

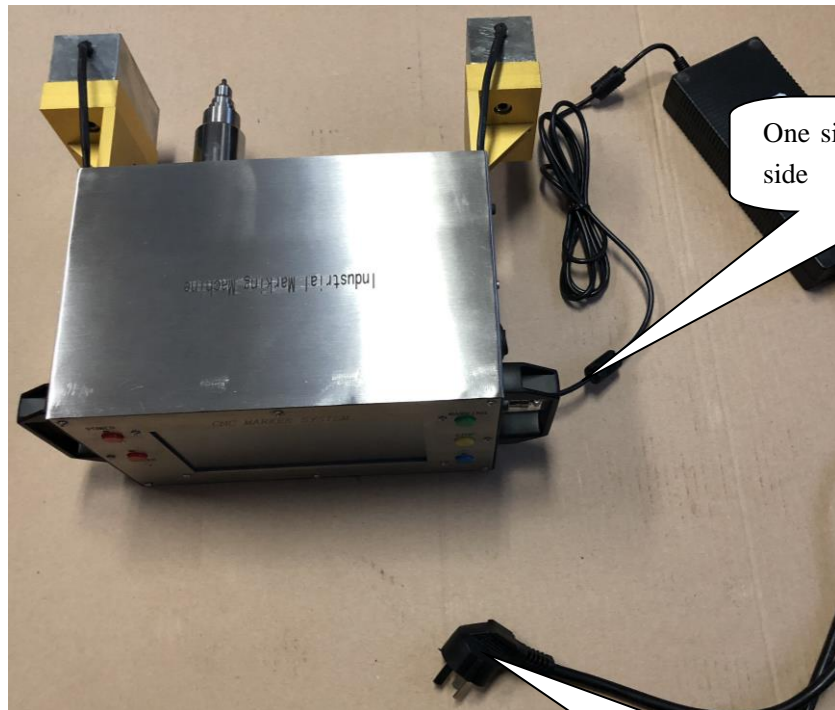
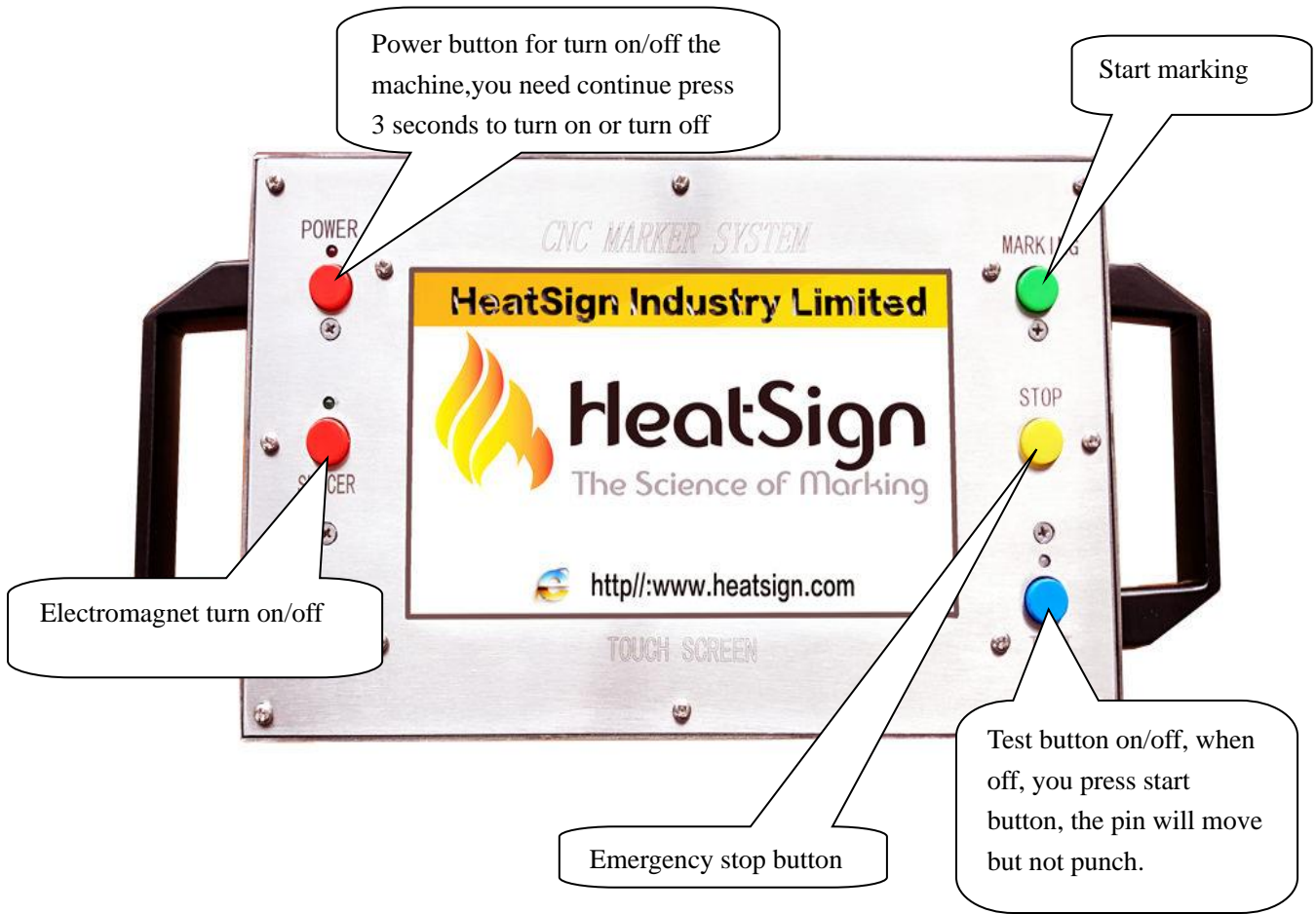
Diagrams and graphs

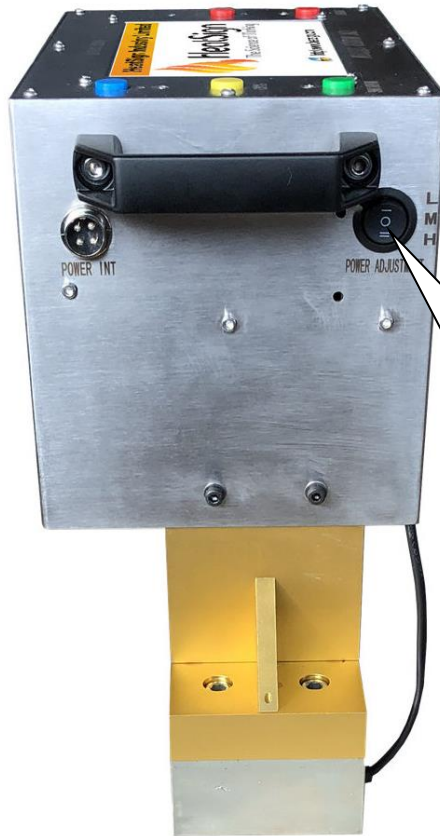
Basic information of the marking machine

HS-PE series

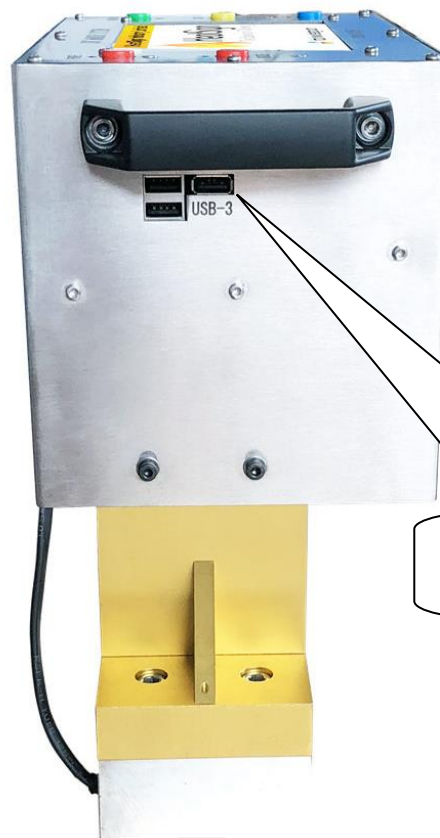
Schematic drawing







Marking Power adjustment,three levels: low=O,medium= |, high= ||



Three USB ports, you could connect by keyboard, mouse or U disk



Software User guide

1. Fester

Open 《integrated control system for industrial marking 》 (here refer to one machine), wait the system boot to complete, LCD displayer appears on one machine operator fester, the following diagram:



The figure shows one machine six main modules, namely:

F1 start: Open the engraving machine control software interface to start using engraving machines.

F2 File Management: Open File Manager window, managing stored in SD card engraving files.

F3 Software Installation: Open the Software Installation window, where you can through the SD card software installation package to upgrade or reinstall one machine in the software system.

F5 hardware test: Open hardware testing window engraving machine used to test whether the various parts of the hardware work properly.

F6 parameter settings: Open the parameter setting window for setting and engraving machine work-related parameters.

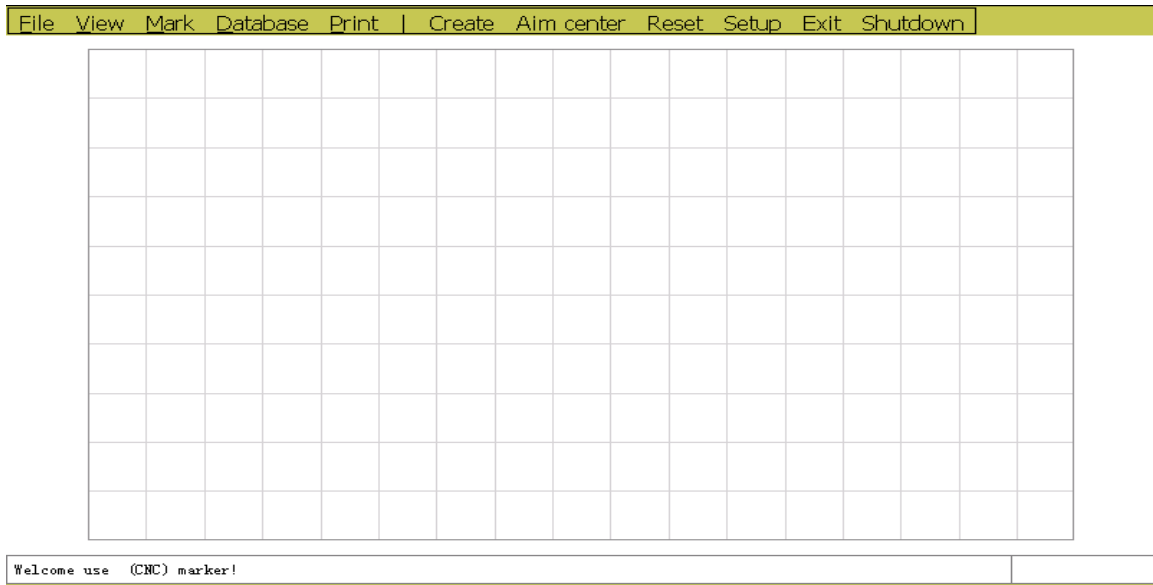
F7 system settings: Open the System Settings window, used to set various parameters of the current system.

