

USER MANUAL

Genmitsu

CNC Router 3018-PRO

V1.1 Sept 2020



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Welcome

Thank you for purchasing the Genmitsu 3018-PRO CNC Router from SainSmart.

Included in your package will be a Micro SD card. On the Micro SD Card, you will find:

- Assembly instruction videos
- PDF version of this manual
- Windows USB Driver
- GrblControl/Candle software for Windows
- Sample files
- Offline Controller control files

These files can also be downloaded from
SainSmart Online Resource Center

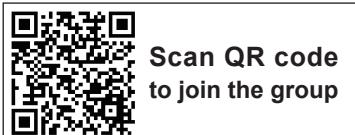
<https://docs.sainsmart.com/3018pro>



Before attempting to assemble the 3018 PRO, please watch the assembly video on the Micro SD card that came with your machine. This will save time and avoid mistakes.

For technical support, please email us at support@sainsmart.com.

Help and support is also available from our Facebook group.
(SainSmart Genmitsu CNC Users Group)





Disclaimer

Before operating your Desktop CNC Machine, please read the manual. Failure to do so may lead to personal injury, poor results, or damage to the CNC Machine. Anyone who operates the Desktop CNC machine should know and understand the contents of this manual.

SainSmart cannot control the conditions in which you assemble your Genmitsu CNC machine or verify if it was done properly. We do not assume responsibility and expressly disclaim liability for loss, injuries, damage, or expense arising out of, or in any way connected with the assembly, handling, storage, use, or disposal of the product.

The information in this manual is provided without any warranty, expressed or implied, regarding its correctness.



Please be careful when using your CNC machine. This machine is an electrical device with moving parts and dangerous areas.

- Genmitsu CNC Machines are for Indoor Use Only.
- You must be 18 years or older to operate this machine, unless supervised by a knowledgeable adult familiar with the machine.
- Wear the proper Personal Protection Equipment (Safety Glasses etc.).
- Always place the CNC Machine on a stable surface.
- The SainSmart Genmitsu CNC Machine is supplied with Switchable Power Supply 230 VAC or 110VAC. Never use a different power supply; it may cause malfunctions or damage to the machine.
- Ensure the Emergency stop button is easily accessible at all times.
- Never disassemble the Power Supply or Electrical Components. This will VOID the warranty.
- DO NOT TOUCH the machine spindle, or place any body part near the working area when the machine is operating. Serious Injury may occur.
- DO NOT leave children unsupervised with the CNC Machine even when it's not operating. Injury may occur.
- DO NOT leave the machine unattended while it's operating.
- Ensure your CNC Machine is in a well-ventilated area. Some Materials may discharge smoke or fumes during operation.



Part 1 - Unboxing

Please make sure all the following parts are included. If you are missing any part or have any questions, please email us at support@sainsmart.com.



1 (2) Aluminum Profile
20 x 40 x 290 mm



2 (2) Aluminum Profile
20 x 20 x 360mm



3 Aluminum Profile
300 x 180mm



4 (2) Guide Rail
X Axis, Ø10 x 360mm



5 (2) Guide Rail
Y Axis, Ø10 x 290mm



6 Lead Screw 365mm



7 Lead Screw 295mm



8 Bakelite Resin Plate A



9 Bakelite Resin Plate B



10 Bakelite Resin Plate C



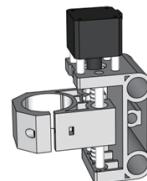
11 Bakelite Resin Plate D



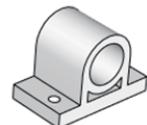
12 (2) Stepper motor



13 Spindle with ER11 installed



14 X-Z Axis Assembly



15 (4) Slider



16 (10) Milling Cutter



23 (3) 4-Pin Motor Harness



24 Spindle Motor Harness



25 24V Power Supply



26 Control Board &
Fan & Case



27 (4) Plate Clamp



28 Spiral Wire Wrap



29 USB Disk with SD Card



30 (4) Allen Wrench
2.0mm,2.5mm,
3.0mm,4.0mm



31 (4) Bolt M5 x 10



32 (34) Bolt M5 x 16



33 (8) Bolt M3 x 14



34 (2) Copper Nut



35 (16) T-Nut 20M5



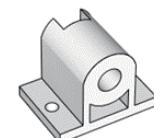
36 (10) T-Nut 30M5



37 (2) Anti-Backlash Spring



38 (3) Coupling & Set Screw



39 Nut Seat

Optional Accessories (Not Included)

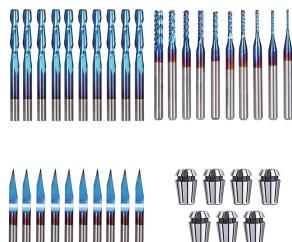
Consider following optional upgrades or accessories to make your CNC experience better!

You can find them on www.sainsmart.com.

Save 10% with discount code **3018PRO10**



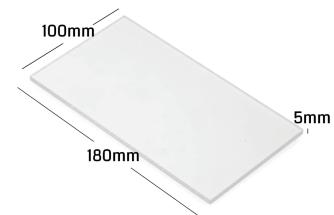
5.5W Laser Module



CNC Router Bits Essential Kit



Resin Board for CNC
Engraving, 2-Pack



Acrylic Sheet for CNC,
180 x 100 x 5mm, 4-Pcs



Scan QR codes to learn more



Part 2 - Assembly

Step 1 Base Installation

What you will need



1 (2) Aluminum Profile
20 x 40 x 290 mm



5 (2) Guide Rail
Y Axis, Ø10 x 290mm



8 Bakelite Resin Plate A



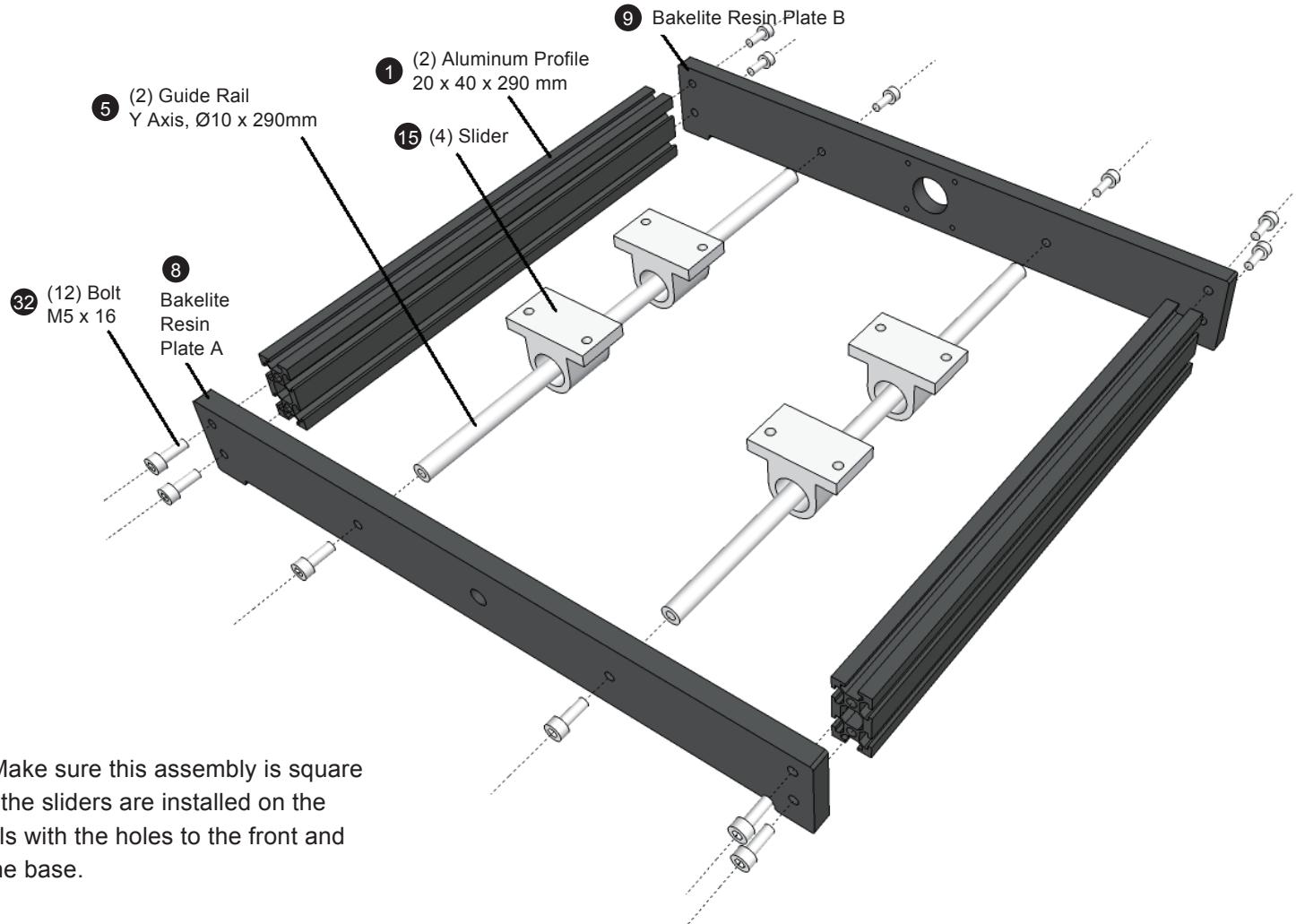
9 Bakelite Resin Plate B



15 (4) Slider



32 (12) Bolt M5 x 16



Notes: Make sure this assembly is square and that the sliders are installed on the guide rails with the holes to the front and rear of the base.

