



3040 3axis Steel Structure 2200W CNC Machine -MACH3 USB version



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Part 1 Assembling

Tools and spare parts needed during assembly:



10 Water box*2





1. Open the wooden box you received as below:

2.Controller box connection. Connect all lines from machine to controller box one by one;USB cable another side connect to computer.





3. Last step ,Water pump connection. Connect pipes between water pump and spindle. One pump for spindle, another for bits cooling.









Part 2 Mach3 installation and setting

1 Download MACH3

Download MACH3 from our official website

wwww.china-cncrouter.comor you can directly install MACH3 from CD,

or get from the seller.

2 Install MACH3

Do not choose parallel port driver



	el Port Driver can deselect.
Program Features Parallel Port Driver Vizards XML's LazyCan Screen sets Standard Mach3Turn screen Standard Mach3Mill screen Standard Mach3 Plasma screen	Installs the Parallel Port Driver. This is not needed for external motion control devices. (328 KB)
Total space required: 39.5 MB	k Mext > Cancel

After installation finished ,Connect USB cable between controller box

and computer. Copy NcUsbPod.dll from USB card driver file to

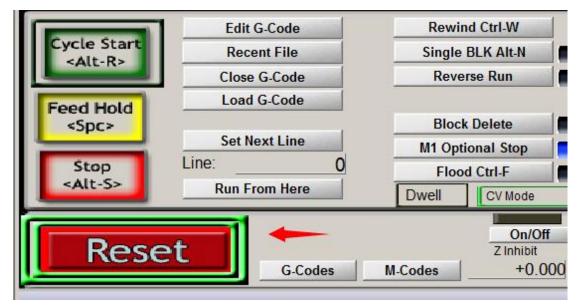
MAC3/PlugIns file .This file to enable USB motion card.

函 > 软件 (D:) > 工作软件 > 东达30			~ [©]	搜索"2.Drive
名称	修改日期	类型	大小	
NcUsbPod.dll	2018/1/15 16:13	应用程序扩展	420 KE	3
EXHC-MKX-V drive V2.58.4.zip	2018/6/11 14:34	好压 ZIP 压缩文件	197 KE	3



共享 ▼ 新建文件夹			
	Transaetter	(ceresce	All the second s
名称	修改日期	类型	大小
S Flash.dll	2008/7/16 3:01	应用程序扩展	1,070 KB
🚳 JoyStick.dll	2007/9/5 4:33	应用程序扩展	180 KB
🚳 NcUsbPod.dll	2016/10/13 9:43	应用程序扩展	272 KB
S PrinterScope.dll	2008/10/26 22:58	应用程序扩展	256 KB
🚳 TurnDiags.dll	2008/10/26 23:31	应用程序扩展	256 KB
Video.dll	2007/9/20 11:57	应用程序扩展	304 KB

At last, click reset button to keep it green , let machine can normal work.



3 Mach3 software setting

Method 1:

Copy mach3mill.xml fromSetting file we gave to the filewhere Mach3

installed, The file is used to basic software setting .



3 🕨 芯合成V2.38.8	English Manual 🕨	Mach3 config file 🔸	4 axis card mk4	config 👻
共享 ▼ 新建文	件夹			
名称	<u>^</u>	修改日期	类型	大小
🔮 Mach3Mill 💙		2016/10/13 9:43	XML 文档	150 KB

Then all setting will be done, machine ready to work.

Method 2: manually setting step by step:

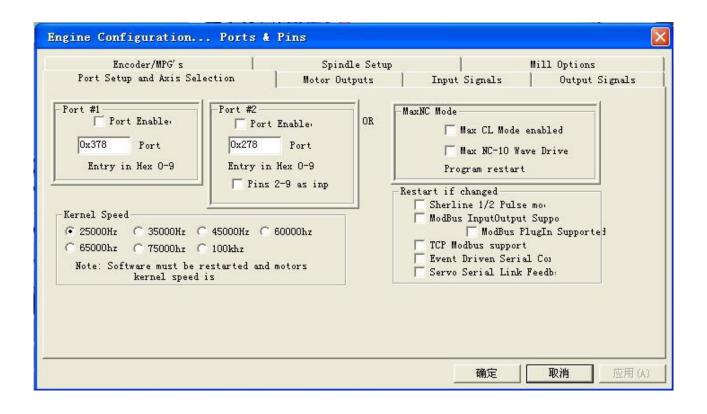
First, X Y Z A Axis output configuration as below, select config, Ports

and pins .

