

# *Operating Instructions*



**MODEL NO. DEM-1717**

**MADE IN TAIWAN**

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The information contained in this document is subject to change without notice.

**Important:**

*You should turn off "sleep", "hibernate" and "hybrid sleep" mode in your computer before engraving, or this will affect engraving operation.*

*The Bravoprodigy EDIT and CNC software packages are compatible with all Windows systems.*

*The Bravoprodigy CNC software supports G-code generated from software programs such as Cut2D, Cut3D, Cut2D Desktop, PhotoVCarve, VCarve Desktop, VCarve Pro, Aspire, ArtCAM, Ucamcam, Simplycam, and MeshCam.*

*Save G-code files as formats Bravoprodigy Arcs(mm), Bravoprodigy Arcs(inch), G-Code(mm), G-Code(inch), G-Code Arcs(mm) or G-Code Arcs(inch).  
The Bravoprodigy CNC software also supports G-code generated from Bmp software, simply save G-code files as Mach2-3\_mm, or Mach 2-3\_inch.*

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# Introduction

As a computer numerical control engraving machine, the Bravoprodigy CNC router includes two software programs that are easy to learn. The Bravoprodigy CNC router is made easy for beginners without real engineering skills. Easy yet professional functional features with portable size that can be used at home or in office, and can be used as teaching equipment at school as well, it's also a nice machine for hobbyists and artists for smaller batch production. We integrated the image processing software with the toolpath calculations, this way you can take images created from any notable computer graphics apps or any random images or digital photos and then transfer them to G-code and then you can start carving. All you need is a computer and a photo you want carved, and you can get yourself a three dimensional photo like lithophane. Simply follow instructions in the manual, and you can easily finish those tasks. Before turning on the CNC router, be sure to read all safety requirements and tips carefully along with the operating instructions as well. If there's anything you find confusing in description, please directly consult a local authorized dealership of Bravoprodigy.

There won't be notifications for any updates on the manual.

Be sure to put away the carton and packaging materials somewhere safe for later in case of any situations that they might be needed.

### 1-1 Safety Regulation and Notice

#### READ AND SAVE ALL INSTRUCTIONS FOR FUTURE REFERENCE.

##### Warning Label

\*The warning label as below will put on the engraver which indicate hazard and understand the graphic on it. DO NOT remove this warning label from the engraver.

\*Machine safety symbol is to remind operator to pay attention on it.



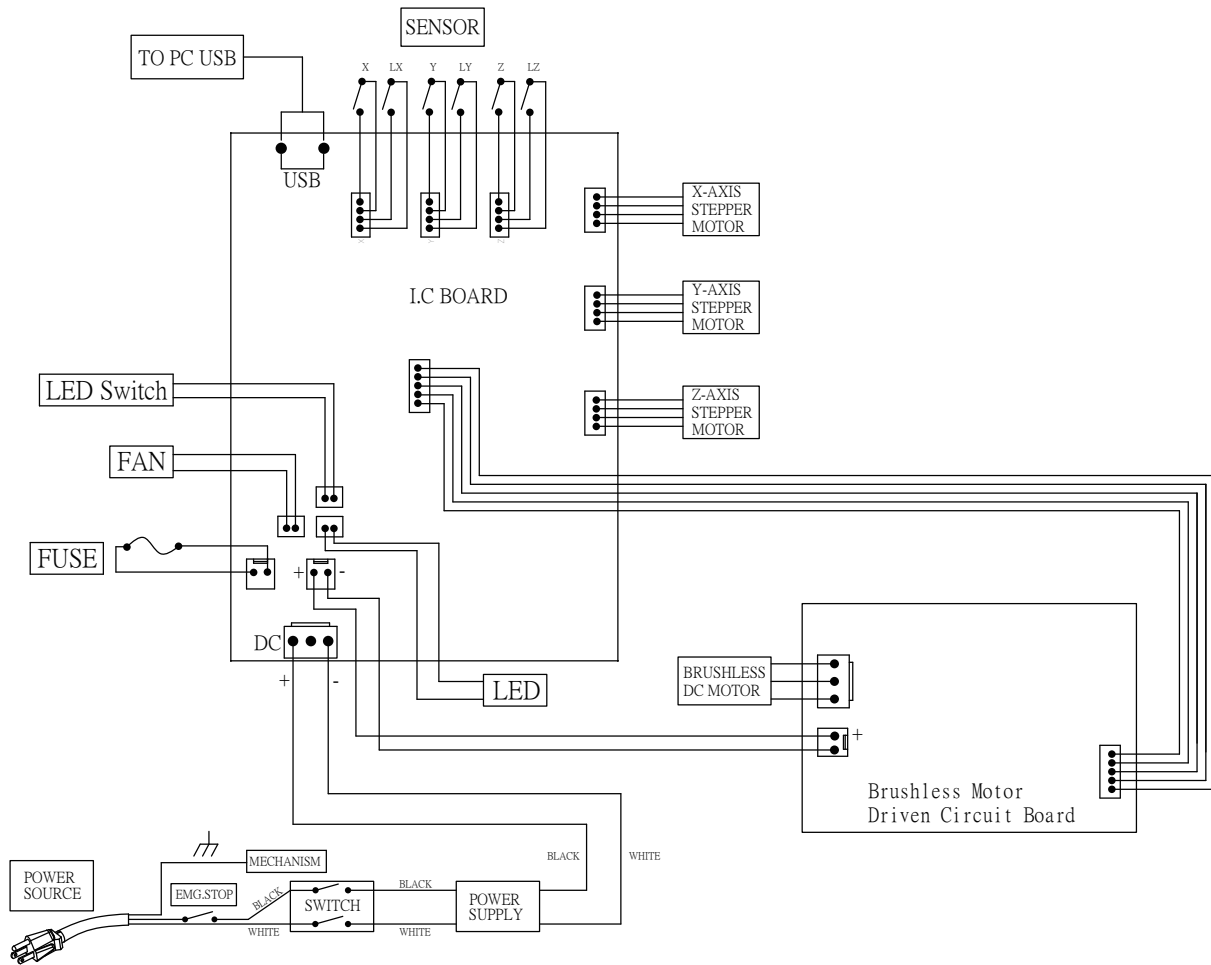
- Warning: a warning symbol means the presence of a hazard that has the potential of causing moderate or minor personal injury.
  - Danger: a danger symbol means the presence of a hazard that has the potential of causing death or serious personal injury.
1. **KEEP WORK AREA CLEAN.** Cluttered areas and benches invite injuries.
  2. **GUARD AGAINST ELECTRIC SHOCK.** Prevent body contact with grounded surface.  
For example: pipes, radiators, refrigerator enclosures.
  3. **WEAR EYE PROTECTION.** Everyday eyeglasses only have impact resistant lenses, they are NOT safety glasses.
  4. **WEAR FACE OR DUST MASK.** Cutting dust may scatter, causing bodily injury.
  5. **WEAR EAR PROTECTION.** Prevent permanent hearing loss by wearing ear protection. Power tools can generate high levels of noise.
  6. **SECURE WORK.** Use clamps or a vise to hold work when practical. It's safer than using your hand.
  7. **WEAR PROPER APPAREL.** Do not wear loose clothing, gloves, neckties, rings, bracelets, or other jewelry which may get caught in moving parts. No slip footwear is recommended. Wear protective hair covering to contain long hair.
  8. **CONSIDER WORK AREA ENVIRONMENTS.** Remove materials or debris that may get turned by sparks. Don't use in damp or wet locations, or in the presence of explosive atmospheres (gaseous dust, fumes, or flammable materials). Keep work area well lighted, don't expose power tools in rain. Please operate under temperature at 5°C~40°C (41~104 °F) and within a humidity of 35~80%.
  9. **DON'T USE IN STORM OR LIGHTNING.** Doing so might get an electric shock or cause severe injury.
  10. **AIR VENTILATED THE WORK AREA.** Do not cover the air inlet by cloth or paper or stack up items nearby the power tool.
  11. **KEEP CHILDREN AND VISITORS AT SAFE DISTANCE.** To avoid accident, keep all children and visitors should be kept safe distance from the power tool.
  12. **CHILDREN OPERATES WITH ADULT SUPERVISION.** Failure to do so may result in injury.
  13. **MAKE WORKSHOP KID PROOF.** with padlocks, master switches, or by removing starter keys.
  14. **STORE IDLE ENGRAVER.** When not in use, tools should be stored in dry and high or lock in a place that out of reach of children.
  15. **STALL ON A STABLE SURFACE.** Failure to do so may result in falling of the tool and leading to injury.
  16. **DON'T OVERREACH.** Keep proper footing and balance at all times. Engraved area cannot bigger than its capacity.
  17. **REMOVE ADJUSTING KEYS AND WRENCHES.** Form habit of checking to see that keys and adjusting wrenches are removed from tool before turning it on.

- 18.DISCONNECT TOOLS FROM OUTLET.** When it is not in use, before changing accessories, or performing recommended maintenance, disconnect tools from outlet.
- 19.DON'T FORCE TOOL.** It will do the job better and safer at the rate for which it was designed.
- 20.USE RIGHT TOOL.** Don't force small tool for attachment to do the job of a heavy-duty tool. Don't use tool for purpose not intended to.
- 21.CHECK DAMAGED PARTS.** Before further use of the tool, a guard or other part that is damaged should be carefully checked to determine that it will operate properly and perform its intended function – check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation. A guard or other parts that is damaged should be properly repaired or replaced.
- 22.STOP OPERATING WHILE IN AN ABNORMAL PHENOMENON.** (smoke, burning odor, unusual sounds, etc.).  
If above happened, please stop operating immediately and contact your authorized dealer or service center.
- 23.AVOID LEAVE A RUNNING TOOL UNATTENDED.** Never leave the tool until it comes to a complete stop.
- 24.AVOID UNINTENTIONAL STARTING.** Make sure the switch is in off position before plugging in.
- 25.USE RECOMMENDED ACCESSORIES.** Consult the owner's manual for recommended accessories. The use of improper accessories may cause risk of injury to persons.
- 26.DO NOT HOLD OR STRESS THE SPINDLE DURING OPERATION.** Doing so will accelerate wear and cause premature failure.
- 27.MAINTAIN TOOLS WITH CARE.** Keep tools sharp and clean for best and safest performance. Follow instructions for cleaning and changing accessories. Inspect tool cords and extension cords periodically and if damaged, please contact authorized dealer or service center and have it repaired by them.
- 28.USE THE PROPER EXTENSION CORD.** Only use the extension cord in good condition. Never use more than one extension cord. Do not use the extension cord with other electric products. Read "1-4 EXTENSION CORD" section for more information.
- 29.DO NOT UNPLUG THE POWERCORD PLUG WITH WET HANDS.** Doing so may result in electrical shock.
- 30.DO NOT DISASSEMBLE, REPAIR, OR MODIFY.** Doing so may lead to fire or abnormal operation resulting in injury.
- 31.ONLY USE ATTACHED POWERCORD.** Failure to do so may lead to fire or electrical shock.
- 32.POWECORD MUST GROUNDED.** Failure to do so may lead to fire or electrocution.
- 33.DON'T ABUSE CORD.** Never yank the cord to disconnect it from receptacle, disconnect it from receptacle by hands. Keep cord away from heat, oil and sharp edges. Do not destroy, modify, bend, twist, pull, binding or pinching it nor place any object of weight on it .Inspect cords regularly and repair or replace if damaged.
- 34.STAY ALERT .** Watch what you are doing. Use common sense. Do not operate tool when you are tired.
- 35.DO NOT OPERATE ANY POWER TOOL WHILE UNDER THE INFLUENCE OF DRUGS, ALCOHOL, OR ANY MEDICATION AFFECTING ALTERNESS.**
- 36.THE USAGE OF EMERGENCY STOP:** If there is any problem during engraving and need to stop immediately, please press the emergency stop button to stop the machine and motor to protect the operator.

