuracy, as well as keeping high speed. Suitable for mass production and high precision mould & die processing.

All linear guide way mounting surface processed by high precision grinding machine to ensure it with high accuracy and stability.



Patented technology on X axis, two linear guide ways and an additional box guide way structure designing, ensure the spindle can afford more overturning moment while processing. High rigid structure can reduce accuracy losing. Ensure the machine with good performance and stability.

The weight of moving crossbeam is keeping near fixed values; crossbeam is driven by two servo motors on each side, and connected with ball screw directly. This fixed driven is very useful on keeping good machining accuracy and stability. Particularly on high accuracy contour of round processing.



Auto lubrication station/Taiwan, high quality pneum components/Japan, high quality cable/Germany been adopted to keep the machine working in stable.



5 axis milling head exported from Germany/Italy, with lowest dynamic balance vibration performance, can ensure the work pieces gains good processing surface and precision.



Special linear guide way support adopted on ball screw once over 3 meters on Y travel to ensure keeping high accuracy.

Adopt 6–fluid & 2–air channel splashing nozzle, can be adjusted to match various length of cutting tools.



Adopt pneumatic & hydraulic balance system on headstock, ensure spindle working with quickly feedback to match CNC control system.

According to CE standard to producing.



Fixed worktable can let machine afford heavy work piece loading. Meanwhile, the weight of the work piece changing is even no influence on the servo driving for each axis, this structure can ensure the machine with high accuracy processing.

Adopt advanced simultaneously–driven technology on crossbeam, to ensure the position, speed and driven force at the same step on each side of the crossbeam. All these ensure the spindle matches higher positioning accuracy by control system.

All key parts such as linear guide ways, ball screws, bearings and servo motors are locate on the top of the processing work piece. To avoid the cutting chips enter and cause damage. This structure ensures these key parts keeps longer working life.

Less occupation area, near 40% working space can be saved compare with same size of moving table type.

Main components



● RTCP function on 5 axis processing

RTCP (rotating tools center point) improve the quality of machining by making the tool tip following the outline trajectory of programming automatically. With this function, tool length and direction can be ignored when machining. Under RTCP working condition, CNC system will driving X/Y/Z axes to ensure the touch point which the tool tip and the work pieces keeping no changing. While using RTCP function to machining an outline trajectory, system will always ensure the tool direction keeping vertical with the tool tracks. With RTCP, the direction of tool can keep perpendicular to the path.

● A/C milling head

Parameter	A/C head								Spindle				
	A head		B head		C head		D head		Parameter	A head	B head	C head	D head
	A axis	C axis	A axis	C axis	A axis	C axis	A axis	C axis					
Tilting range	± 110°	± 270°	± 110°	± 270°	± 105°	± 360°	± 110°	± 360°	Rating power S1	24 Kw	42 Kw	63 Kw	43 Kw
Positioning	5"	4"	2"	2"	2"	2"	2"	2"	Max power S6	28.8 Kw	55 Kw	76 Kw	52 Kw
Repeatability	5"	4"	2"	2"	2"	2"	2"	2"	Rating torque S1	38 Nm	67 Nm	200 Nm	410 Nm
Rotary speed	30 rpm		30 rpm		30 rpm		30 rpm		Max torque S6	46 Nm	88 Nm	241 Nm	492 Nm
Torque (max)	480 Nm	680 Nm	707 Nm	1250 Nm	1414 Nm	1250 Nm	2400 Nm	3000 Nm	Max speed (grease)	18000 rpm		12000 rpm	8000 rpm
Clamping torque	1800 Nm	2000 Nm	2000 Nm	4000 Nm	4000 Nm	6000 Nm	8000 Nm	8000 Nm	Max speed (oil gas)	24000 rpm(option)		13000 rpm(option)	
									Toolholder	HSK A63		HSK A100	

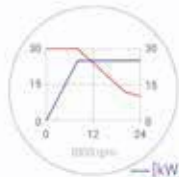
● Note: A,B head by single-arm; C,D head by double-arm; Double-arm, A axis torque × 2



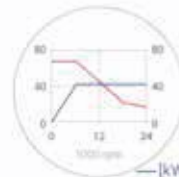
Single-arm



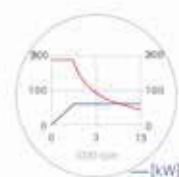
Double-arm



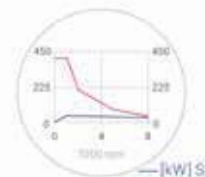
A head



B head

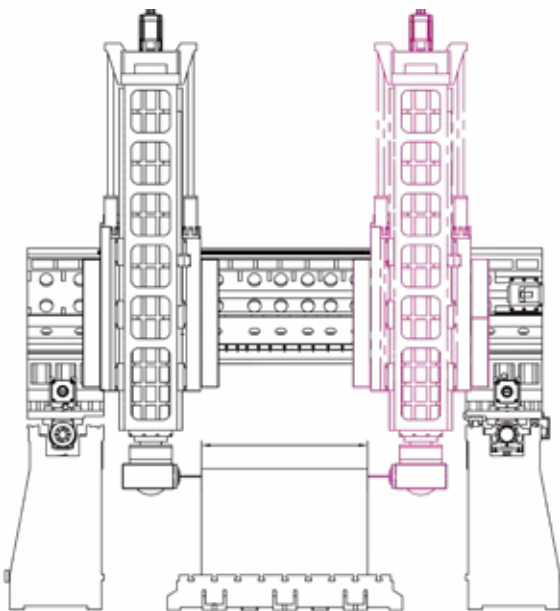


C head

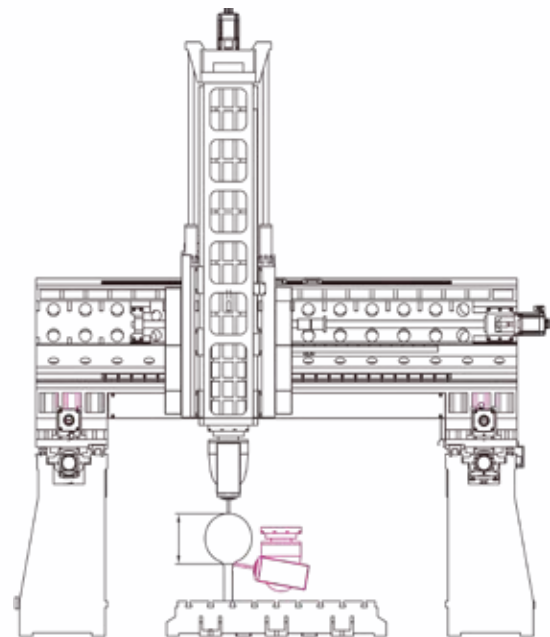


D head

● Machining range sketch



L= length of tools
 Width for processing=X travel-(250+L) × 2
 Length for processing=Y travel-(250+L) × 2



Height for special job=Z travel-(250+L)(1+sin10°)

● One-body structure: 16, 20 series

Parameters	Unit	VC5A2516	VC5A3016	VC5A4016	VC5A3020
Table size	mm	1600 × 2500	1600 × 3200	1600 × 4000	2000 × 3200
Table loading	t	15	20	25	30
X/Y/Z travel	mm	1600 × 2500 × 800	1600 × 3180 × 800	1600 × 4200 × 800	2000 × 3180 × 1000
Guide way		X: 2 linear guide way+box way, Y: 2 linear guide way on each side, Z: 4 roller linear guide way			
Distance from spindle nose to tale	mm	280–1080 (can be customized)			180–1180 (can be customized)
Spindle		B head/standard, A, C head for option			
ATC capacity		20 positions			
Max work piece height	mm	1000 (can be customized)			
Max. work piece width	mm	2000			2400
Feeding speed	m/min	0–15			
Rapid speed	m/min	20			
Positioning accuracy	mm	0.01			
Repeat positioning accuracy	mm	0.005			
Total weight	t	32	39	41	41
Dimensions (without electric cabinet)	mm	5200 × 4000 × 3400	6200 × 4000 × 3400	7000 × 4000 × 3400	6000 × 4000 × 3400
Control system		3+2 axis/Siemens 828D, 5 axis/Siemens 840Dsl			

● Separated structure: 25, 30, 35 series

Parameters	Unit	VC5A4025	VC5A6025	VC5A6030	VC5A8030	VC5A12030
Table size	mm	2100 × 4000	2100 × 6000	2600 × 6000	2600 × 8000	2600 × 12000
Table loading	t	30	40	50	65	80
X/Y/Z travel	mm	2500 × 4200 × 1500	2500 × 6200 × 1500	3000 × 6200 × 1500	3000 × 8200 × 1500	3000 × 12200 × 1500
Guide way		X: 2 linear guide way+box way, Y: 2 linear guide way on each side, Z: 4 roller linear guide way				
Distance from spindle nose to tale	mm	150–1650 (can be customized)				
Spindle		B head/standard, C, D head for option				
ATC capacity		20 positions/standard, 20 positions × 2, 3, 4 for option				
Max work piece height	mm	1500 (can be customized)				
Max. work piece width	mm	3160		3600		
Feeding speed	m/min	0 – 15				
Rapid speed	m/min	20				30
Positioning accuracy	mm	0.01				
Repeat positioning accuracy	mm	0.005				
Total weight	t	50	60	66	80	130
Dimensions (without electric cabinet)	mm	7500 × 5800 × 4000	9500 × 5800 × 4000	9500 × 6600 × 4000	11500 × 6600 × 4000	15500 × 6600 × 4000
Control system		3+2 axis/Siemens 828D, 5 axis/Siemens 840Dsl				

● The influence of motion mass to servo driving

The servo inertial always changing upon the loading mass change, which means the electrical accuracy parameters will also be changing. The electrical accuracy parameters setting is based on commissioning load mass. Only the electrical accuracy parameters always match the loading mass can realize high outline precision and high finish processing.

