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# **6040 mini Numerical Control Carving Machine manual -DSP version**

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## Part 1 Assembling

Tools and spare parts needed during assembly:

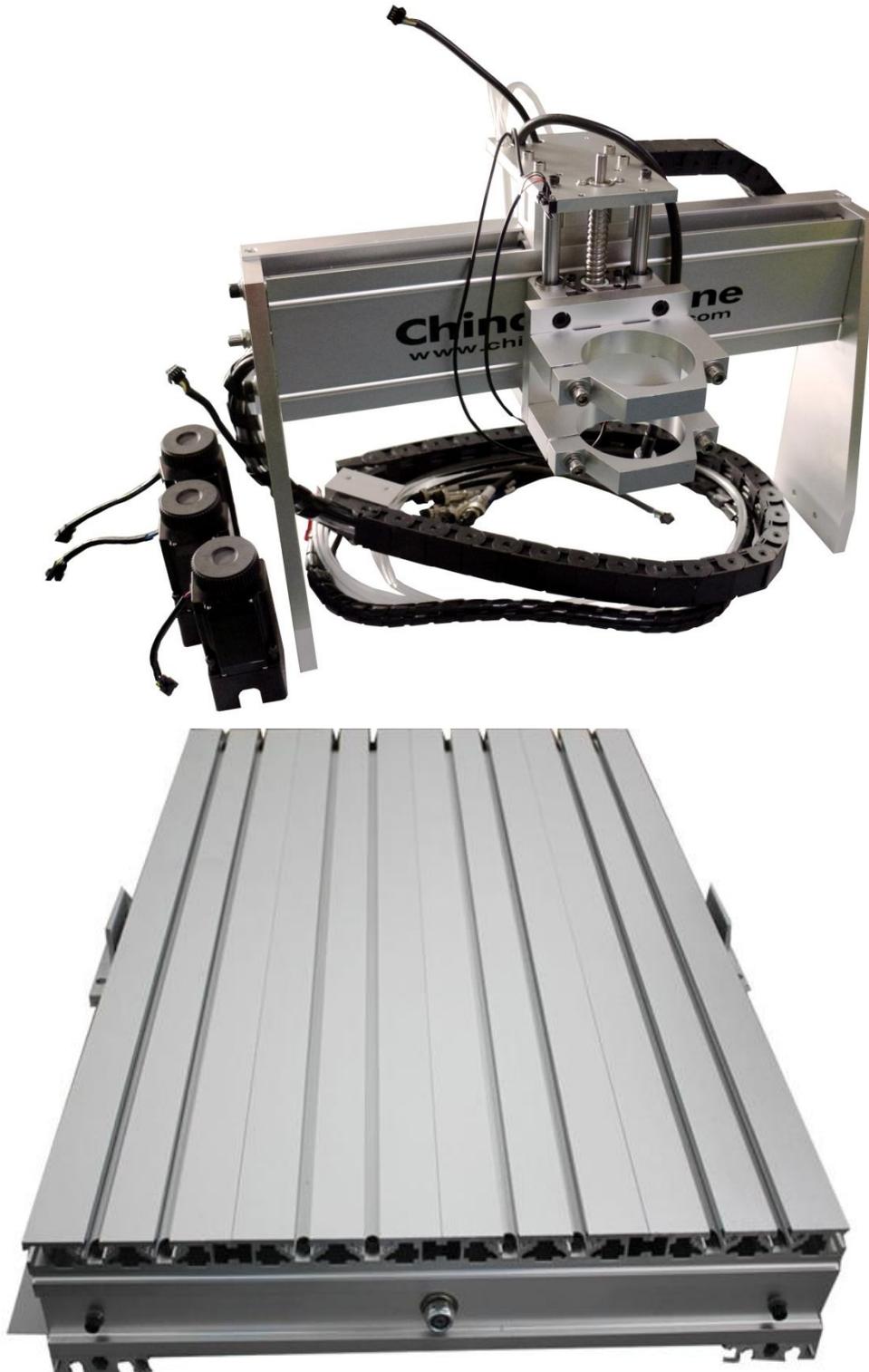


1. Waterpump \*1
2. Spanner\*2
3. USB cable \*1
4. Millingbit \*2, engraving bit \*3
5. Clamp tool \*6
6. Power cable \*1
7. Stepper motors \*3
8. Spindle \*1

1. Open two cartons you received. The square box included the control box, accessories, the 4<sup>th</sup> axis and the upper gantry of the machine. The other box is bottom base of the machine.



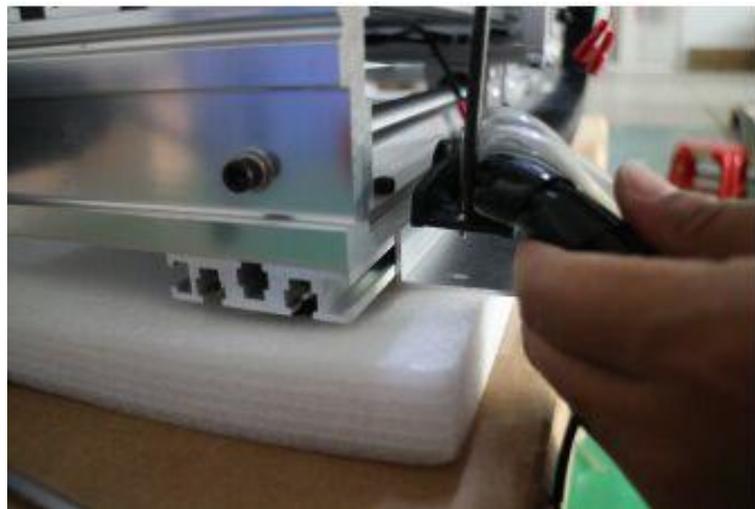
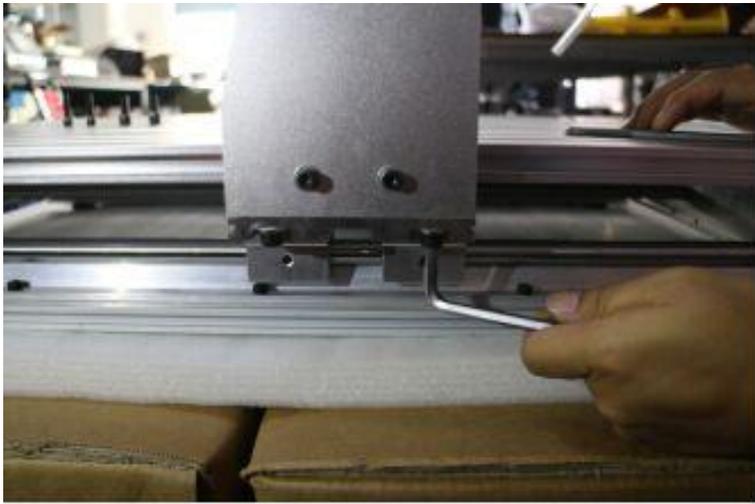
2. Then take out upper gantry of machine , Meanwhile take out bottom base of the machine.



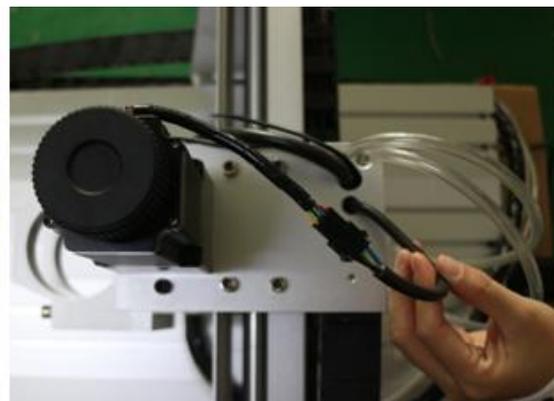
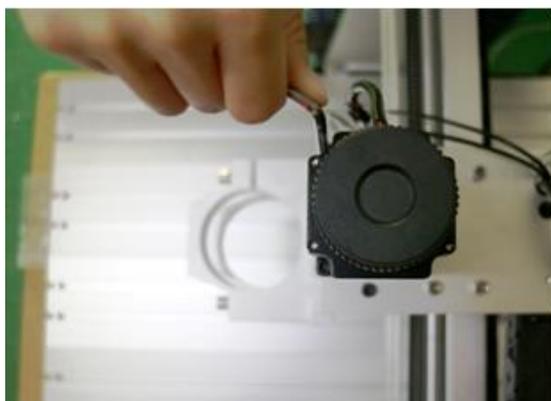
3. Put upper gantry on bottom base, tight screws one by one as below.

Following fixed the belt in one side of machine. At last the two red lines

are for limited switches. connect the red lines with the purple lines under the working table.



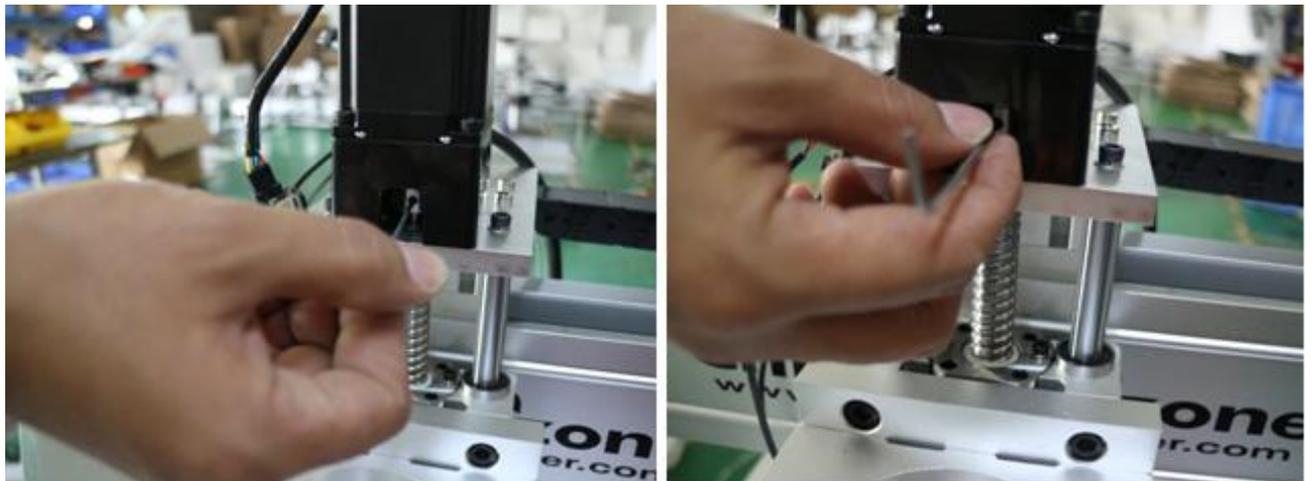
4. Install the step motors. 3 step motors are same for X Y Z Axis. At first, Put step motor to corresponding Axis. Tight the four screws and make sure tighten. Connected that corresponding cable.



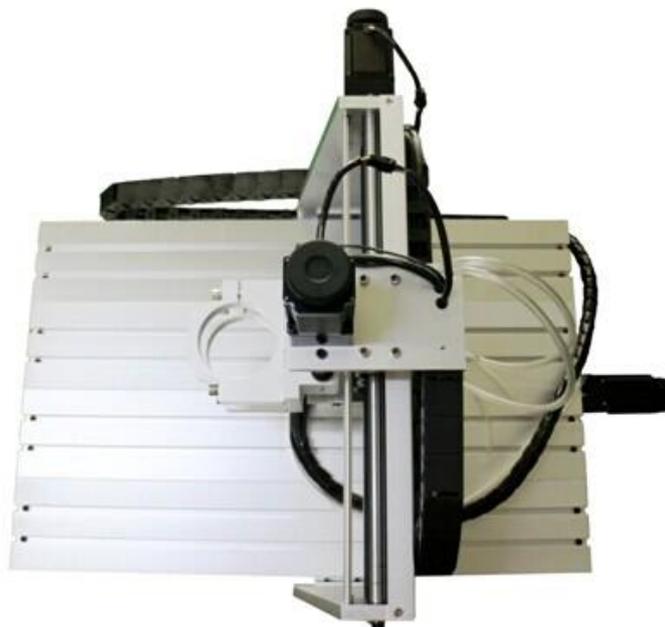
Second, You can try to found the screw position before installation.