## 1-2 Electrical Requirement

- **CONNECTING TOOL TO POWER SOURCE OUTLET.** This machine source must be grounded while in use to protect the operator from electrical shock.
- In the event of a malfunction or breakdown, grounding provides a path of least resistance for electrical current to reduce the risk of electrical shock.  
This tool is equipped with an electric cord having equipment grounding conductor and a grounding plug. The plug must be plugged into a matching outlet that is properly installed and grounded in accordance with all local codes and ordinances.
- Do not modify the plug provided if it will not fit the outlet. Have the proper outlet installed by a qualified electrician.
- Improper connection of the equipment-grounding conductor can result in a risk of electric shock. The conductor with insulation having an outer surface that is green (with or without yellow stripes) is the equipment-grounding conductor.  
If repair or replacement of the electric cord or plug is necessary, do not connect the equipment –grounding conductor to a live terminal.
- Check with a qualified electrician or service personnel if the grounding instructions are not completely understood, or if in doubt as to whether the tool is properly grounded.
- Use only 3-wire extension cords that have 3-prong grounding plugs and 3-pole receptacles that accept the tool's plug.
- Repair or replace damaged or worn cord immediately.
- Only UL/CE Listed extension cords should be used with this product.
- Improper use of extension cords may cause inefficient operation of your tool, which can result in overheating. Be sure your extension cord is rated to allow sufficient current flow to the motor. For the proper gauge for your tool, see EXTENSION CORDS section below.
- Do not let your fingers touch the terminals of plug when installing or removing the plug to or from the outlet.
- If not properly grounded, this power tool can incur the potential hazard of electrical shock particularly when used in damp locations or in proximity to plumbing.

### 1-3 Wiring Diagram



### 1-4 Extension Cords

**WARNING:**

To avoid permanent motor damage you must use the correct extension cord. Never use more than one extension cord at a time.

Use proper extension cord and make sure your extension cord is in good condition. When using an extension cord, make sure all cords are no smaller than a #18 gauge and equipped with 3 prong plugs. Use of anything smaller may result in the overheating or burn out of the motor. It is recommended to have an electrician check the incoming voltage prior to usage to ensure safe and efficient use. The smaller the gauge numbers the heavier the cord.

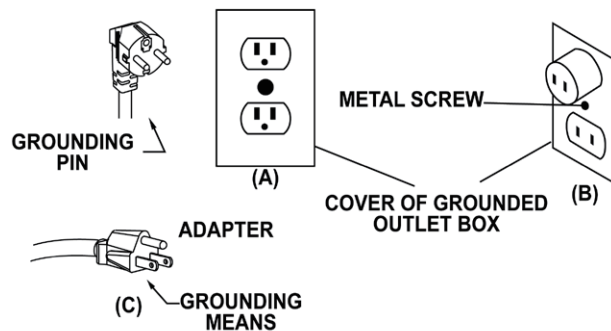
1. Use only extension cords having an electrical rating not less than the rating of the product. Do not use damaged extension cords. Examine extension cord before using and replace if damaged. Do not abuse extension cords and do not yank on any cord to disconnect. Keep cord away from heat and sharp edges. Always disconnect the extension cord from the receptacle before disconnecting the product from the extension cord.

**Recommendation:**

Amp	Length of Extension Cord	Wire Size
Min. 10 Amp	Max. 9 m (30 ft)	#18 AWG
		0.75 mm <sup>2</sup>
	Max. 20 m (66 ft)	#14 AWG
		1.0 mm <sup>2</sup>

2. **WARNING** - To reduce the risk of electrocution, keep all connections dry and off the ground. Do not touch plug with wet hands.
3. Ground Fault Circuit Interrupter (GFCI) protection should be provided on the circuit(s) or outlet(s) to be used for the tile saw. Receptacles are available having built-in GFCI protection and may be used for this measure of safety.

## 1-5 Grounding Instructions



### A. All grounded, cord-connected tools:

In the event of a malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock.

This tool is equipped with an electric cord having an equipment-grounding conductor and grounding plug. The plug must be plugged into a matching outlet that is properly installed and grounded in accordance with all local codes and ordinances.

Do not modify the plug provided-if it will not fit the outlet, have the proper outlet installed by a qualified electrician.

Improper connection of the equipment-grounding conductor can result in a risk of electric shock. The conductor with insulation having an outer surface that is green with or without yellow stripes is the equipment-grounding conductor. If repair or replacement of the electric cord or plug is necessary, do not connect the equipment-grounding conductor to a live terminal.

Check with a qualified electrician or service personnel if the grounding instructions are not completely understood, or if in doubt as to whether the tool is properly grounded.

Repair or replace damaged or worn cord immediately.

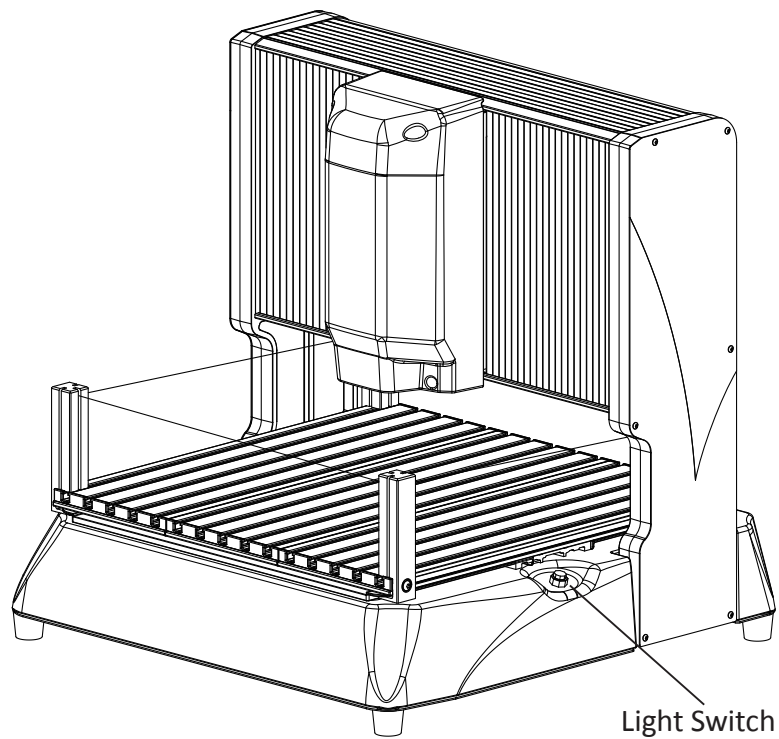
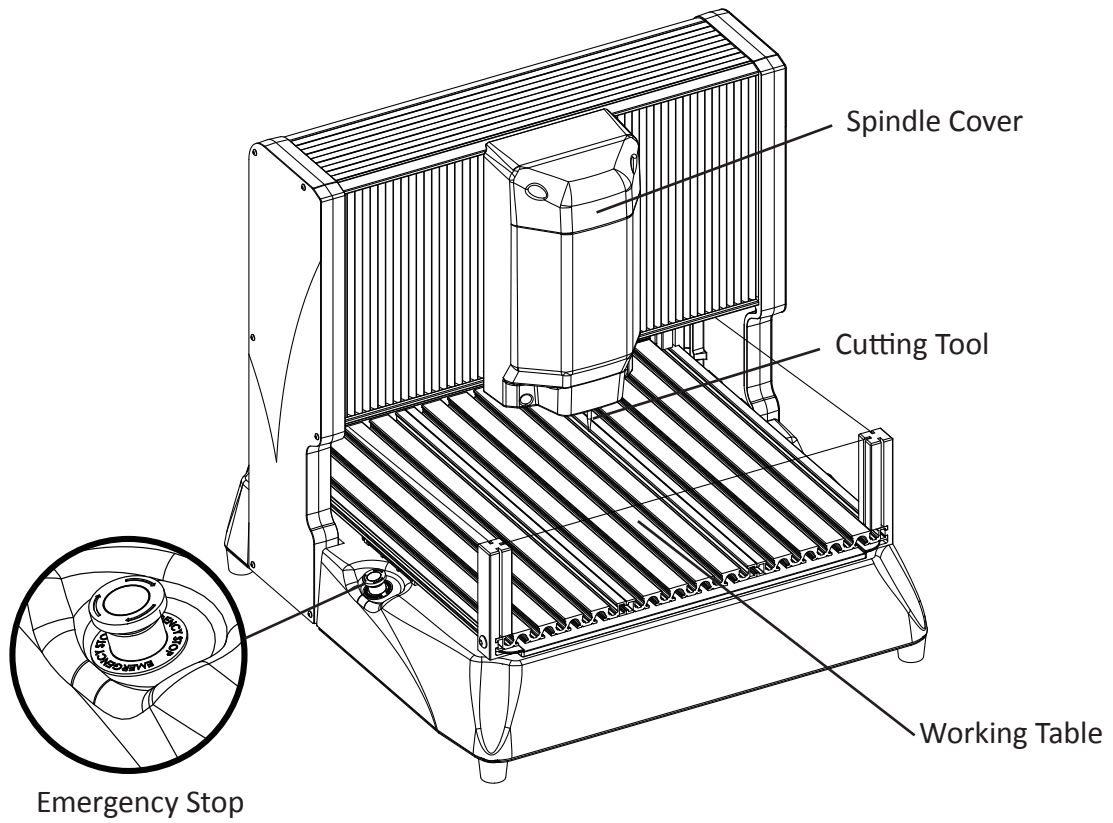
- ### B. Grounded, cord-connected tools intended for use on a supply circuit having a nominal rating less than 150volts; This tool is intended for use on a circuit that has an outlet that looks like the one shown in figure A in illustration 2. A temporary adapter, which looks like the adapter shown in figure B in illustration 2, may be used to connect this plug to a 2-pole receptacle as shown in figure B in illustration 2 if a properly grounded outlet is not available. The temporary adapter should be used only until a properly grounded outlet can be installed by a qualified electrician. The green-colored rigid ear, lug, and the like, extending from the adapter must be connected to a permanent ground such as properly grounded outlet box.



