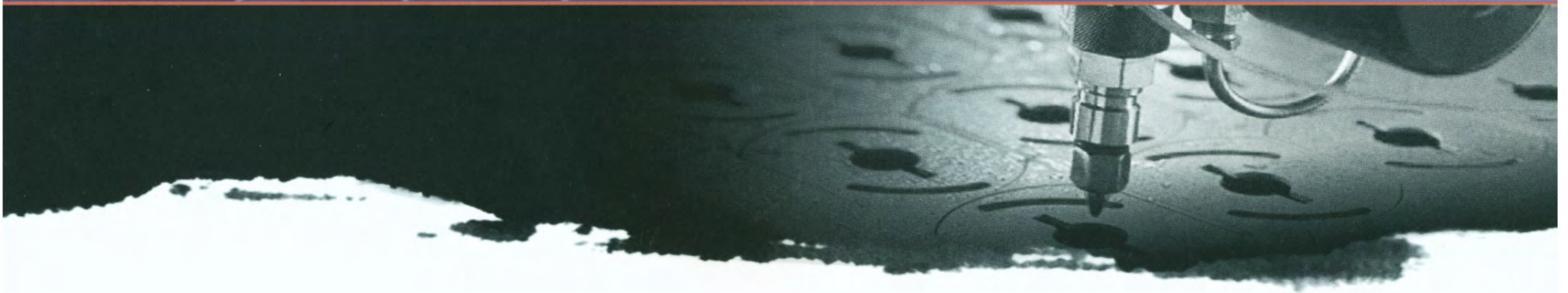


Drafter of national standards for China waterjet







Company Profile

With their headquarter located in Milwaukee, Wisconsin, A&V Waterjet Tech Inc, is a leading high tech manufacturer of CNC ultra-high pressure waterjet cutting machines.

Through dedicated research and development, our waterjet cutting machines are playing an increasingly important role in processing glass, stone, metal and composite materials.

With established reputation in quality, service and unbeatable price, A&V products are enjoyed by our customers worldwide.

We strive to continue our innovation to serve our customers through low-cost, high quality products and better services.



KMT-A&V-PRO 125ph

- Ultra-high pressure
- Ultra-high cutting efficiency
- Ultra-high productivity
- Ultra-low working cost
- Convenient and fast maintenance

System Information

Nominal Power Rate	60hp (45kw)	125hp (93kw)
Max. Continuous Pressure	90,000PSI (6,200bar)	90,000PSI (6,200bar)
Max. Water Flow Rate at Max. Pressure	1.2gpm (4,54lpm)	2.0gpm (7,56lpm)
	99,000PSI/6,200bar	
Max. Single Orifice diameter	0.015" (0.381mm)	0.019" (0.482mm)
Control Voltage & Power Supply	24VDC; 10Amps DC	24VDC; 10Amps DC
Ambient Operating Temp	Min.: 40°F (5°C)	Min.: 40°F (5°C)
	Max.: 104°F (40°C)	Max.: 104°F (40°C)
Length	67.75" (1.7m)	96.00" (2.4m)
Width	36.00" (914mm)	48.00" (914mm)
Height	57.19" (1,453mm)	57.19" (1,453mm)
Weight	3,400 lb (1,542kg)	5,000 lb (2,268kg)

Cutting Water(flow rate)

Min. Inlet Cutting Water	4.8gpm (18.2lpm)	8.0gpm (30.3lpm)
Min. Inlet Cutting Water Pressure	35PSI (2.4bar)	35PSI (2.4bar)
Plunger diameter	0.875" (22.2mm)	0.875" (22.2mm)
Max. Rated journey /min	64	64
	(55,000PSI/3,792bar)	
Accumulator Volume	1.2 L	2.4 L