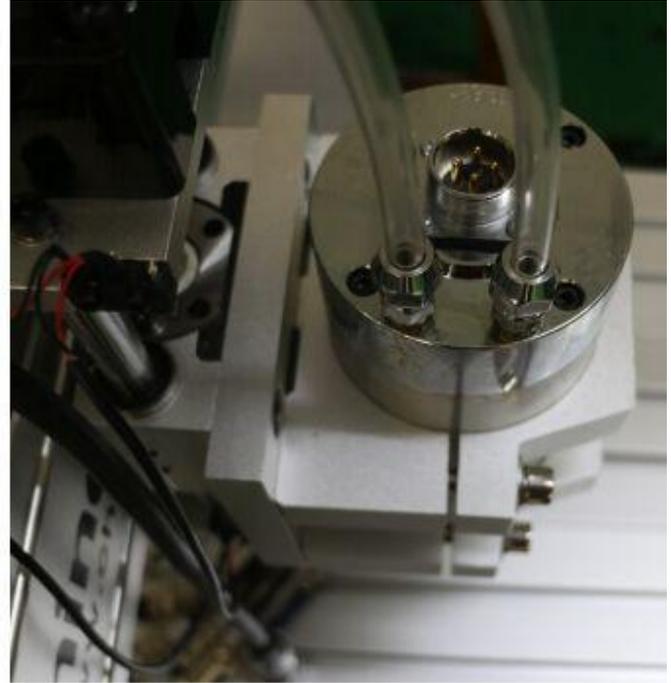
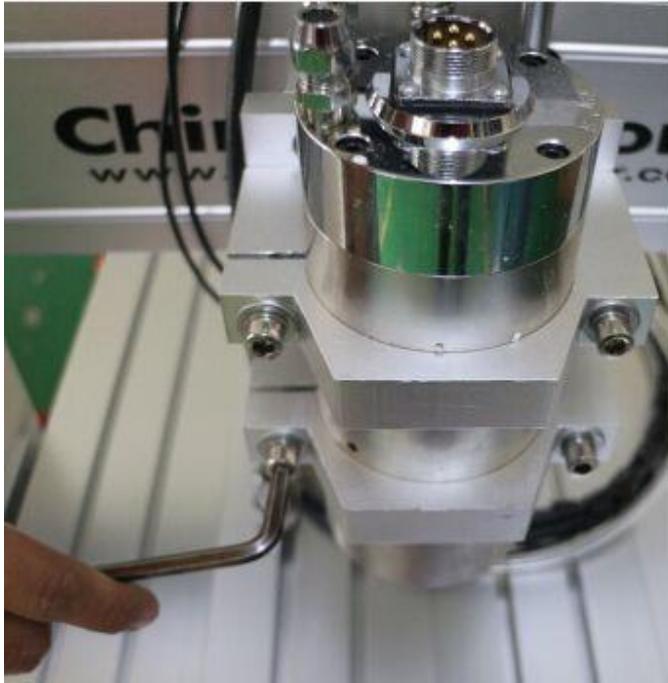
Third, tight the screw of coupling, make sure ball screw and couple good contact.



At last ,The step motors installation finished .



5. Install spindle. First put spindle in spindle clamping, and then tight screws one by one as the first picture show. Second, put the water pipes to the top of the spindle and tight the screws. Then the spindle is assembled.



6. Controller box connection. Connect all lines from machine fram to controller box one by one, According to corresponding marks ,The installation of the machine is finished.





7. Last step , Water pump connection. Connect pipes between water pump and spindle. And also connect power cable to controller box according to marks.



**Attention:** The water pump can not put into the water, it's very dangerous. Just keep water pump outside of tank. If the water pump is wet, cut off the electricity and dry it.

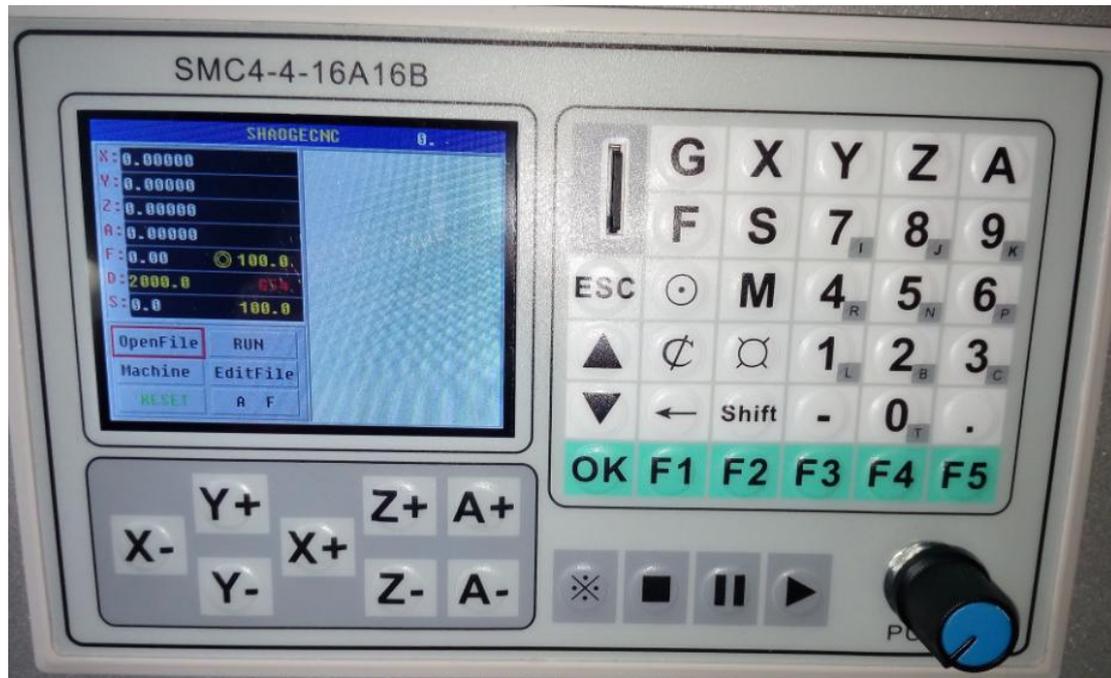
## Part 2 DSP system using and setting



### 1 Start controller box

After connected all cables , Switch on power , Then knob emergency button(if emergency button pressed), The screen start to work.

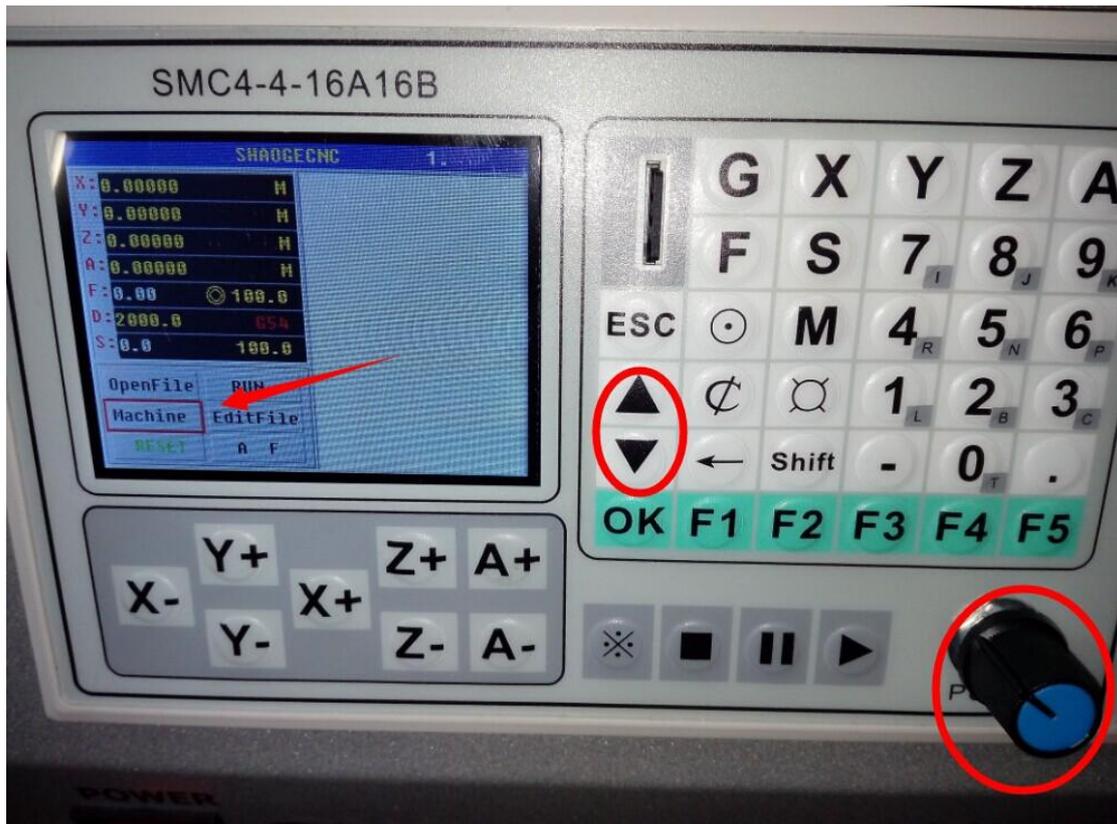
## 2 Startup picture



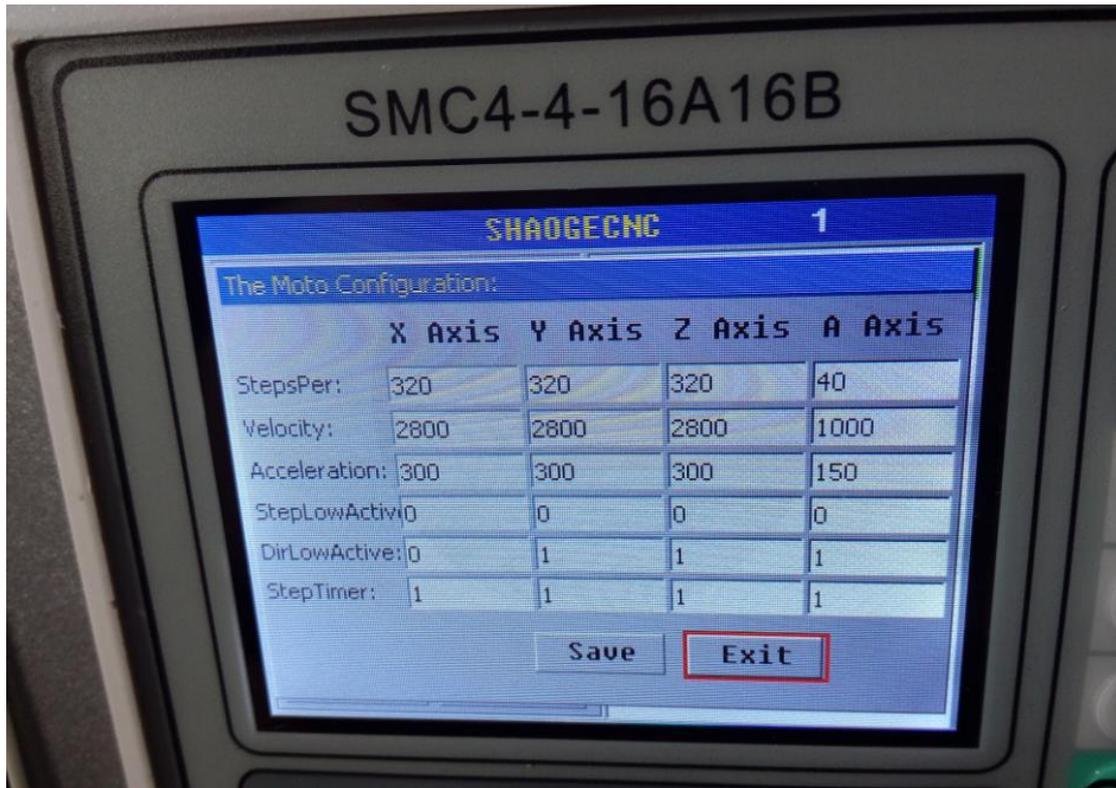
The DSP system has high quality requirement for TF card , Did not use cheap and low fake TF card . Suggest use such as Kingston , Sandisk , Samsung and so on famous brand TF card. Then The DSP system only can recognize 50 pcs different G code.

## 3 Motobasic setting

Using Push Knob or ▲ key and ▼ key, move red cursor in LCD display to select Machine setting ,press **ok**.

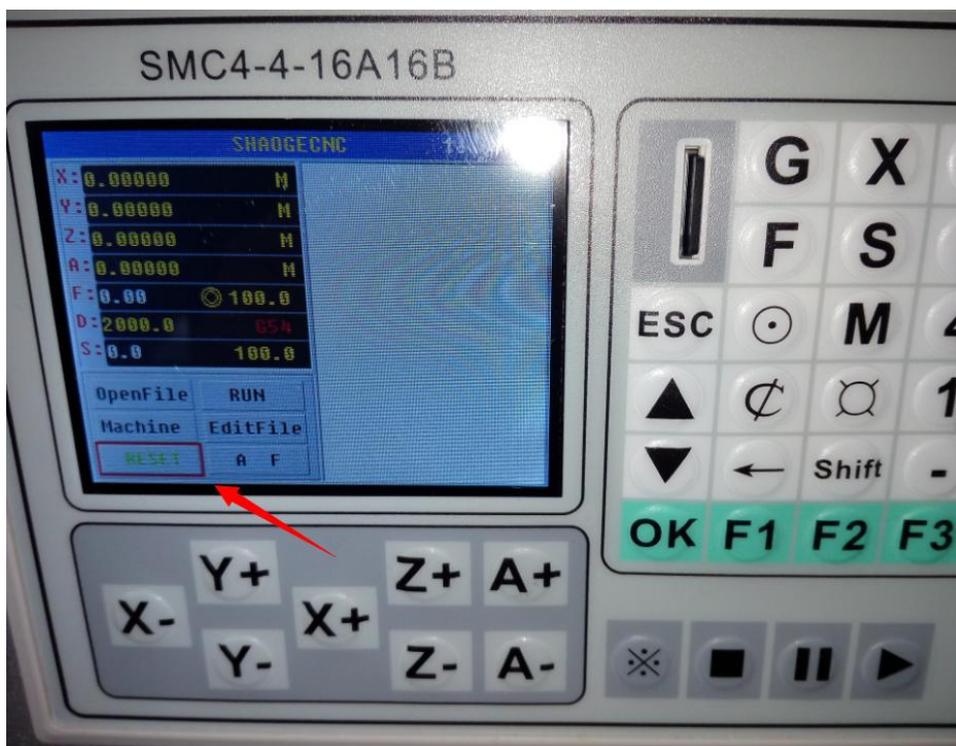


Check setting as below:



#### 4. RESET key

Moving red cursor to RESET key, press the OK key or PUSH key to keep reset button green, instead of red color, as below picture.