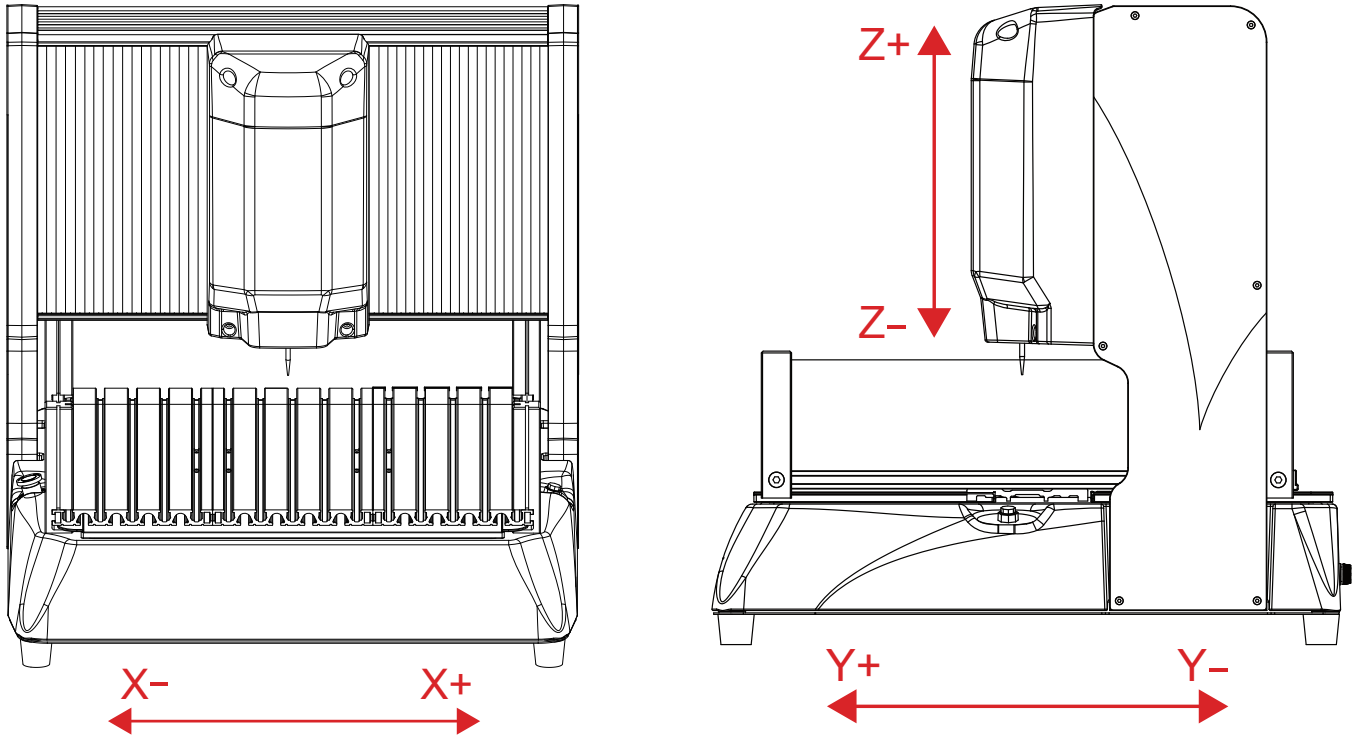
## Chapter 2 Installation of Equipment

### 2-1 Hardware Features

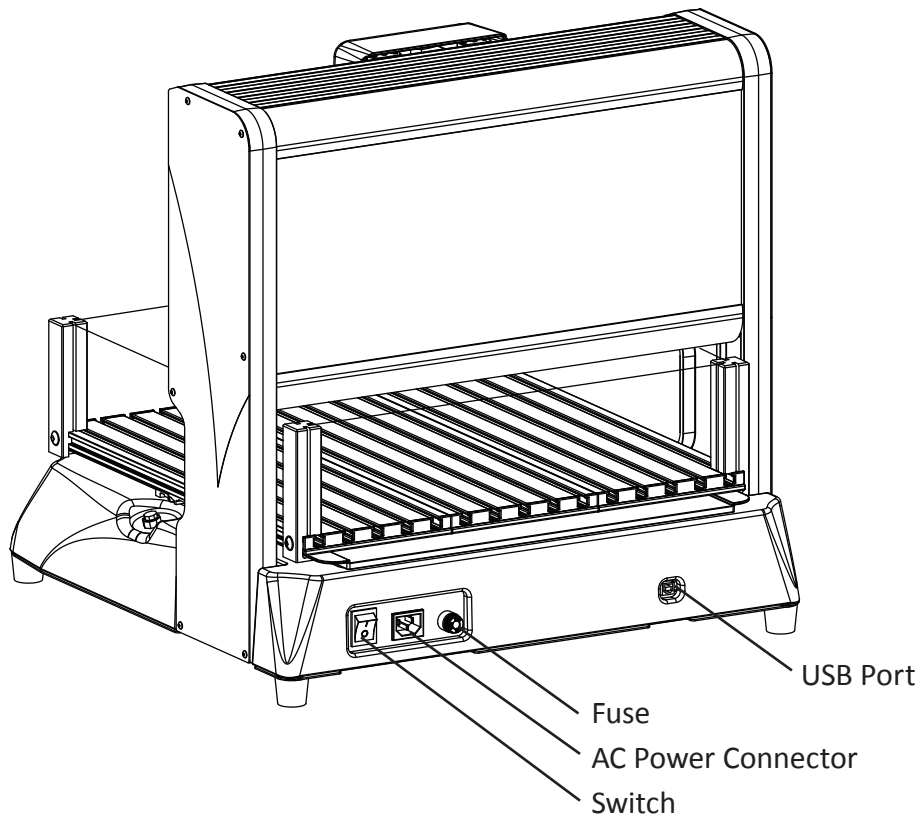
Front View:



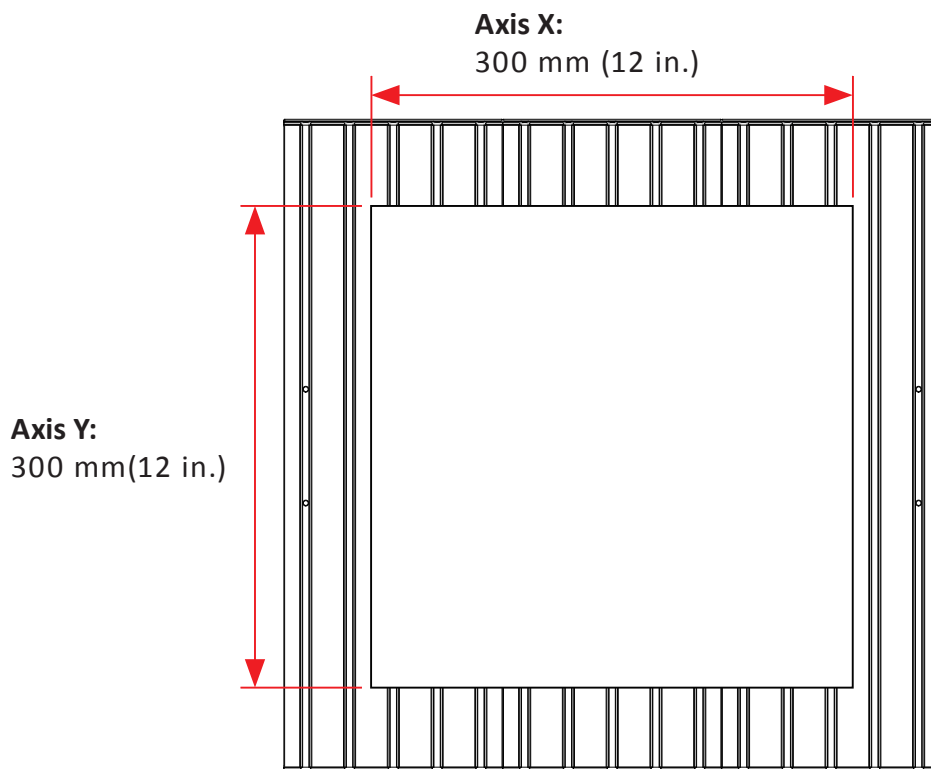
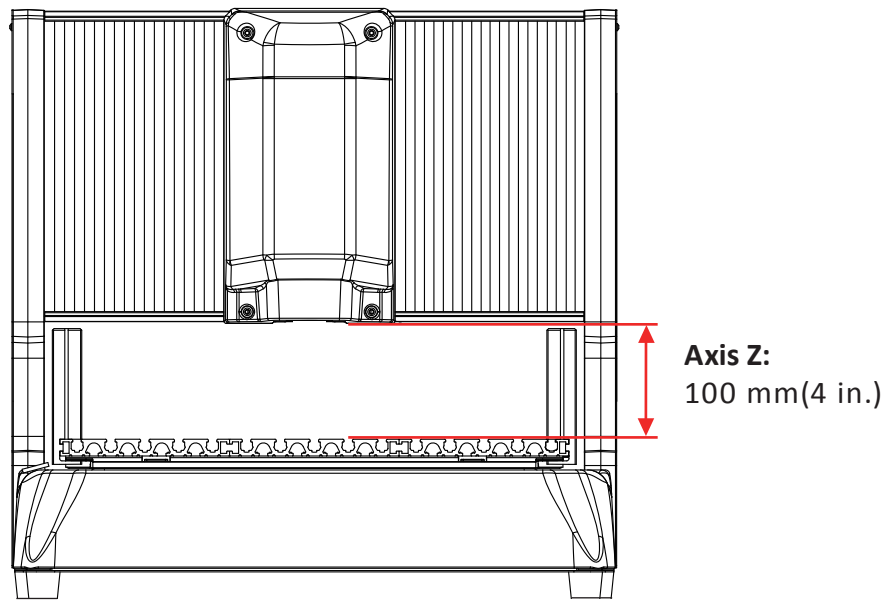
**X, Y, Z axis direction:**