Hydraulic System

Max. Hydraulic Pressure	3,000PSI (207bar)	3,000PSI (207bar)
(under max water pressure working)		
Hydraulic Tank Capacity	28 gal (106L)	100 gal (106L)
Hydraulic Pump Flow Rate at 60 Hz	33.0gpm (125lpm)	33.0gpm (125lpm)
(60Hz (1,750rpm))		

Cooling System

Cooling Water Consumption at 24°C	3.5gpm (13.2 lpm)	4.5gpm (17.0 lpm)
(max value)		
Min. Cooling Water Pressure	35PSI (2.4bar)	35PSI (2.4bar)

Options & Other Features

Intensifier
double pressure feeder

KMT-A&V-H2 4100

- Ultra-high competitive products assembly
- Transcendental cutting ability
- Ultra-strong stable performance
- Ultra-low energy cost

System Information

Nominal Power Rate	kw/PS	37/50
Max. Continuous Pressure	bar	4100
Max. Water Flow Rate	l/min	3.8
Control Voltage & Power Supply	VDC	24
Nom. Motor Current 380V/50Hz	A	66
Max. Circuit Breaker at 380V/50Hz	A	80
Length	mm	1500
Width	mm	1150
Height	mm	914
Control System		Siemens
Pneumatik Supply Pressure Requirement	bar	5.9
Pneumatik Supply Volume Requirement	l/min	28.3
Max Noise Level	dB (A)	<90

Connections

High Pressure Outlet Connections	UNF	9/16"
Low Pressure Connection	BSPT	1/2"
Drainage Connection	BSPT	1/2"

Cutting Water

Min. Inlet Cutting Water Pressure	bar	2-4
Max. Nominal Stroke Rate	min-1	54
Accumulator Volume	l	1
Low Pressure Filter	μm abs.	10

Hydraulic System

Max. Hydraulic Pressure	bar	205
Hydraulic Tank Capacity	l	170
Hydraulic Pump Flow Rate at 50 Hz	l/min	101

Cooling System

Cooling Water Consumption at 24°C	3.5gpm (13.2 lpm)	4.5gpm (17.0 lpm)
Min. Cooling Water Pressure	35PSI (2.4bar)	35PSI (2.4bar)

Options & Other Features

Intensifier
double pressure feeder





A&V-09A 3800

- Safety
- High efficiency
- Stable
- Low noise
- Imported intensifier

Main technical data

Nominal Power Rate	18.5KW
Max. Continuous Pressure	380Mpa
Max. water	3.7L/min
CNC system	PLC (Omron)
Cutting Water Inlet pressure	>0.1Mpa
Cooling Water Inlet pressure	>0.5Mpa
Max. oil pressure	20Mpa
Accumulator Volume	1.2L
High Pressure Outlet Connections	M16X1.5
Length	1745
Width	1045
Height	1350
Weight	1200Kg
Lp Low Pressure Filter	10um

Main technology feature

1. There is shock absorber installed in the four corners of the motor, which reduces the shock and noise.
2. The wave crest cotton has good effect to low the noise.
3. Double oil filter for inlet and outlet ports, which will improve the clean of hydraulic oil and the stability of machine working.
4. The stage safety unloading valve can discharge the system pressure which guarantees the safety of operators and machine, when the machine need to stop in emergency.
5. There is low pressure inlet water safety overflow switch, which can guarantee the safety of high pressure water, and the inspection of low pressure inlet water can avoid the troubleshooting of machine caused by the less low pressure inlet water supply.
6. The efficient cooling system component can reduce the volume of oil tank and low the working cost.
7. Imported intensifier, which guarantees the quality of the whole pump.

