User Manual for

CNC Router

Series DSP

Heartfelt thanks to choose us products

For the side of safety and using this product correctly, please read full instructions before use. And please keep this manual for later reference. The following content is necessary to ensure the safety, please make sure to keep!

Safety Warnings and Machine Cautions:

● Do not use the product under flammable, volatile, explosive gas environment and the corrosive and humid environments;

● Do not the use the electricity under magnetic, strong interference environment;

● Do not install this when lightning or thunder equipment;

● Do not install in wet environments the power socket;

● Do not touch the power lines are not insulated;

● Do not change any wiring in the control cabinet position;

● Do not exceed specified voltage of use;

● Use within the scope of the rated load

●The operating staff must undergo a rigorous training and process must pay attention to their personal safety and the safety of machinery in the process under strict accordance with the procedures to operate the engraving machine.

● Power supply voltage requirements for two-phase 220V (± 5%) 50Hz, if the power supply voltage is unstable or is surrounded by high-power electrical equipment required to increase purchase power supply.

● To avoid strong electric, magnetic and other severely affected by engraving machine signal transmission devices such as: welding machine, launch tower.

● The control cabinet must be safe grounded when engraving, no more than 4 ohms resistance to ground in order to prevent static interference with equipment or cause bodily injury.

● Swap data lines can not be charged and signal lines to prevent burnout NC card or other electronic components. Please turn off the power when not in use for a long time, disconnect the input power or unplug the power plug.

● Do not frequently start control box within a short time in order to prevent burnout converter or other electronic components.

● regularly check whether the plug wire loose. If there is any loose he must cut off the power for 15 minutes and then fixed.

● In order to avoid power outlet abnormal processing of loose or poor contact caused by the product end of life, please choose a good power outlet which have a reliable grounding protection.

● machining cycle to ensure the smooth flow of cooling water, recycled water should be kept free of impurities, the water temperature shall not exceed 40 degrees, should be changed regularly circulating water (recommend the use of pure water).

●Do cleaning work regularly to maintain no debris on ball screw and rail. Clean wipe with a clean cotton cloth and add lubricants.

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●Proficiency in the use of a variety of graver and accurate method of setting as well as the correct installation method of graver. Re-tighten the nut to bear a little better, when replace the graver.

●Master engraving software installation method and the setting method skillfully, to facilitate the installation in the future.

● Do not exceed working hours to the scope of mechanical processing in order to avoid damage to the machine beyond the trip, the machine moves shall be carried out under the guidance of professionals.

● Without the authorization of the Company shall repair or demolition of unauthorized modification of this machine, so as to avoid man-made damage or warranty failure.

Chapter IV handle to use

1, Definition

Under the crew refers to the movement of data into a corresponding electrical signal output and to control machine motion system, also known as handles. Under-bit machine using mask control mode, and U disk file transfer mode, simple operation, easy to use.

2, Key features and operation methods

Arrange the following diagram Mask button：

2.1 Mask on the following table describes the key features:

Keys	Function
X+ 1▲	X-axis positive move, the Move menu selection, the number 1 input
Y+ 2∧	Y-axis positive movement, processing and adjustment of magnification, the number 2 input, menu selection of different options for property
Z+ 3	Z-axis positive move, the number 3 input, processing to increase spindle speed
XY- 0 4	Set X axis and Y-axis work zero, the digital input 4
X− 5▼	The negative X-axis moving down menu selection, number 5, the input
Y− 6∨	The negative Y-axis movement, sculpture slow speed adjustment, the number six input, menu selection of different options for property
Z− 7	The negative Z-axis movement, the number 7, the input processing to reduce spindle speed
Z- 0 8	Set the Z-axis work zero, the digital input 8
回零 HOME 9	Manual state, the shaft back to machine zero, the number 9, the input

	Manual Status High / Low Speed choice of moving the digital input 0
	Manual state Spindle start or stop the input decimal point
	To enter the menu settings, negative input, processing, paging file options, select the host computer call control and secondary procedures
	The axis back to zero position and work options, input, operation to determine
	Manually move, continuous, step away from the choice of three ways
	Run engraving process and the suspension of processing and input the number to delete
	Into high and low speed of manual adjustment of the termination of processing and processing options, input, operation canceled

2.2 Key combination Function Description

1. “  ”+“数字”key， Work coordinate system switch；
2. “  ”+“  ”key，Right knife；
3. “  ”+“数字”key， Breakpoint Processing；
4. “  ”+“  ”key，Advanced Processing；
5. “  ”+“  ”key，Help；

2.3 Button to use

One-click method is the use of a finger touch button to the required function calls to complete and then release the button;

Combination of keys using the first method is holding down the first key, then press the second button, when the corresponding content appears, release the two keys at the same time.