**Rear View:**



**Work Area:**

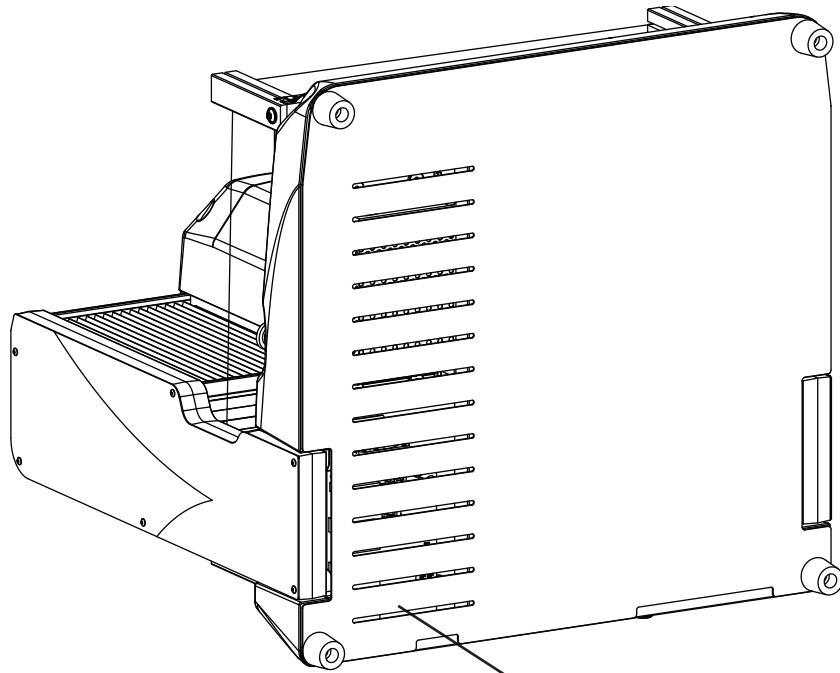


## Air Outlet:



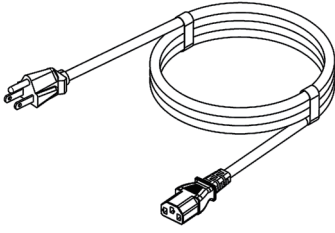
### **KEEP THE WORK AREA VENTILATED.**

The air inlet must not be covered with cloth or paper. Avoid stacking things near the machine.

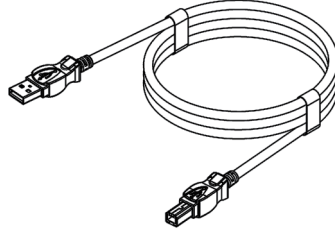


Bottom Air Outlet

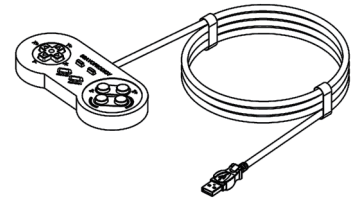
## 2-2 Accessories Included



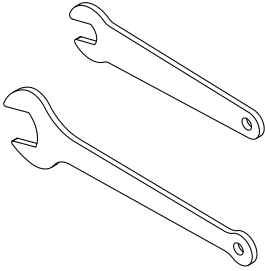
Power Cord × 1



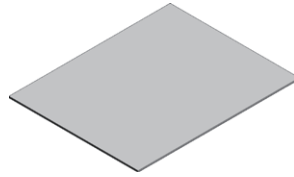
USB 2.0 Cable × 1



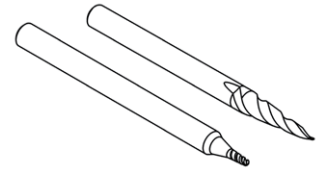
Controller × 1



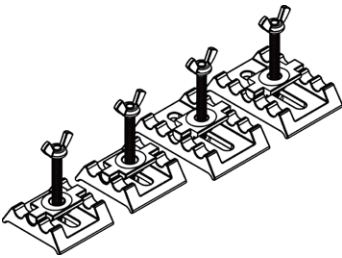
Wrench Set  
For nut × 1 For spindle × 1



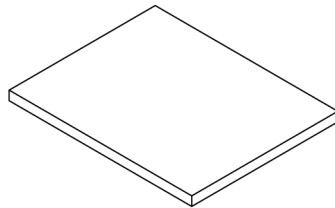
Silicone Mat × 1



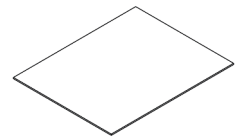
Tungsten Carbide Tool × 2



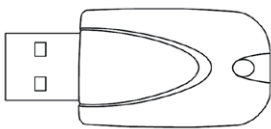
Clamp Set  
Small × 2 Big × 2



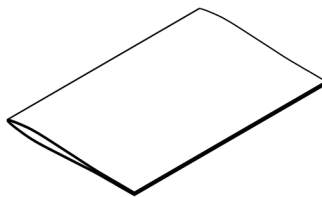
Support Board × 1



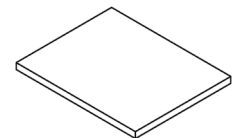
Thin Paper × 1  
( for Starting Point set-up)



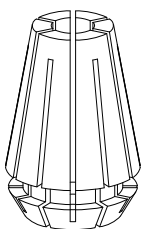
BravoProdigy Software  
Installation USB × 1



Operating Instructions × 1



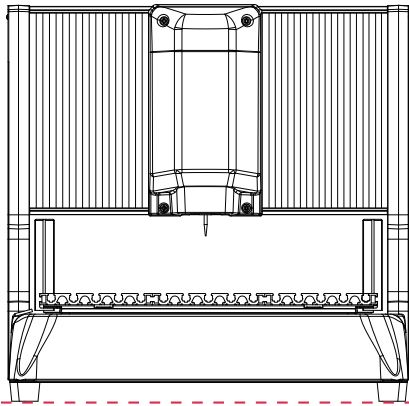
Engraving Material



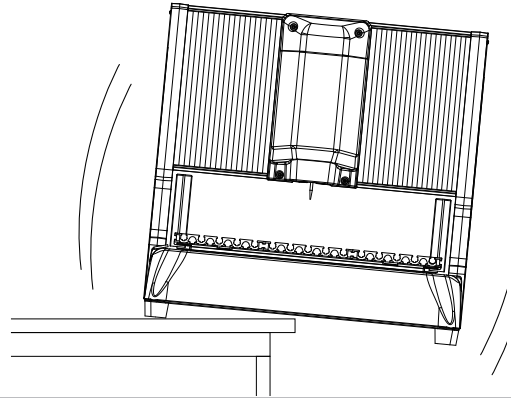
ER11 Collet

## 2-3 Positioning and Connecting the Engraver

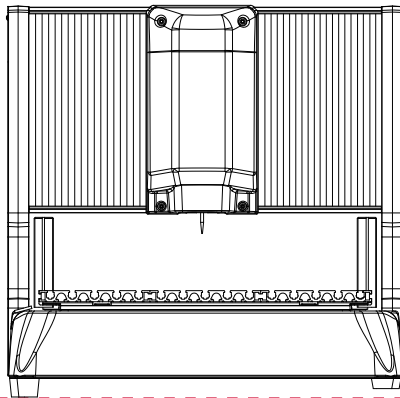
### 2-3-1 Placing the Engraver



Correct

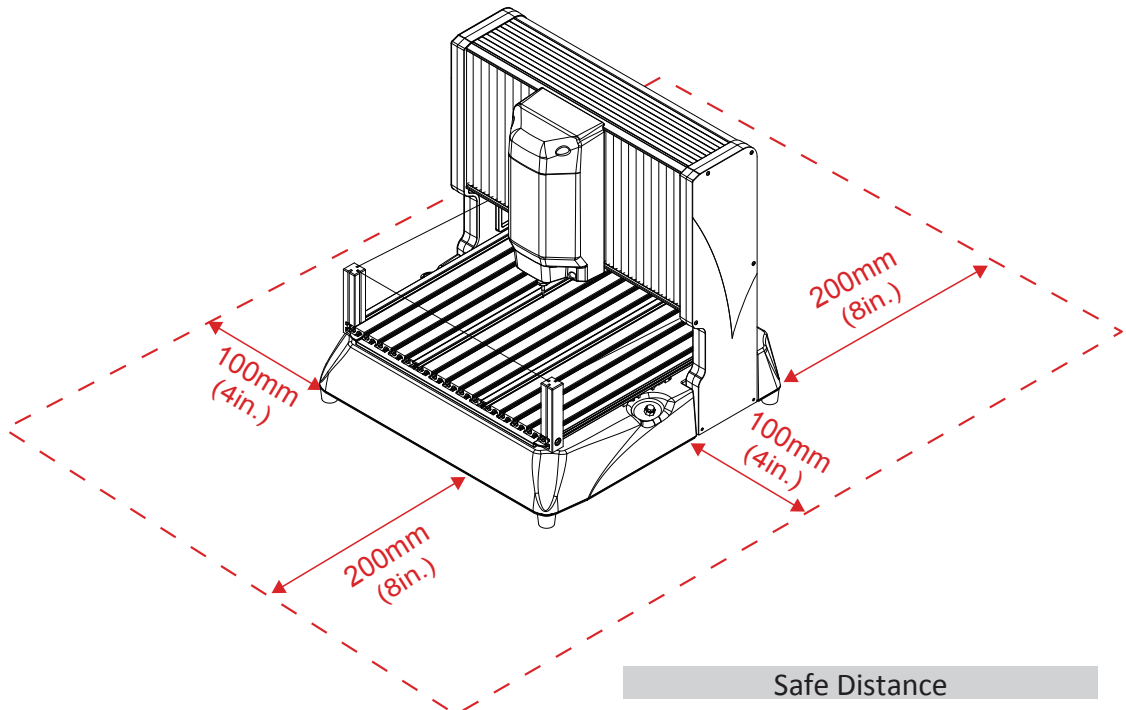


Incorrect ( Fulcrum Missing)



Incorrect (Disequilibrium)

**Note:**  
All fulcrums need to be located parallelly on a flat surface.



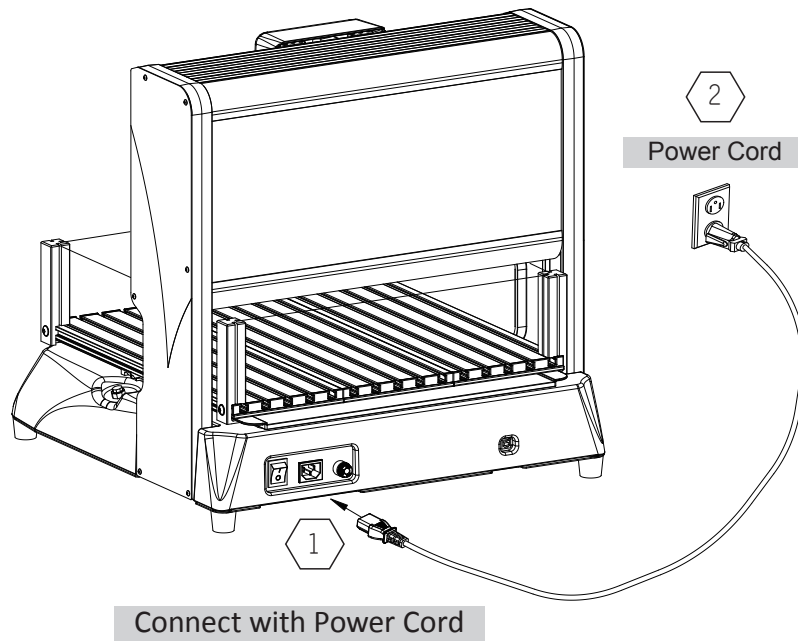
Safe Distance

**Note:**

1. Machine must be placed on top of a stable and flat surface.
2. The engraver must be used in an environment where the temperature is between 5~40°C (41~104°F) and the humidity is between 35~80%.
3. The machine must be kept away from any flames or inflammable objects.
4. Do not place any object within the marked regions.