A&V-05B 3000

Main technical data

Nominal Power Rate	18.5KW
Max. Continuous Pressure	300Mpa
Max. water	3.0L/min
CNC system	PLC (Omron)
Cutting Water Inlet pressure	>0.1Mpa
Cooling Water Inlet pressure	>0.5Mpa
Max. oil pressure	20Mpa
Accumulator Volume	0.3746L
High Pressure Outlet Connections	M16X1.5
Length	1745
Width	1045
Height	1350
Weight	1200Kg
Lp Low Pressure Filter	10um

- Complete proprietary intellectual property rights
- Safety
- Stable
- Economical
- Imported seals



Bridge style Cutting Table

- CE certificate
- ISO9001 certificate
- 20 national patents
- Can match multiple cutting heads
- Professional water jet CNC system
- Following device system



Way of drive	AC servo
Max. travel	6000mm/min
Control accuracy	±0.01mm
Cutting accuracy	±0.1mm ~ ±0.2mm
Power supply	220V 50Hz

Working environment of cutting table

Environmental temperature:	-10~50° C
Atmospheric pressure:	86Kpa~106Kpa
Dust concentration:	Not more than 10mg/m ³

There should not be acidoid, alkaline substance and corrosive substance in the air. The machine should be kept away from hypocenter, heat producer, intense magnetic field, electric field and other source of the disturbance.

Main technical data of cutting table

Data name	Data value	Remark
Power Requirement	AC220V 50/60Hz	
X-axis servomotor	0.75KW 1.0KM 1.5KW	Three specifications
Y-axis servomotor	0.75KW 1.0KM 1.5KW	
Z-axis step motor	0.9N.m	
X-axis Max. travel	6000mm/min	
Y-axis Max. travel	6000mm/min	
Z-axis Max. travel	1000mm/min	
Control accuracy	±0.1mm ~ ±0.2mm	Related to cutting speed, different materials and thickness of material
Repeatable positioning accuracy	±0.02mm	

Standard sizes of bridge style table

Model	X-axis journey (mm)	Y-axis journey (mm)	Z-axis journey (mm)
1520BA	1500	2000	150
1525BA	1500	2500	150
2030BA	2000	3000	150
2040BA	2000	4000	150
2060BA	2000	6000	150
3020BA	3000	2000	150
3040BA	3000	4000	150
3060BA	3000	6000	150
4060BA	4000	6000	150
40120BA	4000	12000	150
40200BA	4000	20000	150

Flying arm style Cutting Table

Way of drive: AC servo
 Max. travel: 6000mm/min
 Control accuracy: $\pm 0.01\text{mm}$
 Cutting accuracy: $\pm 0.1\text{mm} \sim \pm 0.2\text{mm}$
 Power supply: 220V 50Hz

Working environment of cutting table

Environmental temperature: $-10 \sim 50^\circ\text{C}$
 Atmospheric pressure: 86Kpa~106Kpa
 Dust concentration: Not more than $10\text{mg}/\text{m}^3$
 There should not be acidoid, alkaline substance and corrosive substance in the air. The machine should be kept away from hypocenter, heat producer, intense magnetic field, electric field and other source of the disturbance.

Main technical data of cutting table

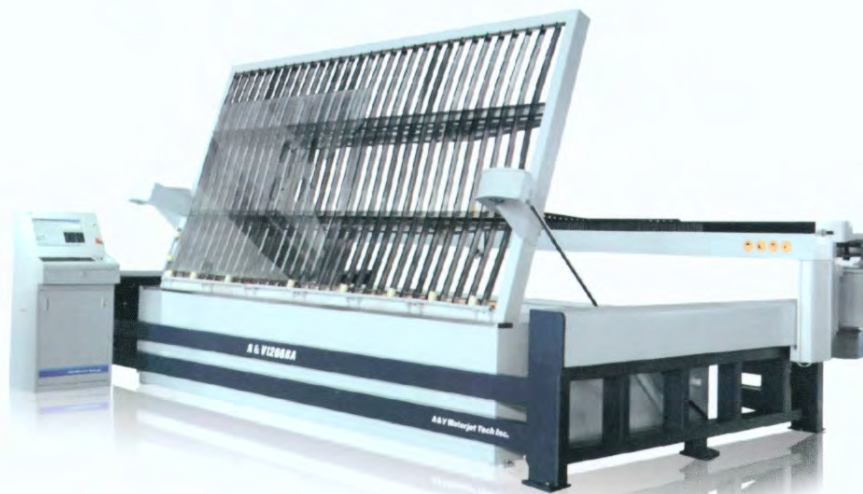
Data name	Data value	Remark
Power Requirement	AC220V 50/60Hz	
X-axis servomotor	0.75KW 1.0KM 1.5KW	
Y-axis servomotor	0.75KW 1.0KM 1.5KW	Three specifications
Z-axis step motor	0.9N. m	
X-axis max. travel	6000mm/min	
Y-axis max. travel	6000mm/min	
Z-axis max. Travel	1000mm/min	
Cutting accuracy	$\pm 0.1\text{mm} \sim \pm 0.2\text{mm}$	Related to cutting speed, different materials and thickness of material
Repeatable positioning accuracy	$\pm 0.02\text{mm}$	