Step 2 Worktable Assembly

What you will need



③ Aluminum Profile
300 x 180mm



⑦ Lead Screw 295mm



⑫ Stepper motor



⑳ (10) Bolt M5 x 16



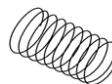
㉓ (4) Bolt M3 x 14



㉔ Copper Nut



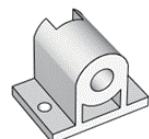
㉖ (10) T-Nut 30M5



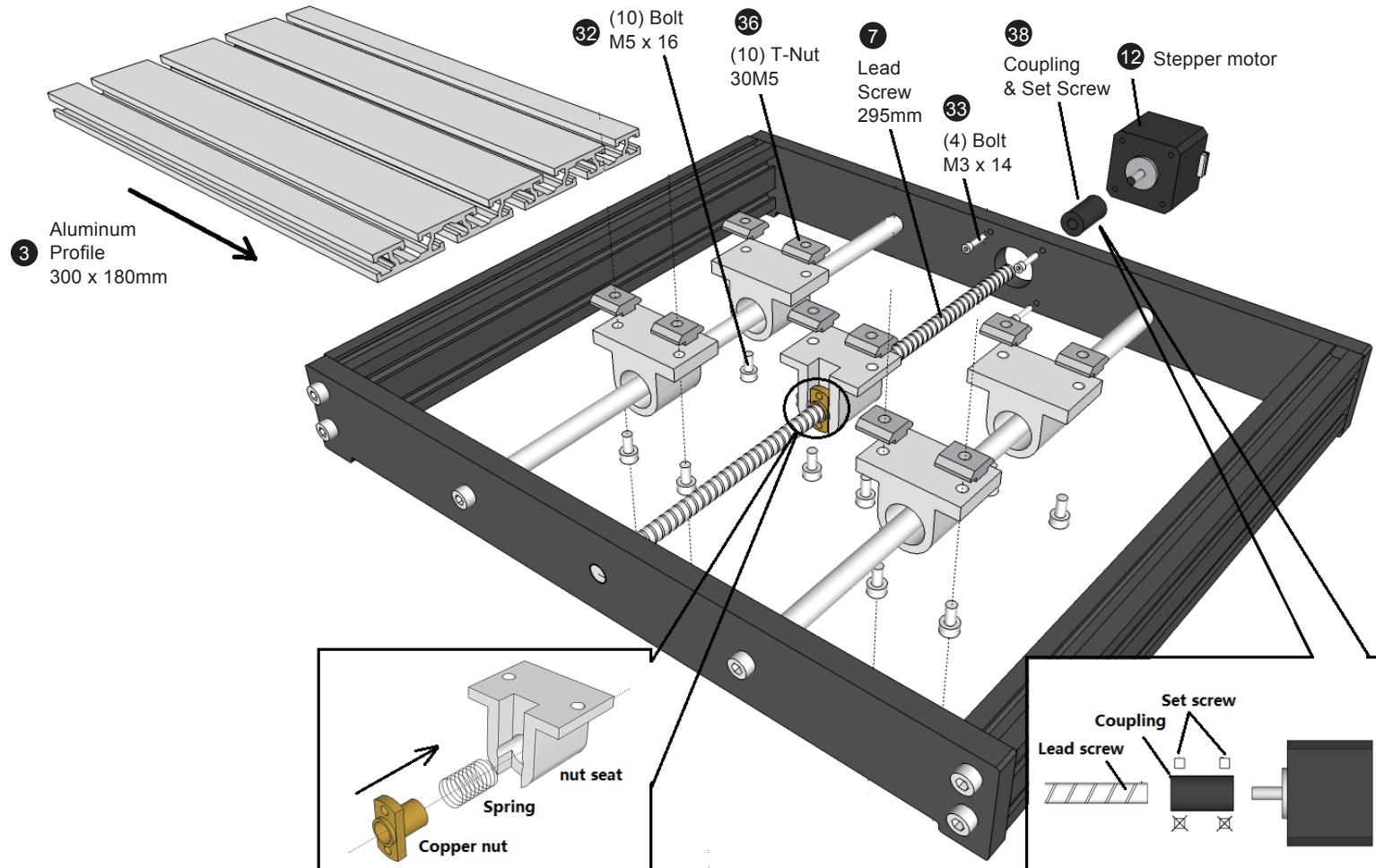
㉗ Anti-Backlash
Spring



㉘ Coupling
& Set Screw

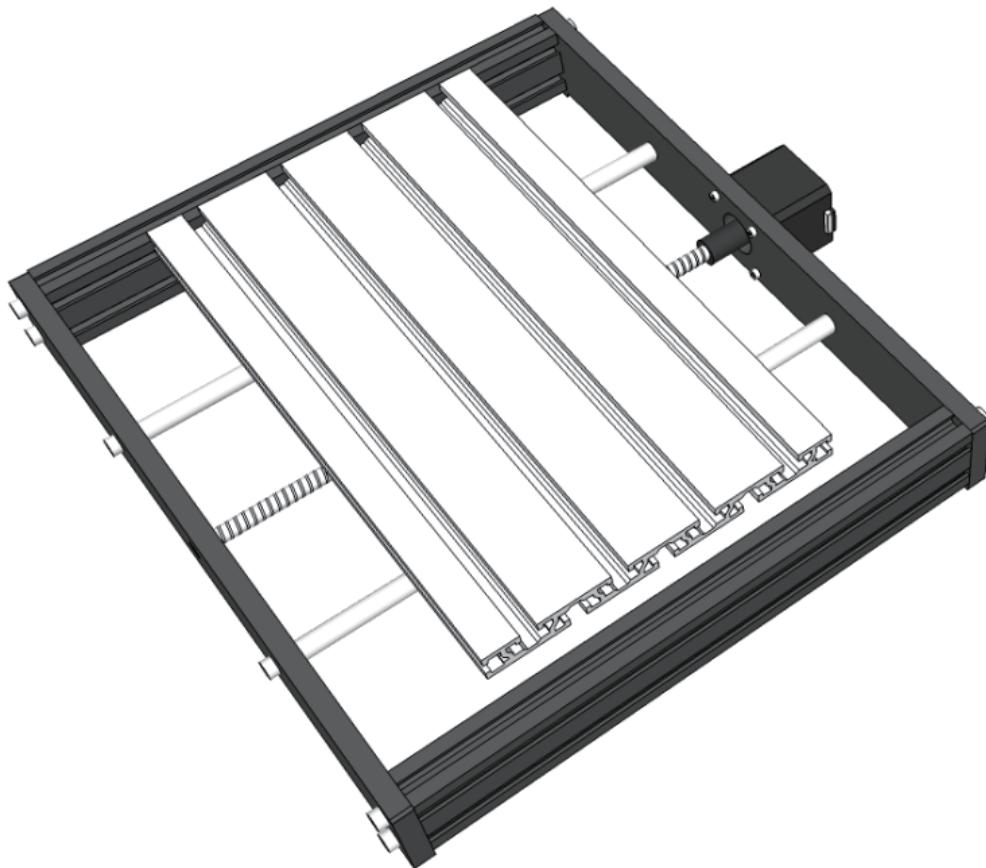


㉙ Nut Seat

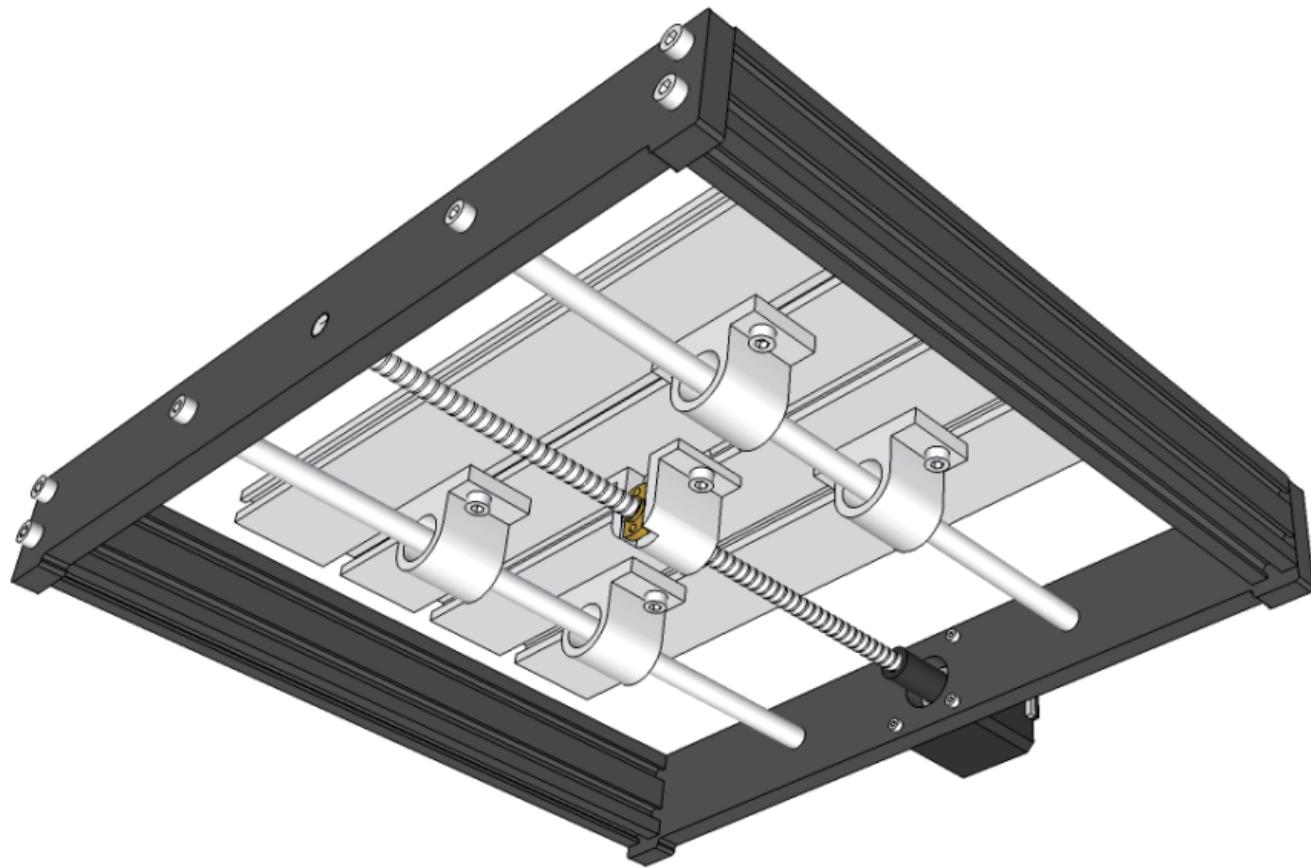


Step 3 Base Assembly - Completed View

Top view



Top view



Step 4 Top Frame Assembly

What you will need



10 Bakelite Resin Plate C



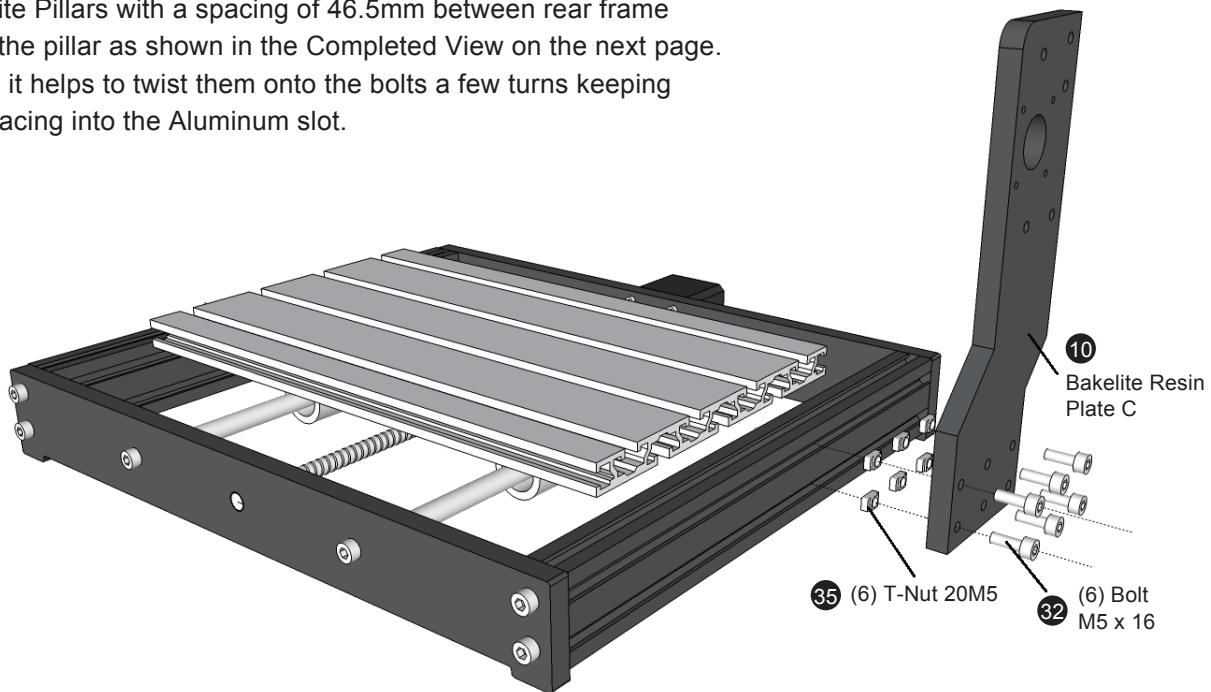
32 (6) Bolt M5 x 16



35 (6) T-Nut 20M5

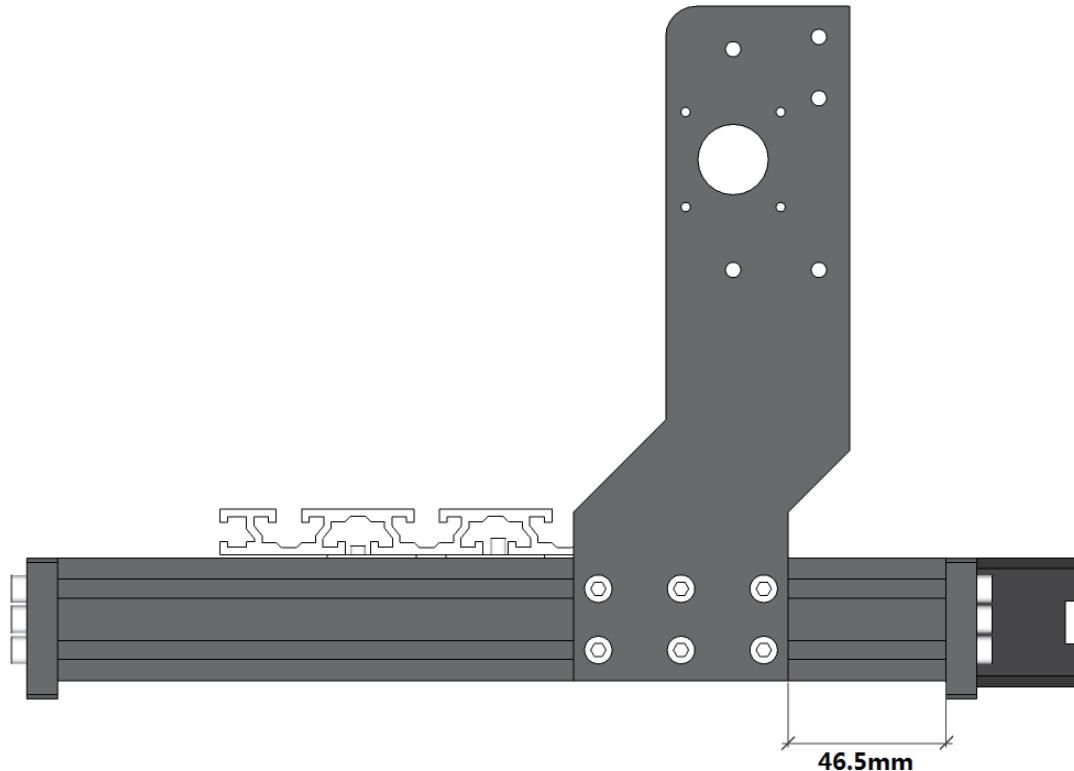
STEP 1: Position the Bakelite Pillars with a spacing of 46.5mm between rear frame piece and back of the pillar as shown in the Completed View on the next page.

Tip: When installing T-Nuts it helps to twist them onto the bolts a few turns keeping them in place before placing into the Aluminum slot.



Step 5 Completed View

Note: Back edge of Bakelite-C must be 90 degrees to the base.



