Spec Sheet:
Othermill Pro

2016

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Contents

Specifications

Full Spectrum Laser HL40-5g “Hobby Advanced” Laser System. Please take time to read this manual in its entirety to safely use the laser to its full potential. Additional information is available in the RetinaEngrage™ manual.

Working Volume:	5.5” x 4.5” x 1.6” (140 mm x 114 mm x 40.6 mm)
with Spoilboard:	5.5” x 4.5” x 1.35” (140 mm x 114 mm x 34.3 mm)
Shank Size:	1/8” (3.5 mm)
Available End Mill Size:	1/8”
	1/16”
	1/64”
	0.010”
XYZ Stepper Motors:	0.125 mils (3.175 microns) mircostepping
Max XYZ Traverse Speed:	100 in/min (2,600 mm/min)
Spindle Motor:	8,500 – 26,000 rmp
Accuracy	$<$ 3 mils per 6” linear travel
Repeatability	$\pm$ 0.001”
Backlash	$<$ 0.002”
Max Resolution	0.001” (25 microns)
File Types Supported:	Gerber (.gtl and .grb)
	Eagle BRD (.brd)
	G-Code (.nc and .tap)
	Scalable Vector Graphics (.svg)

Summary of typical materials for use in laser cutter and restricted materials

Only *approved* materials may be cut in the laser cutter.
If you are unsure what material you have DO NOT USE IT.
If your materials is not on the list below DO NOT USE IT.
Additional information on allowed/restricted materials can be found in the Appendix **??**.

FR1:

Endmill size:	1/8”	1/16”	1/32”	1/64”	1/100”	Engraving Bit
Feed rate (in/min)	14.173	14.173	14.173	5.699	5.699	—
Plunge rate (in/min)	1.81	1.81	1.81	0.472	0.472	—
Spindle speed (x1000 rpm)	12	12	12	12	12	—
Max pass depth (mils):	5	5	6	2	2	—

Aluminum 6061:

Endmill size:	1/8”	1/16”	1/32”	1/64”	1/100”	Engraving Bit
Feed rate (in/min)	7.087	7.087	7.087	1.417	1.417	—
Plunge rate (in/min)	0.591	0.591	0.591	0.157	0.157	—
Spindle speed (x1000 rpm)	12	12	12	12	12	—
Max pass depth (mils):	2	3	3	1	1	—

Hello Othermill Pro User,

We have recently discovered that a limited number of Othermill Pro mills were assembled with a batch of Y-axis and X-axis linear bearings that contained less PTFE lubricant than intended. All Othermill Pro mills have passed our factory tests for proper operation, but this material issue may cause carriage binding issues to develop over time.

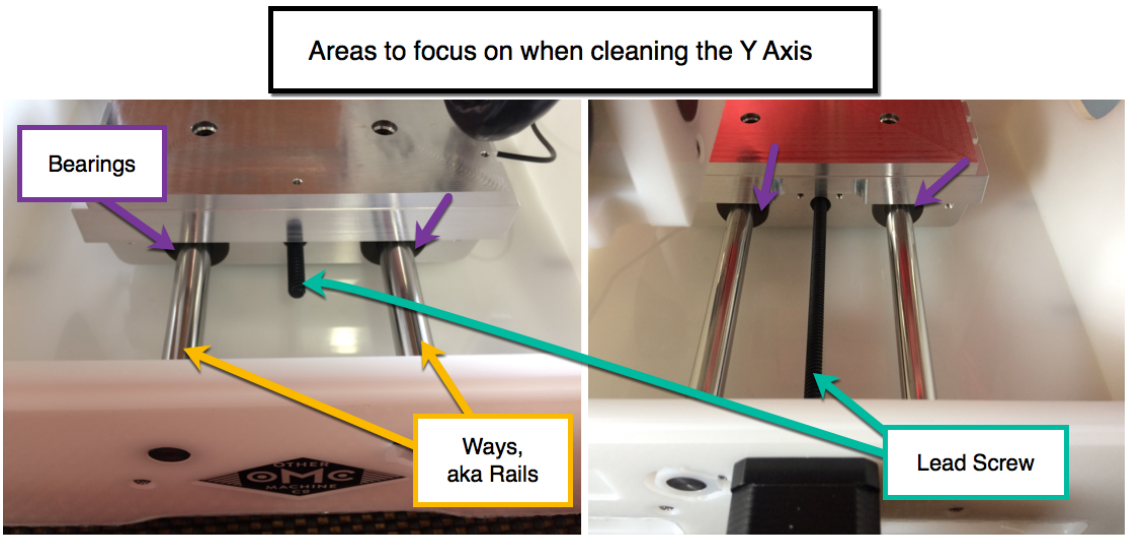
Your machine is included in the group that has these bearings. In some cases these bearings can cause excessive friction in the axis, which can result in loss of position and the mill cutting in the wrong location.

