

May 2020

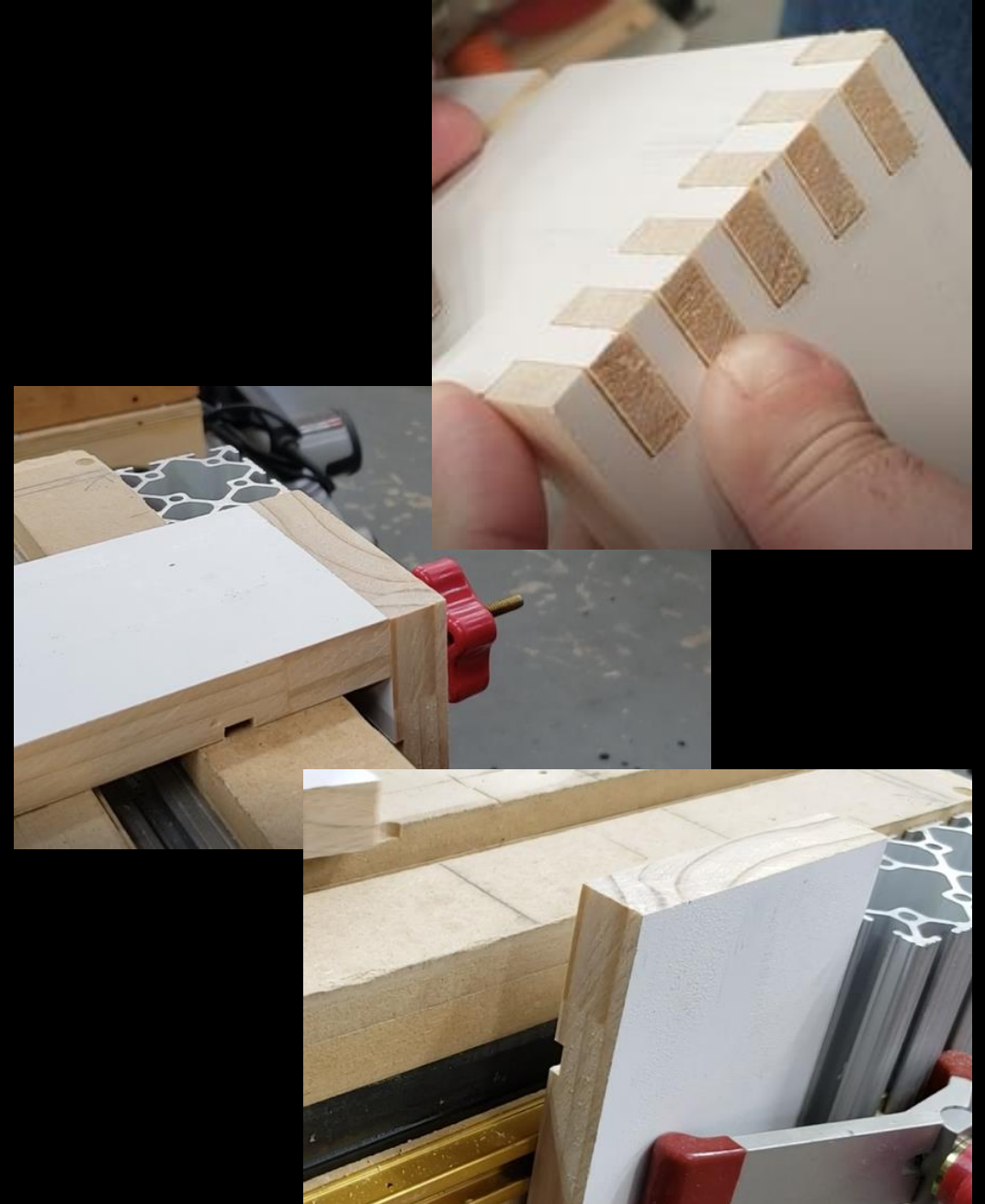
Easy Box Joint Maker Version 4.0



Box Joint Gadget Agenda

- Job Setup
- Running the Box Joint Gadget
- Joint Setup
- Making the Toolpaths
- Testing the Fit

Please Note: This Gadget builds a Box-Joint by controlling the number of fingers and slots over the size of the finger and slot size. I find the best to use Odd finger count as shown here in the image above.