For crossbeam moving gantry milling center, the loading mass including crossbeam and head stock is a firm values and no relationship with the mass change of work piece during processing. So the electrical accuracy parameters always match the loading mass.

But for moving work table gantry milling center, the loading mass including head stock, work table and work piece. As the mass of work piece changes during processing but not a firm values, will cause the loading mass can not match the electrical accuracy parameters. The user is hard to adjust electrical accuracy parameters in time. This will lead to the electrical accuracy come down. In this case, machine cannot realize high outline precision and high finish processing.

- Why 5 axis gantry milling machine is better to adopt moving crossbeam structure?

5 axis gantry milling machine mostly adopt dual-swing type 5 axis milling head at present. While the milling head on 5 axis head is taking swing motion, each linear axis must follow it to reach right position, which said RTCP function. It is well known, if we want CNC realize high precision processing, the responses on each axis should be simultaneously. Which needs the servo feature on each axis must be match the inertia accordingly. The best way is driving system can obtain a fix loading mass values.

Moving work table structure can not get a fix loading mass values and not suit for high speed 5 axis on high precision processing.

Crossbeam moving and column moving gantry structure are all can get a fix loading mass values.

For column moving structure, as the barycentre is too higher which cause a large overturning moment is not suit to get a quickly response under high speed processing condition. Otherwise may lose the outline accuracy and cause overcutting. So it is not suitable for high speed 5 axis with high precision processing.

Crossbeam moving structure is almost without overturning moment. It is the best solution for high precision processing with high speed 5 axis and been adopted on gantry milling machine world wide.

- Can adopt full close-loop controlling solve precision issue?

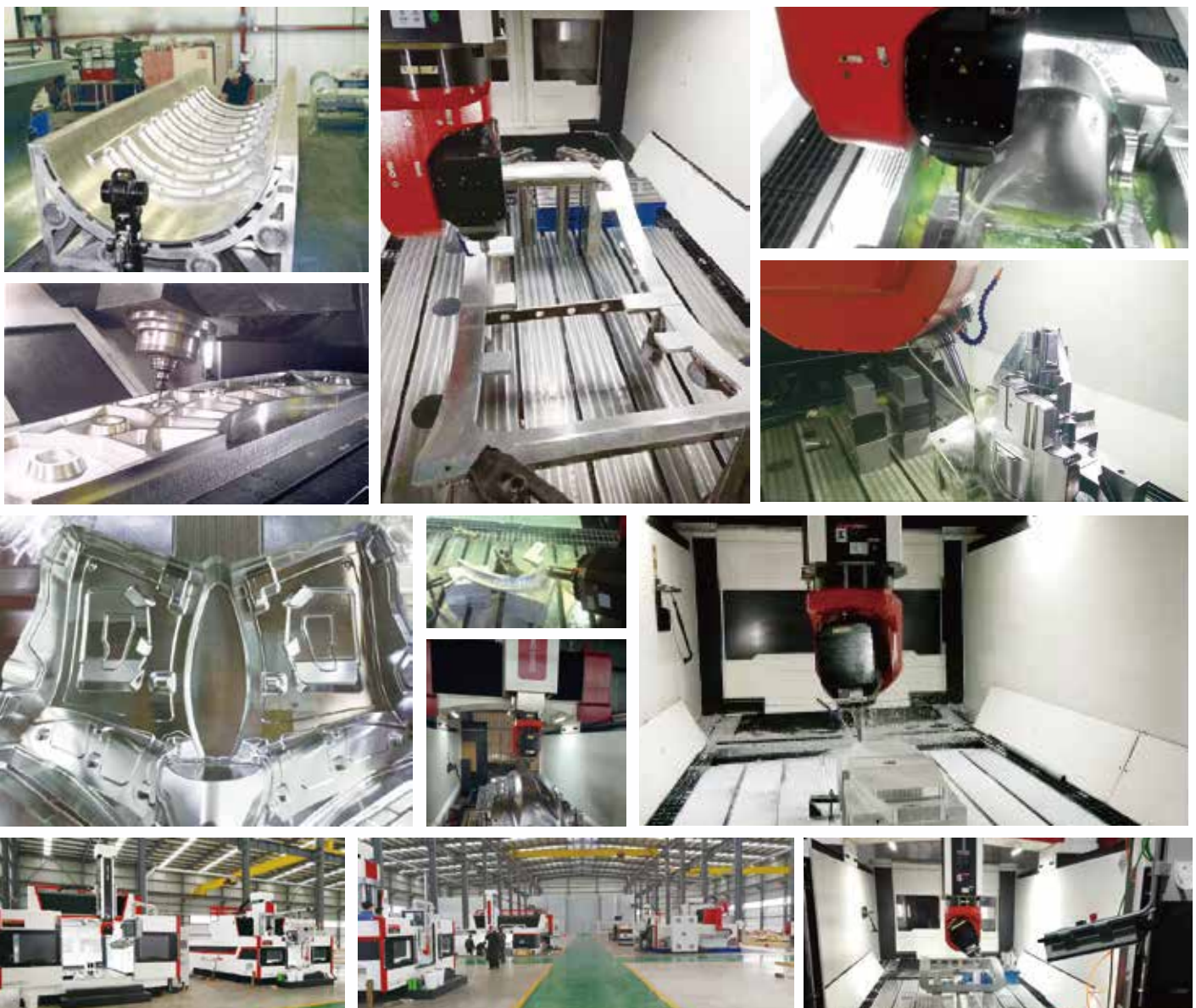
As moving worktable gantry (here we say is for medium and large size gantry) cannot obtain stable processing precision and finish, can adopt full close-loop control solving this issue?

The answer is No! Full close-loop controll can improve the precision of machine indeed. However, this is precision is only for position loop but not the speed and current loop. Which means under positioning processing condition, full close-loop can improve the processing precision.

To get good outline and finish precision, the major is need the speed and current loop to match each other, as well as with good full close-loop circular precision in the mean-time.

It should also be noted, if machine with bad rigid and accuracy, adopt full close-loop will be lead to vibration. The precision and processing finish on the machine will be going down further.

Case showing



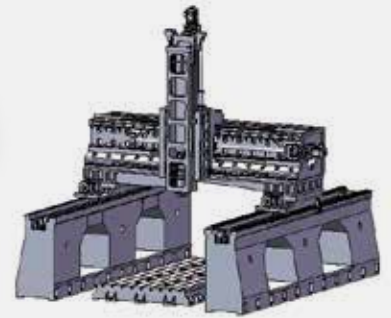
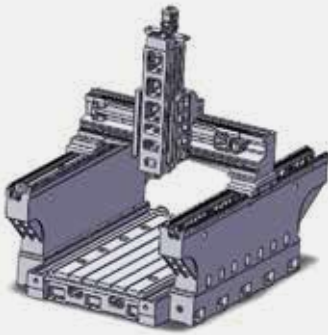
Crossbeam moving gantry milling center

No.1 share in local market
 High rigid
 High speed
 High precision
 Large capacity

