

Easy Dovetail Maker Version 5.60

MAY 2020



Dovetail Gadget Agenda

- ▶ Job Setup
- ▶ Running the Dovetail Gadget
- ▶ Joint Setup
- ▶ Making the Toolpaths
- ▶ Testing the Fit

Please Note: This Gadget builds a Dovetail Joint by controlling the number of Tails and Pins equally over the size of material by entering the number of dovetails in the joint. The Bit selected plays a large role in the joint settings.



Revision History

- ▶ Version 5.30
 - ▶ Moved Dovetail Tool database from “ini” file to the Registry
- ▶ Version 5.20
 - ▶ Backer board capability for the prevention of chip out when cutting side material with dovetail cutting it
 - ▶ Left and righthand orientation for cutting the front board pins
 - ▶ Front pin fit adjustment capabilities
 - ▶ Additional code clean up and error trapping
 - ▶ Updated documentation (Wiki and pdf)

Dovetail Gadget Job Setup



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

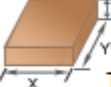
Job Size – Units: Set to Your Units

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

4 million points

Appearance

Solid Color:

Job Size – Width: Set to your material thickness

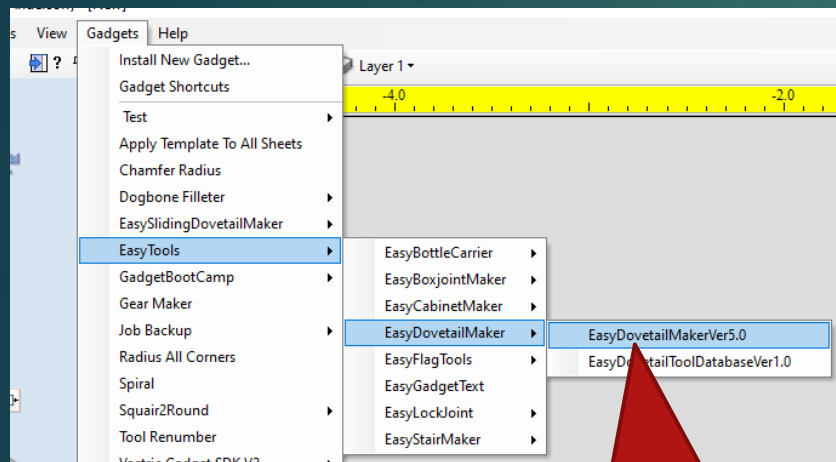
Job Size – Height: Set to your material Width

Job Size – Thickness: Set to your material thickness

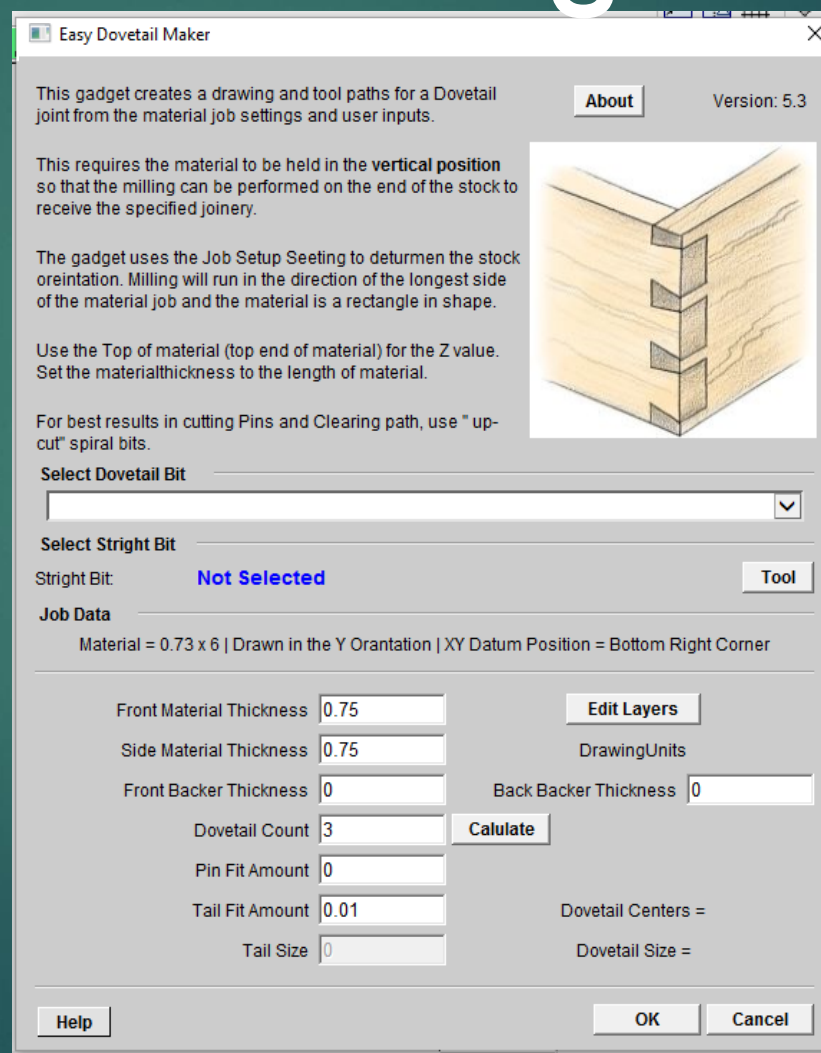
XY Datum Position – Set to your Mill
I use the Lower Right on my Mill configuration