Box Joint Gadget Job Setup



Job Type – Set to 'Single Sided'
Milling operation is on the End of the material

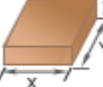
Job Size – Units: Set to Your Units

Z Zero Position – Set to 'Your Style of Milling'
I use 'Machine Bed'

Job Setup

Job Type

☒ Single Sided
☐ Double Sided
☐ Rotary

Job Size

Width (X): inches
Height (Y): inches
Thickness (Z): inches
Units ☒ inches ☐ mm

Z Zero Position

☐ Material Surface
☒ Machine Bed

XY Datum Position

☐ Use Offset
X:
Y:

Modeling Resolution
 Very High (7 x Slower)
4 million points

Appearance
 MDF
Solid Color:

Job Size – Width: Set to your material thickness

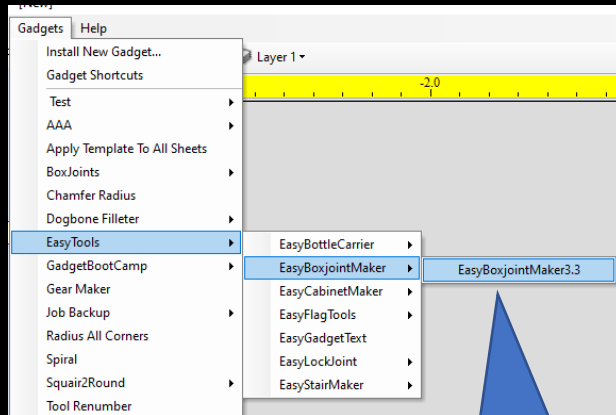
Job Size – Height: Set to your material Width

Job Size – Thickness: Set to your material thickness

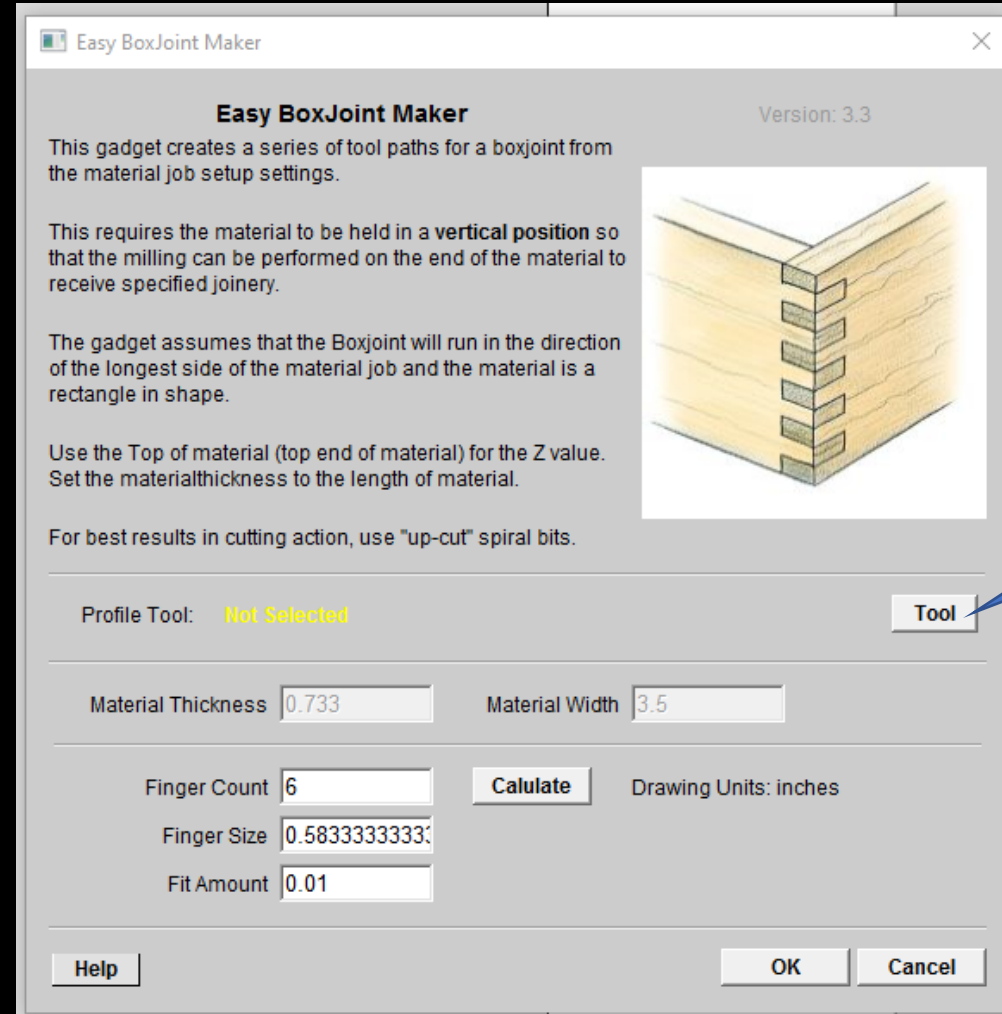
XY Datum Position – Set to your Mill
I use the Lower Right on my Mill

