



# 6090 mini Numerical Control Carving Machine manual -DSP version

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# Part 1 Assembling

Tools and spare parts needed during assembly:



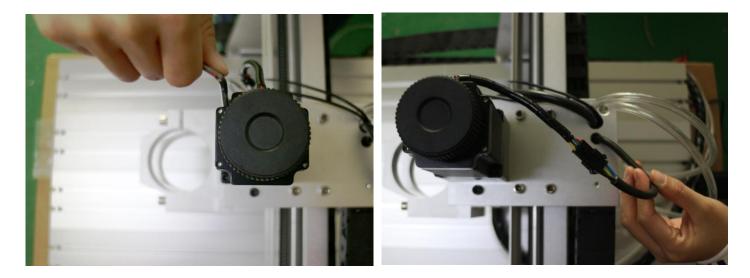
- 1.Waterpump \*1
- 2.Spanner\*2
- 3.USBcable \*1
- 4.Millingbit \*2,engraving bit \*3
- 5.Clamp tool \*6
- 6.Power cable \*1
- 7.Stepper motors \*3





1. Open the wooden box you received as below:

2. Then unpack wooden box , the machine is almost assembled. Only need to install step motors and water pump. All 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.

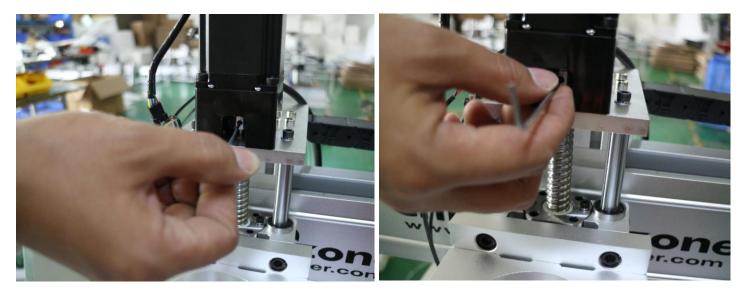




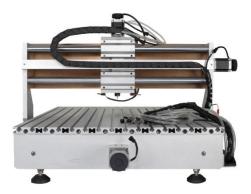
Second, You can try to found the screw position before installation.



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



At last , The step motors installation finished .





3.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.







4. Last step, Water pump connection. Connect pipes between water pump and spindle.

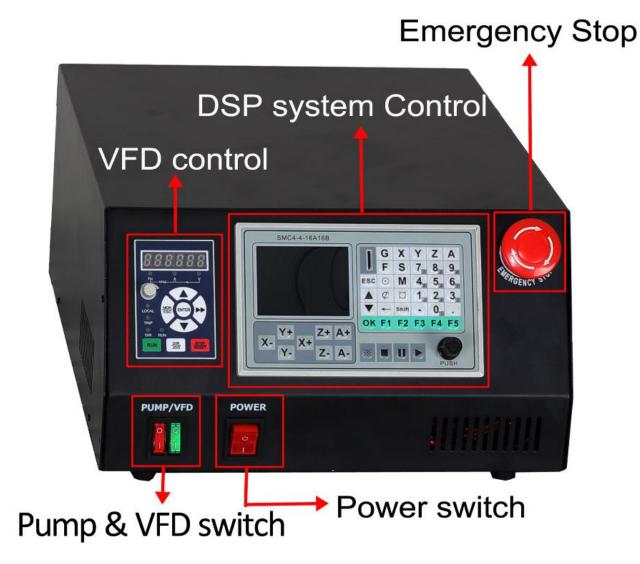
Attention: The water pump can not put into the water, it's very dangerous. Just keep water pump outside of tank. If the water pump is wet, cut off the electricity and dry it.



And also connect power cable to controller box according to marks.



# 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  $\blacktriangle$  key and  $\blacktriangledown$  key, move red cursor in LCD display to select Machine setting ,press **ok**.