Standard sizes of flying arm style table

Model	X-axis journey (mm)	Y-axis journey (mm)	Z-axis journey (mm)
2010BB	2000	1000	150
2015BB	2000	1500	150
2515BB	2500	1500	150
3015BB	3000	1500	150
3020BB	3000	2000	150
4020BB	4000	2000	150
4015BB	4000	1500	150
6020BB	6000	2000	150



- CE certificate
- ISO9001 certificate
- 20 national patents
- Can match multiple cutting heads
- Professional water jet CNC system
- Following device system



Hydraulic lifter water jet cutting machine

Hydraulic lifter: The platform can flip, so it is convenient to load and unload materials.

Hydraulic flip water jet cutting machine is a new style machine which assemble the glass semi-automatic loading and CNC ultra-high pressure water jet together. The machine can achieve the glass semi-automatic working, which will reduce the broken rate during delivery, lower the strength of labor and increase the working efficiency. The machine is also able to be used in other wearing parts processing.

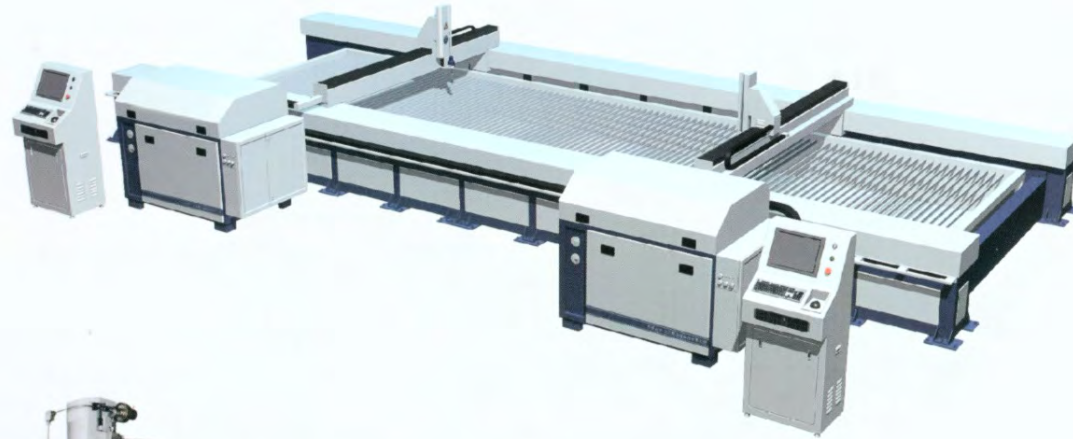
CNC vertical ultra-high pressure water jet cutting machine

CNC vertical ultra-high pressure water jet cutting machine breaks through the traditional ultra-high pressure water jet cutting way, and brings the vertical way to cutting field creatively, which achieves the CNC vertical cutting of parts and improves the high rate of finished rate of processing big plate wearing parts (such as glass) and lower the waste of material.



