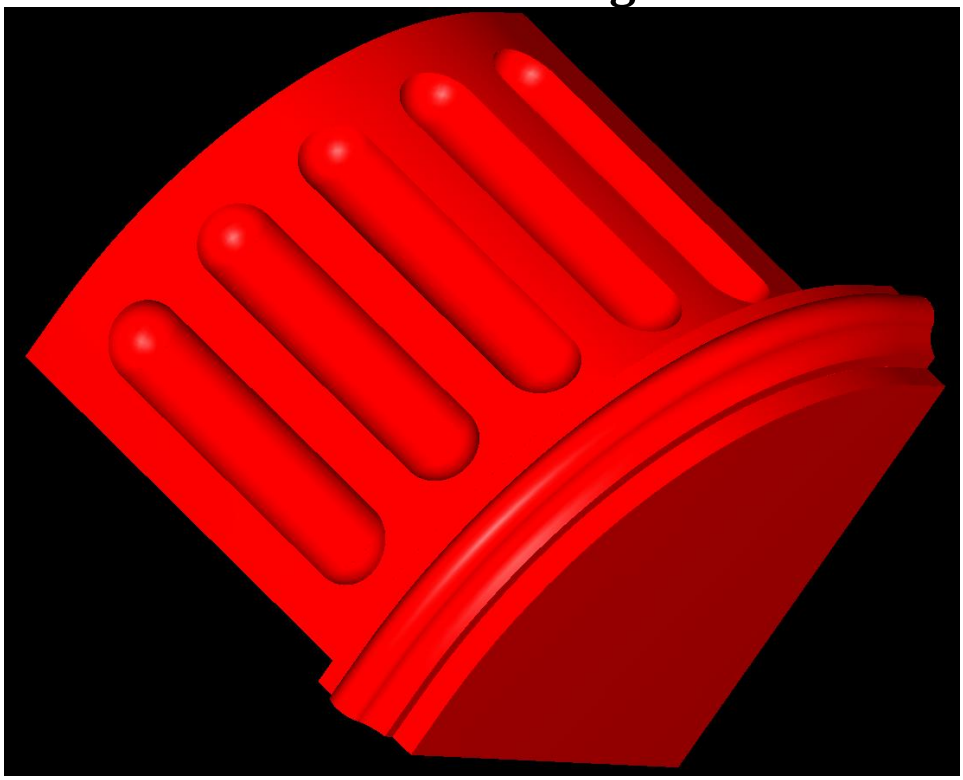
THERMWOOD
CORPORATION

CNC Rental Program



Rental Program Name: RP-FR-BEA0006

Rental Program Fee: $6.00

Estimated Cycle Time: 40 minutes

Blank Dimensions (L x W x D): 5.75” x 5” x 5”

Carving Dimensions (L x W x D): 5.5” x 6.73” x 4.963” (while in fixture)

Fixturing the Blank:

This part requires the “V-Fixture” for hold-down during the cutting process. Please refer to the rental program/pdf file named “V-Fixture” for more information. These files may be found under your other rental programs/files.

Tool Requirements:

*Tooling may be purchased from Thermwood by using the provided part numbers.

T1 = .500” dia. endmill cutter	Part # VX01860
T2 = .500” dia. ballnose cutter	Part # VX02265
T3 = .125” dia. ballnose cutter	Part # CI-CUX-125-1B

Program Setup:

Below is a sample of what you may see after loading the program. You will need to set a few variables here. Depending on your machine default, values should be entered as either Metric or Imperial.

```
(9/14/2005)
(**** Please read SETUP sheet before running ****)

(**** Tooling Required ****)
[TOOL_1 = ?]
[TOOL_2 = ?]
[TOOL_3 = ?]
[TOOL_4 = ?]

[ZCLEARANCE=?]          (Z Retract Height)
[PERPASS=4]             (# of Cutout Passes)
[MAN_TCHANGE$="NO"]     (Manual ToolChange?)
[RAPOVRIDE$="YES"]      (Rapid OverRide?)

SET WASTEBOARD=?        (Wasteboard Thickness)
SET ZSHIFT=?            (Material Thickness)
G51 X? Y?               (0,0 Position)
G09F8                   (Tangency Factor)
```

1. Tool numbers will need to be set in the program. Replace the question mark with the tool number you want to use. Be sure all daylight values are correct and set to the spoilboard.
2. The ZCLEARANCE value determines the retract height above the part for indexing.
3. The PERPASS value determines how many perimeter passes you want to cut the part out with. A default value has already been chosen. If your program does not cut out a part, then disregard this value.
4. If your machine does not have an Automatic Tool Changer, and you must change tools manually, then set MAN_TCHANGE$ to “YES”. During a toolchange, the machine will return to the HOME position prompting you to manually change out the tools. Directions will appear on the screen as what to do also.
   Below is the order in which the tools are used during machining;
   - [TOOL_1] (.500" endmill tool)

- [TOOL_2] (.500" ballnose tool)
- [TOOL_3] (.125" ballnose tool)

Below is the tool used to outline the carving;
[TOOL_3] (.125" ballnose tool)

5. The RAPOVRIDE$ variable has been set to "YES" allowing you to control rapid movements with the FeedRate Override Knob. Setting this to "NO" will allow the machine to index at rapid speeds.
6. If you use a wasteboard on top of the spoilboard, then you must set the value SET WASTEBOARD accordingly. Otherwise set it to zero.
7. The thickness of material used must be set for SET ZSHIFT. It is recommended to set this as close as possible.
8. Set the fixture position, otherwise known as the 0,0 position. The distance from HOME to the center of the program should be set as G51 X? Y? For moldings, this should be the distance from HOME to the corner of the molding, closest to Home.
9. G09F8 is a tangency factor. This has been preset and may be adjusted if needed.

Program Operation:

Once the Rental Program is setup and the blank is being held securely, you may begin running the program. Press the green START button on the controller. A blue screen will appear with several options. One of these options will help you align the carving onto your workpiece by outlining it. The alignment option will run above the material. The outline height is determined by the ZCLEARANCE value. You may run this option as many times as needed. Don't forget about our standard graphing option (F3, F6) on the Thermwood Control also! Choose the start option to begin cutting.

Additional Comments:

- Due to the wide variety of tooling types, scaling, material, etc, you may need to adjust the FeedRate Overide Knob accordingly. Optimal speeds have already been preset.
- If the scaling option at the Thermwood Control is used, part quality may be reduced requiring more sanding. We recommend scaling between 40% and 200% for most parts.
- Smaller parts with though cuts may require a "skin" to be left to prevent part movement. Parts requiring a "skin" to be left have been pre-programmed. Scaling at the Thermwood Control will not affect "skin" thickness.

If you have any questions or concerns, feel free to contact us at (800) 533-6901.
Thank you for your interest.