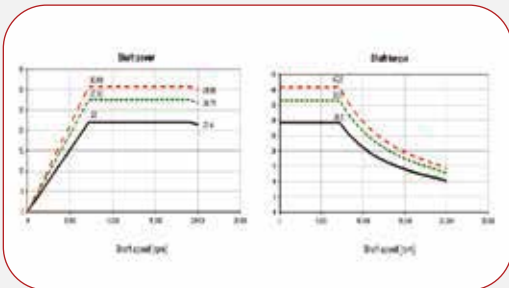


One-body structure: 12, 16, 20 series

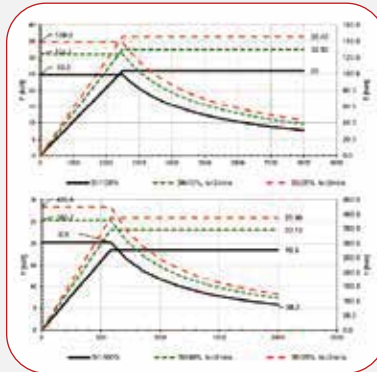
Separated structure: 25, 30, 35 series



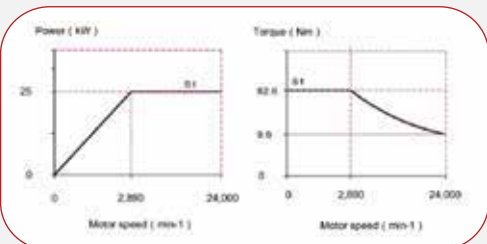
● Power & torque diagram for electrical spindle



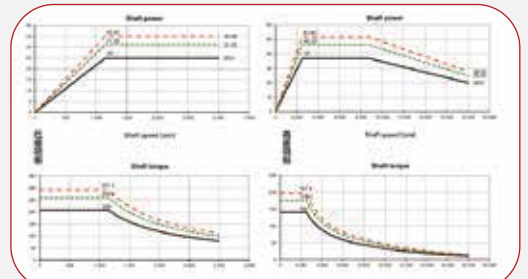
A 22/31 Kw, 29.2/41 Nm, HSK-A63-20000/24000 rpm



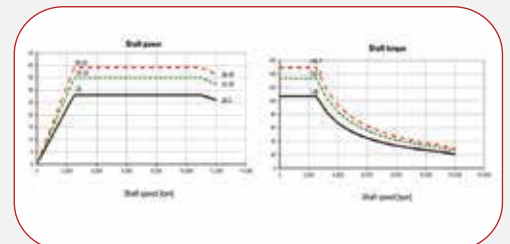
D 18.5/26 Kw, 99.3/305 Nm, BT50-8000 rpm



B1 25 Kw, 82.6 Nm, HSK-A63-24000 rpm



C1 37/52 Kw, 208/291 Nm, HSK-A63-18000 rpm
 C2 37/52 Kw, 208/291 Nm, HSK-A100-12000 rpm



B2 28/35 Kw, 108/150 Nm, HSK-A100-12000 rpm

Crossbeam moving gantry milling center

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Adopt pneumatic & hydraulic balance system on headstock, ensure spindle working with quickly feedback to match CNC control system.

According to CE standard to producing

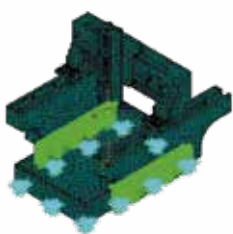


Fixed worktable can let machine afford heavy work piece loading. Meanwhile, the weight of the work piece changing is even no influence on the servo driving for each axis, this structure can ensure the machine with high accuracy processing.

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Finite element analysis



Axes laser testing /compensation



Laser ballbar testing



Laser collimator testing



Decibel meter testing

● One-body structure: 12, 16, 20 series

Parameters	Unit	VC1480H/G	VC1810\1813H/G	VC2516\3016\4016H/G	VC3020H/G
Table size	mm	900 × 1600	1000/1300 × 1900	1600 × 2500/3200/4000	2000 × 3000
Table loading	t	8	9	15/20/25	30
X/Y/Z travel	mm	800 × 1500 × 550	1050/1300 × 2000 × 550	1600 × 2500/3200/4200 × 800	2000 × 3200 × 800
Linear guide way		X/Y: rolling, Z: roller X: rolling × 2+ 1 box, Y: 2 rolling × 2, Z: rolling × 4			
Distance from spindle nose to tale	mm	230–780 (can be customized)		200–1000 (can be customized)	
Spindle/mechanical and motor	H	BBT40–15000rpm		BT50–155–8000rpm	
		1480: Siemens 8.4 Kw/29.2 Nm, Fanuc 11 Kw/57 Nm 1810: Siemens 12/18 Kw (rating 1000 rpm) 115/172 Nm, Fanuc 15/18.5 Kw (rating 1500 rpm) 72/118 Nm 16/20: Siemens 17/25 Kw (rating 1000 rpm) 162/243 Nm, Fanuc 15/18.5 Kw (rating 1000 rpm) 143/177 Nm			
Spindle/electrical	G	A head/standard, B1 head for option		B1 head/standard, B2 head for option	
ATC capacity		20 positions			
Max work piece height	mm	730 (can be customized)		950 (can be customized)	
Max. work piece width	mm	1200	1300/1550	2000	2400
Feeding/rapid speed	m/min	0–15/30		0–15/20	
Positioning accuracy	mm	0.01			
Repeat positioning accuracy	mm	0.005			
Total weight	t	15	20/24	31/33/38	38
Dimensions (without electric cabinet)	mm	3600 × 2100 × 2800	4800 × 3150/3400 × 2800	5200/6200/7400 × 3500 × 3400	6200 × 4000 × 3400
Control system		Siemens 828D or Fanuc MF, Siemens 840DsI/option			

● H is for common; G is for high speed/high precision. The actual parameters by confirmed order

● Separated structure: 25, 30, 35 series

Parameters	Unit	VC4025H/G	VC6025H/G	VC6030H/G	VC8030H/G	VC12030H/G
Table size	mm	2100 × 4000	2100 × 6000	2600 × 6000	2600 × 8000	2600 × 12000
Table loading	t	30	40	50	65	80
X/Y/Z travel	mm	2500 × 4200 × 1200	2500 × 6200 × 1200	3000 × 6200 × 1200	3000 × 8200 × 1200	3000 × 12200 × 1200
Linear guide way		X: 2 linear rolling guide way+ 1 box guide way, Y: 2 linear rolling guide way × 2, Z: Linear rolling guide way × 4				
Distance from spindle nose to tale	mm	350–1550 (can be customized)				
Spindle/mechanical and motor	H	BT50–190–6000rpm/standard, +ZF reducer: (BT50–190–8000rpm)/option				
		Siemens 28/42 Kw (rating 1000 rpm) 267.5/401 Nm/standard, +ZF reducer: 1070/1604 Nm/option				
Spindle/electrical	G	C1 head/standard, C2 head for option				
ATC capacity		20 positions/standard, 20 positions × 2, 3, 4 for option				
Max work piece height	mm	1500 (can be customized)				
Max. work piece width	mm	3160		3600		
Feeding/rapid speed	m/min	0–15/20				0–15/30
Positioning accuracy	mm	0.01				
Repeat positioning accuracy	mm	0.005				
Total weight	t	50	60	66	80	130
Dimensions (without electric cabinet)	mm	9000 × 5800 × 4500	11000 × 5800 × 4500	11000 × 6600 × 4500	13000 × 6600 × 4500	17000 × 6600 × 4500
Control system		Siemens 828D or Fanuc MF, Siemens 840DsI/option				Siemens 840DsI

● H is for common; G is for high speed/high precision. The actual parameters by confirmed order

● 8M and above gantry adopt gear and racks driving structure

More than 8 meters travel adopt gear and rack structure. High precision, large modulus grinding gear and rack with heavy duty capacity and high positioning accuracy.



Four servo motors simultaneously driving control in the same direction to eliminate anti-backlash.



Column moving vertical milling center

High speed/precision processing for longer–narrow work piece in aerospace



● The difference between casting and welding structure

Classic machine tool is by casting structure body, With excellent ability of anti–pressure, vibration absorption and stability, proper aging treatment for the casting can release internal stress to gain long terms accuracy keeping.

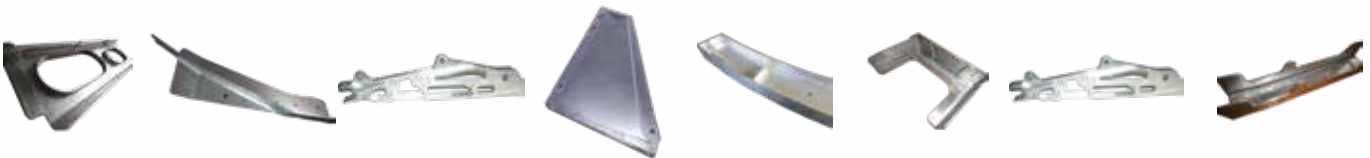
Welding structure is also popular be adopted all over the world. But without good anti–deformation designing, complicatedly aging treatment, it will deform gradually. Meanwhile, many manufacturers mislead customers with welding structure instead high level for reduce cost. For the high speed processing, machine tool body need to suffer impact by high accelerate speed frequently. It is necessary for adopting casting structure.