File C	Config Function Cfg's View	Wizards	Operator	PlugIn Control	Help	
	Select Native Units	I (Alt-2)	Too	I Path (Alt-4)	Offset	s (Alt-5)
-	Ports and Pins	. (- (* *** *)
	Motor Tuning					- 1
	General Config					Â.
	System Hotkeys					121
	Homing/Limits					
	ToolPath					
	Slave Axis					
	Backlash				_	
	Fixtures					
	ToolTable					
	Config Plugins					
	Spindle Pulleys					
	Safe_Z Setup					-
	Save Settings	_	_			

Then ,make all setting as below:





Encoder/MPG's Port Setup and Axis Selection			Spindle Setup Motor Outputs Input		 Input Signa	Mill Options t Signals Output Signal		
Signal	Enabled	Step Pin#	Dir Pin#	Dir Low	Step Lo	Step Port	Dir Port	
X Axis	4	2	6	4	4	1	1	
Y Axis	4	3	7	4	4	1	1	
Z Axis	4	4	8	4	4	1	1	
A Axis	*	5	9	4	4	1	1	
B Axis	*	10	11	4	4	0	0	
C Axis	*	12	13	4	4	0	0	
Spindle	4	0	0	4	4	0	0	
					 确5		肖 应用	



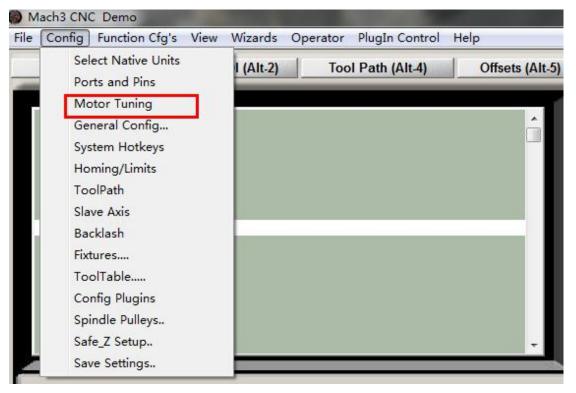


	der/MPG's		22 C	e Setup		Mill Op	
Port Setup	and Axis Sel	lection	Motor Outp	uts	Input Signals	01	itput Signals
Signal	Enabled	Port #	Pin Number	Active Low	Emulated	HotKey	~
с	X	1	0	X	X	0	
C Home	×	1	0	X	X	0	
Input #1	X	1	0	X	X	0	
Input #2	X	1	0	X	X	0	
Input #3	×	1	0	X	X	0	
Input #4	X	1	0	×	X	0	
Probe	4	1	4	4	X	0	
Index	X	1	0	X	X	0	
Limit Ovrd	×	1	0	×	X	0	
EStop	4	1	5	4	×	46	~
	1 64		1.7	1 📫	l na	1.7	
	Pins 10-13 :	and 15 are inp	uts. Only these	5 pin numbers	Teas of	d Setup of I	nputs

