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KEY TO TOMORROW' S HI-TECH AUTOMATION TECHNOLOGY

HUST

AUTOMATION

HUST CNC CONTROLLER

A6 series lathe controller

Open CNC system leader

Company Profile

Taiwan HUST automation inc. was established in 1982 and is one of the best manufacturers of automation controllers in Taiwan and is highly competitive and influential. In China, India, the United States, Turkey, Malaysia, Singapore, Iran, Mexico, etc., all countries have established a complete sales and service pipeline.

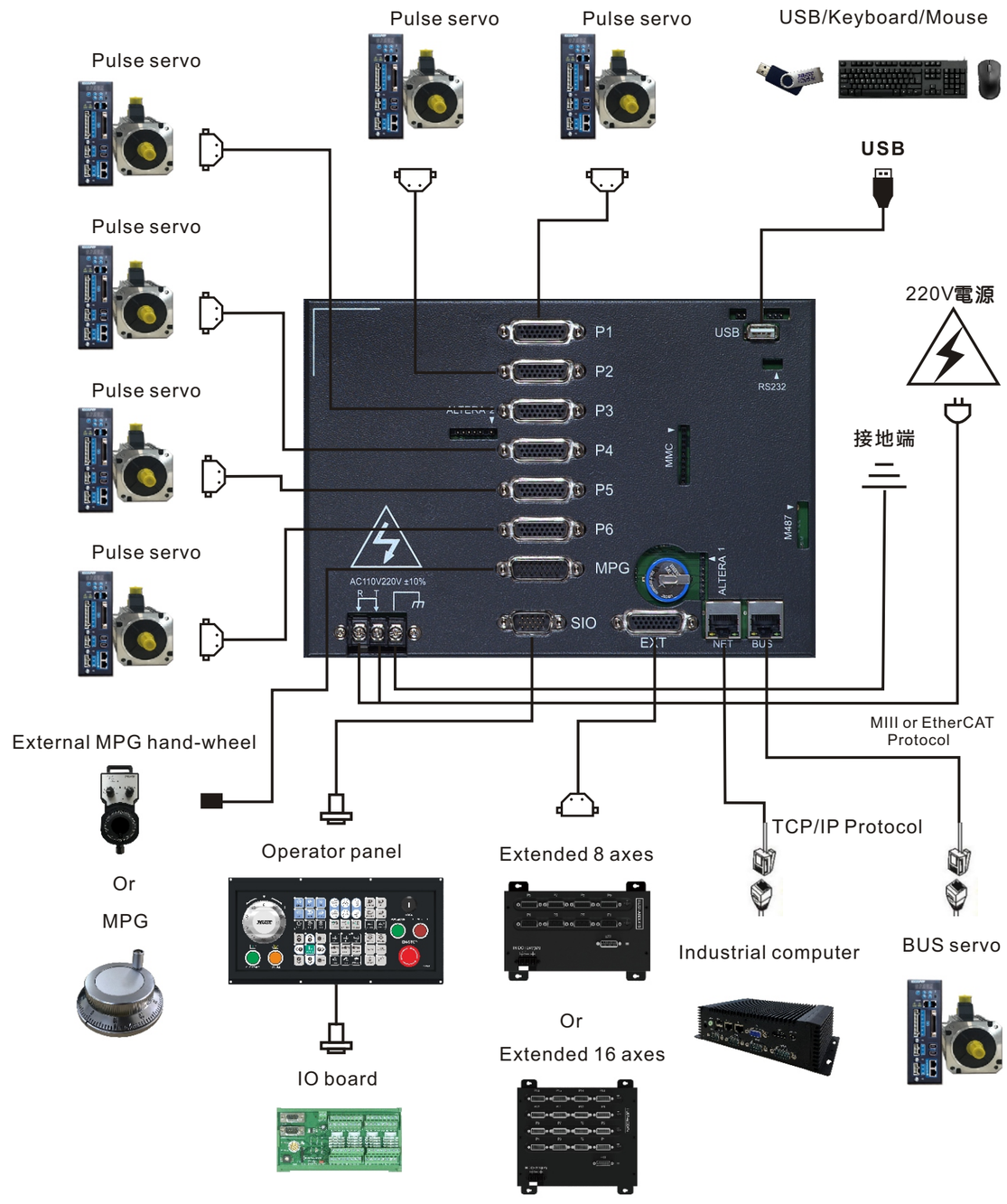
HUST controller has been focusing on the development and production of high-end CNC systems and motion controllers. Especially in the field of industrial automation, the fully open secondary development platform provided by HUST CNC makes the customization of motion controller products easier. HUST company looks to the future, providing customers with customized CNC and providing solutions. Industrial internet of Things solutions, MES system integration and other quality services and in Lathe/Mill, Spring machine, Woodworking machine, Winding machine, Binding machine, Slotting machine, Grinder, Spinning machine. Automation and other industries, accumulated a wealth of product experience and customer base, providing a comprehensive solution to help the industry upgrade.