Step 6 X-Z Axis Assembly Installation

What you will need



② (2) Aluminum Profile
20 x 20 x 360mm



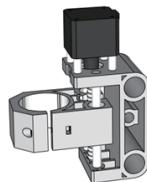
④ (2) Guide Rail
X Axis, Ø10 x 360mm



⑥ Lead Screw 365mm



⑫ (2) Stepper motor



⑯ X-Z Axis Assembly



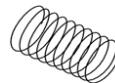
⑯ (4) Bolt M5 x 16



⑯ (4) Bolt M3 x 14



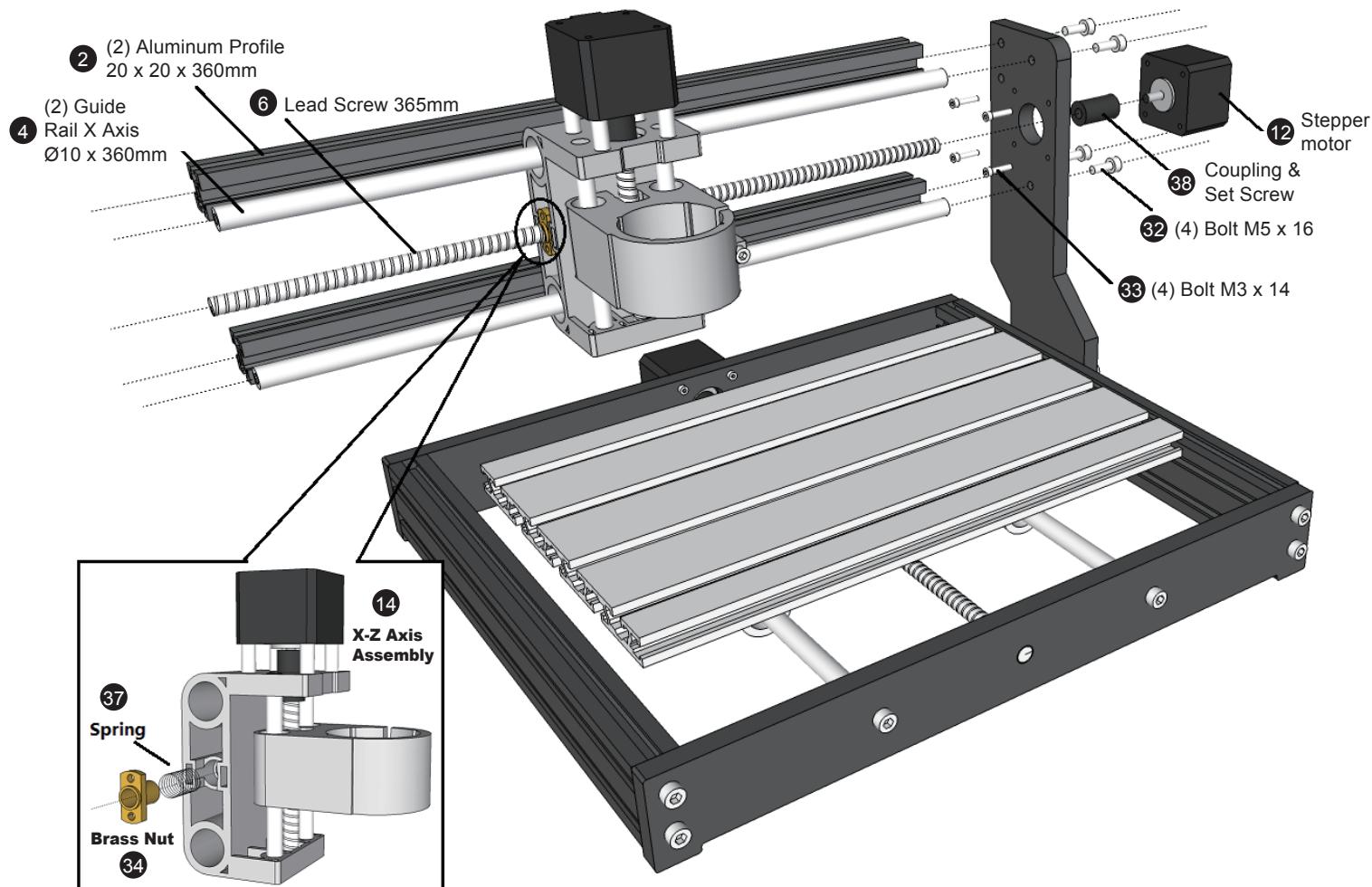
⑯ Copper Nut



⑯ Anti-Backlash Spring



⑯ Coupling & Set Screw



Step 7 Bakelite-D Installation

What you will need



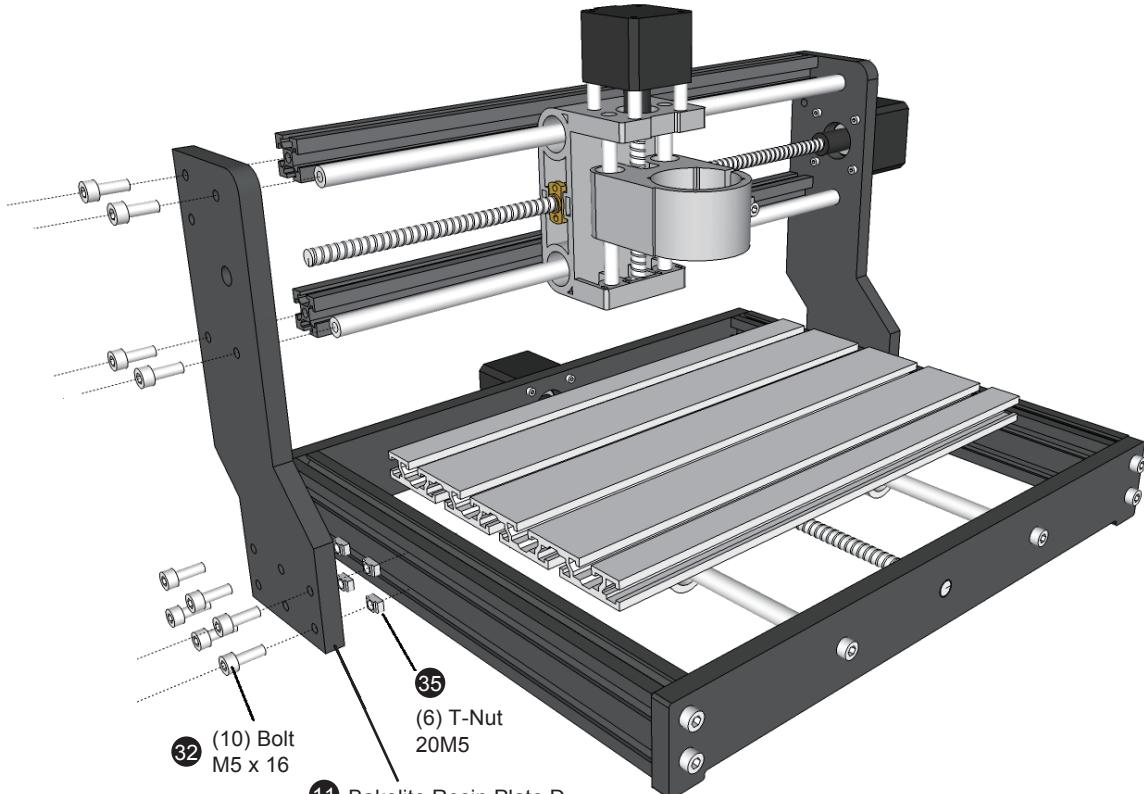
11 Bakelite Resin Plate D



32 (10) Bolt M5 x 16



35 (6) T-Nut 20M5



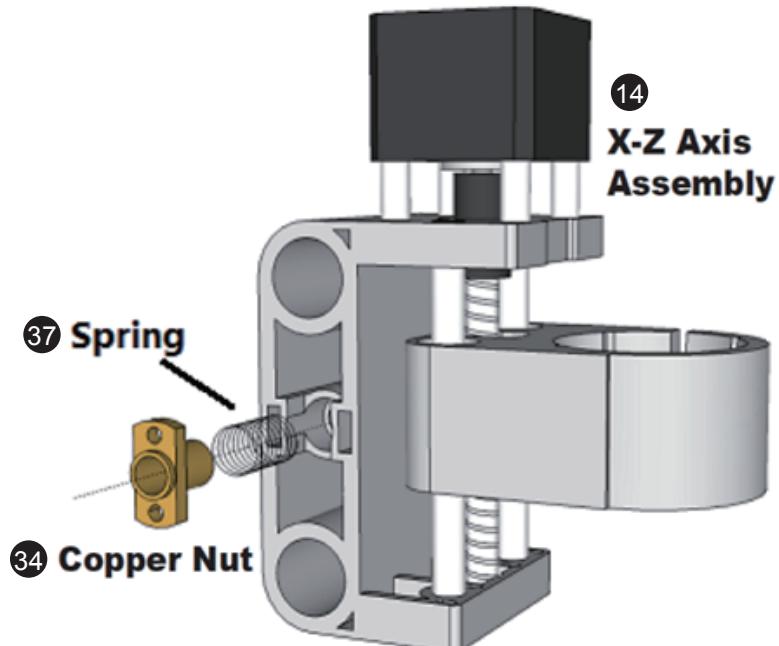
Step 8 Z - Axis Assembly

Step 1: Prepare the Z Axis Carriage and Leadscrew.

Compress the Anti-Backlash Spring into the Hole shown below.

Use the Copper Nut to slide into the spring and hold it into place.

While compressed, thread the Leadscrew through the assembly.



Step 9 X-Axis Assembly

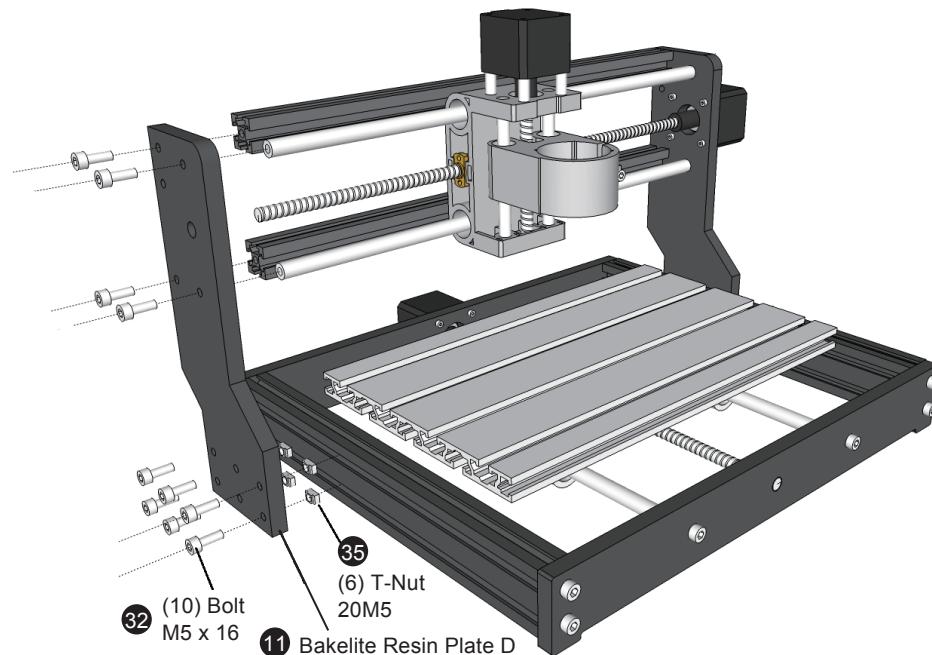
Step 1: Install (2) Aluminum Frame pieces to Bakelite Pillar C with M5x16mm Bolts.

Step 2: Install (2) Linear Rods into the holes next to the Frame pieces using M5x16mm Bolts.

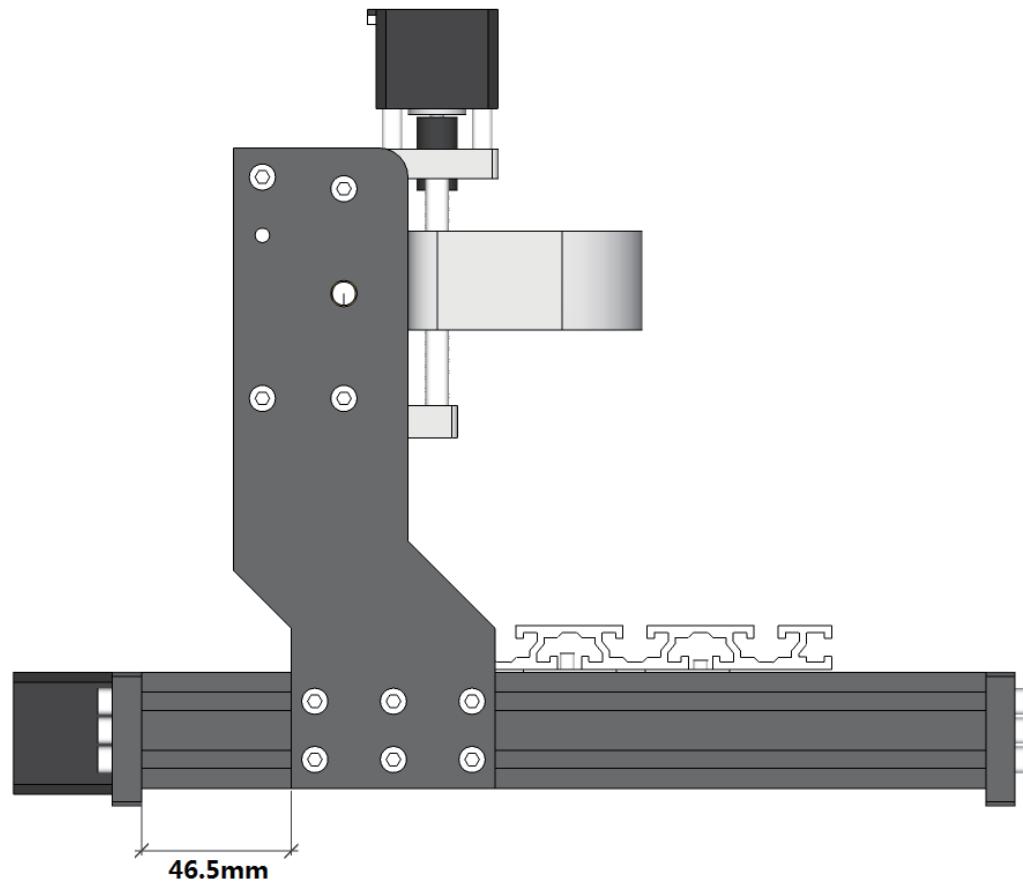
Step 3: Prepare the Stepper Motor and Install the Coupler and screw. Set the screw positioned on the Flat side of the Stepper Motor Shaft.

Step 4: Slide the Z-Axis Assembly onto the Linear Rods. Push the Assembly to the right until the Leadscrew is positioned inside the coupler. Secure the Leadscrew with the coupler set screw.