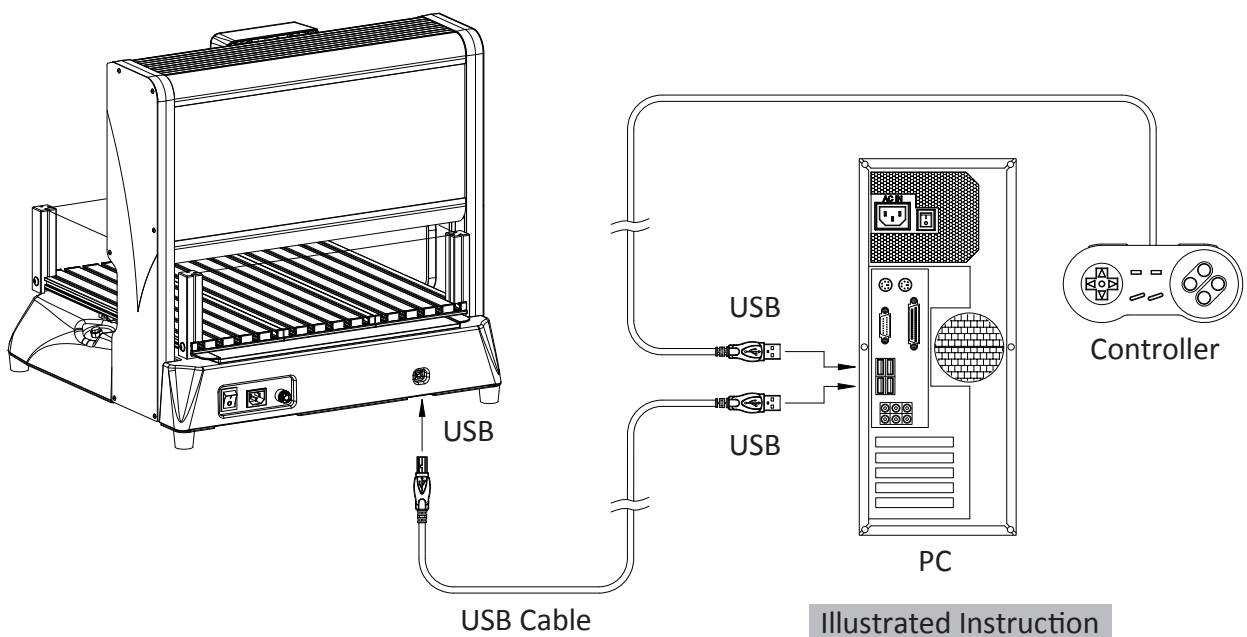
## 2-3-2 Connecting the Power Cord

Follow the steps shown in the diagram below while connecting the plugs.



## 2-3-3 Connecting the Engraver to the Computer

USB cable and controller should connect to the USB port in the back of the machine.



## Chapter 3 Facility Maintenance

### 1. Safekeeping of Cutting Tools

Whenever the cutting tool has been used, uninstall it and do the proper cleaning before putting it away in the toolbox. Please note that the “flute” of the cutter is extraordinarily sharp, so it’s best you hold it from the “shank” of it and keep it from falling off.

### 2. Safekeeping Of Equipment

- If the machine’s going to be left unused for a period of time, never forget to unplug the power cord and remove the USB to keep it safe.
- Make sure not to place the machine anywhere outdoors, in any moist environments or near the waters (For example a water tap), the moisture could cause damage to the circuits.

### 3. Replacing Tools

The commercially available tools come in various types, the quality standards are rather irregular, thus it’s recommended that the tools be replaced with those supplied from the original manufacturer, for fear of any possible unpredictable damage.

### 4. Facility Cleaning

There will be much dust or chips after the carving is done, they accumulate over time and eventually get in the way of the operation. Every time the carving is done, put away the finished work and keep the facility clean on a regular basis by getting rid of the dust with a dust collector and the likes.

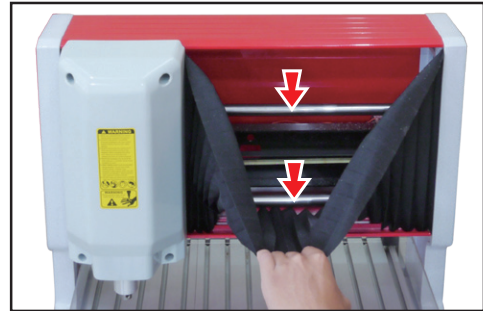
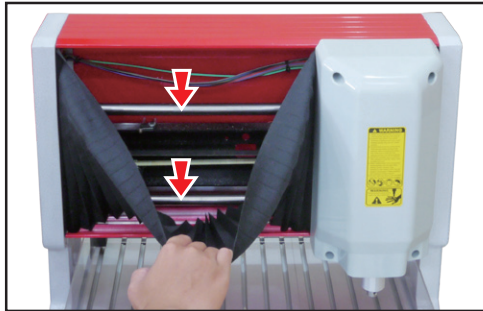
### 5. Cleaning sliders on axis X, Y, and Z

Once in awhile the slider on one of the three axis could fail to go smoothly, when this happens, take a clean piece of cloth and scrub it with care, and then spread some light lubricating oil (For example a WD-40) evenly on it.

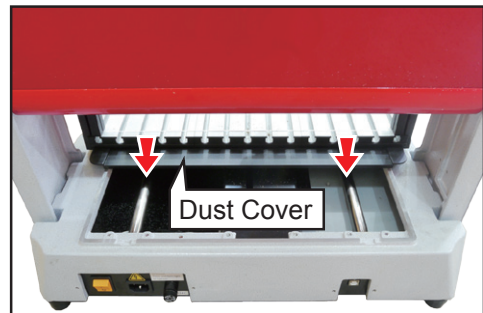
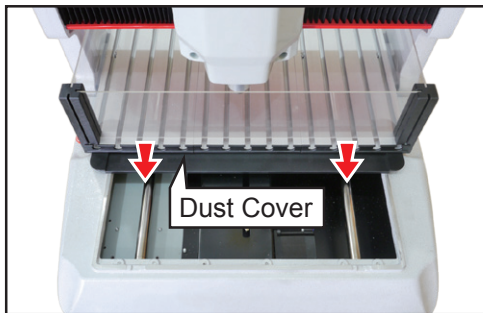
**Note: The cutting tool must be installed before the cleaning, the work table should be kept completely empty.**

**As shown in the picture below, double check the smoothness of the sliders by making the spindle travel on each slider. Also clean the rails which the mark ↓ points at.**

Axis X:

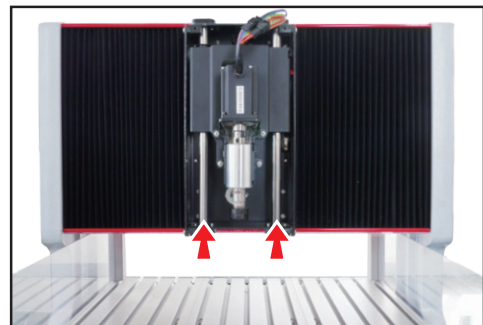
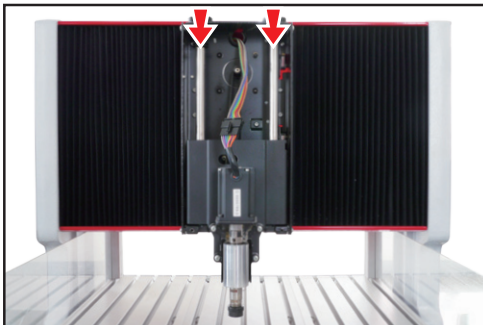


Axis Y:



Uninstall the spindle cover by loosening the screw with a Philips screwdriver

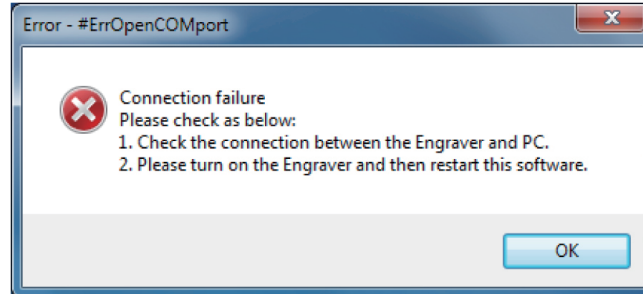
Axis Z:





### 4-1 Warning Messages

1. When a screen with a warning message as shown in the picture below pops up, that indicates that the connection between the machinery and the computer failed.



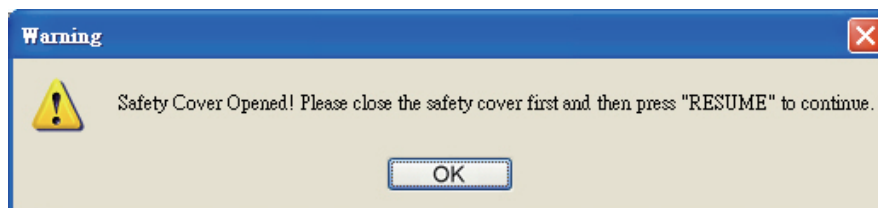
**Solution:**

Check if the power cord and USB cable are connecting properly, if the power switch (emergency switch) is functioning normally, and if the fuse is blown . (In case of the blown fuse, simply replace it with a new one.)

Last thing to do is click on the [OK] button and close the screen, and then turn the machine back on and connect again.