In mainland China, after years of unremitting efforts, Guangzhou HUST Automation Control System Co., Ltd. was formally established in May 2010, Started a new journey in China, and gradually established a complete, efficient, capable, responsible and creative R&D and service team. Constantly challenge the peak of numerical control and automation technology, and constantly create automation products that are closer to the market and demand for customers.

HUST company has served hundreds of corporate customers since its inception, including well-known brand customers including: Foxconn. Gree. Midea.vivo.Bern Optics. Shanghai Herby, etc.…In addition, in 2016, it was awarded the national “high-tech enterprise” certification, and was included in the cultivation of high-tech enterprises in Guangdong Province. HUST company is not only the status quo, it will continue to work hard to create a new future for automation.

Excellent innovation, cooperation and win-win, service-oriented is the business philosophy and the highest guiding principle that HUST company has established since its establishment. All along, we are committed to providing customers with high-performance motion control products and excellent quality products. It is our goal to make HUST CNC become the top brand in the world of automation control.

Simple wiring

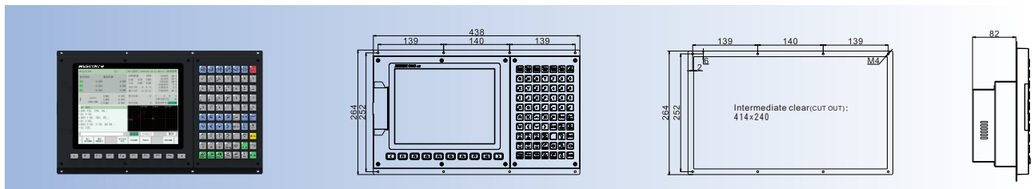


A6 Lathe controller

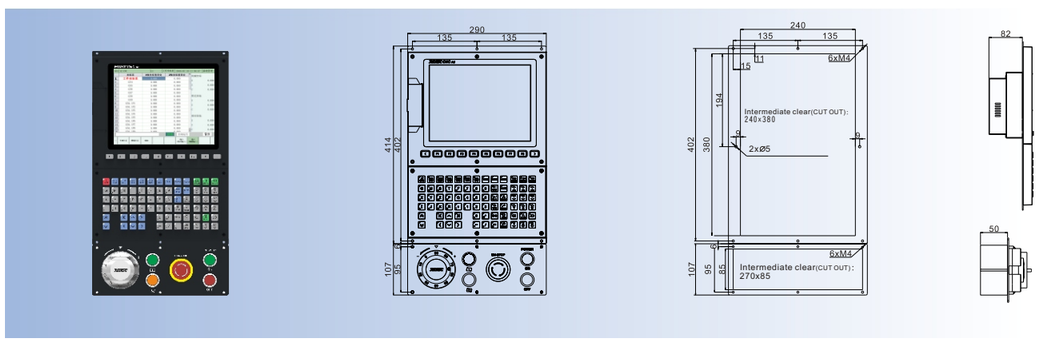
Port Rich > Structure Compact > Wiring Simple > Function Powerful

The A6 series lathe controller is based on the RT Linux intrusive CNC system platform, a new generation of digital controllers,64bit high speed and high precision contour control, high speed and high precision MECHATROLINK-III. EtherCAT bus Connection, support for bus axis and universal axis hybrid control: open customized design, international standard CNC programming specifications,Supports up to 32-axis 8-channel combination technology, supports robot module selection, and built-in dialog-assisted program editing.Command online. Remote assistance troubleshooting. Remote network system free upgrade for life.