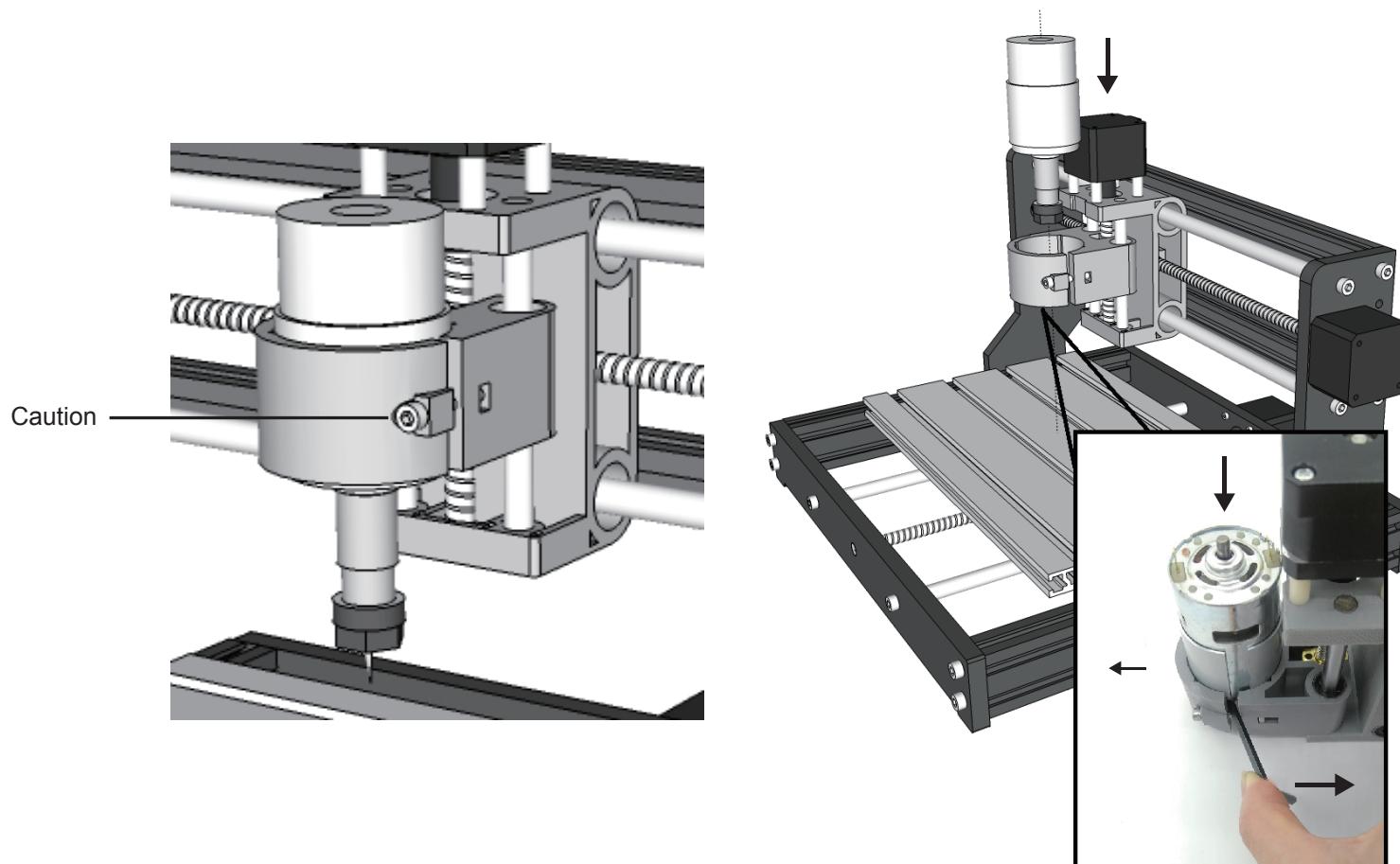
Step 5: Install Bakelite Pillar -D. Leave a 46.5mm space between the rear of the pillar and back frame piece.



Step 10 X - Control Board Installation



Do not overtighten the bolt. This can damage the holder. Slide the Spindle down until about half an inch of sleeve is showing.