## 5. Switch

**PUMP** power on, **VFD** power on, the **RUN** key lighted, as below picture show.



## 6. TF Card

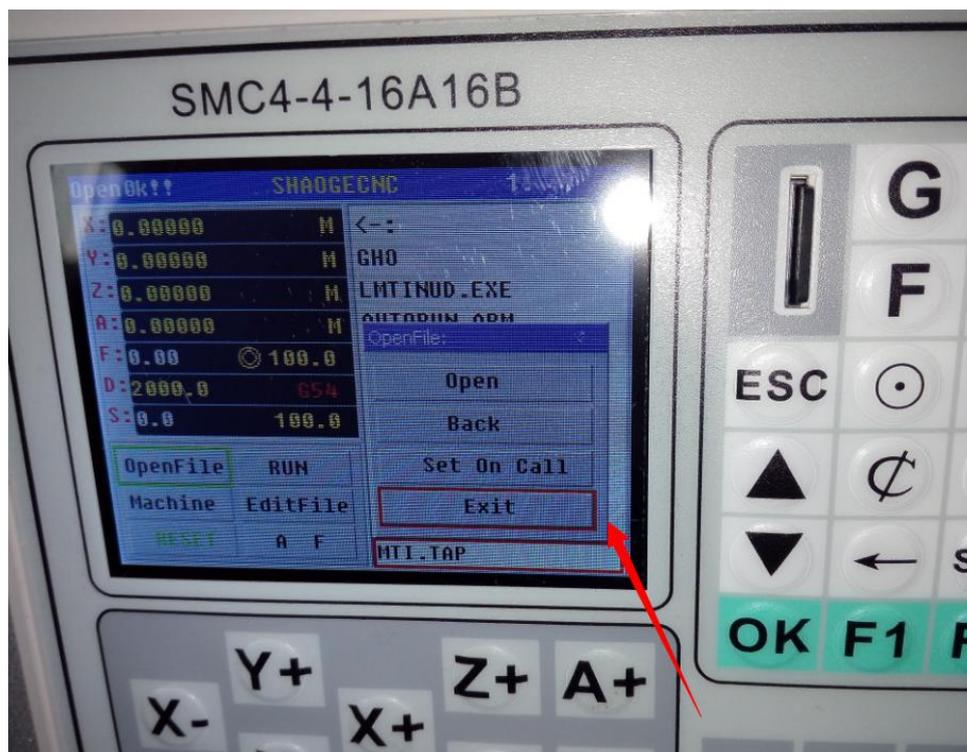
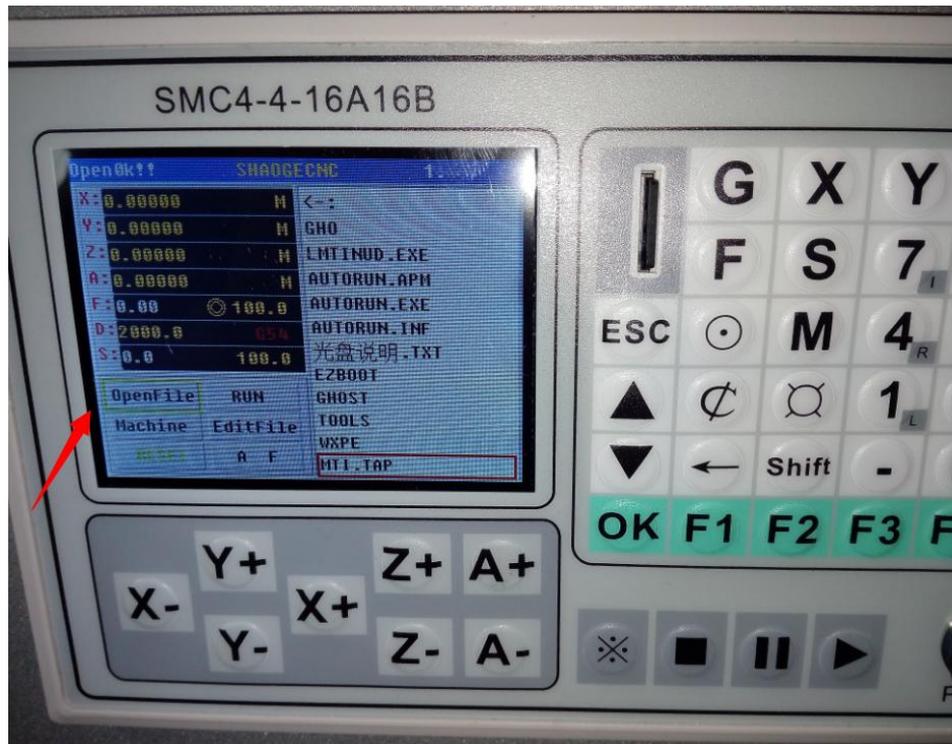
Plug in the TF storage card which has stored your G-CODE already. As below picture. Noted again: Bad TF can not recognized by machine. please use original brand TF card .



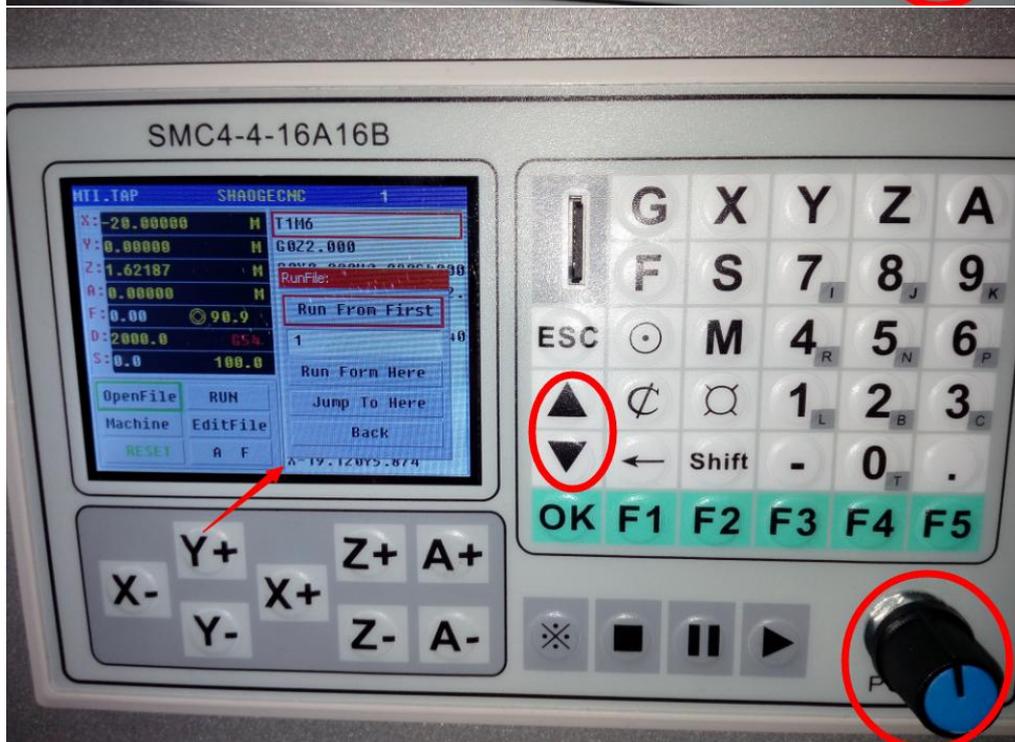
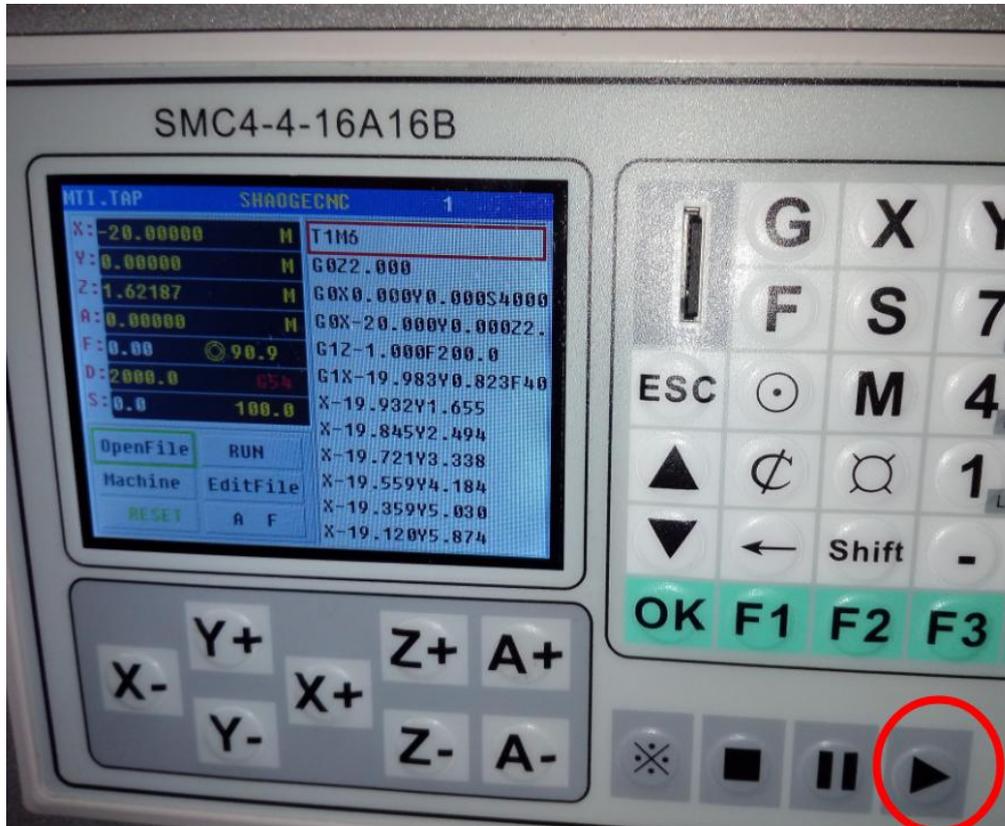
## 7. G code file open ,select and quit

Using Open file function and Press ok to select G code file.