Although not all mills with these bearings experience any problems, we are sending out PTFE wipes that should be applied to the rails (the metal rods that hold up the carriage) in the Y-axis and X-axis. In machines exhibiting issues, our testing shows that applying these PTFE wipes to the rails rectifies the issue in most cases. We apologize that this error occurred and for the time and hassle involved on your end.

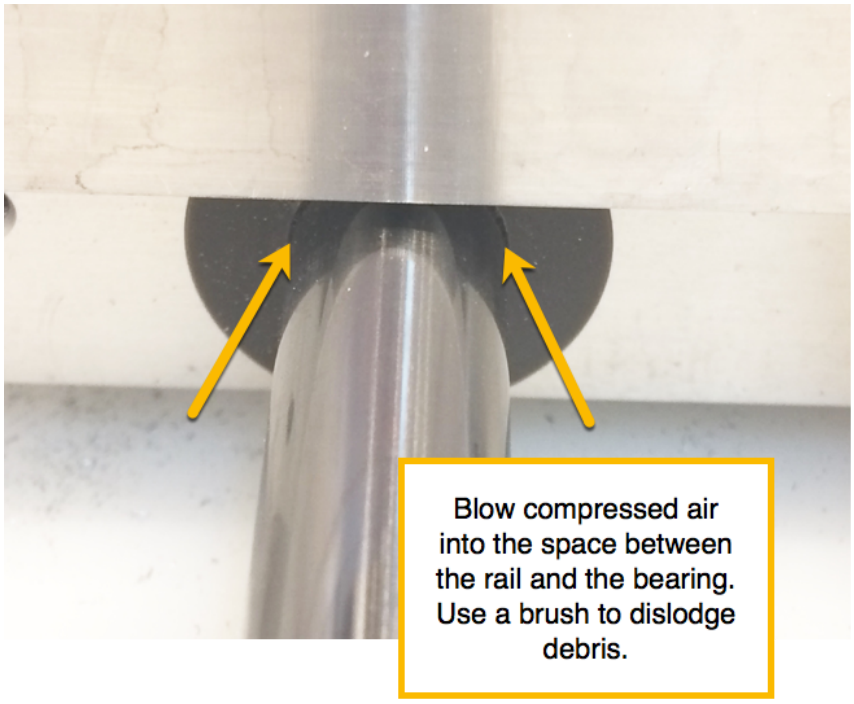
Included in this envelope are PTFE wipes. Here's how to use them.

1. Check For and Remove Debris:
Focusing on the Y-Axis and X-Axis, it is important to give the mill a good vacuuming and clean off the rails well ***before*** applying PTFE to the rails.

When vacuuming, focus on the rails, and the lead screw. Using a small brush and a vacuum is helpful.



If you have access to compressed air, aim it into the small space between the rails and the bearing. Do this for the four Y-Axis and four X-Axis bearings.



If there is any debris still stuck to the rails, use a lint-free wipes and 91% isopropyl alcohol to clean them. This should be done ***before*** applying the PTFE wipes.

2. Apply the PTFE wipes onto the rails

- Move the Y-bed to the back of the mill. Take the PTFE wipe and wipe along the rails, making sure to cover all sides of the rails up to where the rails meet the linear bearings.
- Move the Y-bed to the *front* of the mill. Apply PTFE in the same manner as in step 2.
- Move the X-Carriage to the right side of the mill, and apply PTFE wipes to the rails.
- Move the X-Carriage to the left side of the mill, and apply PTFE wipes to the rails.
- The wipes consist of PTFE suspended in isopropyl alcohol and ethanol, so it is a generally safe material. ***However, the manufacturer recommends using gloves when applying the PTFE.***

The PTFE is now applied to the rails, but now we want to spread it around evenly. To do that, please follow these instructions.

- ***Remove any end mill or probe from the spindle***
- In Otherplan click on "home" or "re-home"
- Open Debug Console (Bitbreaker > Show Debug Console)
- Download this file
- Copy everything from the file you downloaded, then paste it into the Debug Console
- Click "Send Command"
- Wait 12-15 minutes for the machine to run the code, and you're done!

These PTFE wipes are suspended in 91% isopropyl alcohol and ethanol. Please do not use PTFE wipes that are suspended in other substances, as they can cause issues.

We expect one application of PTFE every six months to be sufficient to avoid binding issues. Under heavy usage this interval should be reduced. We are happy to provide additional PTFE wipes at no cost, or you can purchase them here. To request additional wipes, or let us know if you have any other questions, email us at support@othermachine.co.