Step 11 Control Board Installation

What you will need



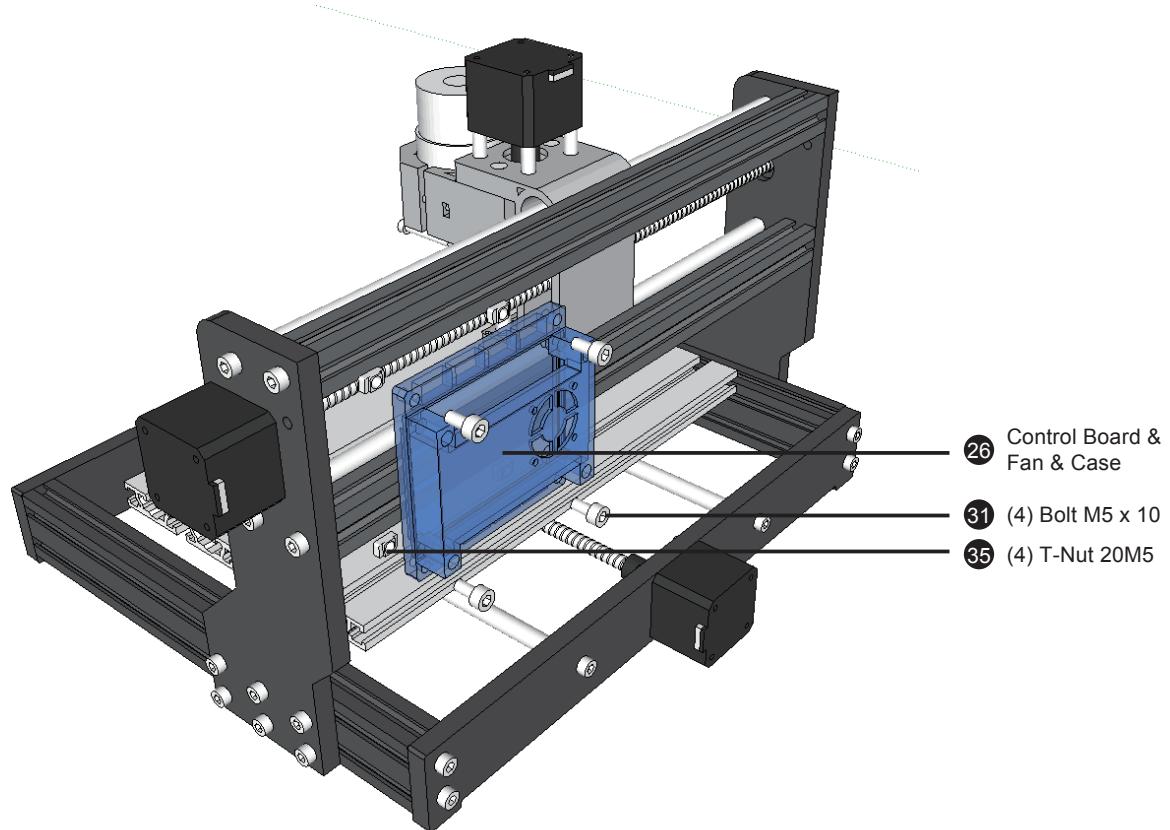
26 Control Board &
Fan & Case



31 (4) Bolt M5 x 10

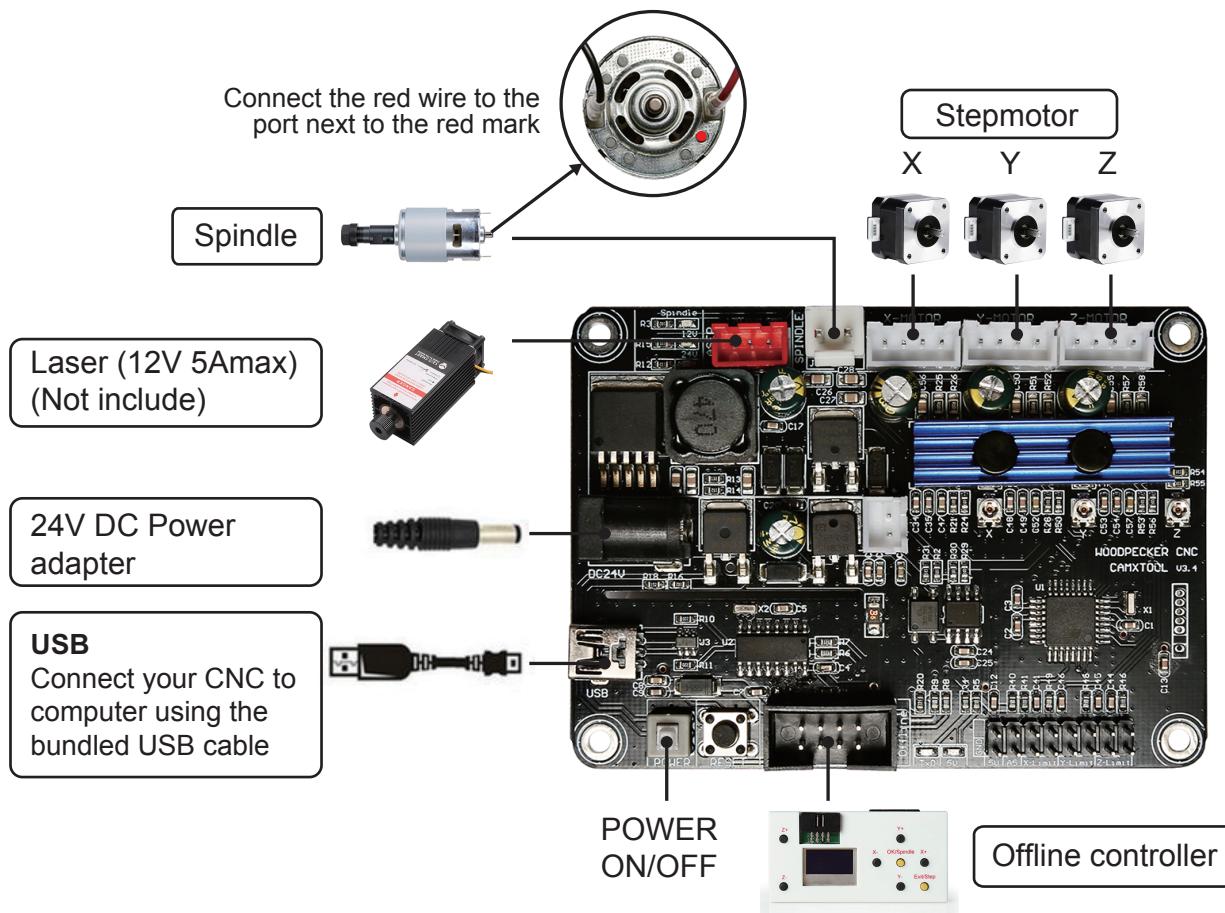


35 (4) T-Nut 20M5



26 Control Board &
Fan & Case
31 (4) Bolt M5 x 10
35 (4) T-Nut 20M5

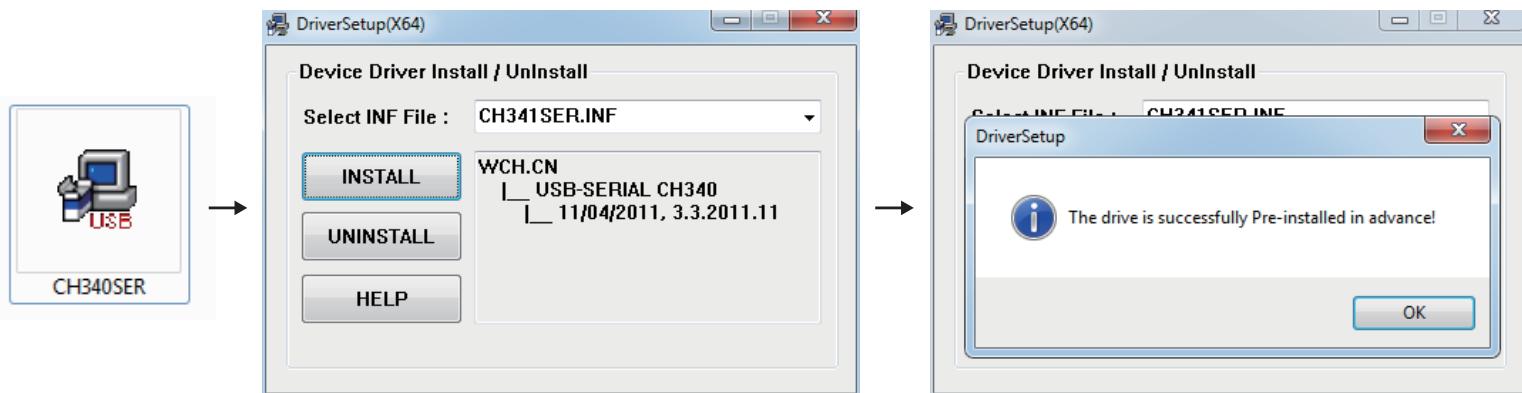
Step 12 Wiring Diagram





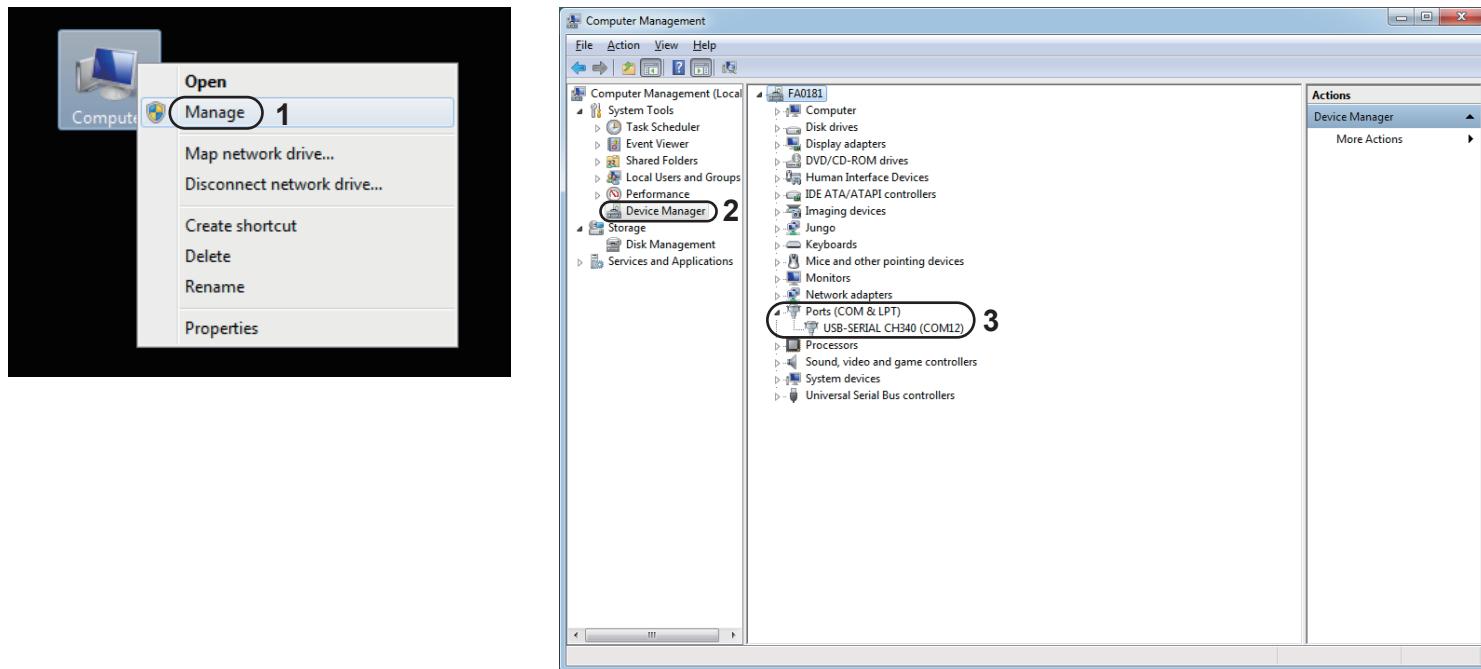
Part 3 - Software & Drivers

1. Install the driver (software → Driver → CH340SER.exe)

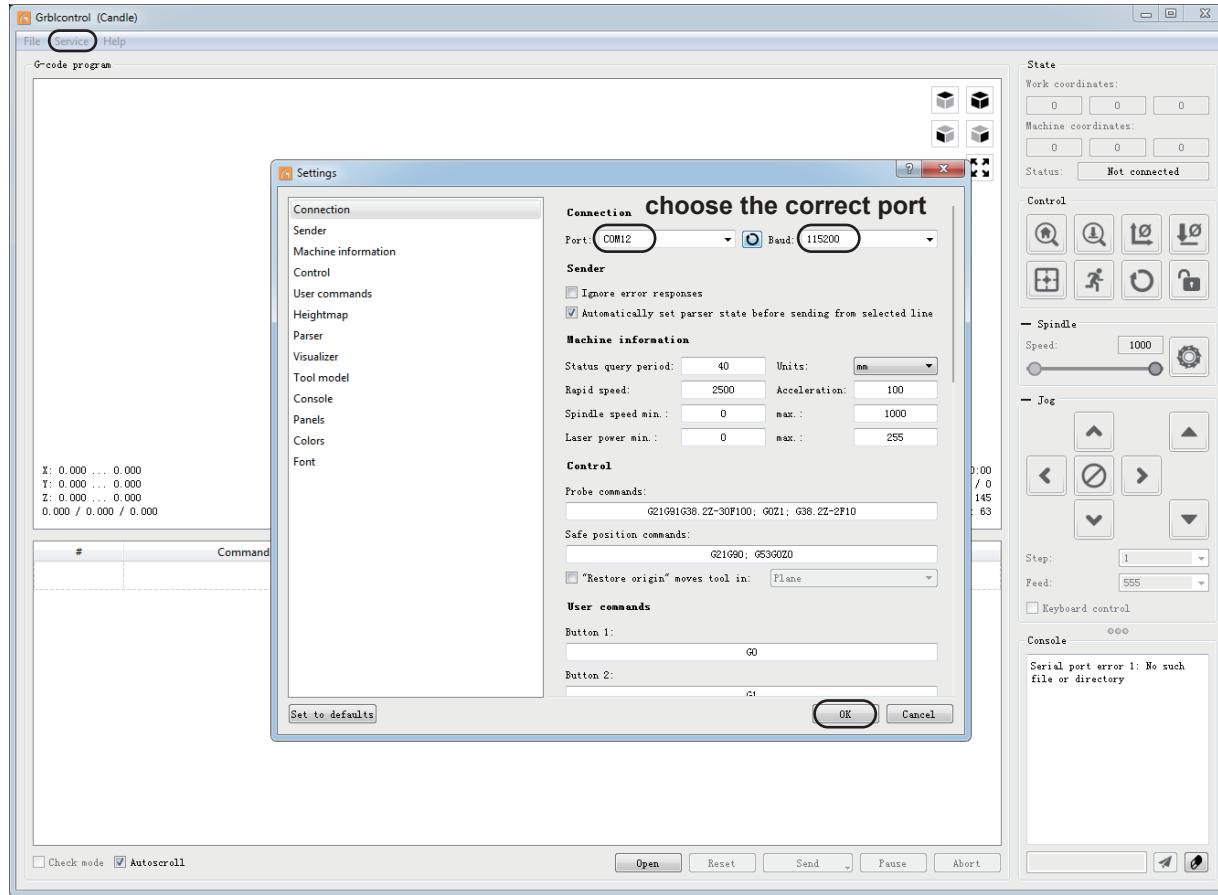