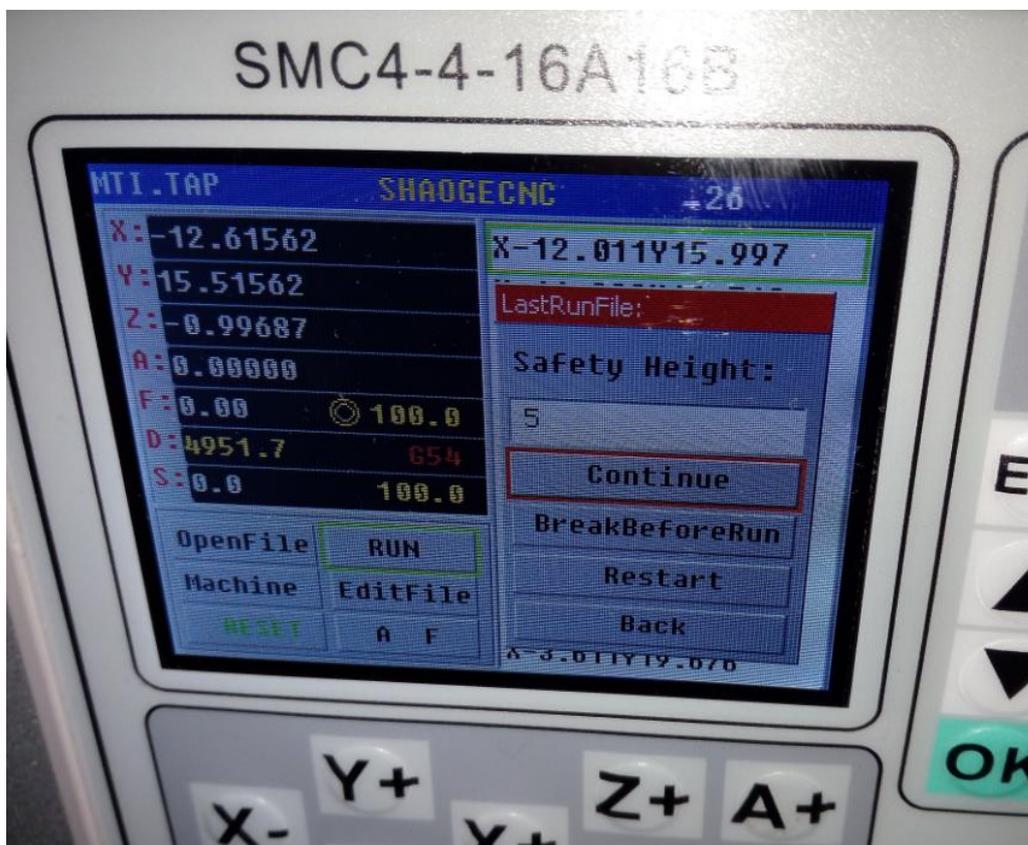
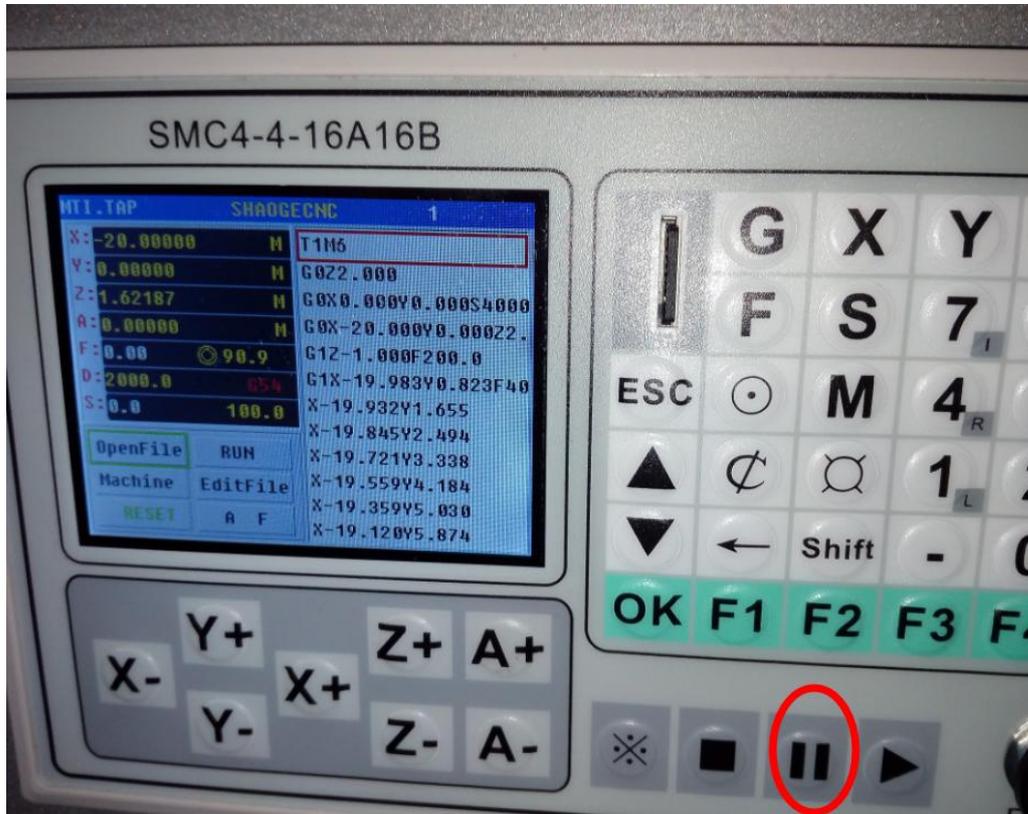
**Noted:** In this interface , you can not directly quit ,should press ok firstly ,and select to quit.



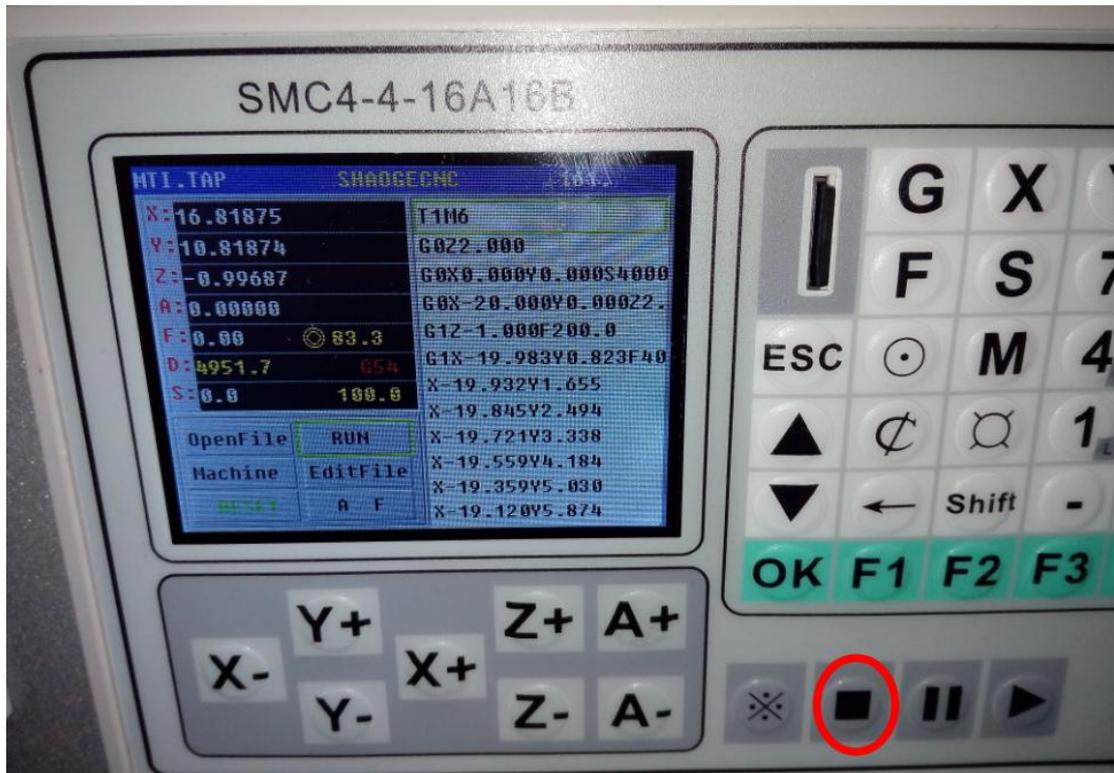
After open G code file, Press ► to start machine work , If do not want to start from first line, press **ok** or **push** button , can select which line you want to start.



if need to change cutting tool or other something **Pause** machine, The machine is easy to restart to work in same point.



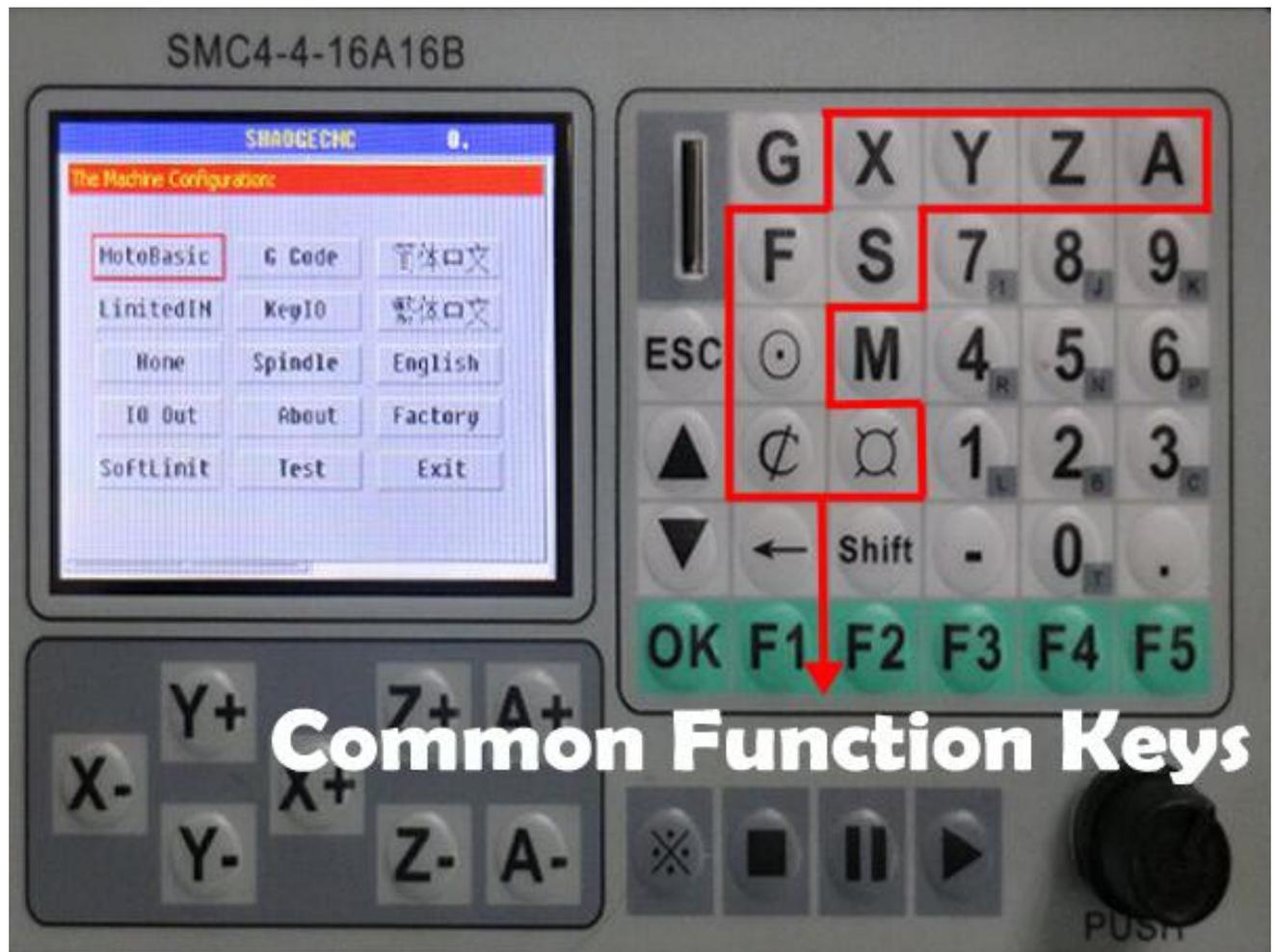
Using below square button to end work



Then using **Push Knob** or ▲ key and ▼ key, to quit file and do other work.