Box Joint Gadget

Running the Box Joint Gadget



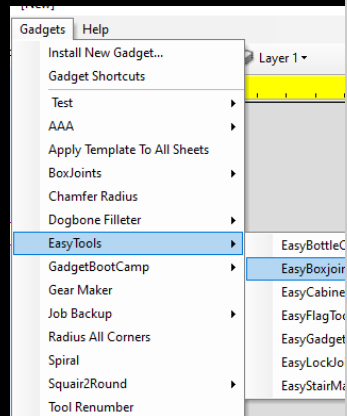
Run Easy Box Joint Gadget



Version 10 or higher - Select
Tool From Tool Database

Version 9 or lower - Enter
Tool Diameter

Box Joint Running



Tool Database

Material: Plywood

Online:

Machine: CNC Router

Wood

Twist Mill Bits

- End Mill (0.0625 inch) Down
- End Mill (0.1250 inch) Down
- End Mill (0.1250 inch) Up
- End Mill (0.1250 inch) UpC
- End Mill (0.1730 inch) Up
- End Mill (0.2500 inch) Down
- End Mill (0.2500 inch) Up
- End Mill (0.2500 inch) UpC
- End Mill (0.2500 inch) UpC
- End Mill (0.3750 inches) C
- End Mill (0.5000 inch) Down
- End Mill (0.5000 inch) Up
- End Mill (0.750 inches)
- End Mill (2.360 inches)

Imperial Tools

No Tool Table Vacuum

Stright End Mills

- End Mill (0.0625 inch) Down
- End Mill (0.1250 inch) Down
- End Mill (0.1250 inch) Up
- End Mill (0.1250 inch) UpC
- End Mill (0.1730 inch) Up
- End Mill (0.2500 inch) Down
- End Mill (0.2500 inch) Up
- End Mill (0.2500 inch) Strig
- End Mill (0.2500 inch) UpC
- End Mill (0.3750 inches) D
- End Mill (0.5000 inch) Down
- End Mill (0.5000 inch) Up
- End Mill (0.5000 inch) Strig