2. To Determine your Machine's COM port:

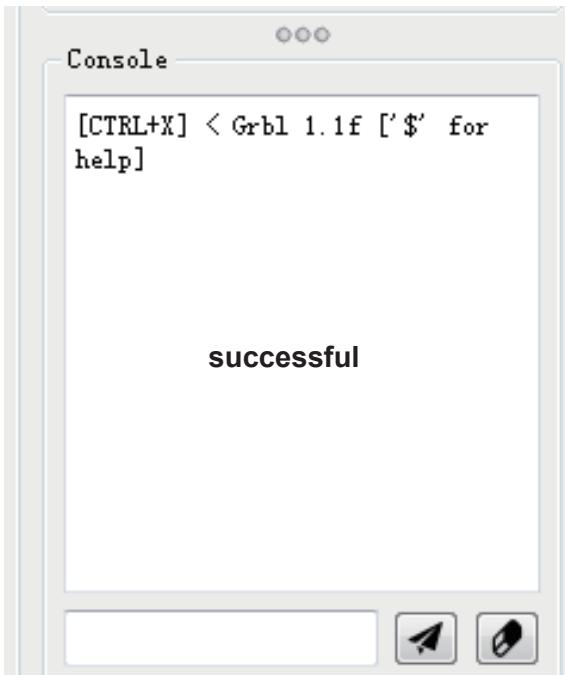
- Windows XP: Right click on "My Computer", select "Manage", select "Device Manager".
- Windows 7: Click "Start" → Right click "Computer" → Select "Manage" → Select "Device Manager" from left pane.
- In the tree, expand "Ports (COM & LPT)"
- Your machine will be the USB Serial Port (COMX), where the "X" represents the COM number, for example COM12.
- If there are multiple USB serial ports, right click each one and check the manufacturer, the machine will be "CH340".