In the following sections, we will introduce the various parts of the operational use.

marking Control Software Operation

2.1 Overview

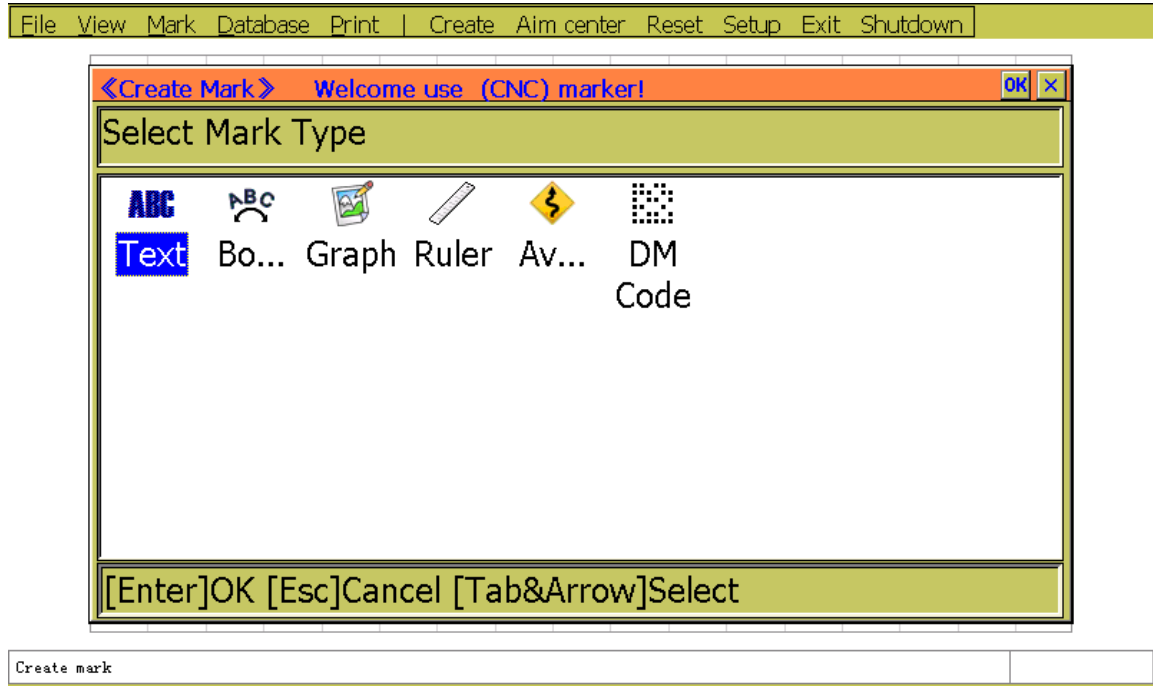
In the main interface, press the F1, the engraving machine control software has started, make sure that at this time of your engraving machine has been properly connected, marking head in the startup process reset to origin, wait to start the completion of the software, LCD display appears engraving control software interface, the following diagram:



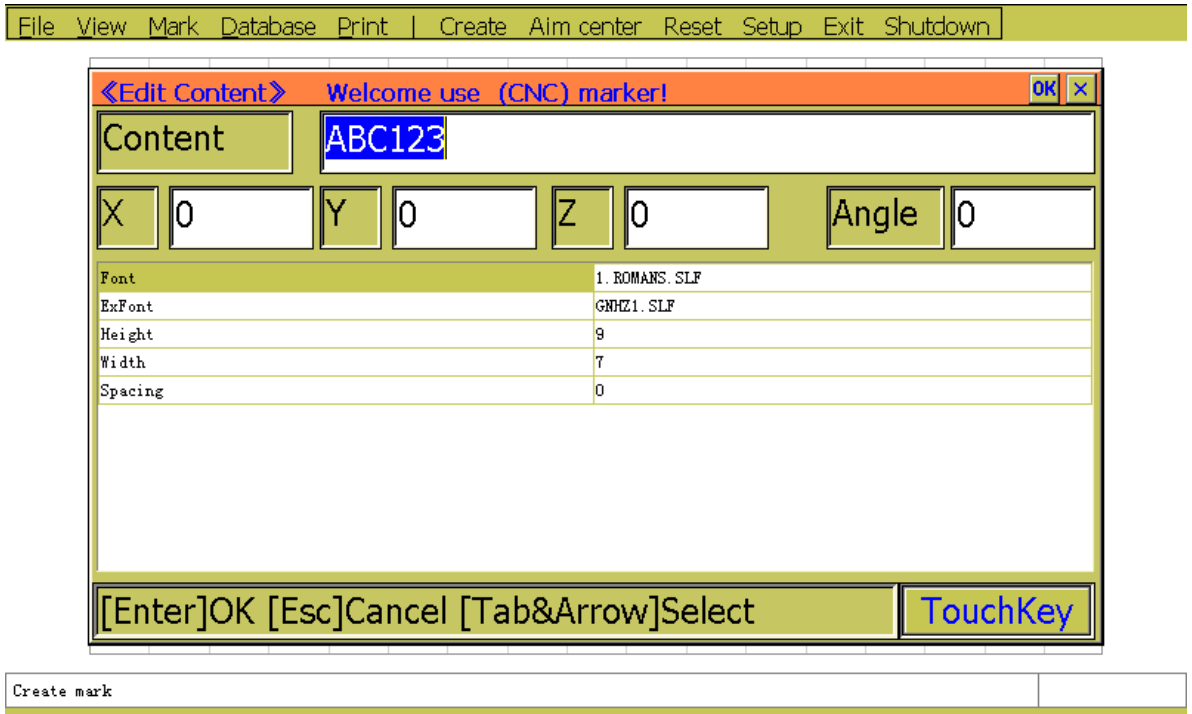
Interface, simple and comfortable, and at the top of the menu bar that contains all the features of the control of Marker menu, in the middle of the engraving for marking operation region, the default is 140mm × 80mm, software for all values are millimeters (mm)unless especially stated, the bottom as status bar, status bar on the left will be given in the corresponding tips in the user's operation. on the right will show the current state of the normal operation of the document name, because a new document has not named , so this area is blank at this time.

2.2 Quick Start

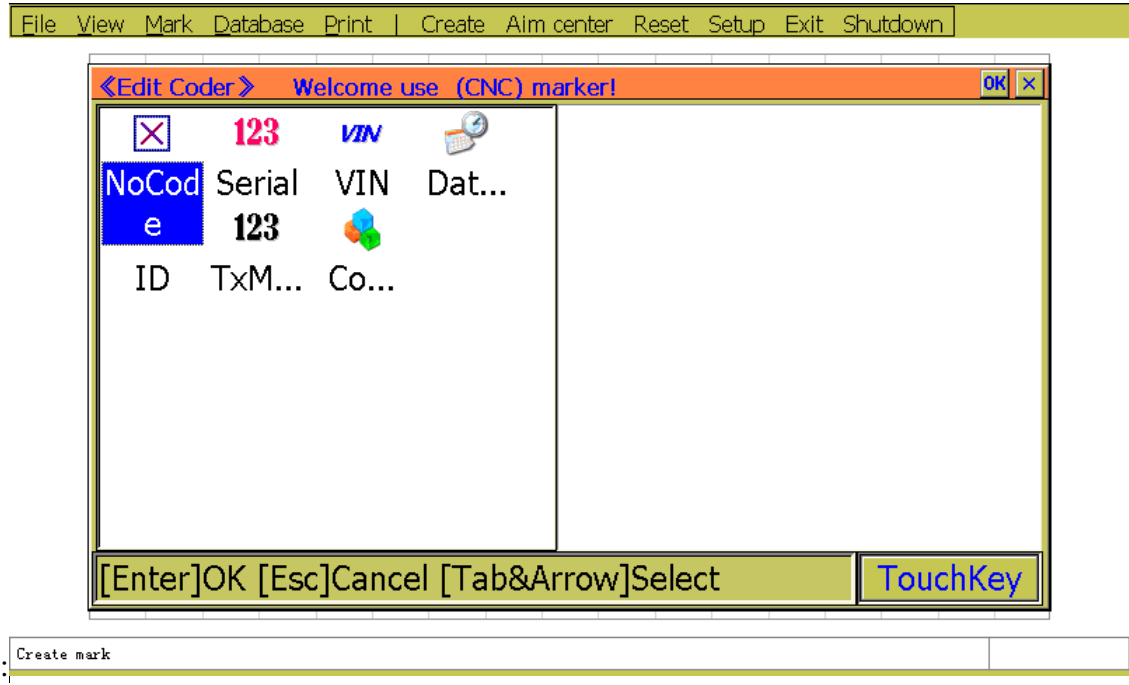
The following describes how to quickly create a simple text tag and a serial number of a marker, and these two markers on the needle to determine the final location of the workpiece on the engraving. In turn click on the menu [tag], [establishing], or directly press the keyboard shortcut on the [Insert], open the "Create marker" window, the following figure:



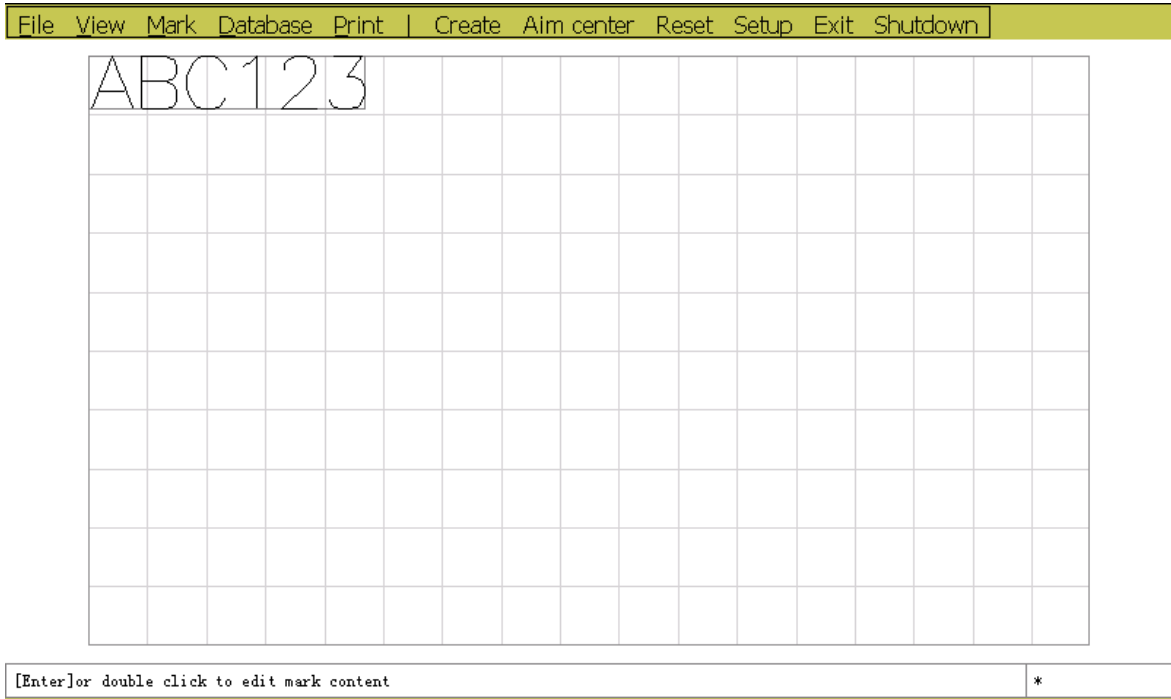
In the "create tags" window, select the tag you want to create the type, where we choose the "text" type of tag, and then click the upper right corner of the window [OK] button or press enter key To complete the marker type of choice. Then the "Edit tag content" window,it open automatically, the following diagram:



Here we can edit the content of markings, location, font, etc., These will be explained in detail in next chapters. Now let's use the default "ABC123" as the contents of the tag, click the upper right corner of the window [OK] button or press enter key to complete the tag content editing. Then the "Edit tag encoding" window open automatically, the following diagram

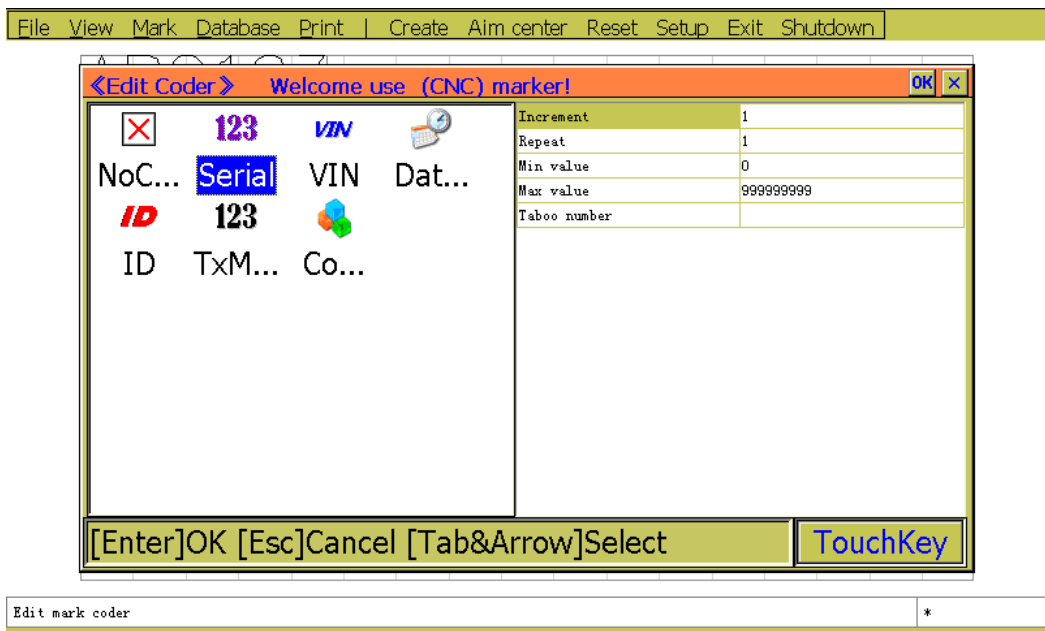


Because we want to make the contents of this tag fixed content, this means that these elements do not need change after the engraving, so here we will use the default "no code" on it. Top right corner of the window again, click [OK] button, and engraving of the engraving operation of control software appeared in the region we have establish in this tag, the following diagram:



The new mark will be in the "Edit tag content" window in the coordinates displayed in the engraving operation area.