SMC4-4-16A16B
$\begin{array}{c c c c c c c c c c c c c c c c c c c $

Machine Configuration:    MotoBasic  G Code  简体中文    LimitedIN  KeyIO  繁体中文    Home  Spindle  English    IO Out  About  Factory		SHAOGEGNC	<b>9.</b> 100
LimitedINKeyIO繁体中文HomeSpindleEnglishIO OutAboutFactory	he Machine Contigur	ation:	
Home Spindle English IO Out About Factory	MotoBasic	G Code	简体中文
IO Out About Factory	LimitedIN	KeyIO	繁体中文。
	Home	Spindle	English
	IO Out	About	Factory
SoftLimit Test Exit	SoftLimit	Test	Exit

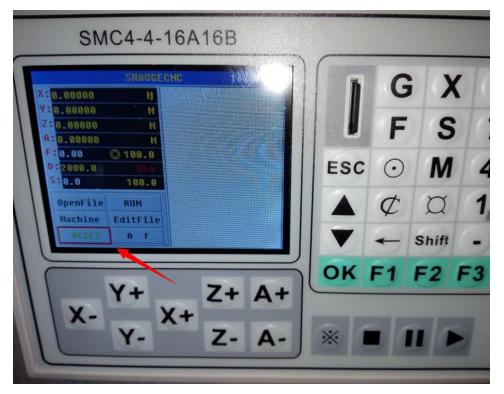
Check setting as below:



	SINC4	-4-16	6A16	В
	SI	HAOGECNC		1
he Moto Co		Y Axis	Z Axis	A Axis
StepsPer:	320	320	320	40
Velocity:	2800	2800	2800	1000
Acceleration	n: 300	300	300	150
StepLowAc	tivlo	0	0	0
DirLowActi	ve: 0	1	1	1
StepTimer	: 1	1	1	1
		Save	Exit	

### 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.

SMC4-4-16A16B	
X- X+ Z+ A+	$\begin{bmatrix} G & X & Y \\ F & S & 7_{T} \\ ESC & O & M & 4_{R} \\ \hline C & I_{T} \\ \hline C & I_{T} \\ \hline C & Shift \\ - & C \\ \hline C & F1 & F2 & F3 & F \\ \hline C & I & F1 & F2 \\ \hline C & F1 & F2 & F3 & F \\ \hline C & F1 & F1 & F1 & F1 \\ \hline C & F1 & F1 & F1 & F1 \\ \hline C & F1 & F1 & F1 \\$
SHADGEONC    Decosk::  SHADGEONC  1    0.0000  M      0.0000  M      0.0000  M      1.000  198.0  M     1.000  0  198.0  Open	I G F ESC O
S: 0.0 199.0 Back OpenFile RUN Machine EditFile ETVIT A F MTI.TAP Y+ Z+ A	



After open G code file, Press  $\blacktriangleright$  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.

SMC4-4-16A16B				
NT1.TAP    SHADGECNC    1      X:-20.00000    M    T1M5      Y:0.00000    M    G022.000	1	G	X	Y
Z:    1.62187    M    G0X0.000Y0.00054000      A:    0.00000    M    G9X-20.000Y0.000522.      F:    0.00    0.000    G1Z-1.000F200.00		F	S	7
0:2000.0 055 5:0.0 100.0 X-19.93291.655 X-19.93291.655 X-19.84592 404	ESC	$\odot$	M	4
OpenFile    RUN    X-19.721V3.338      Machine    EditFile    X-19.559V4.184      RESET    A    F		¢	Ø	1
H F X-19.12675.874		-	Shift	-
Y+ Z+ A+	OK	F1	F2	F3
X- X+ Z- A-		-	1	7
2- A-	*			-)



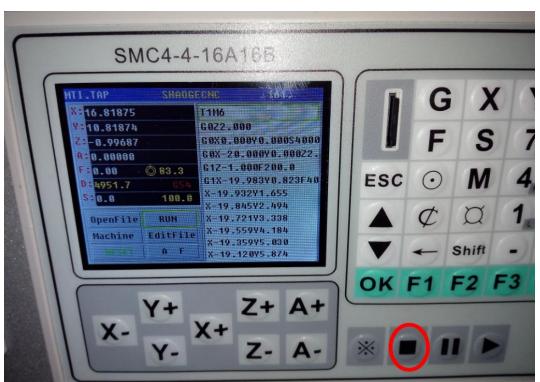


if need to change cutting tool or other something Pause machine, The

machine is easy to restart to work in same point.