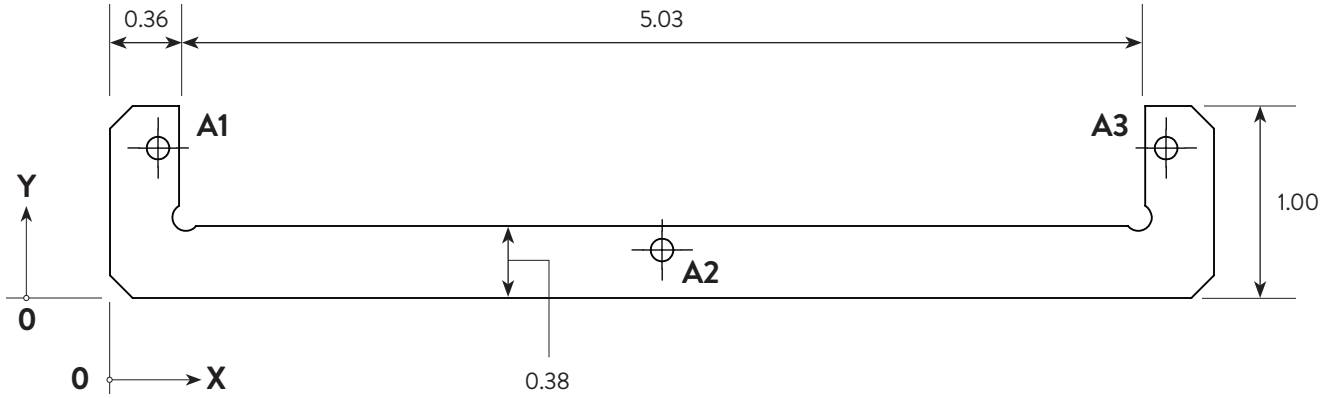
Best regards,
-The OMC Support Team

LABEL	X LOCATION	Y LOCATION	DETAILS
A1	0.25 in	0.78 in	M3 clearance hole.
A2	2.88 in	0.25 in	
A3	5.50 in	0.78 in	