Now we use the same method, and then create a tag, only this time, we will establish a "serial number" tag. "we still select "text" in the Creating marked " window "Edit tag content" window, we will default "ABC123" changed to "12345", and then in the next "Edit tag coding" in this window, select [serial number], the following diagram:



"Serial number" has a number of parameters, this time we leave it alone; use the default parameter values on it. After the completion of the establishment, engraving operation region will show the contents of the two marks ,as the following

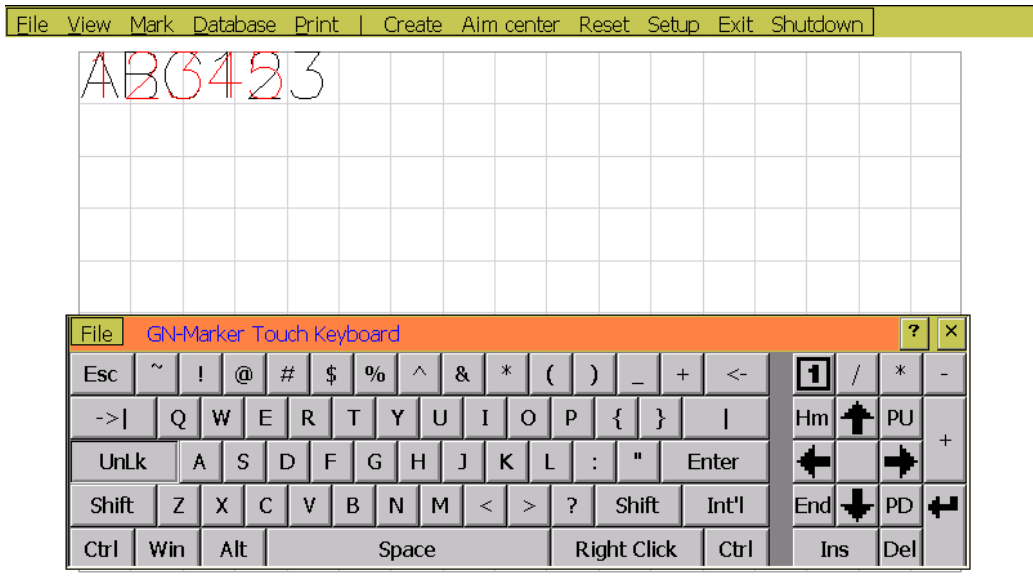


figure: [Enter]or double click to edit mark content *

"Note that" serial number "tag color is red, each a different tag codes will be displayed in the view, to distinguish with different colors. Now two tags stack together, it doesn't matter, press the arrow keys on the keyboard the direction of the arrow, serial number marked "12345" will be move to the direction of the arrow correspond 1mm. repeat the process, so that serial number marked" 12345"to move to another suitable location. moving process, you can note that engraving of the engraving pinhead, engraving needles with the 12345 changes of the mobile, this is a major function of the software , each time you change the tag's location , engraving pin will automatically aligned to a new location of the mark . There is another more efficient way to change the marker position, use the mouse to click on the select marker, tag will be surrounded by a frame after selecting. aligned the surrounding tad, Hold down the left mouse button, you can directly drag the tag to a new position. similarly, when you drag the marker' position,, engraving pin will automatically aligned to a new marker position. The use of engraving control software needles feature of this automatically, you can easily move the marker to the actual location of the actual printing position of the workpiece.

After the marking position adjustment, it seems like this, as following

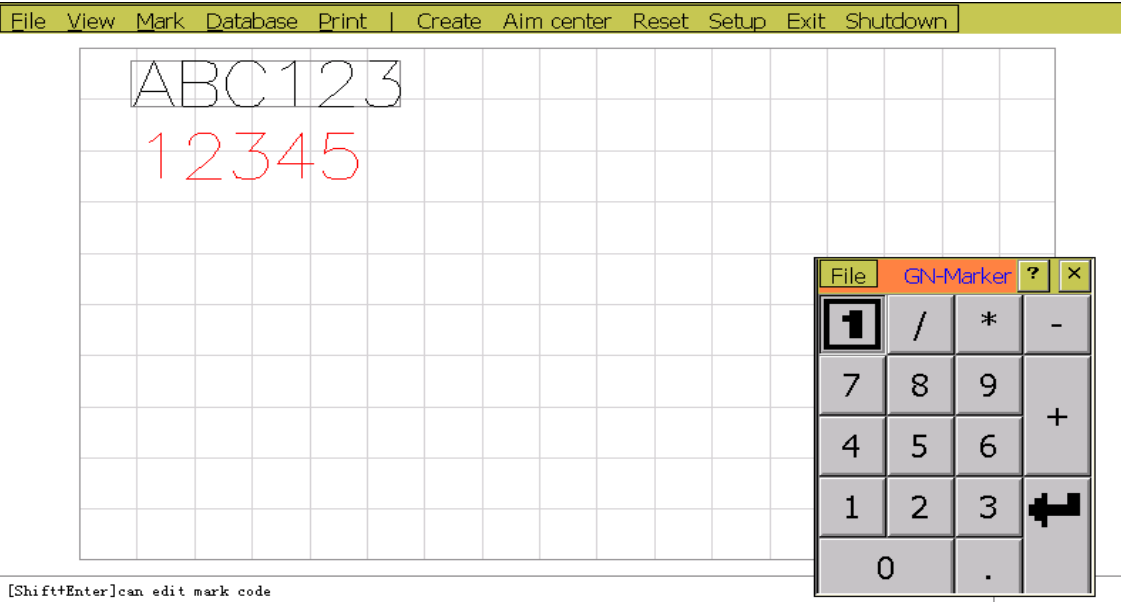
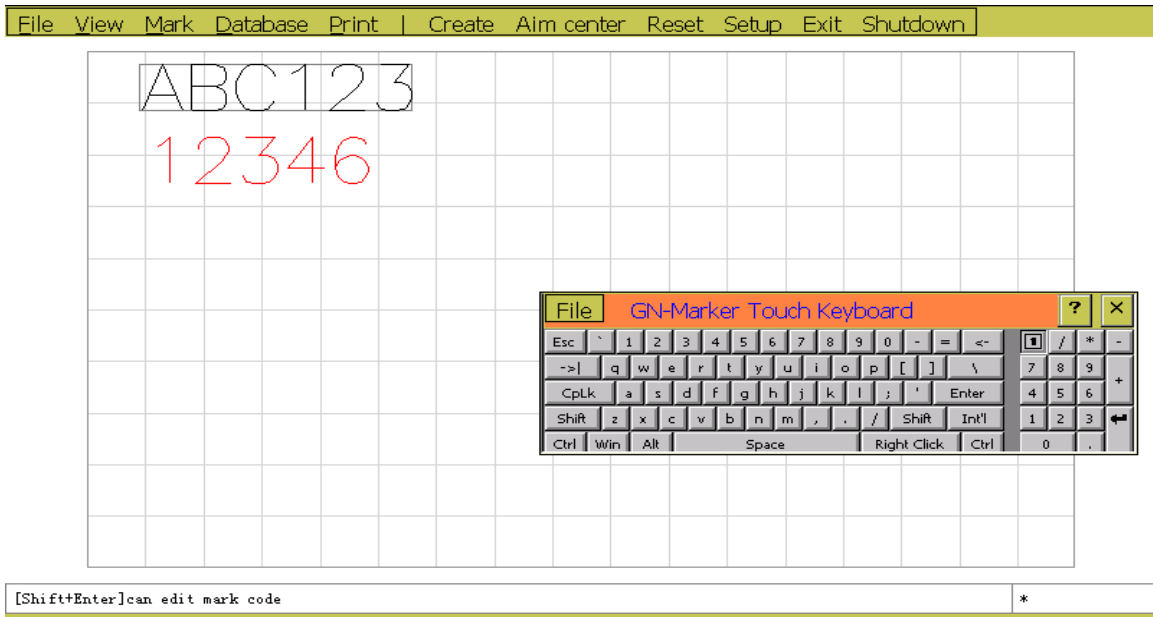


diagram: [Shift+Enter]can edit mark code

Of course, the actual position is determined by your own above operation. Now we can try to engrave two tags on the workpiece,the engraving operation is very simple. the click

[engraving]、[start engraving],or press shortcut button[f9].now marking machine start work, the engraving machine will engrave the content of two tag in your workpiece.wait the engraving machine work is completed, you will find the content of the series number has been changed, the following diagram:



Serial number tag content from "12345" changed to "12346", and this is the role of serial number coding, each one using the serial number encoded tag, will be automatically exhausted in the engraving accumulate a number, it is generally cumulative "1."

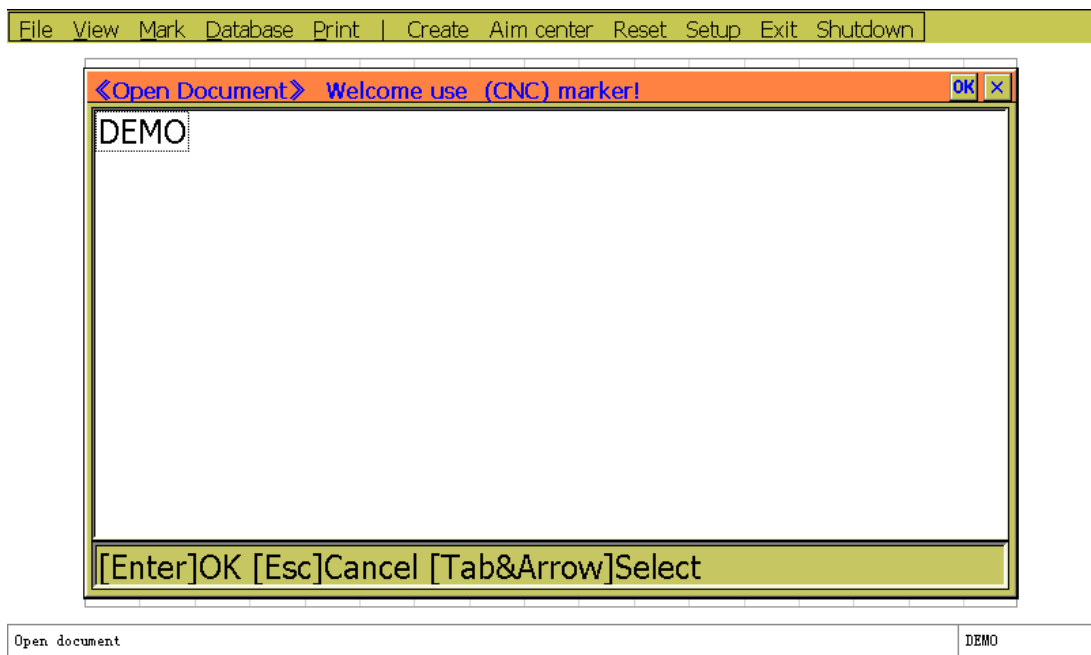
So far, we have a preliminary understanding of the engraving control software to use, more feature will be carried out in later chapters separate presentation.