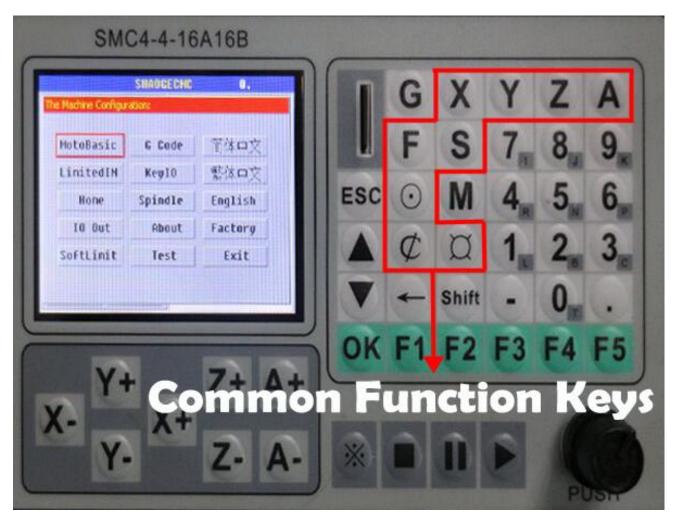
Using below square button to end work

Then using **Push Knob** or  $\blacktriangle$  key and  $\blacktriangledown$  key, to quit file and do other

work.



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



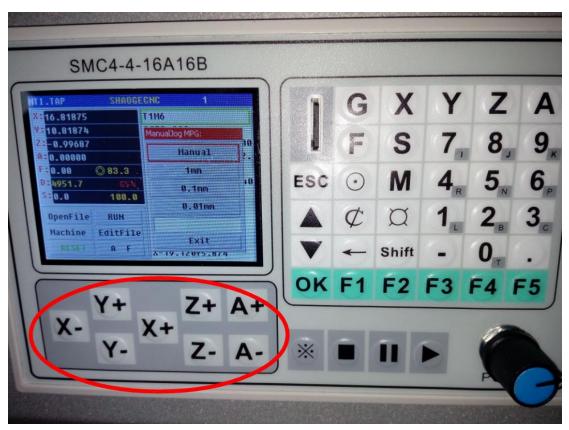
#### **1** Common Function keys introduction

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  $\square$  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 clockwiserotation ,anticlockwise rotation in DSP control ,can set in VFD control.Press Run and Dir button to set.

				-
SMC4-4-16A16B				
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	ESC A V OK	G F ⊙ ⊄ F1	X S M Shift F2	4, 1,



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

SMC4-4-16A16B		und and one of the state				
SHADEENC  161.    X: 25.00000	ESC	G F ⊙ ⊄ ↓	X S M Q Shift	Y 7 4 1 -	Z 8, 5, 2, 0,	4 9 6 3
X-Y+ X-Y-X+Z-A-	OK ×	F1	F2	F3	F4	F5

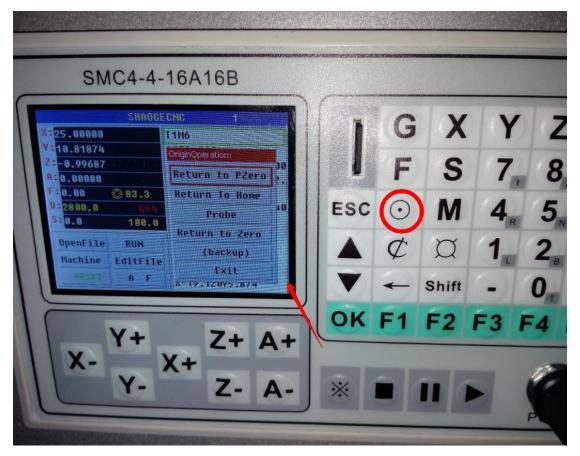
Panel button  $\mathcal{C}$  is Coordinate Cleaning Operation, used to cleaning each

Axis coordinate .