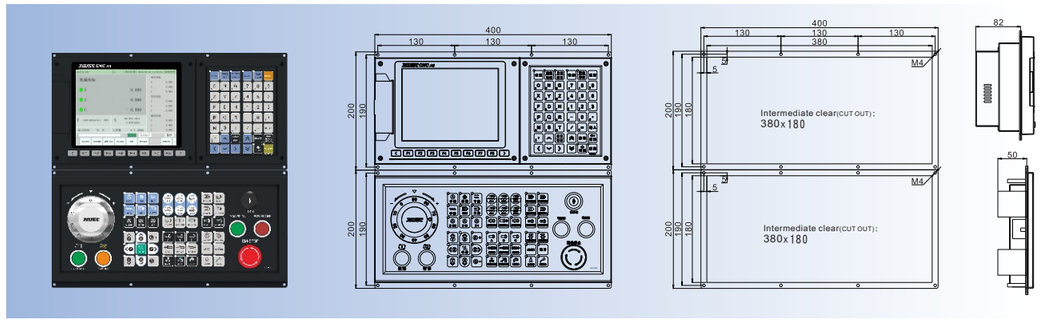
A6KDL-ST compact



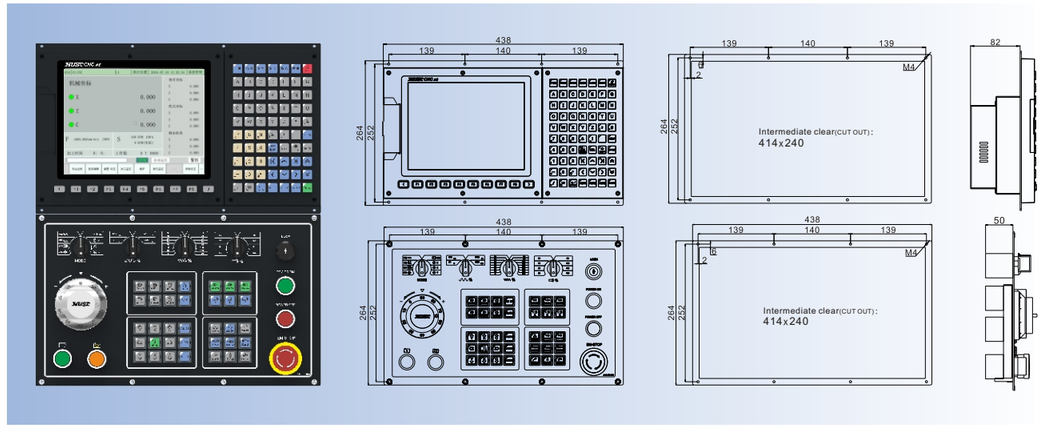
A6KDLV-ST compact



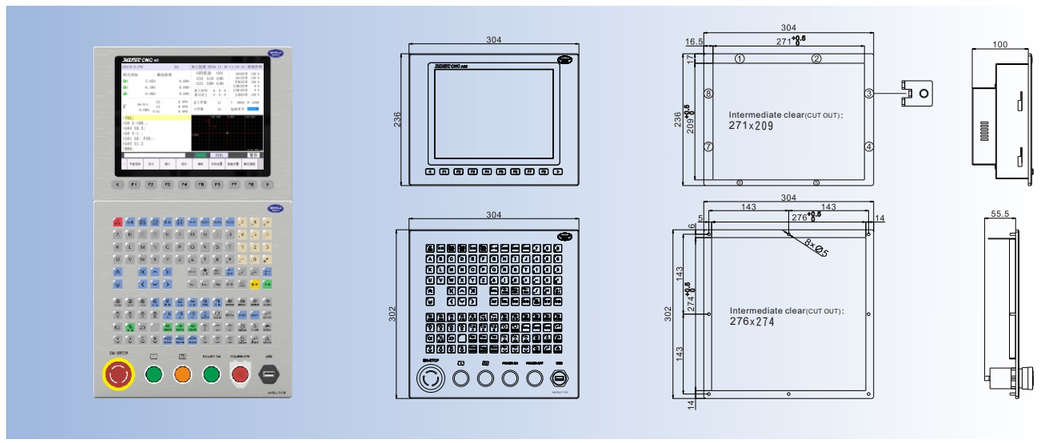
A6KD-T Standard



A6KDLV-T Middle



A6IKDLV-T High end



Complete auxiliary operation function

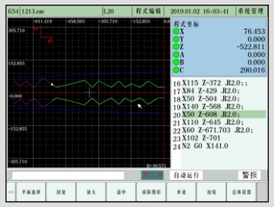
Multi-channel program management

Each channel can independently manage its own processing program, independently edit, the processing program and variables of each channel can be shared, and support multiple channels to synchronize waiting, the synchronization period is as short as 0.5ms

Axial load monitoring

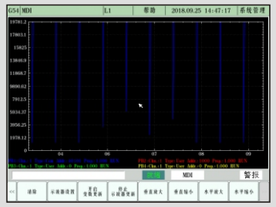
Provides load monitoring function for each axis. Users can check the current load status of each axis according to the option settings. It can provide effective reference data for the judgment of the tool nose damage and the abnormal operation of the machine.

