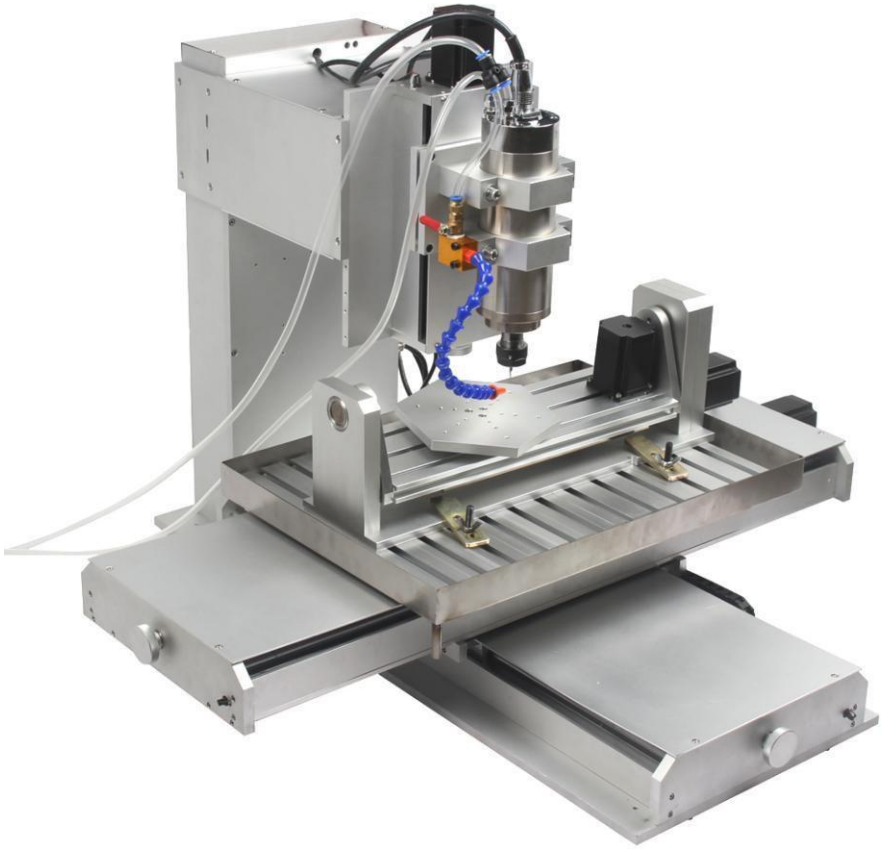
ChinaCNCzone

HY6040 5Axis USB Mach3 router machine Manual

[Note: The parts mentioned below USB handwheel, Dial Gauge, Detector Edge Finder are choosen to buy, if you need these please mention it to the sales people.]



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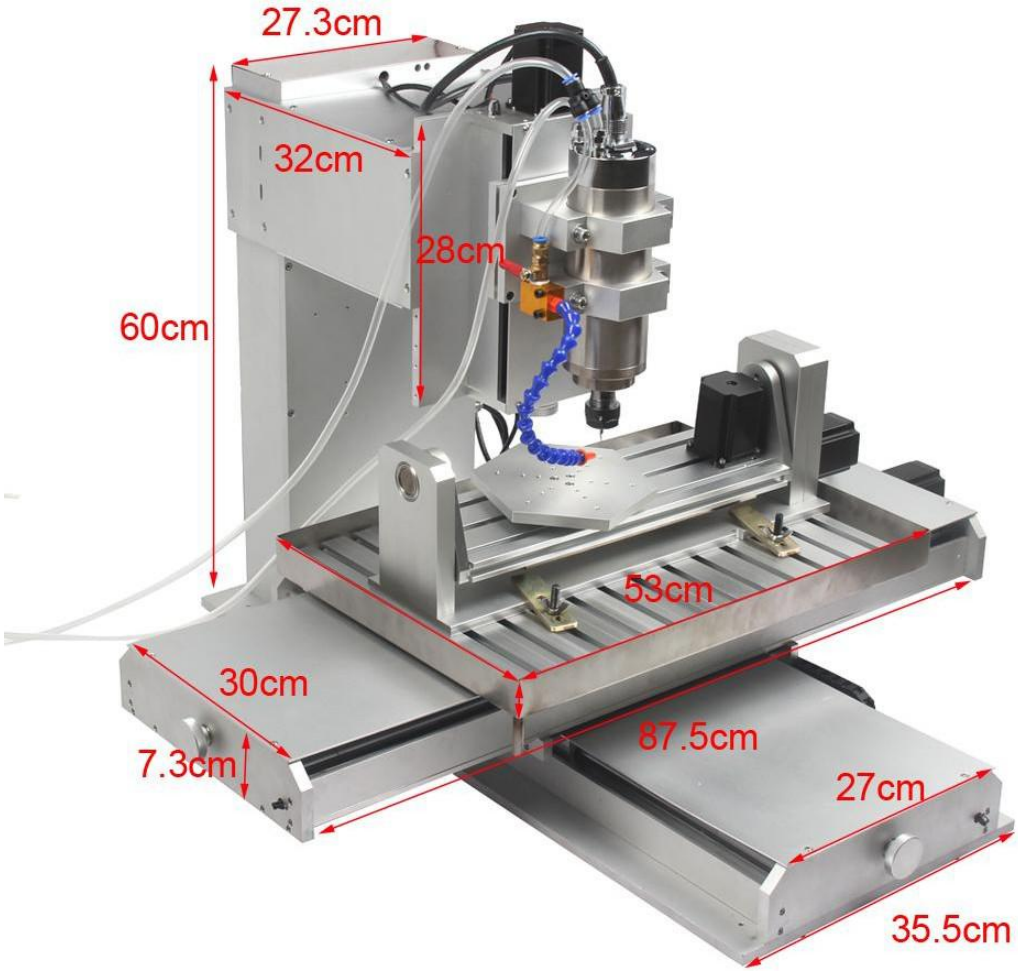
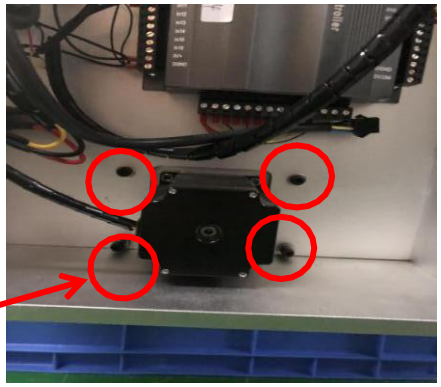
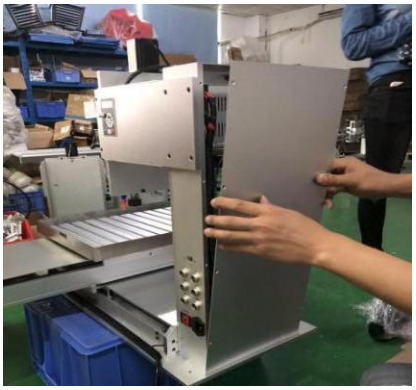


1, Assembling

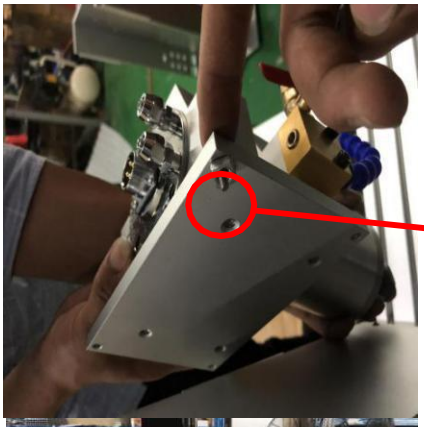
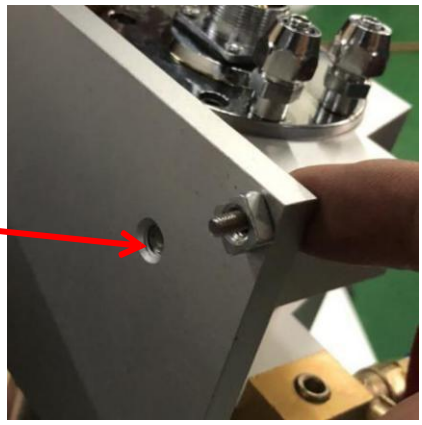
1.1 Open the wooden box, in order to save shipping cost , The HY6040 need to assemble.

1.2 Place the upper part on the base, Tighten the screws at the bottom of the base

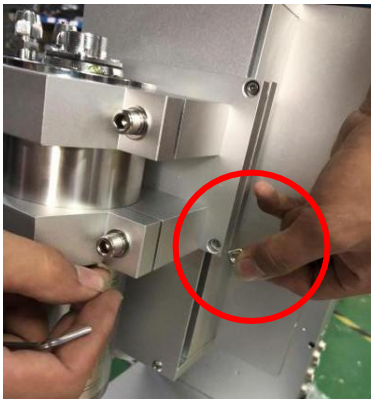
1.4 Open the cover of the vertical part, then tighten the screws around the stepper motors. Close the cover.

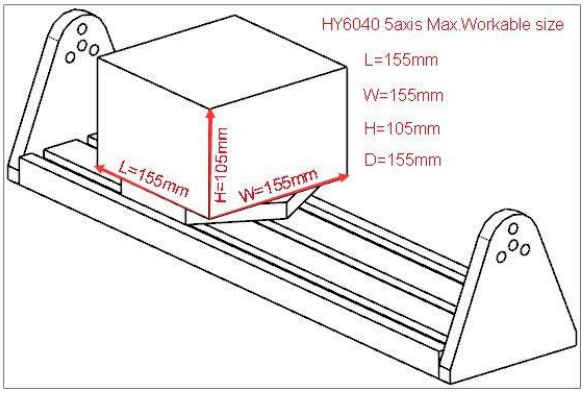
1.5 Place the nut at the screw, then Place the spindle at the Z axis,

Insert the nuts inside before you tighten the other three screws.

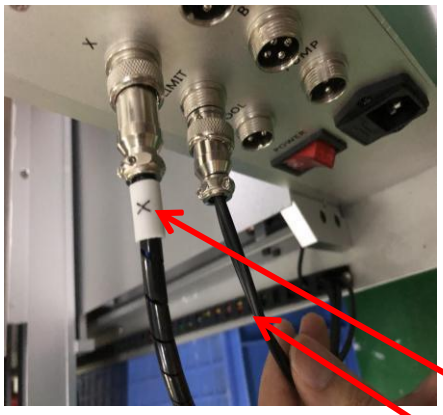


Below 5Axis detailed size

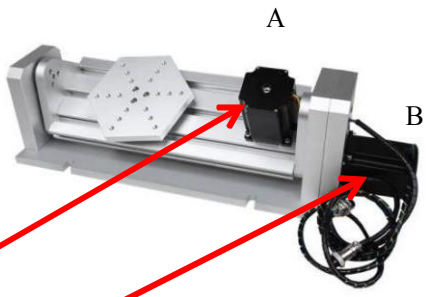


2, Cable connection

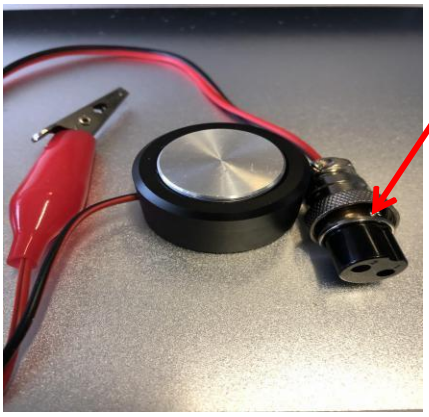
X port and Limit port, two cables from the chain



A port for A axis motor, B for B axis motor



Tool port for Z axis sensor



Pump port for water pump

Note: Please don’t place the water pump into water, it should be stayed out of water tank