2.3 Files operation

All the files of engraving control software are kepted in the SD memory into one machine “ThorX6 Documents” folder, “the extension is TX6,You can use PC to manage these files. click the menu[file],every function as follow:

create: create a new file, if the current files isn’t kepted,it will prompt the user to keep.

b. open: open a file, as follow diagram:

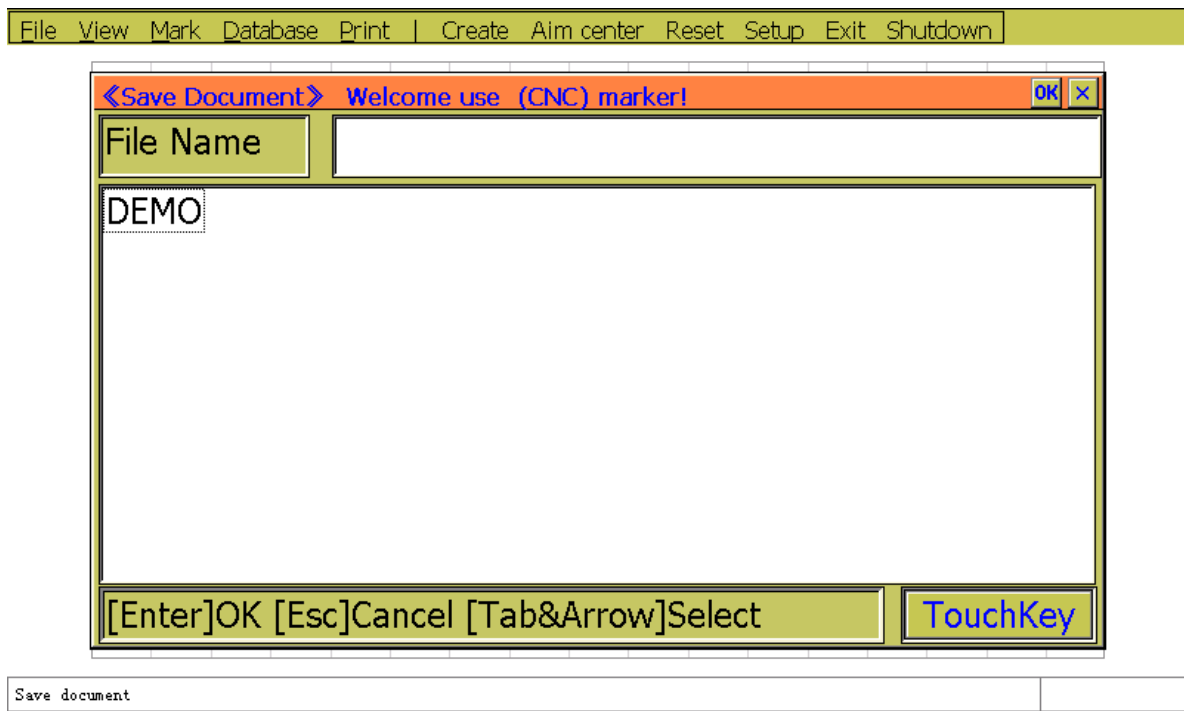


“open file” window list all engraving files on the SD card, choose one, click the button [ok]on the right

corner of the window or press directly the button[enter] , the files will be opened.

Open the file, the file's name will be displayed in the right of status bar .

c. save: save the current file to the SD card, as follow diagram:



“save file” window display all engraving files on the SD card, in the “file name” box enter a file name, then click the upper right corner of the window [ok] button or press directly the [Enter] button, the file will be saved.

Note, only the contents of the files change, the save feature can be executed, which means that is meaningless to save a new file or opened file.

When the contents of files changes, the right of the status bar of the file name will be add a “*”,when the contents of file are saved, the “*”are disappearing. the mark can prompt user whether the archive, when the contents of files changes.

d. save as: the current file saved as another name.

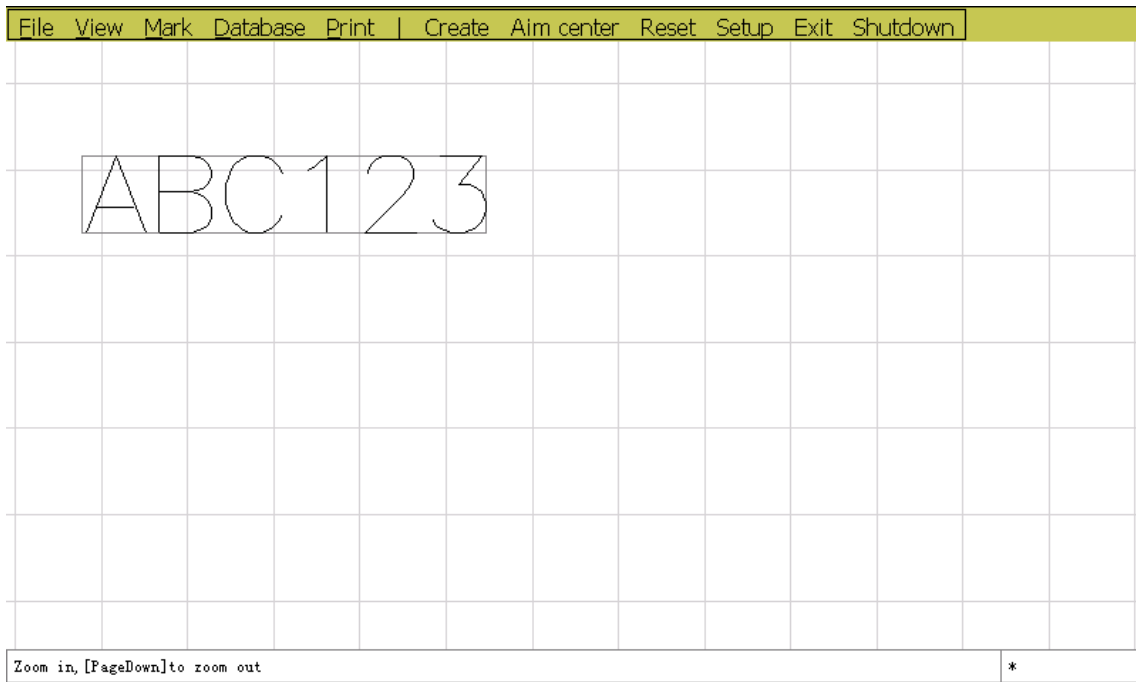
e. file management: see the third chapter” file management”。

2.4View Operation

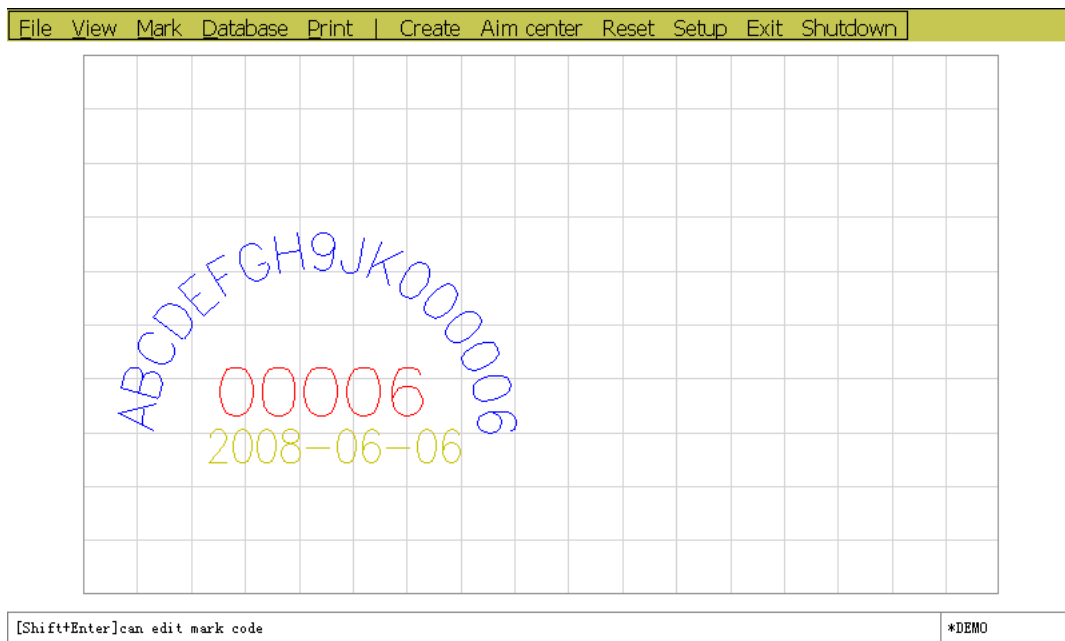
Marking region and the edge of all blank parts, collectively known as the engraving control software view, view operation is the most basic operation of the engraving control software..

2.4.1view scale and move

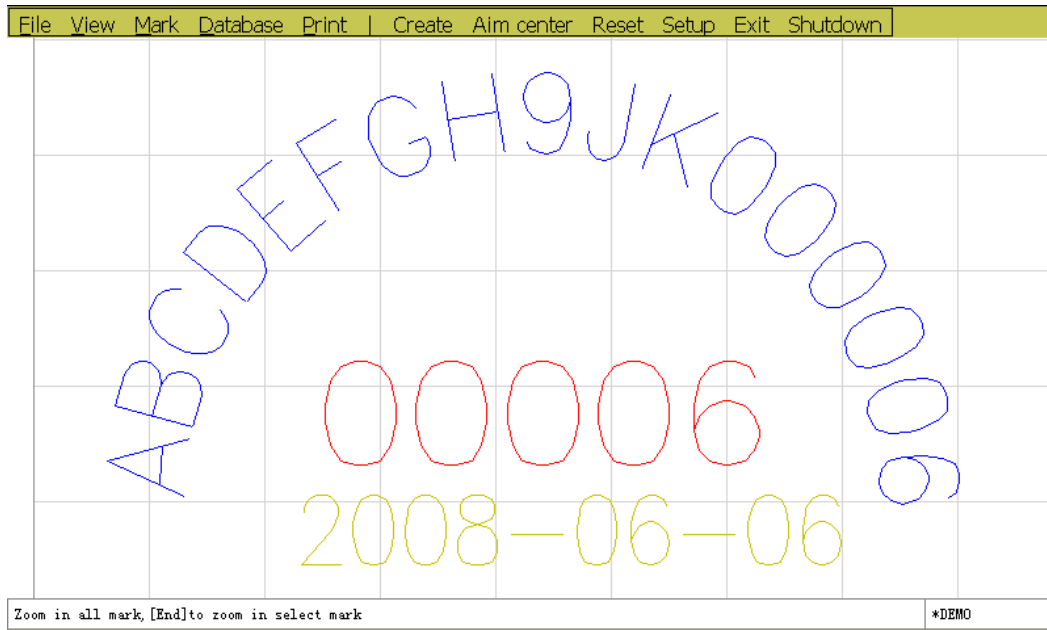
Use [view]menu's [enlarge]、[reduce]can view any enlarge and reduce. Enlarge the view can see the details of the marking graph, reduce the view can see more contents of marking. Sometimes, establishment of marking may be located outside the region, then you need to reduce the view to find. view zoom can aim at to one or more reduce. [view]menu's [large choice of marker] ,it can be directly to one or more marking enlarge. as follow diagram:



[view] menu's [enlarge all tags], it can directly zoom all tags in the marking control software., the follow are two kinds of the effect contrast:



正常显示比例



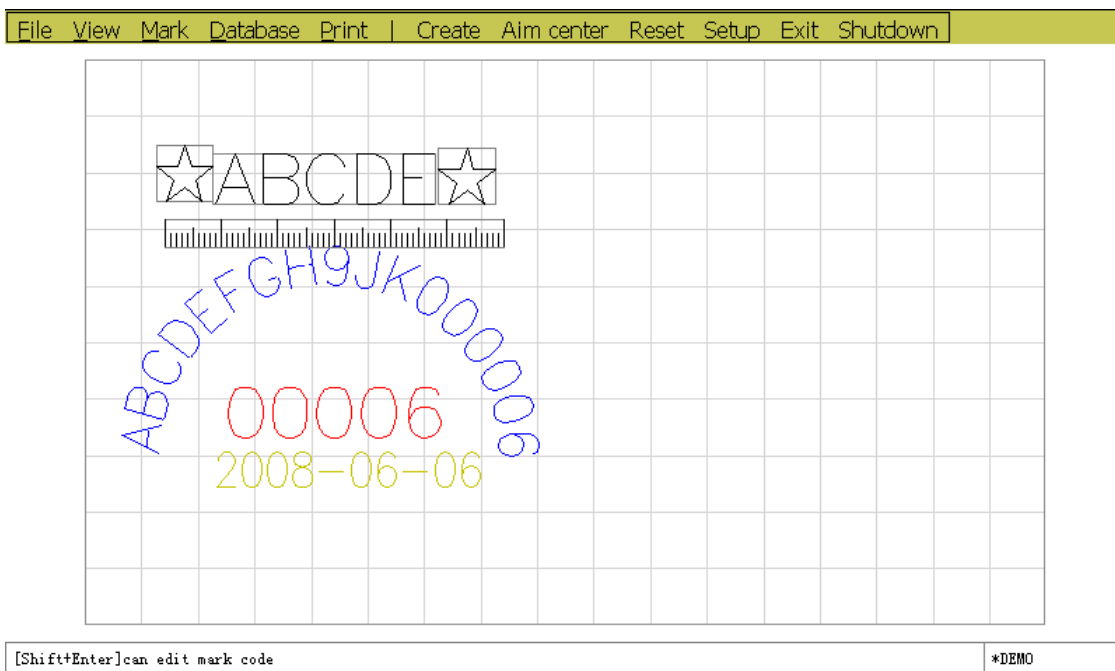
[放大所有标记] 后的显示比例

In addition[view]menu also includes moving the location of the view function, here we advise to directly use keyboard to finish, hold down the [ctrl]key, then click the arrow key on the keyboard, it can move the view to four direction.

2.4.2tag's choice and mobile

If you create a lot of tags in the engraving control software, you can directly use keyboard shortcuts[tab]to make choice in different tags. it will have a wire frame to surround the tags after making choice.

Of course, the mouse is the direct method to choose the tag, use mouse to click a tag, it will make the tag in the selecting state. in addition, hold down the mouse left key on the blank parts of the view, drag out a black wire frame, make the black wire frame wrap the tags of which you choose, then release the left mouse button, so that every tag will be selected which is surrounded by black wire frame, as the follow diagram:

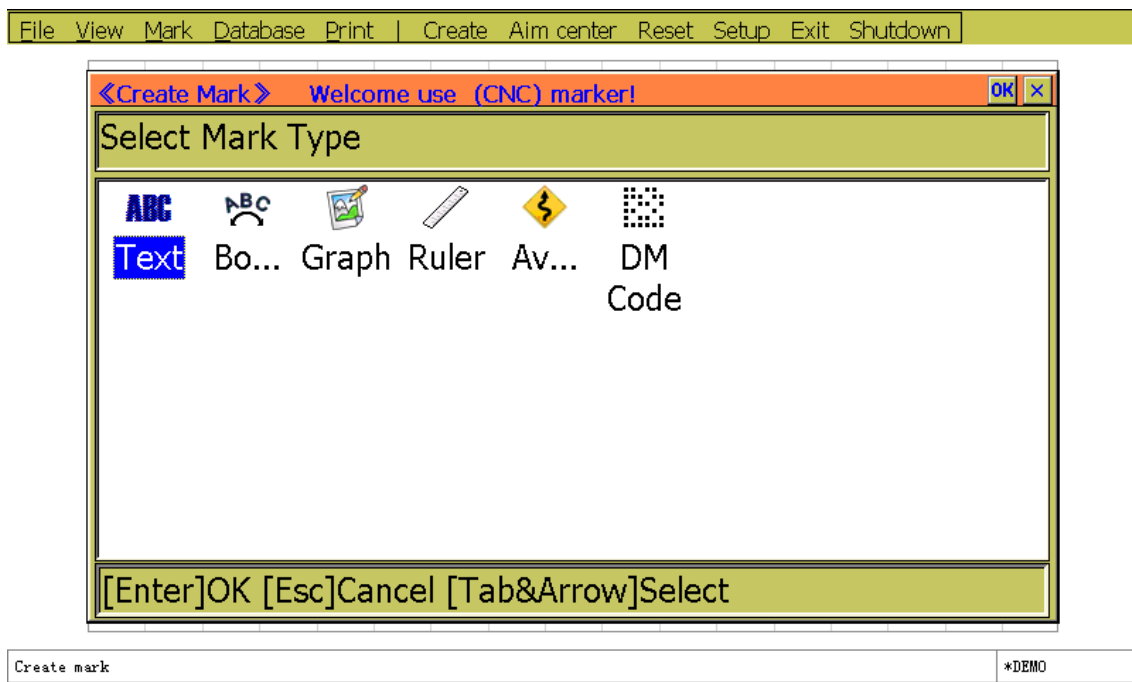


When the tag is in the selection state, press the direction button on the keyboard, tags will move 1mm as you select direction. Hold down the keyboard [shift] button, then press the direction key on the keyboard, the tag will be moved to 10mm as you wish, it will allow you to mark the location in the engraving region. The efficient way is to make the mouse aim at a selecting mark, then hold down the left mouse button, move the mouse, so you can drag the tag to a new position. When you change the position of the tag, the engraving pin will automatically move to a new marking position. These will have an introduction in the quickstart. You must be noted that it will be efficient to a tag which is chosen, that is to say, when you move a lot of tags, the marking machine doesn't try to aim.

2.5 tag's establishment and edition

2.5.1 create a text type mark

Word tags' content can be English characters, numbers, symbols, Chinese characters, and has the front-related properties. Engraving control software contains two word tags, one is the standard of [text], the other is [fan-text], the two kinds of tag only difference is ranged in different way, most of their basic properties are the same, standard [text] tags are ranged in common straight-line, but the [fan-text] is specified radius and starting angle to be ranged. Two kinds of tag can be selected in the "create tag" window, as following diagram:

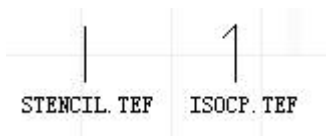


note, once the type of the tag is selected, it will no longer be changed. The "create tag" window is simple to use, in turn click on the menu [tag], [create], or directly by pressing the keyboard shortcut keys [insert].

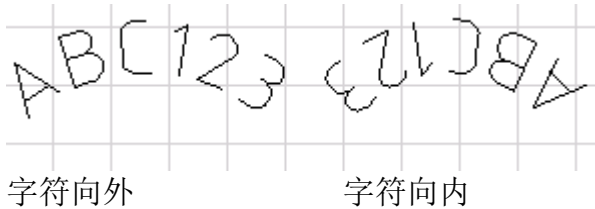
Because [text] and [fan-text] are the same to establish and edit, we will describe their use together. After selecting the type of the tag on the 'create tag', its related parameters will automatically be opened. This Quick Start section 2.2 has been introduced here we will describe each of these parameters.

- a. content: As the name suggests, here you can change the tag text.
- b. X、Y: These two parameters are used to specify the area marked in the engraving position. According to the word type of the tag, this position will be different. Standard [text] is a target in mind this position marks the lower left corner, while the [fan the text] is a target in mind when the fan-shaped arrangement of the center of a circle.
- c. Rotation angle: Tag around the X, Y locations specified rotation angle. For [fan-shaped text], this perspective is the starting point of fan-shaped arrangement.

- d. English Font: tag content in English numbers symbols to use
- e. Chinese font: tag content in the Chinese characters used in the font.
- f. High character, word width: tag content characters in size. Note that here the words of high word-wide, and can not be absolutely limit the size of characters, it's just a reference to size, the actual words of high word-wide would be due to different fonts and change. For example when the word-wide are set to 5mm, the numeric characters "1" are generally not up to 5mm in width, and with the font change, font "ISOCP.TEF" of the numeric characters "1" than the font "STENCIL.TEF "The number of characters" a "slightly wide number. The following figure:



- g. Word spacing: tag the content distance between characters and character.
- h. Radius (fan version): fan outside the radius of inscribed circle.
- i. Character direction (fan version): the decision when the fan-shaped arrangement of the characters towards the top center of a circle or a departure from the center of a circle, the effect of different directions as shown below:



2.5.2 the word's type of tag code

When the parameters of tag's content are completed, click on the window the upper right corner of the [OK] button or press enter key, the "Edit tag code" window will open automatically. Only the word class tags will have a "tag encoding" the property "tag coding" will determine the word class tag engraving is completed in each character changes. For example one has a "serial number" code word class tags will be automatically after the completion of each engraving add value "1."

"Edit tag coding" window to the left, is the type of coding, the "Edit tag code" window on the right, is to choose the encoding parameters.

Word class tag has four kinds of codes to choose from, we list below:

a. The non-coding: As the name suggests, the non-coding means that the content of this tag does not require an engraving after the completion of each change, so this code there is no argument.

b. Serial number: also known as serial number, in general, "serial number" are formed by a number of characters, or at least mark the end of the content of the digital characters, if the tag is not a number at the end of the content of character, this tag will not be able Marking , because its content does not meet the "serial number" of the encoding format. Have "serial number" code word class tag in each engraving will be conducted after the completion of numerical computation, the results of operations by the "serial number" parameter to decide.

1. Increments: tag content values at each value of the increase in the amount of computing time, in general, is 1.

2. Repeat Count: mark the contents of the value of the engraving operation once the number of times before.

3. Minimum: mark the contents of the minimum value allowed, if the value is less than this value after the operation, will automatically change to the minimum value.

4. Max: mark the contents of the value of the maximum allowed, if the value is greater than this value

after the operation, will automatically change to the minimum value.

5. Number of taboo: the provisions of tag content where not allowed figure. For example some geographic taboo number "4", then you can fill in here, "4", future operations, the tag content will be automatically skipped the number "4." Such as "123" directly after the completion of the engraving changed to "125".

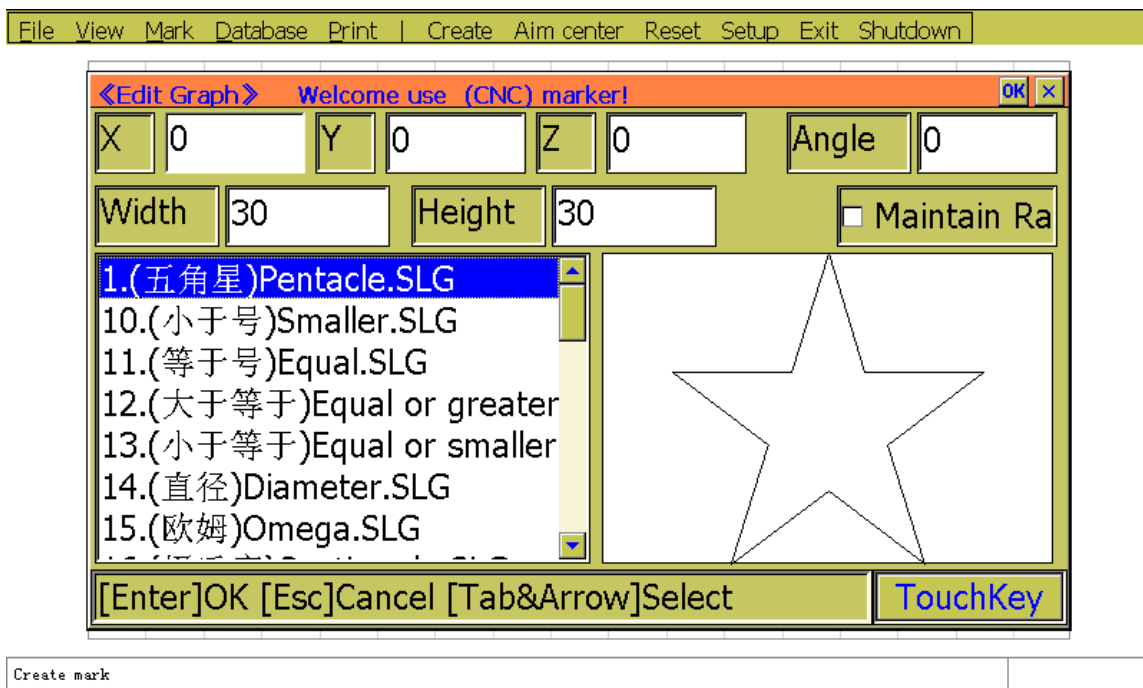
Note that, regardless of how the tag value of the contents of operations, will not change the character length of the tag content, which means that, when the serial number "AB9999" add "a" would become "AB0000", rather than the "AB10000".

c. VIN: VIN (Vehicle Identification Number), the Chinese called the vehicle identification code, is a manufacturer to a car in order to identify and designate a set of code. VIN according to certain rules is composed of 17 letters and numbers, of which the first 9 in order to test bits. VIN encoding parameters and the "serial number" essentially the same, only difference is that, VIN serial number can be set at the end of the length of the code, for example, when the serial number length is set to 4:00, VIN Code "ABCDEFGH7JK889999" when completed, will change in the engraving "ABCDEFGH2JK880000" rather than "ABCDEFGH8JK890000".

d. Date: Date encoding type will be in accordance with its only "format" parameter directly change the content of markings, no matter what the content tag, will be to change the ground "format" the date specified time code. "Format" is a special code formed by a group of characters, which determines the character formatting tag content. Formatting characters, see Appendix definitions.