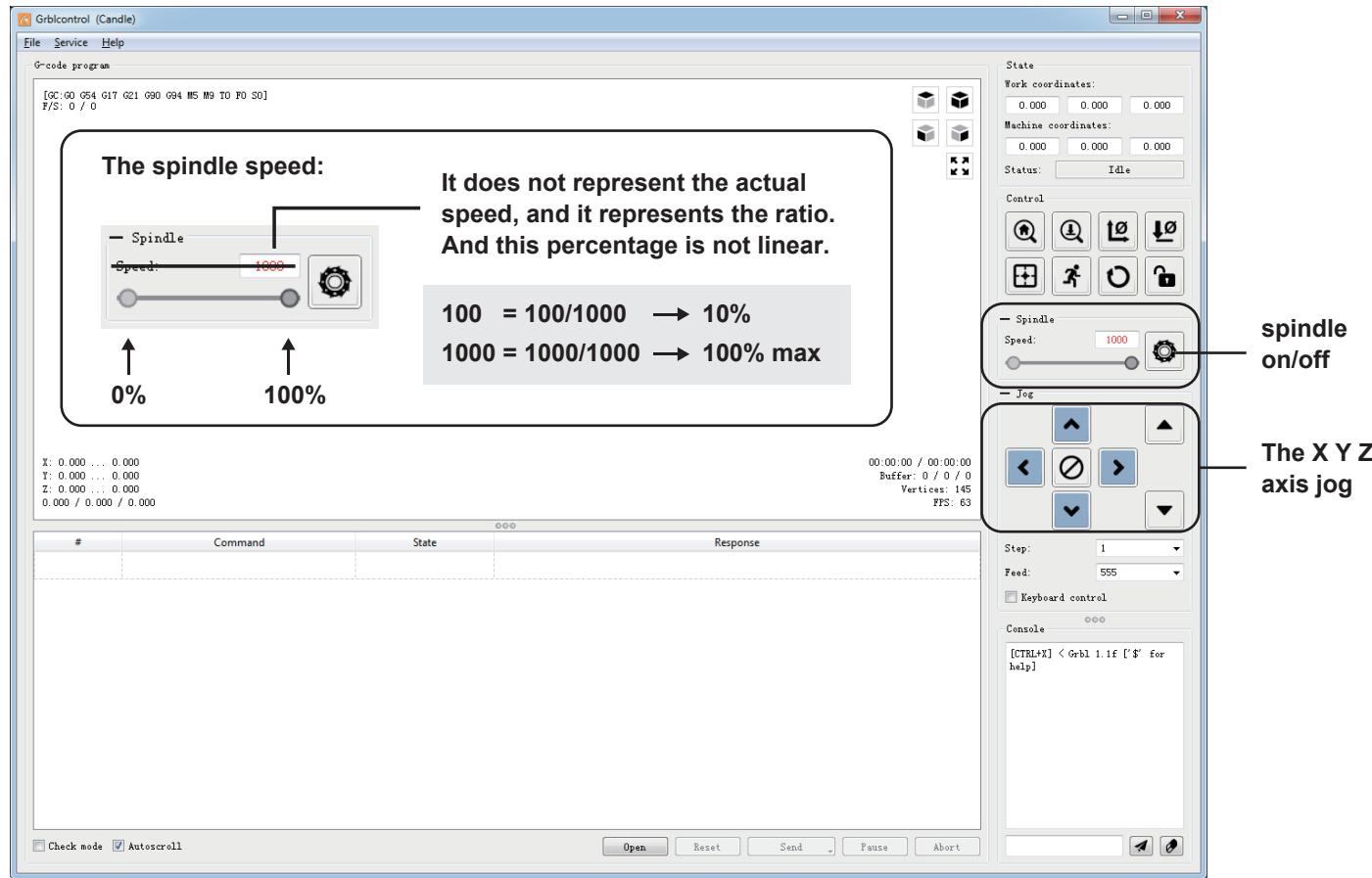
3. Open Grblcontrol software(software → Grblcontrol → GrblControl.exe)



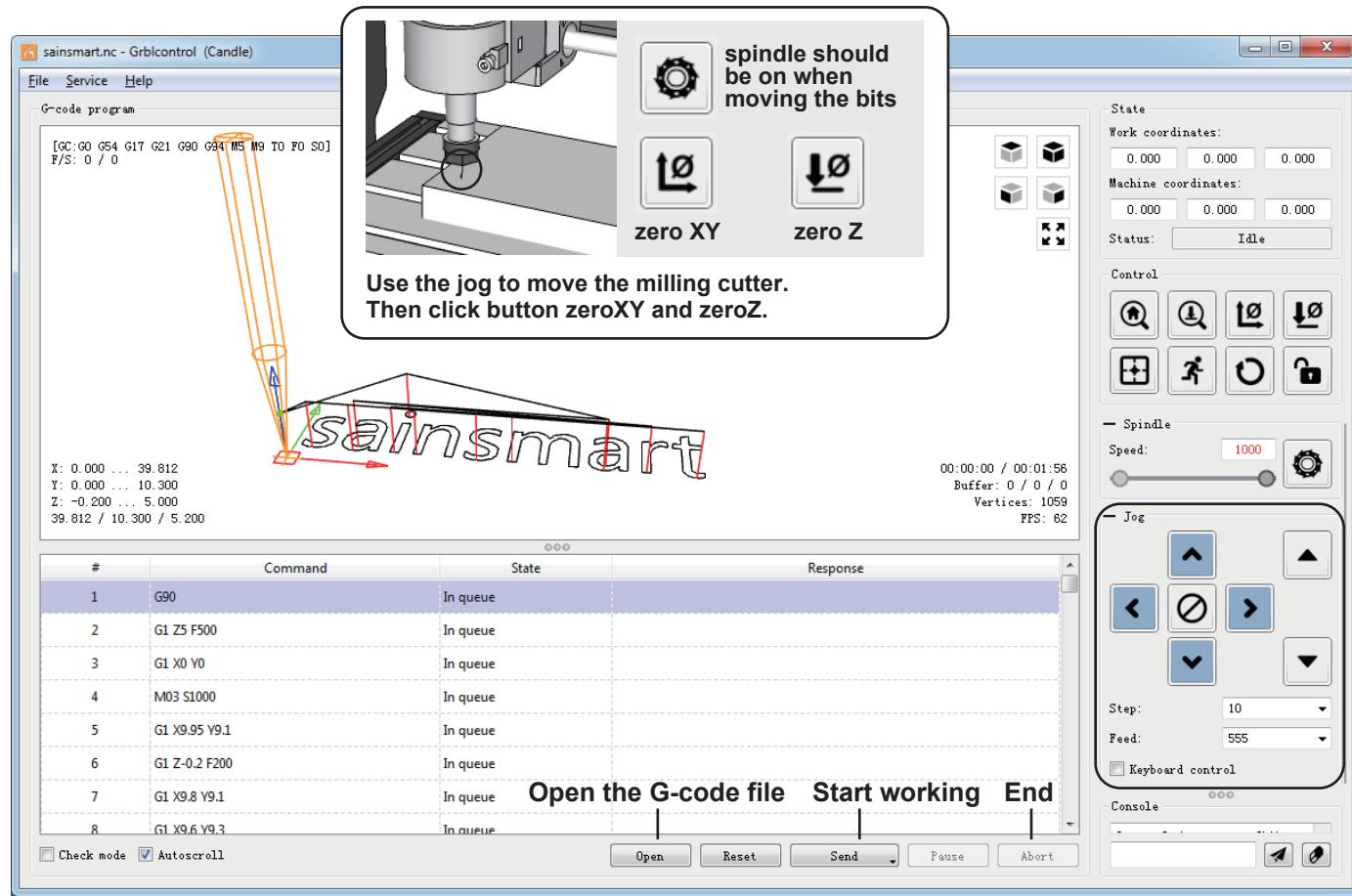
- Console window print "[CTRL+X] < Grbl 1.1f ['\$' for help]" If the connection is successful.
- Console window print "Serial port error 1: No such file or directory" indicate that the connection is failed.



- Grblcontrol Use



- Tool setting





Part 4 - Getting Started

Basic Machine Tests Now that you have your CNC machine all assembled and wired, it is time to make sure that it operates correctly.

This is the recommended start up order for the system.

1. Make sure that the USB cable from the CNC machine is plugged into your computer, then start the computer.
2. Start the Candle program and verify in the status window that no errors are showing. Normally, it will show “Idle” if it has connected to the Controller Board properly. If an “Alarm” error is showing, with your mouse, click the Candle “Reset” then “Unlock” buttons in that order to get to the “Idle” condition.
3. Make sure that the 24-volt power supply is connected to the Controller Board and then to the power mains. - Turn on the Controller Board by pressing the white “On/Off” button.
4. Next, click on the “Spindle” button to turn on the spindle motor. Move the slider left and right to verify that the motor speed changes.
5. Set the “Feed:” to a value in the 200 to 500 range. With the mouse, click on the left set of direction buttons to verify that the X and Y axes are moving. In a like manner, click on the rightmost up and down buttons to verify that the Z axis is moving. If all of these tests complete without any issues, you can be assured that your CNC machine is working correctly. Shutting the machine down uses the reverse of the startup process.
6. Turn off the Controller Board.
7. Unplug the 24-volt DC supply from the mains.
8. Shut down the Candle program. - Turn off the computer. Remember, if you run the CNC machine from the Offline Controller, the USB cable must be disconnected from the Controller Board.



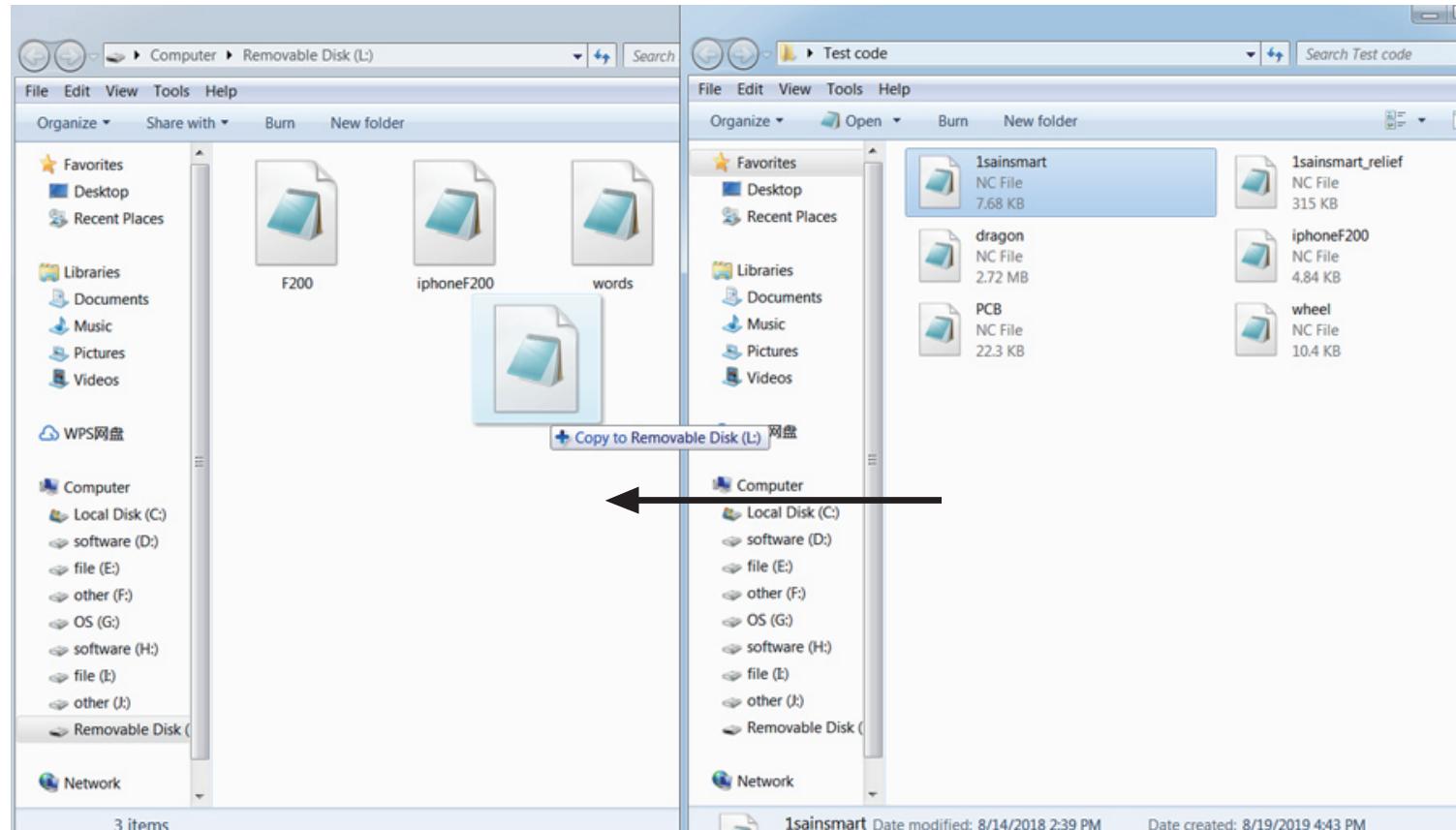
Part 5 - Offline Controller

Notice: When using the offline controller, remove the USB cable from the PC. Offline controller and PC cannot be used together.

