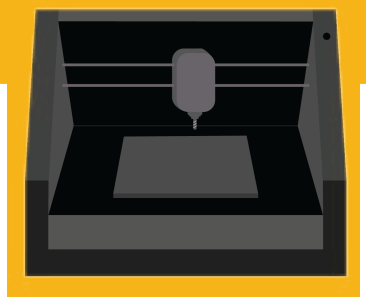
HOW TO OPERATE THE CNC ROLAND MDX 40-A



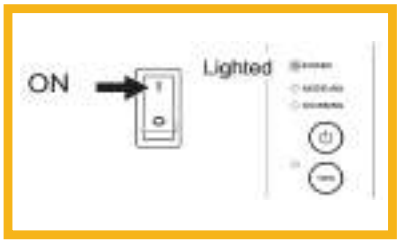
Machine Operation

1

Switch the main power switch ON.

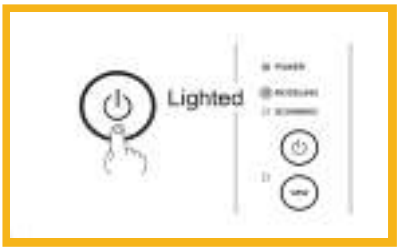
NOTE:

Make sure that the power cord of the machine is plugged on the outlet.



2

After lighted the powerlight, **press** the sub power button.



Button Functions

Sub Power Button

Press this button to start the machine when the main power switch is on.

View Button

Move the spindle head to the highest center position of the machine and move the table towards the front. When this button is pressed during operation, the machine will be paused.

Tool - Up/Down Button

These buttons move the spindle head up and down.

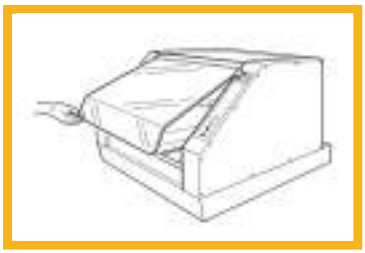
Machine Operation

3

After lighted modeling light, **connect** USB to PC.

4

Open the front cover and **prepare** the material to be used with its exact size/dimension of your desired model size.



FAQ/s:
What are the materials accepted for this machine?

A) Sanmodur

Known as chemical wood or modeling board. There are many variations in density, colour and surface finish. All are light-weight and easy to cut.

B) Modelling Wax

This hard form of wax is supplied in varying blocks, tubes, sheets, and cylinders for modelling. It is easy to cut but can also melt with the heat generated by the cut-ting tool.

C) ABS - ABS

Is a high-impact resistant plastic which is light and rigid, making it suitable for many moulding and machining applica-tions. It is widely used for the automotive parts.

D) Polyacetal Resin

Also known as POM (poly-oxymethylene), Jura Kon, and acetal resin. It is durable, dimensionally stable and resists oil and solvents.

FAQ/s:
What are the materials accepted for this machine?

E) PCBs

Are generally made of silkscreen, solder mask, copper and substrate. It can be used for helmets and tubing applications.

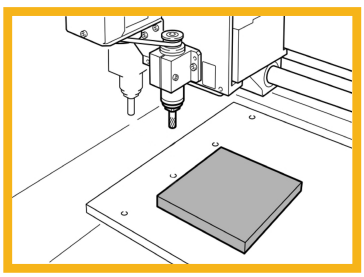
Machine Operation

5

Put materials on the workpiece table.

NOTE:

The range that can actually be cut is limited by the amount of tool extension and interference between the loaded workpiece.



Material Limits

Maximum angle of rotation	+/-18 x 105° (+/-5000 rotations)
Maximum loadable work-piece size	4.7 in. (120mm) diameter by 10.6 in. (270mm) long
Maximum thickness hold-able by workpiece clamp	0.4 to 1.8 in. (10 to 45 mm)
Loadable workpiece weight	2.2 lb (1kg) (including clamps)
Feed rate	0.23-11.79 rpm
Mechanical resolution	0.005625 deg./step (Micro - step)
Dimensions	18.5 (W) x 11.3 (D)x 4.5 (H) In. (470(W) x 286 (D) x 115 (H) mm)
Weight	16.5 lb (7.5 kg)
Included items	Y-origin sensors, Z-origin sensor, Y-origin detection pin, center drill, live center, hexag-onal wrench, cap

Machine Operation

6

Prepare tools to be used for cutting/engraving 3D Milling.

FAQ/s

What are the common tools used for CNC MDX40A machine?

A. Collets - The MDX-40AE is supplied with a Standard Roland 6mm diameter collet. Using just this collet limits the choice of possible tools.