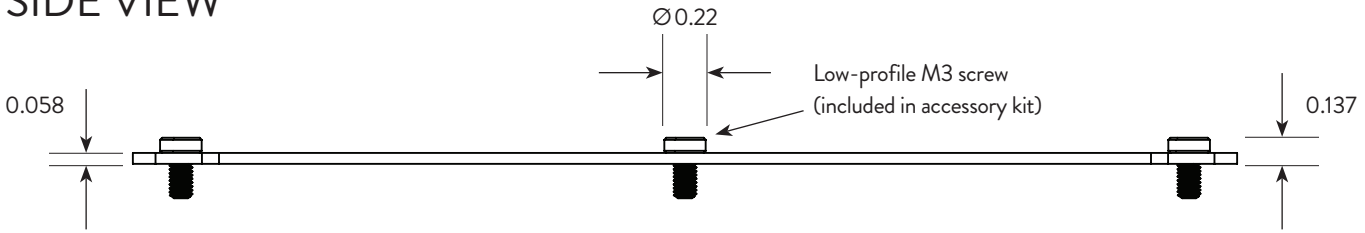
1 in

All units in inches unless otherwise indicated.
1:1 scale

TOP VIEW



SIDE VIEW



OTHERMILL

ALIGNMENT BRACKET

OTHERMILL V2

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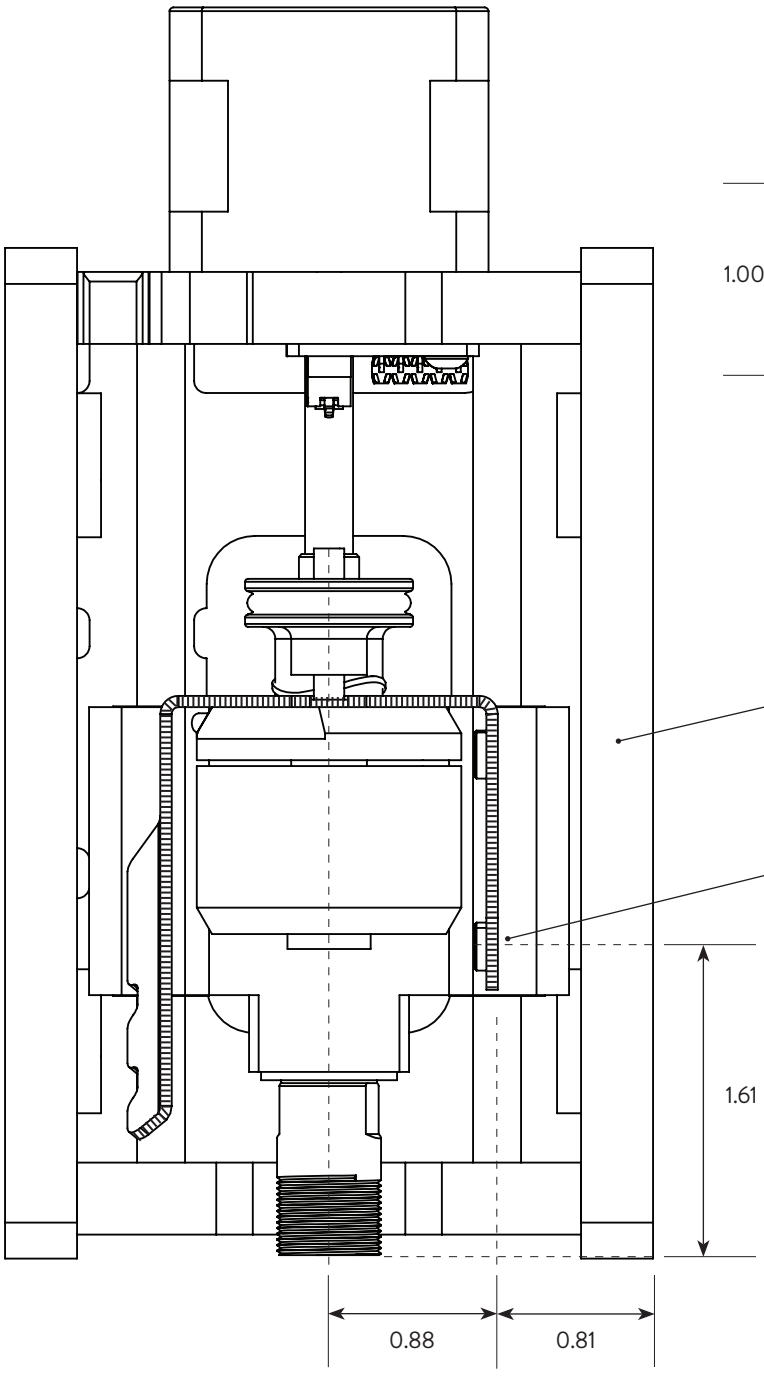
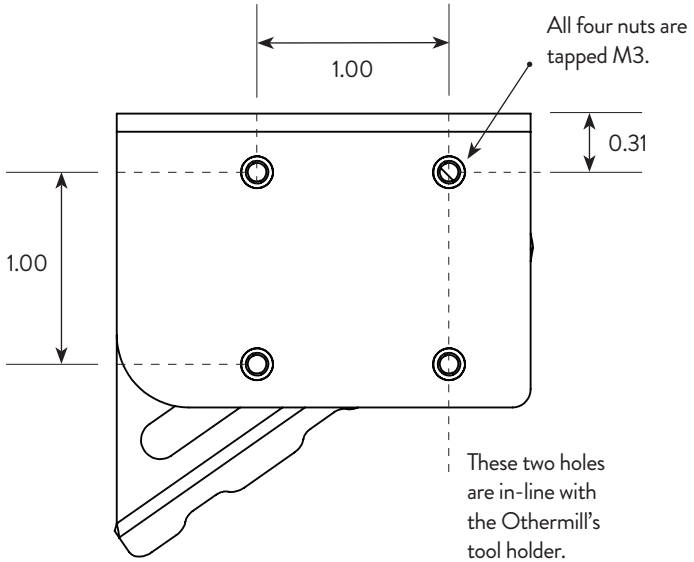
1 in

All units in inches unless otherwise indicated.
1:1 scale

FRONT VIEW
X-CARRIAGE WITH MOTOR MOUNT



SIDE VIEW
MOTOR MOUNT WITH ACCESSORY FIXTURING



If you intend to keep your accessory attached to the motor mount while the Othermill is running, avoid collision by ensuring that the accessory protrudes no more than 0.81 in from the mount.

Due to the tight fit of components in the spindle assembly, the distance with which your accessory screws can protrude from the inside of the motor mount is limited. The two back PEM nuts are nearly flush with the Z block, so we recommend only using screws that will engage with the threads of the nut alone.

The two front PEM nuts are close to the spindle motor, but bolts can protrude roughly 2.5 mm from them before contacting the motor.