## Part 3 Common Function keys , Start position and auto checking setting.

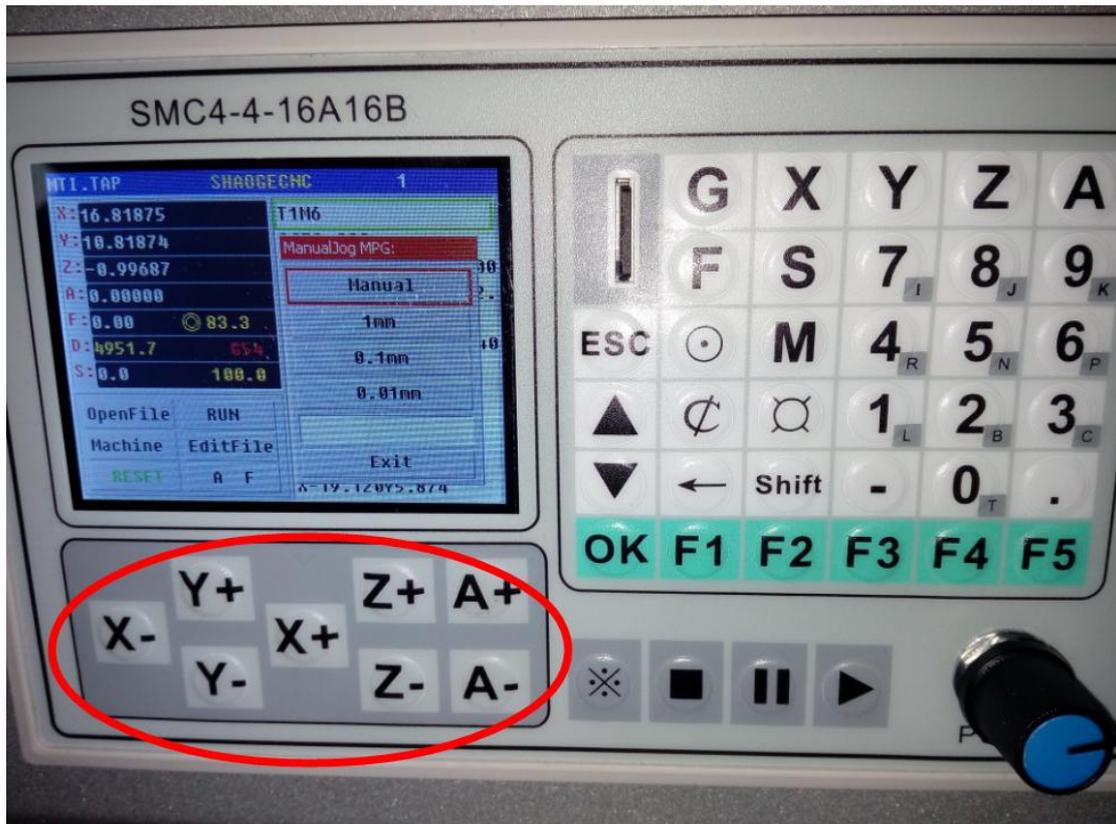
### 1 Common Function keys introduction



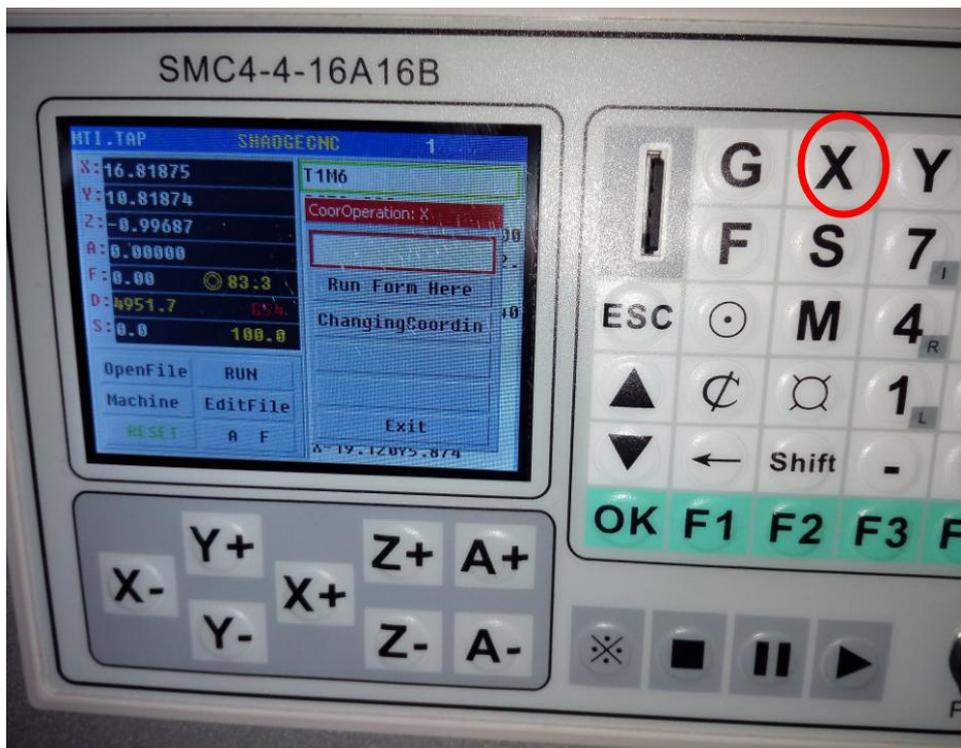
G button, M button , Shift button, F1,2,3,4,5 is not available , The function to be developed. Meanwhile , The LimitIn , IO out, KeyIO no need to set and do not modify them . The Home and softlimit to be developed .

Panel button  $\text{⊗}$  is Manual Point Moving, This button can adjust distance of each Axis moving when you press X-, X+, Y- , Y+, Z+, Z- ,

A+,A-

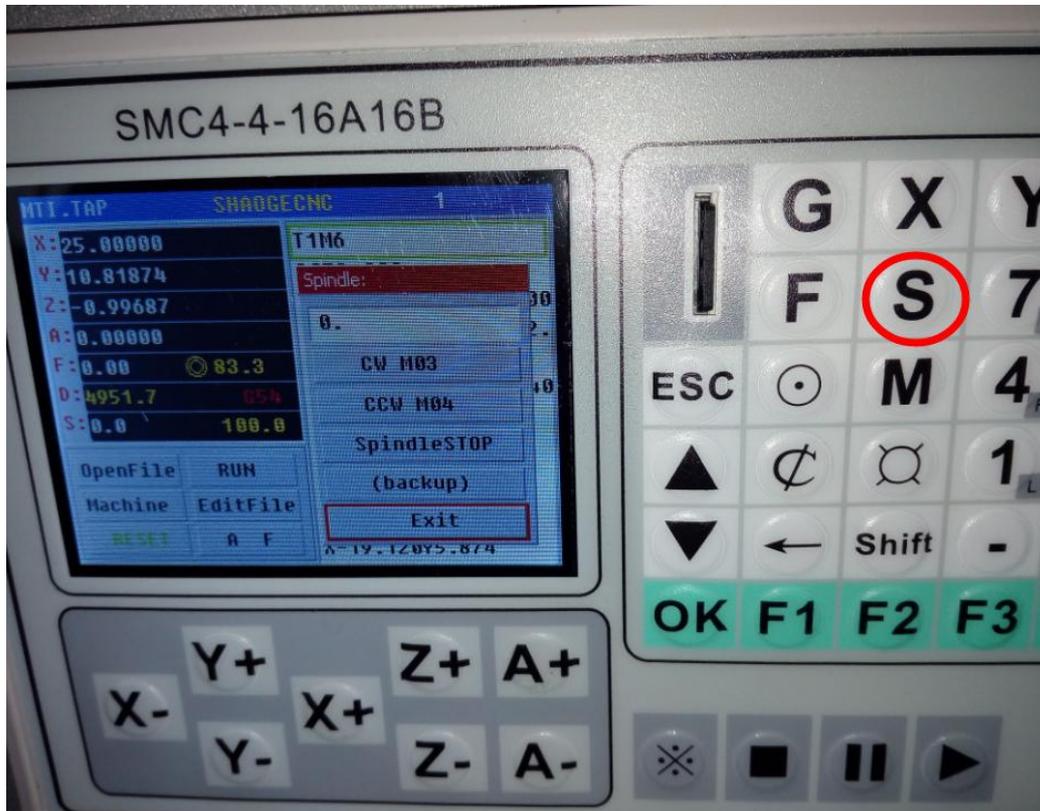


Panel button X Y Z A is Coordinate Operation Directly, easy to fill what position you want. 4 kinds of Axis are same.

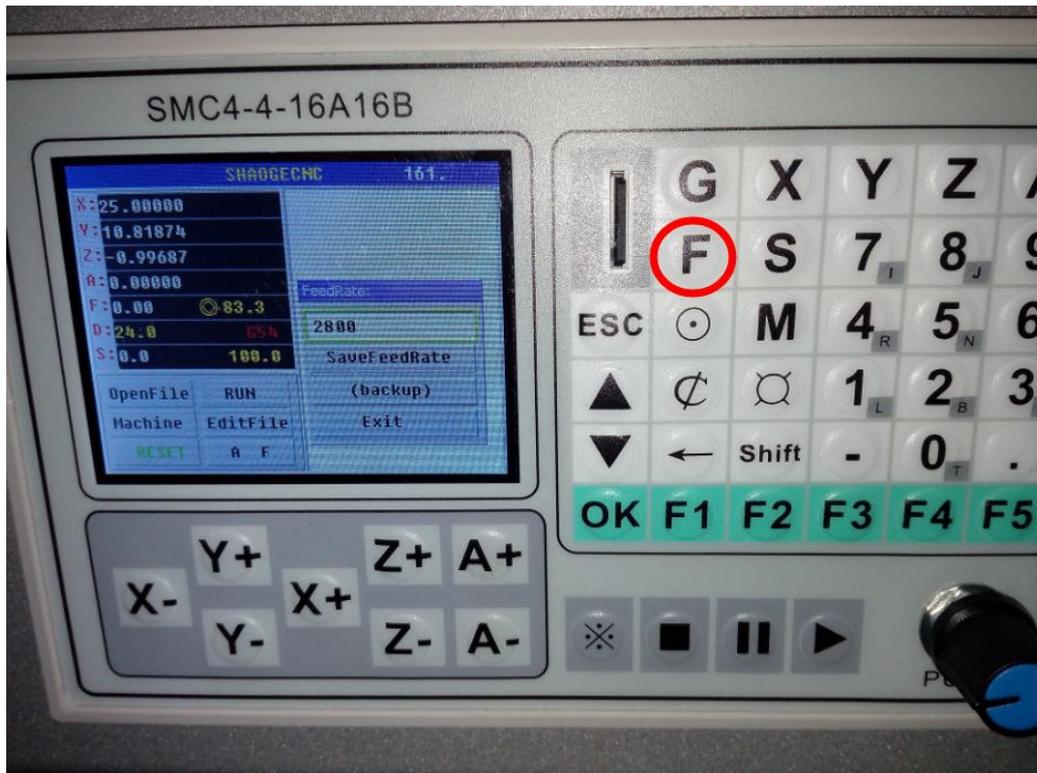


Panel button **S** is Spindle Operation, No need to set clockwise rotation ,anticlockwise rotation in DSP control ,can set in VFD control.

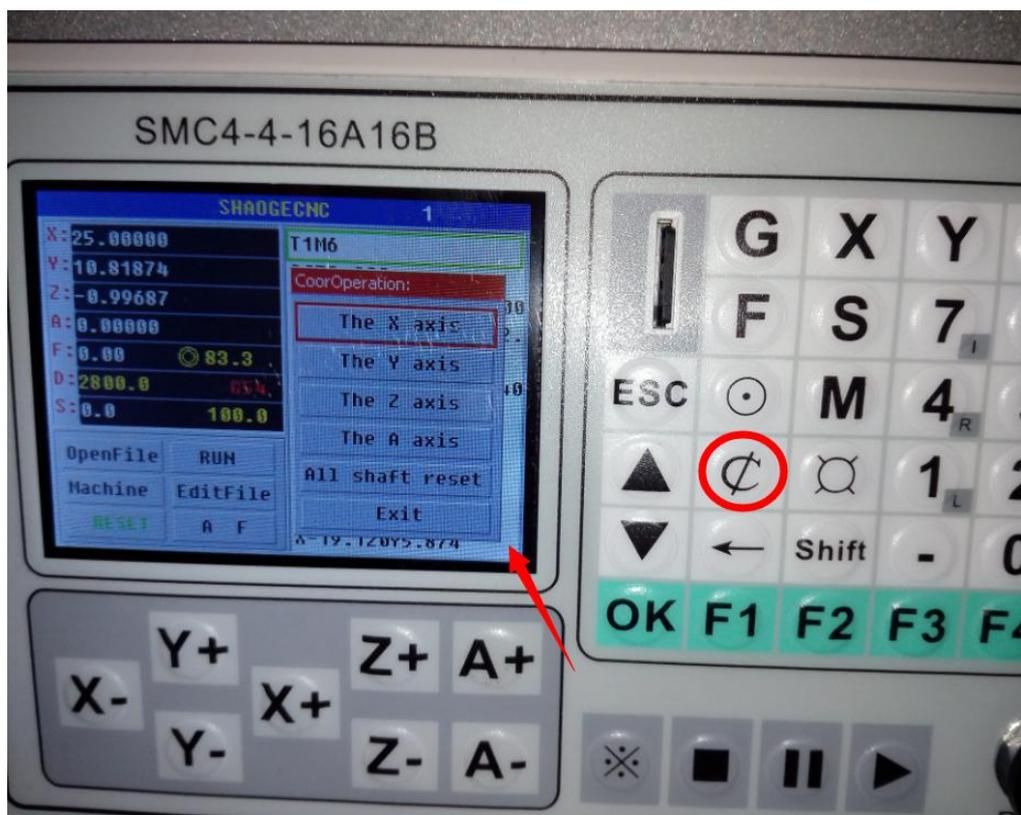
Press Run and Dir button to set.



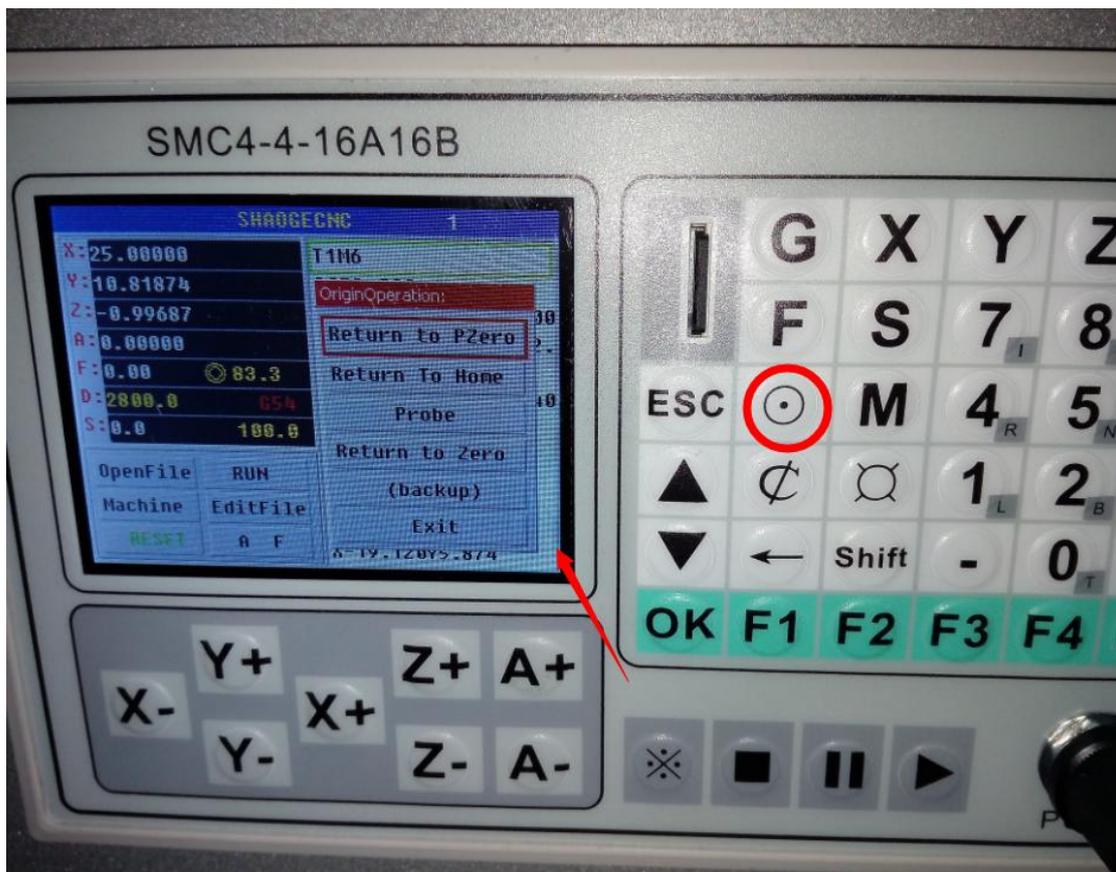
Panel button **F** is Manual Feed Speed Adjustment, maximum feed speed is 4000mm/min ( no-load working), Maximum engraving speed is 3000mm/min, cutting speed depend on material ,Generally, not over 500mm/min



Panel button  $\varnothing$  is used to cleaning each Axis coordinate .



