

# Installation and Operation Instructions

## Onefinity Elite Series



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This manual serves to familiarize you with your Onefinity CNC machine and provide all necessary information required to operate the machine safely and professionally.

This manual is applicable for the Onefinity Elite Foreman, Journeyman and Woodworker hereafter referred to as Onefinity or Onefinity Elite.

Please completely read this manual before the first commissioning of your machine. In order to minimize the risks of injury and/or material damages, please only commission the machine and the corresponding control when you are sure that you have completely understood these instructions!

Please contact us for any further questions. Please find our contact info on page 36 of these instructions.

Please always keep these instructions nearby the machine. You should always have them readily available when you want to look up something.

Please only use this machine according to its intended use.

We cannot be held liable for persons or material damages which are caused by using the machine other than the intended use, handling which does not comply with the common use of a CNC machine or if safety regulations are not obeyed

In case of improper maintenance **(refer to pages 40-41)** and/or wrong operation of the individual components your warranty claims are omitted.

We reserve the right to perform future technical enhancements on the machine and its components.

## General Instructions:

These operating instructions explain the Onefinity and the correct handling of the CNC system. Please read these operating instructions and accompanying documents in their entirety before commissioning of the system in order to become familiar with the characteristics and the operation of the product. The improper operation of the CNC gantry milling system can lead to damage to the product and property and can cause serious injuries, electric shock and / or fire. It is imperative to adhere to the safety instructions listed in these operating instructions at all times. Should you have any questions or concerns prior to initial use of the CNC system or the need for further information, do not hesitate to contact us prior to the commissioning of the CNC system.

## Safety Instructions and Protective Measures:

(General Safety Warnings for the Use of Power Tools )

### Work Area Safety

**NOTICE:** Keep work area clean and well lit. Cluttered or dark areas invite accidents.



**Caution:** Do not operate the power tool in explosive atmospheres, such as in the presence of flammable liquids, gases or dust. Power tools create sparks which may ignite the dust or fumes.

**NOTICE:** Keep children and bystanders at a distance while operating a power tool. Distractions can cause you to lose control and can result in accidents.



**Caution:** Operate the Onefinity only in interior spaces on a solid, horizontal table or workbench.

### Electrical Safety:



**Warning:** Power tool plugs must match the outlet. Never modify the plug in any way. Do not use any adapter plugs with grounded power tools. Unmodified plugs and matching outlets will reduce the risk of electric defects and malfunctions.



**Warning:** Do not expose power tools to moisture. The power tool is only suitable for indoor use. Water entering a laser tool will increase the risk of electric shocks.



## Personal Safety:



**Caution:** Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use a power tool while you are tired and/or under the influence of drugs, alcohol or medication. A moment of inattention while operating a power tool may result in serious personal injury.

**NOTICE :** All persons who operate the power tool must have read and fully understood all relevant safety and operating instructions. Misunderstanding may result in personal injury.



**Caution:** Use personal protective equipment. Always wear eye protection. Protective equipment, such as a suitable dust mask or ear protection, reduces the risk of injuries.

**NOTICE:** Dress properly. Do not wear loose clothing or jewelry. Pin your hair above your shoulders so that it cannot get caught in the Ball Screws and linear guides or moving parts.



**Caution:** This tool is controlled by a computer. During operation, it cannot be controlled directly. Lack of caution or expertise as well as program errors can lead to unexpected movements.



**Caution:** Do not touch the insertion tools or motors as they can heat up significantly during operation.



**Caution:** Never place any parts of the tool or accessories in the mouth as this can lead to serious injuries.

## Protective Measures:

The Onefinity has been constructed for advanced users and is only to be operated by technically skilled persons above the age of 16. The CNC gantry milling system as well as associated tools, small parts and electrical components are to be stored outside the reach of children. The operator is solely responsible for understanding and reading the machine user guide and all relevant operating instructions in their entirety. These documents should always be stored in immediate vicinity of the machine. The manufacturer's instructions concerning the CNC machine and the tools, such as the milling spindle, are to be adhered to. The CNC gantry milling system is only to be used in a technically perfect condition which is to be ensured prior to each operation. The emergency switch as well as, if applicable, additional safety devices, always need to be easily accessible and fully functional. The use of liquids with the machine, such as the application of a coolant pump, is prohibited as it can damage the electronics. The use of lubrication systems is allowed. Please take into consideration that in this case the MDF machine table is not used as its MDF panels can swell and, thus, be destroyed.

# Safety Rules

## Use of the Power Tool:



**Caution:** Do not alter or misuse the tool. Any alteration or modification is a misuse and may result in serious personal injury.



**Caution:** Disconnect the plug from the power source before you make any adjustments, change accessories, or store the tool. Such preventative safety measures reduce the risk of starting the power tool accidentally.



**Caution:** Store idle power tools out of the reach of children and do not allow persons unfamiliar with the laser tool or these instructions to operate the power tool. Power tools are dangerous in the hands of untrained users.

**NOTICE:** Use the power tools, accessories etc. in accordance with these instructions, taking into account the working conditions and the work to be performed. Use of the power tool for operations different from those intended could result in a hazardous situation with high probability of superficial injury.

**NOTICE:** Do not reach into the area of the rotating insertion tools. The proximity of the rotating tools to your hand may not always be obvious.

**NOTICE:** Never use dull or damaged insertion tools. Sharp bits must be handled with care. Damaged bits can snap during use. Dull bits require more force to cut the tool, possibly causing the bit to break.

**NOTICE:** The speed and feed of the bit when carving, routing or cutting is very important. Always observe the recommended speed and feed for the particular bit.



**Caution:** If the workpiece or bit becomes jammed or bogged down, turn the power tool "OFF" by the switch. Wait for all moving parts to stop and unplug the tool, then free the jammed material. If the switch to the tool is left "ON", the tool could restart unexpectedly causing serious personal injury.

**NOTICE:** Do not leave a running tool unattended, turn power off. Only when tool comes to a complete stop and is disconnected from the mains it is safe.



**Caution:** Do not touch the bit or collet after use. After usage bit and collet are too hot to be touched with bare hands.

**NOTICE:** Do not allow familiarity gained from frequent use become commonplace. Always remember that a careless fraction of a second is sufficient to inflict severe injury.



**Caution:** When using the end mills, V-bits or cutters, always have the workpiece securely clamped. Never attempt to hold the workpiece with your hands while using any accessories. These tools can jam easily in the material, and can kickback, causing loss of control resulting in serious injury.

## Care of the Power Tool:

**NOTICE:** Maintain the tools. Check for misalignment or binding of moving parts, breakage of parts and any other conditions that may affect the power tool's operation. If damaged, have the power tool repaired before use. Many accidents are caused by poorly maintained power tools.

## Additional Safety Instructions



**Caution:** Depending on the application field of the machine (private or commercial), observe the applicable occupational safety and health, safety and accident prevention and environmental regulations.



**Caution:** Some dust created by cutting, milling or other construction activities contains chemicals known to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are: Lead from nonferrous metals with lead content, carbonate from carbon fiber, arsenic and chromium from chemically treated lumber. Your risk from exposures to these varies, depending on how often you perform this type of work. To reduce your exposure to these chemicals, work in a well ventilated area, and work with approved safety equipment, such as those dust masks that are specially designed to filter out microscopic particles.

Safely dispose of milling debris — recycle or safely dispose of milling debris and dust, keeping in mind flammability, (potential) spontaneous combustion, and chemical considerations. Even natural materials can have surprising implications for disposing of them, *e.g.*, walnut wood dust is allelopathic (inhibits plant growth) and an irritant to the skin and breathing tract and potentially poisonous to some animals in addition to the typical spontaneous combustion hazard which sawdust poses.

## Personal Protective Equipment:

When working with the CNC gantry system, the operator has to wear at least the following personal protective equipment and has to be compliant with the below-mentioned safety aspects: - Safety goggles for protecting the eyes against flying chips etc. - Ear protection for protecting the ears against sound and noise. - No wearing of clothes which can get caught in the machine, such as ties, scarves, wide sleeves etc. Additionally, jewelry and especially long necklaces and rings are to be dispensed with. - Shoulder-length or longer hair is to be secured with a hairnet or a hat to prevent it from getting caught in the linear guides and / or rotating tools. Prior to all adjustments to the machine, its control or system-guided tools, such as the Milling Motor, the Drag Knife or the Hot Wire Cutter, the plug is to be disconnected from the power source. Never hold the workpiece to be processed with your hands. It is mandatory that the workpiece is securely fixed on the machine table. Otherwise there exists a high risk of injuries!

## Emergency Stop Switch :

The emergency stop is located on the top of the Controller housing. In order to be able to intervene at all times, the emergency stop has to be positioned in a suitable place. The controller must be located so it can be reached from any possible operator position.





By pressing the emergency stop switch, the emergency stop is triggered. The control is interrupted. Additionally, the control software receives the signal to stop the operating process. The machine stops immediately.

**ATTENTION!** The emergency stop switch can only effect the stop of all components if these components are electronically connected with the emergency stop switch.

If you want to use a system-guided tool, such as a milling and drilling motor, that features a separate ON / OFF switch and that is NOT controlled via the PC, you have to make sure that it is expertly connected with the emergency stop switch. If you do not comply with these requirements, the system-guided tool will continue to run although you have activated the emergency stop switch leading to a high risk of personal injury and damage to property! If you have any questions, please do not hesitate to contact us!

## Residual Risk:

Despite all safety precautions against the contact with rotating or hot tools and the protection from crushes, a residual risk remains due to a careless handling and automatic movements of the CNC system.

Symbol	Name	Explanation
	Symbol: Read manual	Alerts user to read manual BEFORE first commissioning
	Symbol: Wear ear protection	Alerts user to wear a hearing protector
	Symbol: Wear safety glasses	Alerts user to wear protective glasses
	General warning symbol	Alerts user to warning messages

## Read the following carefully before operating the machine.

1. Keep the working area clean and ensure adequate lighting is available.
2. Do not wear loose clothing, gloves, bracelets, necklaces or ornaments.
3. Do wear face, eye, respiratory and body protection devices as indicated for the operation or environment.
4. Ensure that the power is disconnected from the machine before tools are serviced or any attachment is to be fitted or removed.
5. Never leave the machine with the power on.
6. Do not use dull, gummy or cracked cutting tools.
7. Ensure that the keys and adjusting wrenches have been removed and all the nuts and bolts are secured.
8. Hearing protection — ear plugs or muffs, for long jobs doubling up on ear plugs or muffs may be desirable. Hearing damage is cumulative and irreversible, so one should err on the side of caution
9. Use care when handling endmills, both to avoid being cut, and to avoid damaging them. Handling them with suitable gloves, or using a cloth to avoid contaminating them is recommended. Inspect them carefully before each use and ensure that they are securely held by the collet.
10. Never leave the machine running unattended/unsupervised.
11. Always inform someone before operating the machine and check in with them after successfully completing work.

## Workspace:

The workspace needs to provide enough space around the Onefinity CNC for the machine to work comfortably and to be able to fully use its traveling paths. Additionally, a safe distance to possibly nearby positioned machines is to be maintained. The location of the machine as well as the workplace surrounding the machine has to be sufficiently illuminated.

As with all machinery, there are certain hazards involved with the operation and use of your machine. Using it with caution will considerably lessen the possibility of personal injury. However, if normal safety precautions are overlooked or ignored, personal injury to the operator may result. If you have any questions relating to the installation and operation, do not use the equipment until you have contacted your supplying distributor.

The Onefinity is a multifunctional CNC gantry milling system for the permanent and regular processing of wood, plastics and non-ferrous metals.

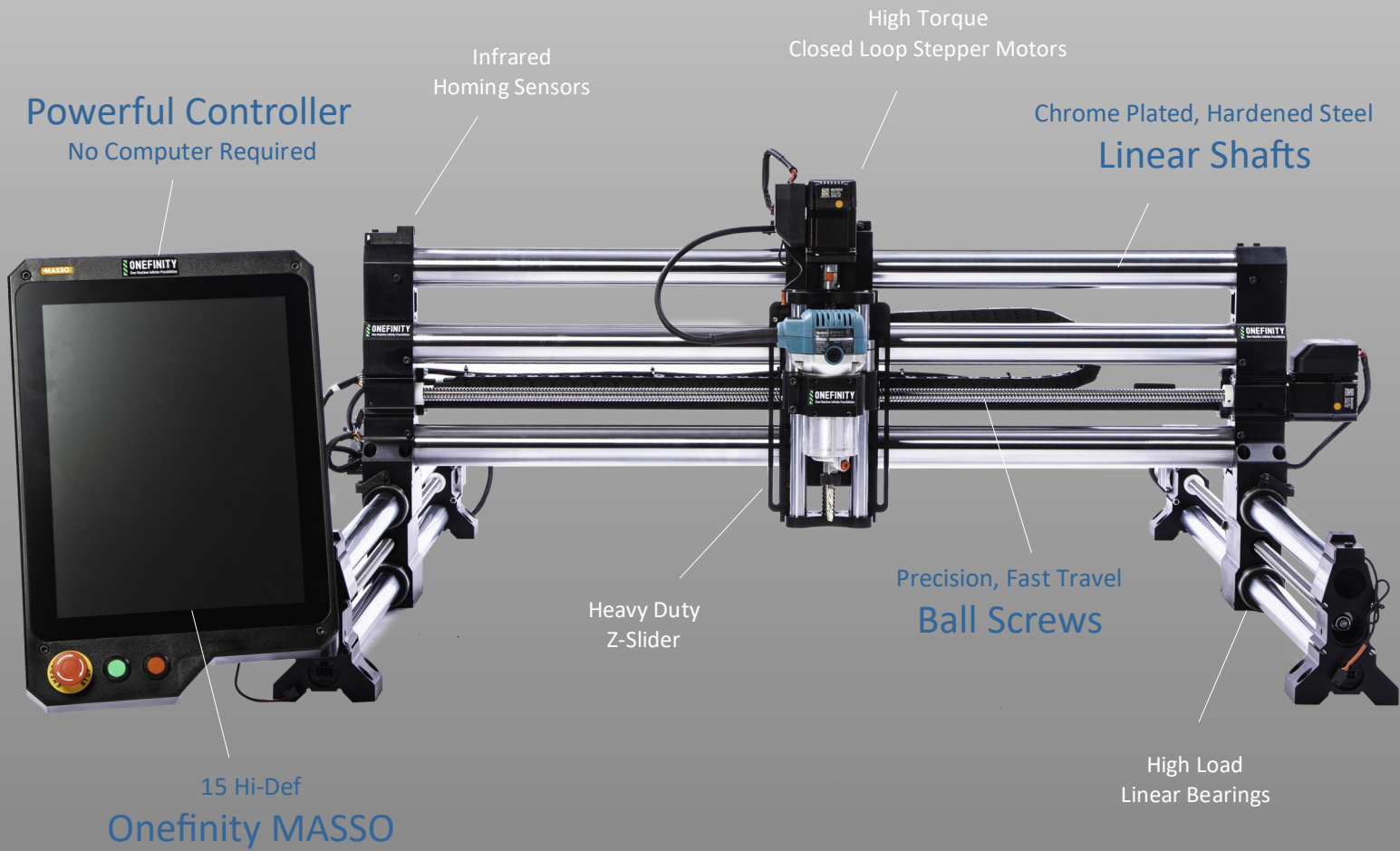
Thanks to the innovative design, how and where you carve is limitless! Feel like carving an intricate inlay into your dining table, no problem? Have a small shop where space is limited, Onefinity has been designed to be quickly dismantled and stored!

With Fast Travel Precision Ball Screws, gone are the stretchy belts and high maintenance Lead Screws found on similarly priced machines. Hardened Steel Hollow Linear Motion Shafts means no more plastic wheels that require frequent adjustment and a powerful CNC controller with built in CAM software and HD Touch Display allows for operation without a computer!

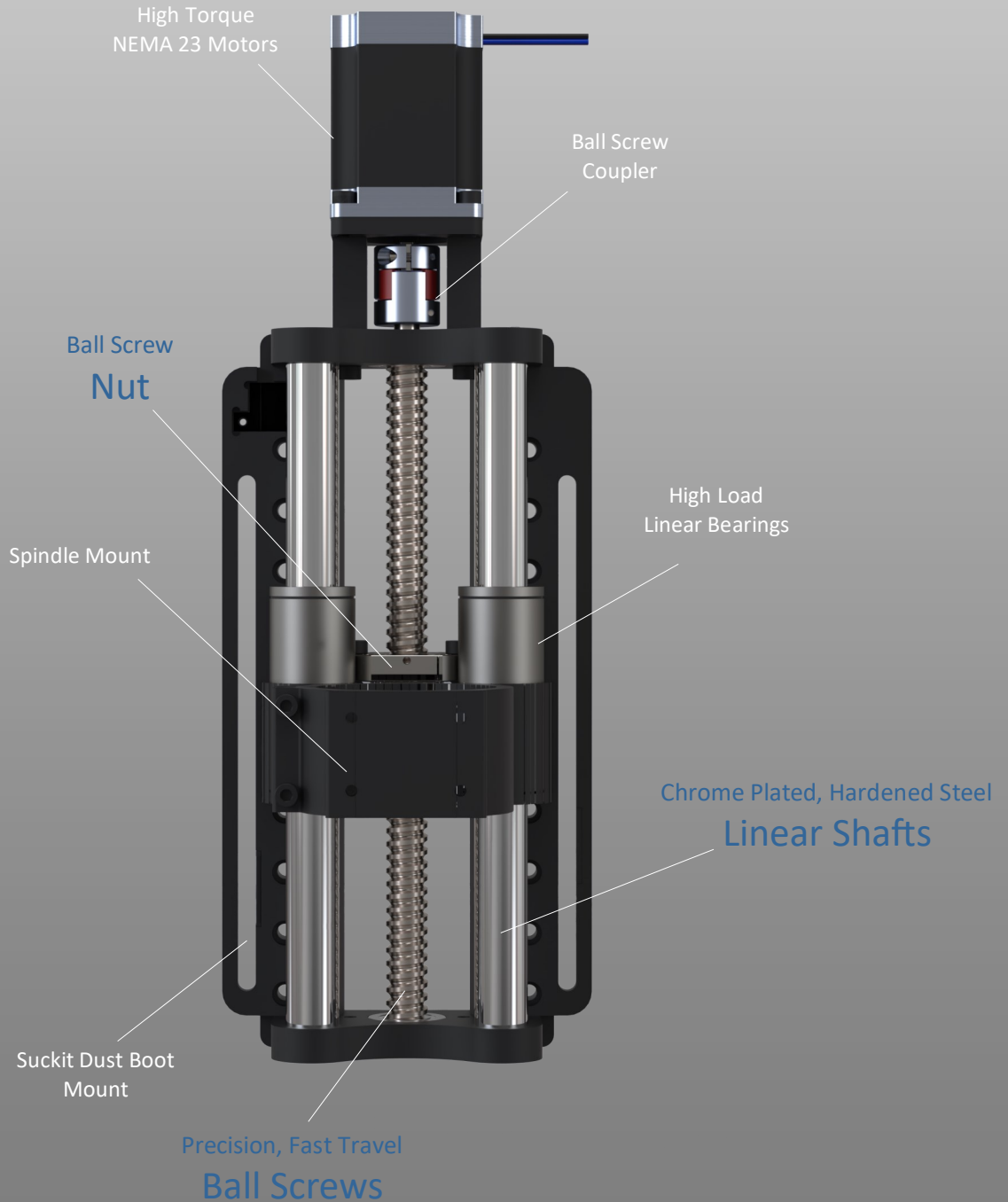
The machine has three axes which are offset by 90°. This way, it is possible to travel to any point within the working space. Each axis is equipped with up to two stepper motors and Infra-red homing. The stepper motors drive the movable axes elements via precision ball screws. The position of the axis is determined during the reference run (homing cycles), at the beginning of the job, with the aid of the homing. The machine table may consist of any solid flat surface big enough to mount the Rails and Controller. The Onefinity consists of the following, sometimes optional, components: - Onefinity Elite Foreman, Journeyman or Woodworker; - Onefinity MASSO electronic control unit, Power Supply Controller in a separate aluminum housing, Z-Slider, Wire harness and Hardware.

# Anatomy of the Onefinity

Important note: To learn all of the Onefinity MASSO controllers capabilities please visit: <https://www.masso.com.au/>

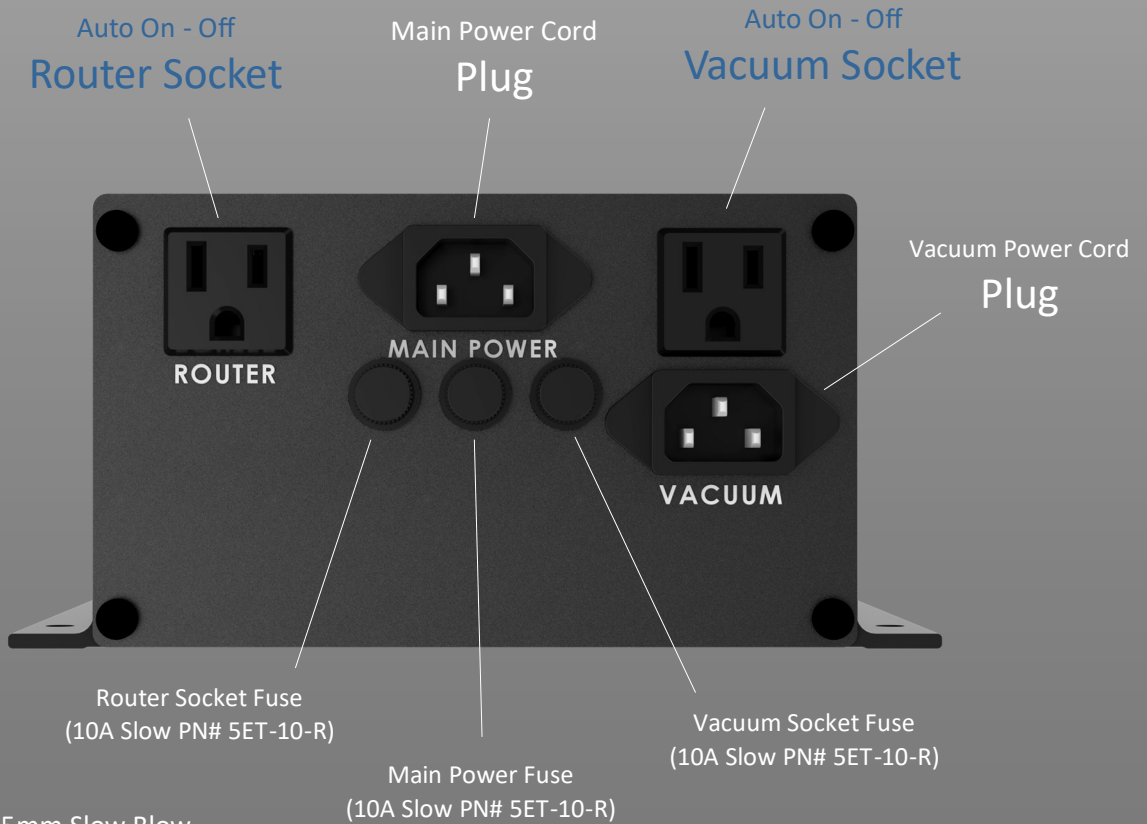
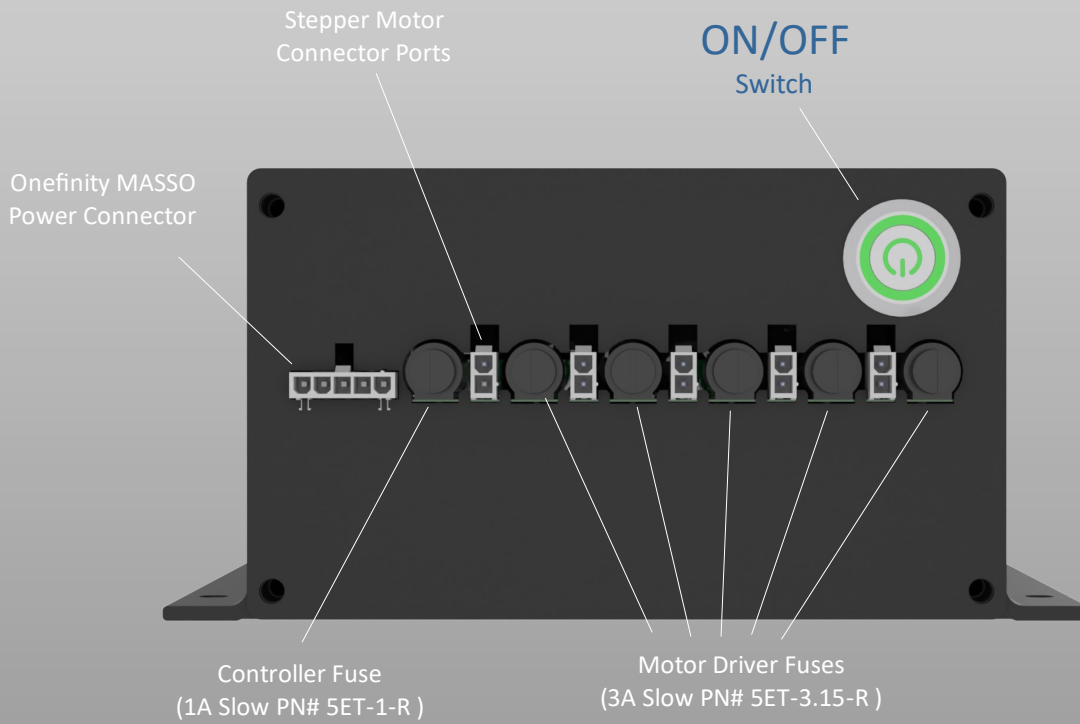