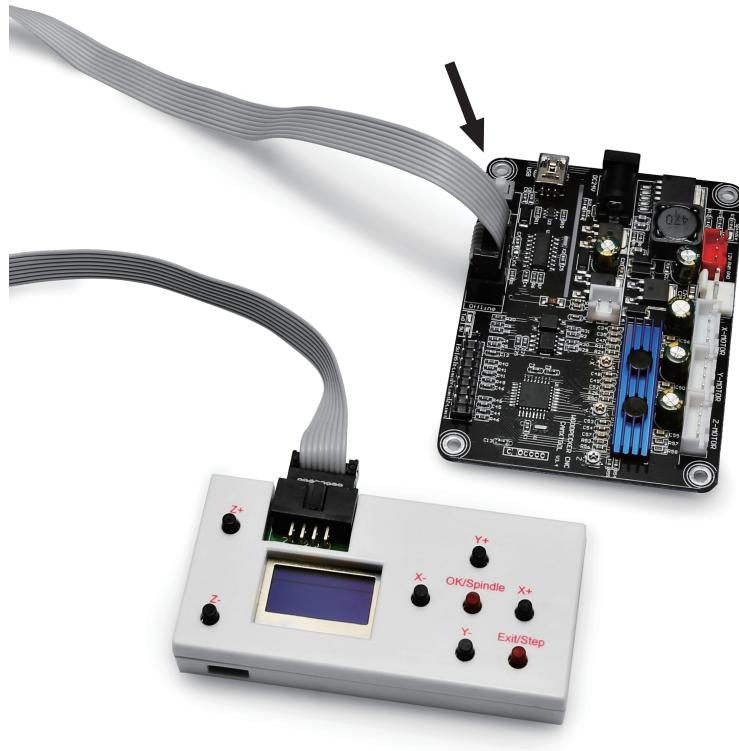
1. Connect offline controller to PC via USB cable.



2. Then copy the NC file to the offline controller.



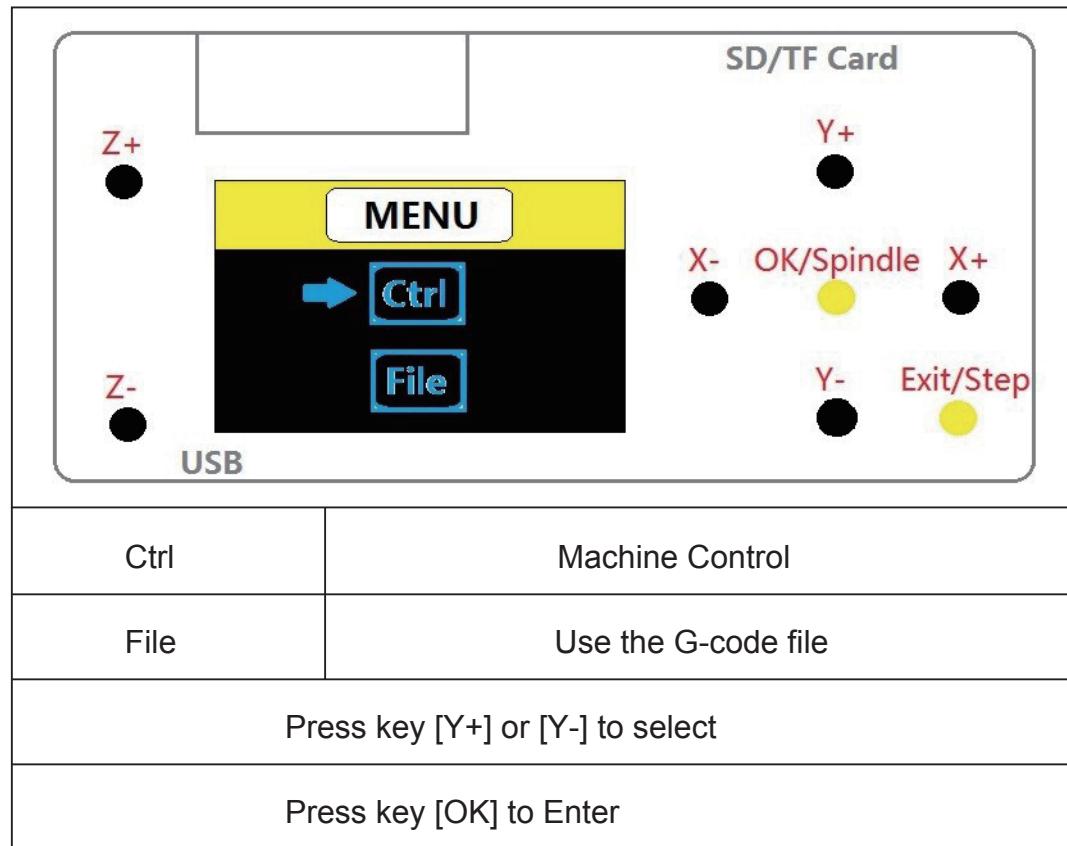
3. Offline controller connected to the control board.



4. Press the [X+/X-/Y+/Y-/Z+/Z-] key to move the spindle to the machine origin, select the engraving file, click the [OK] key to start engraving.

5. Interface introduction

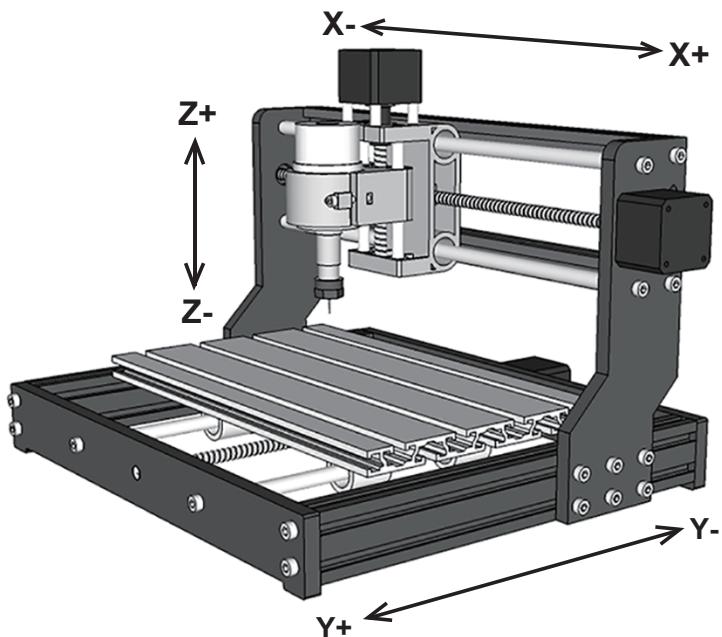
A. Menu Page



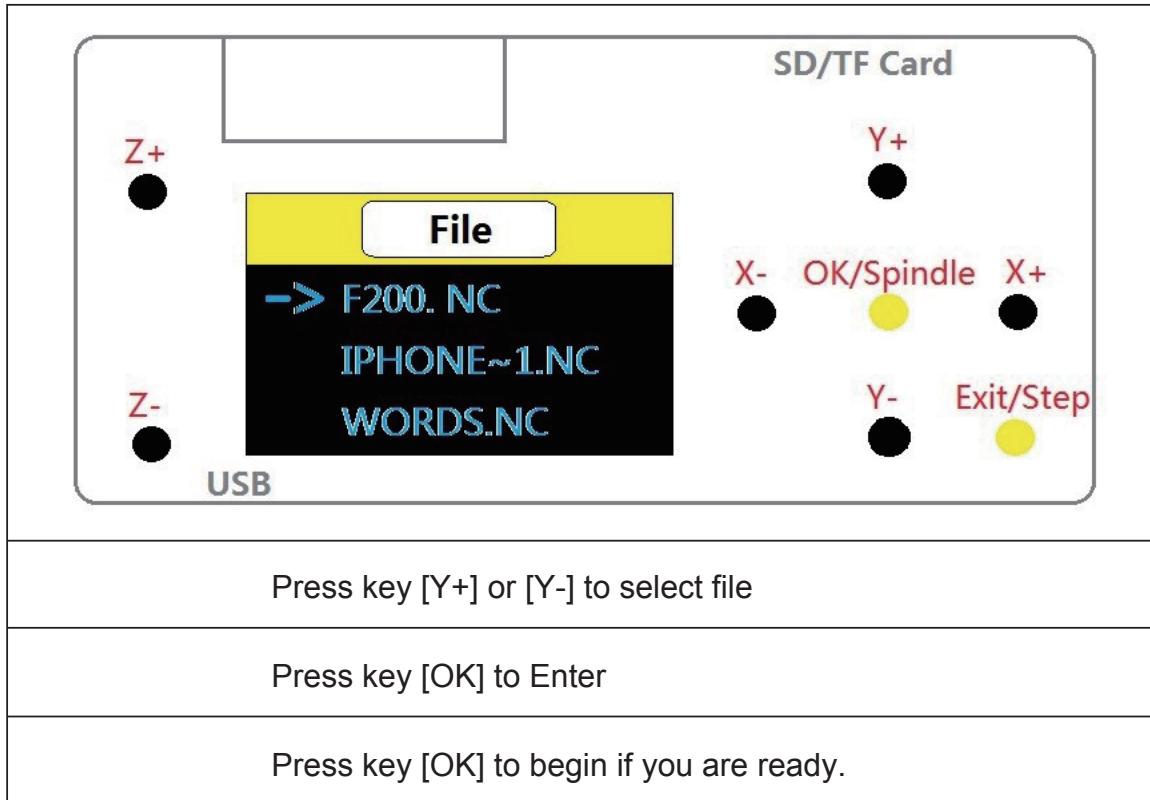
B. Ctrl Page

Z+	
X+	X-axis positive direction
X-	X-axis negative direction
Y+	Y-axis positive direction
Y-	Y-axis negative direction
Z+	Z-axis positive direction
Z-	Z-axis negative direction
OK/Spindle(SP)	Spindle On/Off
Exit/Step	Long press to exit, short press to change step (0.1/1/5/10mm)
SP:1%	Power to spindle (Press [OK]+[Z+]=add, Press [OK]+[Z-]=reduce)

Reference direction



C. File Page





Genmitsu

Desktop CNC & Laser

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