End Mill (0.2500 inch) Up

Notes: 1/4 Dia

Tool Type: End Mill

Geometry

Units: inches

Diameter (D): 0.25 inches

No. Flutes: 2

Cutting Parameters

Pass Depth: 0.15 inches

Stepover: 0.105 inches 42 %

Feeds and Speeds

Spindle Speed: 24000 r.p.m

Feed Units: inches/min Chip Load: 0.0016 inches

Feed Rate: 75 inches/min

Plunge Rate: 35 inches/min

Tool Number: 6

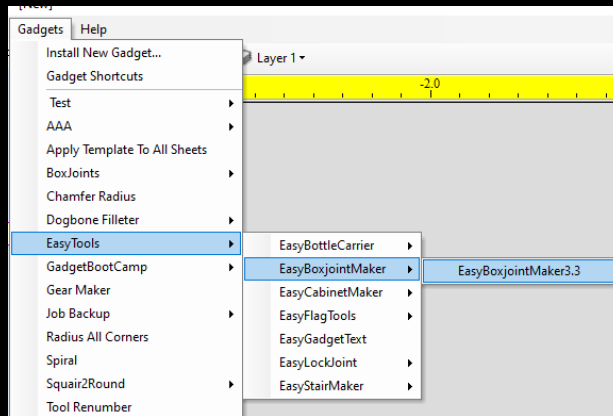
Remove Apply

Select Close

Select a Tool Diameter smaller or equal to the slot size

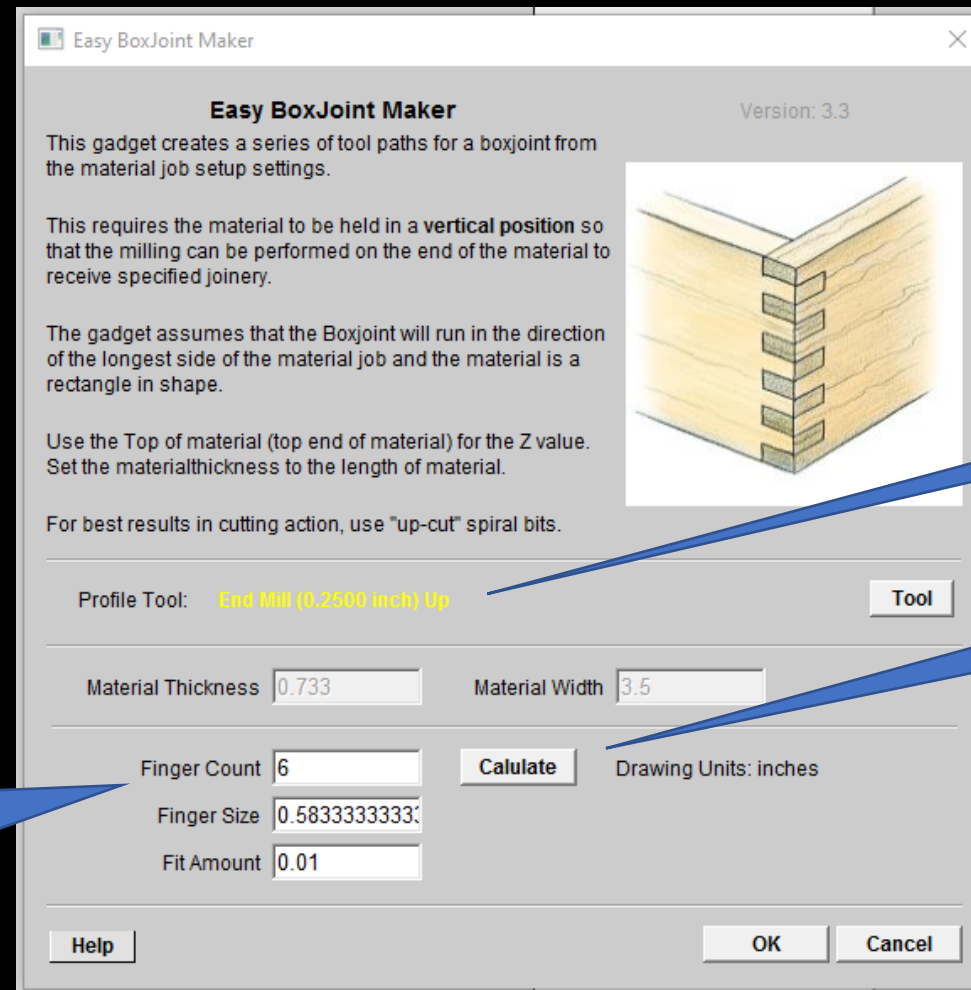
Box Joint Gadget

Running the Box Joint Gadget



Enter the number of fingers for the joint

Note: an Odd number Fingers will produce joints with one board with a top and bottom finger as shown in the image