OTHERMILL

MOTOR MOUNT
OTHERMILL V2

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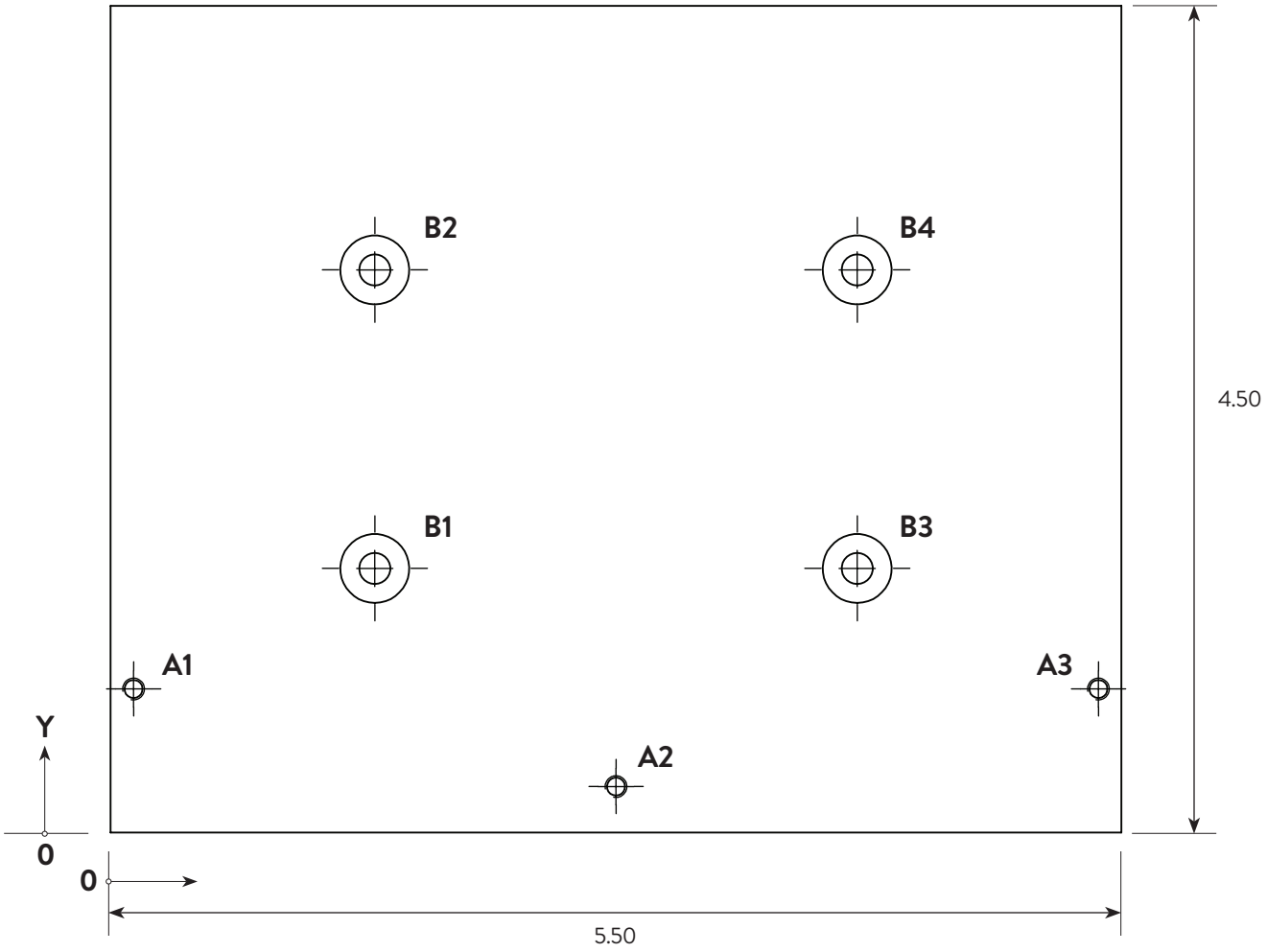
LABEL	X LOCATION	Y LOCATION	DETAILS
A1	0.125 in	0.781 in	M3 threaded hole. Intended for attaching the alignment bracket. Recommended bolts for attaching the alignment bracket to the spoilboard are low-profile 6 mm M3 screws. Three of them ship with the Othermill, along with the required Allen key (2 mm).
A2	2.750 in	0.250 in	
A3	5.375 in	0.781 in	
B1	1.438 in	1.438 in	M4 clearance hole with 3/8 in counterbore.
B2	1.438 in	3.063 in	
B3	4.063 in	1.438 in	
B4	4.063 in	3.063 in	