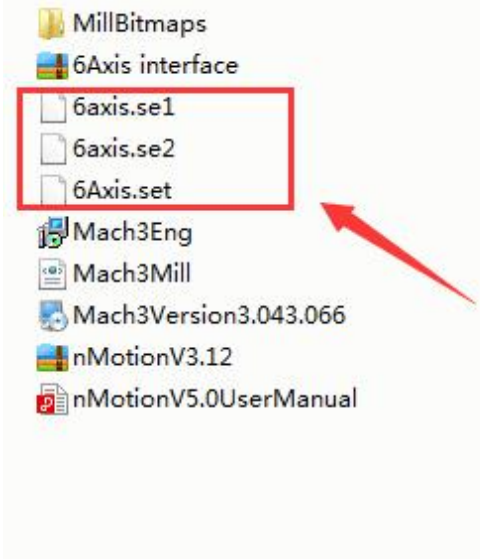
3, Mach3 Installation

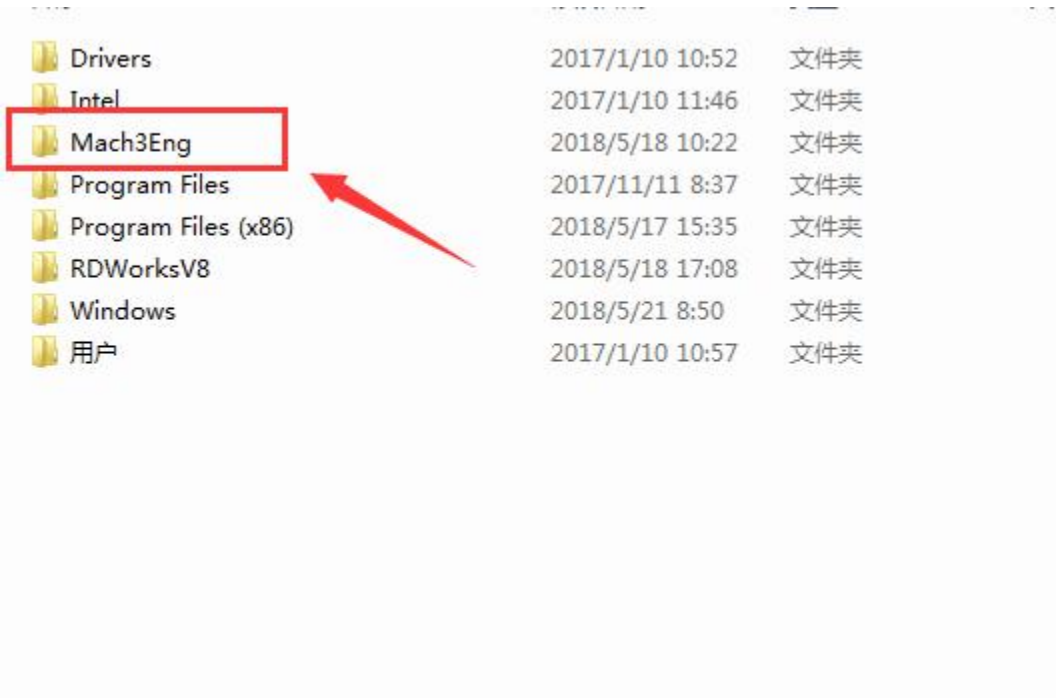
MACH3 was machine control software , The machine also need G code design software , We would try to provide fusion 360 G code design software in future.

But we are able to provide post processor for G code design .

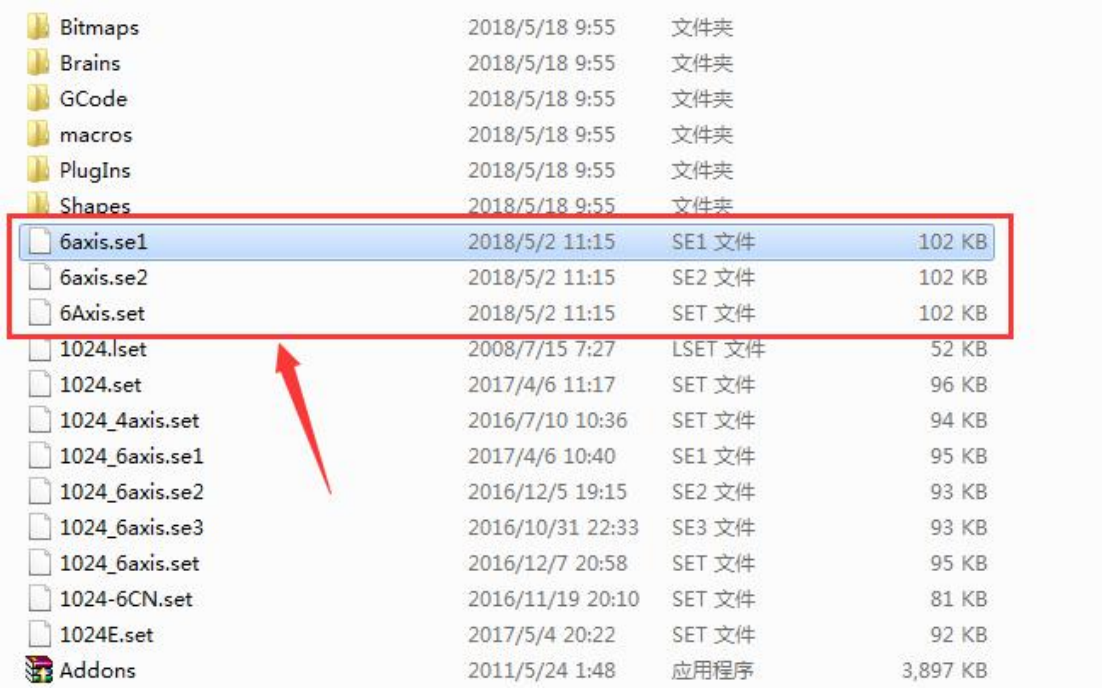
1. Open the CD, and find the file name nMotion. Open it you can see all the files here. And click the Mach3Eng and install the software.

2. Copy these 3 files in the CD to the C:\Mach3Eng, where you put your MACH3 software.

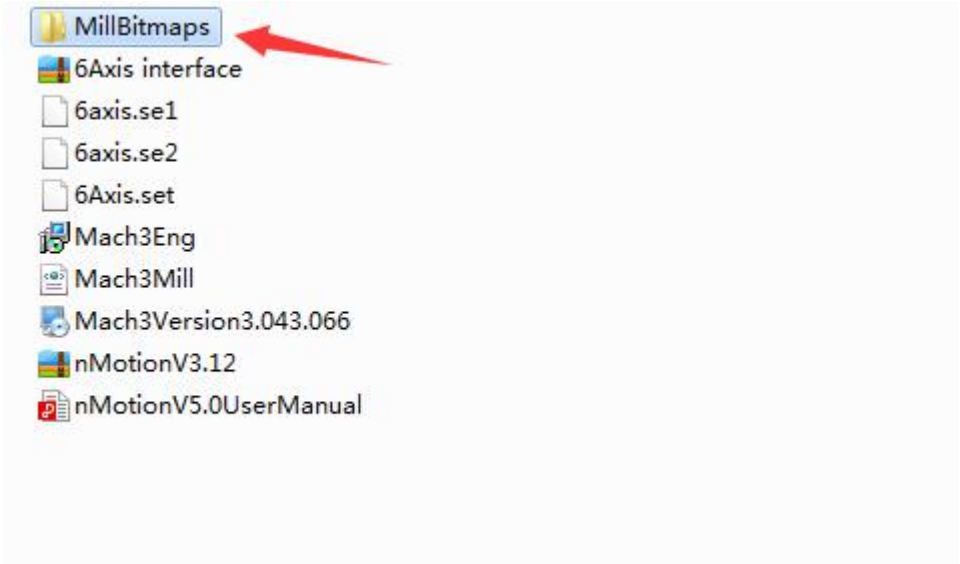




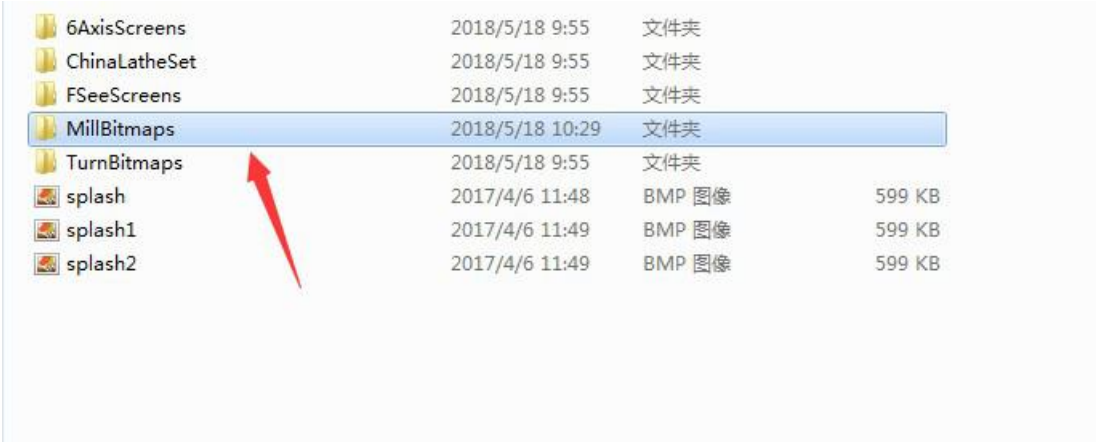
3. And finally it will show here.



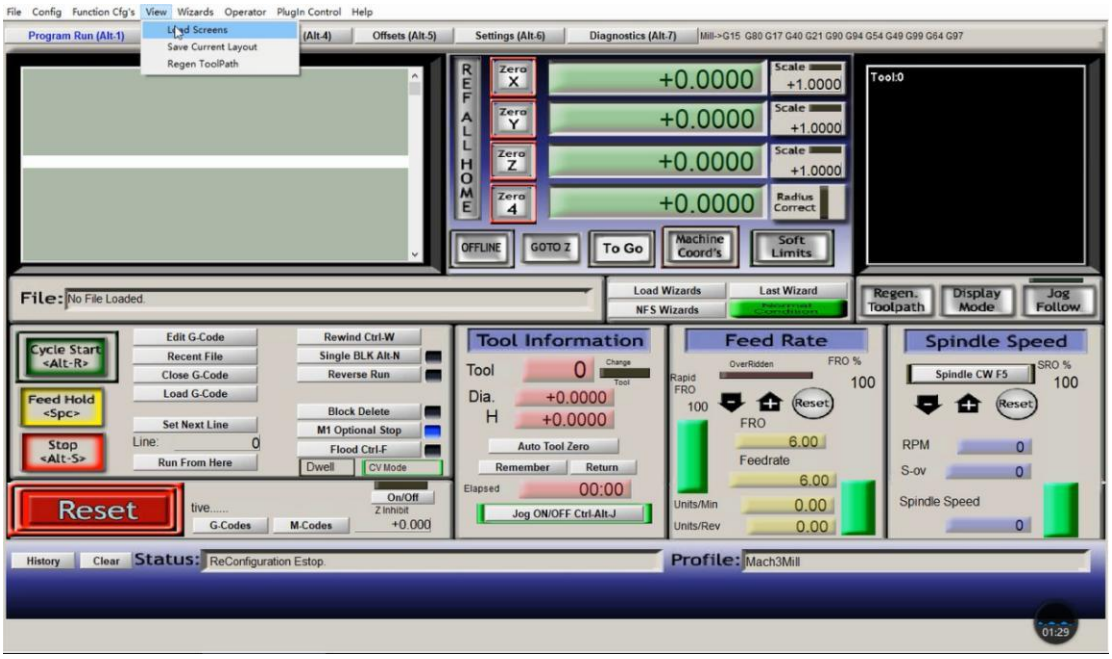
4. Then copy the MillBitmaps in the CD to the C:\Mach3Eng The file named: Bitmaps file.



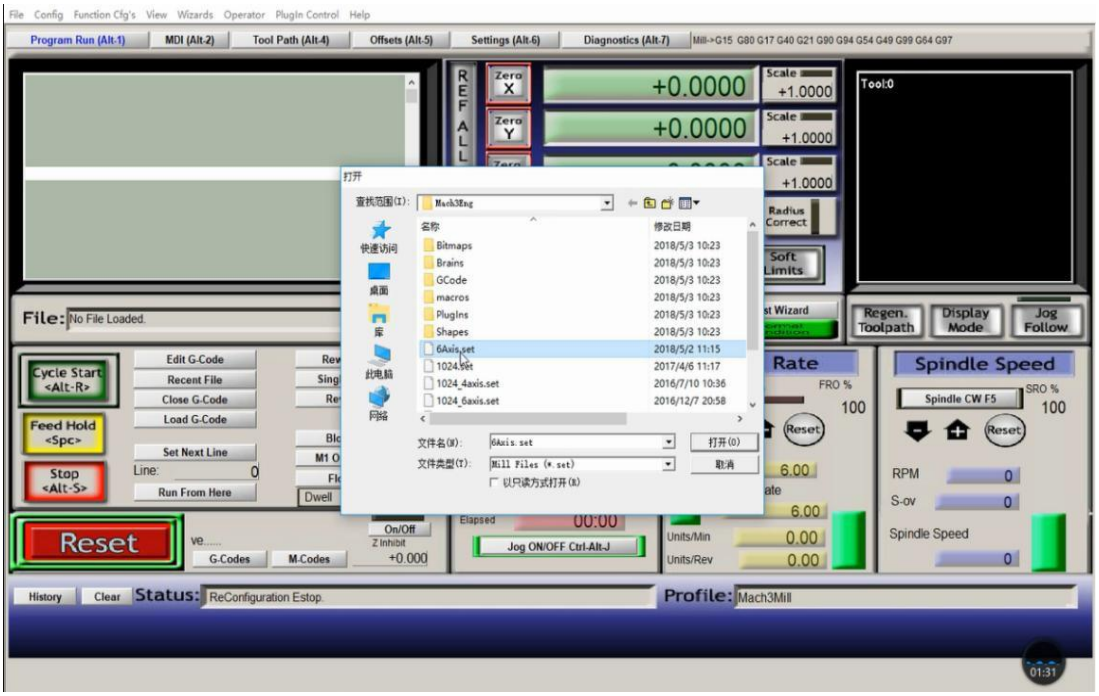
5. Finally it will show like this:



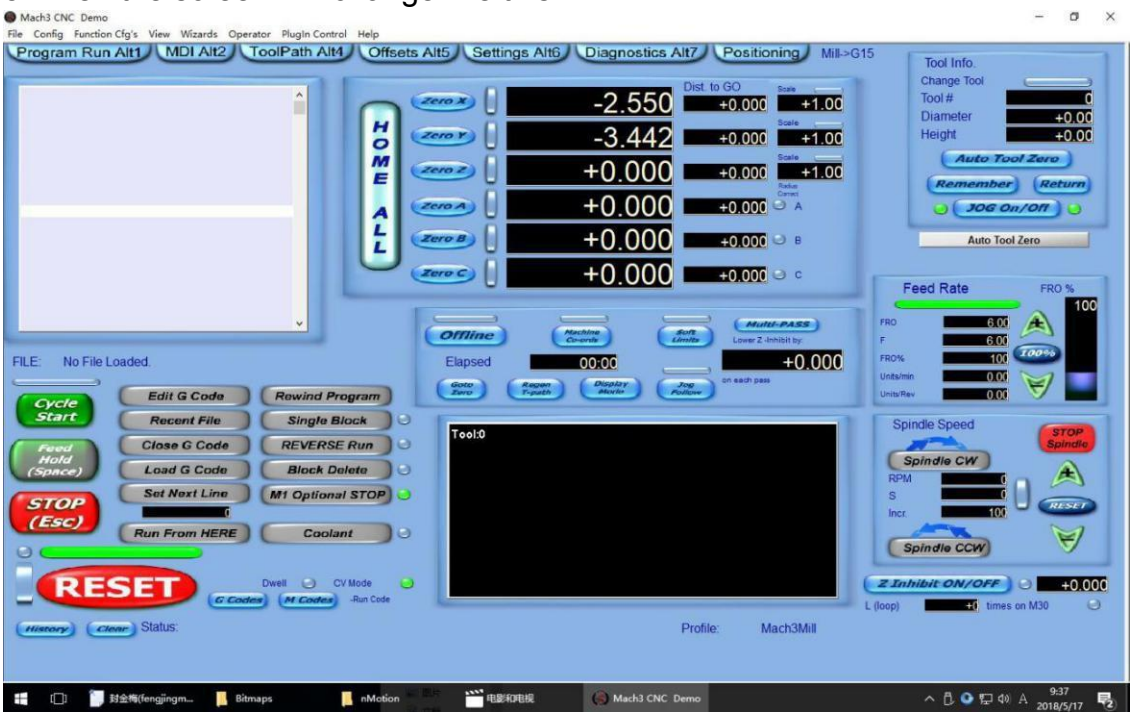
6. Open the Mach3Mill software. Click the View, then click Load Screens.



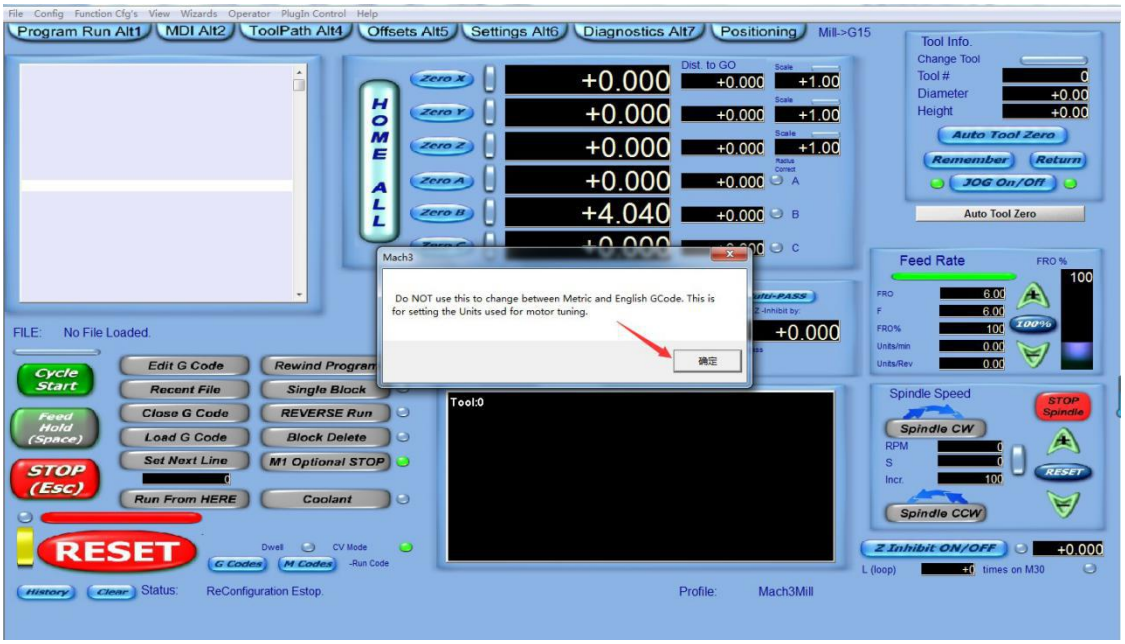
7. Choose the 6Axis.set.

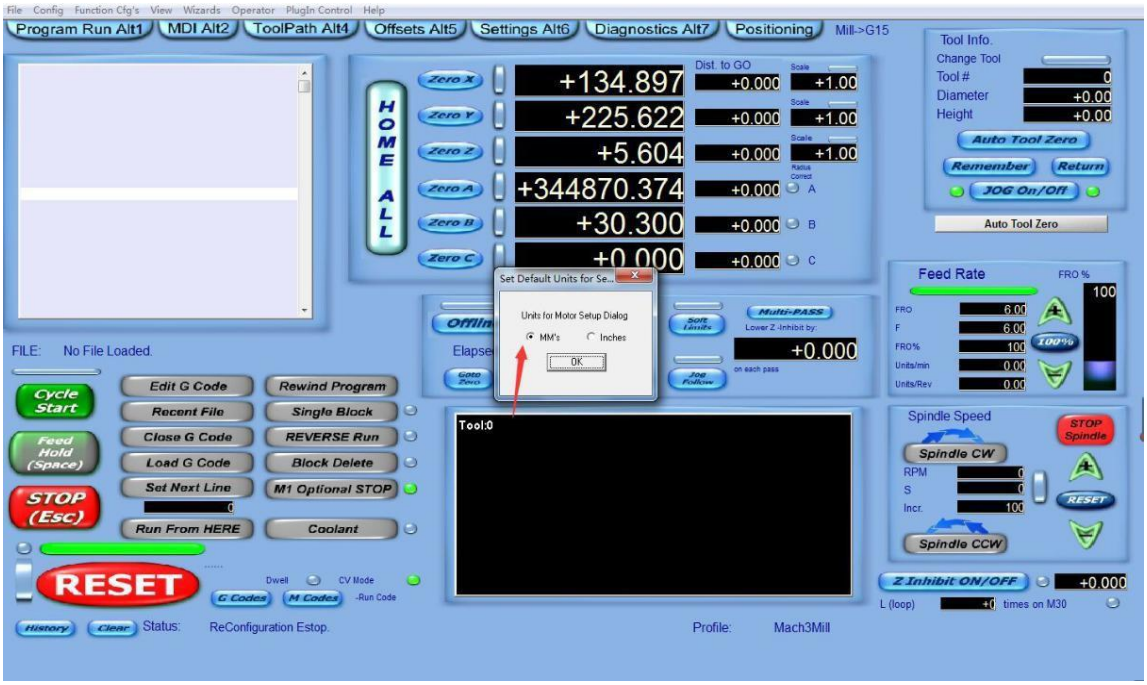


8. Then the screen will change like this:

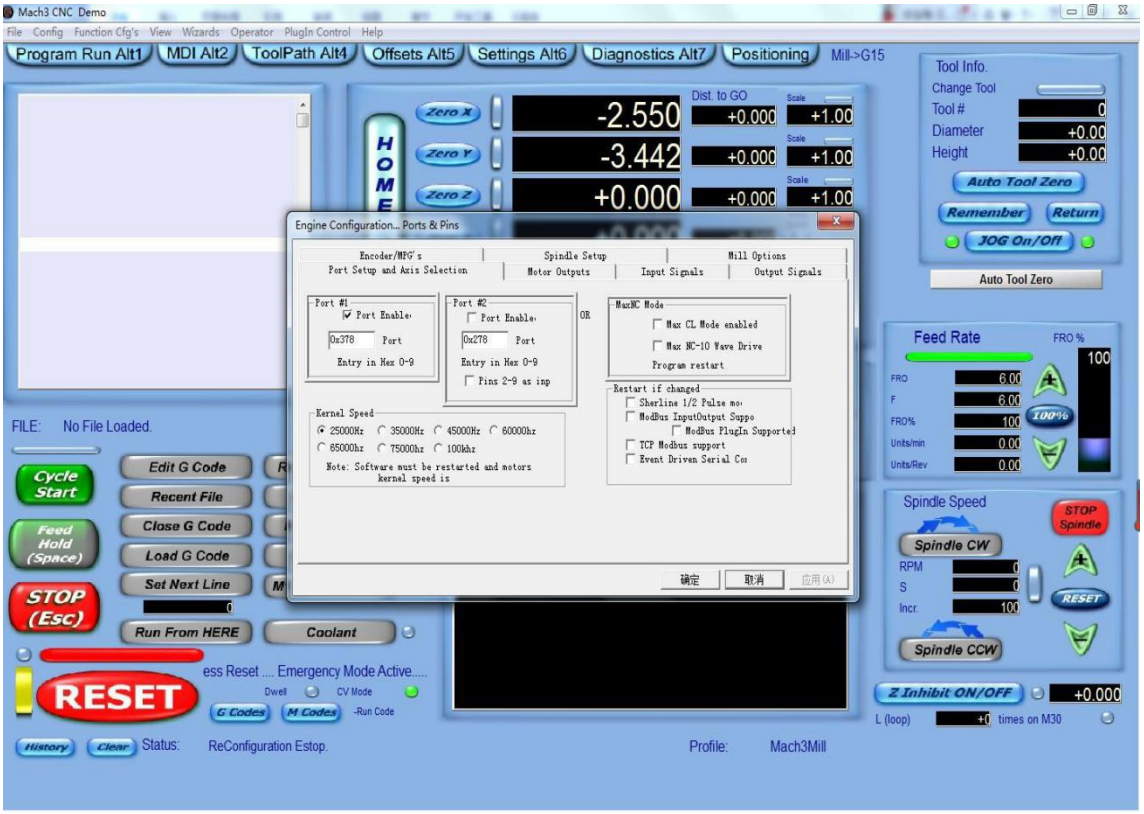


9. Then set up the pins and ports:
Click the CONFIG, then click the select native units, you need to choose MM's, then click OK.