Parameters	Unit	CMV455/655/855/1255	CMV665/865/1265	Parameters	Unit	CMV455/655/855/1255	CMV665/865/1265
Table size	m	0.5 × 4/6/8/12	0.6 × 6/8/12	Feeding speed	m/min	0–20	0–15
T slot	mm	5 × 18		Rapid speed	m/min	60/30/30	
Table loading	t	4/6/8/12	10/12/20	ATC capacity		24	
X travel	m	4/6/8/12	6/8/12	Time of tools exchange	s	4	
Y/Z travel	mm	500 × 450	600 × 500	Positioning accuracy	mm	0.01	
Linear guide way		X,Y/ball, Z/roller	X,Y/ball, Z/roller × 4	Repeatability accuracy	mm	0.005	
Spindle nose to table	mm	100–550	150–650	Total weight	t	20/25/30/38	32/38/46
Spindle inner taper		HSK A63 (BT40/option)	BT50 (BT40/option)	Dimensions	m	6.5/9/11/15 × 3.4 × 3.4	9.5/11.5/15 × 3.5 × 3.5
Spindle speed	rpm	18000 (12000/option)	8000 (10000/option)	General power	Kw	25	34
Main motor power	Kw	11/18.5 Kw (9/12 Kw, option)	17/25.5 Kw 162/243 Nm	Control system		Siemens 828D, Fanuc 0i MF	

● Comparing between fixed and moving table structure

Item	Moving table type	Fixed table type
Job loading	Normally 2T/m ² or lower	Only upon the table size
Rapid/feeding speed	Not good at high precision processing for heavy job, with low feeding speed and guide ways is wear easily	No relationship with job weight, particularly for heavy job for high precision processing
Accuracy keeping	System parameters setting can not match the changing weight of job. With low stability	System parameters setting with fixed loading mass and no relationship with the weight of job. With high precision and good stability
Guide way and screw wearing	Non–uniformly wearing of the guide ways and ball screw under the table cause them damage quickly	With average wearing on guide ways and ball screws and is good for accuracy keeping
Servo driving performance	The weight of job always changing, so driving system can not match the loading mass in time, not good at for high precision processing	Driving system can match loading mass always and no relationship with the weight changing of jobs. Suit for high precision processing
Processing accuracy	The processing accuracy is influenced by changing weight of job, guide way and ball screw wearing largely	With average wearing on guide way and ball screw, and no relationship with the weight changing of job. All these are better for machine keeping higher processing accuracy
Floor space	Covering large space	Near 40% working area saved than moving type
Material range	The guide way and ball screw are under the cutting jobs, caused the cutting chips is easy to enter inside and cause damage quickly.	Guide way and ball screw are beside or above on the cutting jobs to avoid the cutting chips enter. Particularly suit for processing ceramics, glass fiber and casting iron and etc.
Job clamping	Job size must be within the travel and can not clamping other jobs while processing	Can processing jobs even the size beyond the travel. Can clamping other jobs while processing

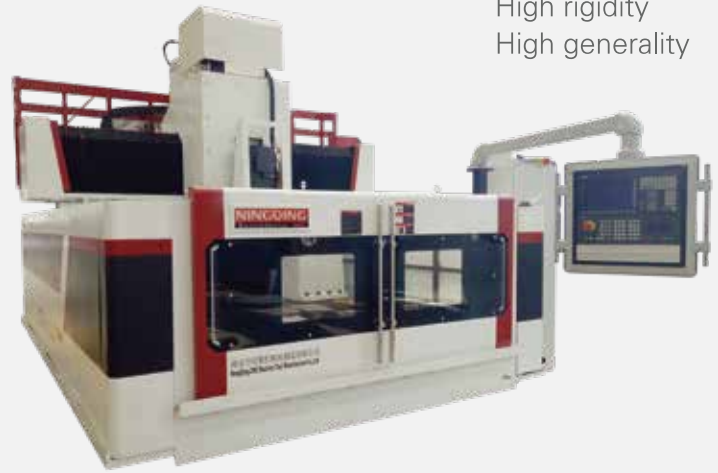
Case showing



Column moving gantry milling center

The best solution of heavy cutting large and wide work pieces
5-face processing solution

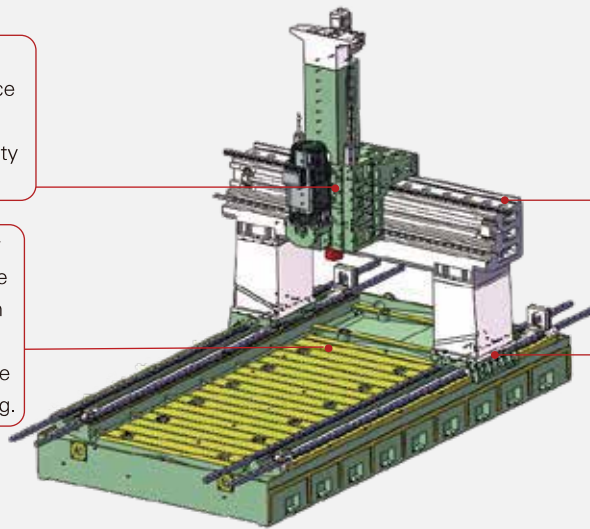
Heavy cutting
High rigidity
High generality



One-body structure: 12, 16, 20, 25 series

420 × 420 compounding square guide ram, with linear guide rail, can reinforce precision while remain rigidity of ram, especially good at mass and heavy duty processing.

Fixed worktable can obtain heavy duty loading for work piece. Meanwhile, the weight of work piece changing is even no influence on the servo driving for each axis, this structure can ensure the machine with high accuracy processing.



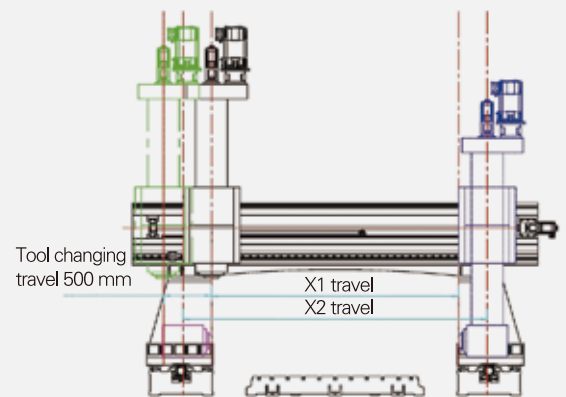
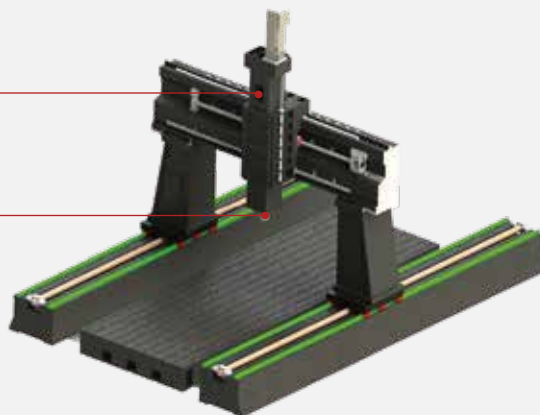
Patented technology on X axis, two linear guide ways and an additional box guide way structure designing enlarge the whole body rigid and reduce accuracy losing. Ensure the machine with good performance and stability.

Our patent compounding guide ways of Y axis, with 2 heavy linear guide ways and additional box guide way, can avoid turning force while in rapid moving and cutting.

Separated structure: 30, 35 series

500 × 500 section area on ram ensure good rigidity against heavy duty processing.

Option: 2500 rpm BT50 or 2000 rpm BT60, roller bearing on spindle for heavy duty cutting. Adopt ZF reducer can obtain 3000Nm cutting torque.