Panel button  $\odot$  is Origin Point Setting,



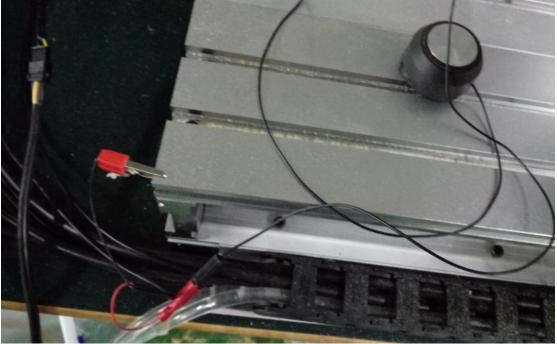


## 2 Start position setting

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=26.5mm.



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





SMC4-4-16A16B SHADGECNC 1. The Machine Confear Non:	G
HotoBasir & Code 简体中文 LiniedIN KeylD 繁体中文 Home Spindle English IO Out Rbout Factory SoffLimit Test Exit	F ESC ⊙ A ⊄ V ← F1



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



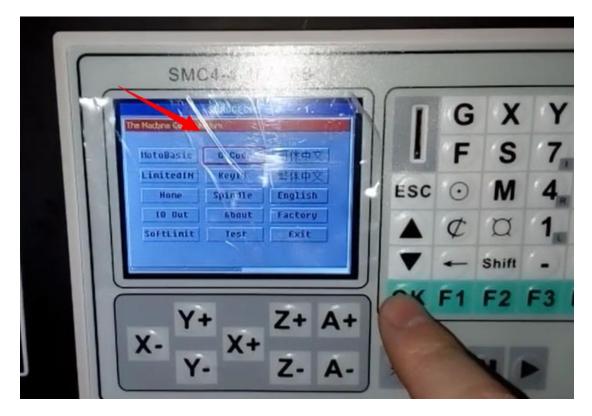


Press ok to quit test interface.





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





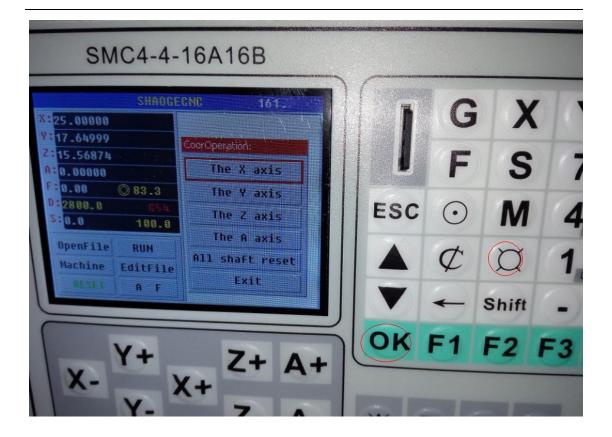
SMC4-4-16A16B			
SHROGECNE 161-,	1	G	X
G2/G3Correi05 ChordLeni05		F	S
CVEnabled:OCVL:5G1HinLen:D.0001(backup)O(backup)O(backup)O	ESC	$\odot$	M
Lift Z: 5 (backup) 0 ProbeL: 26.5 ProbeBL: 5 Save Exit		¢	Ø
Sade CALL		-	Shift
	OK	F1	F2 F
X- X+ Z+ A+		-	-
Y- Z- A-	*		

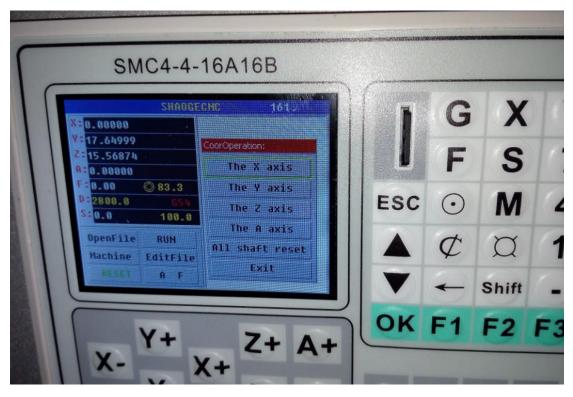
Moving the spindle to the position where you want , Then cleaning X and