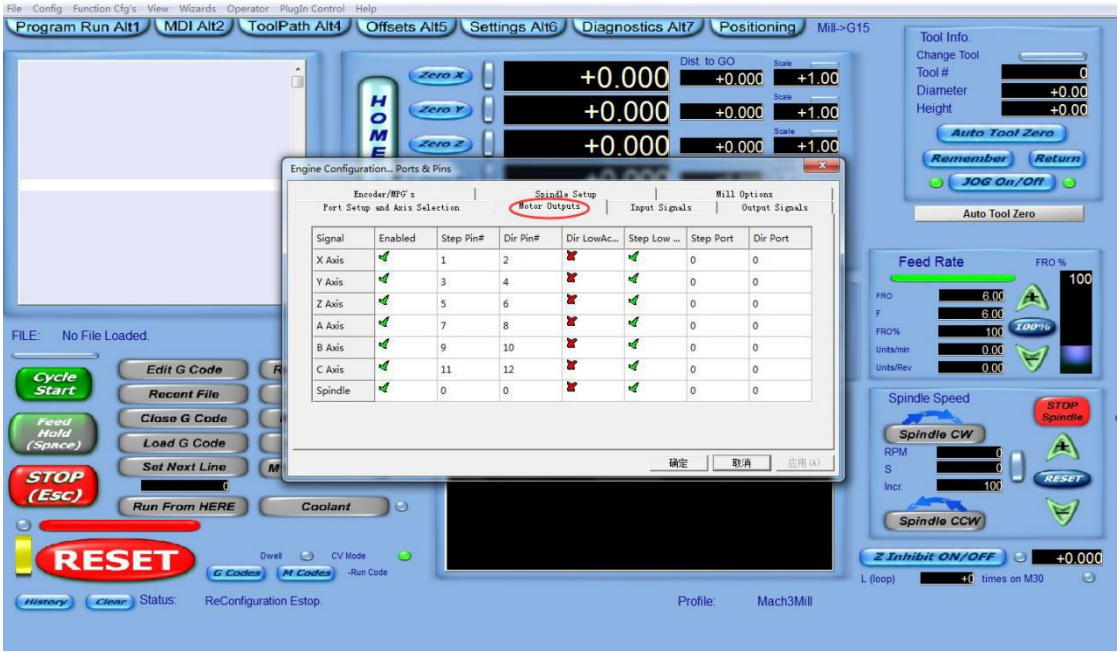




10. Click the CONFIG, to click the PORTS AND PINS.

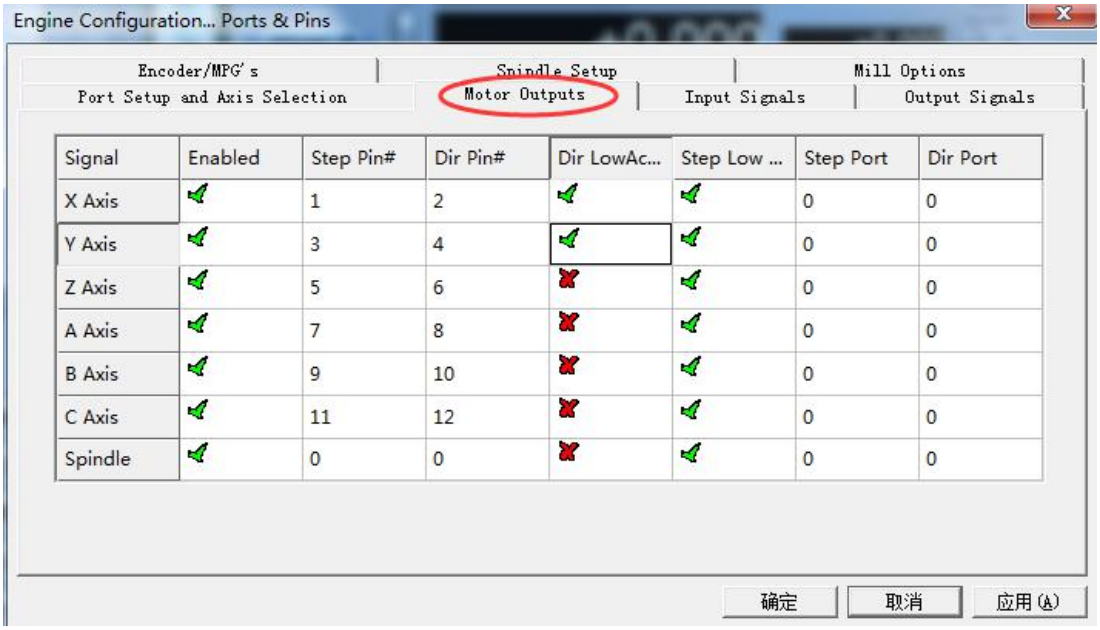


11. Click the Motor Output. Set Input Signal and Output Signal as pictures below show

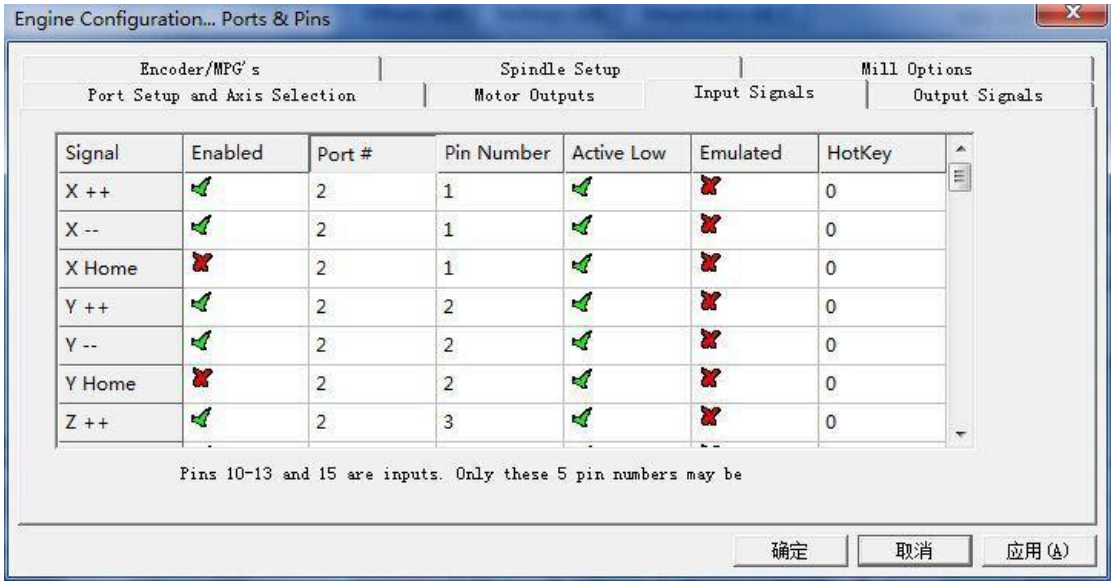


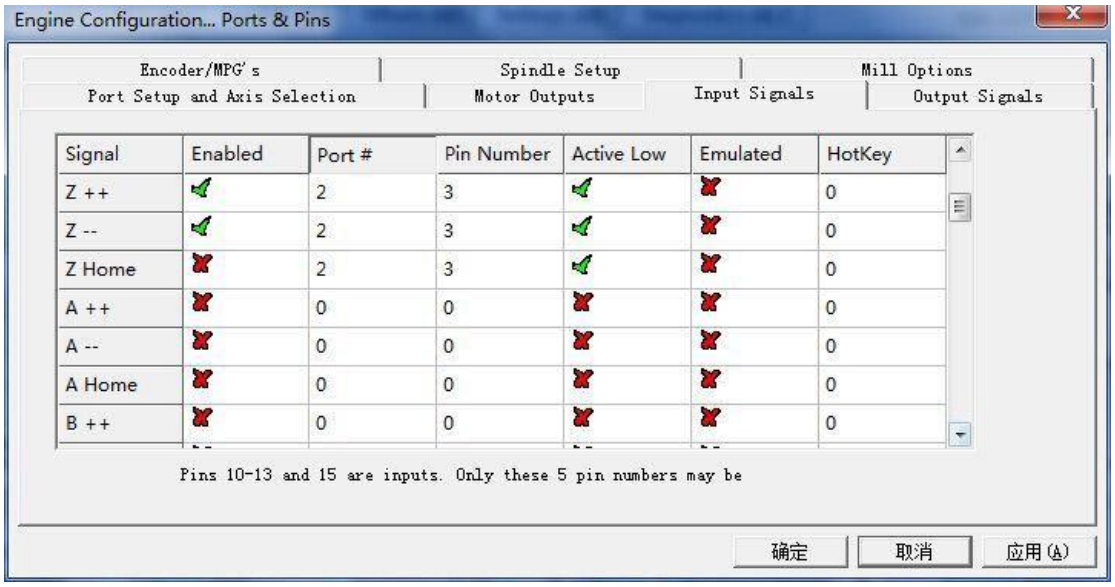
12. Set the pins as follow:

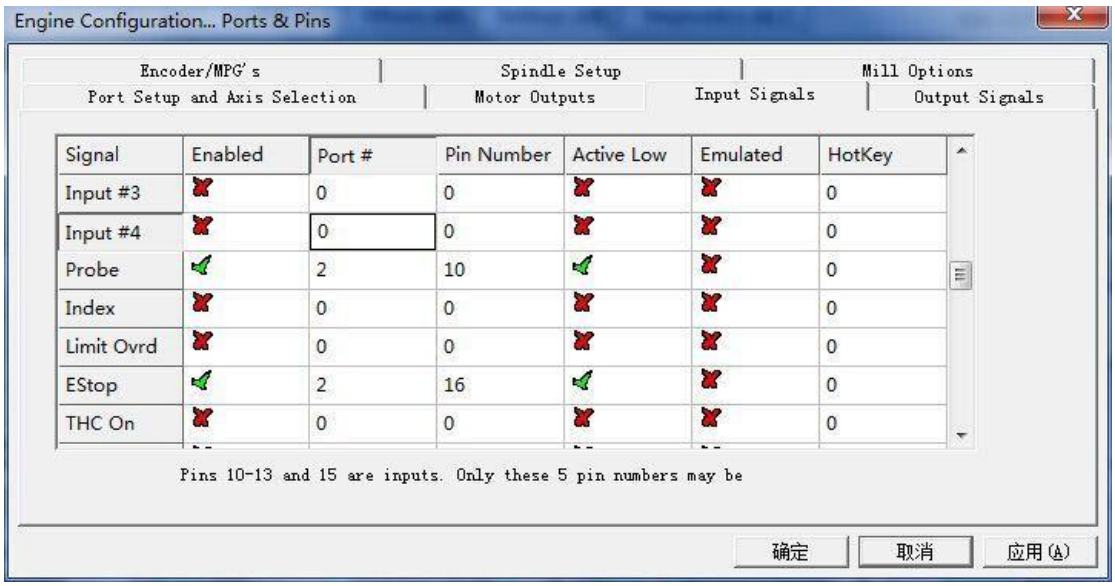
Motor Outputs



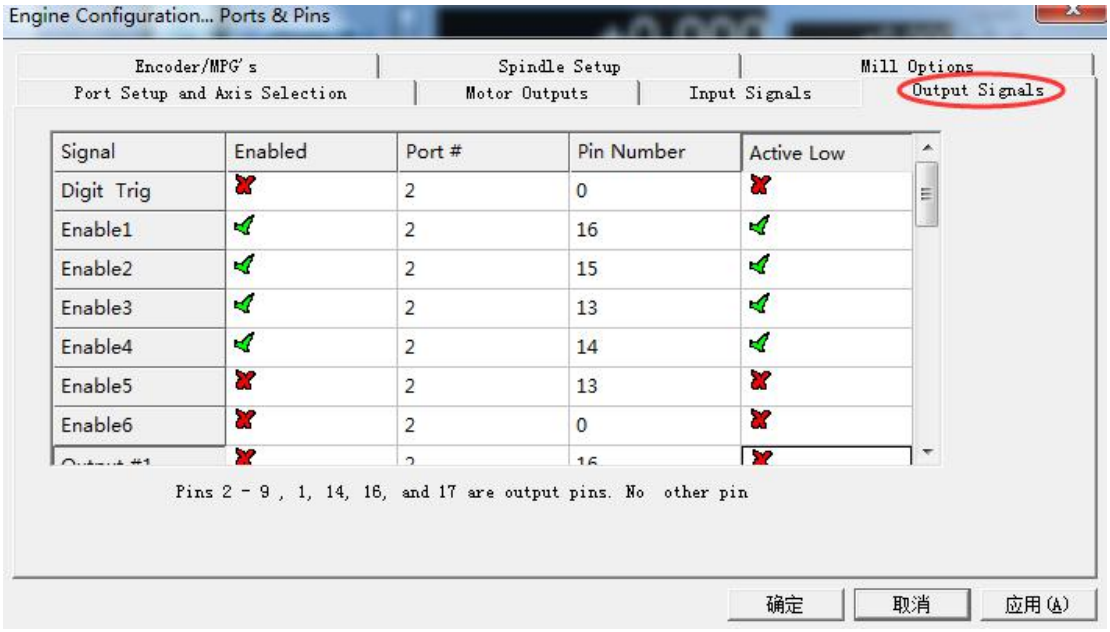
Input Signals for mechanical limit, Estop , Probe , Noted:The machine did not support Motor Home/Soft limit , So no need to set.