1 in

All units in inches unless otherwise indicated.
1:1 scale

TOP VIEW



OTHERMILL

SPOILBOARD
OTHERMILL V2

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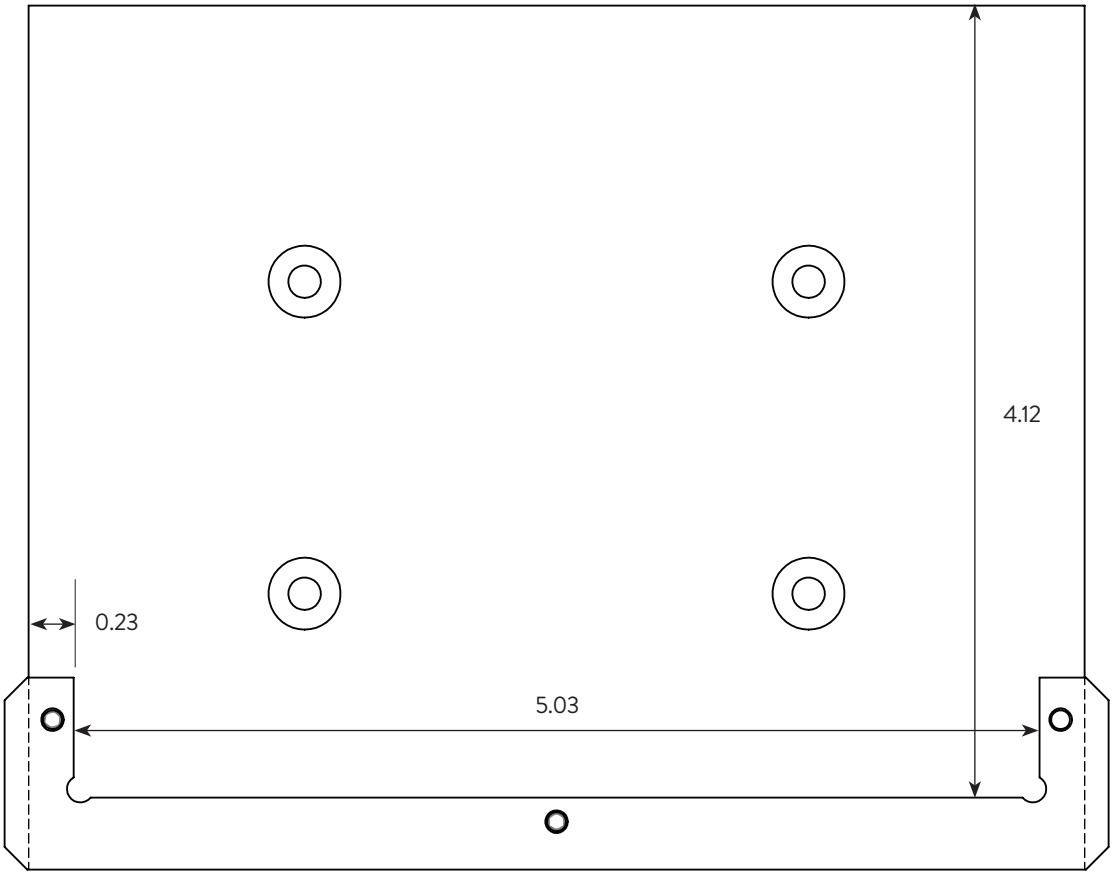
1 in

All units in inches unless otherwise indicated.
1:1 scale

TOP VIEW

SPOILBOARD AND ALIGNMENT BRACKET WITH BOLTS



OTHERMILL	**SPOILBOARD** OTHERMILL V2	**OTHERMACHINE.CO/SUPPORT** **SUPPORT@OTHERMACHINE.CO** Provided for informational purposes only, subject to change.	