Y Axis

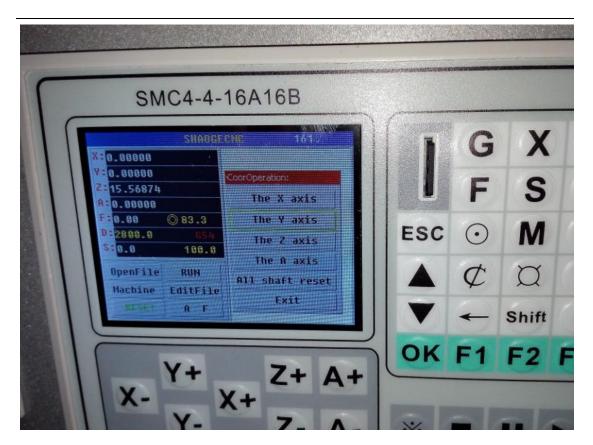












Put probe under spindle again



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

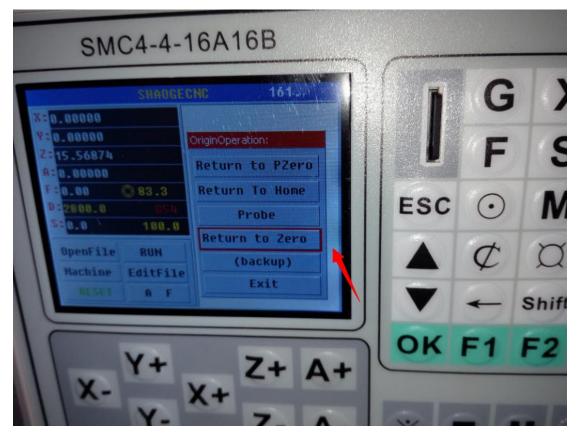


#### cleaning Z Axis



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.

	SHAOGECNC	0. Tak
he Machine Configui	ration:	
MotoBasic	G Code	简体中文
LimitedIN	KeyIO	繁体中文。
Home	Spindle	English
IO Out	About	Factory
SoftLimit	Test	Exit

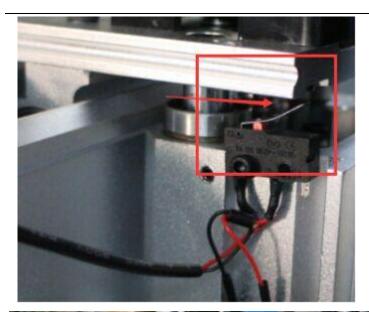


5	SMC4	-4-1(	3416	В	
		IAOGECI		8.	
The Moto Co		Y Axis	Z Axis	A Axis	
StepsPer:	320	320	320	40	
Velocity:	2800	2800	2800	1000	
Acceleration	n: 300	300	300	150	E
StepLowAc		0	0	D	
DirLowActi	And a second sec	<u>_1</u>	1	1	
StepTimer	· <u>/</u> ł	1		1	
		Save	Exit		

#### 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  $0.05\,$ 

511104-4-1011010000000000000000000000000	7
SHAOGECINC	
The Machine Configuration:	
MotoBasic G Code 简体中文	
LimitedIN Key10 繁体中文	
Home Spindle English	
IO OutAboutFactorySoftLimitTestExit	
SoftLimit lest LAR	
	51
SIVIC4-4-10A100	
	>
SHAOGECNC 9.	1
The Other Configuration:	
G2/G3Correi0.5 ChordLen(0.5	
CUEnabled: 0 CUL: 5	
G1MinLen: 0.0001 (backup) 0 (backup) 0 (backup) 0	
Lift Z: 5 (backup)	1
Save Exit	



## 4. Package information

When unpack wooden box, some client thought machine lack accessories, That is misunderstanding. After you installed step motor, The machine will be ready