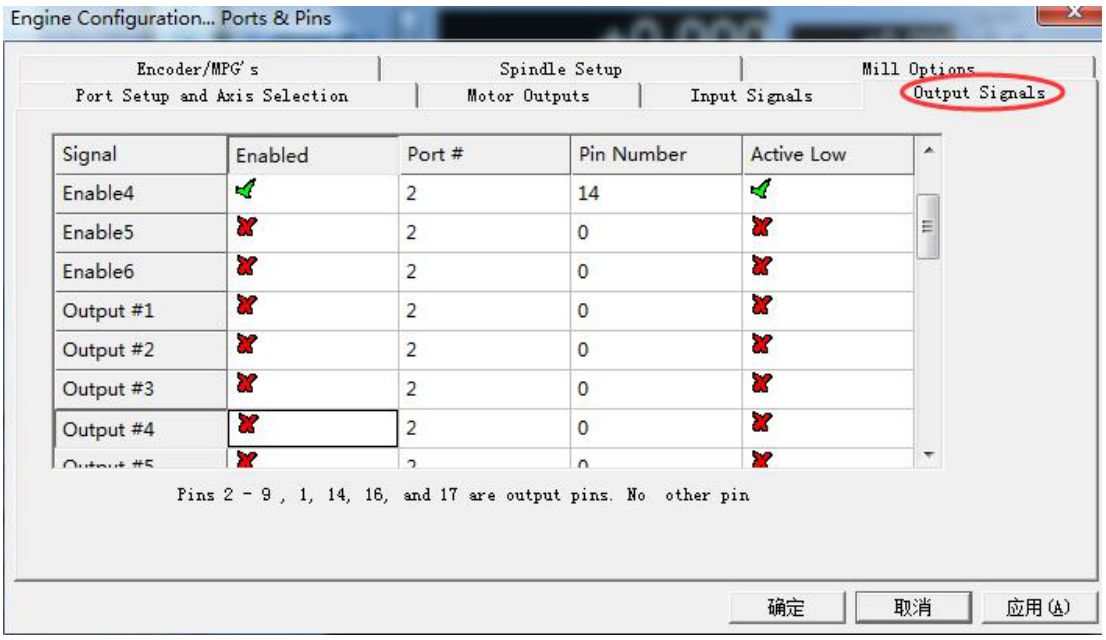




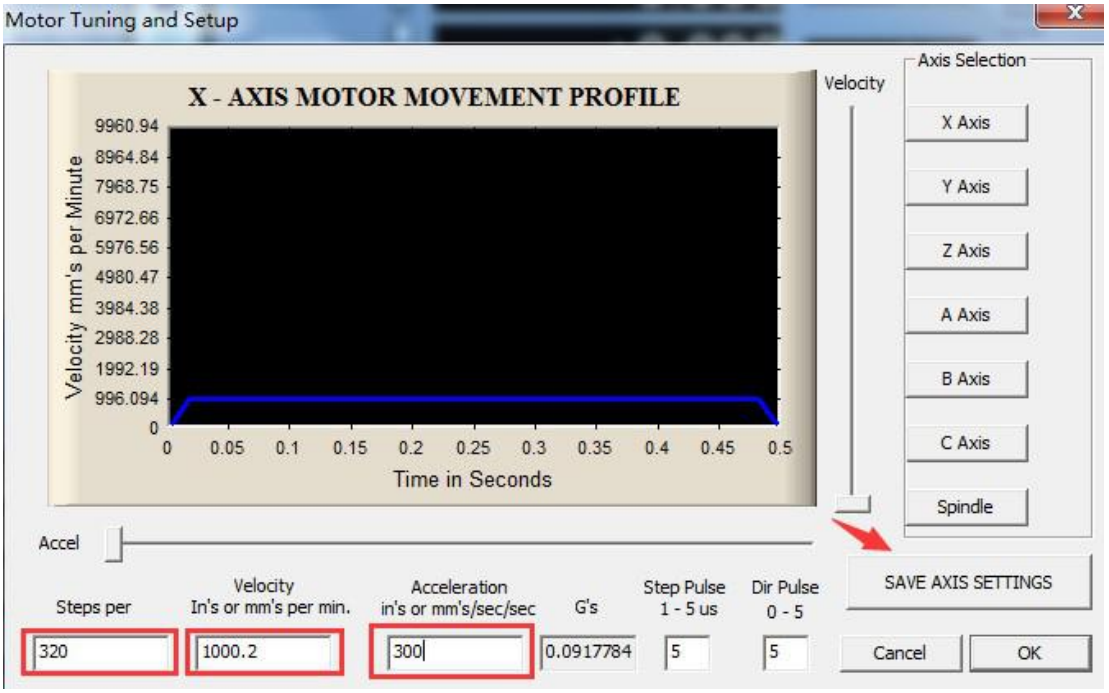


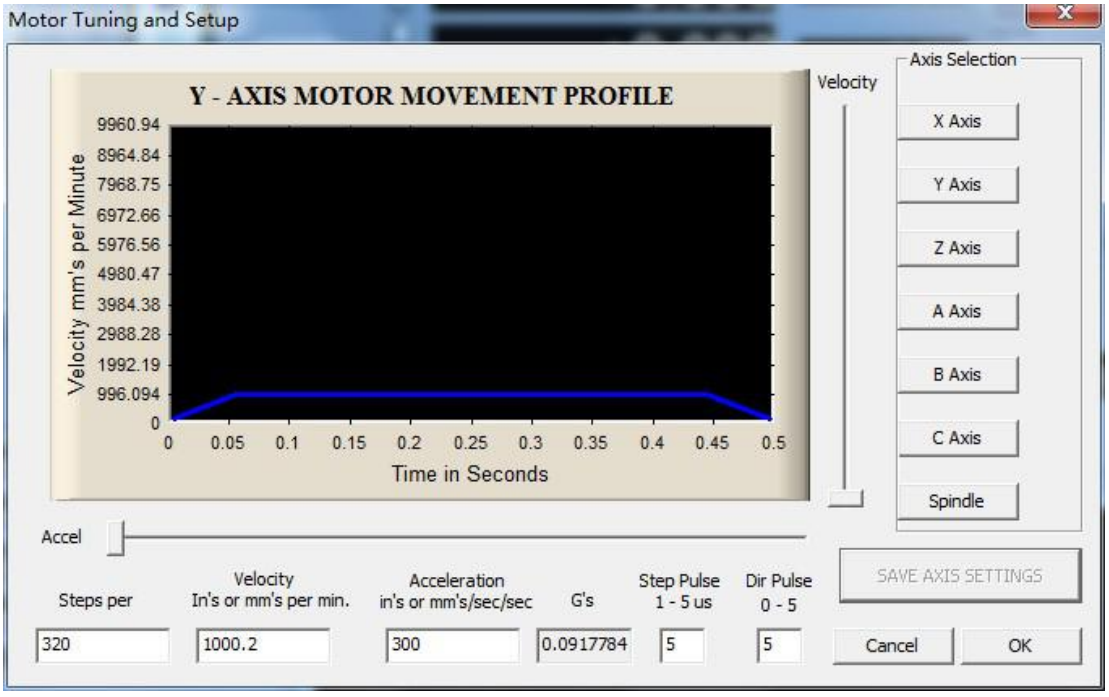
Output Signals:

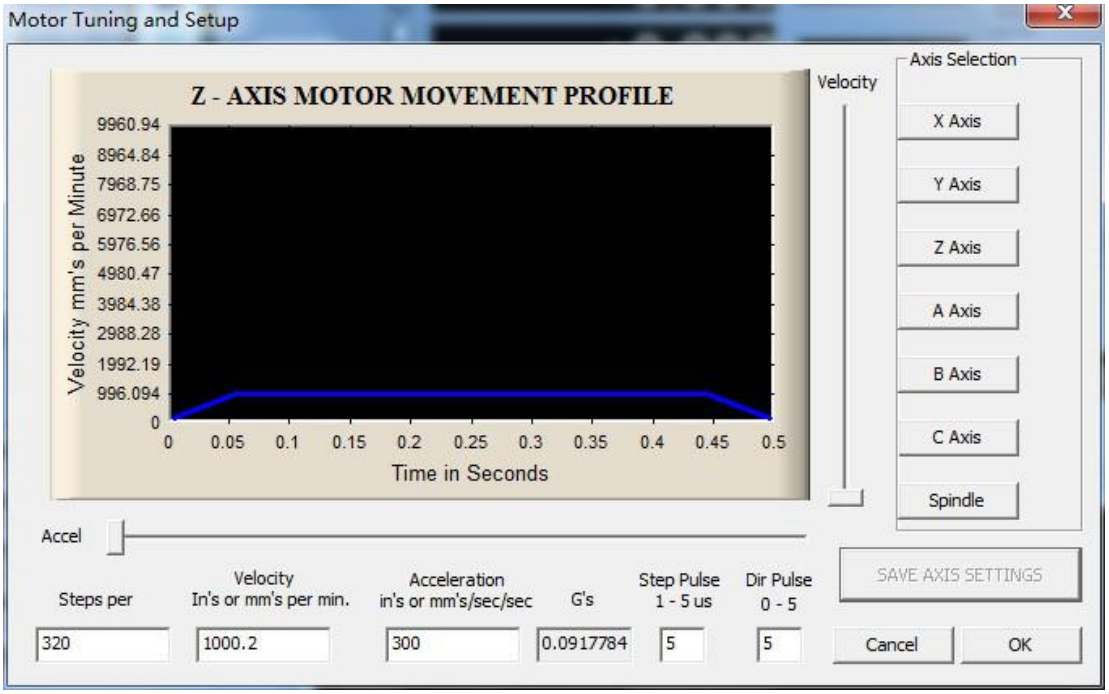


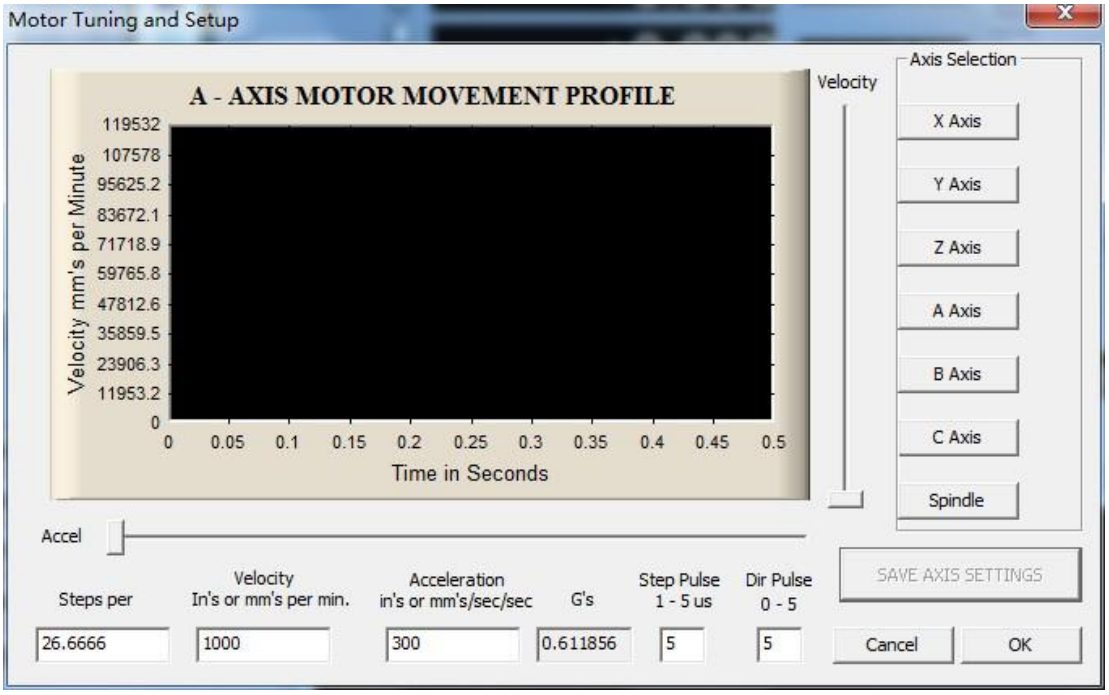


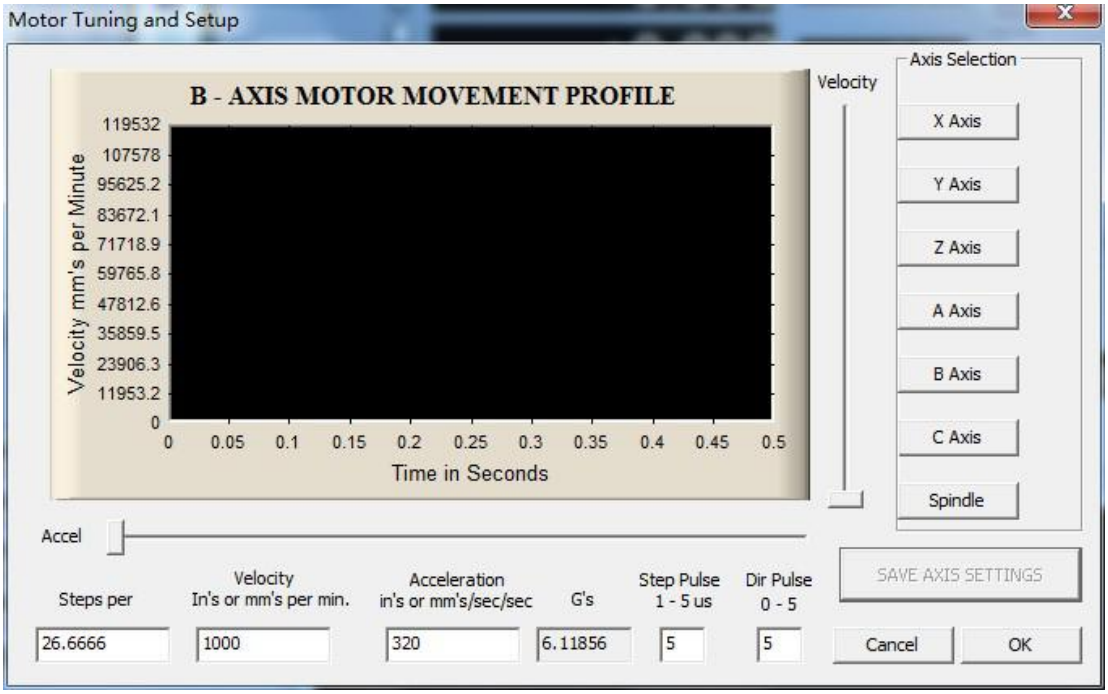
13. Click the CONFIG then choose the Motor Turning. Set motor turning as pcitures below show and save. Finally click OK.