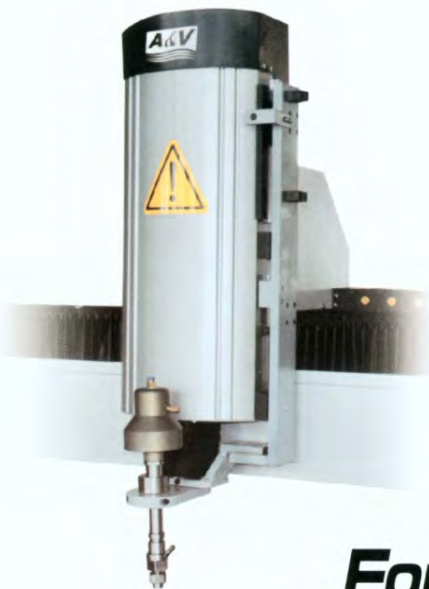
Multiple beams

Can improve the production efficiency. The distance between the beams can be adjusted automatically and work together. Every beam is matched with single control system and can process different orders. Bridges work at the same time. Multi-bridges work independently.



Multiple Z axis

This function will lower the whole processing time and improve the production efficiency. The distance between Z axes can be adjusted automatically and can start separately and together.



Three-axis cutting (cutting system)

You only need to set the tooling before processing the first part, after finishing this part, the cutting head can be up automatically and return to the none working area together with XY axis. When the operator changes the second part, he doesn't need to set the tooling, the cutting head will return to the starting position and begin the second processing, which saves the time of processing big amount parts.

- CE certificate
- ISO9001certificate
- 20 national patents
- Can match multiple cutting heads
- Professional water jet CNC system
- Three-axis linkage cutting

Four axis cutting (water jet cutting machine)

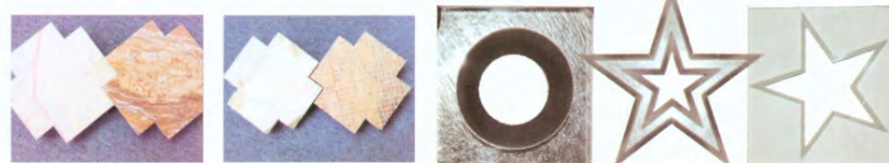
The Five-axis four linkage water jet cutting machine is the achievements in scientific research of All-Powerful in 2008. It is the first achievement in China and exceeded the same level product of the world. The five-axis four linkage water jet is also five-axis structure, one is manual control angle axis, this axis doesn't attend the linkage, the other is rotation axis, with the original three-axis, all of which we define as five-axis four linkage water jet cutting machine. This water jet cutting machine has some limit compared with five-axis cutting, its tilt angle is smaller and the max tilt angle is 4 degree, but it can solve the problem of tilt cutting. By the feed of angle during cutting, the cutting kerf will be completely vertical. At the same time, the distance between cutting head and material can be adjusted automatically by the auto height inspection system, which can decrease the difference of labor setting tool. The height positioning accuracy is 0.01mm and the whole cutting accuracy is 0.1mm, which can meet various cutting requirement. This cutting equipment has got good result in many cutting field, and mainly reflects the sharp drop in processing cost and significantly improve the processing efficiency.

Typical application

There is a more delightful result in marble pattern cutting. When the tilt angle of cutting head is the biggest 4 degree, the kerfs section will change a lot. When two pieces of cutting parts are matching together, the top surfaces have no aperture but the one of bottom surfaces is big. In this way the twice polishing producer by manual will be saved, which reduces the processing cost and enhances the working efficiency. The quality of marble pattern has had a great increase and the making of pattern has no longer been a very difficult technology at the same time. If only you had a four-axis dynamic waterjet marble pattern cutting machine, the complex marble pattern production would soon come true. And it also has a good result in cutting glass vertical hole, for instance, when you want to cut some hole in glass panel, it doesn't need to lower the cutting speed. Without changing the processing speed, it can achieve the expected effect. The benefit is very clear.