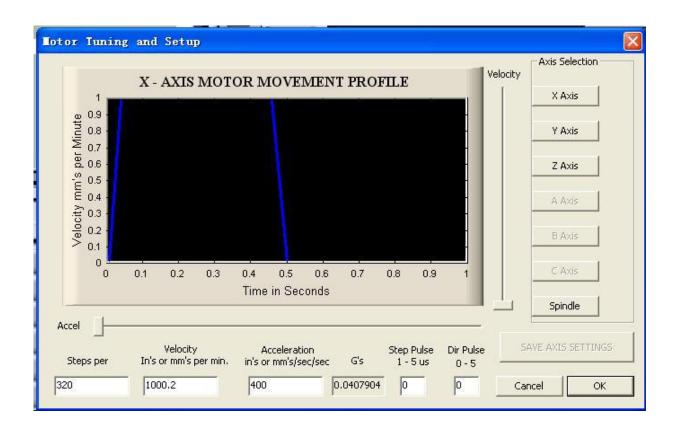


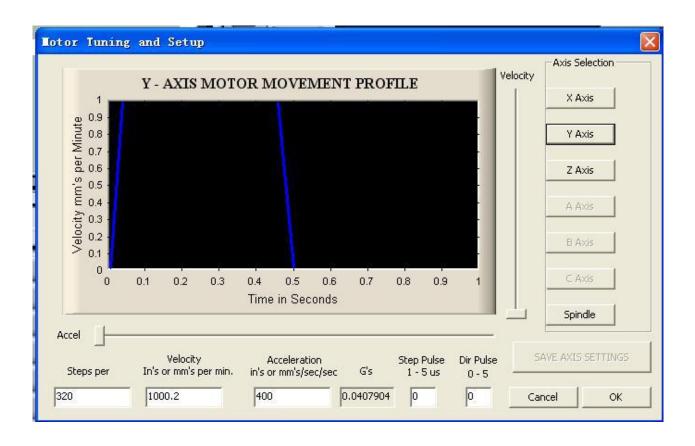
Encoder/MPG's Port Setup and Axis Selection		1 A A A A A A A A A A A A A A A A A A A	indle Setup Outputs In	put Signals	11 Options Output Signal:
Tore becap and		1	outhers I m	par biginits	
Signal	Enabled	Port #	Pin Number	Active Low	~
Enable4	X	1	0	X	
Enable5	X	1	0	X	
Enable6	X	1	0	X	
Output #1	4	1	0	4	
Output #2	4	1	1	4	
Output #3	4	1	2	4	
Output #4	4	1	3	4	
Output #5	4	1	4	4	
Output #6	4	1	5	4	
Charge Pump	X	1	0	X	
Charge Pump2	8	1	0	X	~
Pin	s 2 - 9 , 1, 14, 1	6, and 17 are ou	itput pins. No other	pin	

Motor parameter settings, X Y Z Axis setting is completely same

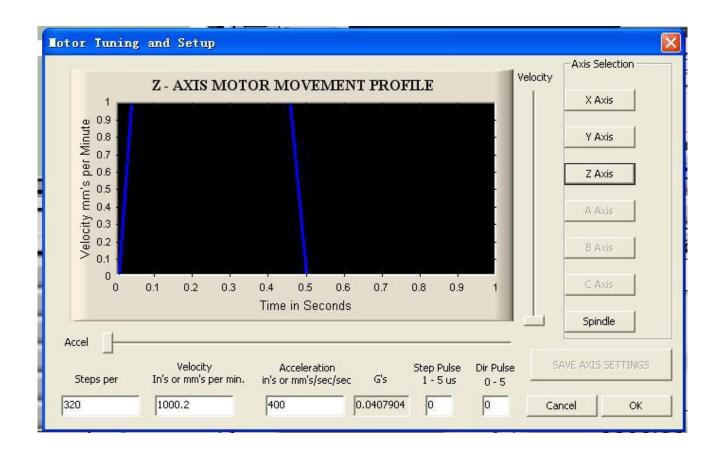












Input Signals for mechanical limit, Estop, Probe, Noted: The

machine did not support Motor Home/Soft limit, So no need to set.

	coder/MPG's up and Axis Se	lection	Spindl Motor Out	e Setup puts	I Input Signal	Mill Og .s O	ptions Nutput Signals
Signal	Enabled	Port #	Pin Number	Active Low	Emulated	HotKey	<u>^</u>
X ++	4	2	1	4	X	0	- III
X	4	2	1	4	X	0	
X Home	X	2	1	4	X	0	_
Y ++	4	2	2	4	X	0	
γ	4	2	2	4	X	0	
Y Home	×	2	2	4	×	0	
Z ++	4	2	3	4	*	0	.
	Pins 10-13 (and 15 are ing	outs. Only these	5 pin numbers		1.	