Panel button  is Origin Point Setting,

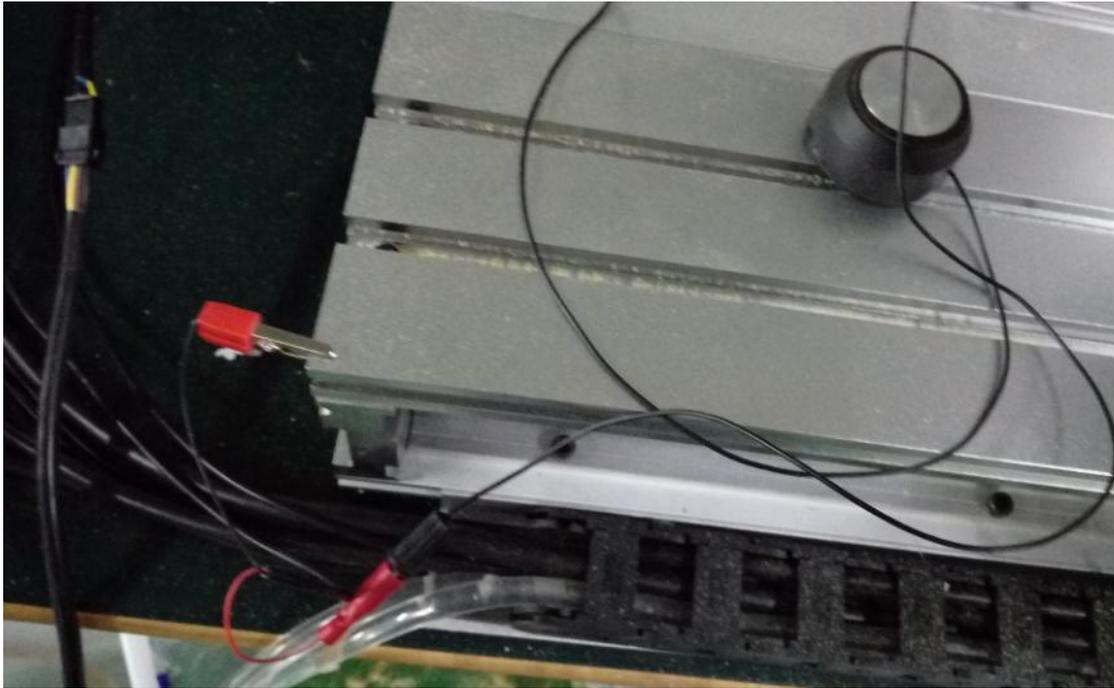


## 2 Start position setting

The start position setting is a important preparation before start work .

Firstly , confirm probe connection is correct .

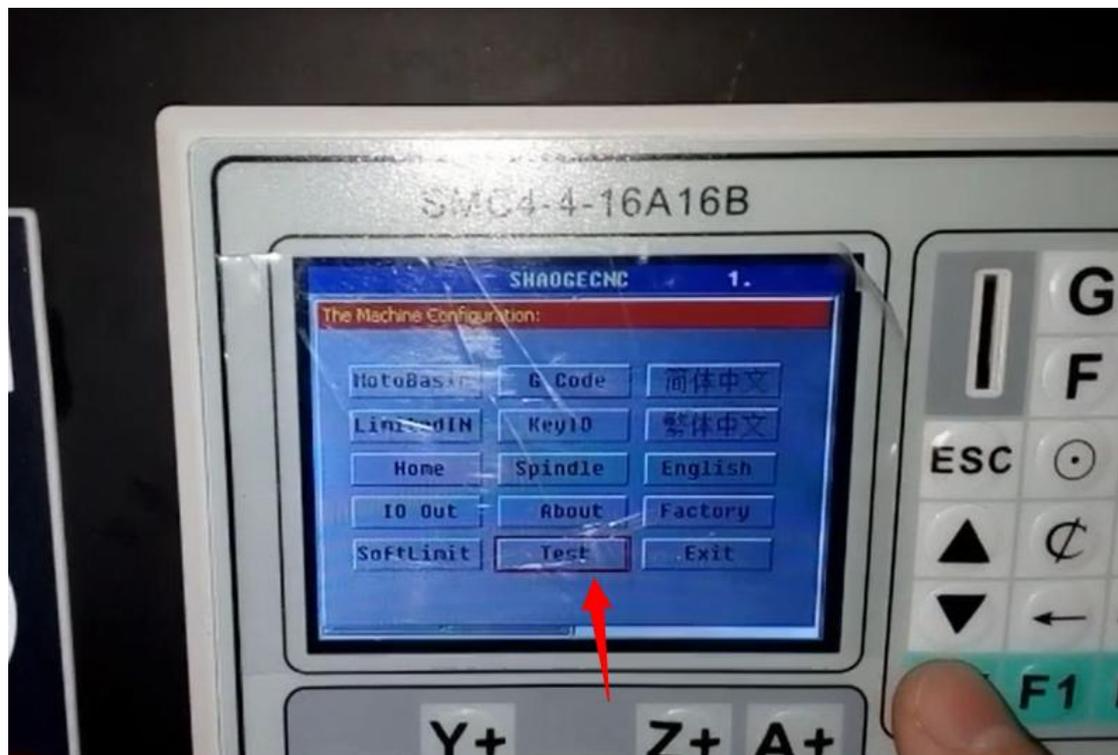




Secondly, To confirm actual height of probe ,Generally ,It is 26mm. The offset is actual height +0.5mm. For example ,The actual height is 26mm ,The offset is  $26+0.5=26.5\text{mm}$ .

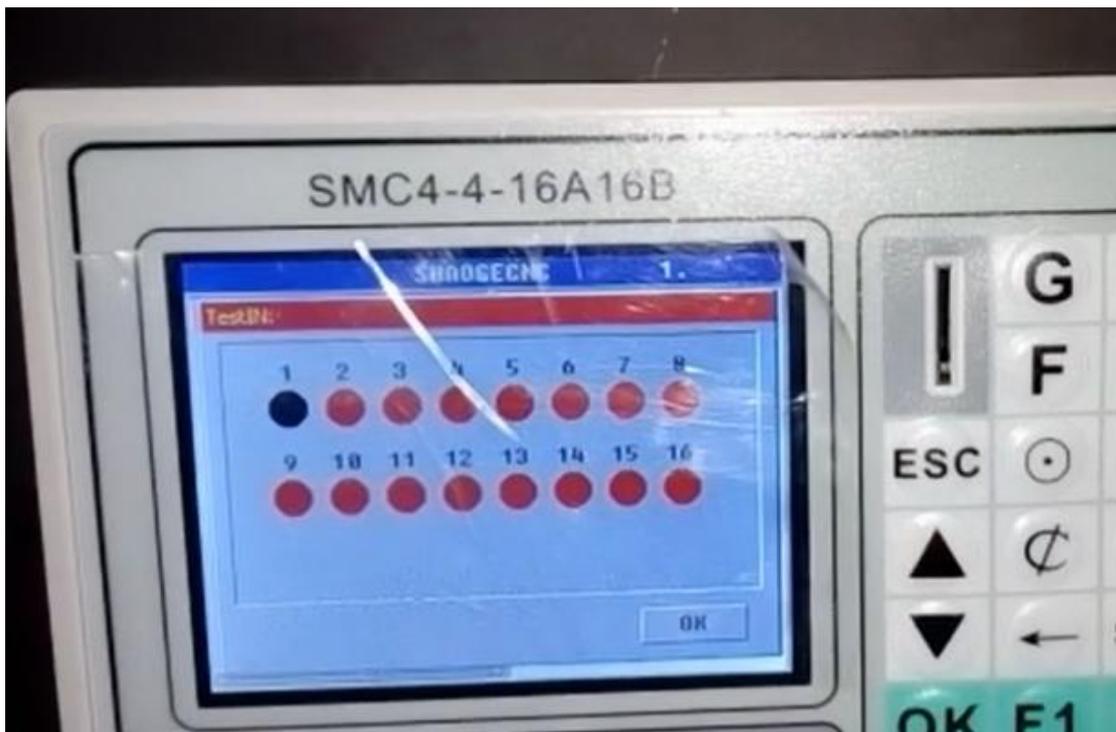


Entry into machine setting ,test the probe whether is correct connection



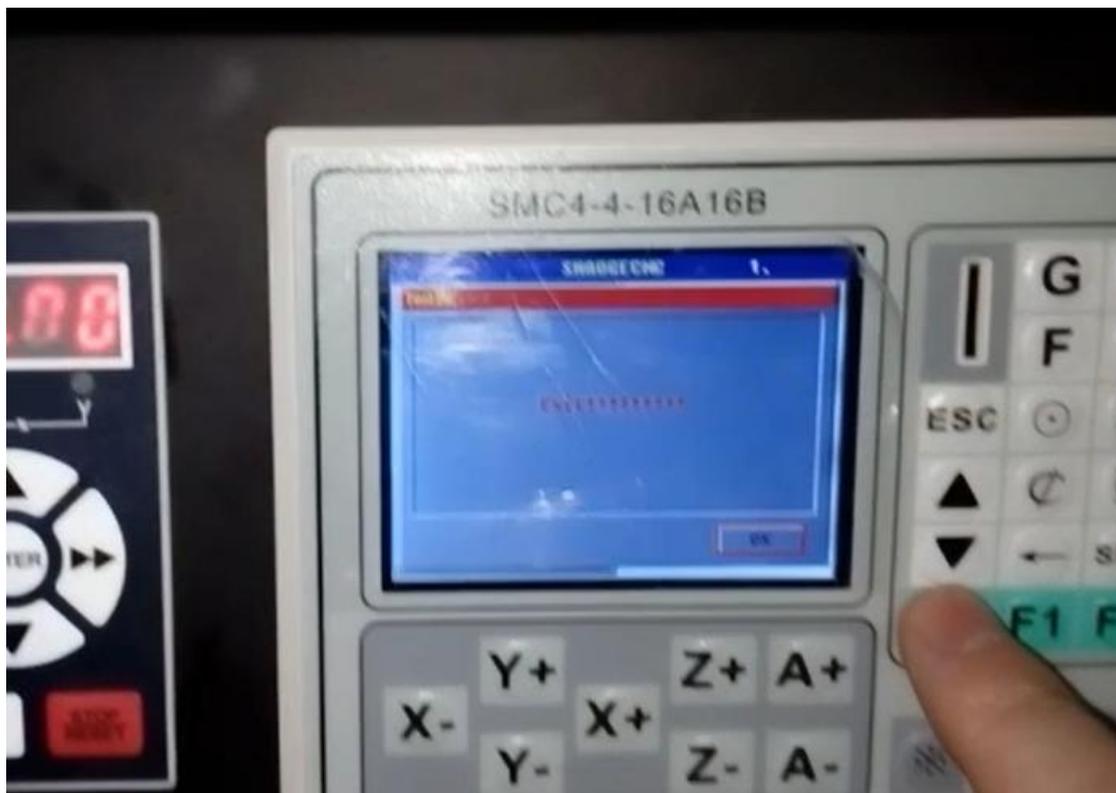


Then using probe to touch engraving bits ,The first cycle will get black ,The test is finished.