Dovetail Gadget

Running the Dovetail Gadget



Run Easy Dovetail Gadget



Version 10 or higher -
Select Tool From The Tool
Database

Version 9 or lower – Enter
The Tool Diameter

Dovetail Gadget

Running the Dovetail Gadget



Drop the list to select a Dovetail From The Tool Dovetail Database

Easy Dovetail Maker

This gadget creates a drawing and tool paths for a Dovetail joint from the material job settings and user inputs.

About Version: 5.3

Use the material to be held in the vertical position so that the milling can be performed on the end of the stock to receive the specified joinery.

The gadget uses the Job Setup Setting to determine the stock orientation. Milling 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 Pins and Clearing path, use "up-cut" spiral bits.

Select Dovetail Bit

Select Straight Bit

Straight Bit: Not Selected

Tool

Job Data

Material = 0.73 x 6 | Drawn in the Y Orientation | XY Datum Position = Bottom Right Corner

Front Material Thickness 0.75 Edit Layers

Side Material Thickness 0.75 DrawingUnits

Front Backer Thickness 0 Back Backer Thickness 0

Dovetail Count 3 Calculate

Pin Fit Amount 0

Tail Fit Amount 0.01 Dovetail Centers =

Tail Size 0 Dovetail Size =

Help OK Cancel

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The gadget uses the Job Setup Setting to determine the stock orientation. Milling 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 Pins and Clearing path, use "up-cut" spiral bits.

Select Dovetail Bit

Amana Tool 45804 Carbide Tipped Dovetail 14 Deg x 0.5 D x 0.5 CH x 0.25 SHK
Amana Tool 45805 Carbide Tipped Dovetail 10 Deg x 0.5 D x 0.625 CH x 0.5 SHK
Amana Tool 45810 Carbide Tipped Dovetail 7 Deg x 0.750 D x 0.875 CH x 0.500 SHK
Amana Tool 45812 Carbide Tipped Dovetail 12 Deg x 0.8 D x 0.5 CH x 0.5 SHK
PorterCable 43776PC Carbide Tipped Dovetail 7 Deg x 0.53125 D x 0.75 CH x 0.5 SHK

Job Data

Material = 0.73 x 6 | Drawn in the Y Orientation | XY Datum Position = Bottom Right Corner

Front Material Thickness 0.75 Edit Layers

Side Material Thickness 0.75 DrawingUnits

Front Backer Thickness 0 Back Backer Thickness 0

Dovetail Count 3 Calculate

Pin Fit Amount 0

Tail Fit Amount 0.01 Dovetail Centers =

Tail Size 0 Dovetail Size =

Help OK Cancel

Select a Dovetail bit

Dovetail Gadget

Running the Dovetail Gadget



Version 9 – Enter the tool data
for the straight bit

Easy Dovetail Maker

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About Version: 5.3

Use the material in the vertical position on the end of the stock to receive the specified joinery.