# Anatomy of the Z-Slider



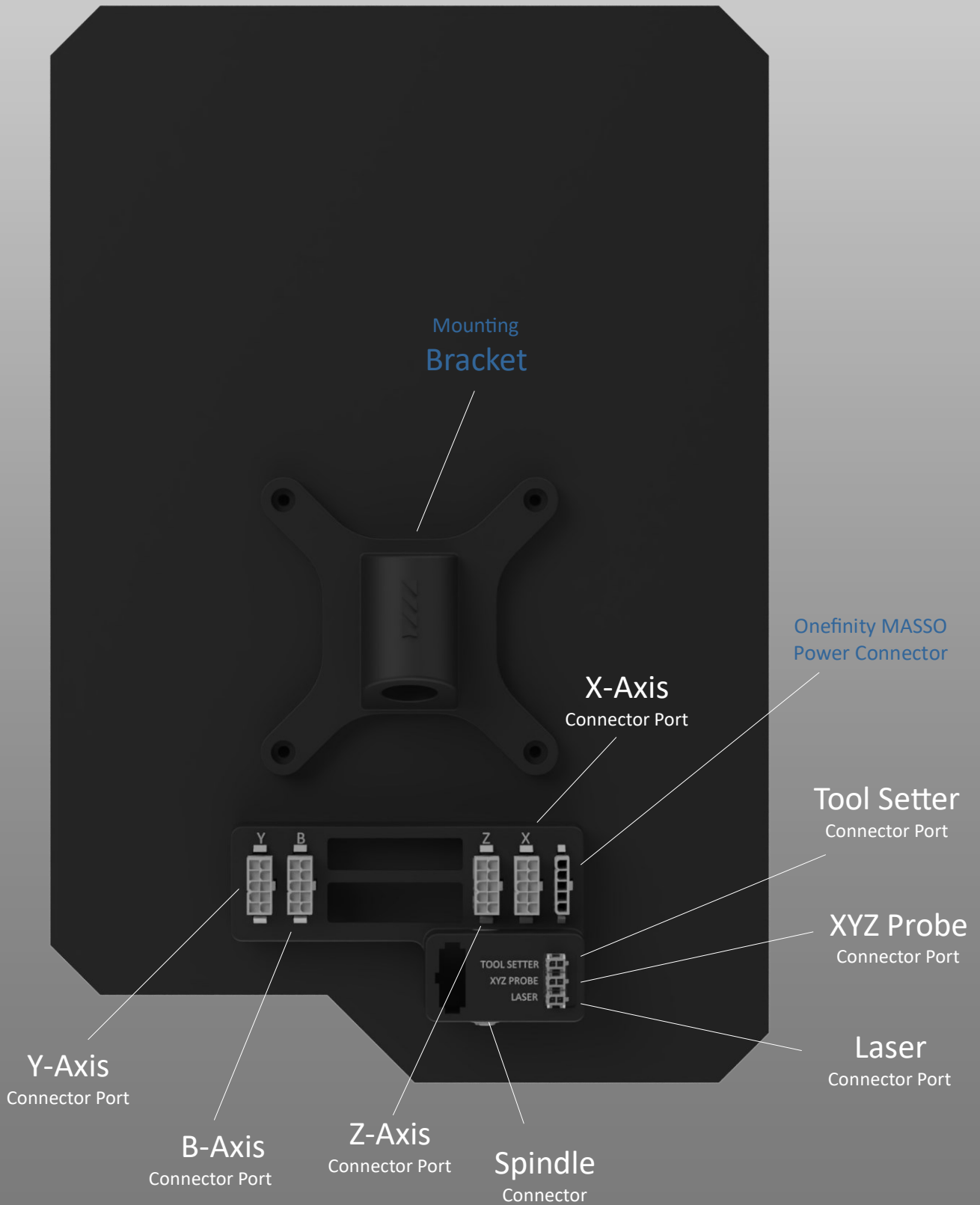


# Anatomy of the Power Supply

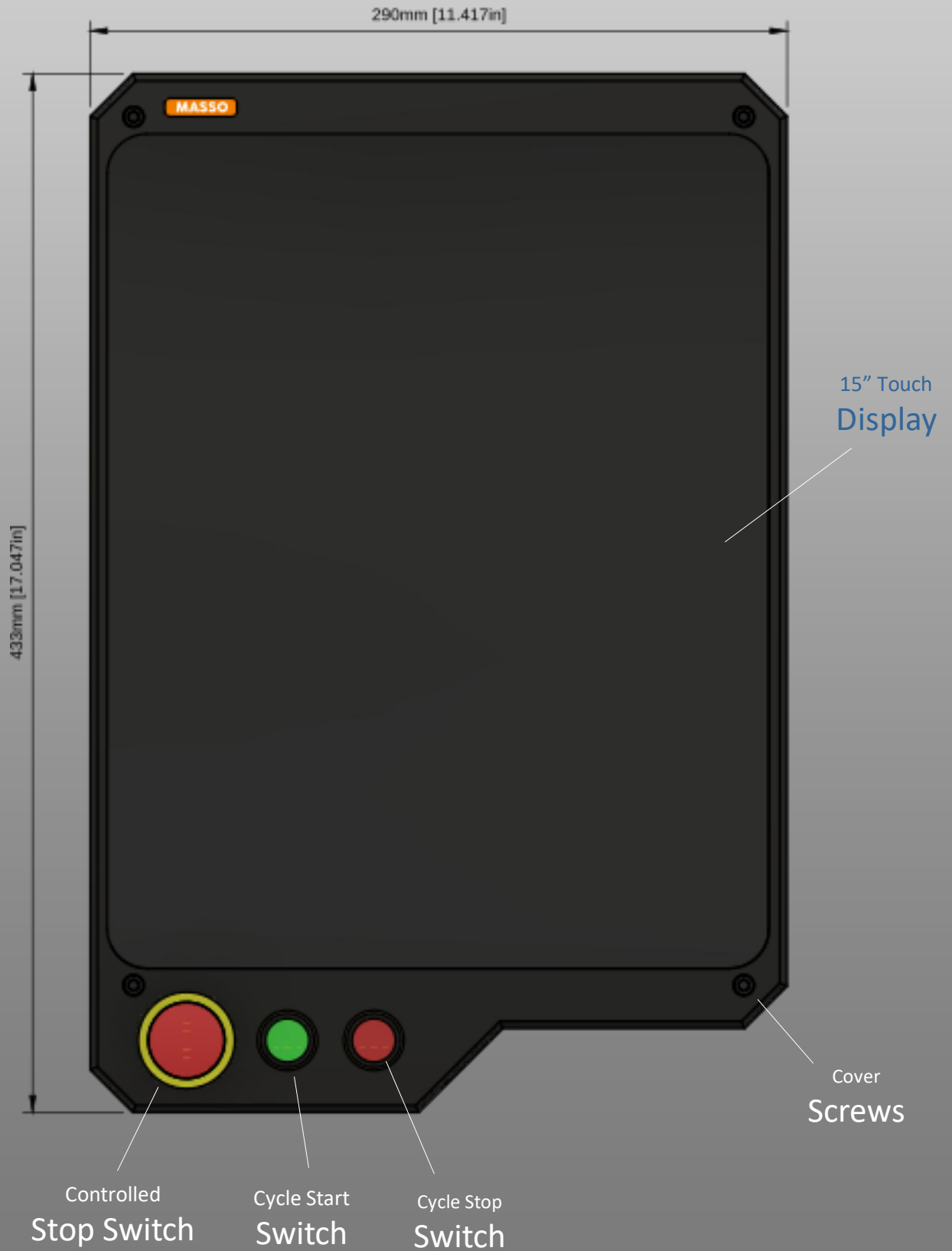


**Note:** All Fuses are 20mm x 5mm Slow Blow Bel or Equivalent 250V UL/CSA Certified

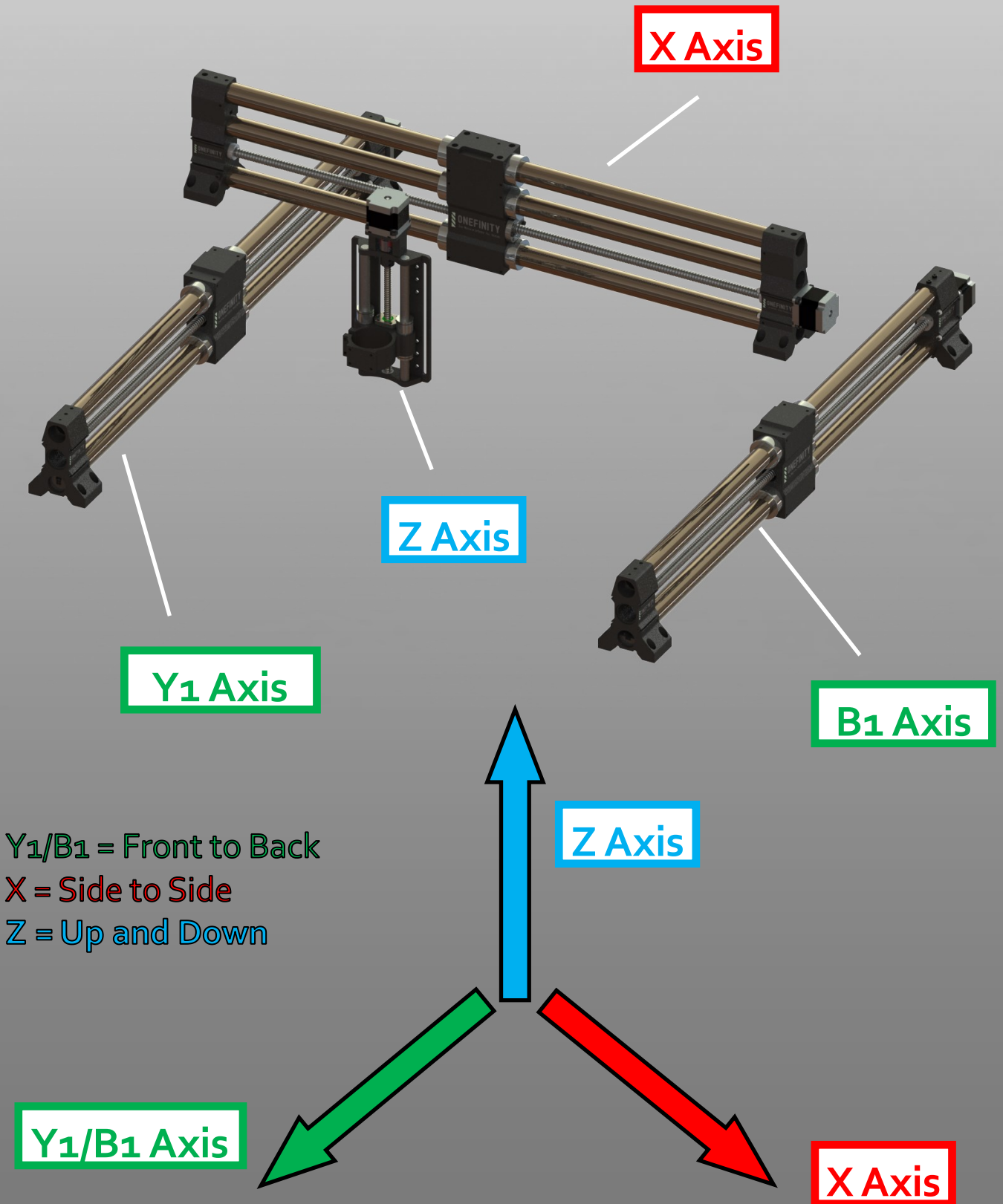
# Anatomy of the Onefinity MASSO



# Anatomy of the Onefinity MASSO



# Identifying Axis on the Onefinity Elite



# Specifications and Features

## Rapid Rate:

X Axis: 400 inches/min (accel 750 km/min<sup>2</sup>)

Y Axis: 400 inches/min (accel 750 km/min<sup>2</sup>)

Z Axis: 300 inches/min (accel 750 km/min<sup>2</sup>)

## Cutting Area Woodworker:

X Axis: 32- 1/4 inches

Y Axis: 32- 1/4 inches

Z Axis (Gantry Clearance): 5 inches

## Cutting Area Journeyman:

X Axis: 48- 1/8 inches

Y Axis: 32- 1/4 inches

Z Axis (Gantry Clearance): 5 inches

## Cutting Area Foreman:

X Axis: 48- 1/16 inches

Y Axis: 48- 3/4 inches

Z Axis (Gantry Clearance): 7 inches

## Specifications:

16mm Ball Screws on X and Y axis

16mm Ball Screw on Z axis

Chrome plated, hardened steel linear shafts on all axis

5 motor driver channels

15 inch Onefinity Masso

Up to 256 microstepping

250k steps/second on each motor output

Infrared homing sensors with auto squaring

## Feature:

Advanced, custom designed, Onefinity MASSO Touch

Massive 15-inch high definition industrial capacitive touch LED screen

Rigid, high precision, hardened steel, linear motion Shafts

High speed, long travel, Z-20 heavy duty Z-Slider

Powerful “anti-skip,” closed loop stepper motors

Conveniently located Emergency Stop

Plug and Play wiring supported by drag chains

Wi-Fi enabled

Built in Auto on/off router outlet

Built in Auto on/off Vacuum outlet

Plug and play XYZ Probe (optional)

Plug and play Tool Setter (optional)

Power Loss Recovery

Jump to Line

Continuous and incremental jogging via touch screen

Feed Rate Override - Adjust feed rate during a carve

Multiple Work offsets (G54-G59)

Micro Trimming

Quick and easy setup - start carving in under an hour

Solid, self supporting QCW with leveling feet (optional)

7, 12 & 24 watt Laser (optional—plug and play)

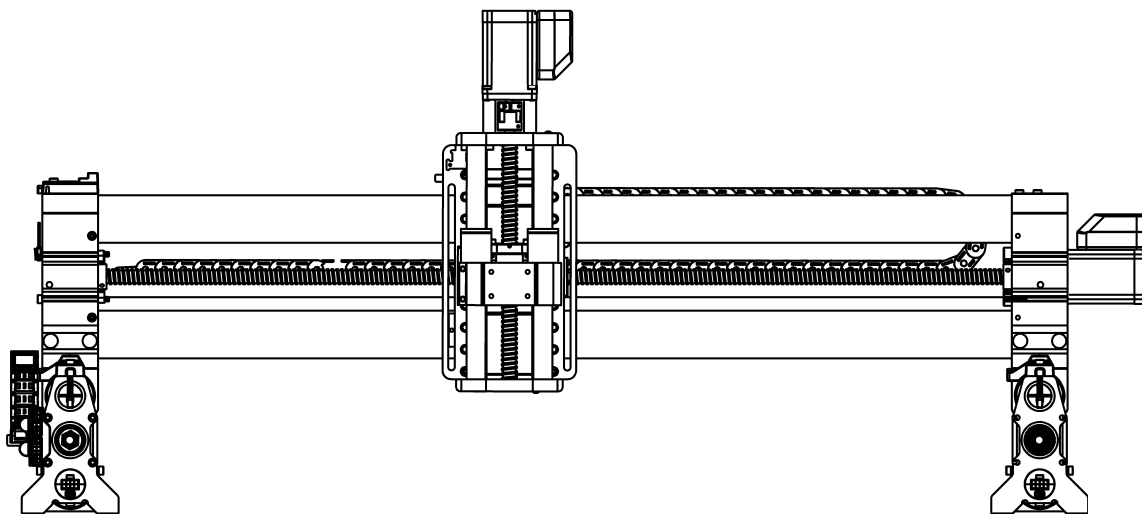
Fixed or Rolling - Folding Stand with wobble free leveling feet (optional)

Spindle support with on board controls

Each unit fully production tested with a test carve

A large “how to” library with a very helpful and supportive community

Powerful Carveco Maker Advanced 3D Cad Software (1 year subscription)

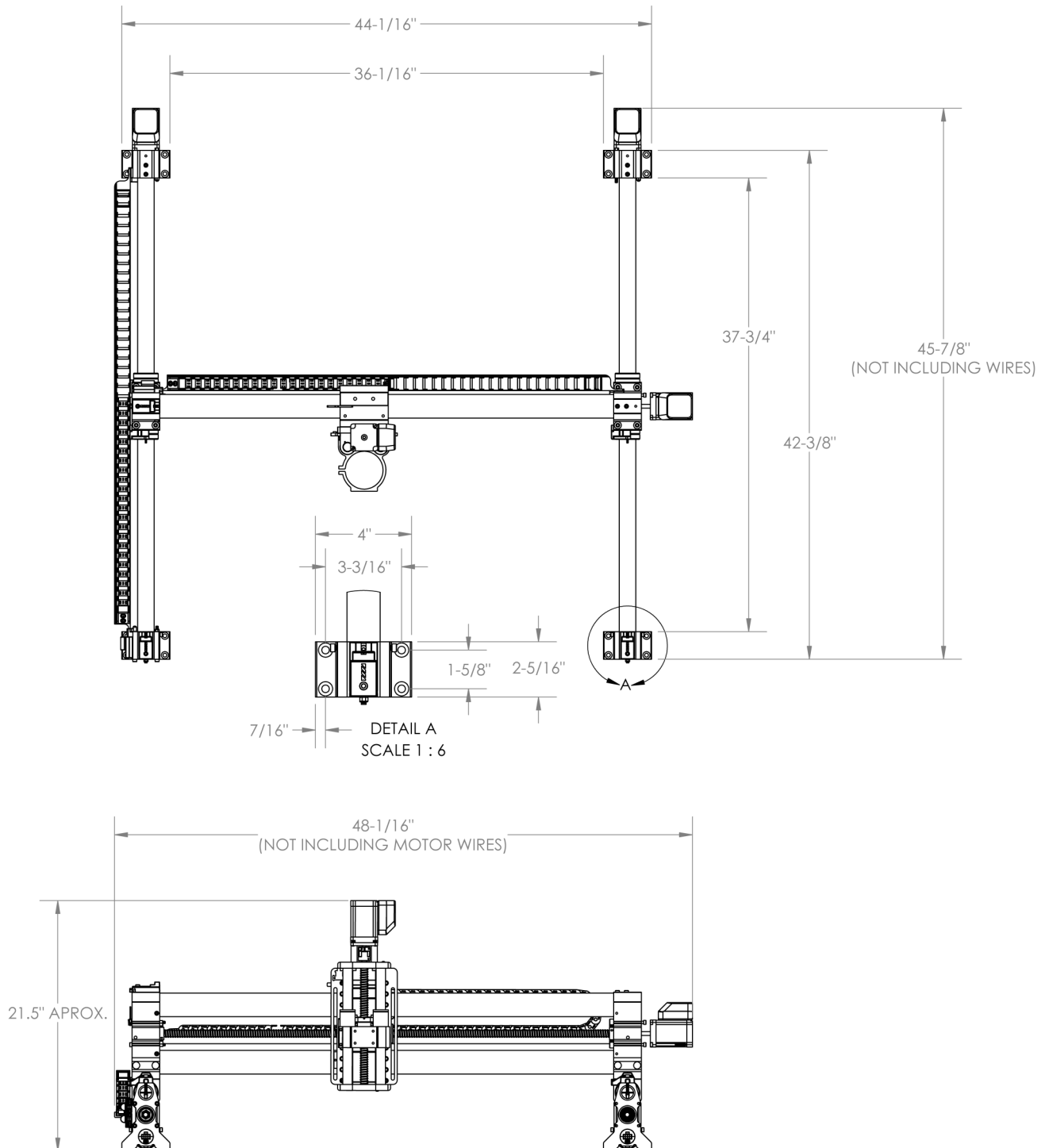


## General Disclaimer:

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# Elite Woodworker Dimensions

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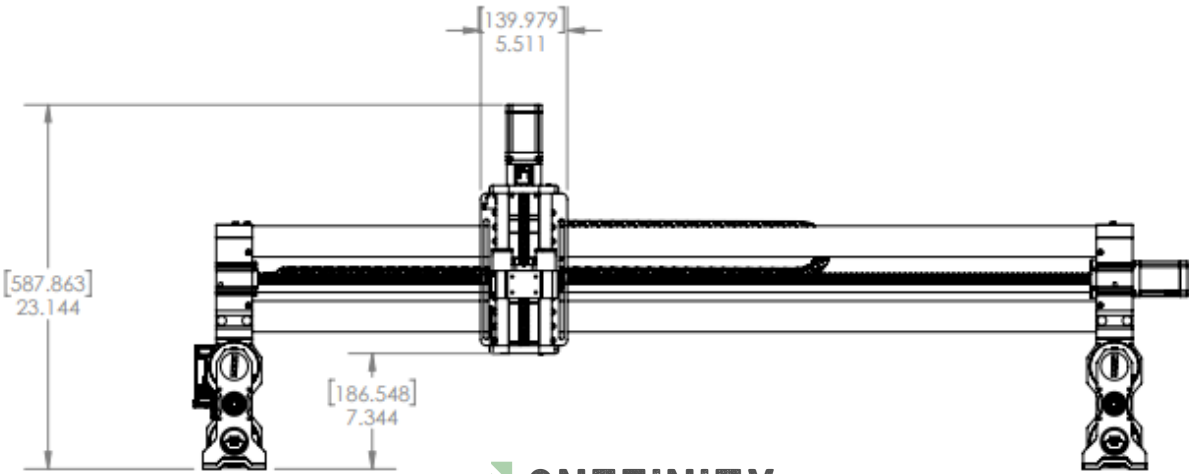
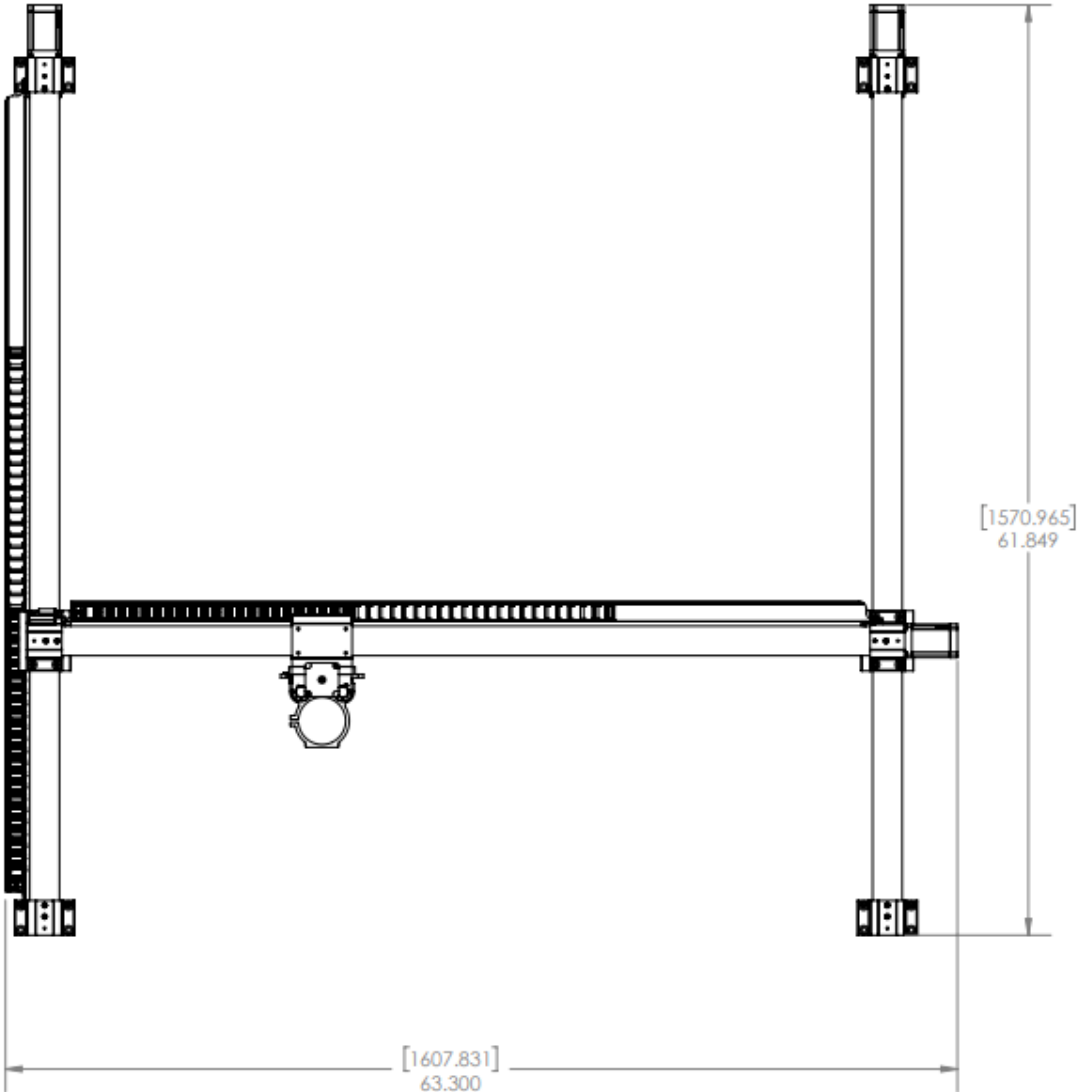


# Elite Journeyman Dimensions

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# Elite Foreman Dimensions

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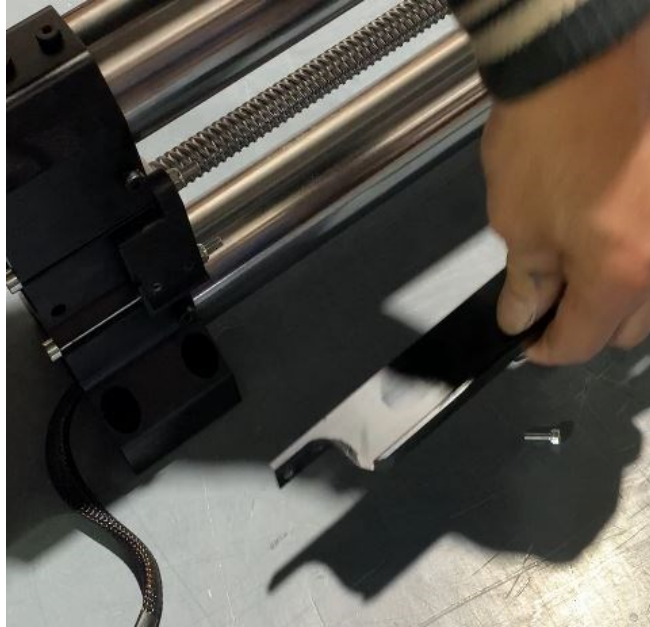




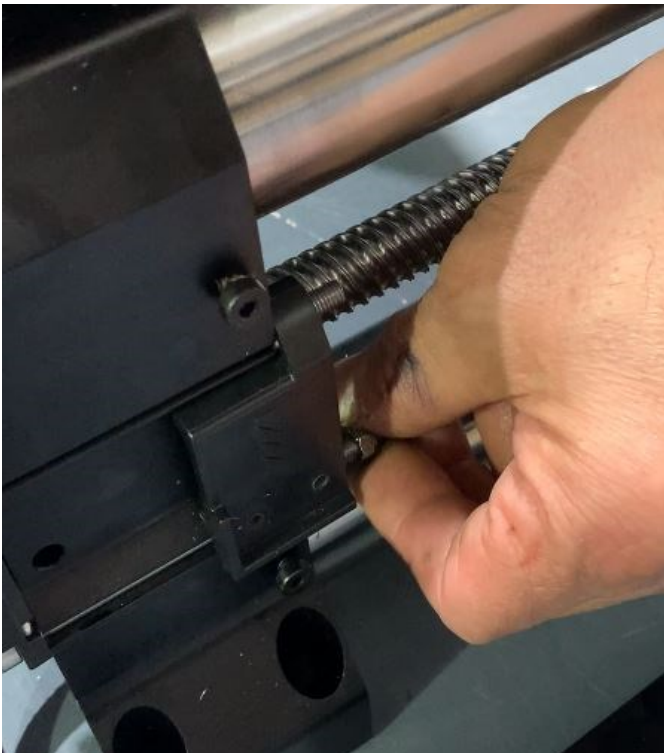
# Stepper Motor Installation

To help ensure that your Oneworld Elite Series Machine delivers without damage we have decided to remove the Closed Loop Stepper Motors. Although this adds a few extra minutes to the set-up time, we believe it will dramatically reduce damage during shipping.