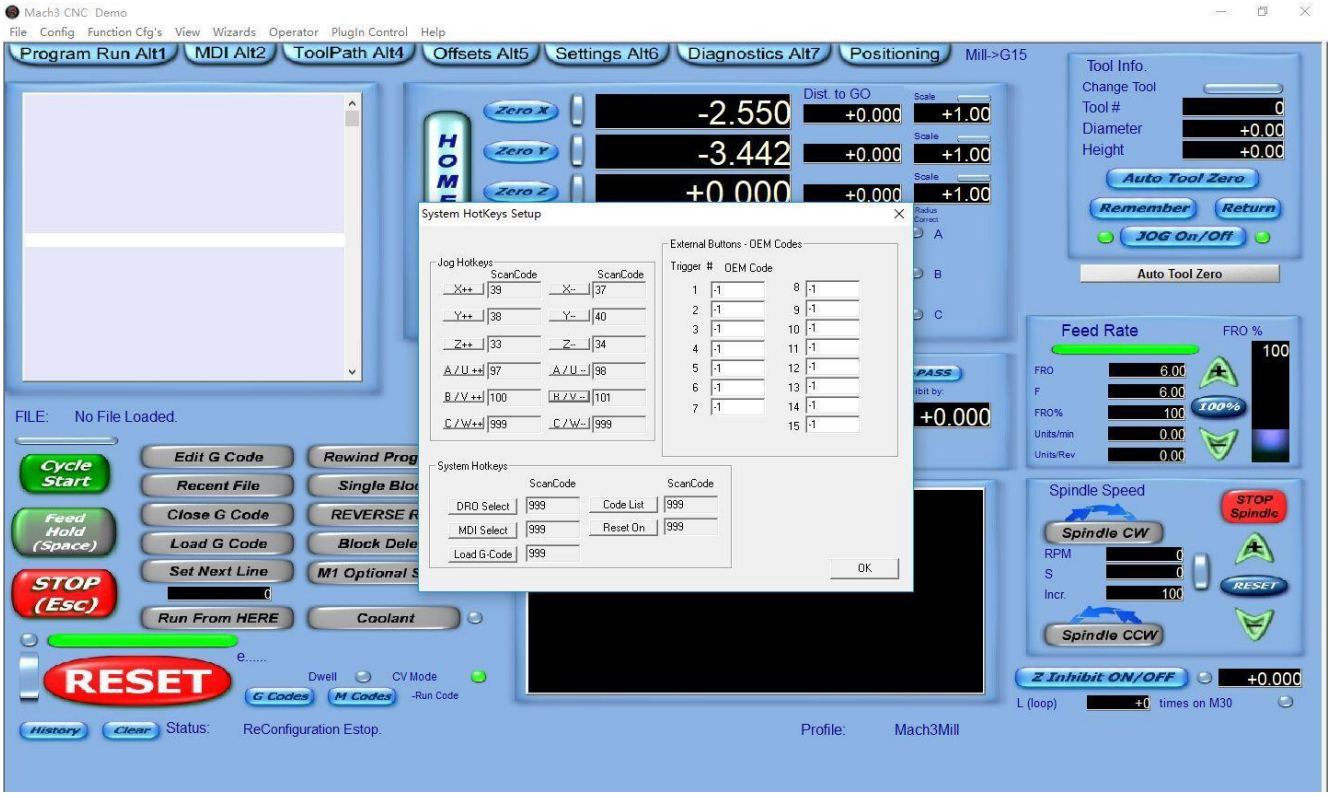



Motor Tuning and Setup
Z - AXIS MOTOR MOVEMENT PROFILE
Velocity mm's per Minute
9960.94
8964.84
7968.75
6972.66
5976.56
4980.47
3984.38
2988.28
1992.19
996.094
0
0 0.05 0.1 0.15 0.2 0.25 0.3 0.35 0.4 0.45 0.5
Time in Seconds
Velocity
Axis Selection
X Axis
Y Axis
Z Axis
A Axis
B Axis
C Axis
Spindle
Accel
Steps per
Velocity In's or mm's per min.
Acceleration in's or mm's/sec/sec
G's
Step Pulse 1 - 5 us
Dir Pulse 0 - 5
320
1000.2
300
0.0917784
5
5
SAVE AXIS SETTINGS
Cancel
OK


Motor Tuning and Setup
A - AXIS MOTOR MOVEMENT PROFILE
Velocity mm's per Minute
119532
107578
95625.2
83672.1
71718.9
59765.8
47812.6
35859.5
23906.3
11953.2
0
0 0.05 0.1 0.15 0.2 0.25 0.3 0.35 0.4 0.45 0.5
Time in Seconds
Velocity
Axis Selection
X Axis
Y Axis
Z Axis
A Axis
B Axis
C Axis
Spindle
Accel
Steps per
Velocity In's or mm's per min.
Acceleration in's or mm's/sec/sec
G's
Step Pulse 1 - 5 us
Dir Pulse 0 - 5
26.6666
1000
300
0.611856
5
5
SAVE AXIS SETTINGS
Cancel
OK



14. Finally click the CONFIG, find the System HotKeys Setup and set the hotkeys as you like.

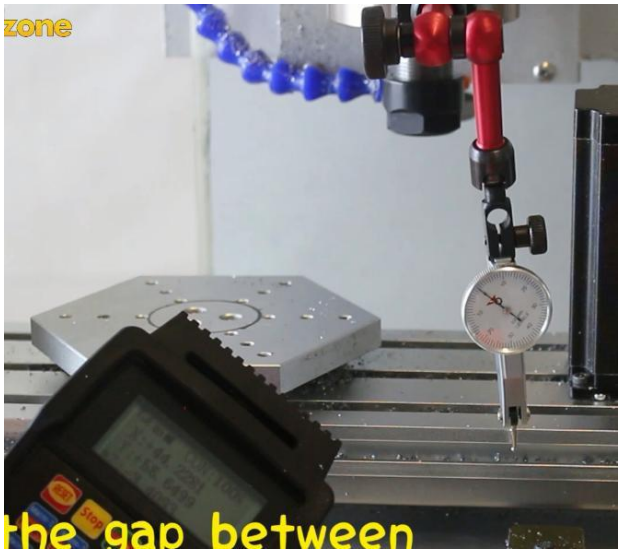


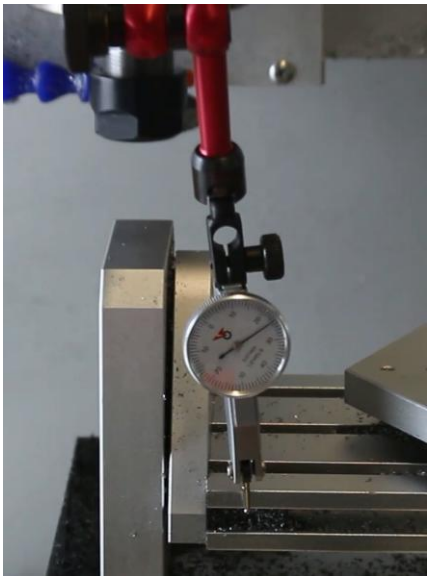
Remark: In the manual , We did not provide detailed MACH3 using instructions , Hope you can search on Youtube to learn more details about MACH3 . Actually , When Finished all setting according to our manual , You only need to load G code to run the machine , No need to use other more MACH3 functions,

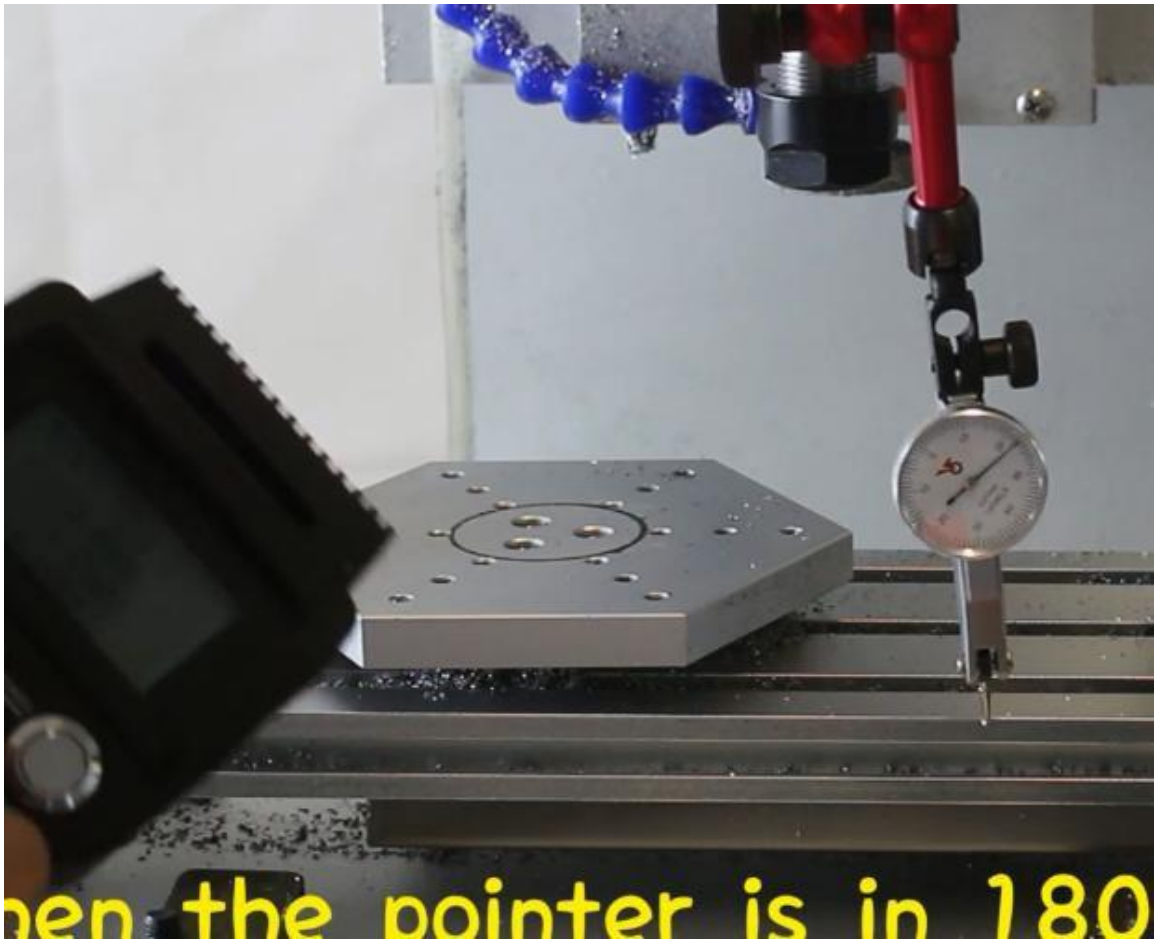
4. Machine calibration

The calibration need to use level indicator , that was necessary . The hand wheel was optional , You also can use computer control . The more details in this link: https://youtu.be/fxYzeXtKCuE

1 , Make sure the 5Axis table was parallel with X Axis. Using level indicator to check

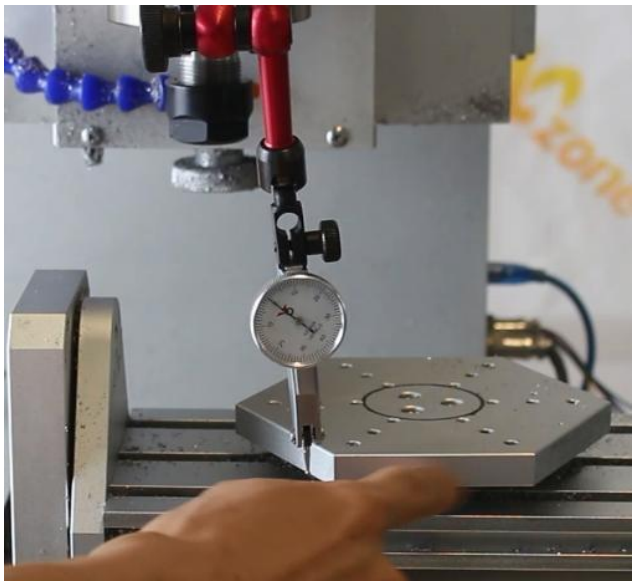


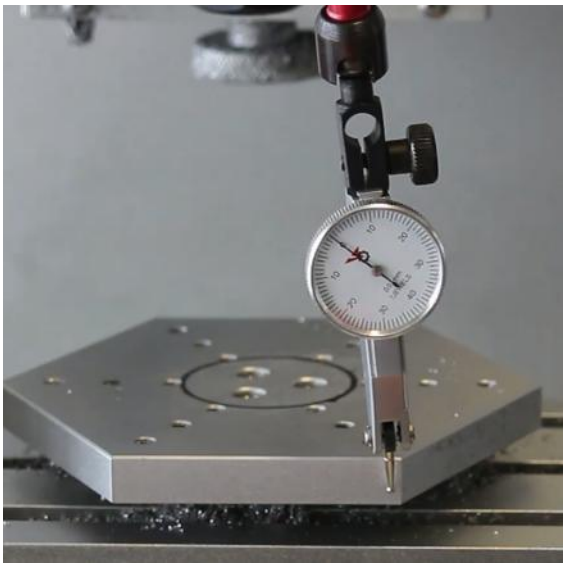




Remark: if not parallel, Hope you can soft some thing to hit the 5Axis table to adjust the position ,for example ,using wood hammer ,Did not use hard thing and use large power to hit the table ,it would damage the 5Axis table .