The gadget uses the Job Setup Seeting to deturmen the stock orientation. Milling 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 Pins and Clearing path, use "up-cut" spiral bits.

Select Dovetail Bit

Bit Diameter Bit Units Mill Rate

Bit RPM Feed Rate Plunge Rate

Job Data

Material = 0.73 x 6 | Drawn in the Y Orantation | XY Datum Position = Bottom Right Corner

Front Material Thickness Edit Layers

Side Material Thickness DrawingUnits

Front Backer Thickness Back Backer Thickness

Dovetail Count Calulate

Pin Fit Amount

Tail Fit Amount Dovetail Centers =

Tail Size Dovetail Size =

Help OK Cancel

Version 10 - Select a straight
Tool from the standard Tool
database

Easy Dovetail Maker

This gadget creates a drawing and tool paths for a Dovetail joint from the material job settings and user inputs.

About Version: 5.3

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

The gadget uses the Job Setup Seeting to deturmen the stock orientation. Milling 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 Pins and Clearing path, use "up-cut" spiral bits.

Select Dovetail Bit

Select Stright Bit

Stright Bit: **Not Selected** Tool

Job Data

Material = 0.73 x 6 | Drawn in the Y Orantation | XY Datum Position = Bottom Right Corner

Front Material Thickness Edit Layers

Side Material Thickness DrawingUnits

Front Backer Thickness Back Backer Thickness

Dovetail Count Calulate

Pin Fit Amount

Tail Fit Amount Dovetail Centers =

Tail Size Dovetail Size =

Help OK Cancel

Dovetail Gadget

Running the Dovetail Gadget



Select a Tool Diameter smaller or equal to the slot size. You may have to re-select if required

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) Up
 - End Mill (0.1730 inch) Up
 - End Mill (0.2500 inch) Down
 - End Mill (0.2500 inch) Up
 - End Mill (0.2500 inch) Up
 - End Mill (0.2500 inch) Up
 - 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
 - Straight 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) Up
 - End Mill (0.1730 inch) Up
 - End Mill (0.2500 inch) Down
 - End Mill (0.2500 inch) Up
 - End Mill (0.2500 inch) Straight
 - End Mill (0.2500 inch) Up
 - End Mill (0.3750 inches) D
 - End Mill (0.5000 inch) Down
 - End Mill (0.5000 inch) Up
 - End Mill (0.5000 inch) Straight

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

Dovetail Gadget

Running the Dovetail Gadget



Note: Job data is displays here

Note: Front and Side material thickness can be adjusted based your needs

Enter the number of Dovetail for the joint

You can adjust the fit with entering a value here

Job Data
Material = 0.73 x 6 | Drawn in the Y Orantation | XY Datum Position = Bottom Right Corner

Front Material Thickness	0.75	Edit Layers
Side Material Thickness	0.75	DrawingUnits
Front Backer Thickness	0	Back Backer Thickness 0
Dovetail Count	3	Calulate
Pin Fit Amount	0	
Tail Fit Amount	0.01	Dovetail Centers =
Tail Size	0	Dovetail Size =

Help **OK** **Cancel**

Displays the Layer Editor

Backer Material Thickness for Side Dovetails Milling

Select the Calculate button to display the Joint data



Dovetail Gadget

Running the Dovetail Gadget

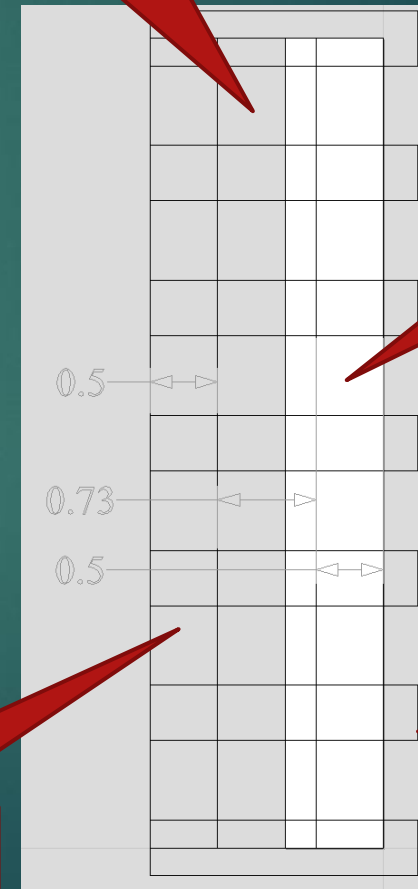
Backer Materials are used to prevent chip out when milling Dovetails