Schematic diagram of processing range

● One-body structure: 12, 16, 20, 25 series

Parameters	Unit	VC2012L	VC25/30/40-16L	VC4020L	VC3025L
Table size	mm	1000 × 2000	1400 × 2500/3000/4000	1800 × 4000	2300 × 3000
Table loading	t	12	15/20/25	30	30
X1/X2 travel	mm	1200	1600/2100	2000/2500	2500/3000
Y/Z travel	mm	2000 × 700	2500/3200/4200 × 800	4200 × 1000	3200 × 1000
Guide way		X: 2 linear rolling guide+1 box guide, Y: 2 linear rolling guide × 2+ box guide × 2, Z: 2 linear rolling guide+1 box guide			
Distance from spindle nose to tale	mm	300-1000	200-1000 (can be customized)	200-1200 (can be customized)	
Spindle	rpm	BT50-8000/standard, +ZF reducer: (BT50-3000 roller gear/BT60-2000 roller gear)/option			
Spindle motor		12/16 L: 17/25.5 Kw (rating 1000 rpm) 162/243 Nm/standard, +ZF reducer 648/972 Nm/option 20/25 L: 22/30 Kw 210/315 Nm/standard, +ZF reducer 840/1260 Nm/option			
ATC capacity		20 positions			
Max. work piece width	mm	1200	1600	2000	2500
Feeding speed	m/min	0-15			
Rapid speed	m/min	15			
Positioning/repeatability accuracy	mm	0.01/0.005			
Total weight	t	15	20/25/30	35	35
Dimensions (without electric cabinet)	mm	4500 × 3600 × 3400	5500/6000/8000 × 3600 × 3400	8000 × 4000 × 4000	5500 × 4500 × 4000
Control system		Siemens 828D or Fanuc MF, Siemens 840Dsl/option			

● Separated structure: 30, 35 series

Parameters	Unit	VC50/80-30L	VC60/80-35L	VC12035L	
Table size	mm	2100 × 5000/8000	2600 × 6000/8000	2600 × 12000	
Table loading	t	38/60	50/65	80	
X1/X2 travel	mm	3000/3500	3500/4000		
Y/Z travel	mm	5200/8200 × 1200	6200/8200 × 1200	12200 × 1200	
Guide way		X: 2 linear rolling guide way+ 1 box guide way, Y: 2 linear rolling guide way × 2+ box guide way × 2, Z: box guide way			
Distance from spindle nose to tale	mm	350-1550 (can be customized)			
Spindle	rpm	BT50-6000/standard, +ZF reducer: (BT50-8000/BT50-3000 roller gear/BT60-2000 roller gear)/option			
Spindle motor		30/35L: 28/42 Kw (rating1000 rpm) 268/401 Nm/standard, +ZF reducer1070/1604 Nm/option Option: 33/50 Kw (rating 700 rpm), +ZF reducer 3000 Nm			
ATC capacity		20 positions/standard, 20 positions × 2, 3, 4 for option			
Max. work piece width	mm	3000	3500		
Feeding speed	m/min	0-15			
Rapid speed	m/min	15			
Positioning/repeatability accuracy	mm	0.01/0.005			
Total weight	t	50/65	58/70	115	
Dimensions (without electric cabinet)	mm	10500/13500 × 4800 × 4000	11500/13500 × 6600 × 4000	17500 × 6600 × 4000	
Control system		Siemens 828D or Fanuc MF, Siemens 840Dsl/option		Siemens 840dsl	

● 8M and above gantry adopt gear and racks driving structure

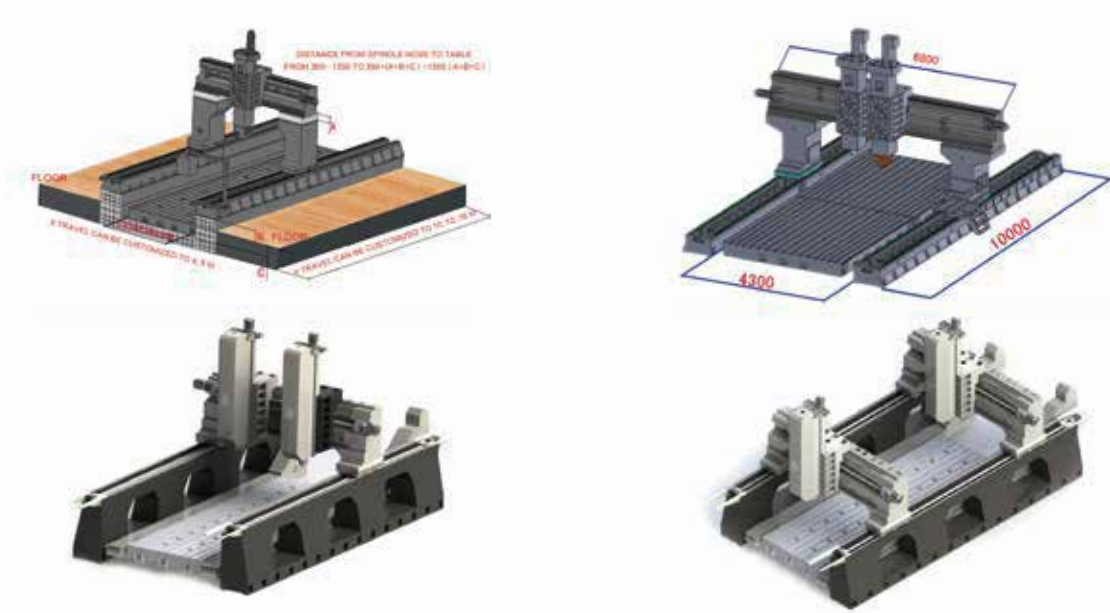
More than 8 meters travel adopt gear and rack structure. High precision, large modulus grinding gear and rack with heavy duty capacity and high positioning accuracy.



Four servo motors simultaneously driving control in the same direction to eliminate anti-backlash.



Customized gantry milling upon difference demands for clients



Option milling head



Auto universal milling head



Auto right angle milling head



Universal milling head/45°



Universal milling head/90°



Right angle milling head

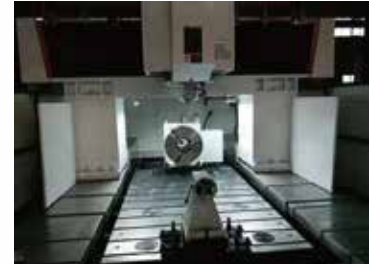
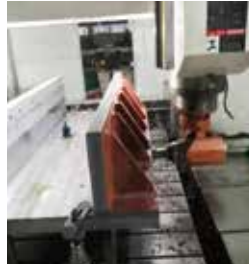


Lengthen milling head



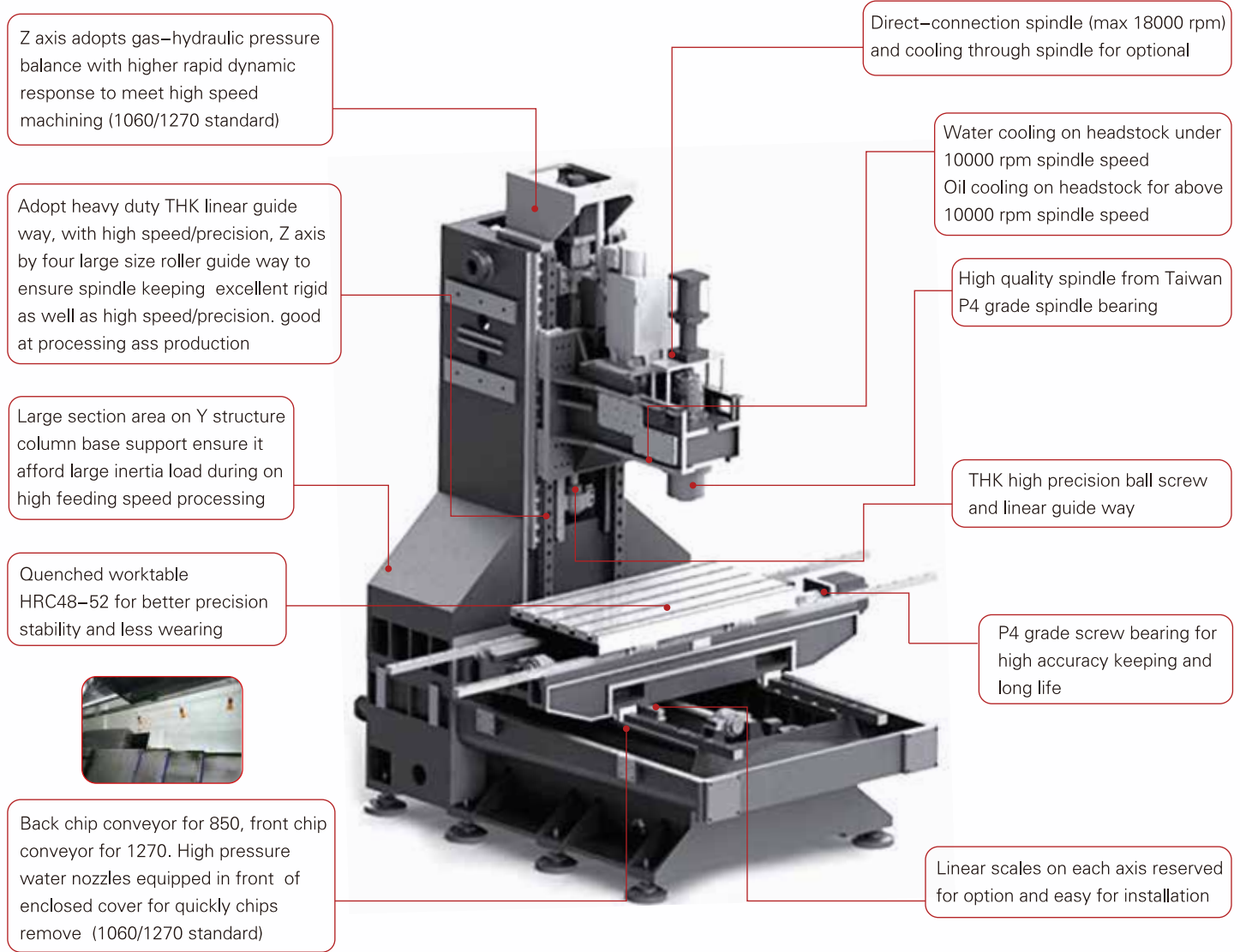
Warehousing ATC

Case showing



High speed VMC

Feeding speed: 48 m/min, cutting depth 5 mm
 Suitable for large mass workpieces and high precision mould processing