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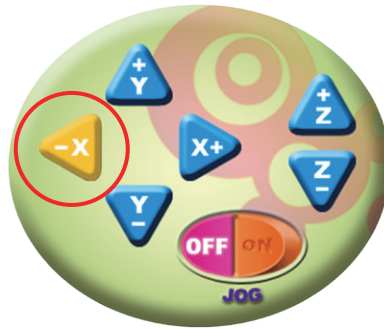
2. When a screen with a warning message as shown in the picture below pops up, that indicates that the front cover's open.





**Solution:**

Close the cover first, and click on the [OK] button to close the screen. Go back to the interface and hit "run" to continue with the job.

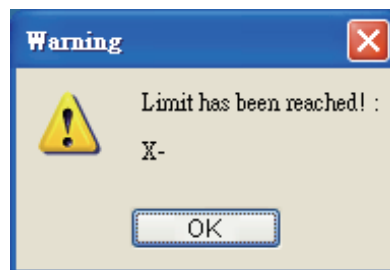
3. The picture below is an example of the spindle reaching the limit on an axis during the operation, in this case the button for the direction whose limit's been reached signals.



**Solution:**


Take the picture above for example, which is the button  signalling, simply click on  and the signal shall be gone.

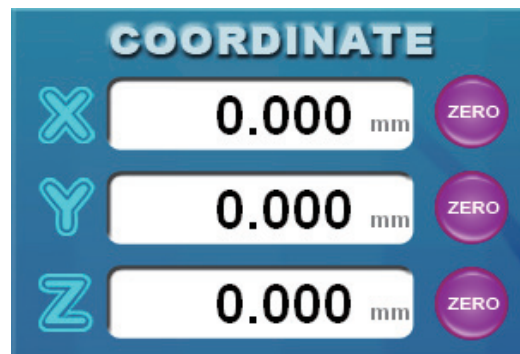
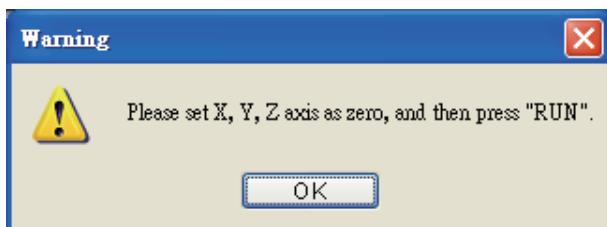
4. When the screen with a warning message as shown in the picture below pops up, that's a result of the spindle reaching the limit.



**Solution:**

Click on [OK] to close the screen, and relocate the workpiece to fall within the work area, this way the job shall be able to continue.

5. When you see this screen as shown in the picture below right after hitting , that means it requires the axis X, Y, Z be "zeroed" before running.

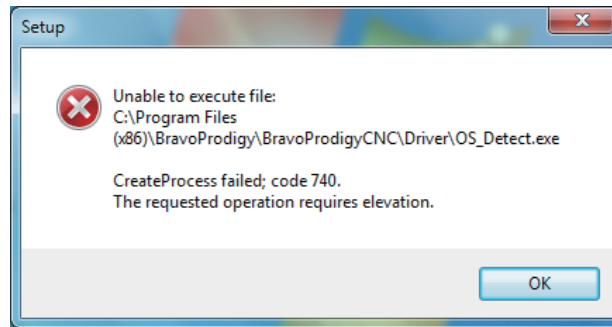


**Solution:**

Simply click on the button  to "zero" axis X, Y and Z.

## 4-2 Troubleshooting

Q1. While installing the Bravoprodigy CNC control software, the screen with a warning message as shown below pops up and keeps the software from successfully being installed.



ANS: This warning message tells you that the UAC settings need adjusting, especially for operating systems Windows 7 and Windows 8 or newer operating systems than Windows 7 and Windows 8. Please read 3-1 Change User Account Control settings to finish the settings.

---

Q2. The CNC control software failed to load G-code.

ANS: Confirm all items below:

1. The filename extension is .TAP.
  2. The filename does not contain any special characters or any characters that the system does not support.
  3. The folder path does not contain any special characters or any characters that the system does not support.
- 

Q3. The machinery and the computer failed to connect.

ANS: Confirm all items below:

1. If the power cord and the USB are properly connected.
  2. If the emergency switch is on.
  3. If the fuse is blown.
  4. Restart the Bravoprodigy CNC software and connect again.
- 

Q4. The machinery is not responding to your controller.

ANS: Confirm all items below:

1. The input system must be switched to the English language .
  2. Try using another USB Port.
  3. Restart the CNC control software.
- 

Q5. The workpiece was cut through during the job.

ANS: Two possibilities are as follows:

1. When the Max. Carving depth plus the offset value on the EDIT output settings are greater than the thickness of the workpiece, this would cause the workpiece to be pierced through.
2. When the workpiece wasn't placed flatly enough on the table making the heights inconsistent, this would also cause the workpiece to be pierced through.

Q6. On the surface of the finished work, you realize some part of the pattern is missing.

ANS: The two most common possibilities are as follows:

1. It could be because the surface of the workpiece isn't flat enough, and the starting point happened to be set at a point that's slightly higher up, that would cause something like this to happen.
2. When the cutting tool broke in the middle of the job, that could also cause something like this to happen.

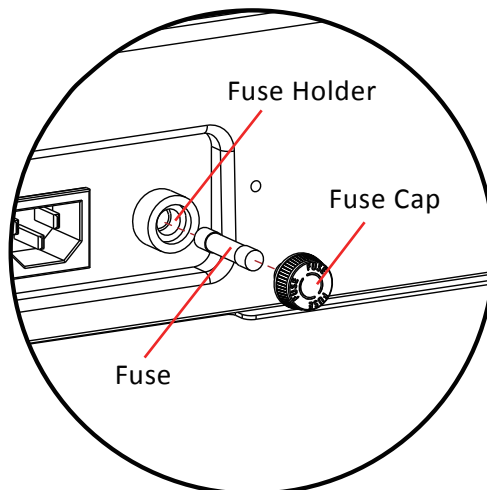
---

Q7 . How do I replace a fuse.

※ **Go to Chapter 2 (2-1 Hardware Features) for the location of the fuse and description.**  
**Go to Chapter 12 (12-2 Part List) for the specifications of the fuse.**

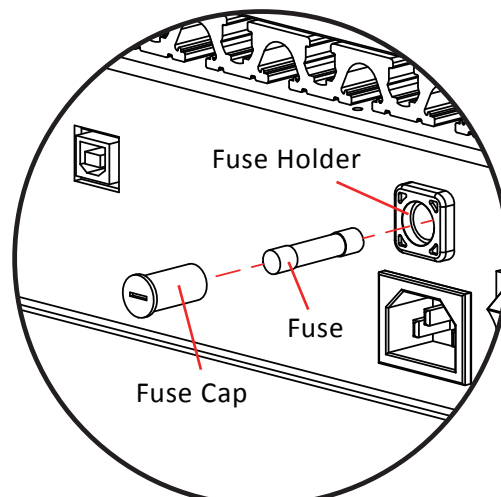
Desktop Family: BE2015, BE3030, BE3222, BE4036, BE4060, BE5070.

ANS: Press the fuse cover tightly while turning it counter clockwise, take out the fuse cover and the fuse, and then replace the fuse with another one with the same specifications as supplied by the original manufacturer, and then insert the fuse cover and the new fuse back in the fuse holder, and then press the cover tightly the same way while turning it clockwise.



Cylinder Family: BC200, BC200L

ANS: Turn the fuse cover counter-clockwise with a flathead screwdriver, take out the fuse cover and the fuse, and then replace the fuse with another one with the same specifications as supplied by the original manufacturer, and then reinsert the fuse cover back in the fuse holder by turning it clockwise with your flathead screwdriver.



Q8. The plastic material keeps melting during the operation.

ANS: There are materials with lower melting points, in this case you'll need to adjust the spindle and feed rate in response to different material properties after experimenting with a few actual results. When you notice something melting, you must stop the operation immediately, and uninstall the cutting tool with caution and have the melted material removed, just as suggested by the instructions.

Note:

1. Under certain circumstances, it could be the tip of the cutting tool not being sharp enough, which could also be the result of the melting, in this case simply replace the cutting tool.
2. As long as the workpiece was not supplied by the original manufacturer, always be sure to find your proper spindle speeds and feed rates for the workpiece based off of a few test results before continuing with the carving.

---

Q9. The clamp loosens during the operation.

ANS: Simply follow the instruction to secure the clamp again, to make sure it won't keep loosening anymore.

---

Q10. The pattern of the image is somehow mislocated during the operation.

ANS: It could be the feed rate being set too high resulting in some part of the image getting mislocated.

Troubleshooting tip: Adjust your feed rate and number of layers (stepover) depending on the actual circumstances.

---

Q11. There are silky wood chips formed around the tip of the cutting tool, during the processing of wood.

ANS: During the processing of wooden materials, if the direction of cut happens to be parallel to the grain of the wood, it keeps the wood chips from being completely cut off thus this phenomenon. Try changing your direction of cut, as opposed to the grain of the wood, and this should be less likely to happen.

---

Q12. A bunch of lines keep showing up on the pattern of the finished work.

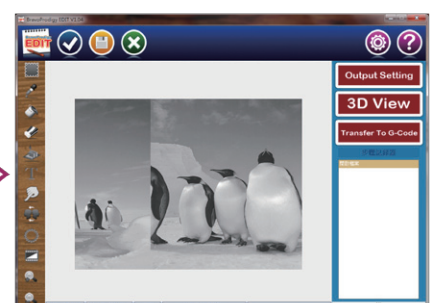
ANS: The three most common possibilities are as follows:

1. The "stepover" value is greater than the maximum line interval as for the cutting tool selected.
2. With the feed rate being set too high, the cutting tool might not be able to work perfectly well on all lines.
3. It could be the cutting tool not being sharp enough, simply replace it with a new one.

---

Q13. While opening an image on EDIT, the image isn't resembling the original one, looking like it's out of order.

ANS: EDIT software does not support the color mode CMYK. You can continue by saving it as anything RGB. Simply save the image as .png in other computer graphics apps and the image will be converted to RGB.

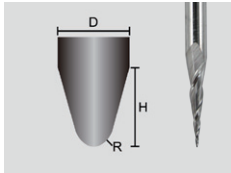


## Chapter 5 Reference Table for Selection of Tools and Materials

### 5-1 Introduction of Each Type of Tools

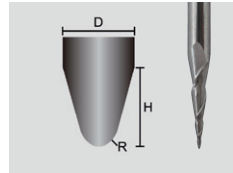
#### Conical Radius Ball Nose Tool

Used for Photos, Grayscale Graphics, Text, Relief Artworks and Elaborate Carvings (Finishing Cuts).