**Step 1: Rails that have a drag chain only.** Using a 3mm Hex Key remove the Drag Chain Aluminium Extrusion. For the Y-Rail without a Drag Chain, skip to the Motor Installation section

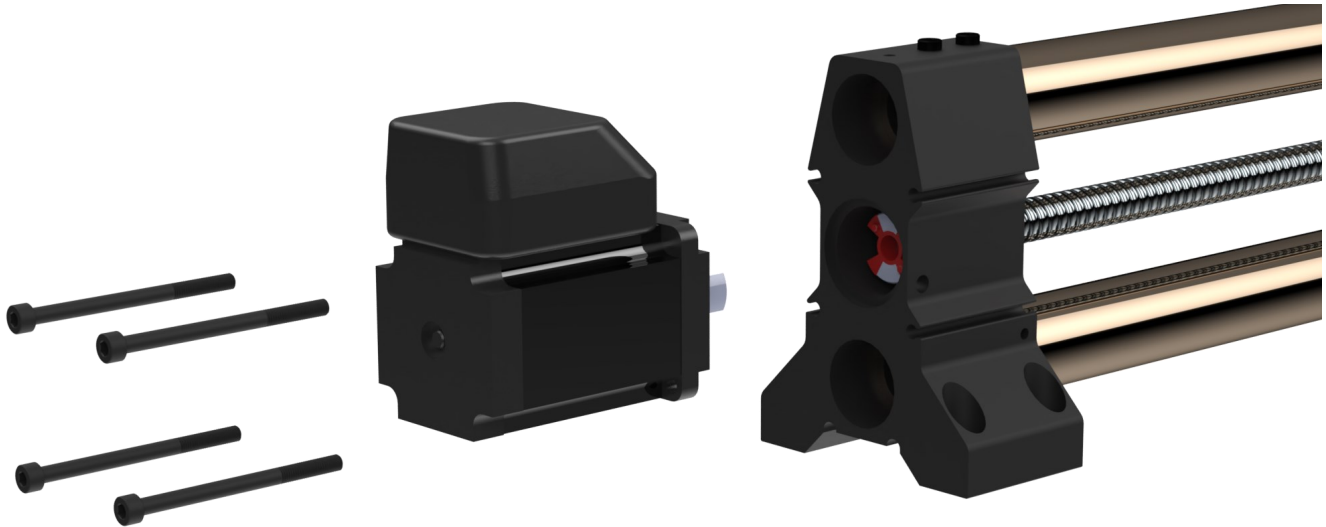


**Step 2:** Remove the Drag Chain Aluminium Extrusion Plastic Bracket using a Hex Key and a wrench. With the Plastic Bracket removed, you can now remove the Mounting Bolts.



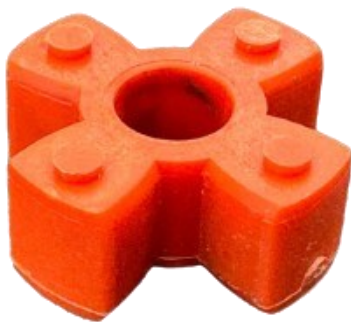
# Stepper Motor Installation

We are now going to install the Closed Loop Stepper Motors. Start by Inserting the motor shaft with one half of the motor coupler attached into the Rail End as shown below. Ensure the two halves of the couplers line up. Push the motor into the Rail End until the motor is touching the Rail End. Fasten the Motor using the Supplied hardware.



## **\*IMPORTANT\***

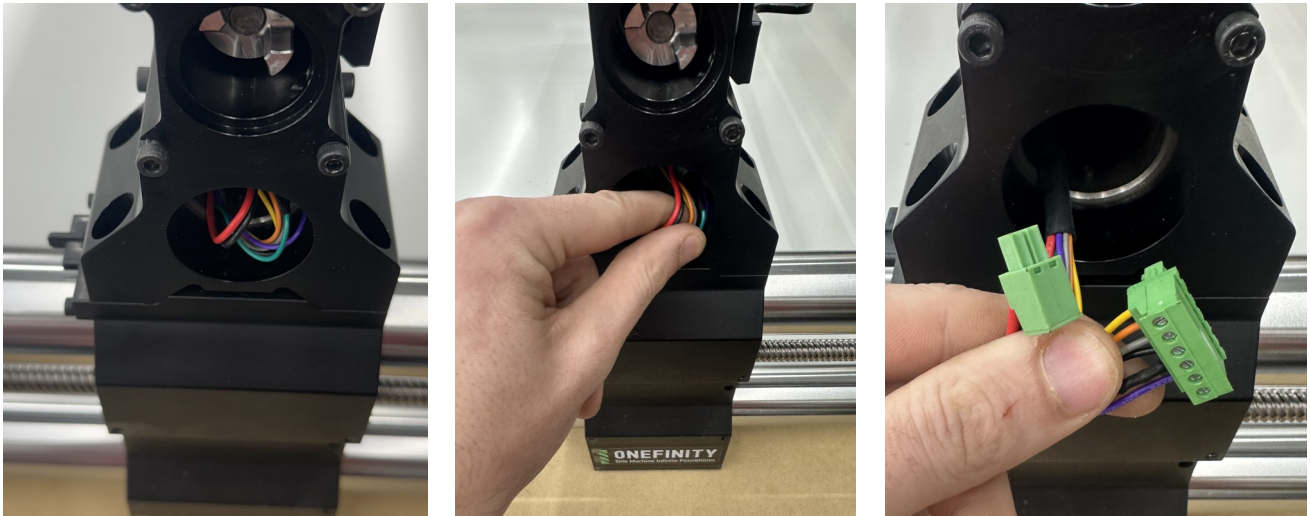
Do **NOT** throw away the red/orange bushings between the two aluminum halves of the motor coupler, they are **NOT** packing material. Removing these will render the machine inoperable.



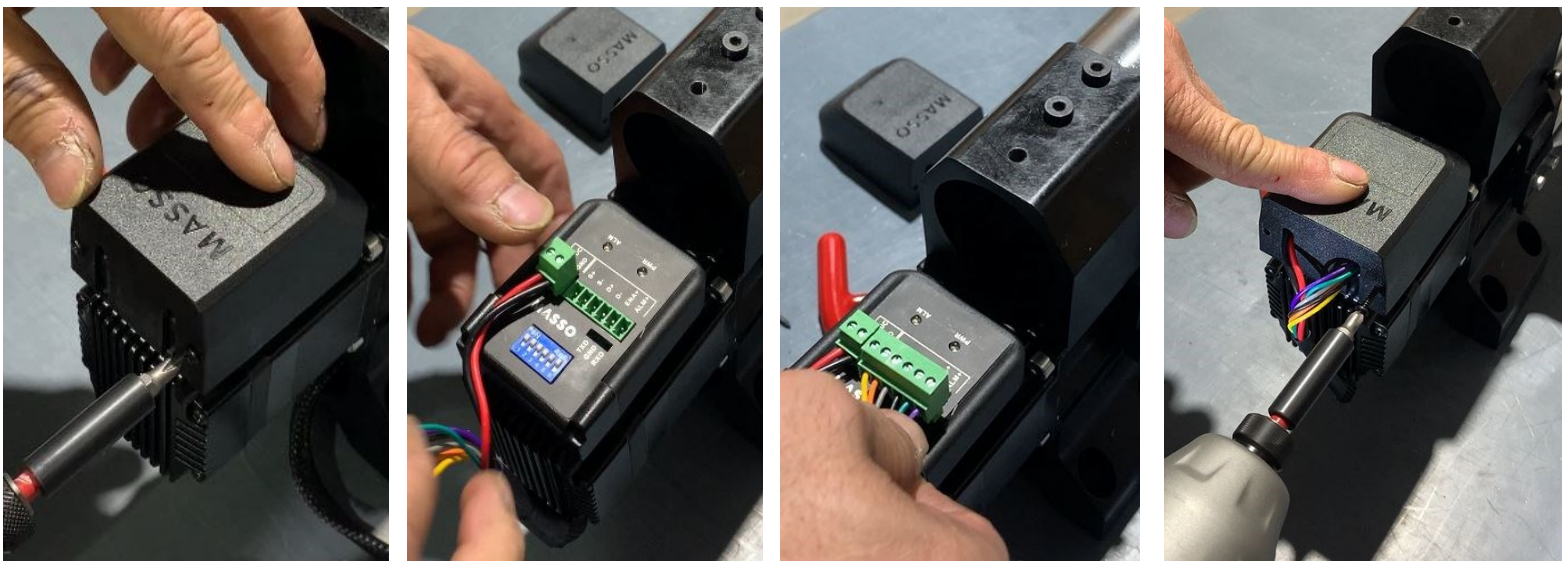


# Stepper Motor Installation

The Motor wires and terminal blocks can be located inside of the bottom tube on the X, Y and B rails. Pull the motor wires and terminal blocks out of the bottom tube before installing the motors.

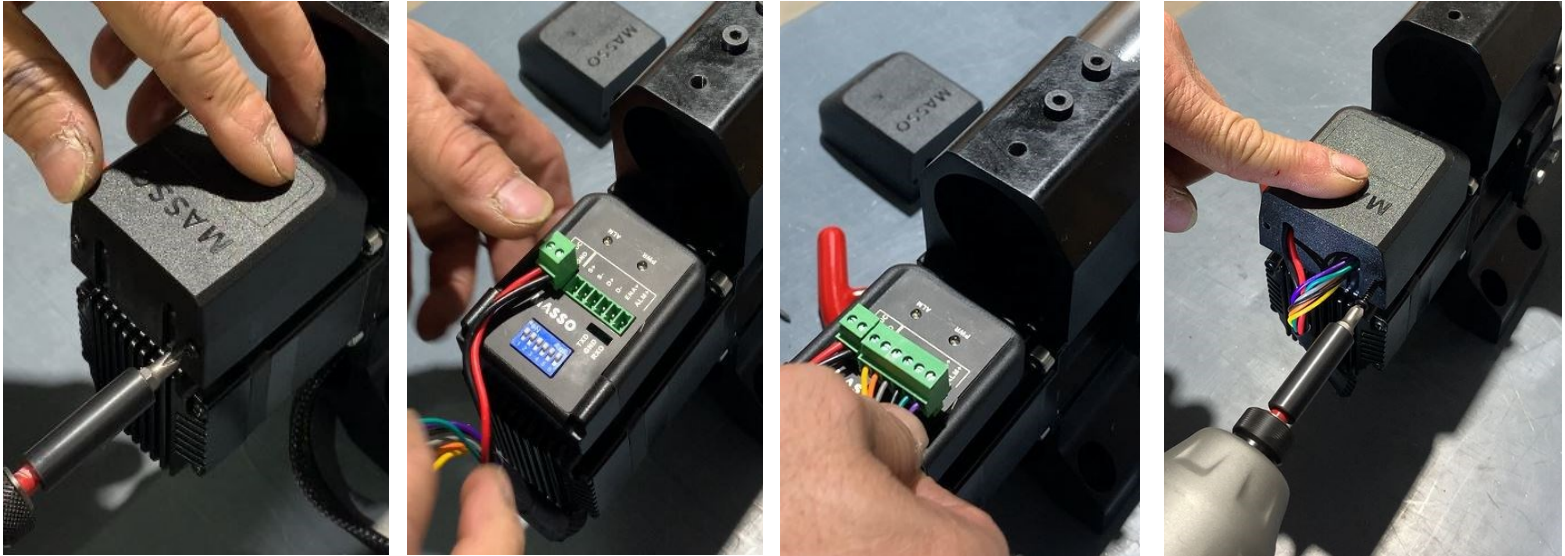


We are now going to connect the Stepper Motor wires. Start by removing the Plastic Motor Cover. With the Cover removed, plug in the Wire Connectors to the corresponding connector ports. With the wires now connected, re-install the Plastic Motor Cover. **Important:** Pay attention to how the wires exit the cover. See below.



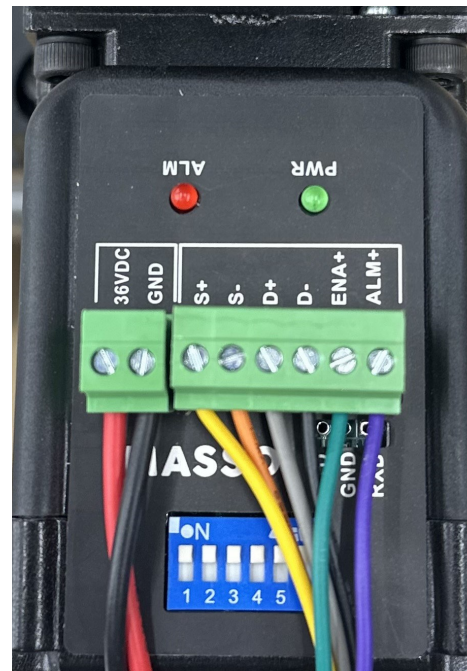
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## Motor Wiring Layout:

- 36VDC = Positive Power - Red Wire
- GND = Ground Power - Black Wire
- S+ = Step Positive - Yellow Wire
- S- = Step Negative - Orange Wire
- D+ = Direction Positive - Gray Wire
- D- = Direction Negative - Black Wire
- ENA+ = Enable - Green Wire
- ALM+ = Alarm - Purple Wire



## Dip Switches:

Dip switches should all be in the "Up" position, pushed away from the numbers.



# Assembly Instructions

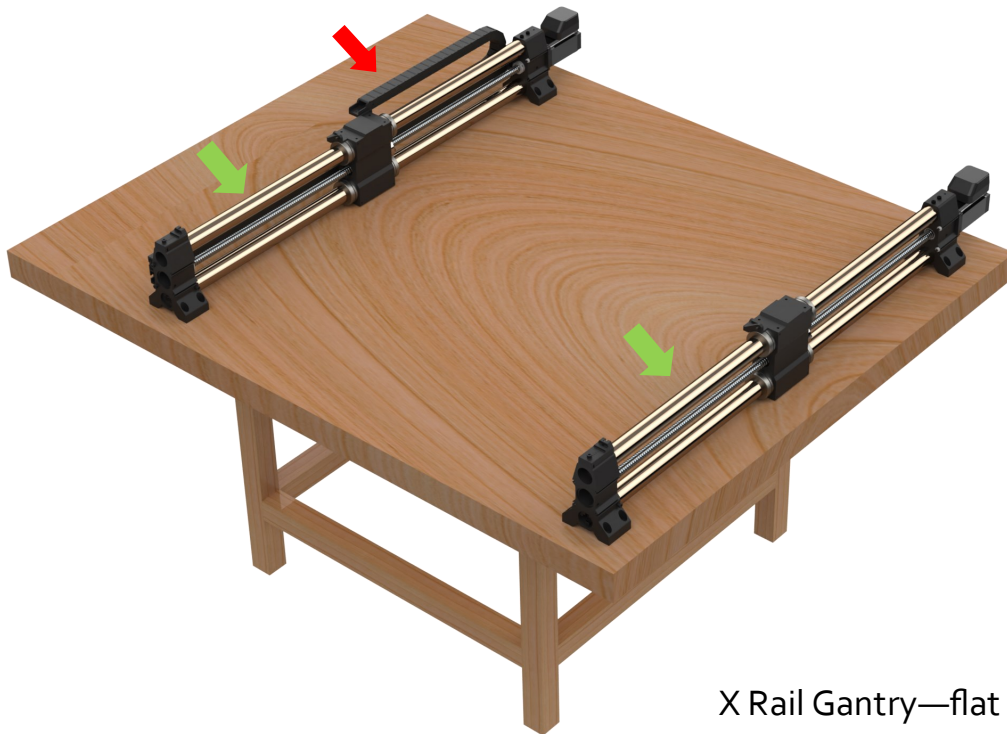
The following instructions detail how to install your Onewfinity Elite CNC Machine. Please read these entire instructions carefully. If you have any problems or do not understand these instructions please contact us at [support@onewfinitycnc.com](mailto:support@onewfinitycnc.com) or 1-888 717 4242 for further assistance.

For step-by-step instructional video's and how-to's please visit our Youtube page at: <https://www.youtube.com/onewfinitycnc>. **Note:** It is highly recommended that you view all of our assembly videos prior to attempting to assemble your Onewfinity machine. Our assembly videos can be found at: [youtube.com/onewfinitycnc](https://www.youtube.com/onewfinitycnc)

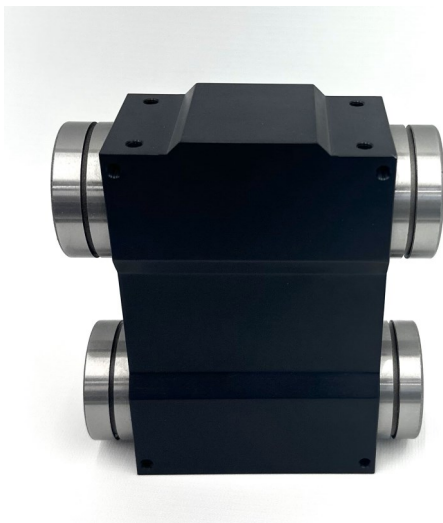
**Step 1:** Set Y-Rails (Green Arrows) on the bench and place them close to where you would like them to be installed. See below picture.

**Important:** The Y-Rail with the Drag Chain must be placed on the left side (Red Arrow)

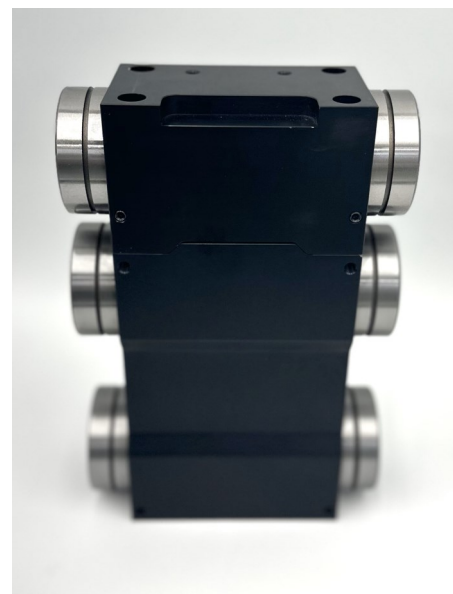
Note: For illustrative purposes, the drag chains have been removed from certain pictures.



Y/B Rail gantry—keyed top

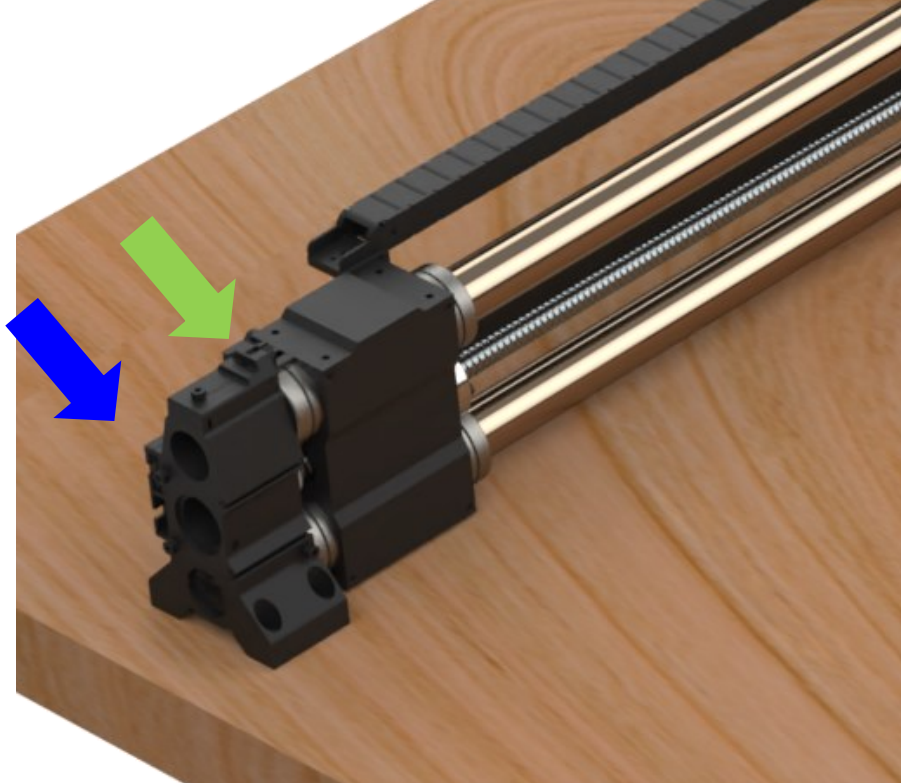


X Rail Gantry—flat top



# Assembly Instructions

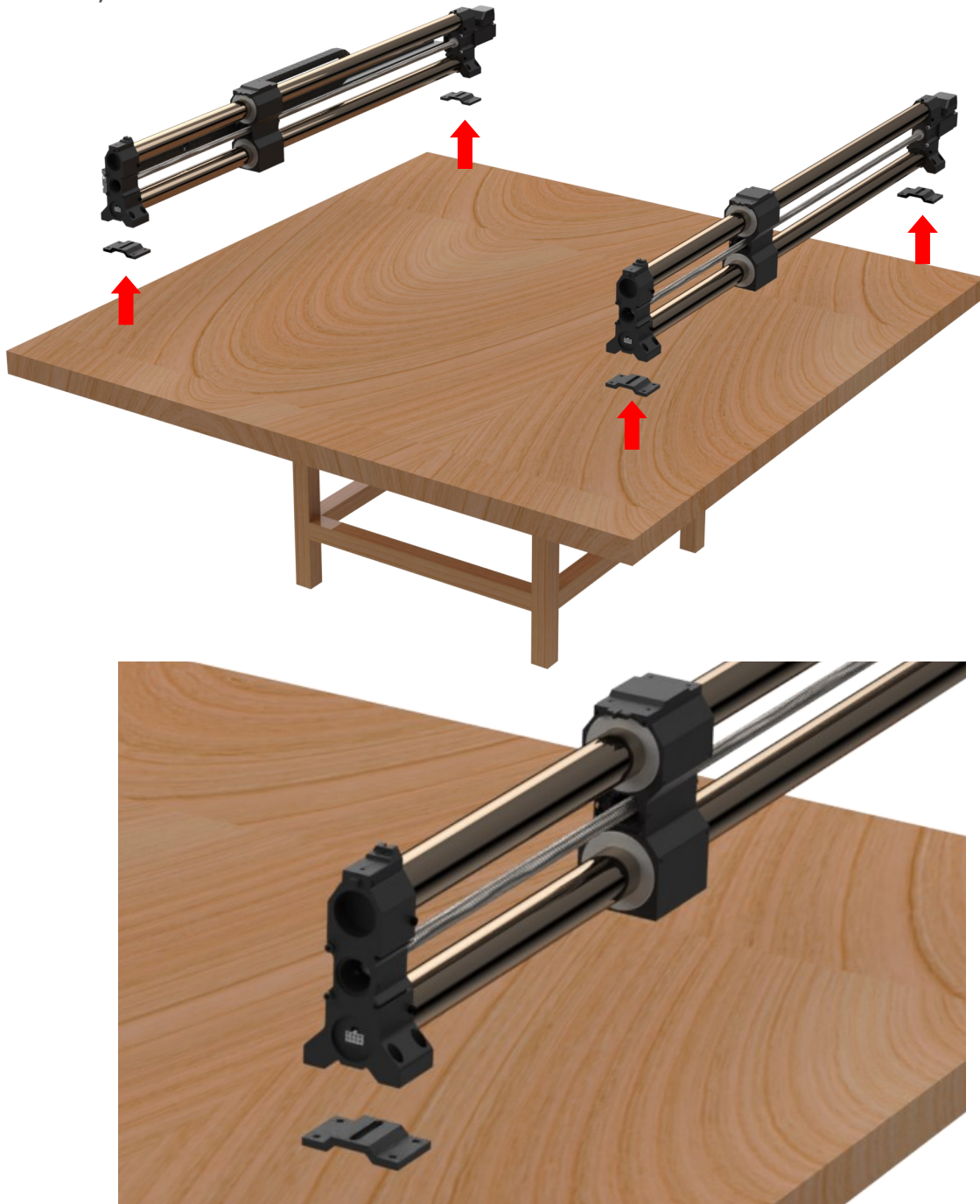
**Step 2:** Slide the Gantry assembly (Green Arrow) all the way to the front until it's tight to the Rail End (Blue Arrow). See below pictures. (Note: you can also turn the ball screw to get the Gantry Assembly to move to the front). **Important:** Make sure they are all the way to the front!



# Assembly Instructions (Foreman Only)

**Foreman Version Only:** When installing your Foreman onto a surface other than the QCW, the supplied riser blocks (Red Arrows) are required. The Foreman Riser Blocks ensure that the Y-Axis Gantry blocks clear the table surface.

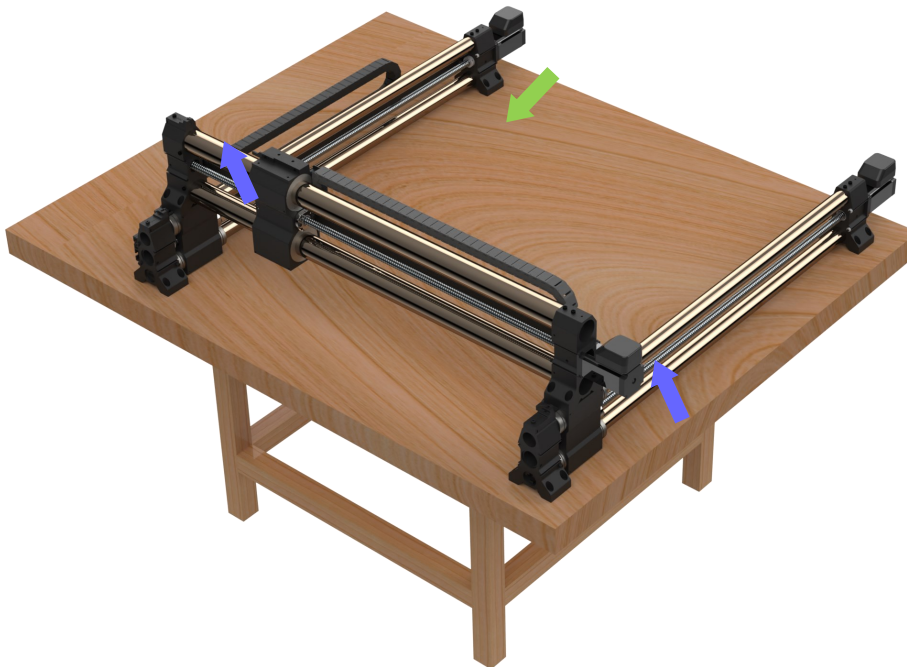
**Important:** Riser blocks are required when setting up the Foreman **WITHOUT** the Oneworld QCW system. Riser blocks are included with every Oneworld Foreman (48"x48"). Riser blocks are not included with any other machine sizes as they are not necessary.