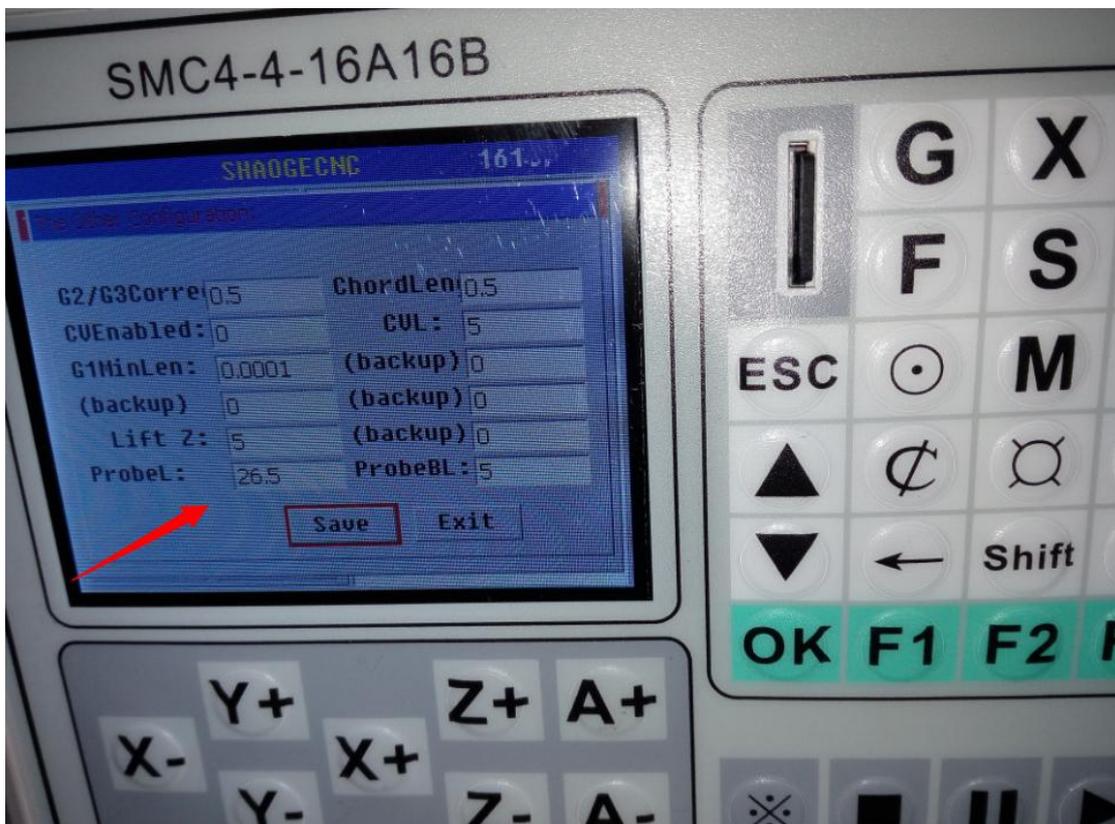




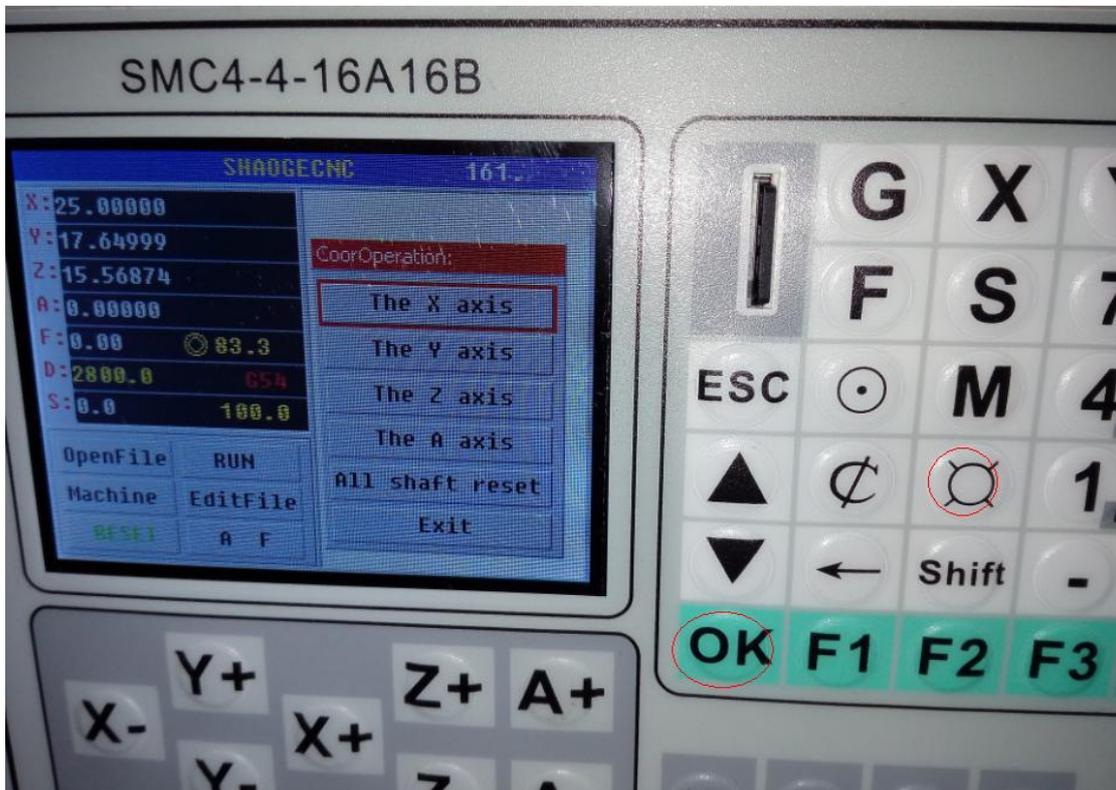
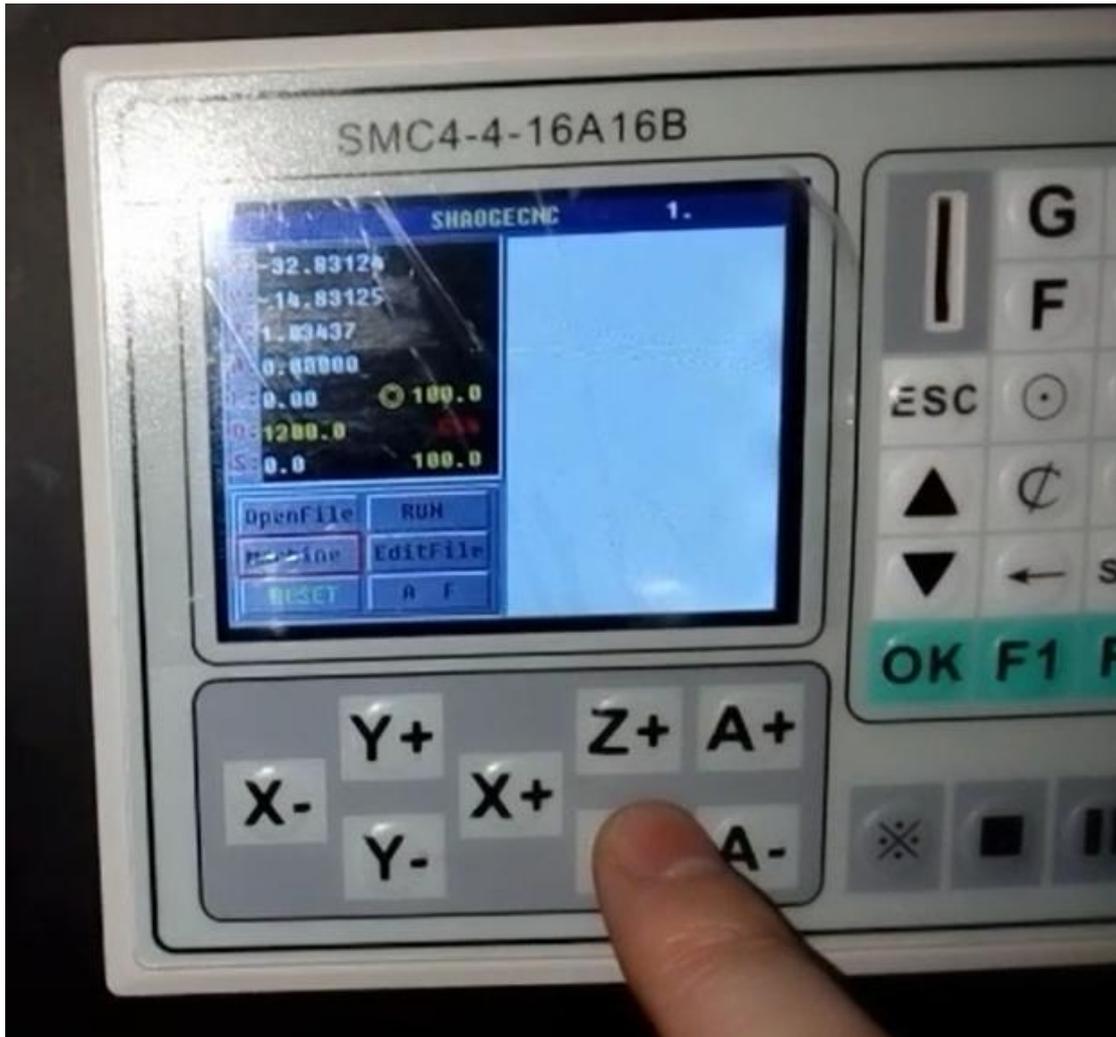
Press ok to quit test interface.

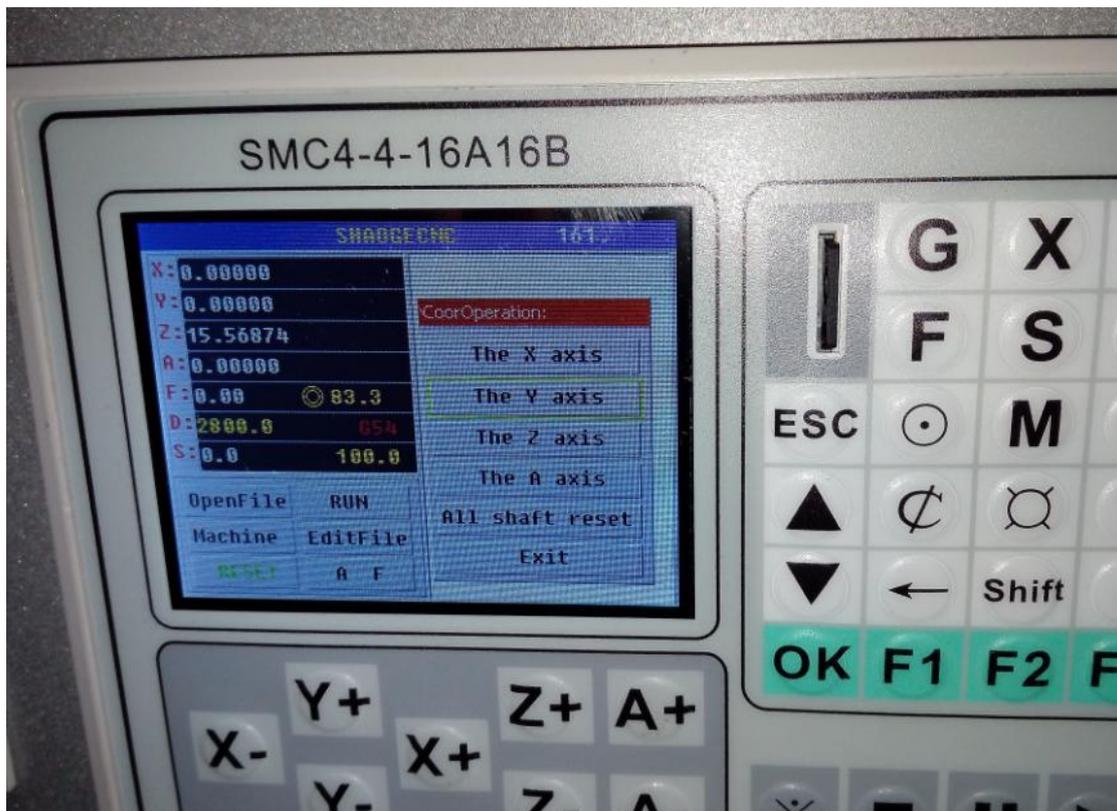
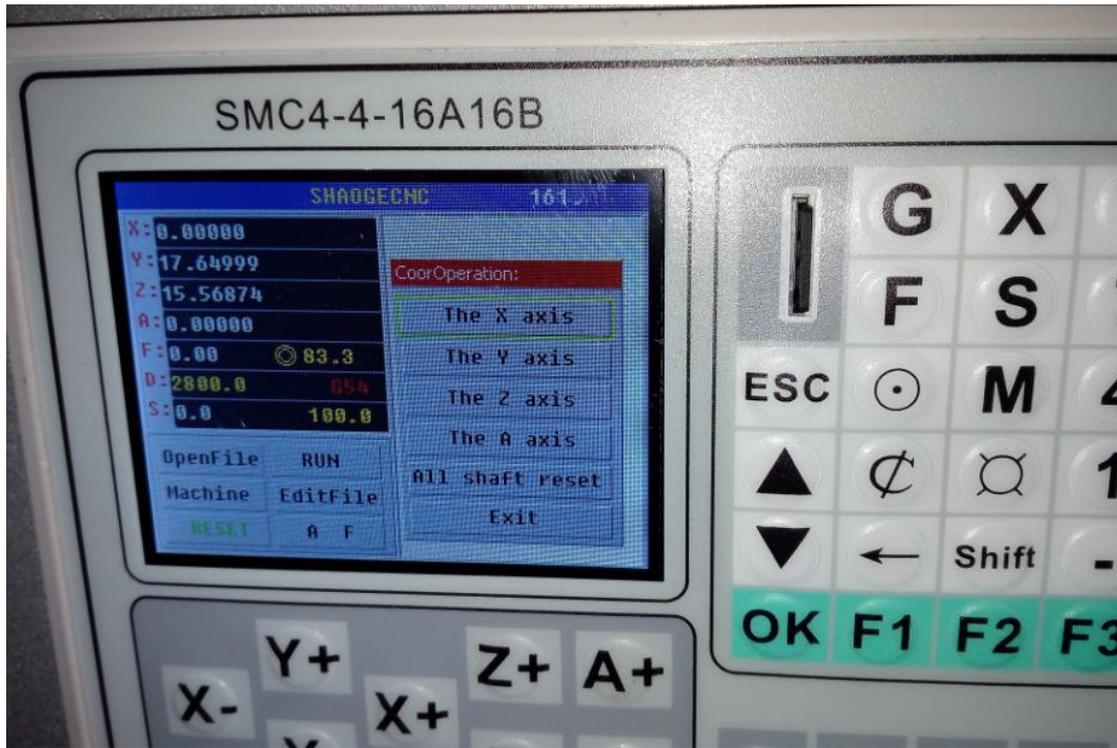


Select G code setting ,and filled with offset numbers in probe blank.