1. Three-step cooling liquid filter ensure keeping long terms working in stable
2. Excellent environmental protection, oil collecting separate from the water
3. Prepare the 4th axis interface for option
4. Special 5 water+2 gas stainless nozzles can be adjusted upon difference length of cutting tools
5. High quality pneumatic components from Japan
6. Pressure keeping device ensure stable tools exchange
7. Electrical parts producing upon CE standard
8. Auto lubrication from Taiwan
9. High quality cable, couple are from Germany



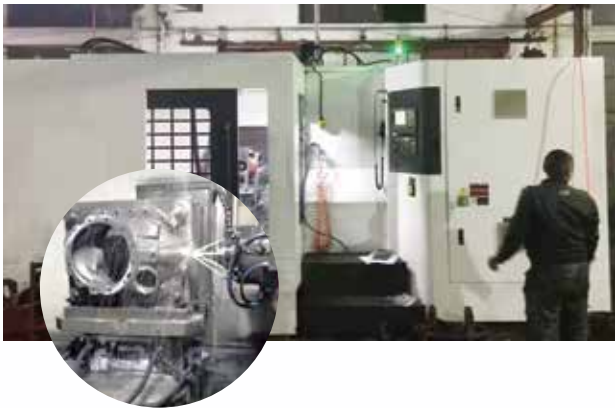
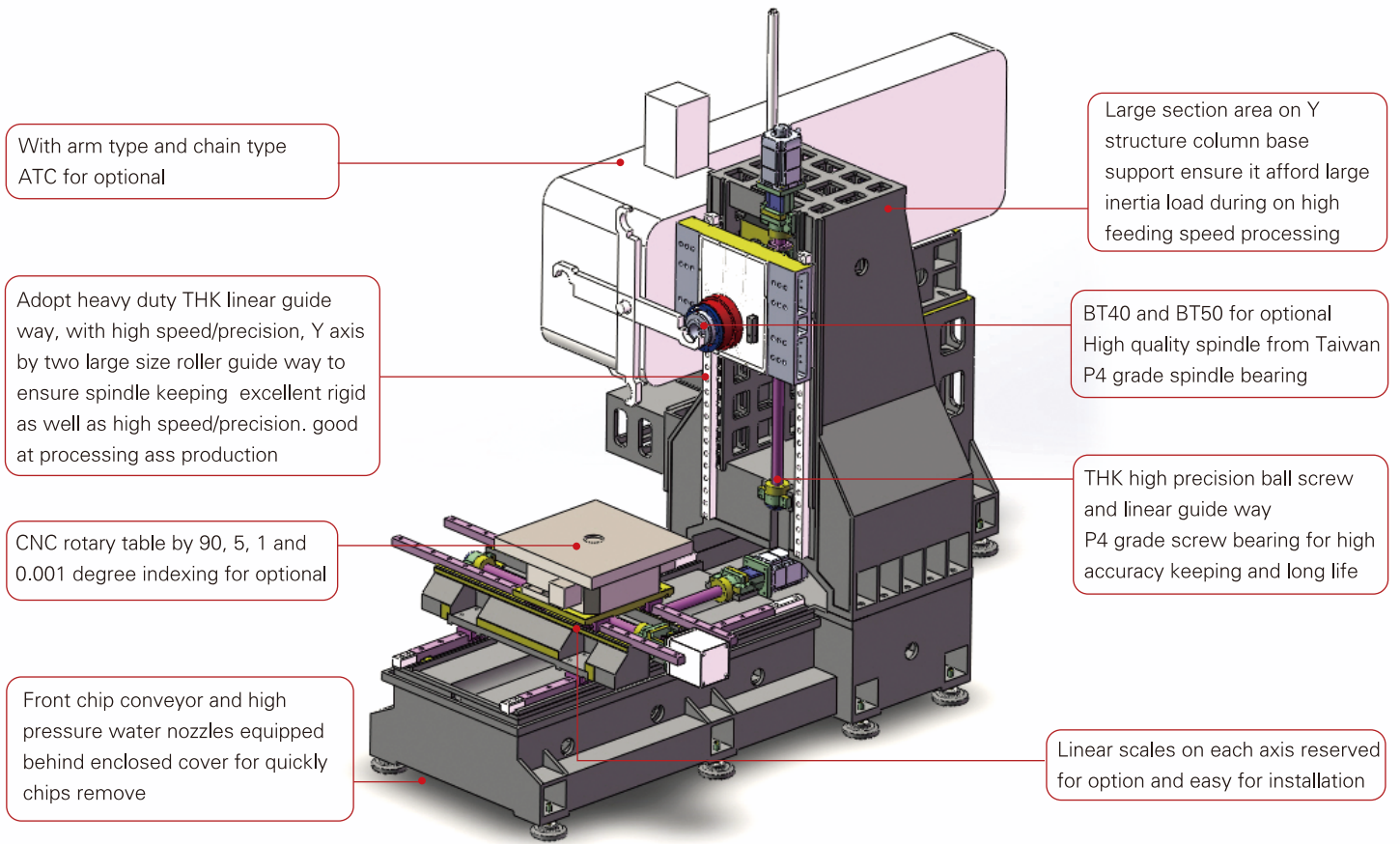


Efficiency (cm ³ /min)	VC850	VC1060	VC1270
45#(steel)	200	250	320
Al (high speed)	1000	1100	1300

Parameters	Unit	VC850	VC1060	VC1270
Table size	mm	500 × 1000	600 × 1100	710 × 1300
T slot	mm	5 × 18	18 × 5 × 100	5 × 18
Table loading	Kg	600	800	900
X/Y/Z travel	mm	860 × 530 × 560	1000 × 600 × 600	1200 × 700 × 600
Linear roller guide way	mm	X:35/Y:45/Z:35	X:35/Y:45/Z:45	X:45/Y:55/Z:55
Distance from spindle nose to tale	mm	110–670	150–750	150–750
Distance from spindle center to Z guide way surface	mm	580	650	810
Spindle speed	rpm	10000 /belt, 12000/15000/direct, 18000/24000/ (HSK A63)/electro spindle		
Spindle inner taper		BT40–150/BBT40	BT40–150	BT40–150/BT50–155
Spindle motor	Kw	7/11 (siemens), 7.5/11 (fanuc)	9/13.5 (siemens), 11/15 (fanuc)	12/18 (siemens 115/172 Nm) 15/18.5 (fanuc)
Feeding speed	m/min		48	32
Rapid speed	m/min		48	32
ATC capacity		24 positions/disc		
Time of tools exchange	s		1.8	
Positioning accuracy	mm		0.01	
Repeat positioning accuracy	mm		0.005	
Total weight	Kg	5500	6500	8800
Dimensions	mm	2600 × 2200 × 2600	2950 × 2550 × 2600	3450 × 2800 × 2700
General power	Kw	22	25	30
Control system		Siemens, Fanuc, Mitsubishi		