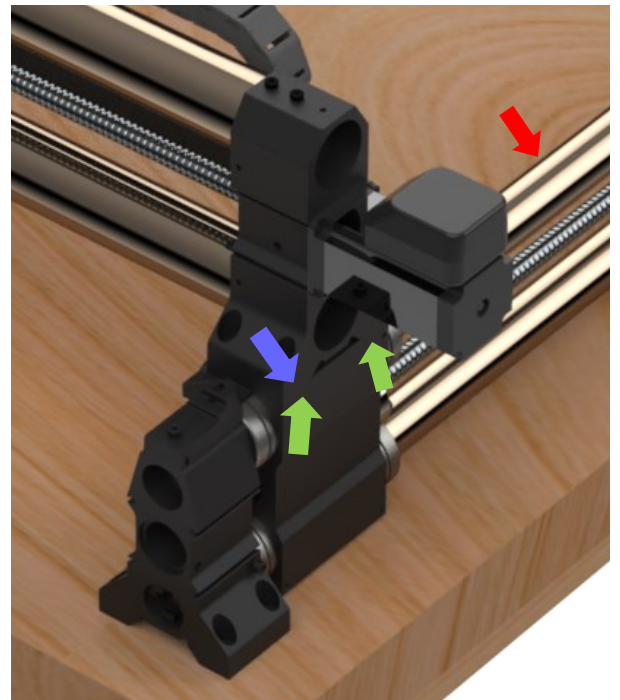
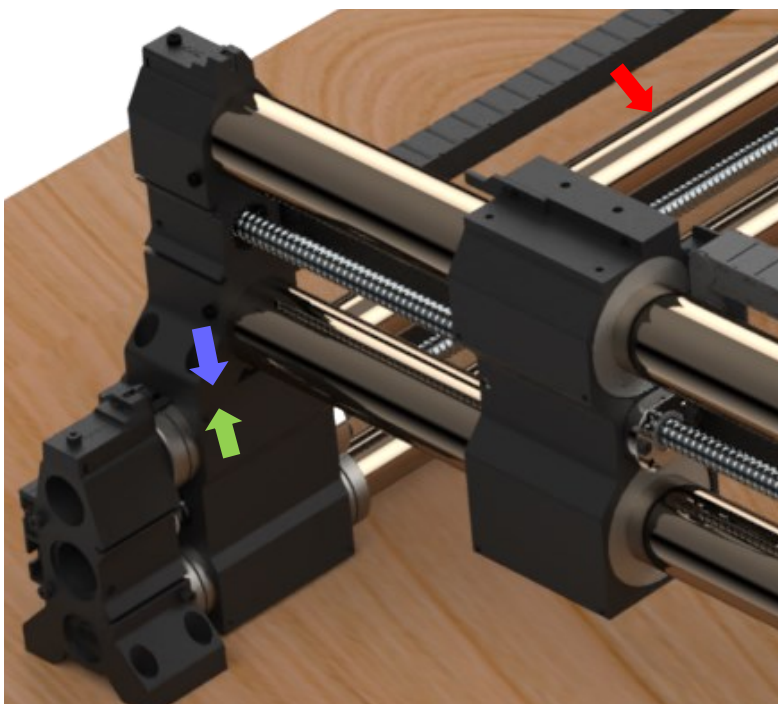


# Assembly Instructions

**Step 3:** Place the X-Rail (Green Arrow) on the Y-Rails Gantry Blocks (Blue Arrows).  
If moving the x gantry to the front during setup, there may be a larger gap on one side or the other. Disregard this gap for now. This will be addressed when the screen mount, homing sensors and homing triggers are installed in future steps.



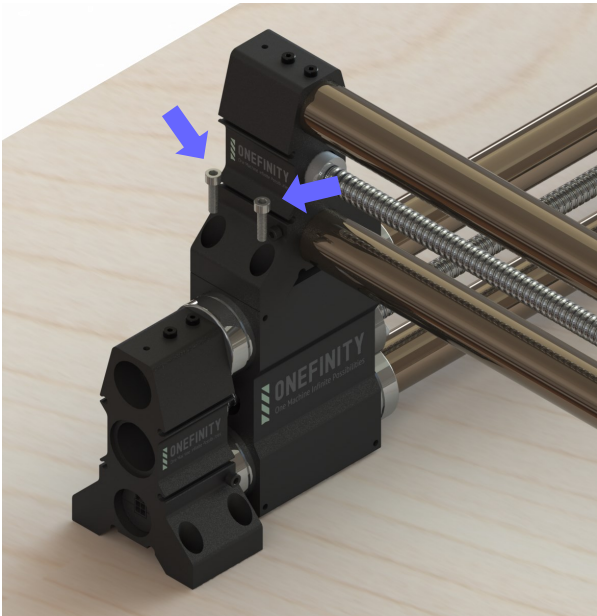
**Step 4:** Adjust Y-Rails (Red Arrows) until the Gantry Assemblies (Green Arrows) are flush with X-Rail Ends (Blue Arrows). **Note:** It is important that these parts are flush with each other before fastening together.



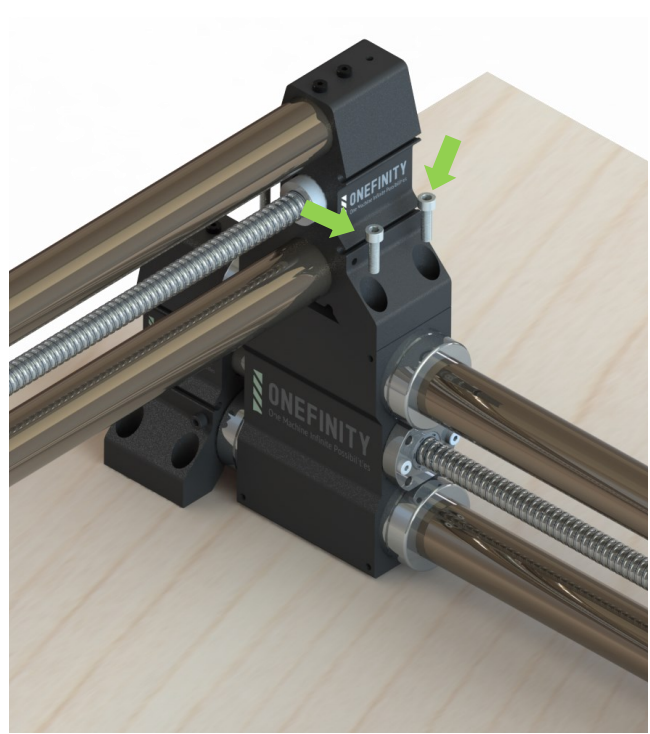
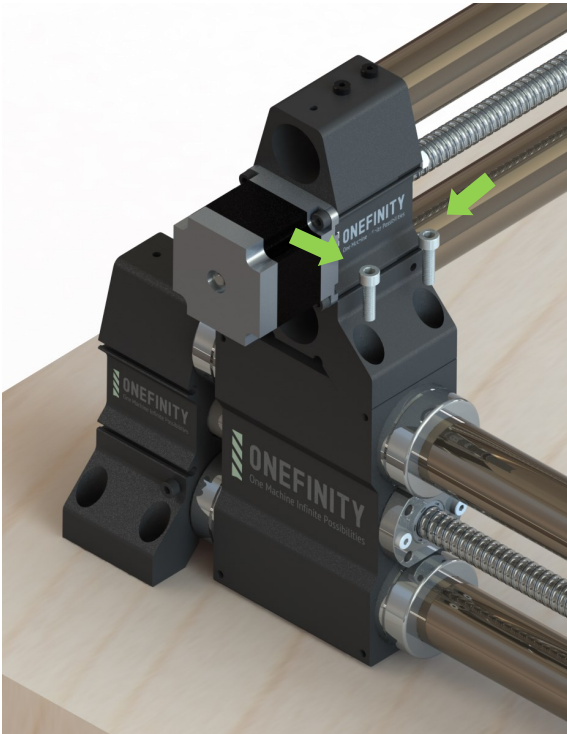


# Assembly Instructions

**Step 5:** Once you have ensured the Y-Axis Gantry Blocks and X-Axis Rails Ends are flush, fasten the front of the X-Rail to the Y-Axis using four (4) X-Rail Mounting Screws (Blue Arrows)

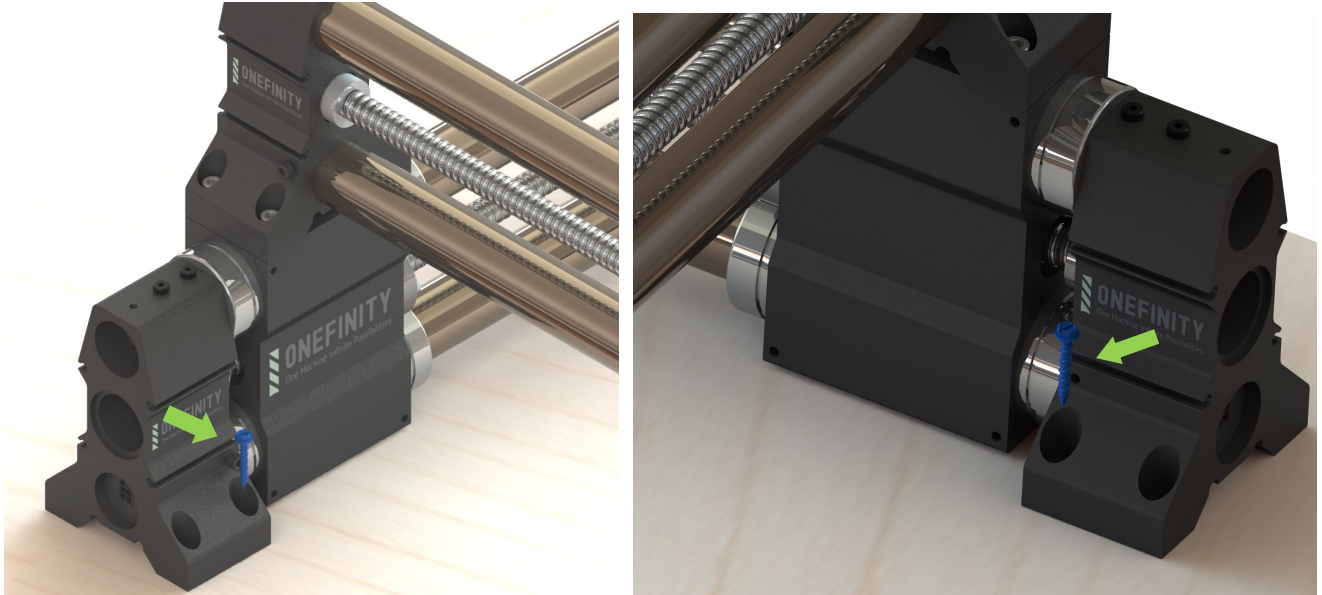


**Step 6:** Fasten the back of the X-Rail to the Y-Axis using the remaining four (4) X-Rail Mounting Screws (Green Arrows)



# Assembly Instructions

**Step 7:** Fasten the front of the Y-Rails to your table using only one (1) Y-Rail Mounting Screw per side (Green Arrow). You will use the remaining screws later.



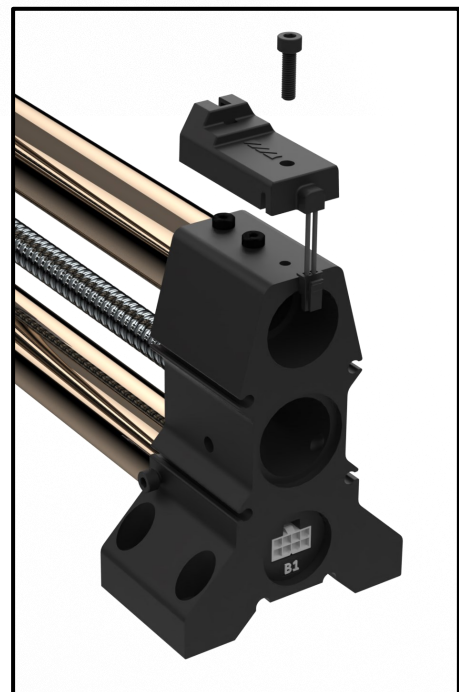
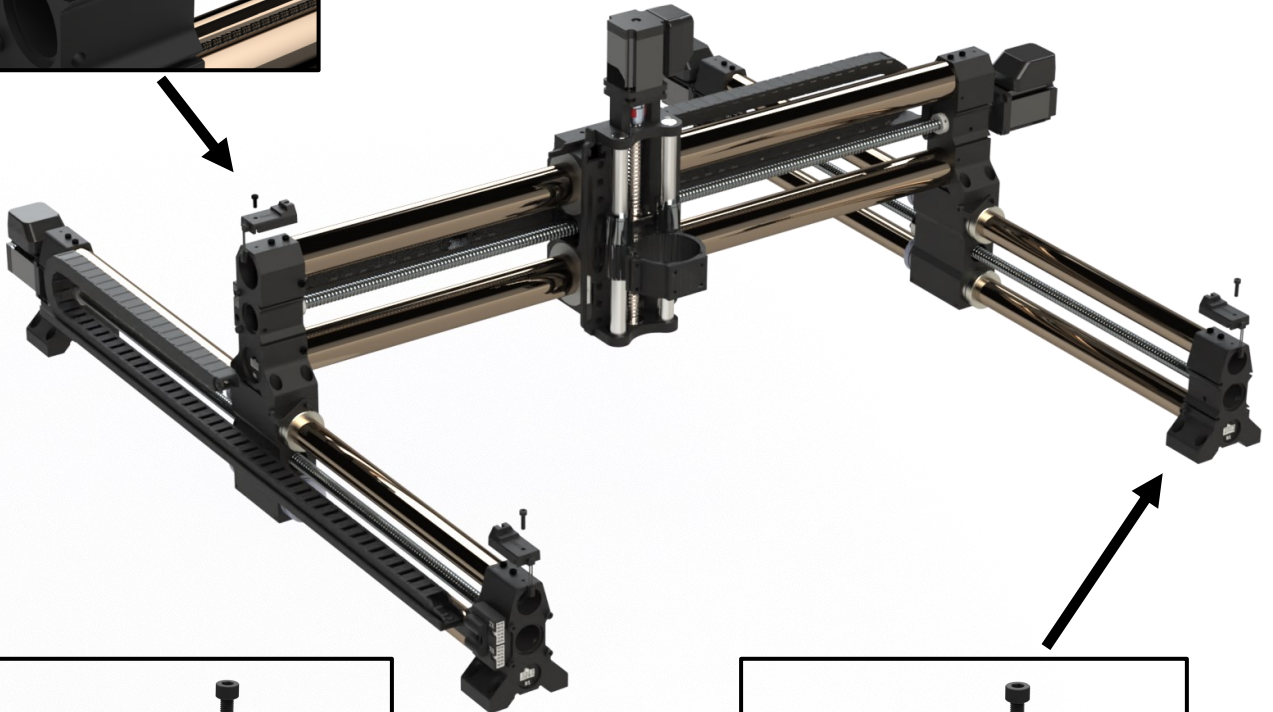
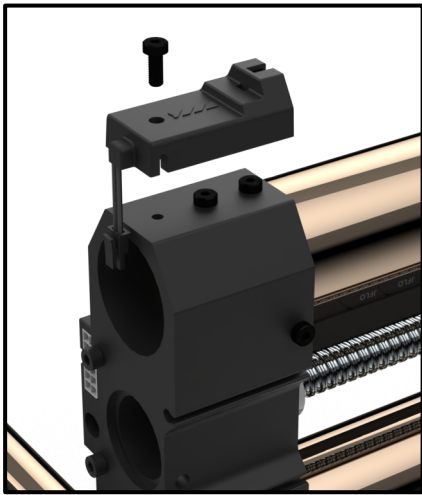
**Step 8:** Place the Controller beside the machine as shown below.





# Assembly Instructions

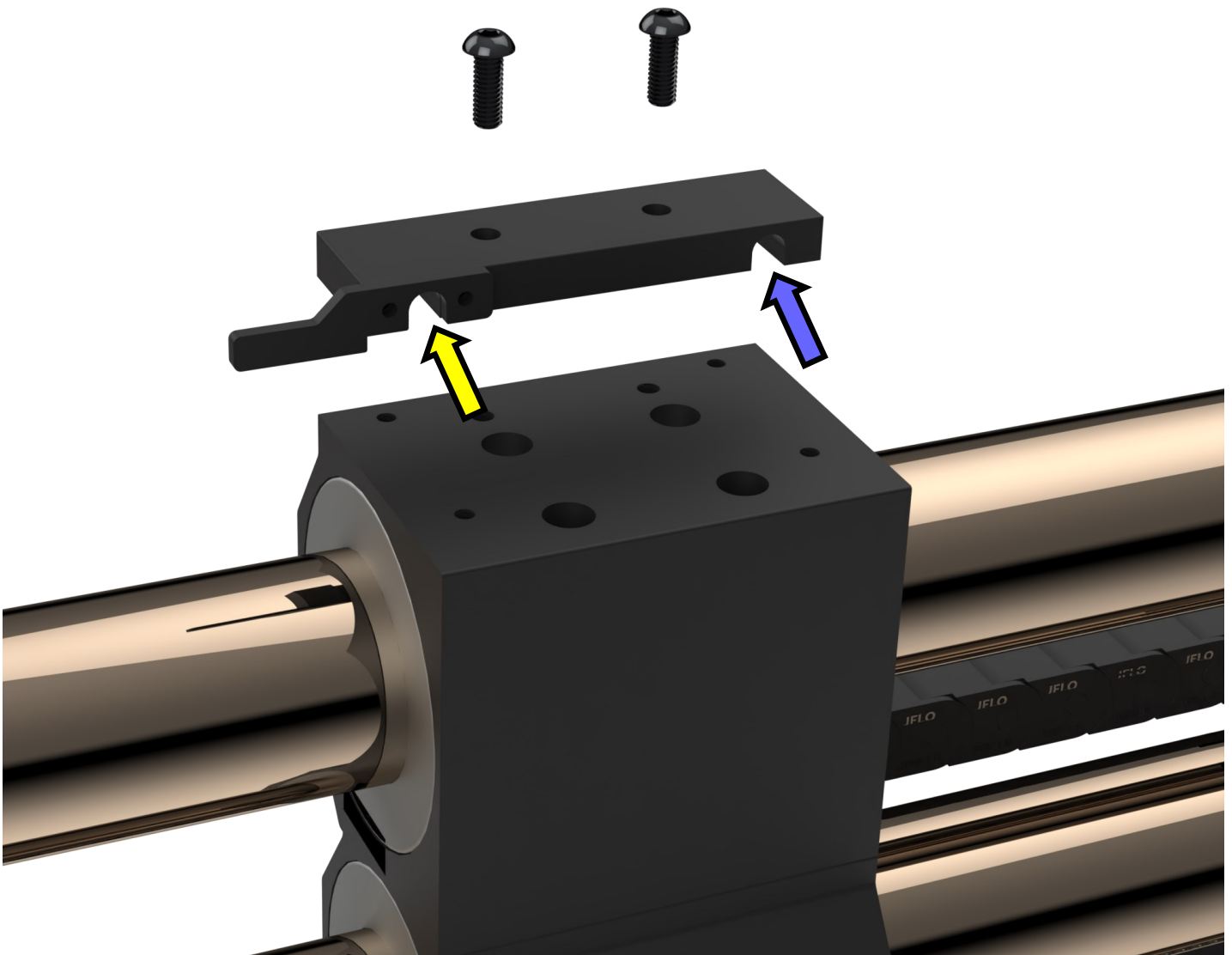
**Homing Switch Sensor Installation:** To install the Homing Switch Sensors, simply use the supplied bolts (one per sensor) and secure to the Rail Ends as shown below.



# Assembly Instructions

**X-Axis Homing Switch Trigger Installation:** To install the X-Axis Homing Switch Trigger, simply use the supplied bolts and secure to the X-Axis Gantry Block as shown below.

**Wiring:** This plate has two notches in the bottom. The left notch (yellow) will be where you run your z cable and the right notch is where you will run your router/spindle cable (blue).

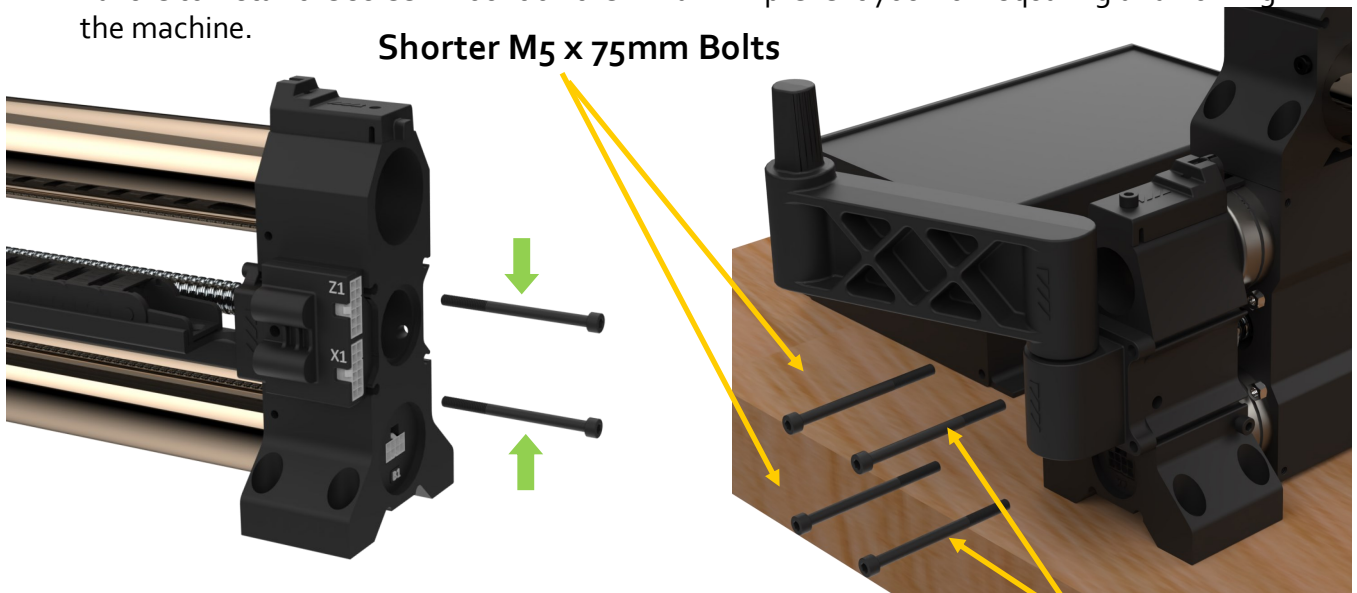


# Assembly Instructions

**Step 9:** We'll now install the Display Mount. First you'll need to remove the two (2) Bolts that secure the Wire Connector Mount (Green Arrows). These are only used for shipping and will be leftover after assembly. Using the supplied Display Mounting Bolts (qty: 4) and Nuts (qty:2), mount the Display Mount to the front of the Rail End closest to the Controller. Finally, insert the bolt with washer from the bottom of the mount up into the arm to secure the arm to the mount.

\*Note - There are two different length bolts included for the screen mount, the shorter bolts are M5 x 75mm and the longer bolts are M5 x 80mm that will come in a hardware pack, 75mm on left side, 80mm on right side.

**IMPORTANT\*** - The screen mount must be installed for the machine to home properly. Failure to install the screen mount on the Y1 rail will prevent you from squaring and homing the machine.



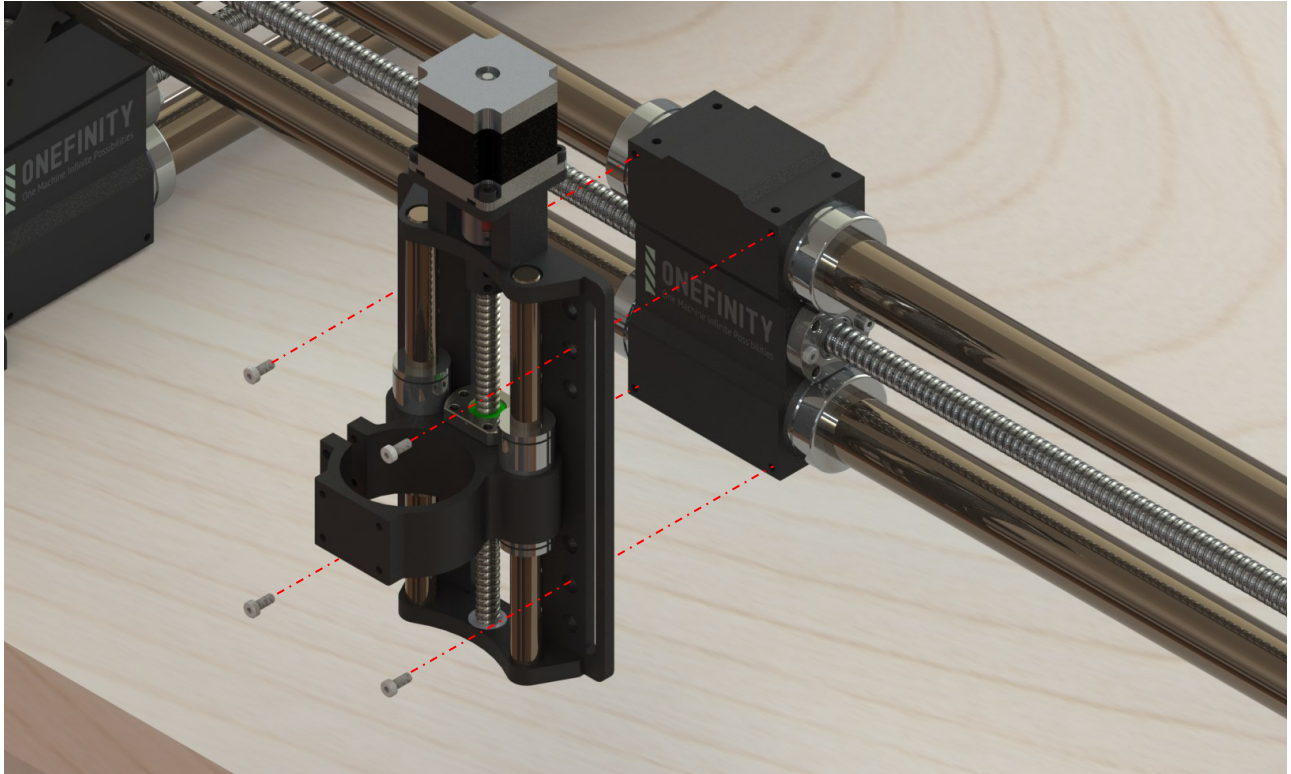
**Step 10:** Attach Onefinity MASSO Touch onto Display Mount.



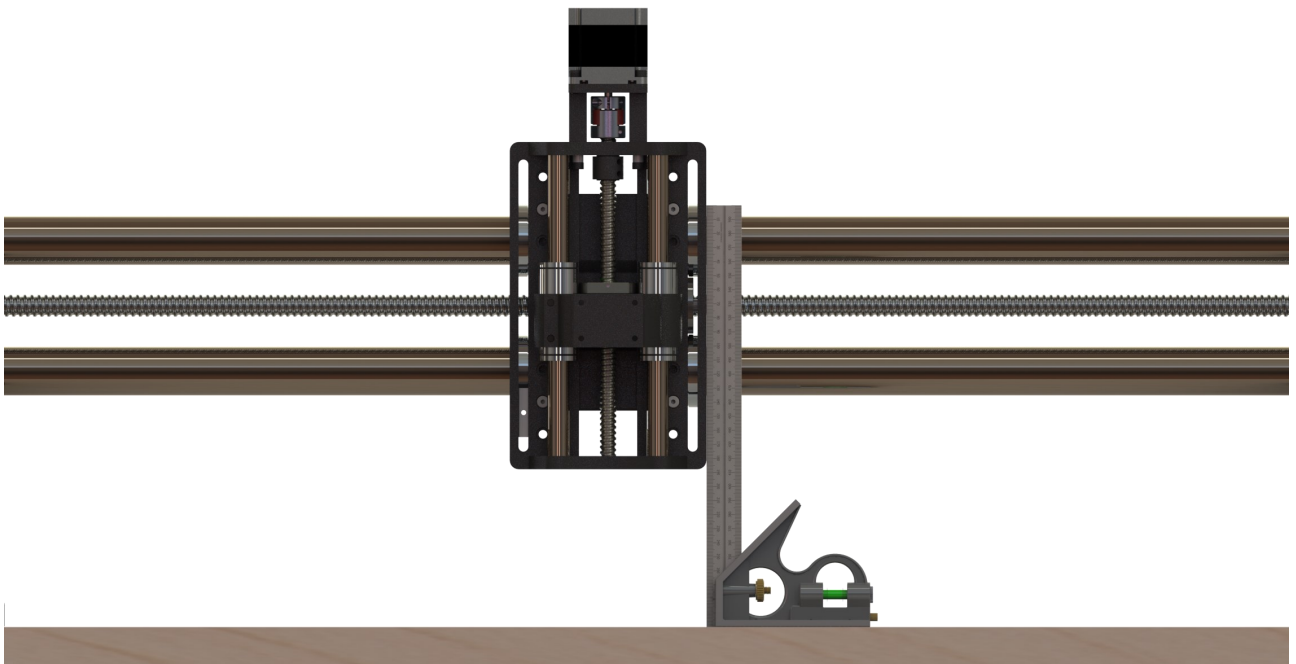


# Assembly Instructions

**Step 11:** Attach the Z-Slider to the X-Axis Gantry Block using the four (4) Z-Slider Mounting Screws. Do not tighten them all the way just yet, you'll do that in the next step. To gain access to the mounting holes you may need to manually turn the ball screw to raise and/or lower the spindle mount. **Note:** In the event you have the Stiffy attached, ensure you do not use the holes in the Stiffy Block to attached the Z-Slider.