Port Setup and Axis Selection Motor Outputs Input Signals Signal Enabled Port # Pin Number Active Low Emulated HotKer Z ++ 4 2 3 4 8 0 Z 4 2 3 4 8 0 Z Home 2 3 4 8 0	Output S	Signals
Z ++ Image: A formation of the state of		
Z Image: A constraint of the second se		
Z Home 2 3 2 0		
ha ha		
A++ 🕅 0 0 🕷 🕷 0		
A 🗶 0 0 🗶 🗶 0		
A Home 🕷 0 0 🕷 🕷 0		
B++ 🗶 0 0 🗶 🗶 0		
Port Setup and Axis Selection Motor Outputs Input Signals	Output S	
Signal Enabled Port # Pin Number Active Low Emulated HotKe	<u>y</u> ^	
Input #4 2 0 0 2 2 2 2 0 0		
Input #3 M O O M M O Input #4 M O O M M		
Input #3 M O O M M O M M O M M O M M O M M O M M O M M O M M O M M M<	II	
Input #3 M O O M M O Input #4 0 0 M M 0 0 0 M 0 0 0 M 0 0 0 M 0 0 0 0 0 0		
Input #3 M O O M M O Input #4 M 0 0 M M 0 Probe M 2 10 M M 0 Index M 0 0 M M 0 Limit Ovrd M 0 0 M M 0 EStop M 2 16 M M 0		
Input #3 Implet #3 <th< td=""><td>E</td><td></td></th<>	E	

Output Signals:



	r/MPG's nd Axis Selection		indle Setup Outputs Ing	ut Signals	ill Options Output Signals
fort Setup a	IN AXIS SELECTION	motor	outputs inf	out orginals	
Signal	Enabled	Port #	Pin Number	Active Low	
Digit Trig	*	2	0	×	E
Enable1	4	2	16	4	
Enable2	4	2	15	4	
Enable3	4	2	13	4	
Enable4	4	2	14	4	
Enable5	*	2	13	X	
Enable6	*	2	0	X	
A.44 #1	×	2	16	2	—
Pi	ns 2 - 9 , 1, 14,	16, and 17 are o	ıtput pins. No other	pin	

	Axis Selection		indle Setup Outputs Ing	ut Signals	ill Options Output Signals
Signal	Enabled	Port #	Pin Number	Active Low	•
Enable4	4	2	14	4	
Enable5	×	2	0	X	E
Enable6	×	2	0	X	
Output #1	*	2	0	*	
Output #2	X	2	0	X	
Output #3	×	2	0	*	
Output #4	*	2	0	X	
Out-out #5	2		0	2	T



Spindle speed control as below:

Fort Spindle speed control	Motor Outputs Spindle Set		ut Signals	Outpu Mill Optics
Flood Mist Control	Notor Control Vise Spindle Motor Outj FMM Control Step/Dir Moto PMMDass Freq. 10 Minioum PMM 1 x	□ Closed P 0.25 □ Spindle	ndle Feedbach Loop Spindle	Cont 0.3 pi
Mist Output 4 0 Flood Output 3 0 Output Signal #'s ModBus Spindle - Use Step/Dir as w	General Parameters CM Delay Spin UP 1 CCW Delay Spin UP 1 will Jalay Spind DOWN 1 CCW Delay Spin DOWN 1 CCW Delay Spin DOWN 1	Seconds Seconds Seconds Seconds	Special Op HotVira Laser W	tions, Usuall Heat for J Jode. fr Colts Conto
			确定	取消