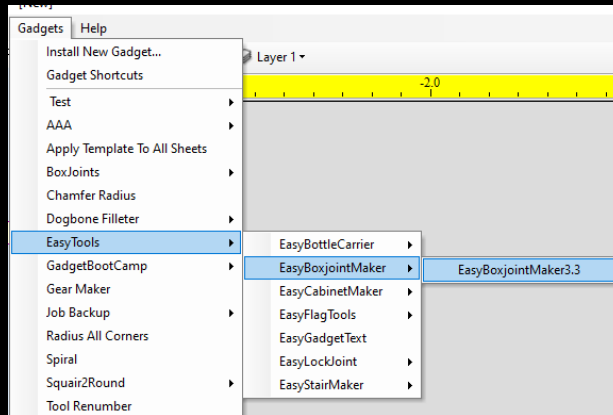


Displays the Tool Selected

Select the Calculate button to display the Finger size

Box Joint Gadget

Running the Box Joint Gadget



Calculations shows the Finger size of 0.3182 of an Inch

Use the Fit Amount to adjust how lose or tight the joint will fit.

Easy BoxJoint Maker Version: 3.3

This gadget creates a series of tool paths for a boxjoint from the material job setup settings.

This requires the material to be held in a **vertical position** so that the milling can be performed on the end of the material to receive specified joinery.

The gadget assumes that the Boxjoint will run in the direction of the longest side of the material job and the material is a rectangle in shape.

Use the Top of material (top end of material) for the Z value. Set the material thickness to the length of material.

For best results in cutting action, use "up-cut" spiral bits.

Profile Tool: **End Mill (0.2500 inch) Up** Tool

Material Thickness Material Width

Finger Count Calculate Drawing Units: inches
Finger Size Right has 6 fingers
Fit Amount Left has 5 fingers