**Step 12:** Square the Z-Slider to your table then tighten the Z-Slider Mounting Screws.



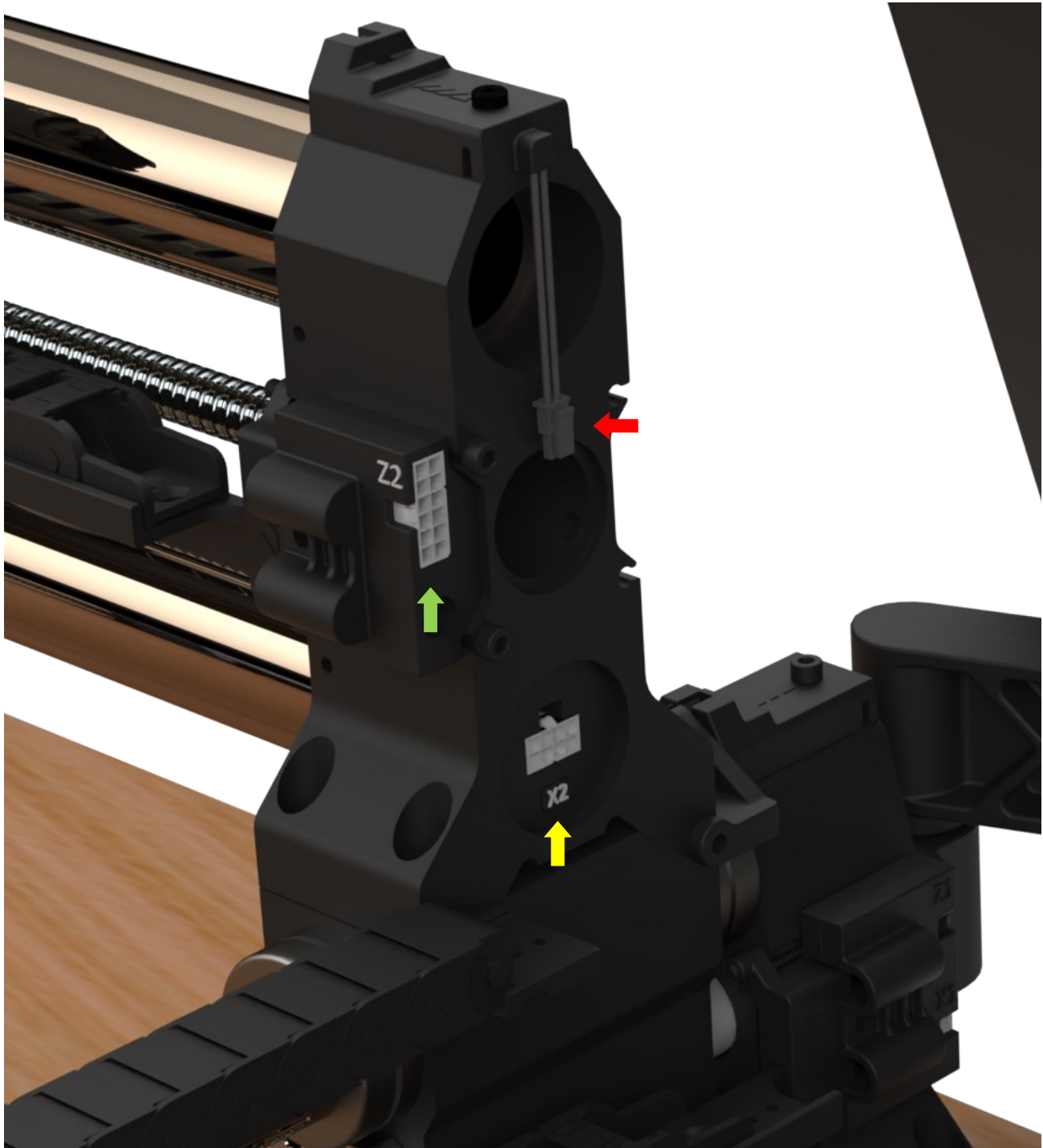
# Assembly Instructions (Wiring)

**Step 13:** It's now time to wire up your machine. We'll start with the connectors located on the X-Rail.

Plug the wire that's labelled **Z2** into the socket labelled **Z2** (Green Arrow).

Plug the wire that's labelled **X2** into the socket labelled **X2** (Yellow Arrow).

Connect the **X Homing Sensor Wire** to the **X Homing Sensor** (Red Arrow).



# Assembly Instructions (Wiring)

**Step 14:** We'll now connect the Left Y-Rail Wires.

Plug the wire that's labelled **Z1** into the socket labelled **Z1** (Green Arrow).

Plug the wire that's labelled **X1** into the socket labelled **X1** (Yellow Arrow).

Plug the wire that's labelled **Y1** into the socket labelled **Y1** (Blue Arrow).

Connect the **Y1** Homing Sensor Wire to the **Y1** Homing Sensor (Red Arrow).



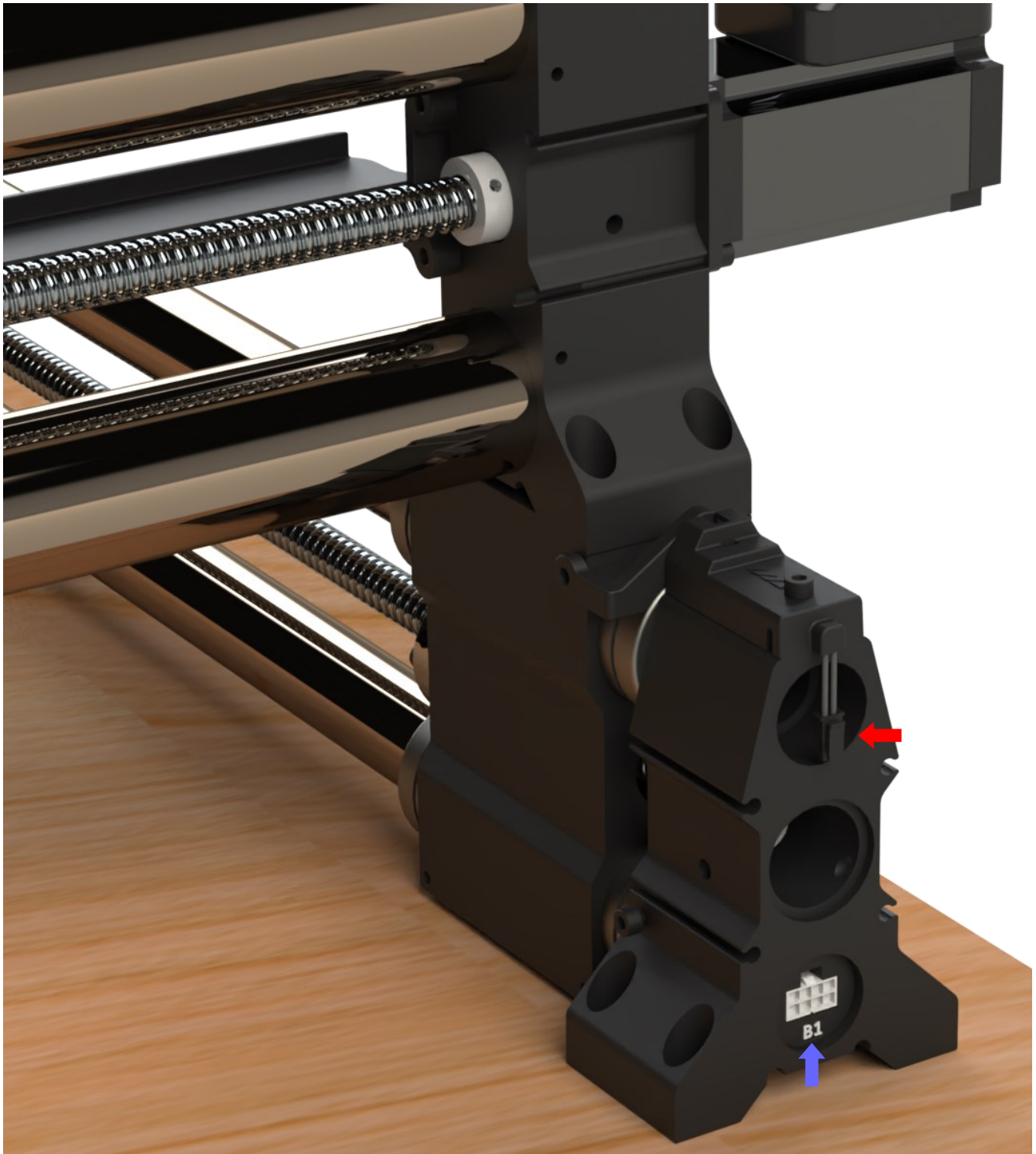


# Assembly Instructions (Wiring)

**Step 14:** We'll now connect the Right Y-Rail Wires.

Plug the wire that's labelled **B1** into the socket labelled **B1** (Blue Arrow).

Connect the **B1** Homing Sensor Wire to the **B1** Homing Sensor (Red Arrow).



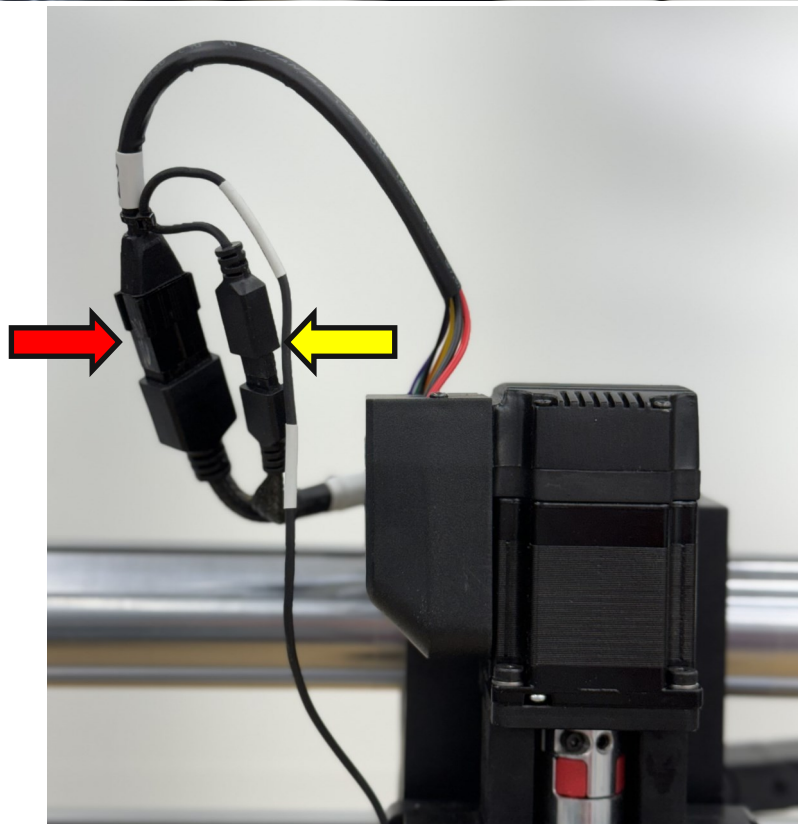
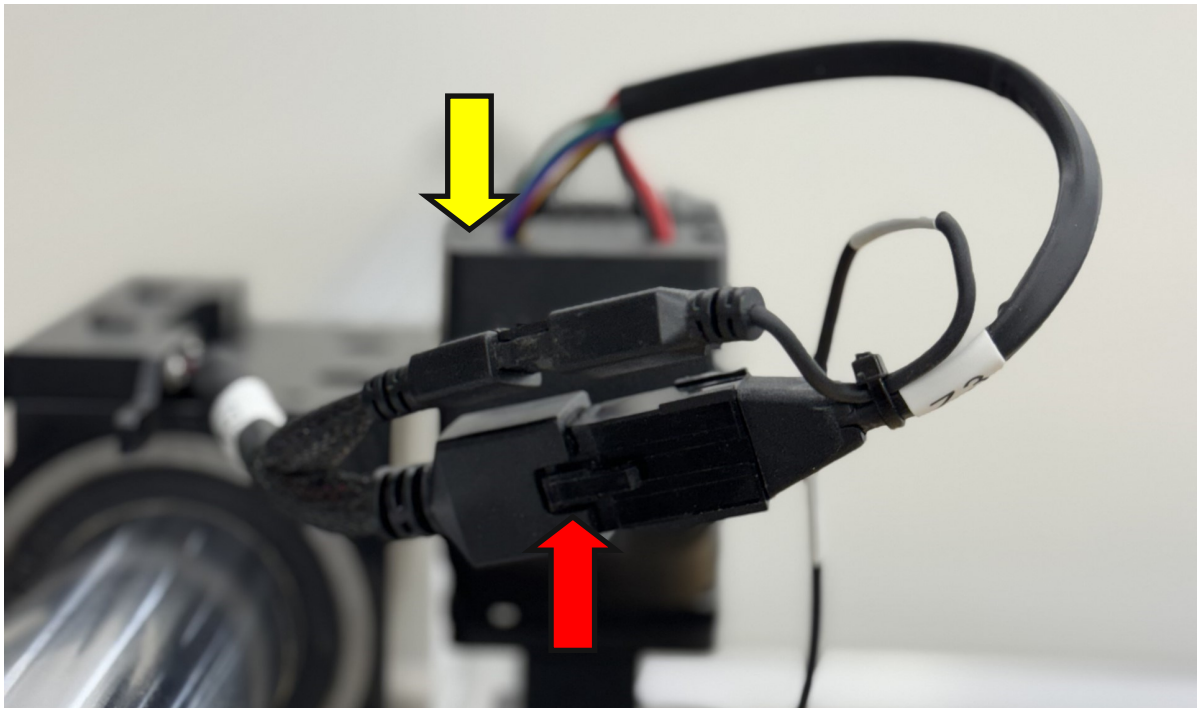
# Assembly Instructions (Wiring)

**Step 15:** We'll now connect the Z-20 Z-Slider Wires.

Connect the wires labelled Z2 (Red Arrow).

Connect the Homing Sensor Wire to the Homing Sensor (Yellow Arrow).

**Wiring:** This plate has two notches in the bottom. The left notch will be where you run your z cable and the right notch is where you will run your router/spindle cable.



# Assembly Instructions (Wiring)

**Step 16:** We'll now connect the wires to the Onefinity MASSO Touch.

Plug the wire that's labelled **Y** into the socket labelled **Y** (Pink Arrow).

Plug the wire that's labelled **B** into the socket labelled **B** (Orange Arrow).

Plug the wire that's labelled **Z** into the socket labelled **Z** (Blue Arrow).

Plug the wire that's labelled **X** into the socket labelled **X** (Green Arrow).

Plug the Masso Power wire into the Masso Power socket (White Arrow).

Plug in the Tool Setter (Yellow Arrow) *If applicable.*

Plug in the XYZ Probe (Red Arrow) *If applicable.*

Plug in the Laser (Purple Arrow) *If applicable.*



# Assembly Instructions (Wiring)

**Step 17:** We'll now connect the Power Supply Controller Wires.

Plug the Masso Power wire into the Masso Power socket (**White Arrow**).

On the **X1** Wire, Plug the 2 pin connector into the first socket (**Yellow Arrow**).

On the **Y1** Wire, Plug the 2 pin connector into the second socket (**Green Arrow**).

On the **B1** Wire, Plug the 2 pin connector into the third socket (**Blue Arrow**).

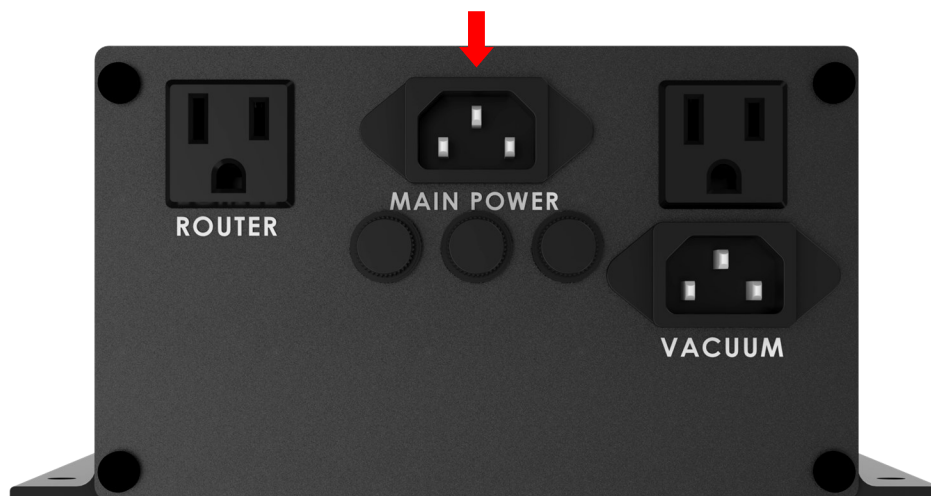
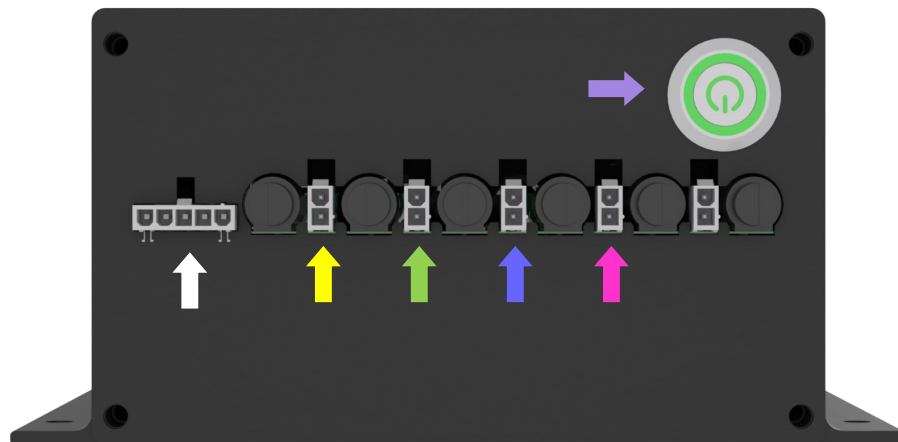
On the **Z1** Wire, Plug the 2 pin connector into the fourth socket (**Pink Arrow**).

Plug the Power Supply Power Cord into the AC Power socket (**Red Arrow**).

**Congratulations, you have now completed wiring your Onefinity Elite CNC**

You can now power up your machine by pressing the power button (**Purple Arrow**).

**Note:** All 5 power ports on the front of the controller are the same. Although we label them for these instructions, they are interchangeable. You will be left with one empty power spot. This can be used for optional accessories (like a 5th axis / rotary)



# Assembly Instructions

**Step 18:** After you have powered up your Elite Onefinity you'll need to release the Controlled Stop Button (Estop). Start by simultaneously twisting and pulling out on the Controlled Stop Button (Estop) clockwise to release it to the "ON" position (Green Arrow). After releasing the Controller Stop button, double-tap the "Home" button (Blue arrow in photo below) to initiate the homing sequence.

You must complete this entire sequence each time you boot the machine. Failure to do so will result in each axis only traveling half their full distance.



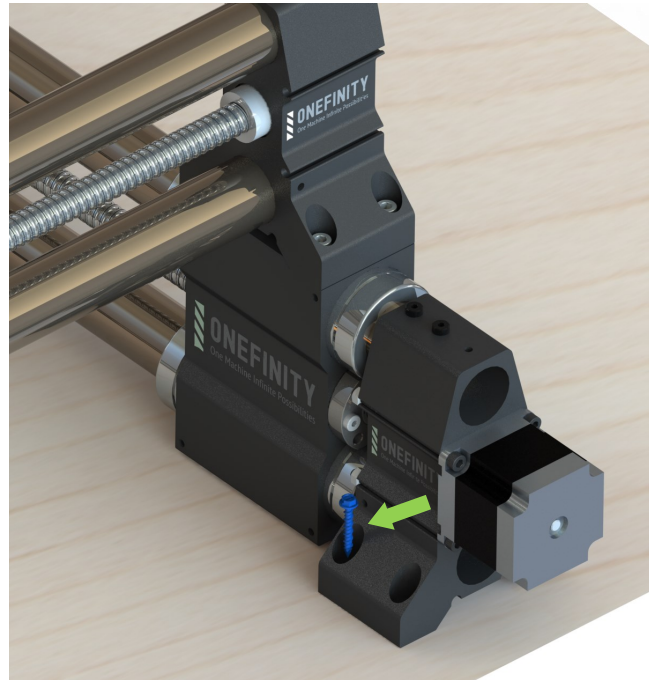
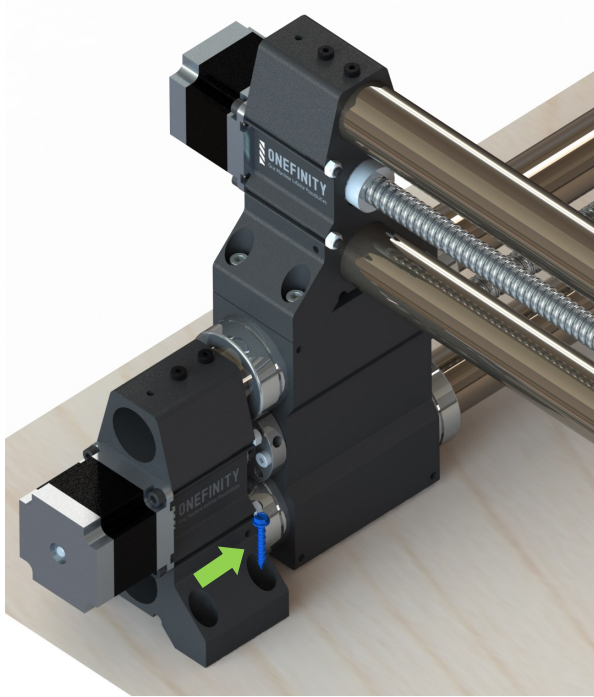
**Step 19:** We will now jog the Y-Axis so we can finish fastening the Y-Rails to the table. First ensure you are on the F3 page (Green Arrow). Next, press the Continuous Mode button (Pink Arrow). Now, press and hold the Y+ button (Yellow Arrow) until the X-Rail is almost all the way to the back of the machine. **Note:** If you find that it's jogging to slow you can increase the Feed by sliding the Feed bar up (Red Arrow)





# Assembly Instructions

**Step 20:** After moving the X-Axis all the way to the back, fasten the back of the Y-Rails to your table using only one (1) Y-Rail Mounting Screw per side (Green Arrow).



**Step 21:** We will now jog the Y-Axis to bring the X-Rail back to the front of the machine. Press and hold the Y- button (Red Arrow) until the X-Rail is back to the front of the machine.

NOTE: From software v4.0, CAPS lock will be in off state on system power up.

**MASSO**

SPINDLE		MACHINE	
RPM: 0		X	0.000 mm
Req: 0, 100%		Y	0.000 mm
Direction: STOP		Z	0.000 mm
		A	0.000 deg
		B	

STEP MODE  CONTINUOUS MODE

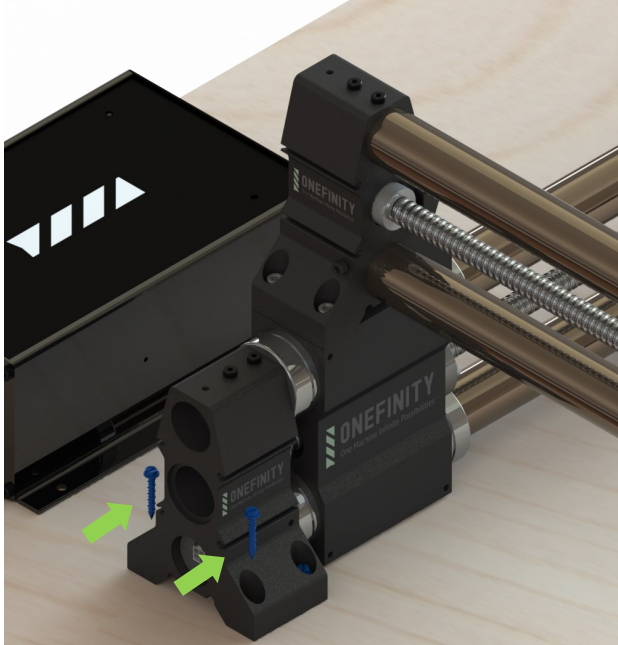
1.0000 0.5000 0.1000 0.0100

Feed: 100%

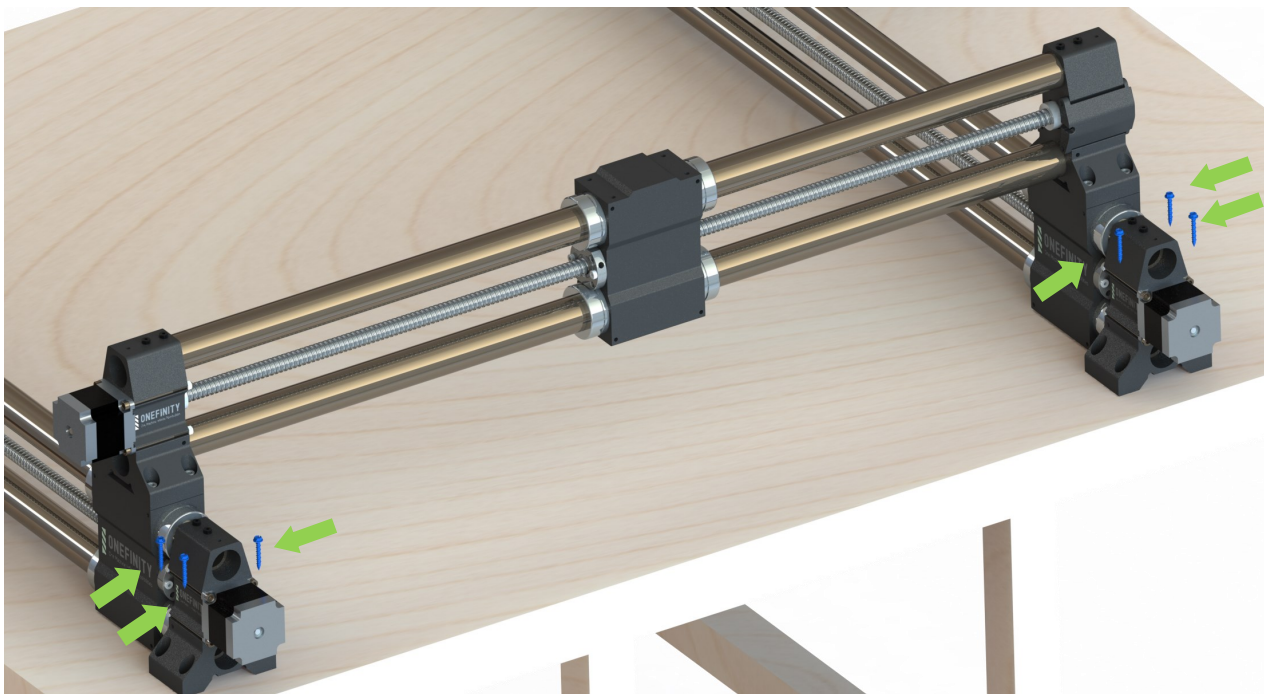
Y+ Z+ X- X+ Y- Z- A- A+

# Assembly Instructions

**Step 22:** With the X-Rail all the way to the front again, finish fastening the Y-Rails to the table using another three (3) Y-Rail Mounting screws per side (Green Arrow).