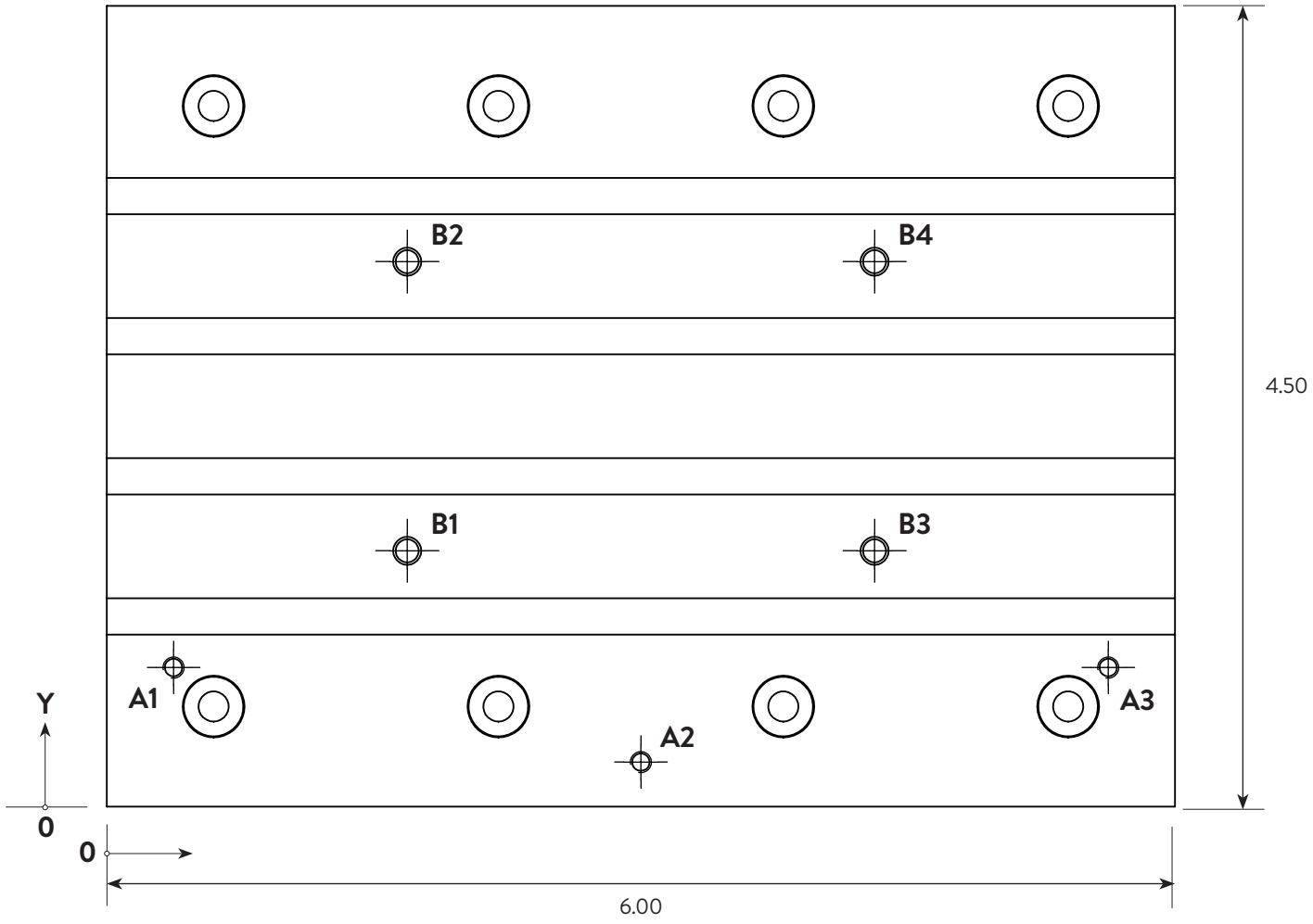
LABEL	X LOCATION	Y LOCATION	DETAILS
A1	0.38 in	0.78 in	M3 threaded hole, down 0.2 in. Intended for attaching the alignment bracket. Recommended bolts for attaching the alignment bracket to the spoilboard are low-profile 6 mm M3 screws. Three of them ship with the Othermill, along with the required Allen key (2 mm).
A2	3.00 in	0.25 in	
A3	5.63 in	0.78 in	
B1	1.69 in	1.44 in	M4 x 0.7 mm threaded hole, down 0.4 in. Use these holes to attach a spoilboard to the Y bed using the bolts provided with the Othermill.
B2	1.69 in	3.06 in	
B3	4.31 in	1.44 in	
B4	4.31 in	3.06 in	

NOTE: The eight bolts that hold the Y bed to the Othermill should never be loosened or tampered with. Doing so could affect the positional accuracy of the mill.