USB Motion control card configuration

Config Function Cfg's View	v Wizards	Operator	PlugIn Control	Help
Select Native Units Ports and Pins Motor Tuning General Config System Hotkeys Homing/Limits ToolPath	l (Alt-2)	Too	I Path (Alt-4)	Offsets (Al
Slave Axis Backlash Fixtures ToolTable				
Config Plugins				
 Spindle Pulleys Safe_Z Setup Save Settings				÷

igIn Control and Activation					
Enabled	PlugIn Name	Config			
4	Flash-FlashScreen-SWF-PlugIn-A.FenertyBBar	CONFIG			
X	JoyStick-JoyStick-PlugInArt-Fenerty-Ver-1.0a	CONFIG			
4	NcUsbPod-XHC-Mach3-USB-Motion-Card 🔶	CONFIG			



	Status		User Configs
 ✓ Pod Powered On ✓ Pod in Pause ✓ Pod in Wait condition ✓ Probe Hit ✓ Limit or Estop hit 	Outputs Out1 Out2 Out2 Out3 Out4 Out5 Out6 Out6 Out7 Out8	Inputs->MachPins ▼ P1-Pin0 ▼ P1-Pin8 ▼ P1-Pin1 ▼ P1-Pin9 ▼ P1-Pin2 ▼ P1-Pin10 ▼ P1-Pin3 ▼ P1-Pin11 ▼ P1-Pin3 ▼ P1-Pin12 ▼ P1-Pin4 ▼ P1-Pin12 ▼ P1-Pin5 ▼ P1-Pin13 ▼ P1-Pin5 ▼ P1-Pin14 ▼ P1-Pin6 ▼ P1-Pin14 ▼ P1-Pin7 ▼ P1-Pin15	
Home Switches	z ∏ а ∏ в	☐ C ☐ GSpeedHigh	Please Insert XHC NcUsbPod!
Homing		off	ouput lest
○ No Homing ● Single Stage	X Pull Off Y Pull Off	5 A Pull Off 5	

At last, Open

software ,Choose"NcUsbPod-XHC-Mach3-USB-Motion-Card",andChoo

se "Don't ask me this again"

tion Control Hardware PlugIn	sensed!!	
Your system is showing more	than one control device	
Please pick the one you wou	Ild like this profile to use.	
C Normal Printer port	Operation.	
RcUsbPod-XHC-Ma	ach3-USB-Motion-Card	
C No Device	Choose	
C No Device	"NcusbPod-XHC	C-Mach3-USB-Motion-Car
C No Device		
Dont ask me this again	OK	

All above, The MACH3 installation and setting is finished.



Part 3 FAQ

1. The Axis moving direction is wrong

Which Axis goes wrong direction , you change that Axis below Dirlow active setting ,If home moving way reverse ,change Active low from $\sqrt{}$

to X , or change from X to $\ \sqrt{}.$

E	ncoder/MPG's		Spin	ndle Setup		Mill (Options
Port Set	up and Axis Sei	lection	Motor O	utputs	Input Signal	ls	Output Signals
Signal	Enabled	Step Pin#	Dir Pin#	Dir LowAc	Step Low	Step Port	Dir Port
X Axis	4	2	6	4	4	1	1
Y Axis	4	3	7	4	4	1	1
Z Axis	4	4	8	4	4	1	1
A Axis	4	5	9	4	4	1	1

2.USB motion card can be found by MACH3

Make sure USB cable connection is good ,make sure VFD has ground

and input power of VFD has electrical filter to isolate noise.