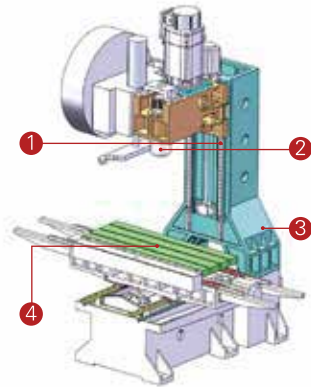


High speed, high rigidity, high precision, heavy cutting



Parameters	Unit	HC500	HC630	Parameters	Unit	HC500	HC630
Table size	mm	500 × 500	630 × 630	Table indexing		4 × 90° (option: 5° , 1° , 0.001°)	
T slot	mm	5 × 18		Indexing accuracy		2" (12" /5° , 1° , 0.001°)	
Table loading	Kg	500	700	Feeding speed	m/min	0–30	
X/Y/Z travel	mm	600 × 580 × 530	700 × 650 × 650	Rapid speed	m/min	30	
Linear guide way		X, Z/ball, Y/roller		ATC capacity		24 positions/disc 40/chain/option, 3"	
Dist. from spindle center to tale	mm	80–660	50–700	Positioning accuracy	mm	0.01	
Dist. from spindle center to column	mm	120–650	170–820	Repeat positioning accuracy	mm	0.005	
Spindle inner taper		BT40 (BT50/option)	BT50 (BT40/option)	Total weight	t	9	12
Spindle speed	rpm	8000 (10000/option)	8000 (4500 roller gear/option)	Dimensions	m	3.2 × 3.3 × 3.3	3.6 × 3.8 × 3.3
Spindle motor	Kw	11/15 Kw, 53/96 Nm	15/18.5 Kw, 143/177 Nm	Control system		Siemens 828D or Fanuc MF	

Economic VMC

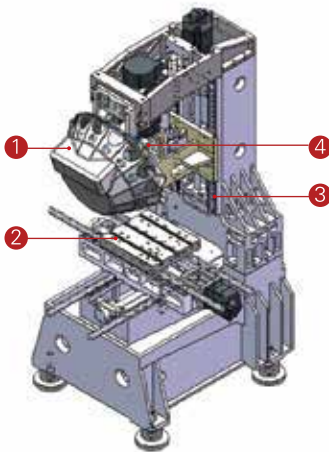


1. Linear guide way/Taiwan, roller linear guide way adopt on Z axis ensure high rigid, high speed and high accuracy. Suit for mass production & high precision mould processing
2. High quality spindle and high precision bearing ensure stable working with good accuracy
3. Large section area on Y structure column base support to ensure it afford large inertia load during mahine on high feeding speed processing
4. Quenched worktable HRC48–52 for better precision stability and less wearing

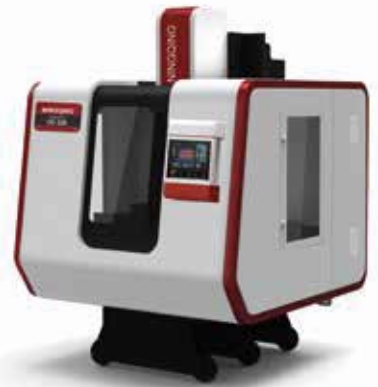


Parameters	Unit	VM7135	VC7135	Parameters	Unit	VM7135	VC7135
Table size	mm	1000 × 350		Feeding speed	m/min	0–15	
T slot	mm	3 × 14		Rapid speed	m/min	X/Y:30, Z:15	
Table loading	Kg	400		ATC capacity	/		20/disc
X/Y/Z travel	mm	660 × 360 × 510		Time of tools exchange	s	/	1.8
Linear roller guide way		X/Y/Z:25		Positioning accuracy	mm	0.01	
Dist. from spindle nose to tale	mm	100–610		Repeatability accuracy	mm	0.005	
Dist. from spindle center to column	mm	440		Total weight	Kg	2600	
Spindle speed	rpm	8000		Dimensions	m	2.4 × 2.0 × 2.3	
Spindle inner taper		BT40		General power	Kw	12(15)	
Spindle motor	Kw	3.7/5.5(7.5/11)		Control system		Siemens, Fanuc, Mitsubishi	

Mini tapping center



1. Adopt quickly auto tools exchanger
2. Quenched worktable HRC48–52 for better precision stability and less wearing
3. Linear guide way/Taiwan, roller linear guide way adopt on Z axis ensure high rigid, high speed and high accuracy. Suit for mass production/high precision mould processing
4. Direct connection spindle is better for high speed tapping
5. Back chip conveyor and high pressure water nozzles equipped in front of cover for quickly chips remove



Parameters	Unit	TC320	Parameters	Unit	TC320
Table size	mm	350 × 310	Feeding speed	m/min	32
T slot	mm	3 × 14	Rapid speed	m/min	32
Table loading	Kg	100	ATC capacity		16
X/Y/Z travel	mm	350 × 270 × 300	Time of tools exchange	s	1.1
Linear roller guide way		X/Y/Z:25	Positioning accuracy	mm	0.01
Dist. from spindle nose to tale	mm	100–400	Repeat positioning accuracy	mm	0.005
Dist. from spindle center to column	mm	340	Total weight	Kg	1800
Spindle speed	rpm	10000 (12000)	Dimensions	m	1.5 × 1.5 × 1.8
Spindle inner taper		BT30	General power	Kw	12
Spindle motor	Kw	3.7/5.5	Control system		Siemens, Fanuc, Mitsubishi

High speed engraving & milling center

High speed electro spindle by standard. With option of mechanical spindle (BT40)

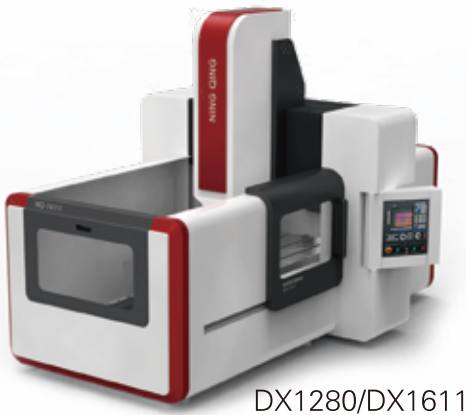
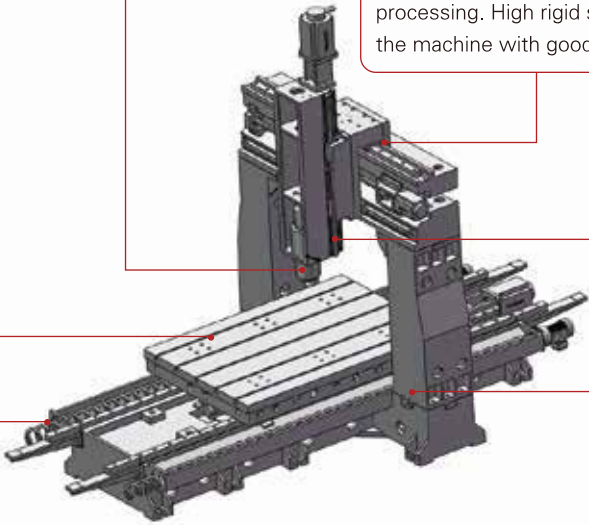
Quenched worktable HRC48-52 for better precision stability and less wearing

Chip conveyor, ATC and tool measure device for option

DX1280/1611 model: Patented technology on X axis, two linear guide ways and an additional box guide way structure designing, ensure the spindle can afford more overturning moment while processing. High rigid structure can reduce accuracy losing. Ensure the machine with good performance and stability.

DX1280/1611 adopt four linear rolling guide way to improve the processing rigidity

Adopt gantry structure, with good loading capacity and high rigid. Ensure machine with good stability and high accuracy



DX1280/DX1611



DX6070

Parameters	Unit	DX6070	DX1280	DX1611	Parameters	Unit	DX6070	DX1280	DX1611
Table size	mm	600 × 700	800 × 1200	1100 × 1600	Feeding,/rapid speed	m/min	0-15/20		
T slot	mm	5 × 12 × 110	5 × 18 × 160	5 × 18 × 210	ATC capacity		Option: 8/umbrella		
Table loading	Kg	400	800	1500	Time of tools exchange	s	6		
X/Y/Z travel	mm	600 × 700 × 300	800 × 1200 × 450	1100 × 1600 × 550	Position/repeatability accuracy	mm	0.01/0.005		
Linear roller guide way		ball	X: 2 linear guide+1 box guide Y/Z: linear guide		Total weight	Kg	3500	6500	8000
Spindle speed	rpm	24000(18000)	18000(8000)	18000(8000)	Dimensions	m	2.2 × 2.1 × 2.2	3.6 × 1.9 × 3.0	4.3 × 2.1 × 3.3
Spindle inner taper (option)		ER25 (BT30/electro)	ER32 (BT30/electro, BT40/mechanical)		General power	Kw	10	18	18 (21)
Spindle motor	Kw	4(5.5)	7.5 (7.5/11)	7.5 (11/15)	Control system		Fagor/Spain, Lnc/Taiwan		



High speed forging mold CNC milling machine



1. The latest method of forging die processing – direct milling of the cavity on the hardened die blank
2. No need to rework the electrode, no EDM
3. Avoid the softening layer of the workpiece surface in EDM to affect the life of the die
4. Tool materials are developed on their own and the tool costs are extremely low
5. The mold is processed in one time without technical repair
6. "Turnkey project" – to provide you with a complete set of use processes