B. Sacrificial Bed - A 12x12 inches size board use as a platform for a material to use during the making of the model.

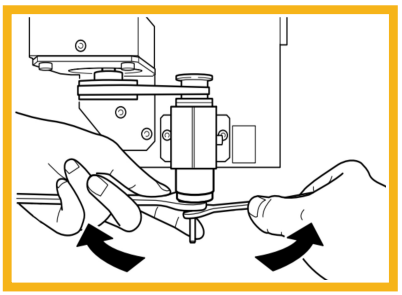
C. Endmill-A type of milling cutter, a cutting tool used in industrial milling applications.

D. Wrench - Two wrench with different sizes according to the size of the collet is used to provide grip and to keep the endmill and collet D turning while locking or when removing.

Machine Operation

7

Fully **tighten** the collet using a hexagonal.



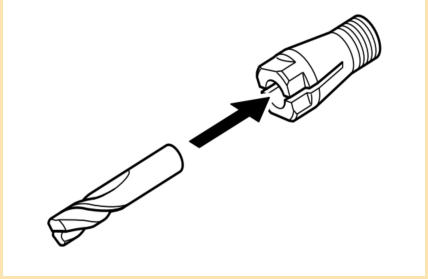
FAQ/s

How to install End Mill?

In changing the endmill, use screwdriver to loosen the crew and then choose your desired end mill.

NOTE:

To tighten the collet do counterclockwise direction (left-right, right-left) and for end mill do clockwise direction.



FAQ/s:
What are the types of End Mill?

A) Square (Straight)

Square end mills have 90-degree profile. They are for all-around milling.

B) Ball End Mill

Ball End mills have a round cutting surface used to mill contoured surface, and also appropriate for finishing.

C) Weldon End mill

Are produced with a weldon flat to prevent any slippage.

D) Radius

Corner Radius End Mills have a rounded corner to cut a specified radius.

E) Finisher End Mill

Finisher End Mill provide a smooth and polished finish in a single pass. Not sulted for plunge cutting.

FAQ/s:
What are the types of End Mill?

F) Drill End Mill

Use for sporting, drilling, milling and countersinking. Not recommended for drilling steel.

G) Rounding End Mill

Corner Rounding End Mills are used to mill round edges. The end of the tool is strengthened to reduce chipping.

H) Roughing End Mill

Roughing End mills also known as hog mills, are used to remove a large amount of material in a single pass. Roughing end mills are available in course and fine pitch.

Machine Operation

8

Move spindle head using XY button
Afterward, **click** apply.

9

Put Z 0 sensor on top of material.

10

Elect “set Z origin using sensor"
press detect, set Z axis origin using sensor.

NOTE:

It is optional for you to manually set the origins without using the "Z origin sensor".

FAQ/s:
How to set z origin without using a sensor?

A

Click Y-axis Feed Button (Y-axis movement assumes a direction of tool movement relative to the object being cut.).

NOTE:

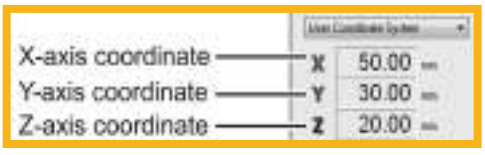
Green arrow.

B

By using coordinate views it performs manual feed accurately.

C

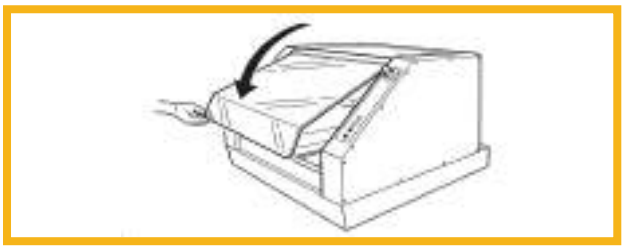
Selection of the coordinate. With the actual origin point, you need to perform the setting Individually for the coordinate system that is used with the cutting.



Machine Operation

11

Close the front cover.



12

Press Cut button.

Important:

Before starting the cutting, make sure of the following items. If there is a problem with any of these items, the machine may operate in an unintended manner, causing the workpiece to be wasted or the machine to be damaged. Whether the output file is incorrect.
Whether the origin paint is incorrect.
Whether the cutting condition matches the workpiece type.

Machine Operation

13

Click the [Add] button, select your vcarve file, then **click** save list then **click** output.

• [Add] Button – Clicking this displays a window for selecting the output file.

• [Save List] Button – You can save the list of output files and output order as a list file.

• Output File List – This displays a list of registered output files. When two or more output files are present, they are executed sequentially, one after another. **Click** [Delete] button to delete the files.

After clicking the output, the machine will start cutting/engraving.