Help OK Cancel

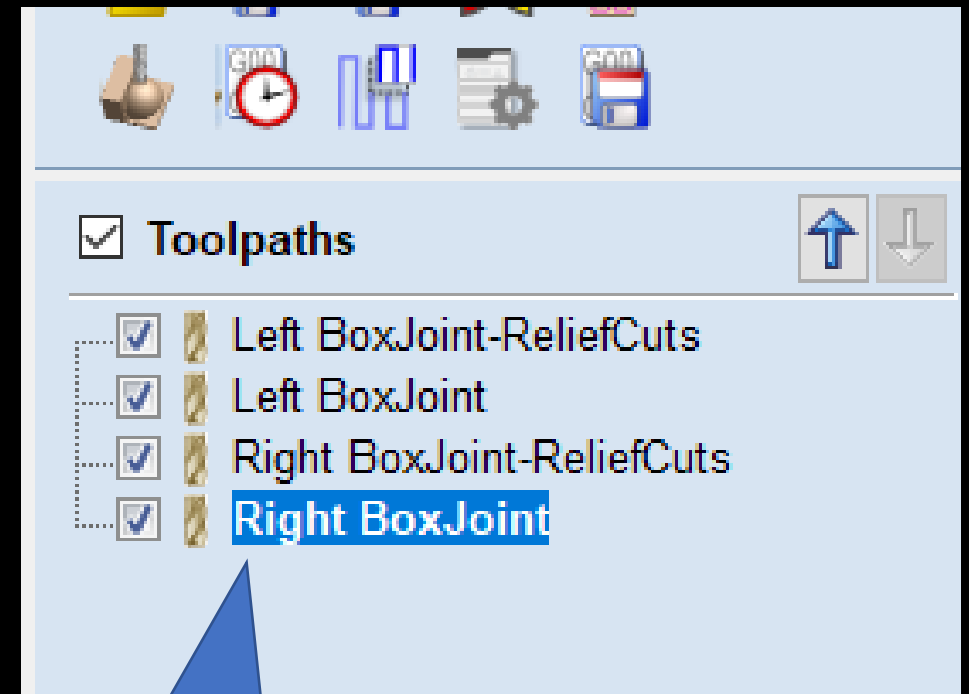
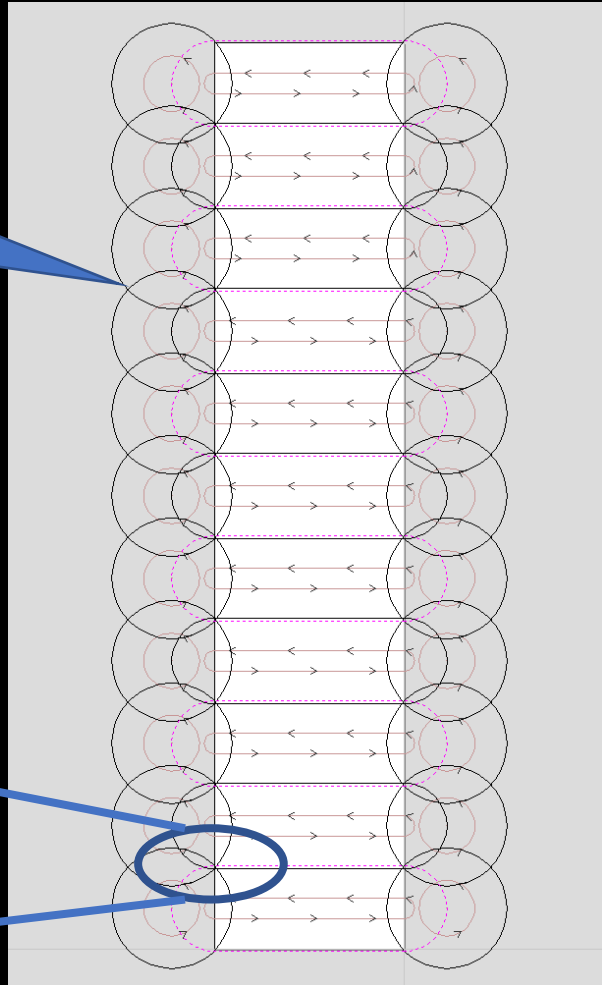
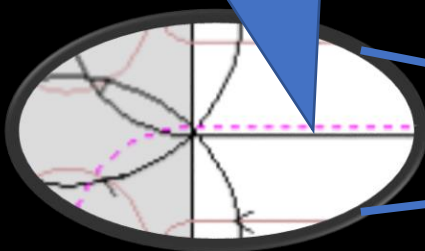
Select the OK button to build the geometry and toolpaths

Box Joint Gadget Mill Setup



The geometry for the fingers and Relief cuts are drawn as shown here

Note: You can see the Fit adjustment is integrated in the geometry



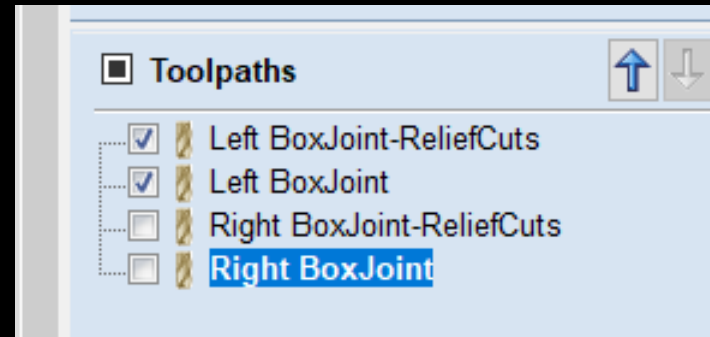
Note: Right and Left Hand Toolpaths are built