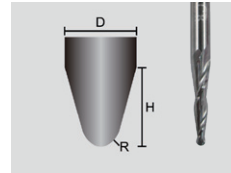
#### 4025C150

D: 4 mm  
H: 15 mm  
R: 0.25 mm  
Stepover: 0.06 mm



#### 4050C150

D: 4 mm  
H: 15 mm  
R: 0.5 mm  
Stepover: 0.12 mm



#### 4100C150

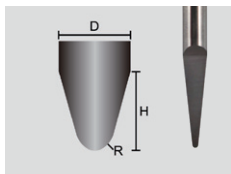
D: 4 mm  
H: 15 mm  
R: 1 mm  
Stepover: 0.2 mm

#### Note:

D=Shank Diameter  
H=Flute Length  
R=Tip Radius

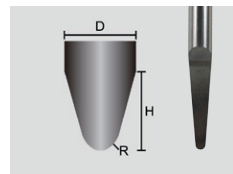
#### Half Conical Radius Ball Nose Tool

Used for Photos, Grayscale Graphics, Text, Relief Artworks and Elaborate Carvings (Finishing Cuts).



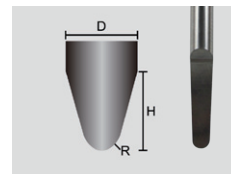
#### 4050E150

D: 4 mm  
H: 15 mm  
R: 0.5 mm  
Stepover: 0.12 mm



#### 4100E150

D: 4 mm  
H: 15 mm  
R: 1 mm  
Stepover: 0.2 mm

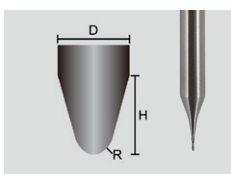


#### 4150E150

D: 4 mm  
H: 15 mm  
R: 1.5 mm  
Stepover: 0.3 mm

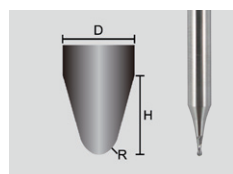
#### Ball Nose Tool

Used for Photos, Grayscale Graphics, Text, Relief Artworks and Elaborate Carvings (Finishing Cuts).



#### 4025A020

D: 0.5 mm  
H: 2 mm  
R: 0.25 mm  
Stepover: 0.06 mm

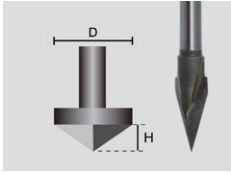


#### 4050A020

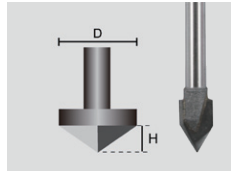
D: 1 mm  
H: 2 mm  
R: 0.5 mm  
Stepover: 0.12 mm

## V Shaped Cutters

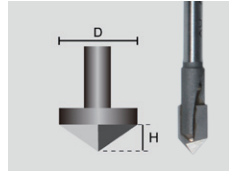
Used for V-shaped Text.



**4635V030**  
 D: 6.35 mm  
 H: 11.85 mm  
 Stepover: 0.1 mm



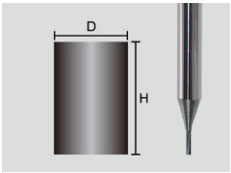
**4635V060**  
 D: 6.35 mm  
 H: 5.5 mm  
 Stepover: 0.1 mm



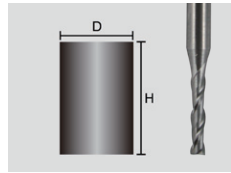
**4635V090**  
 D: 6.35 mm  
 H: 3.175 mm  
 Stepover: 0.1 mm

## End Mill Cutters

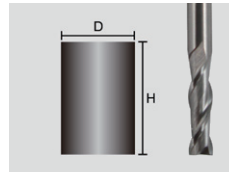
Sometimes used as a tool to more quickly cut off the irrelevant area, and used for face milling, edge trimming, hole drilling and roughing cuts.



**4100G040**  
 D: 1 mm  
 H: 4 mm  
 Stepover: 0.3 mm



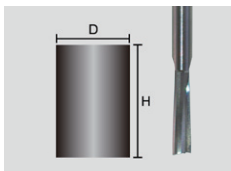
**4250B120**  
 D: 2.5 mm  
 H: 12 mm  
 Stepover: 0.8 mm



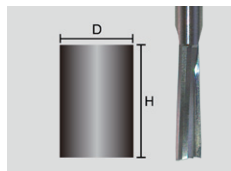
**4400B150**  
 D: 4 mm  
 H: 15 mm  
 Stepover: 1.5 mm

## Router Bits

Sometimes used as a tool to more quickly cut off the irrelevant area, and used for face milling, edge trimming, hole drilling and roughing cuts.



**4400H150**  
 D: 4 mm  
 H: 15 mm  
 Stepover: 1.5 mm



**6600H300**  
 D: 6 mm  
 H: 30 mm  
 Stepover: 2.5 mm

## 5-2 Recommended Parameter Settings on Each Type of Tools and Materials

Material	Cutting Tool	Maximum Stepdown Value	Spindle Speed	Feed Rate
Wood	4025C150	5 mm (0.2 in.)	100%	1500 mm/min 59 inch/min
	4050C150			
	4100C150	4 mm (0.16 in.)		
	4050E150			
	4100E150			
	4150E150	3 mm (0.12 in.)		
	4635V030	1mm (0.04 in.)		
	4635V060			
	4635V090			
	4400H150	3 mm (0.12 in.)		
	6600H300	2 mm (0.08 in.)		
	4100G040	1mm (0.04 in.)		
	4250B120	3 mm (0.12 in.)		
	4400B150			
Acrylic	4025C150	1.5mm (0.06 in.)	100%	1500 mm/min 59 inch/min
	4050C150	2 mm (0.08 in.)		
	4100C150			
	4025A020	1.5mm (0.06 in.)		
	4050A020	2 mm (0.08 in.)		
	4100G040	0.5 mm (0.02 in.)		
	4250B120	1mm (0.04 in.)		
	4400B150			
ABS	4025C150	1.5mm (0.06 in.)	50% ~ 100%	1500 mm/min 59 inch/min
	4050C150	2 mm (0.08 in.)		
	4100C150			
	4025A020	1.5mm (0.06 in.)		
	4050A020	2 mm (0.08 in.)		
	4100G040	0.5 mm (0.02 in.)		
	4250B120	1mm (0.04 in.)		
	4400B150			
Artificial Stone	4025C150	1.5mm (0.06 in.)	100%	1500 mm/min 59 inch/min
	4050C150	2 mm (0.08 in.)		
	4100C150			
	4100G040	0.5 mm (0.02 in.)		
	4250B120	1mm (0.04 in.)		
	4400B150			
Soft Metals	4025C150	0.1mm (0.004 in.)	100%	900 mm/min 35 inch/min
	4050C150			
	4100C150			
	4100G040			
	4250B120			
	4400B150			

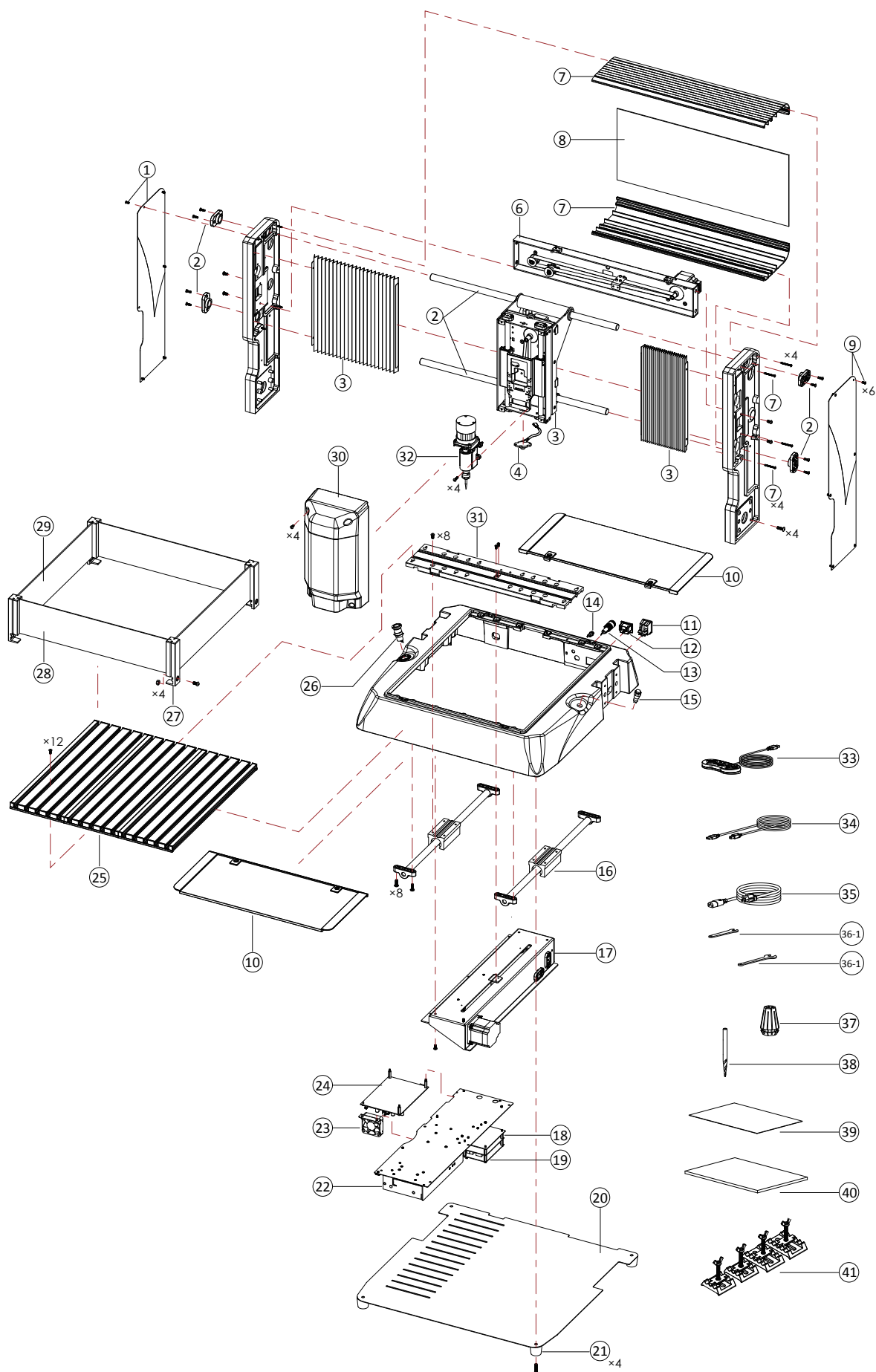


Material	Cutting Tool	Maximum Stepdown Value	Spindle Speed	Feed Rate
<b>Epoxy Tooling Board</b>	4025C150	5mm (0.2 in.)	100%	1500 mm/min 59 inch/min
	4050C150			
	4100C150	4mm (0.16 in.)		
	4635V030	1mm (0.04 in.)		
	4635V060			
	4635V090			
	4400H150	3mm (0.12 in.)		
	6600H300			
	4100G040	1mm (0.04 in.)		
	4250B120	3mm (0.12 in.)		
4400B150				
<b>EVA Foam</b>	4025C150	5mm (0.2 in.)	100%	2500 mm/min 98 inch/min
	4050C150			
	4100C150	4mm (0.16 in.)		
	4400H150	5mm (0.2 in.)		
	6600H300			
	4250B120	3mm (0.12 in.)		
	4400B150			
	4100G040	1mm (0.04 in.)		1500 mm/min (59 inch/min)
<b>Modeling Wax</b>	4025C150	1.5mm (0.06 in.)	100%	1500 mm/min 59 inch/min
	4050C150			
	4100C150	2 mm (0.08 in.)		
	4100G040	1mm (0.04 in.)		
	4250B120			
	4400B150			
<b>Styrofoam</b>	4025C150	5mm (0.2 in.)	100%	2500 mm/min 98 inch/min
	4050C150			
	4100C150	4mm (0.16 in.)		
	4250B120	3mm (0.12 in.)		
	4400B150			
	4100G040	1mm (0.04 in.)		1500 mm/min (59 inch/min)