Drawn in the Y Orientation | XY Datum Position = Bottom Right Corner

Front Material Thickness	0.73	Edit Layers
Side Material Thickness	0.73	DrawingUnits
Front Backer Thickness	0.5	Back Backer Thickness 0.5
Dovetail Count	6	Calculate
Pin Fit Amount	0	
Tail Fit Amount	0.01	Dovetail Center = 1
Tail Size	0.5	Dovetail Top = 0.5896...

0.73 Side Material

0.5 Back Backer Material

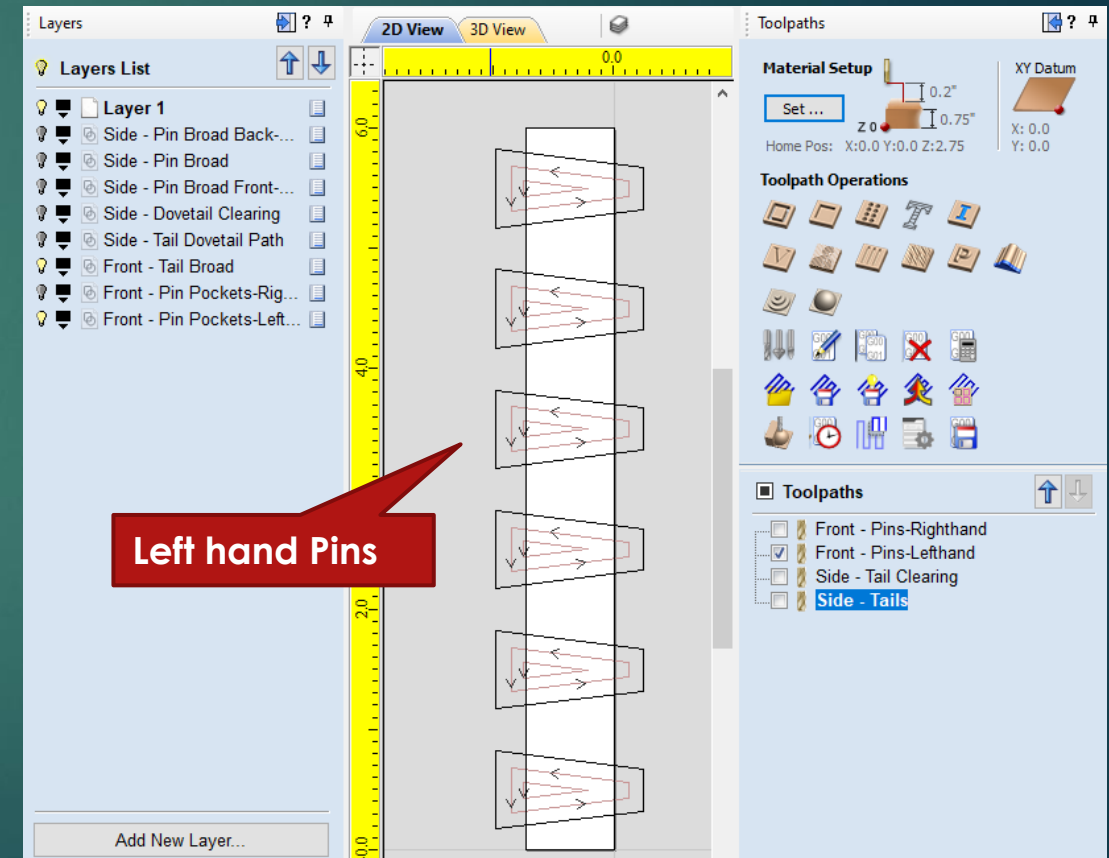
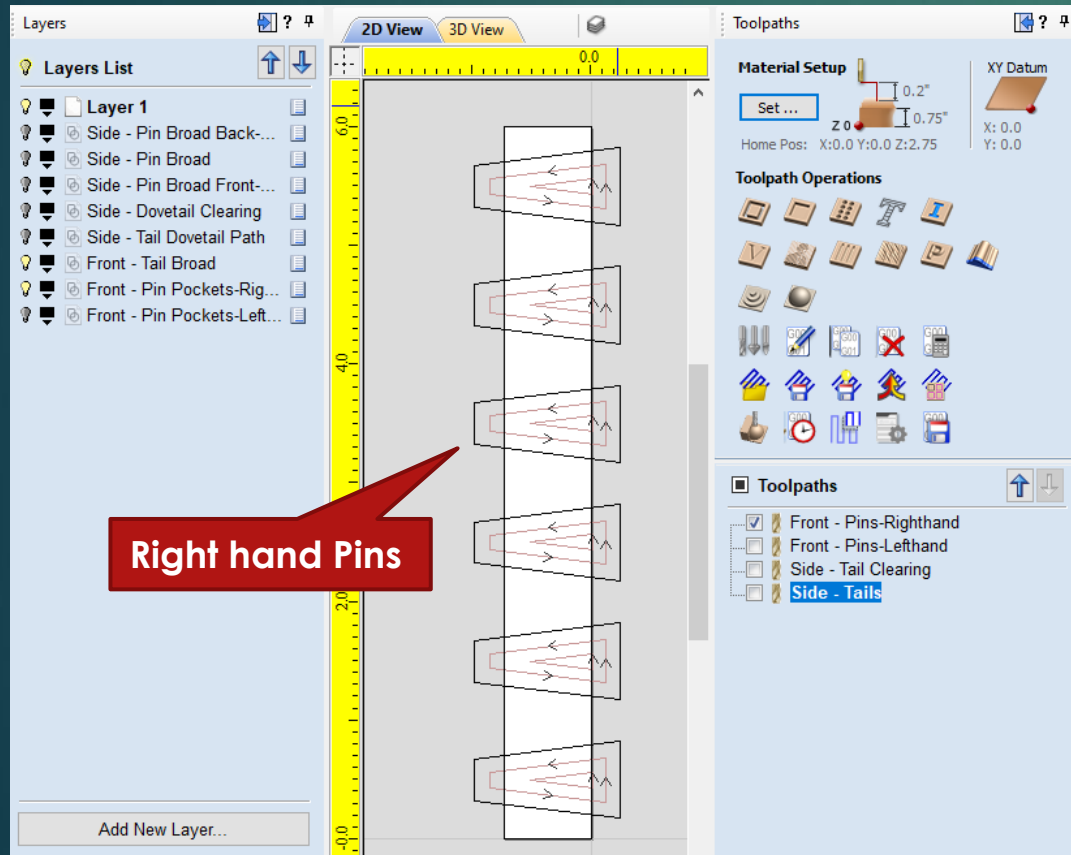