3, Back to the origin Operation（Homing）

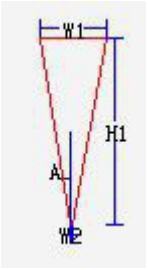
The origin refers to the machine tool mechanical zero, so back to the origin, also known as homing. Origin, mainly from a variety of back to the zero position detect switch to determine the loading position. Back to the

origin is to determine the significance of the work coordinate system with the machine coordinate system corresponding relationship. Control system depends on the realization of many functions back to the origin of the operations, such as breakpoints processing, power-down recovery and other functions, if not back to the origin of operation, these functions are not work.

Appendix Common tools introduction

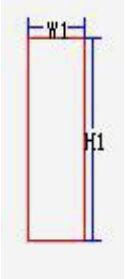
Common tools includes 3 types: Conical flat, End Mill, V-Bit Mill (for 3D working).
Engraving tools are chosen any one item through 2D, 3D and cut off in software.

1. Flat Bottom Bit



W1: diameter of handle of cutting tools, common one like ∮3.175， ∮4， ∮6, etc
W2: diameter of knifepoint, it affects the engraving result directly. So make it exactly when sets
A: half of the angle made by the two lines; if use 30° tools, A should be 15, by parity of reasoning.
Policy of using knife: use W2 type knife or smaller than it when engraving small letters and try to use bigger knife when engraving bigger letters in order to keep speed; choose cutting tools depending on the thinnest line of the letter; normally use 30° cutting tools.
Materials for engraving: double layer plastic board, PVC board, acrylic, ABS board, etc.
Materials for cutting: double layer plastic board, ABS board, etc

2. End Mill

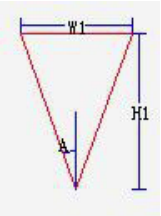


W1: the width of cutting tools front-end. Common tool shank likes ∮3.175， ∮4， ∮6; if the file is small letters whose thickness is less than 10mm, we better use ∮3.175 tools.
H1: refers to the cutting part; material thickness should be less than H1; common H1 length is different according to different material thickness, for example:
12mm: cut less than 10mm thickness material
17mm: cut less than 15mm thickness material
22mm: cut 20mm thickness material(∮3.175 for PVC and ∮4 for acrylic)
Materials for engraving: PVC, acrylic, wood, etc

Materials for cutting: PVC, acrylic, wood, etc

Policy for using tools: we do not suggest cut less than 10mm materials with 22mm tools, as it may break the tools; when you want to cut 22mm material but without 22mm tools, we can use 17mm and finish it by different layers.

3. 3D(V-bit)



Such tools are different with those engraving tools we normally use which are made by a alloy material; it is made by connecting to different type tool bit through a special welding procedure; it is used to engrave pantomorphic files, so it is also called big-end bit or V-bit.

W1: the diameter of the big-end; standard diameter is 32mm which is used to cut small 3D letters

A: half value of the angle made by the two lines of knifepoint; standard tool is 90°, then A should be 45

W2: width of the knife point; when calculate 3D path specifically, it is required to pass directly, so W2 means not too much, then normally we set it as 0.1 or 0.2.

Tools Application: such tool is used for under-cut letters (calculate path with 3D function),

Engraving acrylic from backside, or the letters similar with the one made by writing brush---such letter looks like the tip of a writing brush

3. Other cutting tools: the one for basso-relievo, the one for making lace, etc.

4. Tools set up:

Ways for adding a cutting tool: we suggest after delete all standard tools in software type 3 after installing well; then set up new tools according to detailed requirements.

For example: now we add a Conical flat knife of 30°×0.1:

1) Choose 2D, 3D, or cut in type 3 software

2) Click tool magazine, then click conical flat, then making the specifications ready; W1=3.175 A=15 W2=0.1

3) Click tools simulation---add tools---confirm---then we will add a new tool.

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