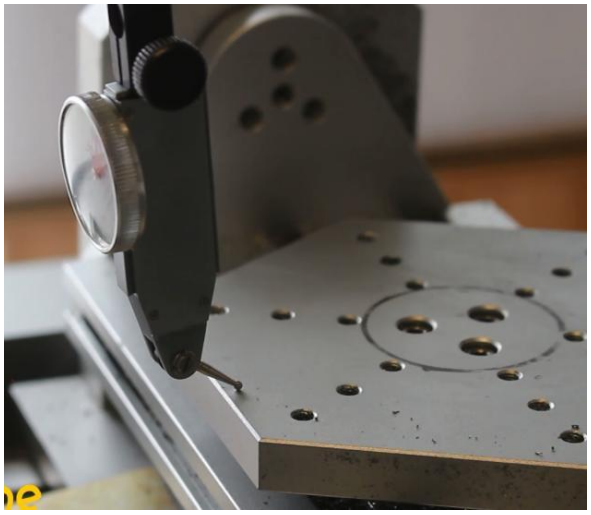
2, Make sure the A Axis table was parallel with X Axis. Using level indicator to check





Remark: if not parallel, You can rotate Axis table the angle to adjust and keep it parallel.

3 , Make sure the A Axis table was level with Y Axis. Using level indicator to check

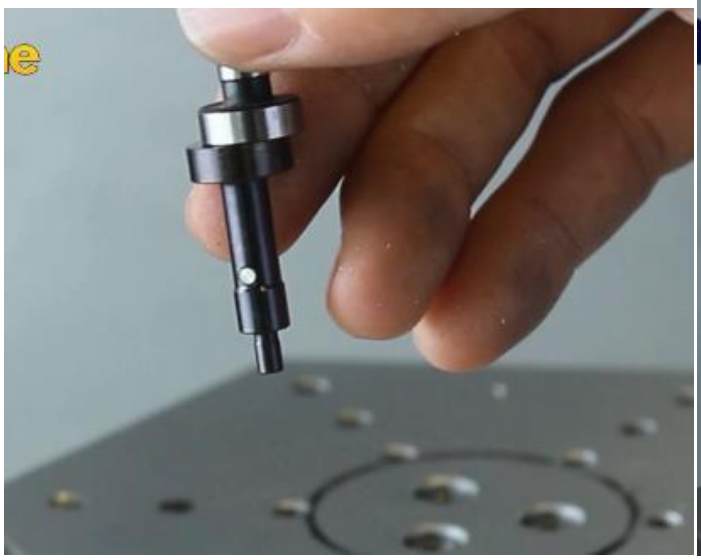


Remark: if not level, You can rotate B Axis angle to adjust and keep it level.

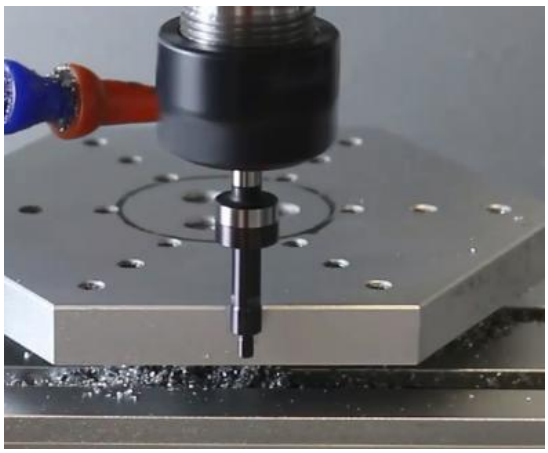
5. Starting point seting

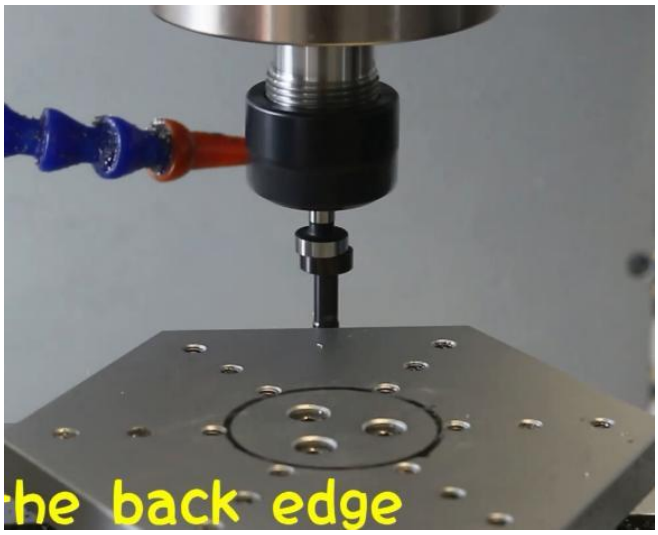
After calibration , The Starting point only set X Y Z Axis ,The B Axis already zero in the calibration when calibrate A Axis, A Axis no need to set starting point. And this setting need auto checking tool , Our standard accessories already included , The edge finder and Vernier caliper was necessary , but this two was optional tools .

Firstly , Install the Egde finder into spindle collet, like install engrave tool. Meanwhile , The spindle speed was 400-600RPM , The VFD number was from 8-10.



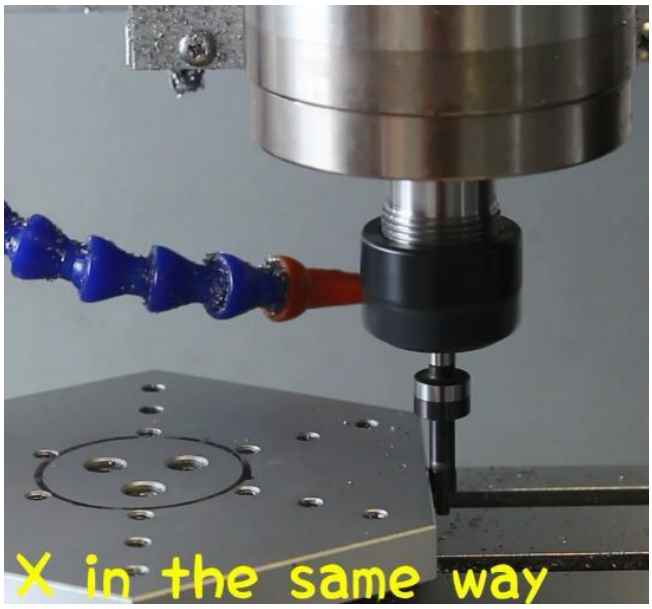
Seconldy , Y Axis starting point setting , Moving the edge finer to the front of the Axis table ,and then Zero Y Axis , Moving it to other side , The MACH3 software show the total edge finder traveling area. The Y Axis starting point was the middle point . Normally, The number was 78. At last , Moving the spindle to 78.000, and Zero Y Axis . The Y Axis starting point was finished .

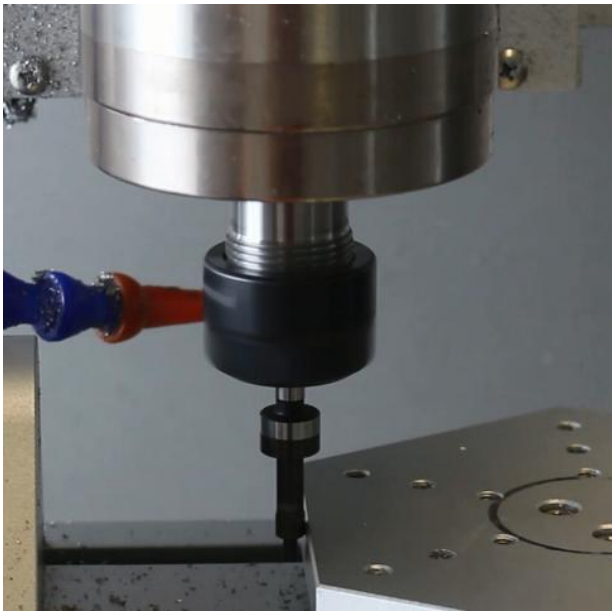




Remark: The above number was for HY3040 , did not mind it .

Thirdly, X Axis starting pointing setting , Rotate the A Axis 30 degree , and then repeat same method of Y Axis to zero X Axis.