Program path graphic display



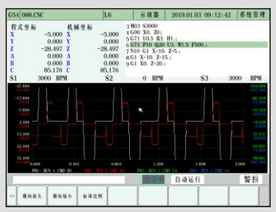
The tool path simulation can distinguish whether the command trajectory before/after the difference compensation is consistent with the actual motion trajectory of the machine tool, and the correctness of the path of the machining program and the correctness of the code are detected in advance.

Variable oscilloscope



The parameters set by the customer can be displayed in real time, and the detected variables change with time.

Motor oscilloscope



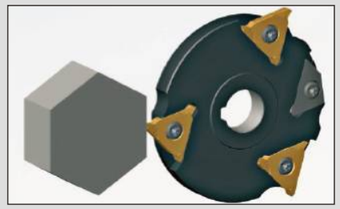
Real-time detection of motor position, speed and acceleration curve, such as acceleration and deceleration stability. Multi-axis difference catching synchronization performance. Follow-up per revolution feed. Follow error, etc., making debugging and troubleshooting problems more efficient and accurate.

MPG function

During the test process, the speed and direction of the machine can be controlled by the hand-wheel forward and backward. The retract function avoids the collision caused by programming errors. During the automatic running of the program, the machining can be paused by the hand-wheel interrupt function and then driven by the hand-wheel. After the drive is completed, restart the program, the program will continue processing from the interruption point. This function is often used for machining interruptions with long processing times, interrupting current machining, cleaning chip removal, measuring work-piece machining dimensional errors, etc.

Complete process solution

Polygon processing

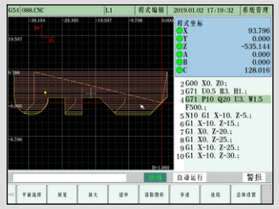


Multi-spindle can realize fast polygon cutting, automatic phase synchronization of the spindle, closed loop to ensure that the spindle phase is not lost, and can repeat polygon cutting after program interruption.

Robot independent channel control

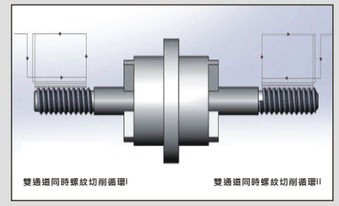
The robot control module can be controlled independently by using one channel. The CMC. G code can be used to edit the robot, which is more in line with the lathe operation mode. The process adjustment is more flexible and the protection is safer.

Bump path machining



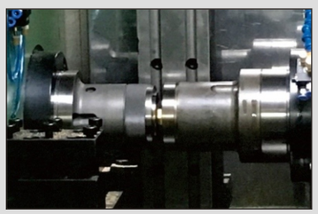
G71/G72 can realize bump path machining to automatically carry out roughing and finishing cycle, which greatly simplifies programming and makes operation more convenient.

Dual channel same spindle thread cutting function



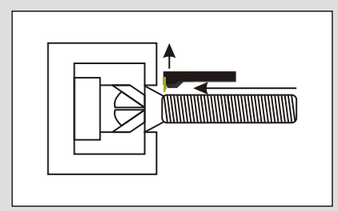
Two-channel and spindle thread cutting can realize that two channels share one spindle as the reference spindle for thread cutting.

High-speed spindle butt material



With the principle of relative static, if the spindle speeds are the same and the direction is the same, any two spindles are synchronized by command or feedback. In the synchronous state, one spindle and the other spindle perform the workpiece end-to-end matching and improve processing efficiency, At the same time, avoid machining accuracy errors caused by inaccurate manual clamping. Full-time closed loop synchronization ensures dynamic accuracy.