Dovetail Clearing Pockets

0.5 Front Backer Material

Dovetail Gadget

Running the Dovetail Gadget



Dovetail Gadget

Running the Dovetail Gadget



Layer Setup

Layer Names

Side - Broad: Side - Broad

Side - Dovetail Clearing: Side - Dovetail Clearing

Side - Dovetail Path: Side - Tail Dovetail Path

Front - Broad: Front - Broad

Front - Pockets: Front - Pin Pockets

Tool Path Names

Side - Dovetail Path: Side - Tails

Side - Clearing: Side - Tail Clearing

Front - Pins: Front - Pins

Cancel OK

Edit Layer and Tool-path names

Dovetail Gadget

Running the Dovetail Gadget



Easy Dovetail Maker

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

The gadget uses the Job Setup Setting to determine the stock orientation. Milling 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 Pins and Clearing path, use "up-cut" spiral bits.

Select Dovetail Bit

PorterCable 43776PC Carbide Tipped Dovetail 7 Deg x 0.53125 D x 0.75 CH x 0.5 SHK

Select Straight Bit

Straight Bit: **End Mill (0.2500 inch) Up** [Tool](#)

Job Data

Material = 0.73 x 6 | Drawn in the Y Orientation | XY Datum Position = Bottom Right Corner

Front Material Thickness: 0.75 [Edit Layers](#)

Side Material Thickness: 0.75 DrawingUnits

Front Backer Thickness: 0 Back Backer Thickness: 0

Dovetail Count: **6** [Calculate](#)

Pin Fit Amount: 0

Tail Fit Amount: 0.01

Tail Size: 0.5

Dovetail Center = 1

Dovetail Top = 0.5921...