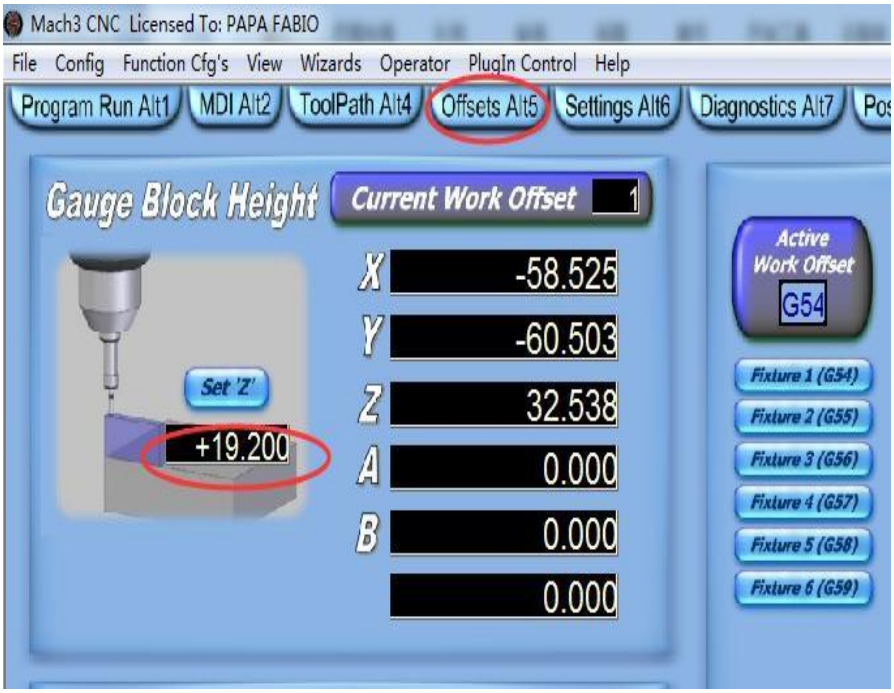


At last , Z Axis starting point setting as below

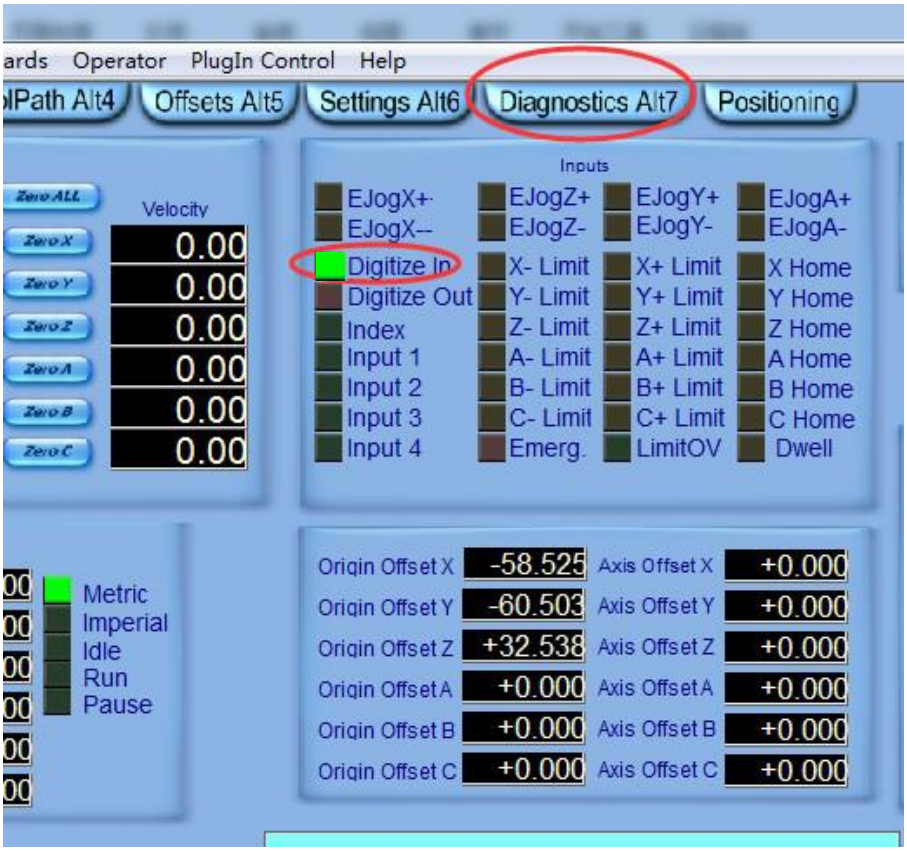
1, Clamp the clip on the worktable

2, Measure the heighet of the sensor

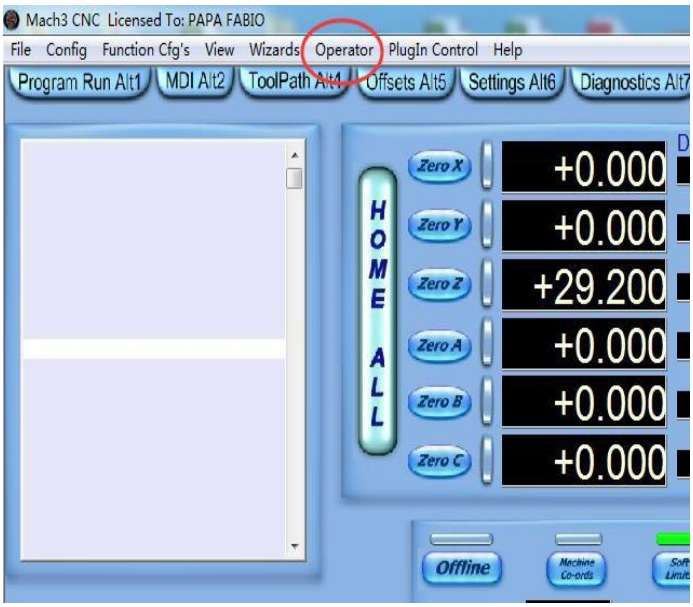
3, Then enter the height of the sensor into the offset

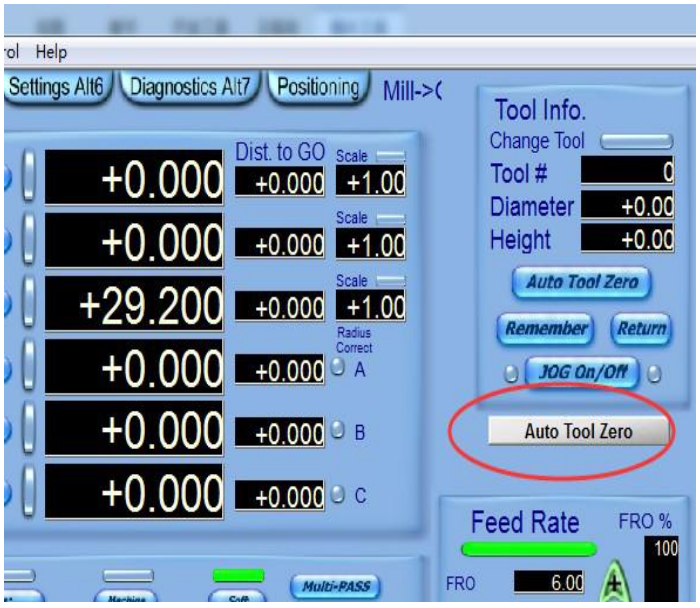


4,move on to “Diagnostics At7” interface, then use the sensor to touch the bit to see if the “Digitize In” flash green, if so, it means the connection is good, if not, check if there is anything wrong with the connection

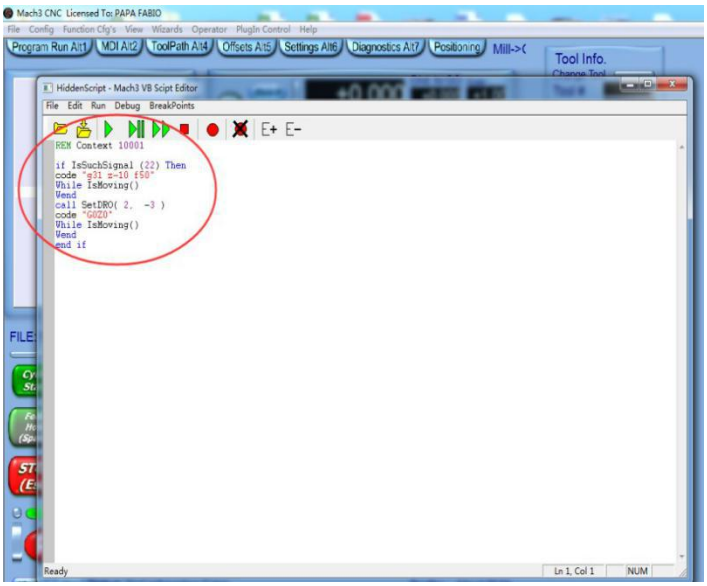


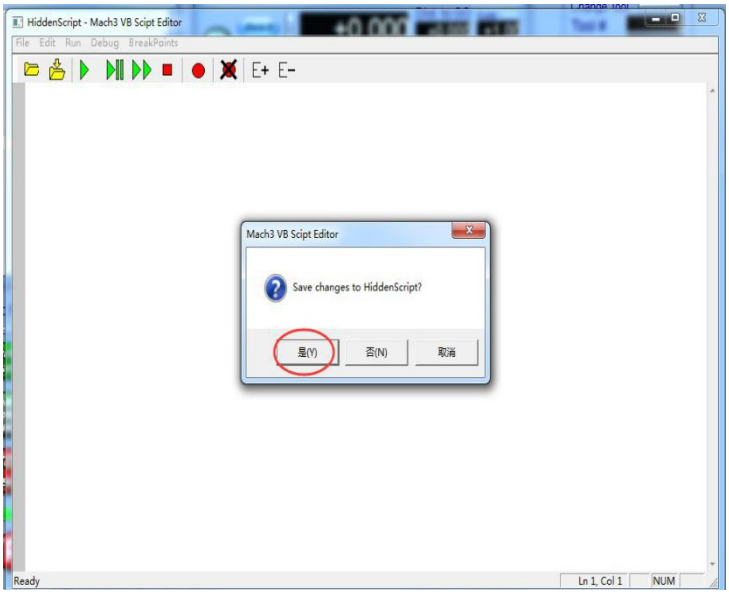
5, Click Operator, choose “Edit button script”, when you see the “Auto Tool Zero” flickering, click it



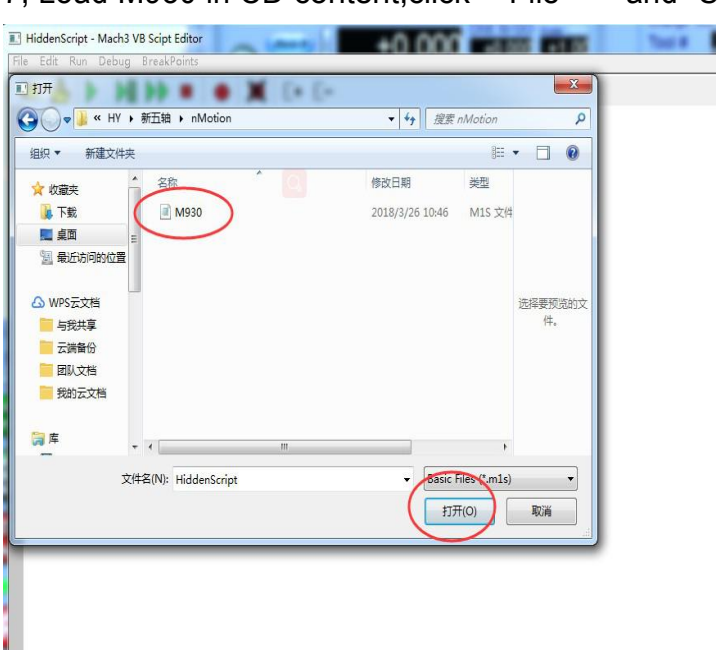


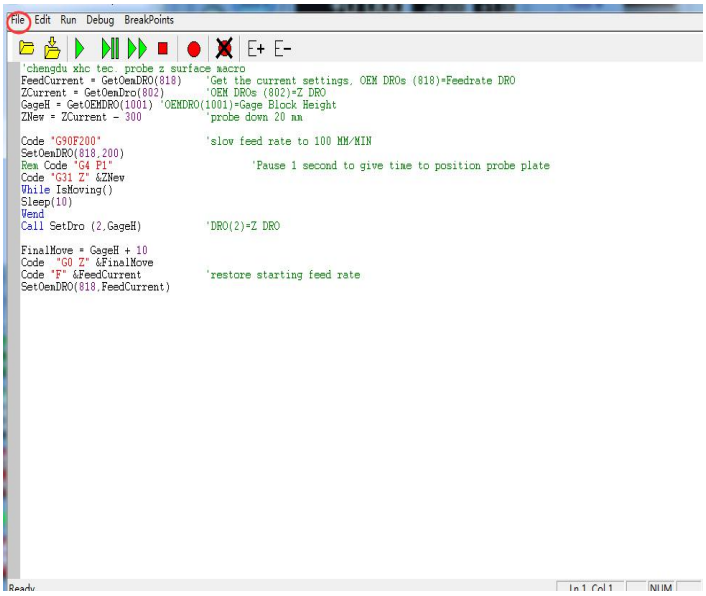
6,Delete the defualt script, click“ ”, when “Save changes to HiddenScript” shows up, click “YES”



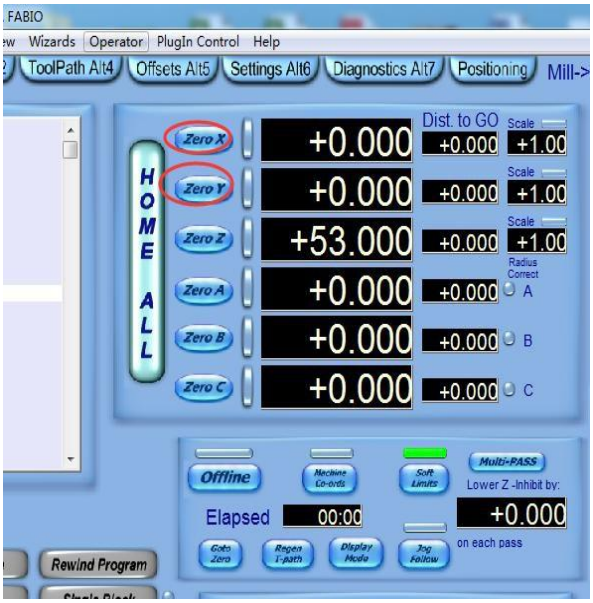


7, Load M930 in CD content,click‘‘File’’ and “Save”

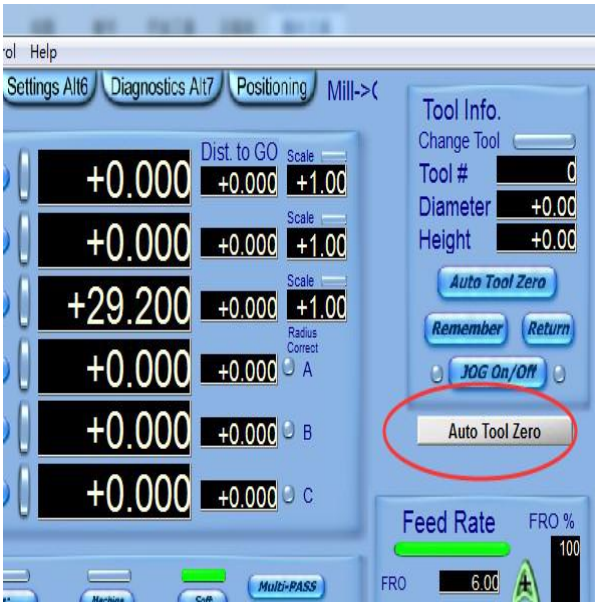




8, Move the the spindle to starting point you want, then ZERO X, Y axis



9, click “Auto Tool Zero”, then the spindle will move down and bounce back.
Move the sensor out, click “Go To Zero”. Starting point setting done.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Settings Alt6
Diagnostics Alt7
Positioning
Mill->(
Tool Info.
Change Tool
Tool #
Diameter
Height
Auto Tool Zero
Remember
Return
JOG On/Off
Auto Tool Zero
Dist. to GO
Scale
+0.000
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+29.200
Radius
Correct
A
B
C
Feed Rate
FRO %
100
FRO
6.00
Multi-PASS