Box Joint Gadget

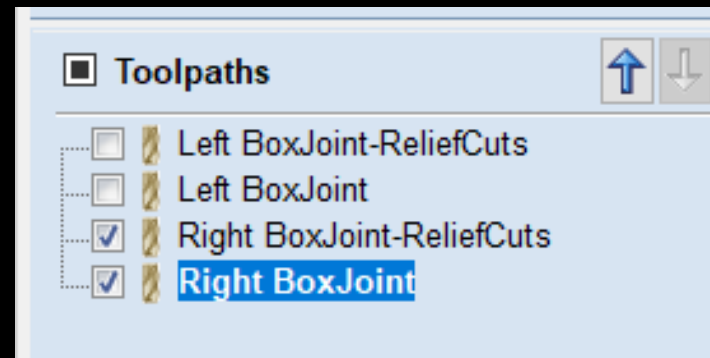
Making the Toolpaths



Note: Select the Toolpaths that start with Left for the Left-Hand boards



Note: Select the Toolpaths that start with Right for the Right-Hand boards

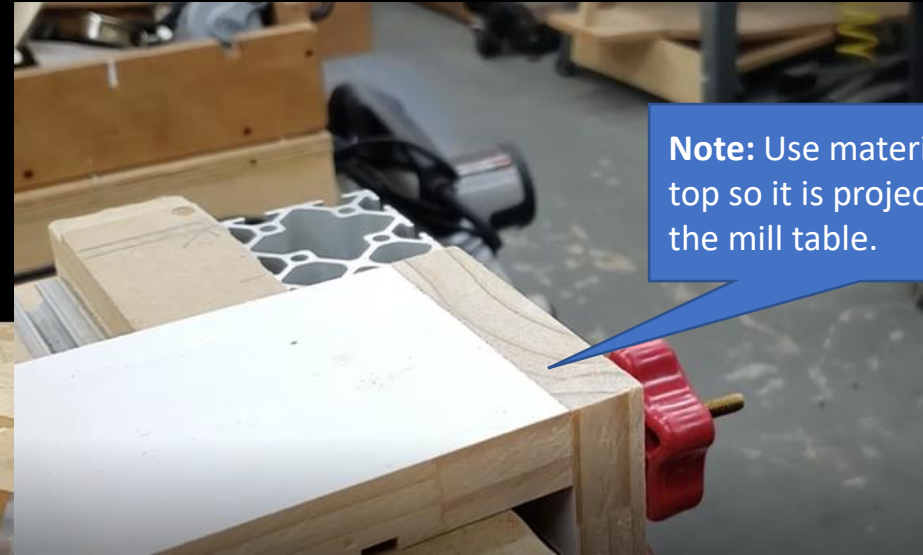


Box Joint Gadget

Running the parts



Note: Material is clamped to the front of the mill and is projected the thickness of the material above the mill table.



Note: Use material to flush the top so it is projected above the mill table.