Tilting degree	±4°
Weight	10.5KG
Outside measurement	425*272*210
Motor power	200W
axis	Five axes X, Y, Z, A, B
Way of drive	AC Servo

- CE certificate
- ISO9001certificate
- 20 national patents
- Professional water jet CNC system
- Four-axis accuracy cutting
- Guarantee the verticality of single edge



Five axis cutting

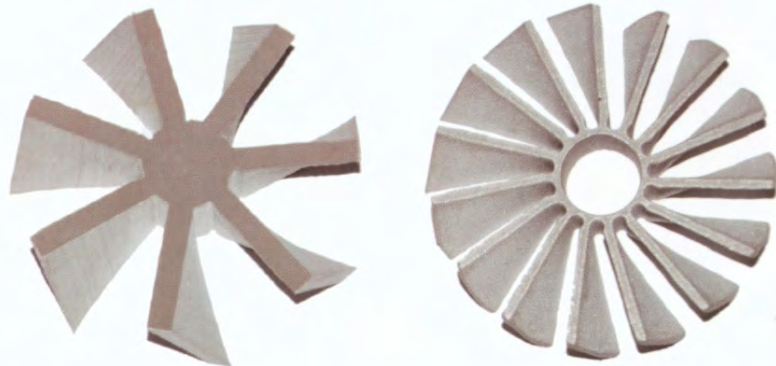
(water jet cutting machine)

Cutting accuracy	±0.01mm
Tilting degree	±7.5°
Angle control accuracy	±0.01°
Rotation axes	A, C
Linkage-axis	five axis: (X, Y, Z, A, B)
Way of drive	AC Servo

- CE certificate
- ISO9001 certificate
- 20 national patents
- Professional water jet CNC system
- Five-axis linkage cutting
- Big angle divided edge processing

Main character

1. By the integrated innovation design solution of soft CNC and 2D profile, the system can achieve the CNC five-axis ultra-high water jet cutting machine control.
2. The two rotation axes adopt the reducer with big reduction ratio, and the component will be stressed equally, which improves the working life and reliability.
3. It solves the problem of the jet energy decrease of traditional water jet cutting machine during cutting and the defect of the peg tilt of kerf. It can guarantee the single edge verticality and improve the processing accuracy.
4. The CNC five-axis ultra-high pressure water jet cutting machine has very good human-computer interface, easy to learn. Based on the improving of product performance, the manufacture cost can be decreased effectively, which will bring more benefit to end users.



Single-working platform

(900X600mm ; 900mmX1200mm)

Item	Parameter
Machine model	At96
Max. size of workpiece	900×600 mm
Thickness range	3~20 mm
Outside measurement	2220mm (length) × 2000mm (width) × 1680mm (height)
Way of drive	AC servo
Way of control	CNC
Max. Travel	12 m/min
Main shaft power	8 kW
Main shaft speed	3000-9000 RPM
Shaft dia. of grinding wheel	φ 22 mm
Max. outside dia. of grinding wheel	φ 170 mm
Way of reloading	Fixed-position reloading
Control accuracy	0.02 mm
Machining accuracy	±0.1 mm
Total power	12.5 kW
Power supply	380 V/50Hz
Weight	1400 Kg

Item	Parameter
air compressor	Air input ≥ 0.2 M ³ /min; Pressure ≥ 0.6 MP
vacuum air pump	Air discharge ≥ 8 L/S; Vacuum degree ≥ 80%



- ISO9001 certificate
- CNC non-conventional type grinding and polishing
- Vacuum location
- Ball screw rotation
- Fixed-position reloading
- Special CNC system

Double-working platform

(600X900mmX2 ; 1000mmX1200mmX2)