**Step 23:** Repeat steps 19 and 20 to jog the Y-Axis until the X-Rail is to the back of the machine again. Finish fastening the Y-Rails to the table using the remaining three (3) Y-Rail Mounting Screws per side (Green Arrows).



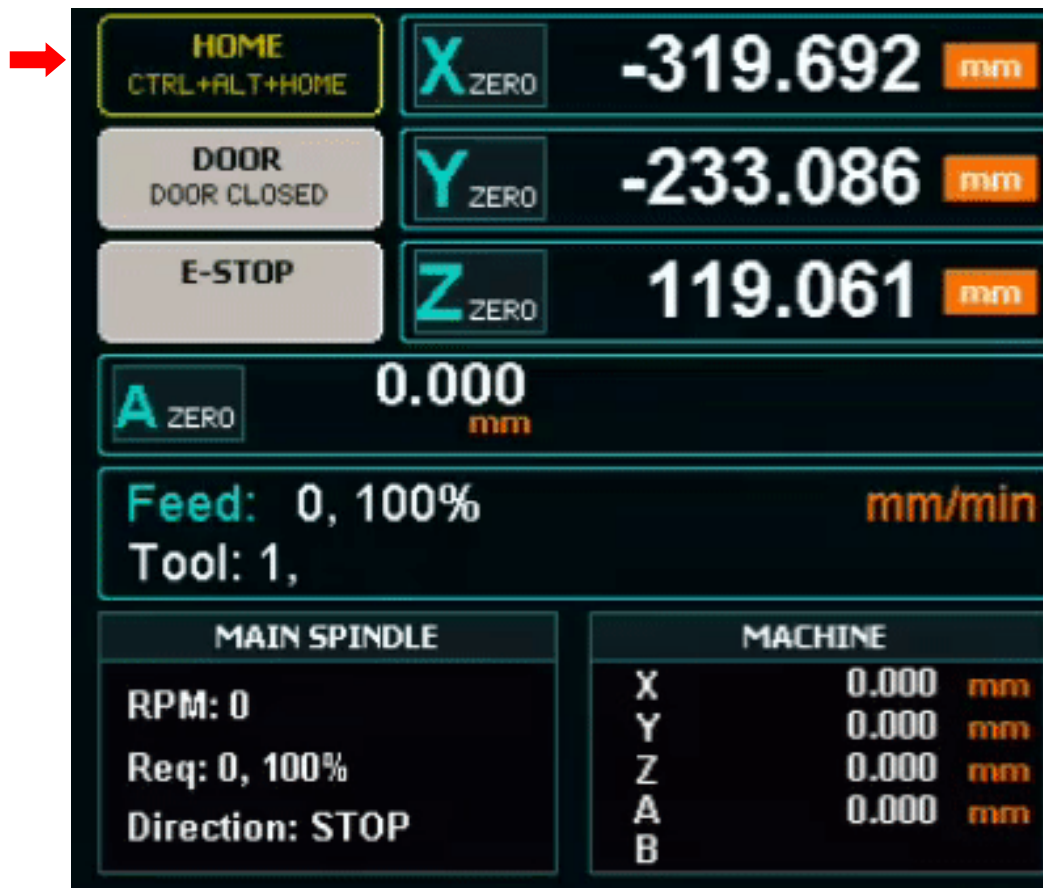
# Homing the Elite Onefinity

The Onefinity Elite machine come standard with infrared Homing sensors.

To home the machine, first make sure you are on the F2 or F3 screens and that no alarms such as E-Stop are flashing on the screen.

Next check that its safe to run the homing cycle on the machine and the tool, work piece or clamps will not be hit.

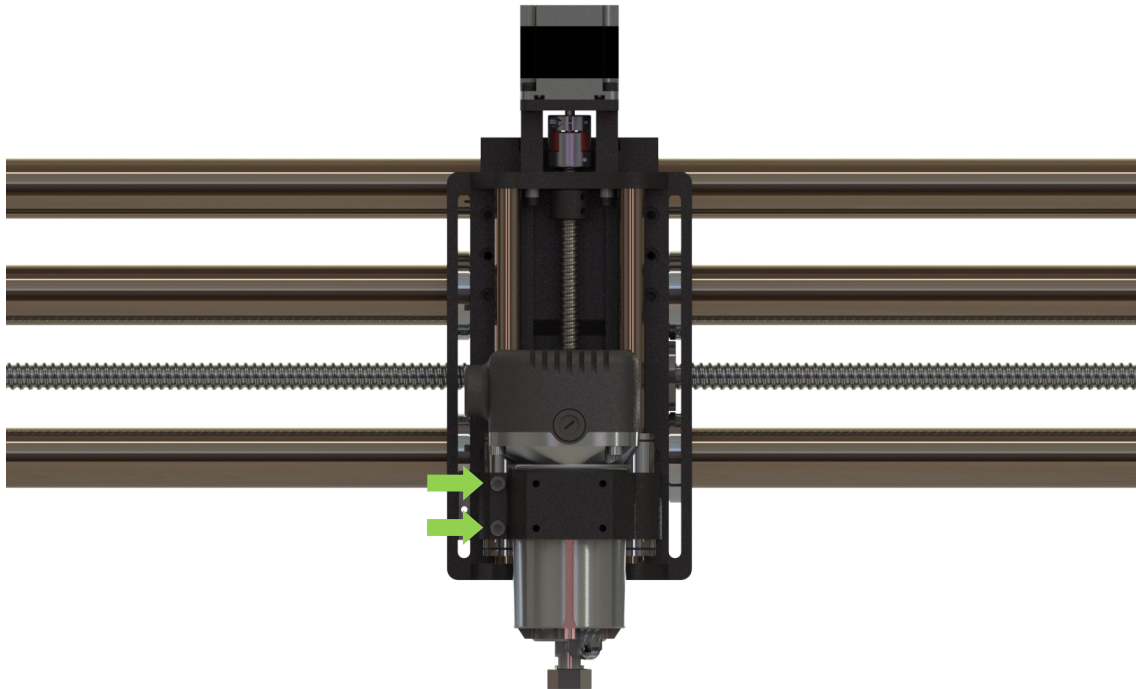
Once you are ready to home the machine, **Double click** the **HOME** button at the top of the F2 or F3 screen (Red Arrow).



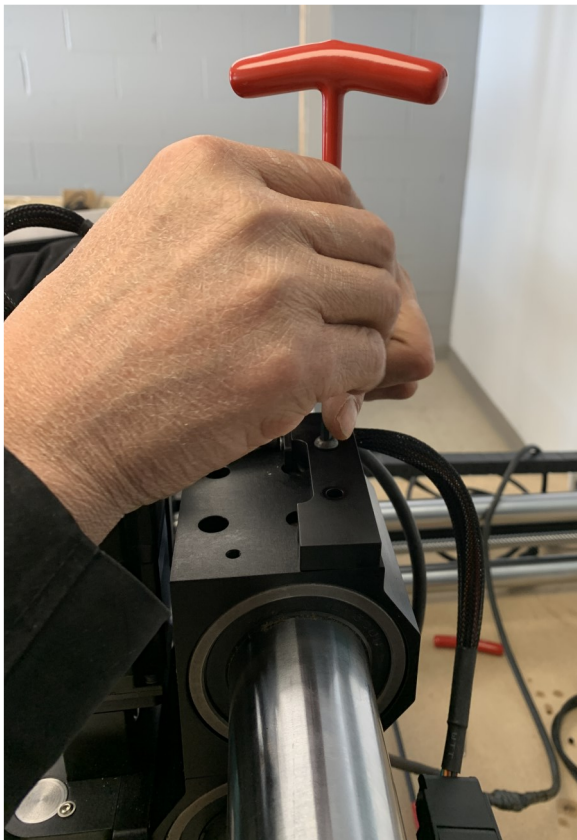


# Spindle/Router Installation

**Step 1:** Insert the Router or Spindle into the Spindle Mount. Tighten the Spindle Mount Screws (Green Arrows)

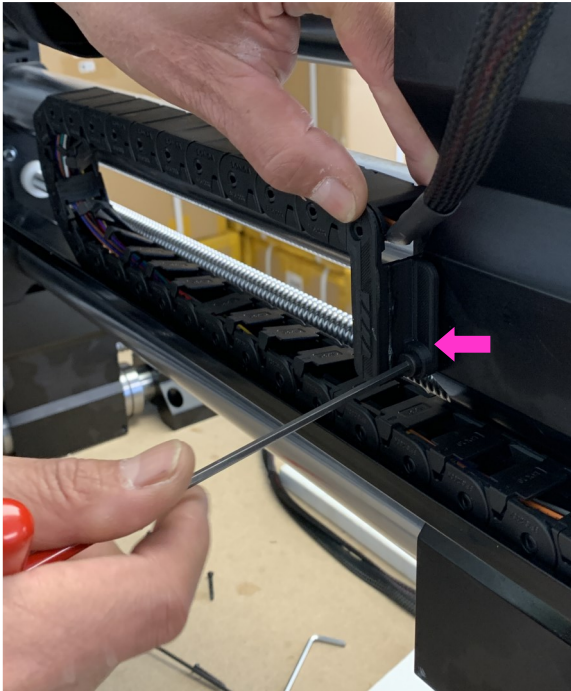


**Step 2:** Unscrew the Cable Clamp and install the router cable (Red Arrow). Disconnect the Z-Axis Stepper Motor and Homing Switch Wires to prevent damage.

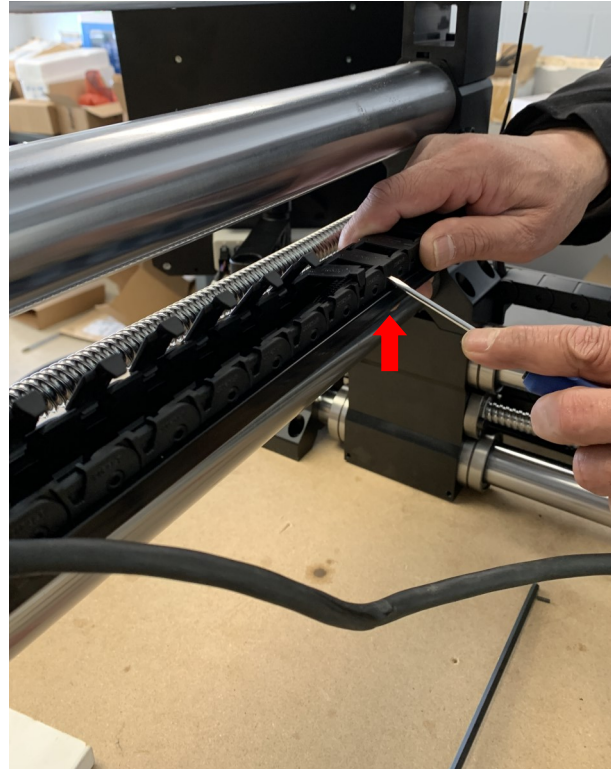


# Spindle/Router Installation

**Step 3:** Unscrew the Drag Chain Bracket from the Gantry Block (Pink Arrows). Using a small flat head screw driver, remove the Drag Chain from The Drag Chain Bracket (Green Arrow)



**Step 4:** Using the small flat head screw driver, open up the Drag Chain (Red Arrow)





# Spindle/Router Installation

**Step 5:** Insert the Router/Spindle Cable and closed the Drag Chain.

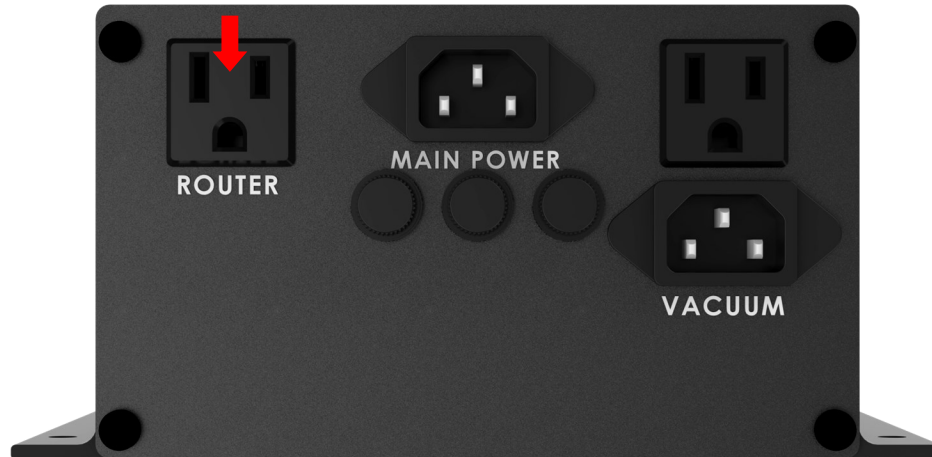


**Step 6:** With the Router/Spindle Cable installed into the Drag Chain, re-connect the Drag Chain Mount to the Drag Chain. Once the Drag Chain and Drag Chain Mount are re-connected, re-attach the Drag Chain Mount to the Gantry Block.



# Spindle/Router Installation

**Step 7:** If you are using a router you can plug it into the back of the Power Supply Controller. Doing so will allow your Router to automatically turn on when you start a carve. **Note:** Do not plug in a VFD/Spindle here (they must run directly from wall power), this is only for Routers.

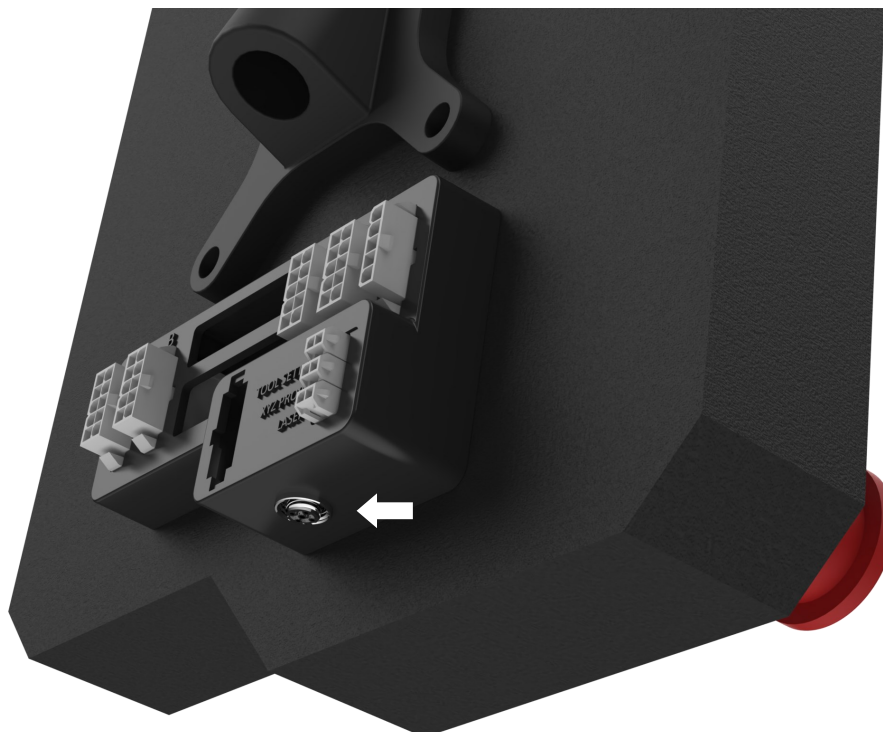


**Spindle Users:** Your Onefinity Elite Machine comes with a GX12 (6 pin) connector pre-wired to allow for easy Spindle connection and set-up. If you have purchased a Spindle Kit that is pre-wired, simply connect your GX12 Spindle Cable (included with spindle kit) to the Onefinity Elite GX12 Connector (White Arrow). The cable used to connect a VFD to the MASSO G3 Touch Controller not included. **Note:** Ensure your VFD is plugged into a separate circuit than your Onefinity Elite Machine to prevent an overload.

If you have purchased a Spindle kit that is not pre-wired to work with your Onefinity Elite machine, please visit the below link for info on wiring your specific Spindle:

<https://docs.massoc.com.au/wiring-and-setup/setup-and-calibration/spindle-vfd-examples>

**IMPORTANT NOTE:** Onefinity does not offer technical support for spindles. Please consult your



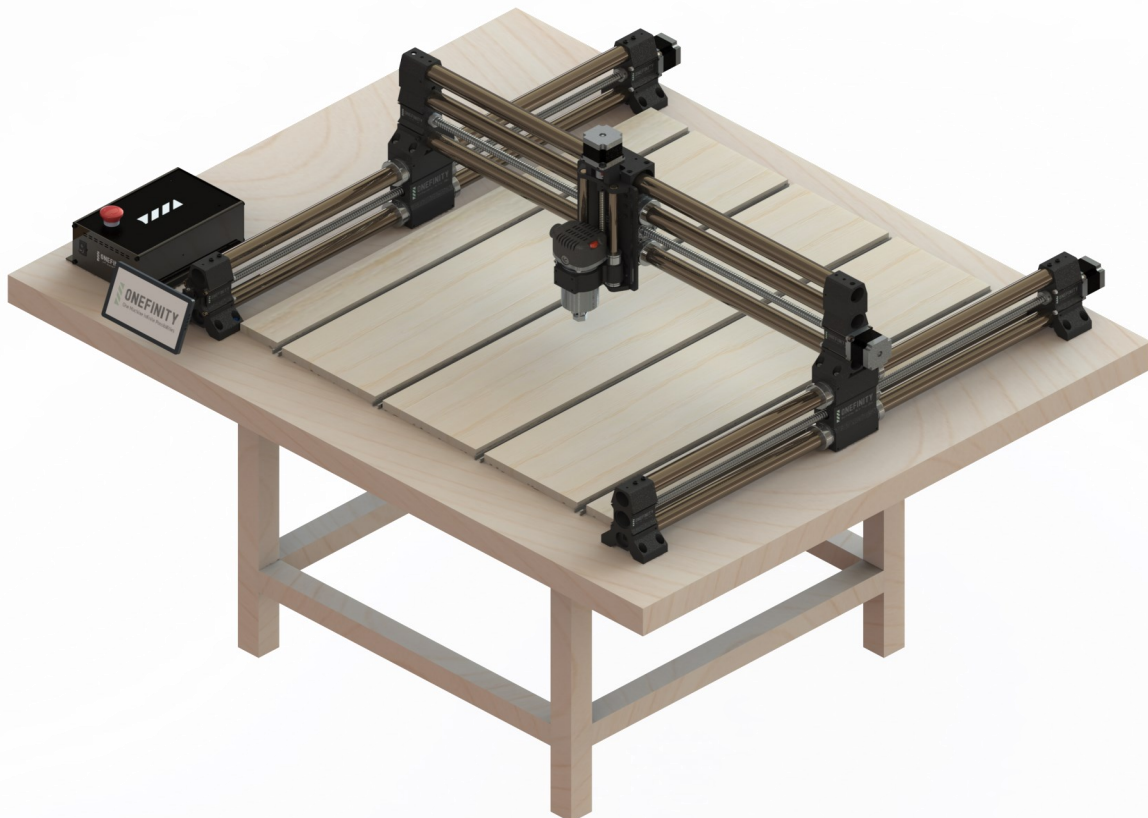
# Wasteboard

A waste board is a disposable work surface that will be mounted atop your Onefinitys permanent table. Having a waste board is an important part of a CNC and makes using the Onefinity more enjoyable as leveling and work holding becomes easier. The waste board is typically MDF and protects the table from damage as well as being an expendable surface. From time to time your waste board will need to be surfaced. That means using a spoil board cutter to clean up any gouges or cuts and make the board flat and parallel to X and Y axis travel. The unique design of the Onefinity allows you to create/use any style Wasteboard you desire.

**Note:** The minimum recommended waste board thickness is  $3/4"$ . This allows you to achieve maximum Z-Travel while still having a thick enough surface to attach/clamp your work piece. This thickness will also give you the opportunity to perform several surfacing operations before needing to be replaced.

**Note:** For maximum stiffness it is recommended that you build up your waste board to a thickness of  $2-1/2"$  -  $3"$ . This will still give you approximately  $3"$  of gantry clearance while reducing the moment force on the Router, Z-Slider and X-Rail parts. When building up your waste board to this thickness please ensure you use the Z-Sliders top mounting holes.

Check out our YouTube channel for Morgan's Match Fit Wasteboard design.





# Maintenance

To ensure your Onefinity CNC machine lasts for many years it is important that regular maintenance be performed. For step-by-step instructional videos please visit our Youtube page at: <https://www.youtube.com/onefinitycnc>. **Note:** It is highly recommended that you view our maintenance video prior to performing maintenance on your Onefinity CNC.

**Note:** Before performing maintenance work on your Onefinity CNC machine **please ensure that the Router/Spindle and the main power is disconnected**. All maintenance works must only be performed by someone with knowledge and experience with the Onefinity CNC. Improper maintenance may result in damage to your machine and void your warranty.

## After every carve/project:

Vacuum up all dust and chips. Maintenance of rails should be performed every 50-100 use hours depending on material cut. If the machine is not moving or cutting correctly, maintenance should be performed.

## After every 2-3 hours of operation:

Vacuum up all dust and chips. Use compressed air to blow off dust and debris from the Rails and Ball screws.

## Every 1-4 weeks (Duration will depend on use, heavily used machines should perform this maintenance step regularly):

Apply 3 in one oil into the oil ports of the Ball Screws (Green Arrows). Jog the machine to it's X,Y and Z limits while applying oil to the oil ports in a few different locations. Wipe off any excess oil using a lint free cloth. Note: Cover your waste board with cloths or paper towels as the oil may drip. Do not use wd40 or greases. Visit our forum and YouTube channel to view

**Please note:** All parts of the machine and controller can be purchased individually as spare parts. Replaceable parts are the motor wires, motor couplers, ball nut and ball screw, and bolt hardware.

Please contact us directly at [info@onefinitycnc.com](mailto:info@onefinitycnc.com) or call us a 1 888 717 4242 to get replacement parts. Please keep your machine data at hand when ordering spare parts.

Required tools to repair or replace items would be metric 1, 1.5, 2, 2.5, 3, 3.5, 4, 4.5, and 5 mm Allen keys, adjustable wrench, screwdriver and power drill, and a microfiber cloth.



# Maintenance

Possible risks are repairs that fail leading to a machine that does not operate correctly. Improper repairs could lead to damaged parts including, broken wiring, stripped bolt hardware, or damaged ball nut and ball screws. You must have a basic understanding of how to use power tools. Repair videos are online via our YouTube Channel. Power must be disconnected before servicing the machine.

All maintenance works must only be performed by someone with knowledge and experience with the Onefinity CNC. Improper maintenance may result in damage to your machine and void your warranty.

## **Transporting the Onefinity CNC:**

When transporting the Onefinity, it is important to do so in pieces. It is best to move each axis rail one at a time due to weight. It's best practice to use the original shipping box and its foam to transport the machine to another location.

When storing the Onefinity, you must do so in a controlled environment. Humidity can cause rust to occur. The LCD screen can be affected by extreme cold. It's best to store the machine between 40-100 Degrees F. Ensure storage of electronics to be in a moisture and dust free environment.

# Loading A Program

There are multiple ways to load a program into your Onewfinity MASSO CNC controller. One is via WIFI and the other is via USB. The following steps cover both.

Step 1: Load your program onto the USB drive you plan on using.

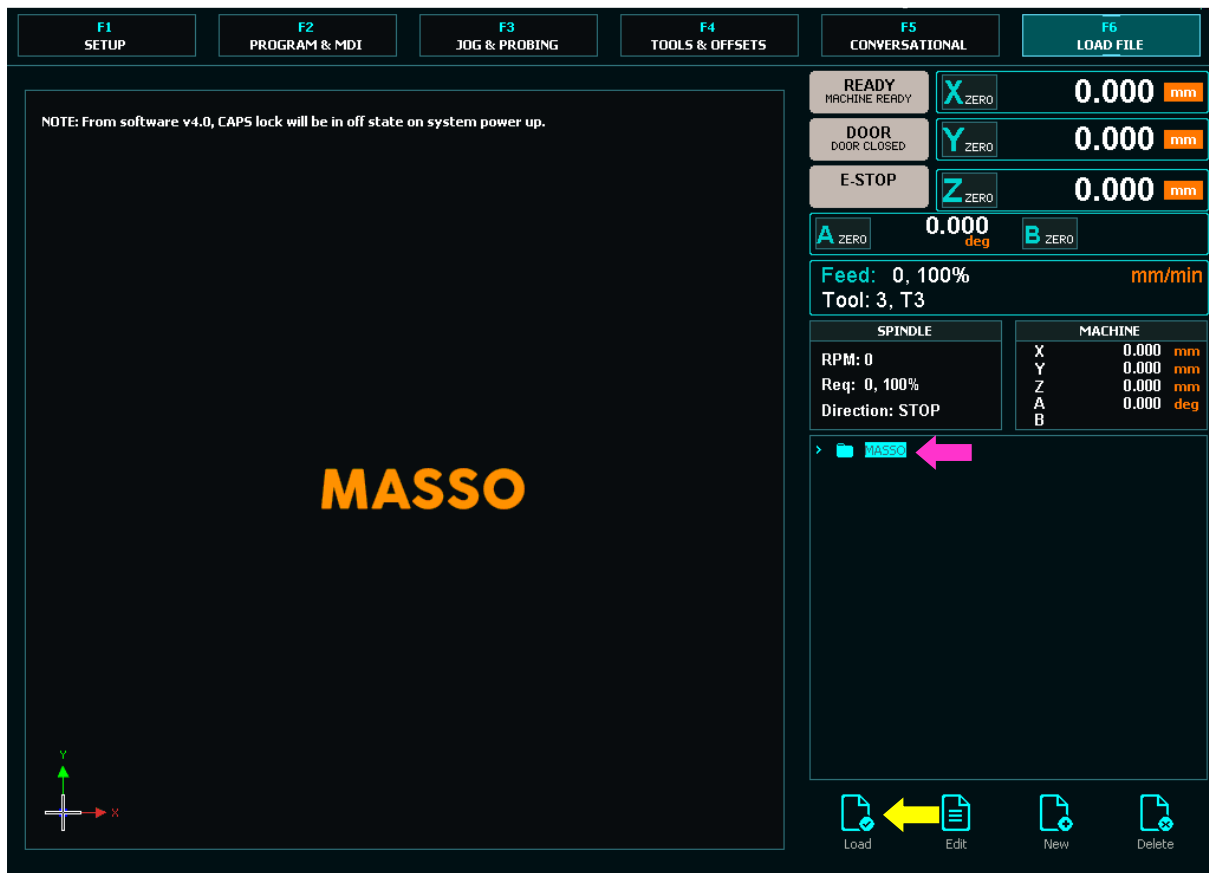
Step 2. Plug your USB stick the USB slot in the side of the controller. (Blue Arrow)

**Important:** a USB flash drive **MUST** be plugged in at all times, as it's the only storage the Onewfinity Masso has.



Step 3: Click on the F6 Tab (Red Arrow) The F6 screen is where you will select files from your USB Flash drive and load them on the Onewfinity MASSO..