**Note:**

1. This chart is just for your information, the actual settings and selections depend on the real material characteristics of the workpiece and the performance of the cutting tool.
2. Properly adjust the spindle rate and feed rate based on the melting point and hardness of the material.
3. The total effective cut depth must not be greater than the thickness of the workpiece unless it's meant to be cut through.
4. The total effective cut depth must be less than or equal to the "max. carving depth" plus the offset value.
5. All these parameters only apply to the Bravoprodigy EDIT and CNC software.

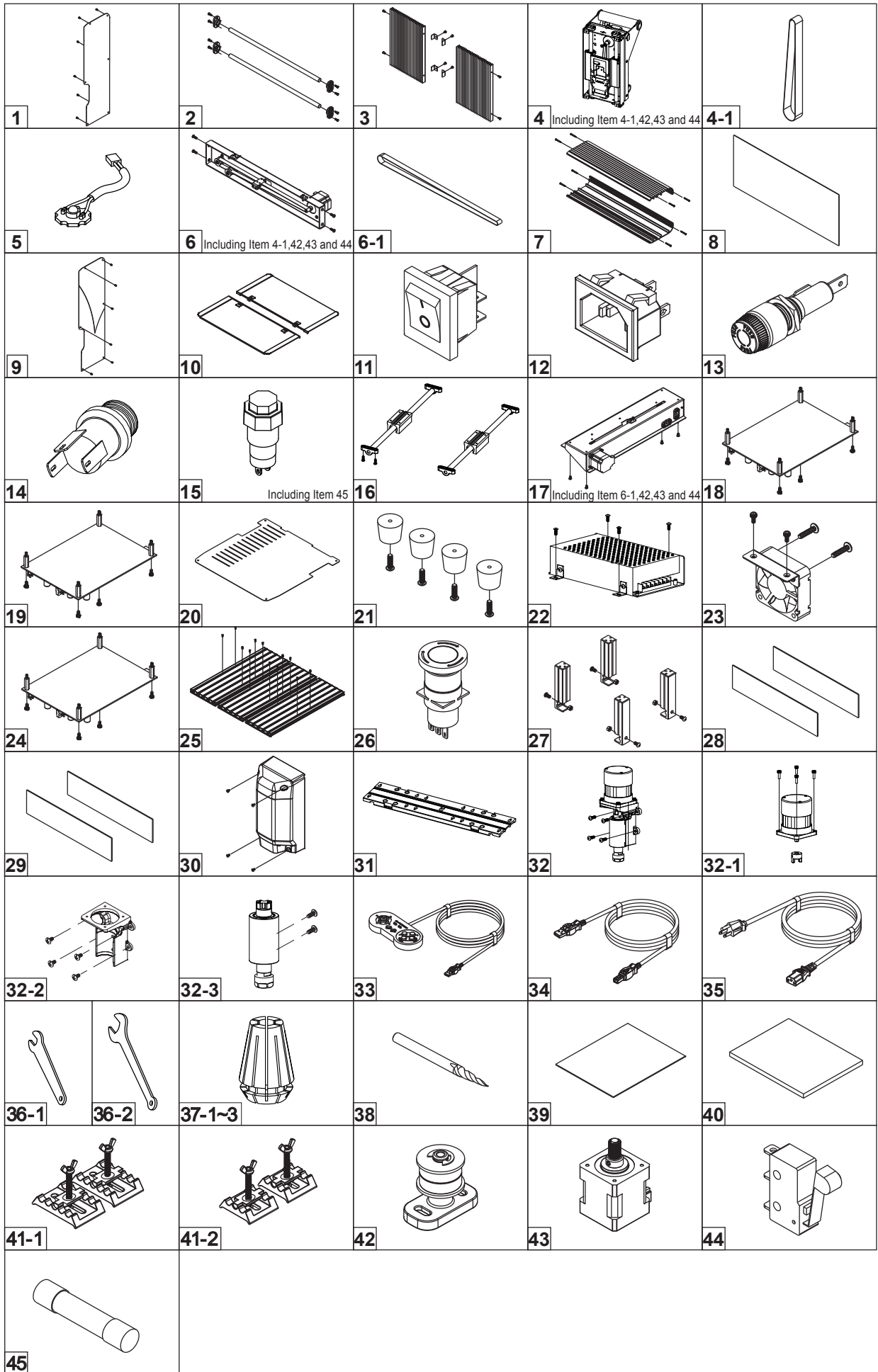
6-1 Exploded Diagram



## 6-2 Parts List

No.	Description	Q' ty
1	Side Bracket Set_Left	1
2	X -Axis Rail Set	1
3	Telescopic Dust Cover Set	1
4	Z- Axis Motor Transmission Set (Including Item 4-1,42,43 and 44)	1
4-1	Z-Axis Timing Belt (MXL 180×14mm)	1
5	LED Lighting Unit	1
6	X- Axis Motor Transmission Set (Including Item 6-1,42,43 and 44)	1
6-1	Timing Belt (MXL 408×14mm)	1
7	Cover Set_Top and Bottom	1
8	Rear Cover	1
9	Side Bracket Set_Right	1
10	Dust Cover Set	1
11	Switch (TR26)	1
12	AC Power Connector (R-301SN)	1
13	Fuse Set (Including Item 45)	1
14	Connection Socket for Anti-dust Box (Optional)	-
15	Light Switch	1
16	Y- Axis Rail Set	1
17	Y- Axis Motor Transmission Set (Including Item 6-1,42,43 and 44)	1
18	Laser Driven Control Panel (Optional)	-
19	Brushless Motor Driven Circuit Board	1
20	Soleplate	1
21	Footing Pad Set	1
22	Power Supplier Set (200W-24V)	1
23	Fan Set (50×50×15 24V)	1
24	Electric Device Fixing Plate Set	1
25	Working Table Set	1
26	Emergency Stop (LA128A)	1
27	Pillar Set for Guard Plate	1
28	Guard Plate Set_Front and Rear	1
29	Guard Plate Set_Left and Right	1
30	Spindle Cover Set	1
31	Connector Set	1
32	DC ER11 Collet Straigh Shank Chuck Set with ER11 Collet Nut	1
32-1	Brushless DC Motor (200 W)	1
32-2	Brushless DC Motor Holder	1
32-3	ER11 Collet Straigh Shank Chuck Set with ER11 Collet Nut	1
33	Controller	1
34	USB Cable (2.0 Type A plug with Type B plug; 1.8M long)	1
35	Power Cord	1
36-1	Wrench (For spindle)	1
36-2	Wrench (For nut)	1
37-1	ER11 - 4.0 ( $\Phi$ 4.0 mm ~ $\Phi$ 3.5 mm )	1
37-2	ER11 - 3.5 ( $\Phi$ 3.5 mm ~ $\Phi$ 3.0 mm ) (Optional)	-
37-3	ER11 - 6.5 ( $\Phi$ 6.5 mm ~ $\Phi$ 6.0 mm ) (Optional)	-
38	Cutting Tool	-
39	Silicone Mat (140 x 190 mm / 5.51 x 7.48 inch)	1
40	Support Board (150 x 200 mm / 5.91 x 7.87 inch)	1
41-1	Clamp Set (Big)	1
41-2	Clamp Set (Small)	1
42	Idle Wheel Set	1
43	Stepper Motor 56-M	1
44	Limit Switch	1
45	Fuse (7A)	1

# 6-3 Spare Parts



## Chapter 7 Specification

Model	DEM-1717	
Table Size	X 450 × Y 440 mm ( 17.72 × 17.32 inch )	
Table Load Weight	Max. 5 kgs ( 11 lbs )	
Engraving Area	X 300 × Y 300 × Z 100 mm ( 12 × 12 × 4 inch )	
Max. Engraving Speed	2500 mm/min ( 98 inch/min )	
Engraving Material	Plastic ( ABS, Acrylic ) , Wood, Foam, Styrenefoam, Modeling Wax, Epoxy Tooling Board...etc	
Max. Material Thickness	100 mm ( 4 inch )	
Software Resolution	0.02 mm (0.001 inch)	
Mechanical Resolution	0.1 mm/step (0.004 inch/step)	
Spindle Motor	200W Brushless DC Motor	
Spindle Speed	Maximum Spindle Speed(Variable): 20000 RPM	
Tool Diameter	ER11 Collet	
Interface	USB 2.0	
Power Supply	Input: 100-120VAC 4.8A Output: 24VDC 8.8A	Input: 200-240VAC 2.8A Output: 24VDC 8.8A
Power Consumption	3.0A	2.0A
Operating Noise Level	Stand By 39.6 dB(A)	
	No-loading operation less than 66 dB(A)	
Machine Size	540 × 530 × 530 mm ( 21.26 × 20.87 × 20.87 inch )	
Net Weight	32.50 kgs ( 71.5 lbs )	
Operating Environment	Temperatures 5~40°C (41~104°F)	
	Humidity 35~80%	
Accessories	Power Cord, USB 2.0 Cable, Controller, Wrench Set ( For spindle ×1 For nut ×1 ), Silicone Mat, Tungsten Carbide Tool, Clamp set ( big x 2 pcs, small x 2 pcs ), Support Board, Thin Paper, BravoProdigy Software Installation USB, Operating Instructions, Engraving Material, ER11 Collet .	