2.5.3 Establish the graphic marking

The method of establishment of graphic marking is the same to the word type of tag, but the graphic tag parameters are completely different, select the graphic in the "create tags" window , then click the upper right corner of the window [OK] button or press enter key, graphic marking the contents of the window is opened, the following figure:



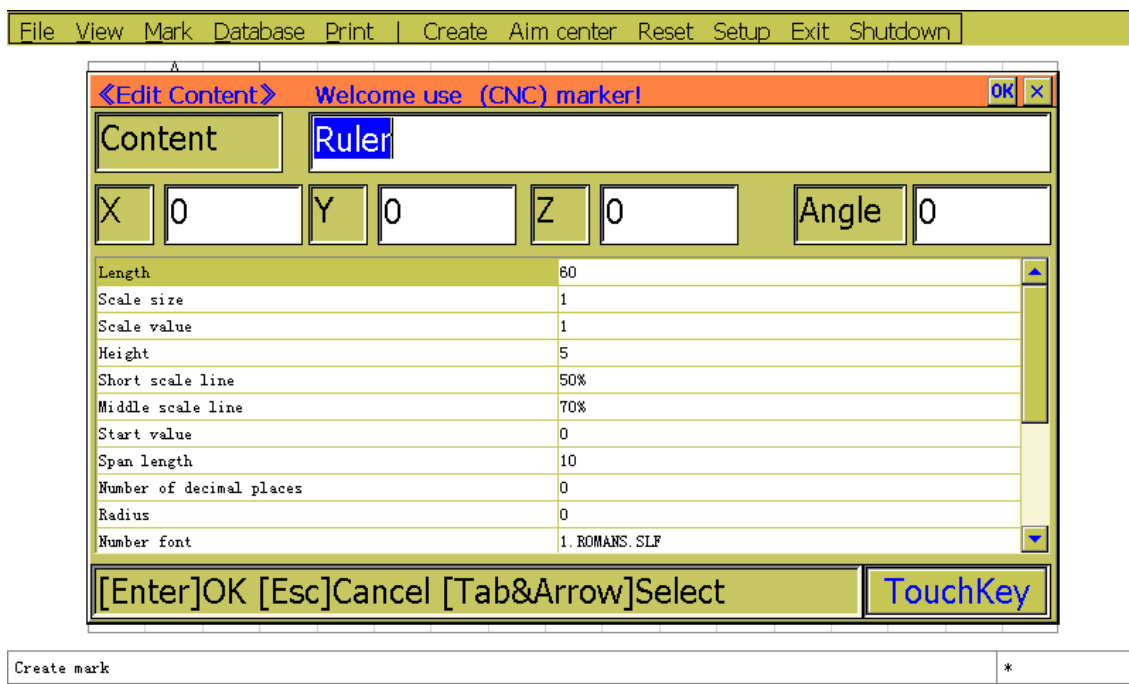
Parameters X, Y, rotation angle of the significance of tag with the word classes are the same, "width", "height" is used to determine the actual appearance of the graph size, "Keep ratio" option will always keep the original graphics within the ratio, which means that when you change the width of the graph, the graph of the height will be automatically calculated the proportion of their , the same, when you change the graphic height, the width of the graph will be automatically calculated the proportion of their.

List on the left shows all the currently available graphics, you can select in this list, which you need

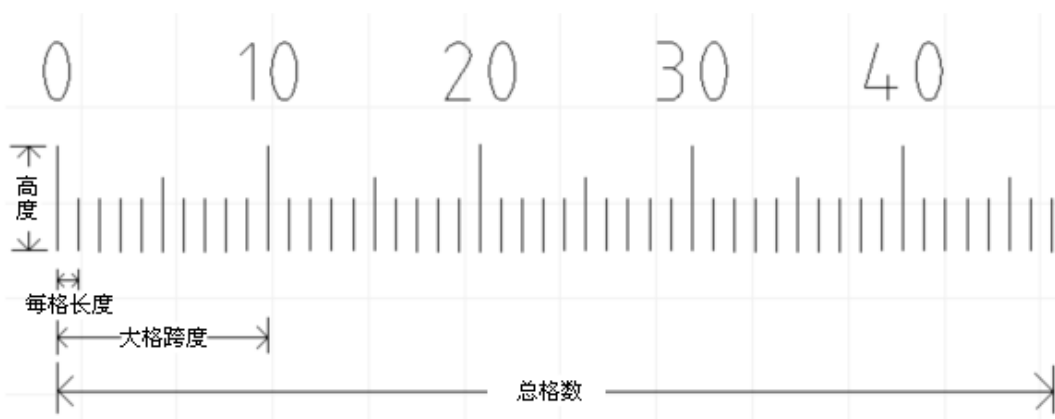
graphics, the right of the regions are used to display the currently selected graphics preview. All graphic files are saved in the SD memory card into one machine of the "ThorX6 Documents" folder, with the extension "*.SLG", you can use the PC to manage the files. For Graphic marking, there is no "code" attribute, select the graphics, fill out parameters, click on the window the upper right corner of the [OK] button or press enter key, the graphics was based on the view.

2.5.4 Establish benchmark tag

Scale the contents of the tag can not be changed, because the contents of this property right does not make sense for the standard ruler, ruler marked by the appearance of the whole parameters of the decision, the following figure:



Scale parameter more, the following diagram to illustrate the use of some basic parameters of the meaning expressed by:

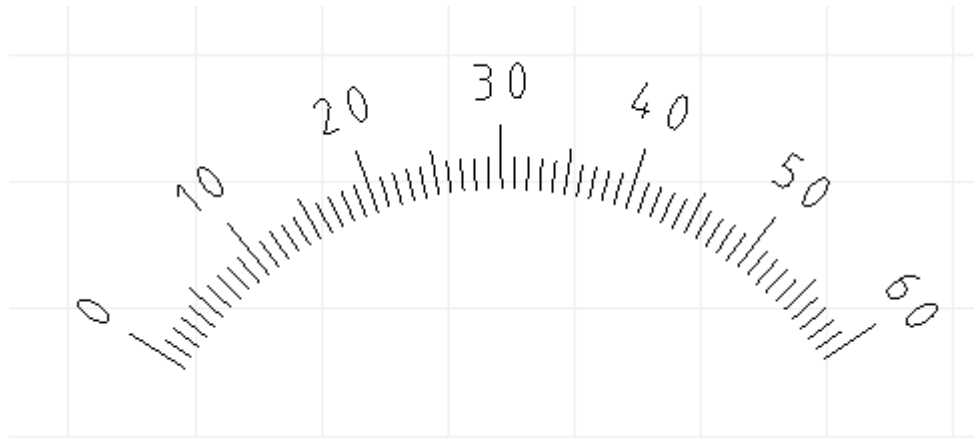


the role of the various parameters are as follows:

- Total cell number: total cell number indicated that ruler
- Each grid length: that between the ruler where the width of each small cell, mm units.
- Each grid values: Note that "per grid value" and "per grid length," which is different from the concept of "lattice width," said the ruler where the actual width of each small cell, and the "cell value" is that each small grid ruler li represented by the value, usually this value is set to "1", but there are special circumstances, for example: to create an inch as the unit of the ruler, it should be in the "cell width", type

25.4, while in the "cell value" Enter 1, as 25.4 mm equals 1 inch.

- d. Ruler Height: ruler, said the total height (some characters not included), mm units.
- e. A small grid ratio: a small grid, said a high percentage of height ruler.
- f. In the proportion of grid: the grid, said a high percentage of the height ruler.
- g. Start value: that the ruler start bit values. Under normal circumstances from the "0" start.
- h. Large grid span: that a large number of cells within the small grid.
- i. Number of decimal places: if the value contains a decimal ruler, then the values of the number of decimal places.
- j. Fan-shaped radius: If the fan-shaped radius set to a valid value (not "0"), you can create a fan-shaped ruler, the following diagram:



- k. Digital Font: Set the ruler on the numeric characters in the font.
- l. Font Location: numerical characters from the marked distance.
- m. Characters wide, high character, word spacing: These parameters are the same as with the word class tags, see the word class tag instructions.
- n. Character point of view: Numerical character rotation angle.
- o. Show figures showing the number of cells: the decision whether to display a ruler on the character values.

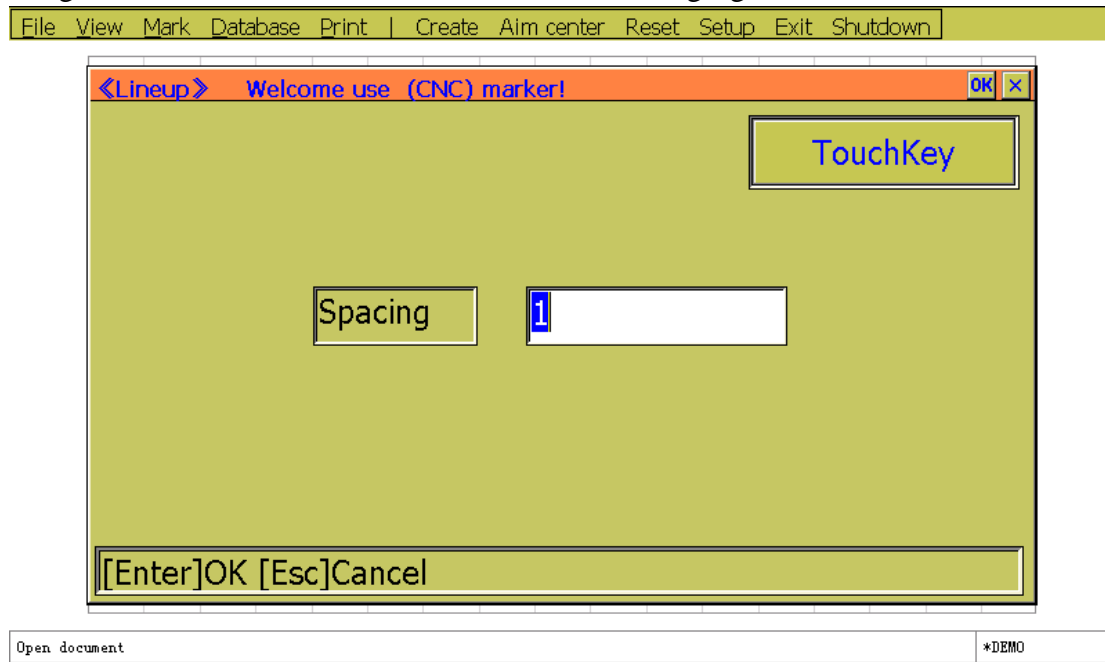
2.5.5 Edit tag with the needle

Tag in the establishment of complete, if you want to change its parameters, you can select the tag you want to edit in the view, followed by click the menu [tag], [edit tag content], marking the contents of the parameters of the window will be re-opened. Another easier way, direct the mouse double-click to edit the tag, or the selection of a single marker press the Enter key, can be re-open the contents of the parameters of the window tag. In addition, if you want to re-edit the code tags, you can view, sele encoding parameters of the window will be re-opened.ct the tag you want to edit, followed by click the menu [tag], [edit tags encoding], marking the Similarly, a more simple way, hold down on the keyboard [Shift] key, then double click on the tag you want to edit, or on the keyboard hold down the [Shift] key and then select a single marker press the Enter key, you can re-open the window tag encoding parameters.