Step 4: Double click the file you wish to load or select the file (Pink Arrow) and press the **Load** key (Yellow Arrow) **Note:** Once the file is loaded it will draw the toolpaths onto the screen for you to view.





# Running G-Code

To run your G-Code you need to be on the F2 screen. Tap the F2 Tab (Red Arrow) This is the Run screen where you run your G-Code files and monitor progress. When you enter this screen you will be prompted for the User Password. Default Password is blank, then push enter/return (bottom right arrow on the keyboard).

## Follow the below steps to run your G-Code:

Step 1: Ensure your machine has been homed, your material is solidly secure to your wasteboard, the proper bit is install in the Router and your have zeroed the X,Y, Z axis to your material.

Step 2: Tap the Rewind button (Pink Arrow) **Important:** Before running your G-code you must press the Rewind button to ensure the G-Code starts from the beginning

Step 3: Tap the Cycle Start button to start your program (Green Arrow)

MASSO G3 Mill 5-Axis v4.01.3a Probe Work Offset: G54 MPG AXIS: OFF Optional Stop: On Jobs: 1 Wi-Fi 11:09 PM

F1 SETUP F2 PROGRAM & MDI F3 JOG & PROBING F4 TOOLS & OFFSETS F5 CONVERSATIONAL F6 LOAD FILE

READY MACHINE READY X ZERO 0.000 mm A ZERO 0.000 deg B ZERO

DOOR DOOR CLOSED Y ZERO 0.000 mm Feed: 0, 100% mm/min

E-STOP Z ZERO 0.000 mm Tool: 3, T3

SPINDLE RPM: 0 Req: 0, 100% Direction: STOP MACHINE X 0.000 mm Y 0.000 mm Z 0.000 mm A 0.000 deg B

Vacuum Table\Vacuum Table Bottom.nc  
( Vacuum Table Bottom )  
( File created: Saturday February 22 2020 - 10:29 PM )  
( For Masso from Vetric VCarve Pro / Aspire 9.5 )  
( Post Processor version Metric v1.2 )  
( Material Size )  
( X= 567.000, Y= 940.000 ,Z= 19.000 )  
( )  
( Toolpaths used in this file: )  
( Drill Mounting Holes )  
( Drill Top fixing Holes )  
( Seal )  
( V Top of hole )  
( Slots )  
( Vacuum Pocket )  
( Vacuum entry )  
( Tools used in this file: )  
( 1 = End Mill {6 mm} )  
( 2 = V-Bit {90 deg 0.5"} )  
( 3 = End Mill Down cut {0.25 inch} )  
N190 G00  
.....

Spindle CCW Spindle STOP Spindle CW  
Single Block Coolant Flood Go to Work Origin Jump to Line  
Cycle Start CTRL+S Feedhold Esc Rewind CTRL+R  
File Loaded

1 2 3 4 5 6 7 8 9 0  
q + w e r = t / y - u < i > o [ p ]

# Running G-Code

## Additional Button Functions:

Feed hold Esc = Pause (Pink Arrow)

MDI = Manually enter G-code (Blue Arrow)

Coolant Flood= Turn on Vacuum (Yellow Arrow)

Go To Work Origin = Go to XY zero (Purple Arrow)

Jump to Line = Selects which line of G-code to start the program (Grey Arrow)

Spindle Stop = Turn off spindle/router (Red Arrow)

Spindle CW = Turn on spindle/router (Green Arrow)

The empty box next to the Spindle CW is where you can enter your spindle speed. Type the desired speed into the box and press enter (White Arrow)

The screenshot displays the MASSO G3 control interface. At the top, it shows the machine name 'MASSO G3 Mill 5-Axis v4.01.3a', 'Probe' status, 'Work Offset: G54', 'MPG AXIS: OFF', 'Optional Stop: On', 'Jobs: 1', 'Wi-Fi', and the time '11:09 PM'. Below this are function keys F1 through F6: F1 SETUP, F2 PROGRAM & MDI, F3 JOG & PROBING, F4 TOOLS & OFFSETS, F5 CONVERSATIONAL, and F6 LOAD FILE. The main display area is divided into several sections. On the left, there are status indicators: 'READY MACHINE READY', 'DOOR DOOR CLOSED', and 'E-STOP'. In the center, there are three zeroing buttons for X, Y, and Z axes, each showing a value of 0.000 mm. To the right of these are buttons for A and B axes, both showing 0.000 deg. Below the zeroing buttons, there are 'Feed: 0, 100%' and 'mm/min' indicators, and 'Tool: 3, T3'. The central part of the screen shows a 2D plot of a part with a grid and a yellow tool path. The plot has dimensions: 811.0000 mm (width) and 396.0000 mm (height). The bottom of the plot shows coordinates: 7241.0020, 482.0000 mm, and 240.9980. On the right side, there are two tables: 'SPINDLE' and 'MACHINE'. The 'SPINDLE' table shows 'RPM: 0', 'Req: 0, 100%', and 'Direction: STOP'. The 'MACHINE' table shows 'X: 0.000 mm', 'Y: 0.000 mm', 'Z: 0.000 mm', 'A: 0.000 deg', and 'B: 0.000 deg'. Below these tables is a text area showing the loaded file 'Vacuum Table(Vacuum Table Bottom.nc)' and its contents, including file creation date, material size, and toolpaths. At the bottom right, there is a control panel with buttons for 'Spindle CCW', 'Spindle STOP', 'Spindle CW', 'Sing', 'Coolant Flood', 'Go to Work Origin', 'Jump to Line', 'Cycle Start CTRL+S', 'Feedhold Esc', 'Reset CTRL+R', and 'MDI CTRL+M'. Colored arrows point to these buttons: a pink arrow to 'Feedhold Esc', a red arrow to 'Spindle STOP', a green arrow to 'Spindle CW', a yellow arrow to 'Coolant Flood', a purple arrow to 'Go to Work Origin', a grey arrow to 'Jump to Line', and a blue arrow to 'MDI CTRL+M'. At the very bottom, there is a numeric keypad and a QWERTY keyboard.

# Resuming Program or Jump to Line

When machining complex jobs such as die molds or complex engraving jobs which can take a long time to machine, power failure or broken tool means that you need to start the entire G-code file from start. Restarting the G-code file from start is very time and resource consuming. To be able to effectively restart your machining process from where you left, Onewin MASSO has a **Resuming Program or Jump to Line** feature (from software v3.30).

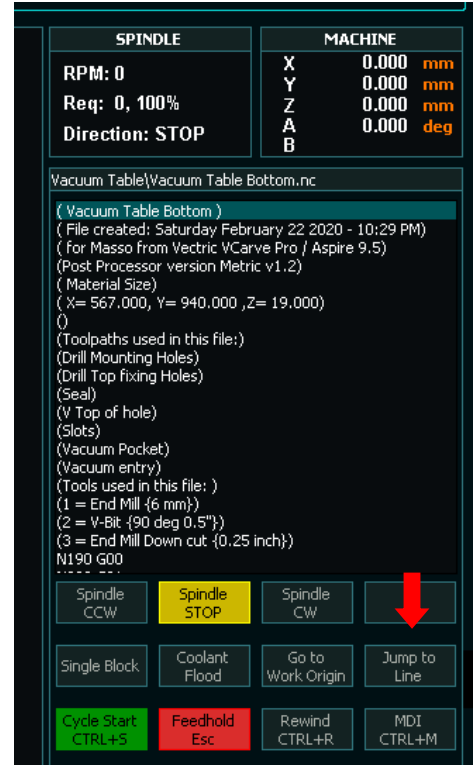
With this feature the current G-code line number is saved into a high speed internal memory and even if the machine is powered off while machining, Onewin MASSO will automatically store that last line number in memory.

On power-up, a message is displayed on the G-code list with the last line number that was running

After this please load the G-code file from the **F6-Load File** screen and go to **F2-Program & MDI** screen

Now tap the Jump To Line (Red Arrow) to open the **Resuming Program** window.

The last line number will automatically be filled and depending on your program, please go back a few lines from the last running line so that the machining is resumed a few lines before it stopped.



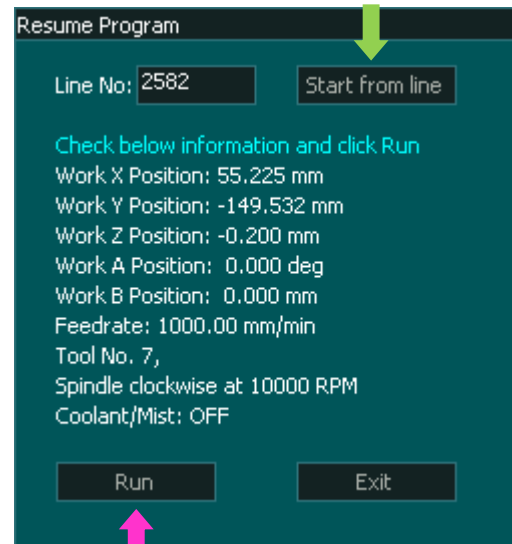
Next Tap the **Start from line** button (Green Arrow) and Onewin MASSO will process the gcode file up to the line number entered by you. When done Onewin MASSO will calculate all the machining parameters from the G-code file as below:

Calculate the X, Y, and Z-axis positions to resume machining.  
Cutting feed rate as per G-code.  
Tool Number.  
Spindle RPM and direction.  
Coolant/Mist status.

Carefully check the information and click the **Run** button.  
(Pink Arrow)

Next, MASSO will resume the machining cycle as below:

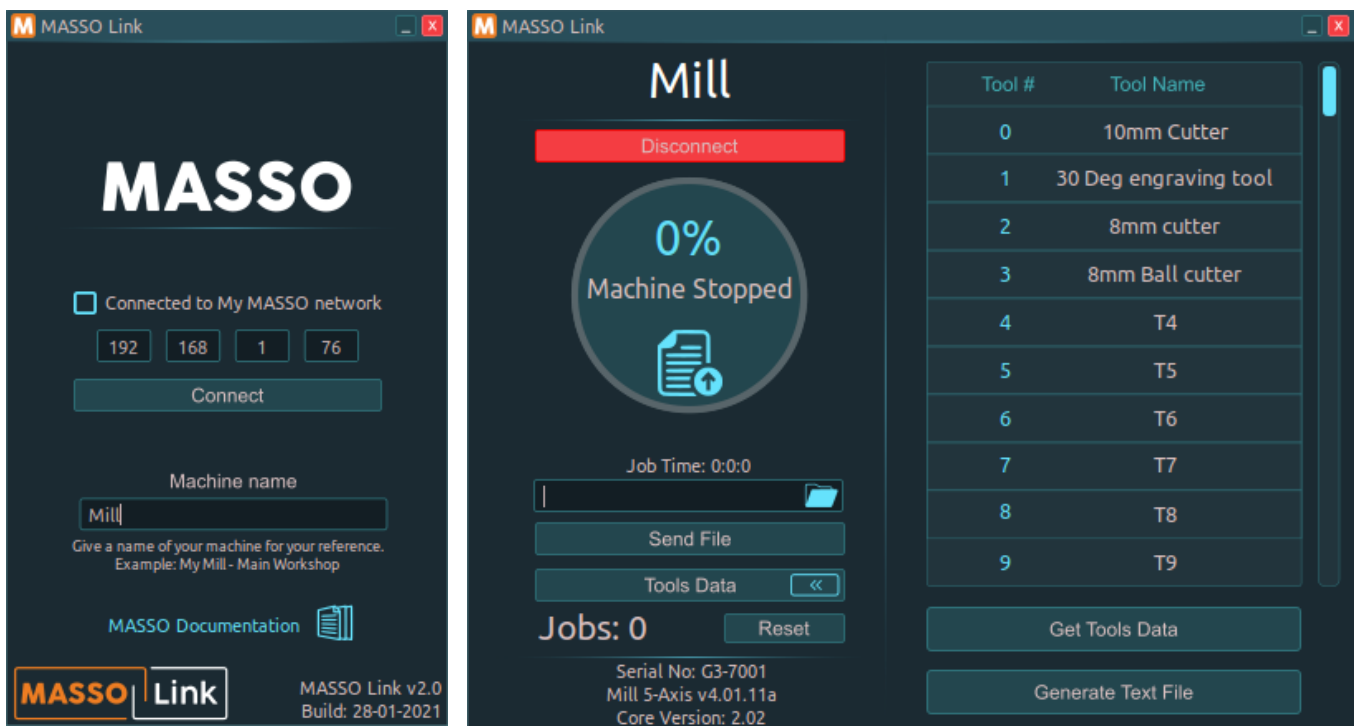
Move the Z axis up to the homing position.  
Change tool if a different tool is required.  
Sets the status of any output if used with M62 or M63 codes.  
Start spindle at the requested RPM and direction.  
Start Coolant/Mist as per G-code.  
Go to X & Y resume position.  
Move the Z axis down to the cutting position and start machining at the feed rate as per G-code file.



# Wi-Fi Connectivity

Onefinity MASSO comes with Wi-Fi hardware and software to easily connect your Onefinity MASSO controller to a Wi-Fi network.

With the MASSO Link software, users can easily view the real-time status of your MASSO controller remotely, transfer G-code files to MASSO from your PC, get tool data from MASSO's memory and generate tools list document that can be used with CAM software.



## Creating your own Wi-Fi network

If a Wi-Fi network is not available, MASSO can be used to create a Wi-Fi network and a PC can be connected directly to MASSO via this Wi-Fi network. This feature is called **My MASSO Network**.

Tick the **Make "My MASSO Network"**, enter a network name (SSID) that you would like to call this network, and enter the security key. Click the **Enable** button.

At this stage, the Wi-Fi network will show up on your PC in the Wi-Fi networks list and you can connect to this network and use the **MASSO Link** software.

Once connected, gcode files with **.txt**, **.nc**, **.cnc**, **.tap**, **.eia** extensions can be dragged and dropped on to the **MASSO Link** software window.

A folder name can be given and all the files sent to MASSO will be saved on the USB pen drive in this folder, else keeping this blank will save the files on the root folder of the USB pen drive.

Click **Send File** to send the file to MASSO.

# Wi-Fi Connectivity

On the **F2 - Program & MDI** screen, click the Wi-Fi icon (Red Arrow)

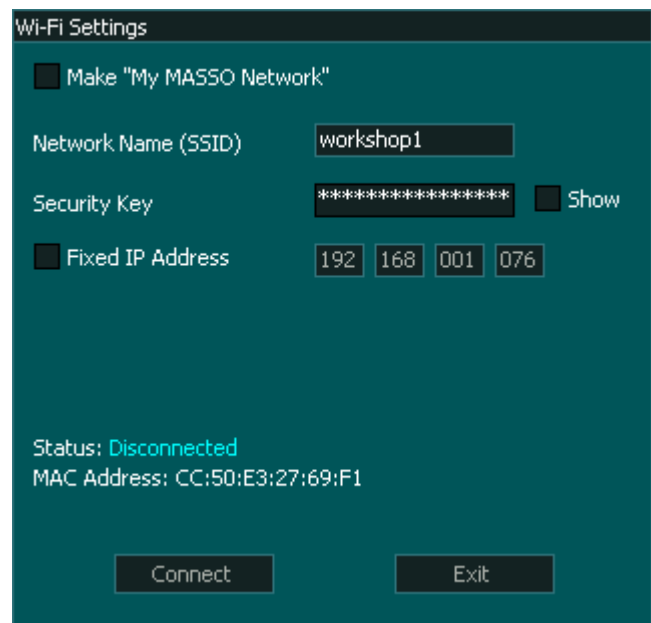


Enter the name (SSID) and security key of the Wi-Fi network that you would like to connect to. If you would like to use dynamic IP as provided by your Wi-Fi network then leave the **Fixed IP Address** un-ticked and click the **Connect** button. Once connected the IP address provided by your Wi-Fi network is displayed.

**INFORMATION:** It's a good idea to use the **Fixed IP Address** option as every time you connect to your Wi-Fi network, the IP address might be changed by the router. As the IP address is required by MASSO Link software, the new IP address needs to be updated on the PC to be able to connect to the MASSO. Using the **Fixed IP Address** solves this issue.

**INFORMATION:** MASSO Wi-Fi module supports 2.4GHz frequency (IEEE 802.11 b/g/n).

**INFORMATION:** The maximum length of SSID is 30 characters and 60 characters for the security key.





# Jogging

To jog your machine you must be on the F3 Jogging screen (Green Arrow)

There are two ways to Jog your Onefinity Elite machine. Step Mode or Continuous Mode

**Step Mode (Blue Arrow):** Allow you to jog in increments. Four (4) increments are available (White Arrow)

**Continuous Mode (Pink Arrow):** Continuous Mode button allow you to jog continuously as long as you are pressing one of the Jog buttons (Yellow Arrow area) **Note:** If you find that it's jogging to slow you can increase the Feed by sliding the Feed bar up (Red Arrow)



# Feed Rate Override

Feed rate override function allows the feed rate to be changed during machining. The range is from 20% to 100% of the specified feed rate and the current feed rate percentage is shown on the screen.

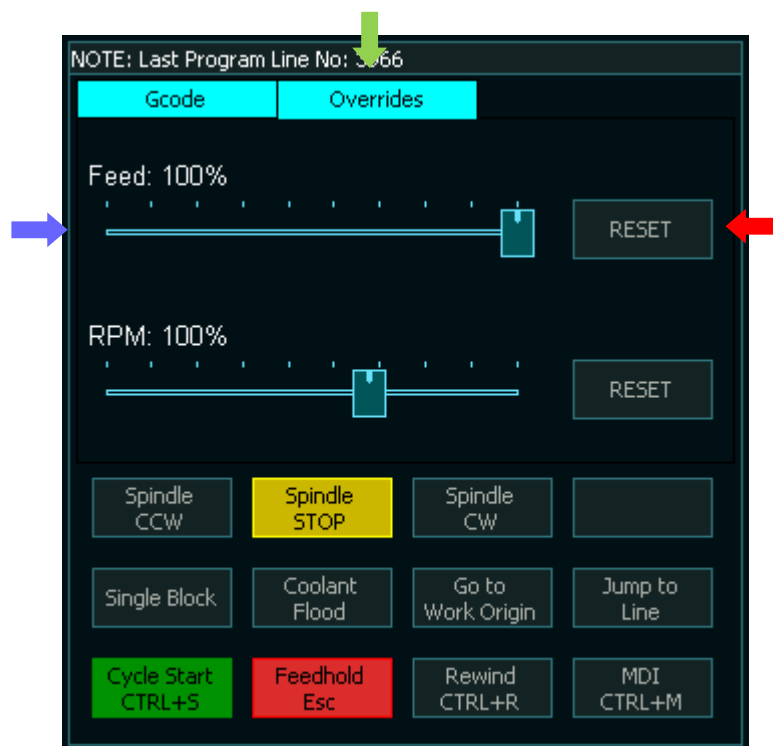
**Information:** This feature is available on the F2 & F3 Screens.

**Information:** Feed rate override ranges from 20% to 100% of the specified Feed rate. Feed rate override cannot exceed 100%

**Important:** What if you want to go over 100%? It is currently recommended by Masso to set your G-code higher than expected, then start the program with a lowered feed rate override (i.e. 50%), then increase as needed. Future firmware will override to 150%.

To Override the Feed Rate first tap on the Override Button (Green Arrow). Next, slide the Feed slider (Blue Arrow) until you reach the desired Feed Rate. Moving the slider will adjust the feed rate in real time while you are machining.

The Reset button will reset Feed to 100% (Red Arrow)



# Using the XYZ Touch Probe

Your Onewfinity Elite machine supports interactive part probing that allows the user to probe parts and set work offsets.

To initiate Probing tap the Probing button (Red Arrow) on the F3 page.

The dialog box shown below will appear

## Understanding the Probing Dialog Box:

The Onewfinity XYZ Touch Probe is designed for Outside Probing. Tap the Inside/Outside button (Orange Arrow) until the red dots are shown on the outside of the yellow box.

Probe Diameter (Green Arrow) refers to the diameter of your cutting bit.

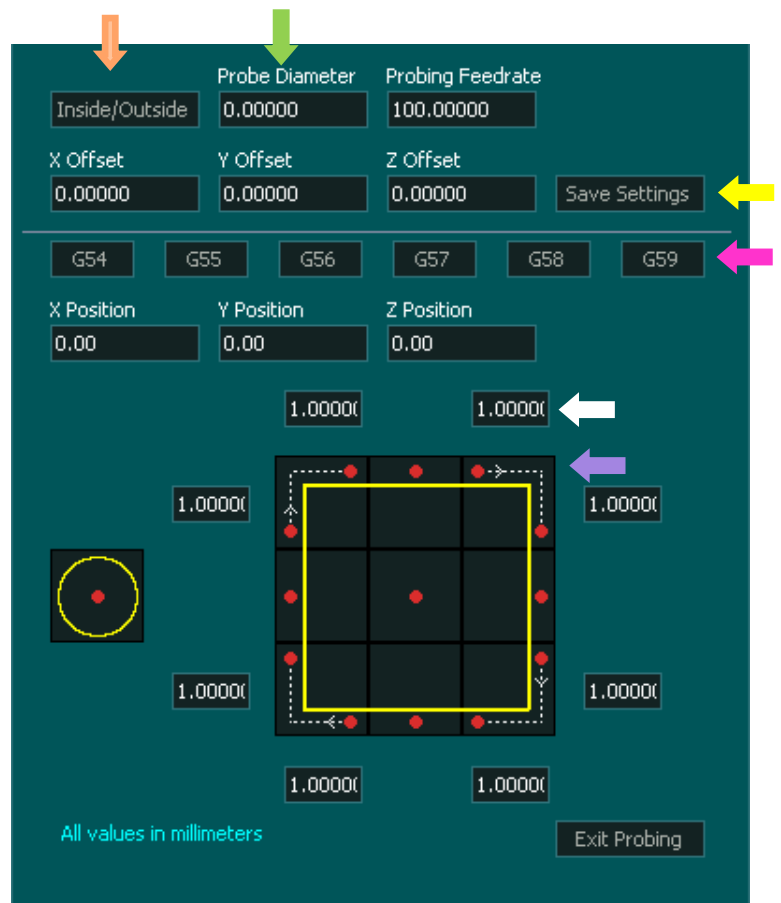
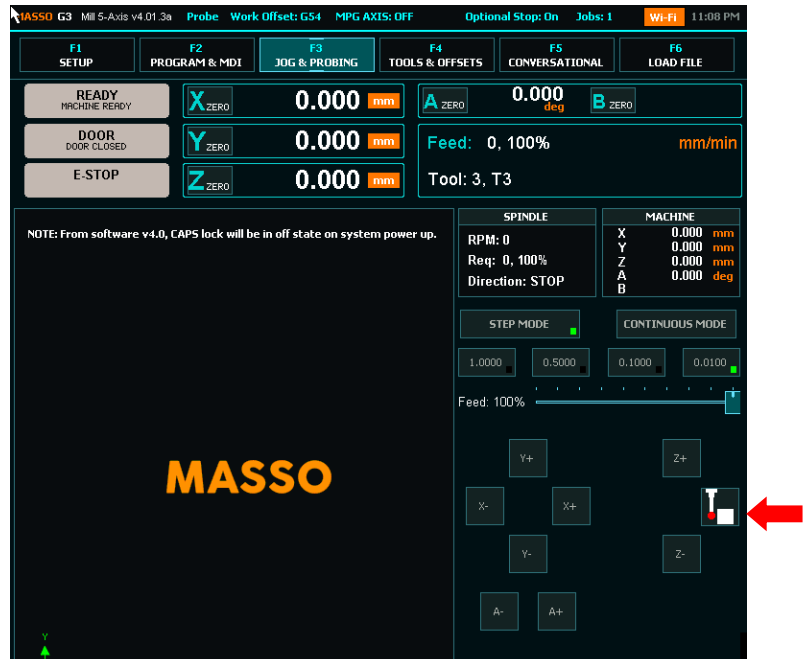
The X,Y and Z offsets (Yellow Arrow) come factory set with the nominal dimensions of the Onewfinity Touch Probe. **Important Note:** The Offset Settings are set for top right probing (Purple Arrow). If you use one of the other probing corners/sides you will need to modify your setting accordingly and save them using one of the 6 Work Offsets (Pink Arrow)

The numbers located at the corners (White Arrow) indicate how far the machine will travel in order to contact the XYZ Touch Probe.

The Red dot indicates the approximate position and side where your bit should be before starting the Probing cycle.

The Yellow Box represent your XYZ Probe.

The white dotted line between the red dots illustrates the path the machine will travel while probing.



# Using the XYZ Touch Probe

## Z-Axis Probing

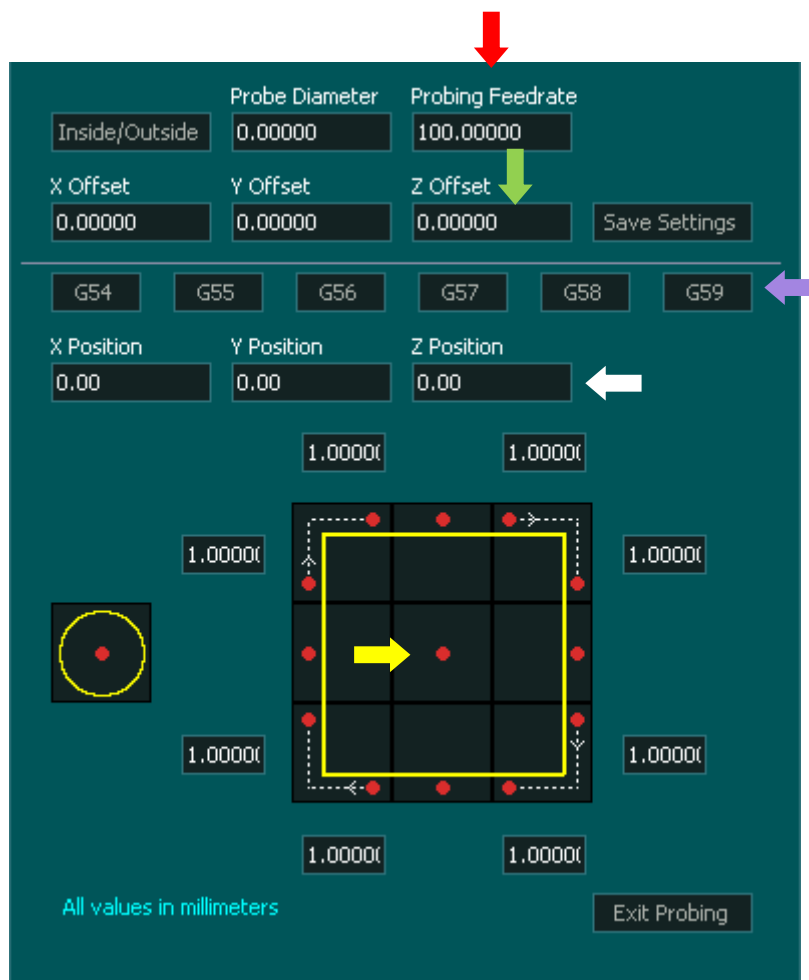
To start probing the Z-Axis, first ensure that your bit is positioned over the XYZ Touch Probe. Once your bit is over top of the probe press the center square (Yellow Arrow) This will start the Z axis probing down at the rate specified in the Probing Feedrate box (Red Arrow)

When the probe finds the surface the Z axis DRO coordinate will be updated with the value specified in the Z Position box (White Arrow)

The Z axis will then return to the starting position where probing began and display it's new coordinate based on its relative position to the probed surface.