[Help](#) [OK](#) [Cancel](#)

Enter the number of
Dovetail for the joint

Select the Calculate
button to display the Joint
data

Dovetail Gadget

Running the Dovetail Gadget



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About Version: 5.3

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The gadget uses the Job Setup Seeting to deturmen the stock oreintation. Milling 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 materialthickness to the length of material.

For best results in cutting Pins and Clearing path, use " up-cut" spiral bits.

Select Dovetail Bit

PorterCable 43776PC Carbide Tipped Dovetail 7 Deg x 0.53125 D x 0.75 CH x 0.5 SHK

Select Stright Bit

Stright Bit: End Mill (0.2500 inch) Up Tool

Job Data

Material = 0.73 x 6 | Drawn in the Y Orantation | XY Datum Position = Bottom Right Corner

Front Material Thickness 0.75 Edit Layers

Side Material Thickness 0.75 DrawingUnits

Front Backer Thickness 0 Back Backer Thickness 0

Dovetail Count 6 Calculate

Pin Fit Amount 0

Tail Fit Amount 0.01

Tail Size 0.5

Dovetail Center = 1

Dovetail Top = 0.5921...

Help OK Cancel

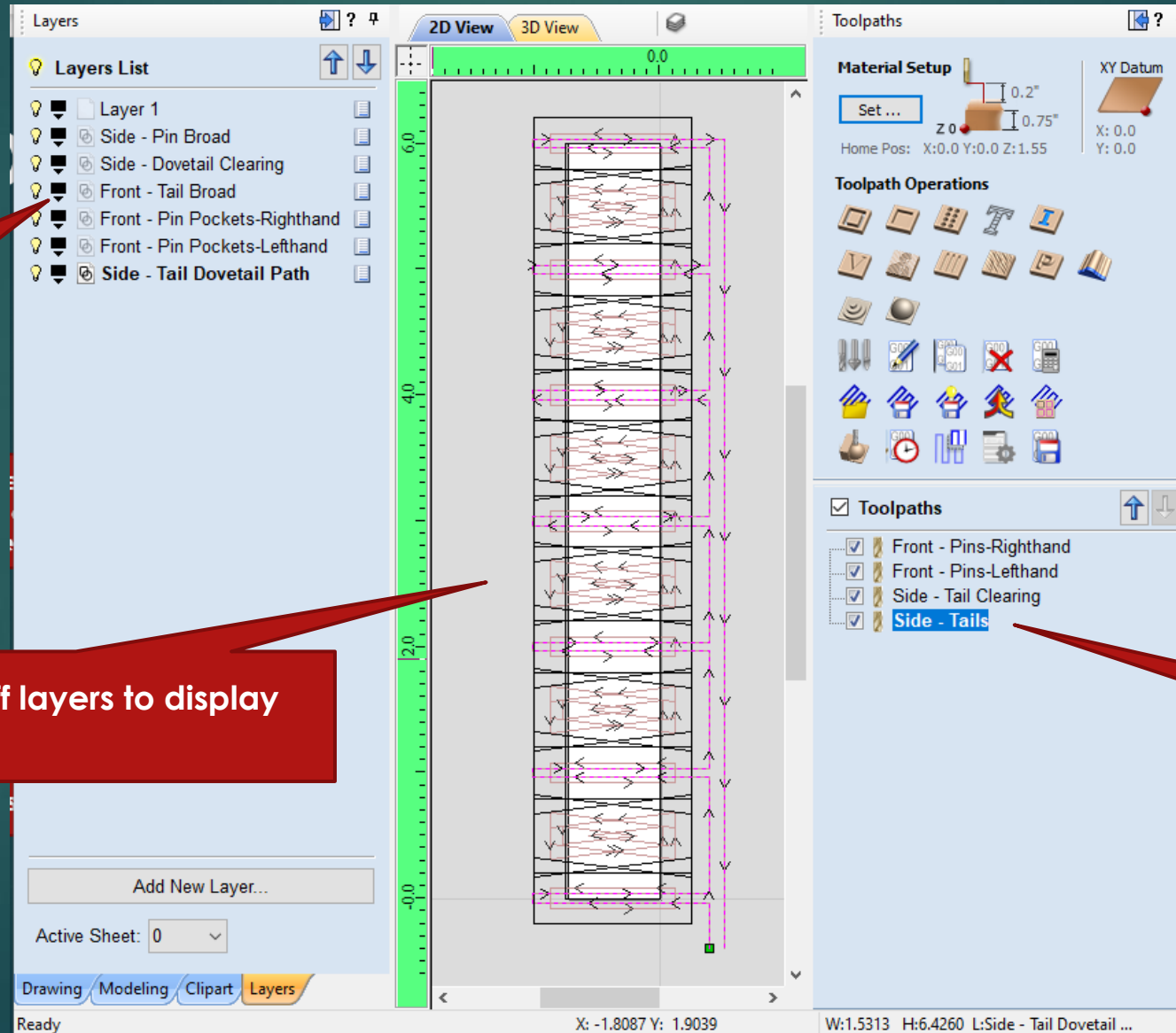
Select the OK button to build the drawing and toolpaths