With regard to the determination of marker position, in addition to operation of a view as described in the Use the arrow keys and mouse methods, there is another engraving control software, [alignment] feature is available, which in some cases, [alignment] more powerful than manually moving the location marker for more effective and accurate. Click on the menu [tag], [alignment] can open the [alignment] feature sub-menu, [alignment] feature has a variety of alignment as follows:

- a. Center of a circle / starting point: To mark the starting point of the center of a circle, or aligned, this alignment generally used to align the center of two fan-shaped Markup point

- b. Left: The left-most mark the left edge of subject, the other marking the left edge aligned together.
- c. Right-aligned: the most marked of the right edge of the right shall prevail, will mark the right edge of the other aligned together.
- d. Top Alignment: The top edge of the marked subject will be marked on the other edge of aligned together.
- e. At the end of alignment: the most marked under the bottom edge of subject, the other marking the lower edge aligned together.
- f. Horizontally: The number of tags to the same level of alignment of center line.
- g. Vertical center: The alignment of multiple tags to the same vertical center line.
- h. Combination line: combination of multiple tags to the line, using this feature will be asked to enter the 22 marking the distance between the intervals, the following figure:



When the spacing is established, a number of marks will be the distance of this interval to form a line. Note that the composition of the line, but that will mark the location of grouped together, rather than marking the contents of the portfolio together, the various tags, or independent of each other, but from the location point of view, arranged in a row.

We have repeatedly mentioned earlier, each time you change the marker position, engraving needles are automatically aligned to the new location of the marker. This is the engraving control software of the automatic needle feature to note is that for pin this feature is selected only for a single marker effective, that is, when you move more than one marker at the same time, the engraving needle will not try to right quasi. Click on the menu [tag], [right needle] can open the [right needle] feature sub-menu, [right needle] feature has a variety of ways as follows:

- a. The lower left corner: The engraving to mark the lower left corner for the potential.
- b. The lower right corner: The engraving to mark the lower right corner for the potential.
- c. The upper left corner: the engraving for the quasi upper-left corner to the tag.
- d. The upper right corner: the engraving for the quasi- upper right corner of the tag.
- e. Center of a circle / starting point: the engraving for the quasi-center of a circle or a starting point to the mark, this way of needles used to make the engraving for the quasi-normal to the center of a circle fan point of the text.
- f. Cessation of needle: selection, when the mobile tags, engraving needles will then not be aligned, unless the re-operation of needles.

When you select a menu approach to the pin, the next time you move the marker, engraving needle will

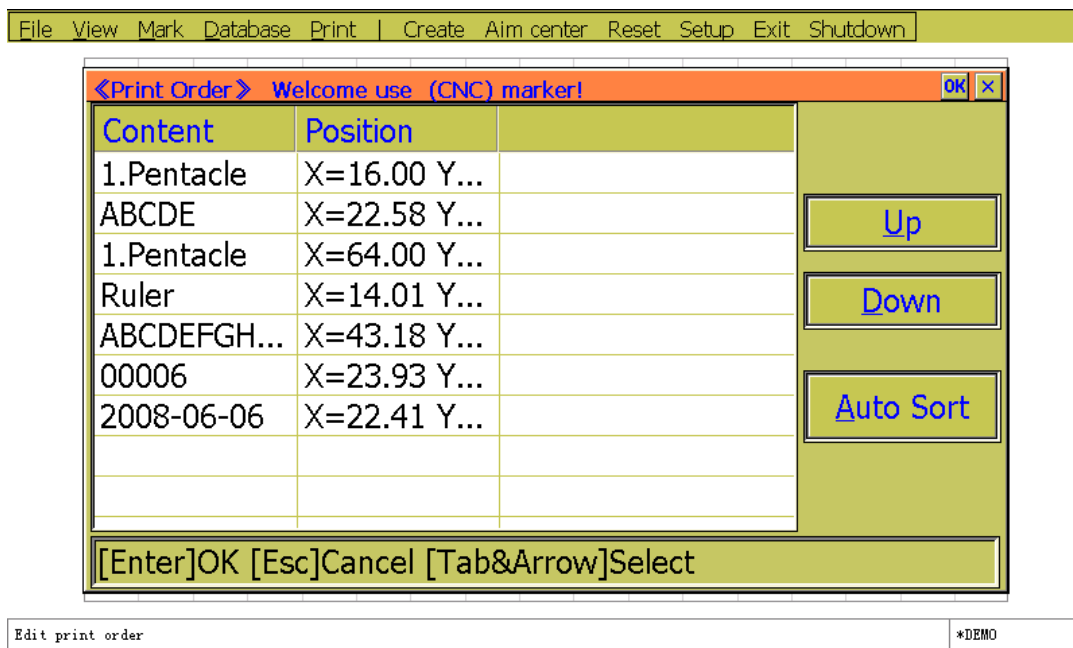
be according to the way you choose to align, for example, when you choose the lower right corner of the needle, then every time you move the marker, engraving needles are to the lower right corner alignment marks, rather than the lower left corner is the default.

rather than the lower left corner is the default.

2.6 Marker Operation and setting

2.6.1 Marker order

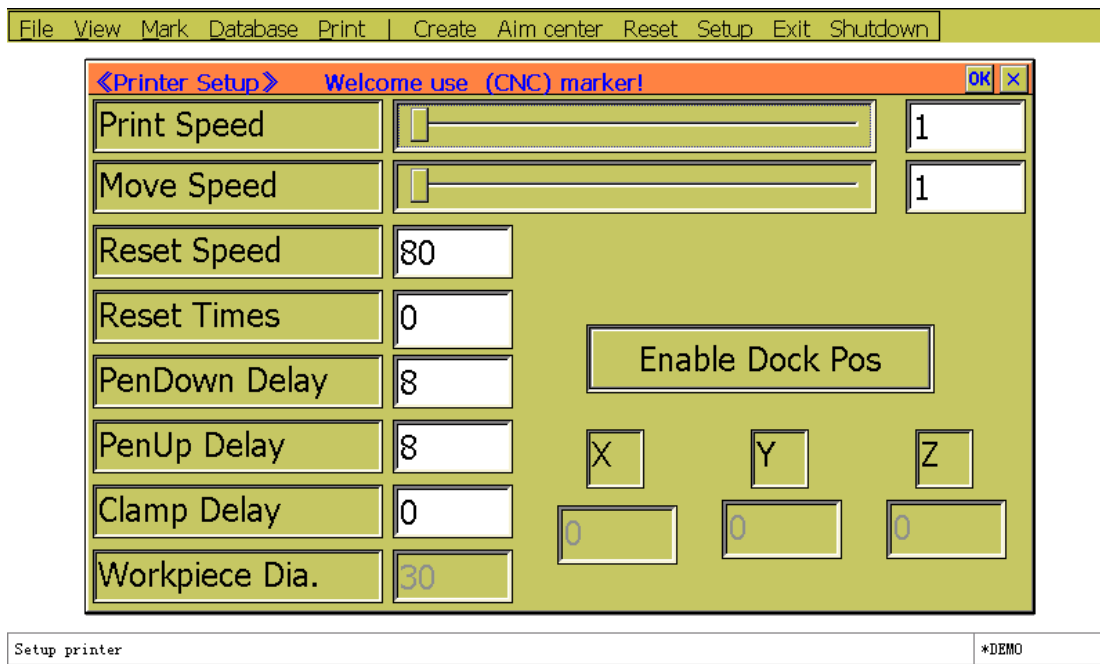
[Marker] menu contains all the functionality required engraving operations, but Marker begin, we should first understand the concept of the order engraving. When the view is only one mark, the engraving the order does not make sense, but when the view contains multiple tags, most of the time we all need to set the engraving in order to speed up the engraving process. By default, the engraving is based on marking the establishment of the order to carry out, that is, the first mark was first established in engraving, after the establishment of the labeled graphic, in some cases, this is not the problem, but if we believe that this order is not reasonable, it needs to be adjusted. Click on the menu [engraving], [engraving order] to open the engraving in order to adjust the window, as shown:



Marker order to adjust the window, the list in order according to the present engraving list view the contents of all the tags and location, choose one of them and then click "Move Up" or "Move Down" could change the tag engraving order. A simpler approach, click on "Automatic Sort" button, engraving control software will automatically top to bottom, left to right in order to sort all the tags, which is the most commonly used sorting method.

2.6.2 Marker Set

Marking speed of the process parameters of the decision by the engraving, click on the menu [engraving], [Settings], open the Marker Preferences window, the following diagram:



"Marking speed" refers to the engraving needle in engraving state road speed, "air walking speed" refers to the engraving engraving needle in the non-state road speed (ie the empty walk), properly set and match these two speeds can be does not affect the accuracy of the case to achieve efficient engraving. Under normal circumstances, air speed of walking speed can be higher than engraving, but preferably not more than 20 or more.

Setting the speed is very simple, you can directly drag the speed control bar, you can also text box on the right directly to input speed parameter.

Also in engraving machine parameter settings without opening the case of the window can directly use the numeric keypad on the right number "+","-" engraving speed quickly set up, every time I press the "+","-" number, will Marking rate of increase or decrease in one, if on the keyboard hold down the [Shift] key and hold, every time I press "+","-" number, will incr or decrease the speed engraving 10.

Because the engraving needle engraving process is initiated by high-pressure gas control, proper operation with the high-pressure gas, to avoid "missing pen" and "tail" of the bad engraving outcome, the following figure:



Marker at the beginning of each successive strokes of each character, the high-pressure gas source will be opened, so as to drive high-frequency impact and engraving needle, but because of high- pressure gas in gas-filled need a short time, and if at this time, engraving needle has already begun, while the high-pressure gas has not yet reached, there will be the phenomenon of missing pen. In order to avoid this situation arising, in the high-pressure gas source is opened, so that engraving needle in-situ high-pressure gas stop short period of time to wait for the arrival so that it can effectively avoid the phenomenon of missing pen. This is a short pause of the time we referred to as "delay put pen to paper", under normal circumstances will only take about 2-8 milliseconds.

In each successive strokes of each character at the end engraving, high-pressure gas source will be shut down, but because of the inflated high-pressure gas pipeline may also retained some of the gas is not

released finished, if at this time, engraving needle began to move, then the This part of the retention of the high-pressure gas may also lead engraving needle high-frequency shocks, there will be tailing phenomenon. In order to avoid such situations arise, after the closure of the high-pressure gas source, so that engraving needle in-situ high-pressure gas stop short period of time to wait for full release, so that you can effectively avoid smearing. This is a short pause of the time we referred to as "carrying pen delay", With the "delayed start to write," just like "carrying pen delay," Under normal circumstances only need about 2-8 milliseconds.