The Z probe offset value (Green Arrow) indicates the XYZ Touch Probe thickness. This setting will be preset to the correct size from the factory. However, if you find that your Z-Axis is off slightly you can adjust this value accordingly.

**Note:** The probing cycle can be stopped by pressing the same or a different probing cycle button.



# Using the XYZ Touch Probe

## XY Probing

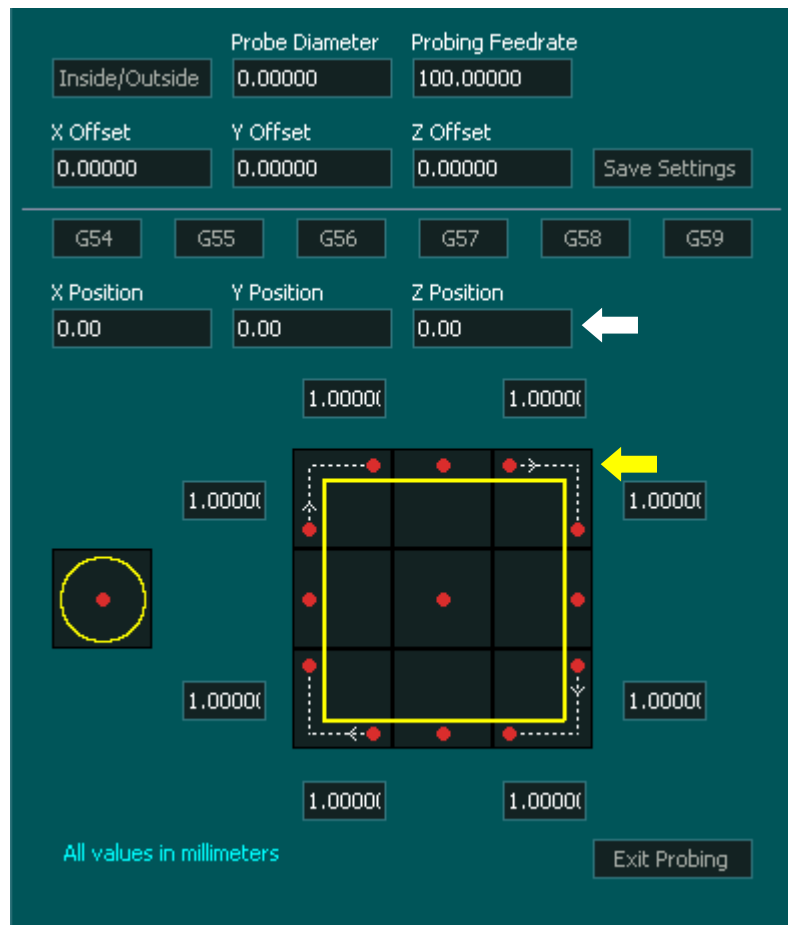
To start probing the XY-Axis, first ensure that your bit is positioned on the correct side of the Probe illustrated by the red dots and ensure the bit is low enough to contact the Probe. Once your bit is in the correct position press the top right Probe button (Yellow Arrow) This will start the XY Probing sequence.

When the probe finds the surface the DRO (digital read out) coordinate will be updated with the value specified in the X and Y Position box (White Arrow)

The machine will then return to the starting position where probing began and display it's new coordinate based on its relative position to the probed surface.

**Note:** The probing cycle can be stopped by pressing the same or a different probing cycle button.

**Important Note:** The white dotted line shown between the red dots illustrates the path the machine will travel while probing. When probing the top right corner, the machine will first probe the back, then move to the right and towards the front and probe the right side.





# F1 Screen

The F1 Screen is where you can customize your Onefinity Elite machine settings. On this page you can modify things like, units of measure (Metric or Imperial), adjust rapid speeds, fine tune probing, etc. We do not recommend you change any settings on this screen unless you fully understand the implications.

**IMPORTANT!** Do not change any f1 settings unless you are directed to by Onefinity support. Changing any of these settings can lead to your machine not being operational. If you are requested to change settings by Onefinity Support, you will be prompted to enter a password.

F1 SETUP	F2 PROGRAM & MDI	F3 JOG & PROBING	F4 TOOLS & OFFSETS	F5 CONVERSATIONAL	F6 LOAD FILE
Machine Settings	Inputs	Function	Invert	Status	Outputs
General Settings	EStop	EStop	No	High	Spindle
Homings	Encoder	Signal - A	No	Low	Spindle
Spindle	Encoder	Signal - B	No	Low	Output 1
Lubrication	Encoder	Index	No	Low	Output 2
Tool Changer	MPG	Dial Signal - A	No	Low	Output 3
X - Axis	MPG	Dial Signal - B	No	Low	Output 4
Y - Axis	MPG	Select X	No	Low	Output 5
Z - Axis	MPG	Select Y	No	Low	Output 6
A - Axis	MPG	Select Z	No	Low	Output 7
B - Axis	MPG	Select A	No	Low	Output 8
Touch Probe	MPG	Select B	No	Low	Output 9
Auto Tool Zero	MPG	Resolution 1	No	Low	Output 10
User Account	MPG	Resolution 2	No	Low	Output 11
Save & Load Settings	MPG	Resolution 3	No	Low	Output 12
MASSO Serial No: G3-6182 Core: v2 Software: v4.01.3a www.massco.com.au support@massco.com.au	Analog	Input 1		0.00v	Output 13
	Analog	Input 2		0.00v	Output 14
	Input 1	Tool Setter Input	Yes	Low	Output 15
	Input 2	Probe Input Signal	Yes	Low	Output 16
	Input 3		Yes	Low	Output 17
	Input 4		Yes	Low	Output 18
	Input 5		Yes	Low	
	Input 6		No	Low	
	Input 7		No	Low	
Input 8	B - Home Sensor Input	Yes	Low		
Input 9	Y - Home Sensor Input	Yes	Low		
					Output 14
					Output 15
					Output 16
					Output 17
					Output 18

1	2	3	4	5	6	7	8	9	0
q +	w	e	r =	t /	y -	u <	i >	o [	p ]
a !	s @	d #	f %	g ^	h &	j *	k (	l )	
↑	z -	x ' "	c " "	v ; :	b ;	n ,	m ?	↵	
!#1	-								↶

# F2 Screen

The F2 Screen is the Run screen. This is where you run your GCode files and monitor progress.

The empty box next to the Spindle CW (Pink Arrow) is where you can enter your spindle speed. Type the desired speed into the box and press enter.

Click the Axis Zero buttons to zero out an Axis DRO (Yellow Arrows)

More info on the F2 Screen can be found on page 39-45 of this manual

The screenshot displays the F2 Screen interface. At the top, it shows the machine name 'MASSO G3 Mill 5-Axis v4.01.3a', 'Probe', 'Work Offset: G54', 'MPG AXIS: OFF', 'Optional Stop: On', 'Jobs: 1', 'Wi-Fi', and the time '11:09 PM'. Below this are function keys: F1 SETUP, F2 PROGRAM & MDI (highlighted), F3 JOG & PROBING, F4 TOOLS & OFFSETS, F5 CONVERSATIONAL, and F6 LOAD FILE.

The main display area is divided into several sections:

- Machine Status:** 'READY MACHINE READY', 'DOOR DOOR CLOSED', and 'E-STOP' buttons.
- Axis Zero Buttons:** X ZERO, Y ZERO, and Z ZERO buttons, each with a yellow arrow pointing left, indicating they are used to zero out the axis DRO.
- Axis Positions:** X: 0.000 mm, Y: 0.000 mm, Z: 0.000 mm.
- Spindle Settings:** A ZERO 0.000 deg, B ZERO, Feed: 0, 100% mm/min, and Tool: 3, T3.
- SPINDLE and MACHINE Tables:**

SPINDLE	MACHINE
RPM: 0	X 0.000 mm
Req: 0, 100%	Y 0.000 mm
Direction: STOP	Z 0.000 mm
	A 0.000 deg
	B
- Program Information:** 'Vacuum Table|Vacuum Table Bottom.nc', '( Vacuum Table Bottom )', '( File created: Saturday February 22 2020 - 10:29 PM )', '( for Masso from Vectric VCarve Pro J Aspire 9.5 )', '( Post Processor version Metric v1.2 )', '( Material Size )', '( X= 567.000, Y= 940.000, Z= 19.000 )', '()', '( Toolpaths used in this file: )', '( Drill Mounting Holes )', '( Drill Top fixing Holes )', '( Seal )', '( V Top of hole )', '( Slots )', '( Vacuum Pocket )', '( Vacuum entry )', '( Tools used in this file: )', '( 1 = End Mill {6 mm} )', '( 2 = V-Bit {90 deg 0.5"} )', '( 3 = End Mill Down cut {0.25 inch} )', 'N190 G00', '-----'
- Control Buttons:** Spindle CCW, Spindle STOP (highlighted in yellow), Spindle CW, Single Block, Coolant Flood, Go to Work Origin, Jump to Line, Cycle Start CTRL+S, Feedhold Esc, Rewind CTRL+R, MDI CTRL+M.

A pink arrow points to the Spindle STOP button. The bottom of the screen features a virtual keyboard with a 'File Loaded' indicator above it.

# F3 Screen

The F3 Screen is the Jog Screen. From this screen you can Home, Jog and probe your machine.

You can access MASSO probing functions by pressing the probing button on screen (Red Arrow)

To Home, double tap the Home Button (Yellow Arrow)

Please refer to page 44 for detailed info on jogging. To Jog use the Axis + & - Buttons. Select continuous or step jog mode as well as step distance. Use the Slider to set continuous jog speed.

The screenshot displays the MASSO F3 screen with the following elements:

- Top Bar:** MASSO G3 Mill 5-Axis v4.01.3a, Probe, Work Offset: G54, MPG AXIS: OFF, Optional Stop: On, Jobs: 1, Wi-Fi, 11:08 PM.
- Function Buttons:** F1 SETUP, F2 PROGRAM & MDI, F3 JOG & PROBING (highlighted), F4 TOOLS & OFFSETS, F5 CONVERSATIONAL, F6 LOAD FILE.
- Machine Status:** READY MACHINE READY (with a yellow arrow pointing to it), DOOR DOOR CLOSED, E-STOP.
- Zeroing Values:** X ZERO 0.000 mm, Y ZERO 0.000 mm, Z ZERO 0.000 mm, A ZERO 0.000 deg, B ZERO.
- Feed and Tool:** Feed: 0, 100% mm/min, Tool: 3, T3.
- SPINDLE:** RPM: 0, Req: 0, 100%, Direction: STOP.
- MACHINE:** X 0.000 mm, Y 0.000 mm, Z 0.000 mm, A 0.000 deg, B.
- Mode Selection:** STEP MODE (selected), CONTINUOUS MODE.
- Step Distance:** 1.0000, 0.5000, 0.1000, 0.0100.
- Feed Slider:** Feed: 100%.
- Jog Controls:** Y+, Z+, X-, X+, Y-, Z-, A-, A+.
- Probing Button:** A button with a red arrow pointing to it, used for accessing MASSO probing functions.
- Coordinate System:** A small 3D coordinate system icon in the bottom left.
- Keyboard:** A virtual keyboard is visible at the bottom of the screen.

# F4 Screen

The F4 Screen is the Tool Table, work offset screen and Park location.

This is where tool data is stored for each tool including its name, Z offset and Tool Diameter.

Work offsets G54 to G59 are stored in the Work offset table. These values are automatically stored when you zero your axis and you can also manually change them if needed.

Double Click on a tool to change its parameters as required

The Parking location coordinates are stored here.

The screenshot displays the F4 Tools & Offsets screen. The top status bar shows 'IASSO G3 Mill 5-Axis v4.01.3a', 'Probe', 'Work Offset: G54', 'MPG AXIS: OFF', 'Optional Stop: On', 'Jobs: 1', and '11:08 PM'. The main menu includes F1 SETUP, F2 PROGRAM & MDI, F3 JOG & PROBING, F4 TOOLS & OFFSETS (selected), F5 CONVERSATIONAL, and F6 LOAD FILE.

Tool No	Slot No	Tool Name	Z Offset	Tool Diameter
0		T0	0.00000	0.00000
1		T1	-63.74525	0.00000
2		T2	-41.00856	0.00000
3		T3	0.00000	0.00000
4		T4	0.00000	0.00000
5		T5	0.00000	0.00000
6		T6	0.00000	0.00000
7		T7	0.00000	0.00000
8		T8	0.00000	0.00000

Work Offset	Work Offset Name	X	Y	Z	A
G 54		0.00000	0.00000	0.00000	0.00000
G 55		168.48037	85.00547	43.74394	-91.18800
G 56		0.00000	0.00000	0.00000	0.00000
G 57		0.00000	0.00000	0.00000	0.00000
G 58		0.00000	0.00000	0.00000	0.00000
G 59		0.00000	0.00000	0.00000	0.00000
Parking	PARKING POSITION	0.00000	1170.00000	4.00000	0.00000

At the bottom of the screen is a virtual keyboard with keys for numbers 1-0, letters q-z, and function keys like !#1, -, ., and a return key.

# F5 Screen

The Onefinity Elite has a built in wizard that will allow you to create basic Gcode files. The wizards are intended for the most basic of jobs and CAM software is recommended.

The screenshot displays the F5 Conversational screen in a CNC control system. The top status bar shows: **MASSO G3** Mill 5-Axis v4.01.3a, **Probe**, **Work Offset: G54**, **MPG AXIS: OFF**, **Optional Stop: On**, **Jobs: 1**, and the time **11:07 PM**.

The main interface features a row of function buttons: **F1 SETUP**, **F2 PROGRAM & MDI**, **F3 JOG & PROBING**, **F4 TOOLS & OFFSETS**, **F5 CONVERSATIONAL** (highlighted), and **F6 LOAD FILE**.

Below these are five action buttons: **Add/Edit**, **Delete**, **Move Up**, **Move Down**, and **Copy**.

The **Wizard file Name:** section includes input fields for **Description**, **Date**, and **Output Gcode**.

A table lists the wizard entries:

Wizard No.	Name	Start X	Start Y
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			

At the bottom, there are three buttons: **Save Wizard**, **Post Gcode**, and **New Wizard**.

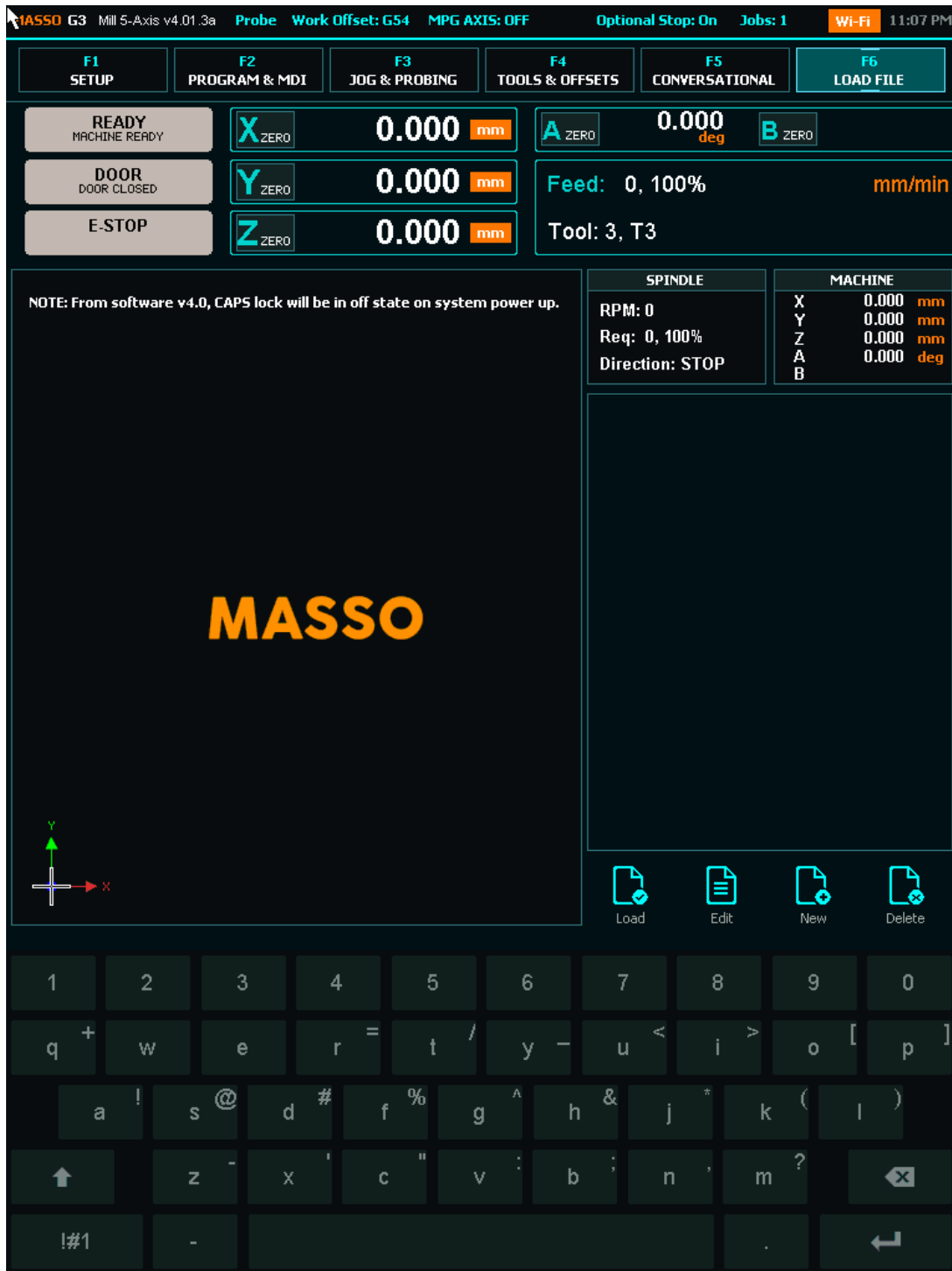
A virtual keyboard overlay is visible at the bottom of the screen, including a numeric keypad, a QWERTY keyboard, and a directional pad.

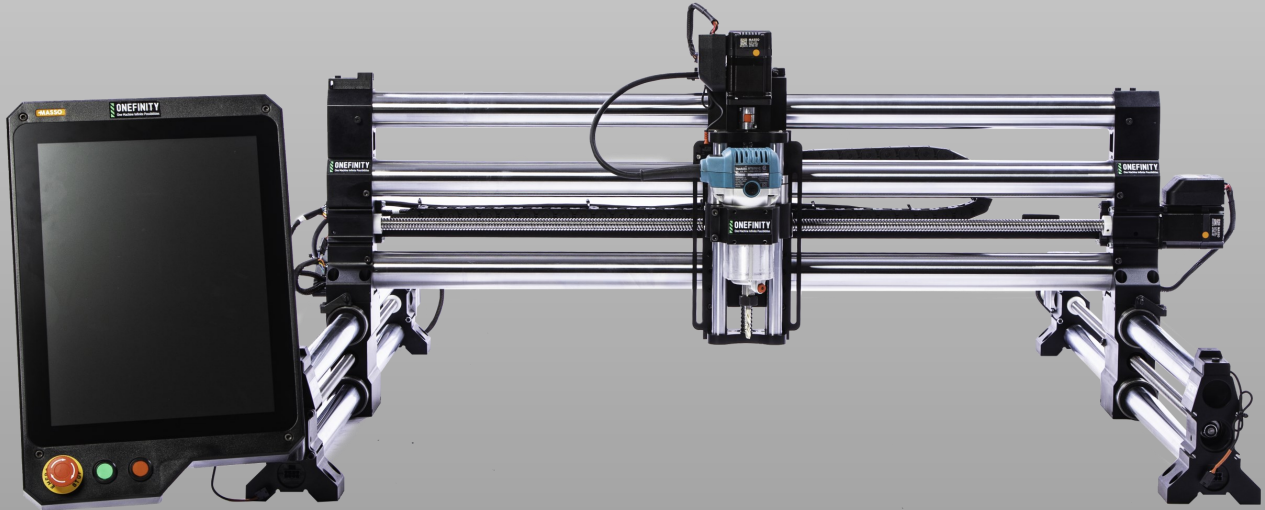


# F6 Screen

The F6 Screen is where you will select files from your USB Flash drive and load them into your Onefinity Elite Machine. Please note, a usb flash drive MUST be plugged in at all times, as it's the only storage the Masso has.

For details on loading a file and other features of this page please refer to page 38 of this manual.





# ONEFINITY ELITE 12-MONTH LIMITED WARRANTY

PLEASE SEE REVERSE SIDE FOR DETAILS

# Limited warranty details

1. Kirbre Enterprises Inc. (“**Kirbre**”, “**us**”, “**we**”, “**our**”) warrants the Onefinity CNC machine (“**Onefinity CNC**”) to be free from defects in workmanship and materials for a period of twelve (12) months from the original shipment date when used in accordance with the Onefinity CNC Owner’s Manual. Warranty repairs may require you to install a replacement part provided by Kirbre or, at Kirbre’s discretion, require you to return the Onefinity CNC for warranty service. The Onefinity Limited Warranty is limited to the repair of the Onefinity CNC with new or refurbished parts for any defect in material or workmanship and when applicable, at our discretion, to the exchange of your warranted Onefinity CNC for a new or refurbished Onefinity CNC of equal or greater value.

2. **Verification and Return.** Such repair or replacement is subject to verification of the defect or malfunction and proof of purchase as confirmed by showing the Onefinity CNC model number on the original dated sales receipt. If we conclude shipping is necessary we will provide you with a shipping label. You are solely responsible for all shipping and handling fees as well as VAT, import duties, any applicable taxes, and other related fees (collectively “**Import Costs**”) you may be required to pay when shipping the Onefinity CNC to us, and we will not assume any responsibility for any payments relating thereto (including but not limited to brokerage fees, storage fees, etc.). You are solely responsible for any damage to the Onefinity CNC during shipping, so please ensure packaging of the Onefinity CNC follows the instructions provided in Section 3, “Returns”, of our Shipping and Returns Policy. Any additional costs incurred for transportation or removal of your Onefinity CNC are not covered by this Limited Warranty. For all valid warranty repairs, Onefinity will pay for return shipping to you excluding any Import Costs. If your machine does not qualify for warranty repair, then you will be required to pay for all shipping related costs to and from Kirbre including any Import Costs.

3. **WARRANTY LIMITATIONS.** This warranty does not cover repairs for:

- \* Onefinity CNC used for commercial purposes or used in any manner for which the product was not intended, such as use in rental or contract trade
- \* Onefinity CNC damaged as a result of incorrect or inadequate maintenance or care
- \* Damages resulting from misuse, abuse, negligence, accidents or shipping damage
- \* Damages that are the result of normal wear and tear
- \* Damages incurred during transportation
- \* Damages incurred during assembly or maintenance
- \* Damages that are determined to be from repairs made by third parties not authorized by Kirbre

Without limiting the generality of the foregoing, this warranty will be void and no warranty coverage will be provided if you do any of the following:

install any firmware in the Onefinity CNC which is not specifically issued or authorized by Kirbre; make any change or modification to the electronics or computer components of the Onefinity CNC; attach any peripherals or accessories to the electronics or computer components of the Onefinity CNC that have not been specifically issued or authorized by Kirbre; use or attempt to use the Onefinity CNC and/or its electronics or computer components to control or move any device or object not specifically issued or authorized by Kirbre; or if the Onefinity CNC’s serial number has been removed or altered.

4. **Obtaining Service.** To obtain warranty service, first email Onefinity at [support@onefinity.com](mailto:support@onefinity.com) and include your order number, contact info along with a brief explanation of the issue you are having. Once your email is received someone on our team will contact you by email to conduct a warranty diagnosis. You may be required to provide pictures and/or video of the claimed defect. If we cannot determine from the warranty diagnosis whether your Onefinity CNC qualifies for warranty repair we may require you to return the Onefinity CNC to Kirbre for further evaluation.

5. ACCEPTANCE OF THE EXCLUSIVE REPAIR AND REPLACEMENT REMEDIES DESCRIBED HEREIN IS A CONDITION OF THE CONTRACT FOR THE PURCHASE OF EVERY ONEFINITY CNC MACHINE. IF YOU DO NOT AGREE TO THIS CONDITION, YOU SHOULD NOT PURCHASE THE PRODUCT. IN NO EVENT SHALL KIRBRE, ITS DIRECTORS, OFFICERS, EMPLOYEES, AGENTS, CONSULTANTS, LICENSORS AND THIRD PARTY SUPPLIERS BE LIABLE FOR ANY INCIDENTAL, SPECIAL, CONSEQUENTIAL OR PUNITIVE DAMAGES, OR FOR ANY COSTS, ATTORNEY FEES, EXPENSES, LOSSES OR DELAYS ALLEGED TO BE AS A CONSEQUENCE OF ANY DAMAGE TO, FAILURE OF, OR DEFECT IN ANY PRODUCT INCLUDING, BUT NOT LIMITED TO, ANY CLAIMS FOR LOSS OF PROFITS. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE FOREGOING LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU. THIS WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER EXPRESS WARRANTIES, WRITTEN OR ORAL. TO THE EXTENT PERMITTED BY LAW, KIRBRE DISCLAIMS ANY IMPLIED WARRANTIES, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE; TO THE EXTENT SUCH DISCLAIMER IS NOT PERMITTED BY LAW, SUCH IMPLIED WARRANTIES ARE LIMITED TO THE DURATION OF THE APPLICABLE EXPRESS WARRANTY AS DESCRIBED ABOVE. SOME STATES AND PROVINCES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU, THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE AND PROVINCE TO PROVINCE.

# Contact Us

For questions regarding orders, shipping, or general inquiries, call [1-888-717-4242](tel:1-888-717-4242) or email [info@onefinitycnc.com](mailto:info@onefinitycnc.com) (9am - 3pm, ET Monday-Friday - closed on holidays)

We endeavor to answer each phone call as they comes in. However, we may be on a call with another customer. Please leave us a message and we'll call you back. We will try to call back the same day where possible. All calls will be returned within 24 hours M-F and any calls over holidays or the weekend will be returned the following business day. Our phone representatives are unable to assist with after sales technical machine support. Please email the support team for assistance.

If you have a machine and need technical support, please email [support@onefinitycnc.com](mailto:support@onefinitycnc.com). If it is determined by our support team that a phone or video call is necessary for troubleshooting, a technician will request to schedule a meeting. This email address handles after sales technical machine support. If your machine isn't working right, start here.

# [www.onefinitycnc.com](http://www.onefinitycnc.com)

General Info Email: [info@onefinitycnc.com](mailto:info@onefinitycnc.com)  
or Call: 1 888 717 4242

Support Email: [support@onefinitycnc.com](mailto:support@onefinitycnc.com)



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