1 in

All units inches unless otherwise indicated.
1:1 scale

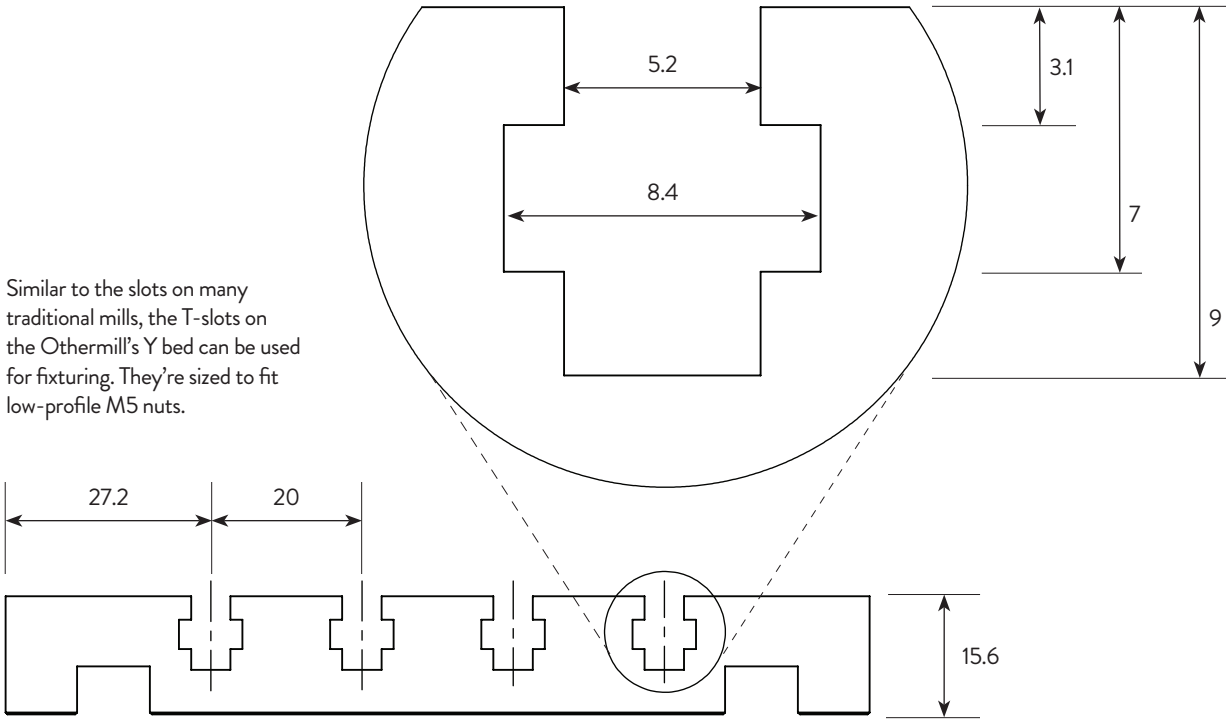
TOP VIEW



SIDE VIEW
METRIC

25.4 mm

All units in millimeters unless otherwise indicated.
5:1 scale

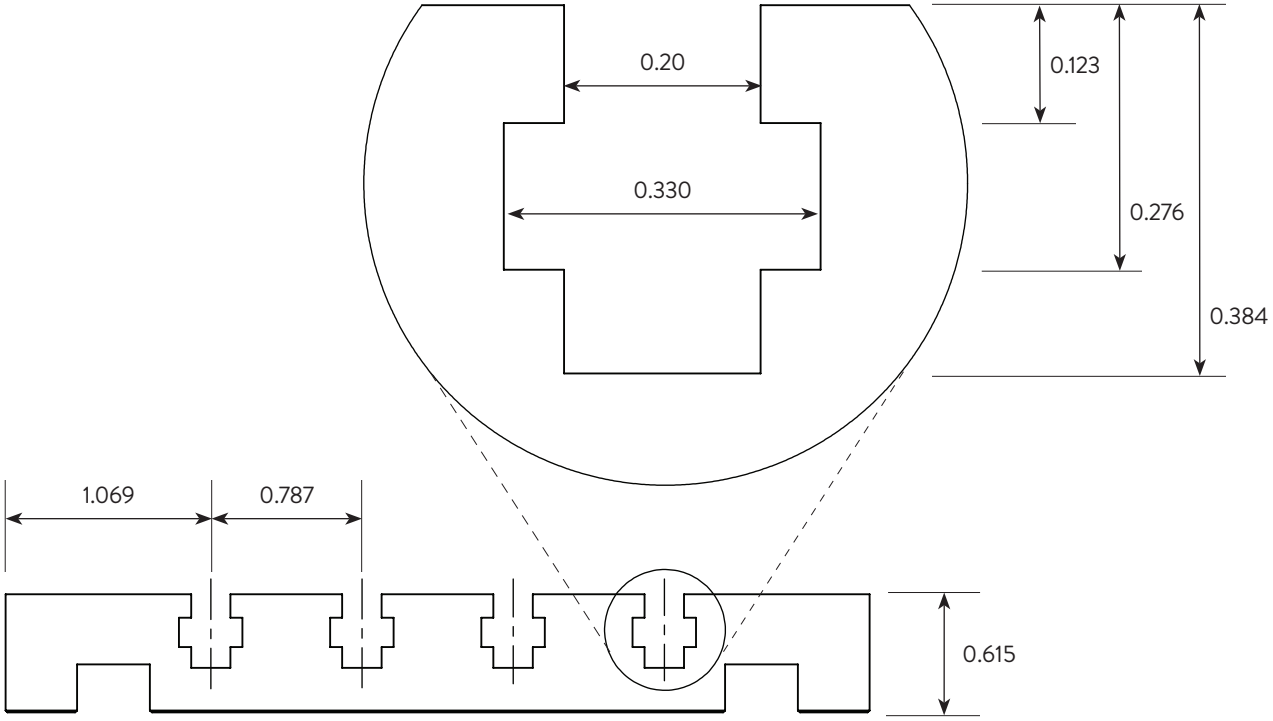


Similar to the slots on many traditional mills, the T-slots on the Othermill's Y bed can be used for fixturing. They're sized to fit low-profile M5 nuts.

SIDE VIEW
IMPERIAL

1 in

All units in inches unless otherwise indicated.
5:1 scale



OTHERMILL | **Y BED** OTHERMILL V2

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