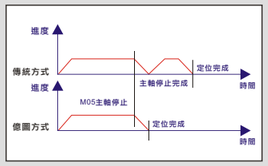
Thread quick retreat



In normal cases, when the tail is retracted, there will be problems with the last thread pitch or the tooth depth due to the problem of the acceleration and deceleration of the tapping axis. The thread quick retreat function can be used to lift the thread at the end of the tool tapping retreat and reduce the thread pitch when the thread processing is retracted. (Acceleration can be adjusted according to the actual bearing capacity of the machine)

Mature motion control

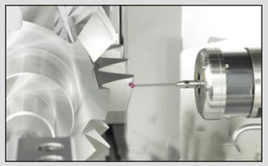
Spindle dynamic positioning



Traditional mode: the spindle rotates at a high speed and decelerates to stop, and then performs spindle positioning.

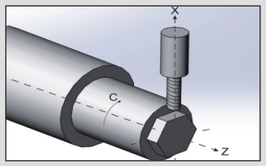
HUST mode: Direct positioning of the spindle during high-speed rotation deceleration and stop, the efficiency is higher.

High speed G31 detection



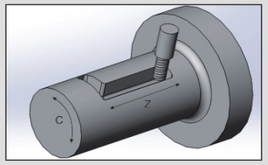
High-speed G31 function is mainly used in automatic compensation, tool setting and other occasions. The frequency response speed is up to 0KHZ, which provides an effective solution for high-speed detection function, greatly reducing the problem of low efficiency and low precision caused by the response speed.

Polar coordinate interpolation



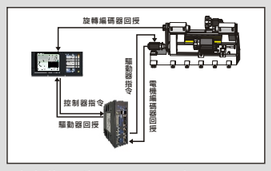
The contour control of the linear axis and the rotary axis is realized by the Cartesian coordinate system editing instruction. For example: cam machining, workpiece outer diameter milling, irregular workpiece milling, etc.

Cylindrical interpolation



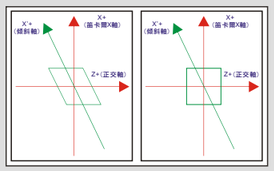
The amount of rotation of the rotary axis with the angle command is internally converted to the linear axis distance on the outer surface, which facilitates linear or circular interpolation with other axes, which greatly simplifies the programming of the cylindrical surface.

Closed loop control function



The same axial direction can receive two-way code feedback at the same time, and the machine can be fully closed-loop controlled to solve the problem of precision instability such as deformation of the machine's hot and cold machine, while ensuring safety and maintenance convenience. It can solve the problem of inaccurate indexing caused by partial error of C-axis drive or linear feed axis of lathe. Support bus digital speed control full closed loop, analog speed control full closed loop.

Tilt axis function



Due to the workbench or machine design requirements, the two axes of the machine are not perpendicular, but are cut or angled, which makes programming difficult. The system tilt axis coordinate system function is very good to solve this problem, can be programmed in the Cartesian coordinate system, and the program execution in the tilt axis coordinate system of the mechanism, The Cartesian coordinate system and the tilting axis coordinate system are calculated and converted internally by the system. The customer only needs to program according to the drawing, without considering the coordinate conversion of the tilting axis.

Selection and general IO module

Model Description

A 6 0 S M K D L V - T - 3 - A - G

- G: With 3D function None: No 3D function
- A: Single channel B: Two channel C:..
- Number of software axes:1-32
- T: Lathe M: Mill
- V: Vertical None: Horizontal
- None: 8-inch screen L: 10.4 inch
  L15:15-inch screen
- Universal
- K: with key board None: Without key board
- M:MIII BUS
  N:EtherCat BUS
  None: No bus function
- S: Aluminum alloy sandblasted black shell
  I: Aluminum alloy brushed silver white shell
  None: Plastic case
- 0: With touch function No: No touch function
- The system can expand the maximum number of universal axes
- A series

Accessories specifications

Order number: A6\SIO(I:32 O:32)

A6\SIO\I32O32\V4

Size: 158 x 86 x 46(mm)

Input mode: NPN.PNP
Input Current: 10mA
Single point output maximum current: 1A
32 points output maximum current: 16A

Order number: A6\SSR(O:4)

AC input: maximum current 8A
Factory fuse setting: 5A
AC output: maximum current 4A

Size: 76 x 86 x 42(mm)

Order number: A6\SIO(I:16 O:16)

A6\SIO\I16O16\V4

Size: 100 x 86 x 46(mm)