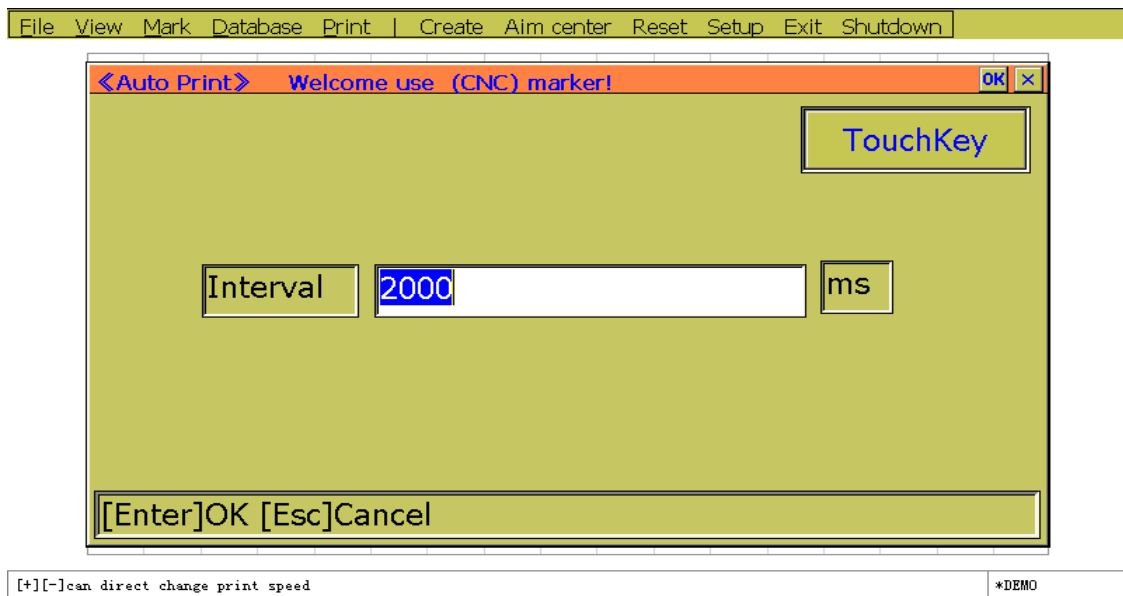
"Delay put pen to paper" and "carrying pen delay" setting methods and the speed is set the same way, you can directly drag the delay lever, you can also text box on the right parameters of the direct input delay If your engraving machine installed pneumatic clamps, you can set a delay amount for this fixture to press the "Start engraving" button to have enough time to clamp the workpiece and push the workpiece to reach engraving bit. The delay quantity we call the "Gripper delay."

Because the engraving machine engraving bodies are mechanical devices, so after repeated engraving prone to minor errors, but if such errors do not revised, it will increase the number of times as the engraving has will increase the number of times as the engraving has been accumulated continue, eventually leading to the location of engraving deviation Therefore, an automatic reset function is designed to correct such errors. The number and engraving by engraving the complexity of determining the number of auto-reset, typically, each engraving 200 times or so automatically reset once. This parameter we call "reset number of times."

Under normal circumstances, each engraving is completed, so that engraving needle back to the designated coordinates, the next time engraving again when starting from the coordinates, the coordinates of what we call "stand-by from the standard", "stand-by from standard" can be freely by the user is set to engraving anywhere within the region.

2.6.3 Marking Operation

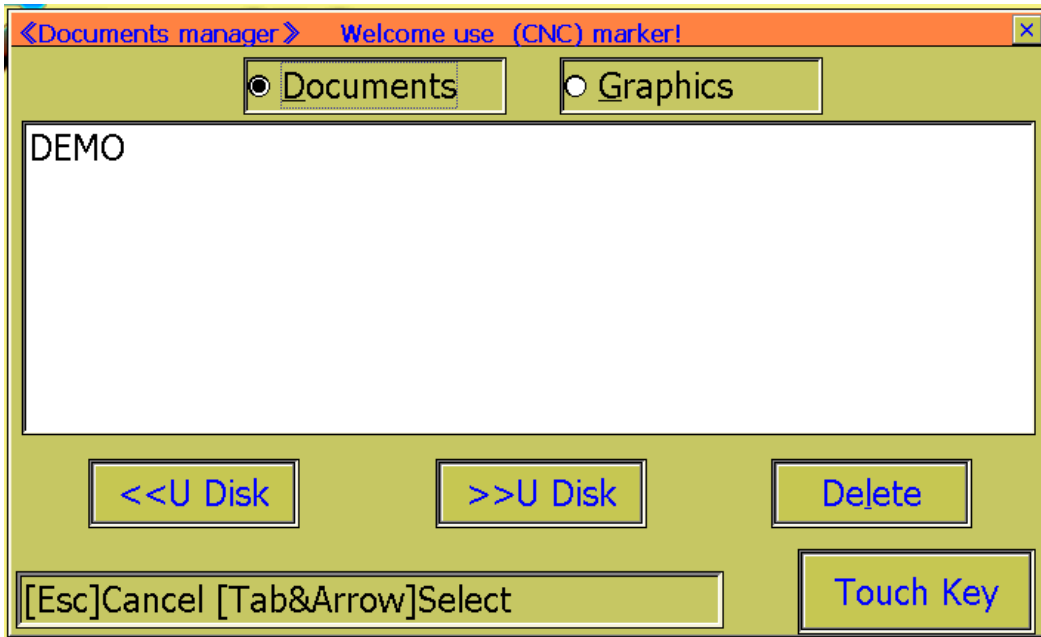
Start engraving: engraving process begin immediately. Marking only the selected marker: only embedded in the view, select the tag. Automatic continuous engraving: Click, it will pop up automatically engraving of the time interval window, the following diagram:



Set up the parameters, engraving will start immediately, engraving is completed, wait for a set time, a new engraving process will start automatically.

Reset: Reset the engraving needle to machine origin.

三. File management



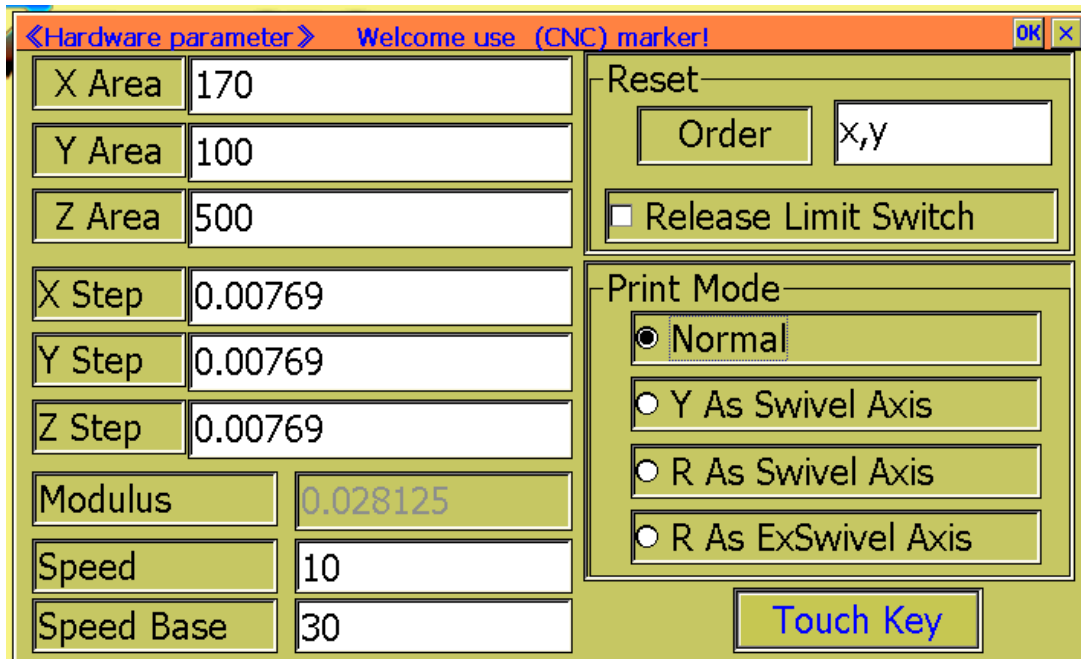
四. Software Installation

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五. Hardware Test



六. Preferences



Reset sequence: adjust the reset mode when the reset all axes by default is the X axis and Y-axis at the same time reduction, fill in the "xy", If you need to reset the Y-axis, and then reset the X-axis, should fill in "y, x", Similarly "x, y" on behalf of the first and then reset the X-axis Y-axis. If the Z-axis also need to reset, you can fill out the "xyz", in most cases, we should first reset the Z-axis, it should be filled in as "z, xy", meaning, reset when the first Z-axis, and then XY-axis at the same time reset.

Release limit switch: reset the origin after the release mechanical limit switch, it is recommended to use close to the origin reset switch engraving head to use this feature to its tick.

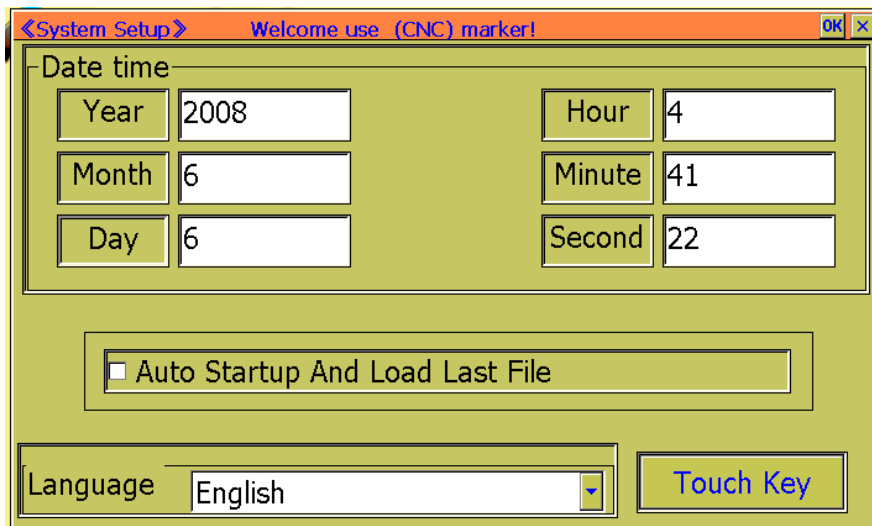
Z-axis as the movements: the first 3-axis Z-axis used as a lift shaft. At this point engraving control software in the Z-axis coordinates of all tags will be available

Z as a standard rotation axis: Z axis will be used as a two-axis rotation. Y-axis means the plane is invalid, Z-axis will serve as the axis of rotation instead of Y-axis together with the X-axis 2-axis rotary engraving.

Z as the extension axis of rotation: The Z-axis as the use of three-axis rotation. Intended for the Z-axis will complement the plane Y-axis, together with the X-axis 3 axis engraving. This mode, the tag will be a single word of the XY axis plane to carry out engraving, each engraving after the end of a word, Z-axis will rotate to the next location of a word, and then by plane to carry out engraving XY axis.

Rotation coefficient: the coefficient of rotation axis, calculation method refer to Appendix 2.

七. System Setup



Appendix 1. The date format for character encoding

%a: Day of the week abbreviation (English form)
%A: The full name of the week (English form)
%b: abbreviation for the month (English form)
%B: The full name of the month (English form)
%c: date and time (format: day / month / year hours: minutes: seconds)
%d: Day (01-31)
%H: time (24 hour clock 00-23)
%I: time (12 hour clock 01-12)
%j: the first days of the year (001-366)
%m: month (01-12)
%M: points (00-59)
%p: 12 hour clock in the morning or afternoon (AM / PM)
%S: second (00-59)
%U: The first weeks of the year (Sunday as the beginning of the week 00-53)
%w: day of the week (Sunday to "0" 0-6)
%W: The first weeks of the year (Monday as the beginning of the week 00-53)
%x: Date (format: day / month / year)
%X: Time (format: hours: minutes: seconds)
%y: year (short-form 00-99)
%Y: year (four full format)
%%: A percent sign

Appendix 2. The hardware parameters of the formula

Step length = motor gear diameter $\times \pi \div 360 \times \div$ drive motor-step breakdown of the number of terms

In most cases, we use most of the motor gear diameter of 14.23, the electrical step angle of 1.8, the drive segment number 32, when the calculation steps are as follows:

$$\begin{aligned} \text{Step} &= 14.23 \times 3.14159265359 \div 360 \times 1.8 \div 32 \\ &= 0.006985134915716515625 \\ &\approx 0.0069851349 \quad (\text{10 can be retained after the decimal point}) \end{aligned}$$

Step angle of motor rotation factor = $\div \div$ reduction ratio drive segment

In most cases, we use the motor step angle 1.8, rotating body reduction ratio of five times the number of the drive segments 32, when rotated coefficients are as follows:

$$\begin{aligned} \text{Rotation coefficient} &= 1.8 \div 6.25 \div 32 \\ &= 0.0009 \end{aligned}$$

The distance between pin tip and your tube surface need to be in range 4~5mm, you could adjust the bracket to right distance for your product surface when you mark big tube diameter over 80mm (3.15 inch)