Parameters	Unit	320G	7135G	850G	Parameters	Unit	320G	7135G	850G
Table size	mm	350 × 310	1000 × 350	1000 × 500	X/Y/Z travel	mm	370 × 270 × 300	660 × 360 × 510	860 × 530 × 560
Table loading	Kg	100	400	600	T slot	mm	3 × 14	3 × 14	5 × 18
Distance from spindle nose to tale	mm	100–400	120–630	110–670	Linear guide way		X/Y: ball, Z: roller		
Dist. from spindle center to column	mm	340	435	580	Feeding/rapid speed	m/min	0–20/48	0–15/X, Y:30, Z:15	48/48
Spindle speed	rpm	24000	24000	18000	Total weight	Kg	1800	2600	5500
Spindle inner taper		ER25	ER25	BT30	General power	Kw	10	15	18
Positioning/repeatability accuracy	mm	0.01/0.005	0.01/0.005	0.01/0.005	Control system		Lnc/Taiwan		
Spindle motor	Kw	4	5.5	8.4	Dimensions	m	1.5 × 1.5 × 1.8	2.4 × 2 × 2.3	2.6 × 2.2 × 2.4

● Characteristic

1. The special advanced high–speed electric spindle can reach a maximum speed of 18,000 rpm.
2. Special tools for processing quenched material. With low costs and using easy.
3. Provide reliable processing process easy to grasp.
4. Optimization of structural design and system commissioning according to the characteristics of the quenched mold.
5. With RS232 interface, network, hard disk storage function. Fast reaction by system easy for complex shapes processing.
6. Inspected by Reinshaw laser interferometer and ball bar to ensure the precision.
7. Providing series service including 3D modeling, programming, operation, cutting tools, processing process and etc., to eliminate all worries for our users.

CNC tool grinding machine

● Characteristic

1. Spindle grinding head can be adjusted angles in X/Z and X/Y plane upon the processing demands.
2. Increase the fourth axis is suit for grinding cylindrical tools.
3. Adopts high–speed CBN grinding wheel with little wear, system can give compensate for wear tools.



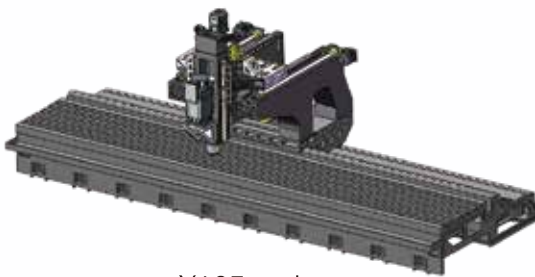
High precision
High efficiency
Low costs

Parameters	Unit	MK800	Parameters	Unit	MK800
Table size	mm	1000 × 300	X/Y/Z travel	mm	800 × 300 × 400
Table loading	Kg	300	T slot	mm	3 × 14
Distance from spindle nose to tale	mm	40–440	Guide way		Linear rolling guide way
Spindle speed	rpm	18000	Feeding,/rapid speed	m/min	0–15/15
Granding head deflect range on XY plane	°	± 90°	Total weight	Kg	3000
Granding head deflect range on XZ plane	°	± 90°	General power	Kw	10
Positioning/repeatability accuracy	mm	0.01/0.005	Control system		Lnc/Taiwan
Spindle motor	Kw	4	Dimensions	mm	2600 × 1600 × 2400



● Characteristic

1. Full casting body with good rigidity and high stability
2. Ram can realize high speed moving, which is more stable than column moving structure.
3. Slide plate of X axis by high and low step layout, greatly increasing the overall strength of the machine
4. Leaky worktable structure is good at conveying chips.
5. Reasonable cover design preventing chips and liquid go out.
6. X105LQ series adopt gantry structure on X axis, with large support area and high rigid, all axis can realize high speed feeding and rapid with good accuracy.
7. Adopt THK/Japan heavy duty linear guide way, Alpha/Germany gear and racks as well as reducer



X105 series



X65 series

Parameters	Unit	X65LQ	X105LQ	Parameters	Unit	X65LQ	X105LQ
Table size	m	5.5/7.5/11/13/15 × 0.6	6.5/8.5/13/15/17 × 1.0	Feeding speed	m/min		30
T slot	mm	4 × 18	6 × 18	Rapid speed	m/min		60
Table loading	t	0.8/1.0/1.6/1.8/2.0	0.8/1/1.6/1.8/2.0	ATC capacity			24
X travel	m	4.5/6.5/10/12/14	4.5/6.5/11/13/15	Time of tools exchange	s		4
Y/Z travel	mm	600 × 500	1000 × 500	Positioning accuracy	mm		0.02
Linear roller guide way		Z: roller × 2		Repeatability accuracy	mm		0.01
Dist. from spindle nose to tale	mm	80–480	150–650	Total weight	t	16/19/25/28/32	23/28/38/43/48
Spindle inner taper		BT40		Dimensions	m	6/8/11.5/13.5/15.5 × 2.2 × 2.8	7/9/13.5/15.5/17.5 × 2.6 × 2.8
Spindle speed	rpm	15000 (direct connection)		General power	Kw	22	
Spindle motor	Kw	8.4		Control system		Siemens 828D or Fanuc 0i MF	

● The difference of casting structure and welding structure

Classic machine bed mostly are casting structure, for its excellent ability of anti- pressure, vibration absorption and stability, with proper aging treatment it can release stress to retain precision. To welding lathe bed, it is for light weight treatment, which is also popular all over the world. But without good anti- deformation designing, complicate aging treatment, it will deform gradually. Meanwhile, many domestic companies mislead customers with high- level welding lathe bed for reduce cost. In a word, because machines has high speed and high accelerated speed, lathe bed will get impacted, so it is necessary for adopting casting structure.

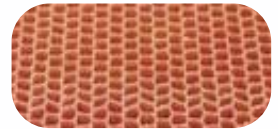
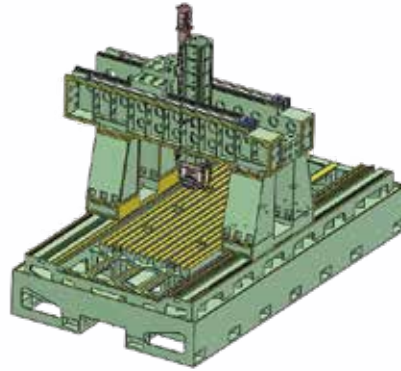


Light-duty 5 axis gantry moving milling center

Suit for processing aerospace compounding material

● Characteristic

1. Double-gantry structure design, particularly for high speed light-duty processing.
2. Full casting body with good rigidity and high stability
3. Adopt THK/Japan heavy duty linear guide way, Alpha/Germany gear and racks as well as reducer
4. Suit for processing aerospace compounding material. Adopt double anti-dust layer structure, first anti-dust area within the gantry frame, and the second over all structure of machine.



HSD单臂式

	A/C head		Spindle	
	A head	C head	Rating power S1	18 Kw
Tilting range	± 120°	± 360°	Max power S6	21.6 Kw
Positioning	24"		Rating torque S1	21.8 Nm
Repeatability	10"		Max torque S6	25.8 Nm
Rotary speed	30 rpm		Rating speed	8000 rpm
Torque (contineous)	130 Nm	183 Nm	Max speed	24000 rpm
Torque (max)	190 Nm	290 Nm	Toolholder	HSK F63
Clamping torque	342 Nm		Gear lubricating	Water cooling

High speed light-duty milling center

Best choice for new energy vehicle battery box processing



Parameters	Unit	VC3016LQ	VC5A3016LQ	Parameters	Unit	VC3016LQ	VC5A3016LQ
Table size	mm	1400 × 3000		Feeding speed	m/min	20	
T slot	mm	5 × 18		Rapid speed	m/min	40/20/20	
Table loading	t	10		ATC capacity		24	20
X travel	mm	3000		Time of tools exchange	s	4	
Y/Z travel	mm	1600 × 400	1600 × 800	Positioning accuracy	mm	0.02	
Linear guide way		Z: roller × 2		Repeatability accuracy	mm	0.01	
Dist. from spindle nose to tale	mm	250-650	250-1050	Total weight	t	20	25
Spindle inner taper		BBT40	HSK F63	Dimensions	mm	4500 × 3000 × 3000	
Spindle speed	rpm	15000/direct connection	24000	General power	Kw	22	35
Spindle motor	Kw	8.4	18/21.5	Control system	Siemens 828D or Fanuc MF, Siemens 840Dsl/option		

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