Item	Parameter
Machine model	AT912×2B
Max. size of workpiece	2000×1200 mm
Thickness range	3~20 mm
Outside measurement	3100mm (length) × 3090mm (width) × 1680mm (height)
Way of drive	AC servo
Way of control	CNC
Max. moving speed	12 m/min
Main shaft power	8 kW
Main shaft speed	3000~9000 RPM
Shaft dia. of grinding wheel	φ22 mm
Max. outside dia. of grinding wheel	φ170 mm
Way of reloading	Fixed-position reloading
Control accuracy	0.02 mm
Machining	±0.1 mm
Total power	12.5 kW
Power supply	380 V/50Hz
Weight	1400 Kg

Optional

Item	Parameter
air compressor	Air input ≥ 0.2 M ³ /min; Pressure ≥ 0.6 MP
vacuum air pump	Air discharge ≥ 8 L/S Vacuum degree ≥ 80%



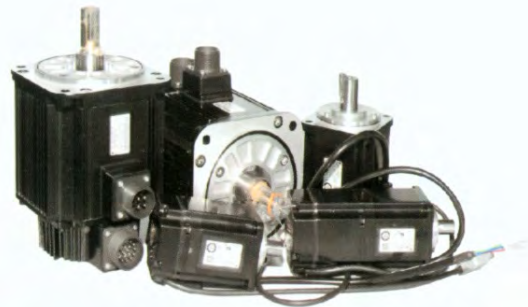
- ISO9001 certificate
- CNC non-conventional type grinding and polishing
- Vacuum location
- Ball screw rotation
- Fixed-position reloading
- Special CNC system



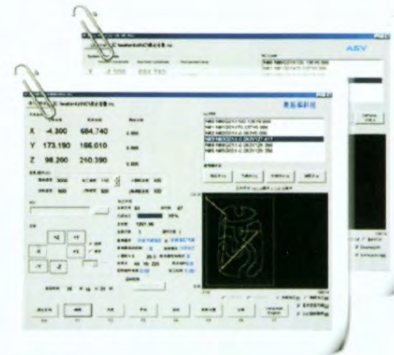
Evoc IPC — Apply IPC



Operating system is running under Windows XP



Servo motor



Independent intellectual property rights Water jet software

With the professional cutting software running under windows XP, it provides a lot of convenience to the end user: 'Parameterize inputs for standard drawings' 'Customize standard drawings Mimic drawing execution on the fly' 'Auto-program drawing inputs' 'Support AUTOCAD generated DXF' 'Support other DXF file with proper conversion software' 'Support auto generated NC code'



Servo drive —Yaskawa



PLC—Omron

(Using PLC instead of relay will establish communications with computer, flexibility control)



Auto abrasive delivery system

Auto abrasive delivering system is using air pressure to deliver abrasive from the Bulk feed abrasive hopper to mini hopper above cutting head. Make the abrasive come into the cutting head by negative pressure and to achieve the purpose of continuous feeding during cutting.

Dynamic height adjustment system

The system has the automatic detection of height and anti-collision function, which means it can track and timely adjust the cutting head through the blade of cutting head sensors, to ensure the distance between cutting head and the surface of the part is always a constant value. It is suitable for cutting smooth or wave uneven materials, which can avoid the setting tool caused by the uneven of cutting materials, and damage of nozzle, improve the production efficiency. The system has two advantages: 1. The plate will often bend and this system can allow the cutting head and materials to maintain a suitable height. If you don't have such a device, the distance between the bending cutting material and the cutting head will be pulled into and even hit the cutting head which will causing the jam of cutting head. If the distance between the cutting head and the cutting material is too far, the cutting quality will decrease and can not cut through the material. 2. During the fast move of cutting head in the cut path, the jump device will lift the cutting head to the material automatically. It can ensure the cutting head not hit the part turning up from material. In this way, the nozzle will not be damaged and the cutting material will not move and damage.

Other advantages

Can cut bending materials

The min constant distance can guarantee the efficient cutting

Can decrease the risk of hitting the bending part

Decrease the fixture of materials and don't need to move



Drafter of national standards for China waterjet



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