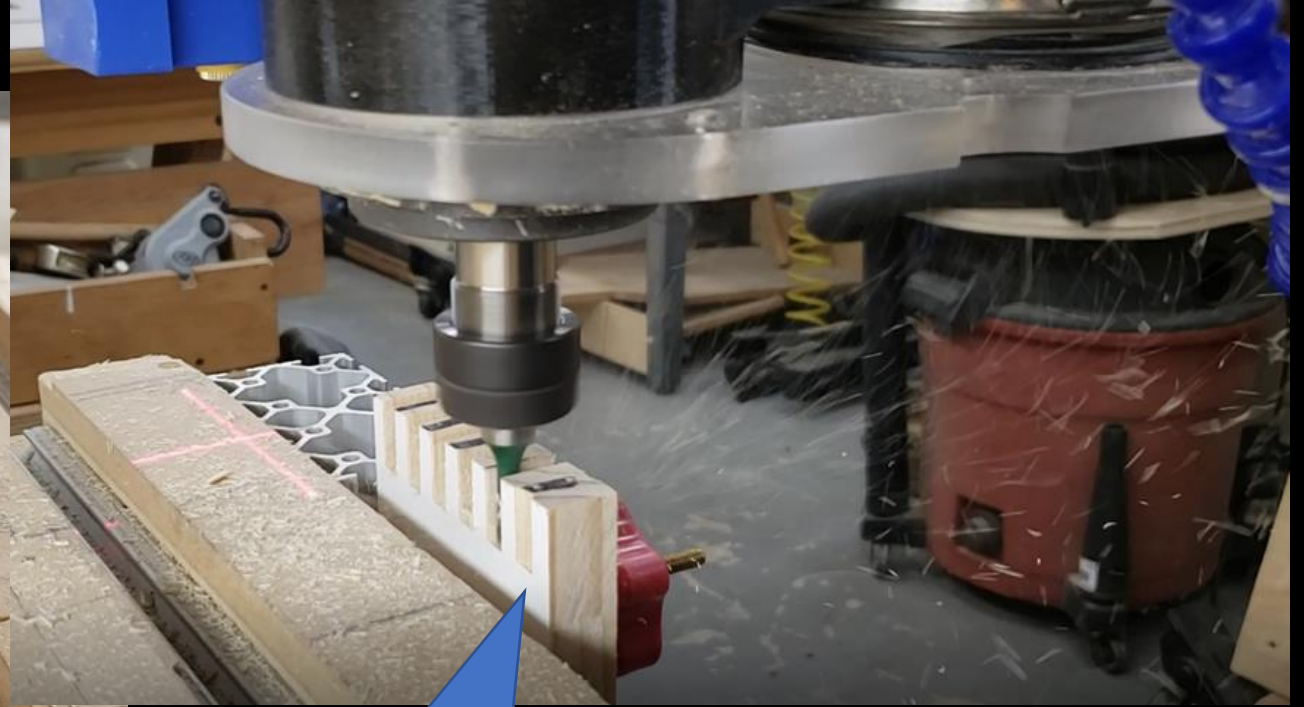
Note: Remove material as shown here.

Box Joint Gadget

Running the parts



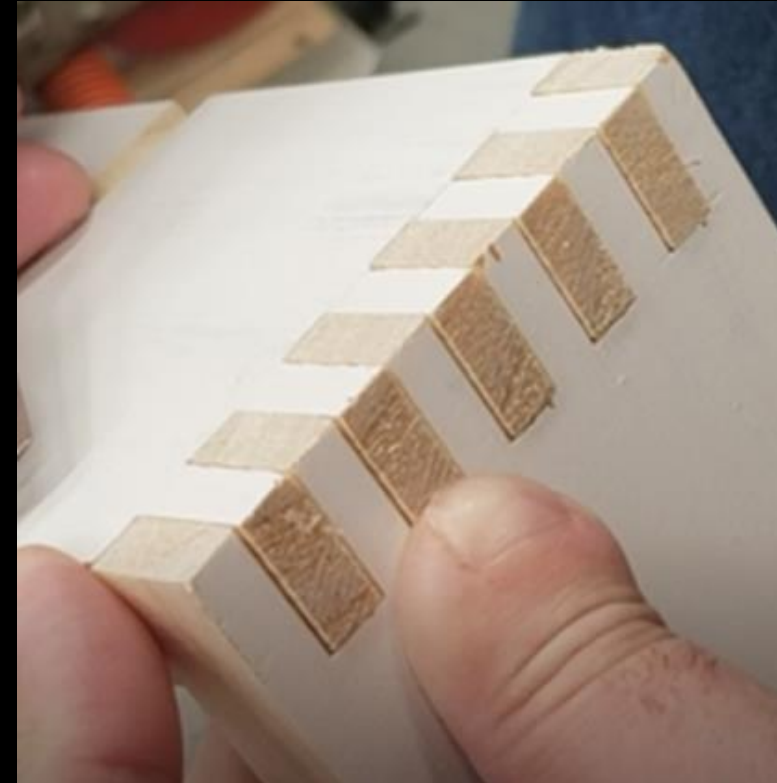
Note: Relief cuts are made before cutting the fingers.



Note: Fingers being milled.

Box Joint Gadget

Testing the Fit



Material Thickness	0.733	Material
Finger Count	6	Calculate
Finger Size	0.5833333333	
Fit Amount	0.01	
Help		

Note: Fine tune the joint by adjusting the Fit Amount.

Thank
You