Moving the spindle to the position where you want , Then cleaning X and Y Axis

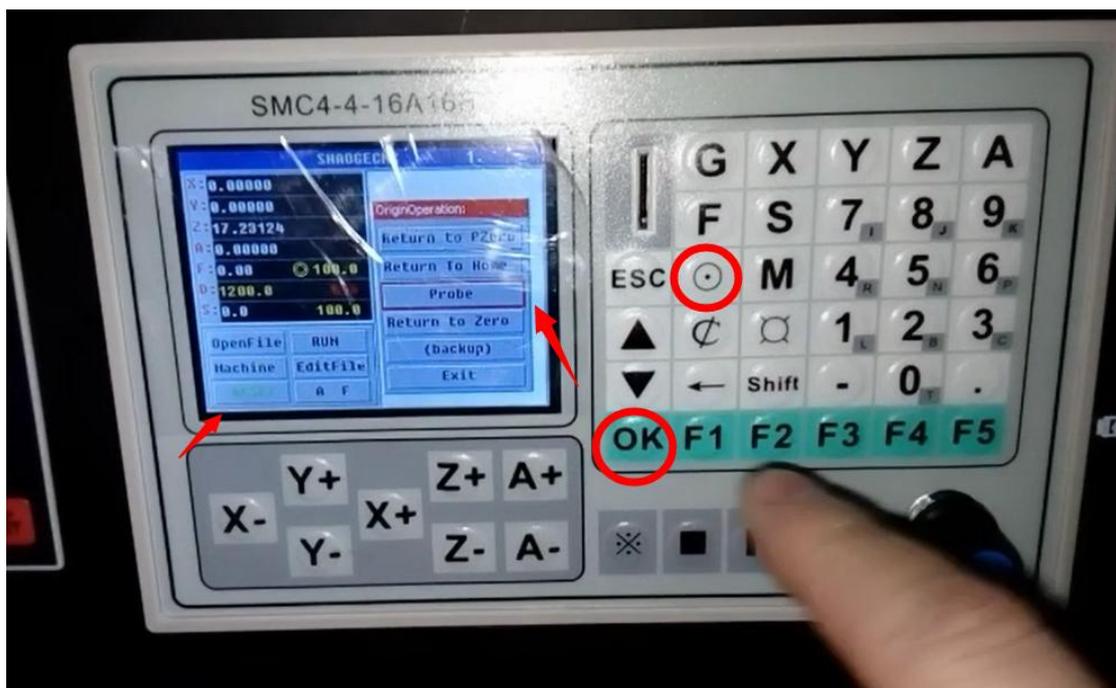




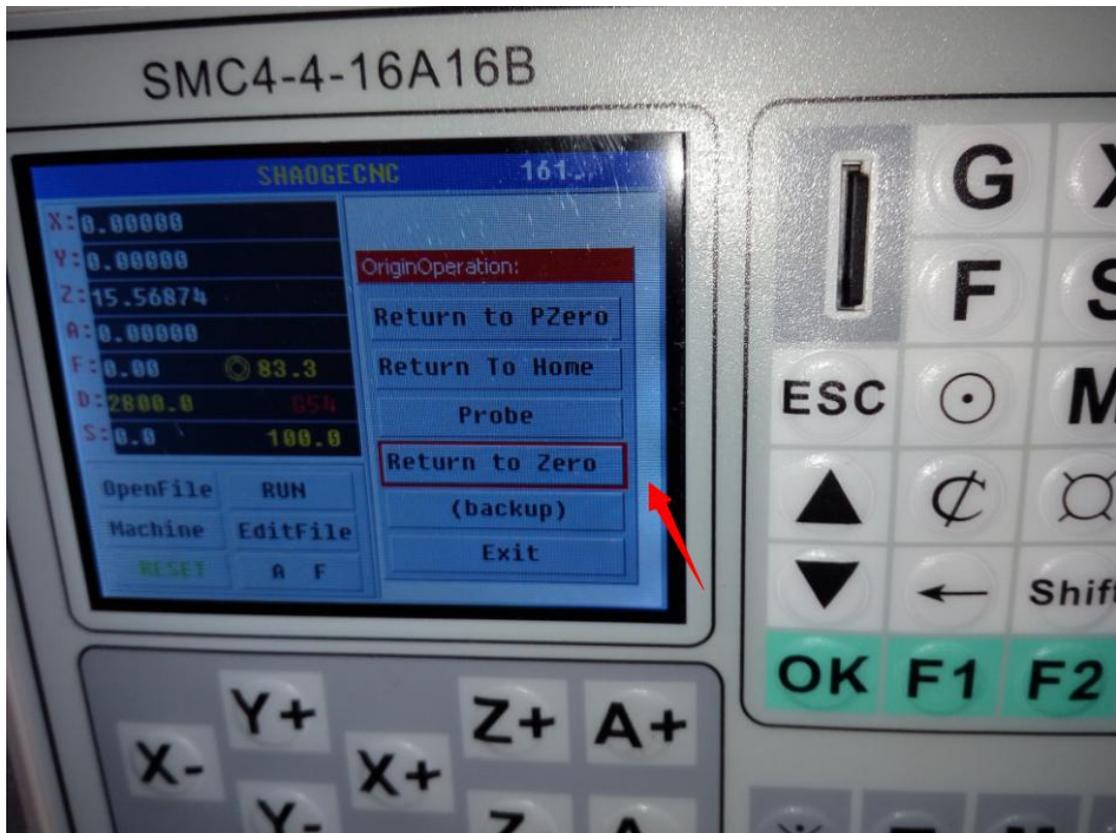
Put probe under spindle again



Using  $\odot$  to select probe and press **ok** (reset button must keep green) ,  
cleaning Z Axis



Then ,The engraving bits will touch probe ,and bounce back , take probe away ,Press **ok** to return to Zero ,The Z Axis will move to start point.

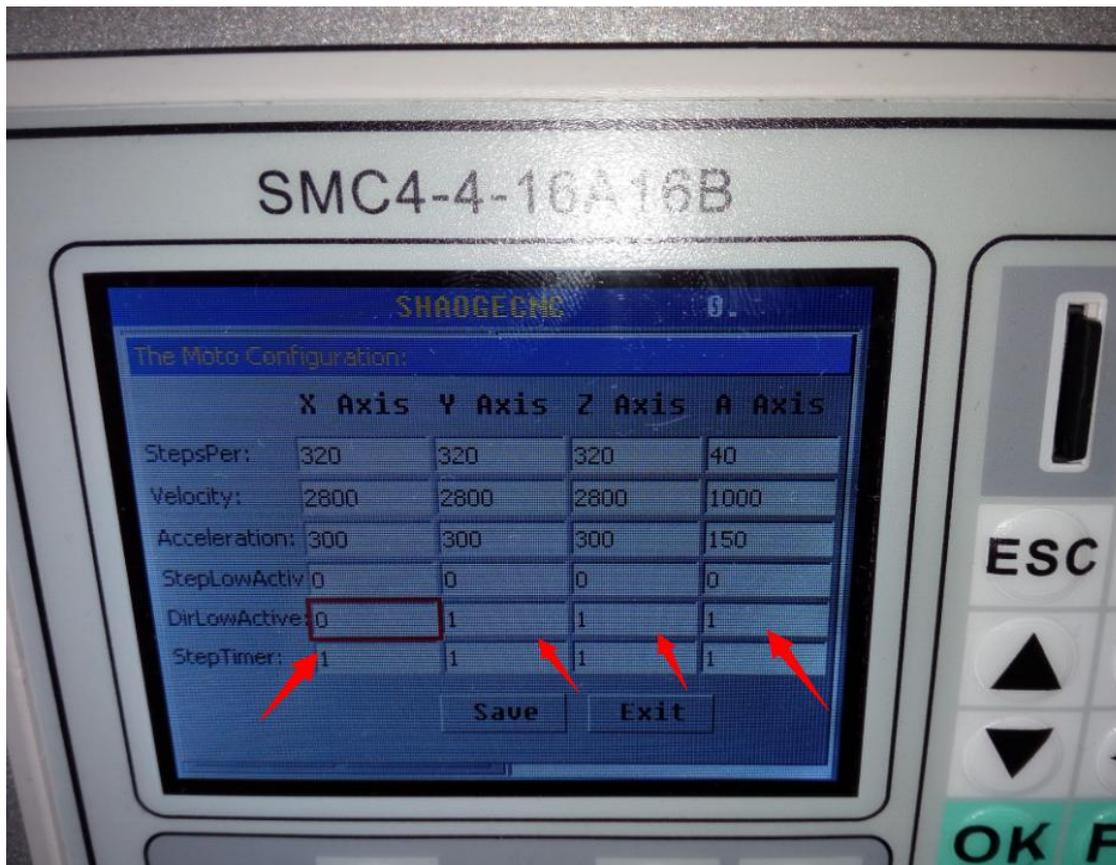


## Part 4 FAQ

### 1.The Axis moving direction is wrong

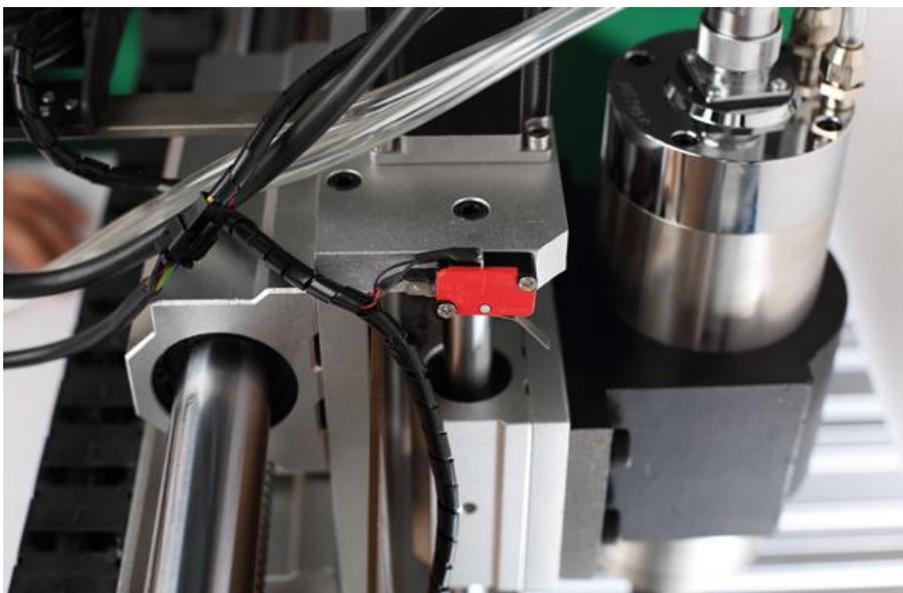
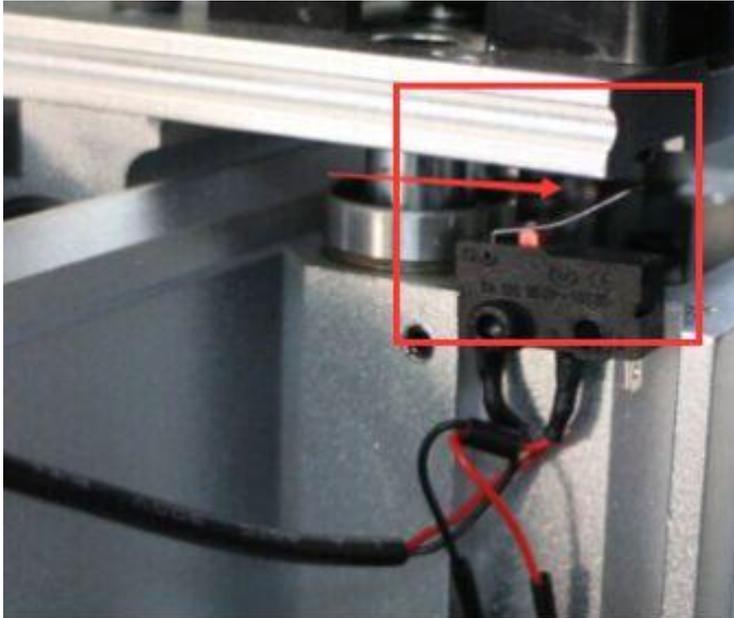
Which Axis goes wrong direction , you change that Axis below Dirlow active setting , If display 0 , you can change to 1, If display 1 ,you can change to 0.





## 2. Manual reset limit switch

All X Y Z has 2 limited switch . Once the Axis touch below limit switch ,Machine will stop work ,and reset button will get red in controller box . Then Manually Moving axis away from limit switch(switch off machine, easy to move) , press reset to make sure to get green at last restart machine to work .



### 3 G2/G3 error

Once controller box display G2/G3 error , it means The below precision too small , need to change to 0.05