Input mode: NPN.PNP
Input Current: 10mA
Single point output maximum current: 1A
16 points output maximum current: 16A

A series lathe system specification list

	NAME	A6KD-T	A6KDL-T	A6IKDLV-T	A6KDL-ST	A6KDLV-ST
System specification	Maximum support channel	3	3	8	1	1
	Maximum number of axes (single channel)	6	6	6	3	3
	Maximum number of linked axes (single channel)	6	6	6	3	3
	Maximum number of spindles	3	3	3	1	1
	Maximum number of extended axes	18	32	32	NO	NO
	Display size	8寸	10.4”			
	DA/AD	8/8 group				
	Operating system	RT Linux				
	RAM	512MB				
	Program memory	4GB				
	Pre-fetch block number	1000b/s				
	Minimum control unit	0.00001mm				
	Maximum number of tool compensation groups	160 group				
	Transmission	USB/RS232/RS485/LAN/WIFI				
	Bus function	MECHATROLINK-III、EtherCAT BUS				
	I/O	Standard：16/16 Maximum expansion：512/512				
	IOT Industrial Internet of Things	Support				
Program function	Absolute function	Support MIII、EtherCAT、MODBUS 485、SSI Absolute				
	Programming command (G code)	Follow international regulations				
	Macro programming standard	Macro B				
	Background programming	Support				
	Smart dialogue	Support				
	Program USB flash transfer	Support				
	Program automatic error detection	Support				
	Program lock function	Restricted program editing (optional)				
Multi-channel Function	Multi-channel function	Support (optional)			Not support	Not support
	Back axis function	Support				
	At the same time with the spindle thread cutting	Support			Not support	Not support
	Axis coupling/exchange/mixing	Support			Not support	Not support
	Robot independent channel control	Support (optional) uses G code to plan the path				
High speed and high precision	Spindle (C) axis dynamic positioning	No need to stop switching, positioning can be performed directly (requires servo spindle)				
	Thread/tapping rapid retraction	Support				
	Single block non-stop mode	Support				
	Closed loop control	Speed control closed loop (AB phase feedback. SSI feedback))				
Compensation function	Taper compensation	Support				
	Reverse backlash compensation	Support				
	Arc sharp corner compensation	Support				
	Two-way screw error compensation	Support				
	Feedforward compensation	Support				

	NAME	A6KD-T	A6KDL-T	A6IKDLV-T	A6KDL-ST	A6KDLV-ST
Accessibility	Custom boot screen	Support				
	Custom M code	Support				
	Custom G code	Support				
	Bus axis mixed with universal axis	Support				
	IO redefinition function	Support				
	Tilting axis processing	Support				
	Inclined plane processing	Support				
	DHC processing	Support				
	Scaling	Support				
	Acceleration/ deceleration type	Linear type (support JERK). S type. Exponential type				
	Tool life management	Time limit. Number limit management				
	Protective function	Safety door. Hardware limit. Software limit. Chuck is not clamped in detection. Tool change tool detection				
	MPG TEST	Support MPG TEST. MPG retreat function				
	MPG interrupt	Support				
	Restart function	Program breakpoints automatically find and restart. Custom restart				
	Multi-function hand wheel	Support				
	Graphical simulation	Graphic preview before program execution, dynamic drawing during program execution				
	Authority management	Parameters authority management				
	Perpetual calendar lock machine	Support				
	Axial load monitoring	Support				
	Oscilloscope function	Real-time monitoring of system commands and servo feedback pulse waveforms				
	Following error detection	Support				
	Spindle speed arrival detection	Support				
	Diversified tool magazine	Program backup. Parameter backup. Tool compensation backup				
Cutting function	Parabolic interpolation	Support				
	Elliptical interpolation	Support				
	Cylindrical interpolation	Support				
	Angle following synchronization	Supports 3rd axis to real-time tracking of any 2 axis profile of the 2D plane				
	3D circular interpolation	Support for spatial spherical interpolation in any 3 axis Cartesian coordinate system				
	Polygon cutting (flying tool)	Support	Support	Support	Support	Support
	Polar coordinate interpolation	Support				
	Tapping	G84/G88	G84/G88	G84/G88	Support center hole tapping	Support center hole tapping
	Thread cutting	Support thread cutting canned cycle, Multi-head thread, Arc thread, Oblique thread, Variable pitch and other cutting				