3. How to ref all home

Firstly enbale X Home , Y Home , Z Home , and confirm setting is correct.



	coder/MPG's p and Axis Sel	ection	Spindle Motor Outp		 Input Signals	Will Option Outpu
Signal	Enabled	Port #	Pin Number	Active Low	Emulated	HotKey
X ++	4	1	0	4	×	0
X	4	1	0	4	X	0
X Home	4	1	0	4	X	0
Y ++	4	1	1	4	X	0
Y	4	1	1	4	X	0
Y Home	4	1	1	4	X	0
Z ++	4	1	2	4	X	0

Engine Configuration... Ports of Pins

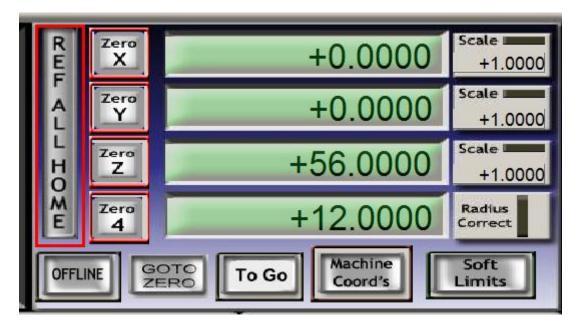
Port Setuj	p and Axis Sel	ection '	Spindle Motor Outp		Input Signals	Mill Op 01	utput Signa
Signal	Enabled	Port #	Pin Number	Active Low	Emulated	HotKey	
X Home	4	1	0	4	×	0	
Y ++	4	1	1	4	×	0	
γ	4	1	1	4	X	0	_
Y Home	4	1	1	4	X	0	
Z ++	4	1	2	4	X	0	
Z	4	1	2	4	X	0	
Z Home	4	1	2	4	X	0	-

Secondly ,Confirm plugin setting correct ,especially ,Choose single stage



	Status			ser Configs
 ✓ Pod Powered On ✓ Pod in Pause ☐ Pod in Wait condition ☐ Probe Hit ☐ Limit or Estop hit 	Outputs Out1 Out2 Out3 Out4 Out5 Out6 Out6 Out7 Out8	V P1 - Pin1 V F V P1 - Pin2 V F V P1 - Pin3 V F V P1 - Pin4 V F V P1 - Pin5 V F V P1 - Pin5 V F	P1 - Pin8 P1 P1 - Pin9 1 P1 - Pin9 9 P1 - Pin10 G P1 - Pin11 P1 - Pin12	ulse per Rotate 4 5 Code Time Buffer Time:512 ms
Home Switches ↓ LimitEn ↓ X ↓ Y ↓ stional Configs. Homing	Z 🗆 A 🗖 B		peedHigh F	Please Insert XHC NcUsbPod!
○ No Homing ● Single Stage ○ Dual Stage	X Pull Off Y Pull Off Z Pull Off	5 B Pull O	ff 5	□ 1 □ 2 □ 3 □ 4 □ 5 □ 6 □ 7 □ 8 ResetOutput

At last ,click ref all home button in MACH3.

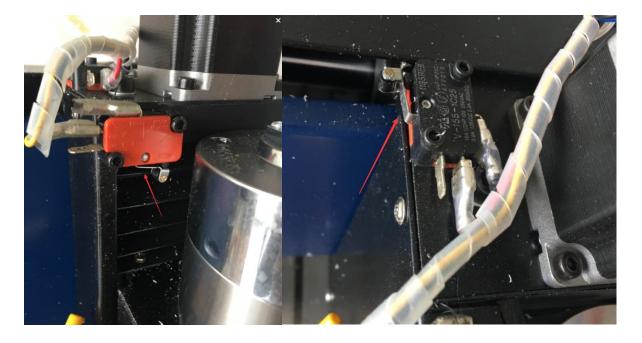


4. Manual reset limit switch

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.



5 How to active MACH3

if MACH3 software said limited version, Please copy Mach1lic to

MACH3 file

Л → 软件 (F:) → Program Files → MACH3 →			
1▼ 共享▼ 新建文件夹			
名称	修改日期	类型	大小
m1076.m1s	2008/9/25 20:44	M1S 文件	11 KB
M1083.m1s	2008/3/6 11:45	M1S 文件	4 KB
Mach1Lic	2017/1/6 18:32	dat 媒体文件	1 KB
III Mach3	2004/10/13 1:47	Kankan BMP 图像	122 KB