Dovetail Gadget



Note: The Layers are named so each milling of the Dovetail joint

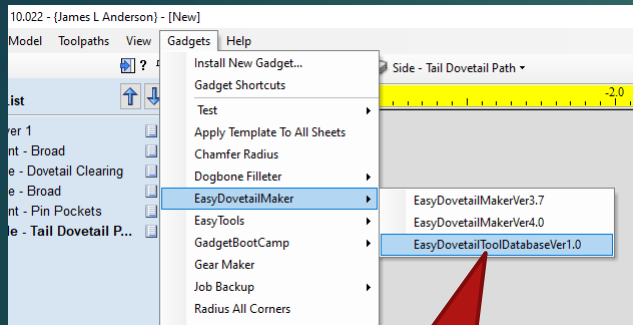
Toggle on and off layers to display the Joint cuts



Note: The tool-paths for milling the dovetails

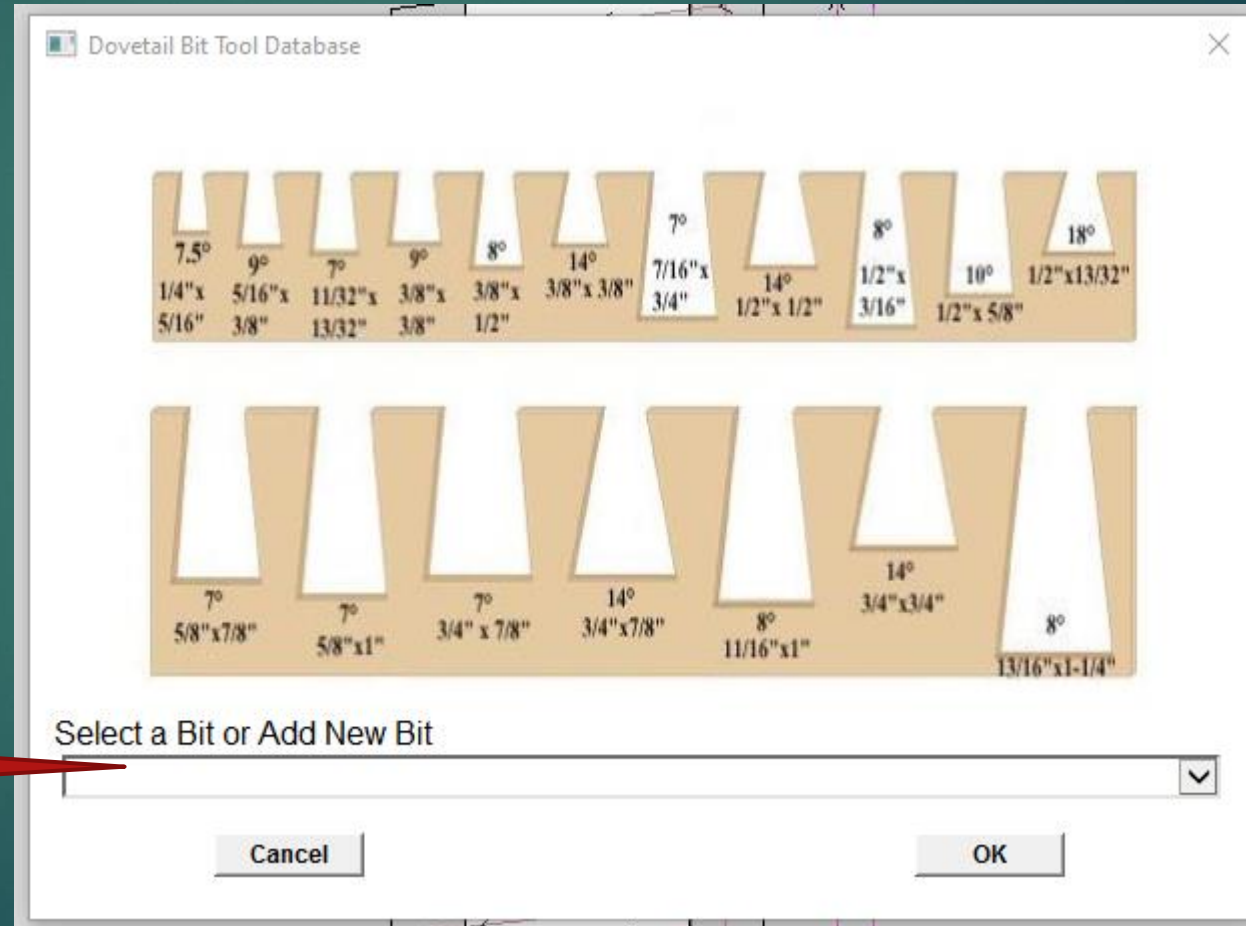
Dovetail Bit Gadget

Adding and Editing Dovetail Bits



Open the Dovetail Tool Database Gadget

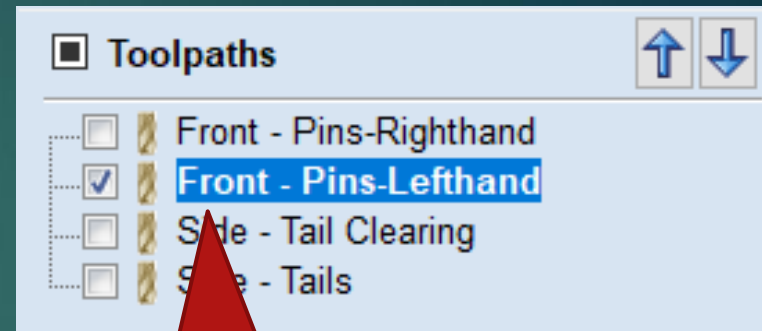
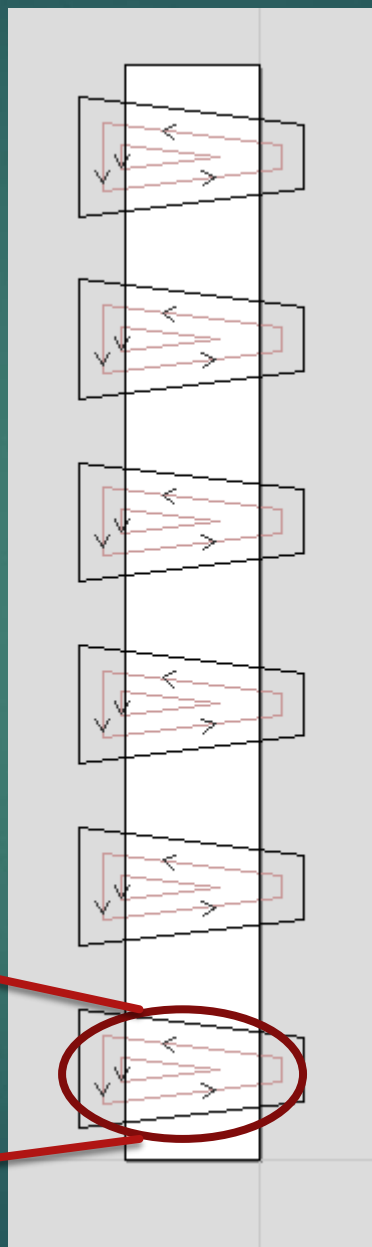
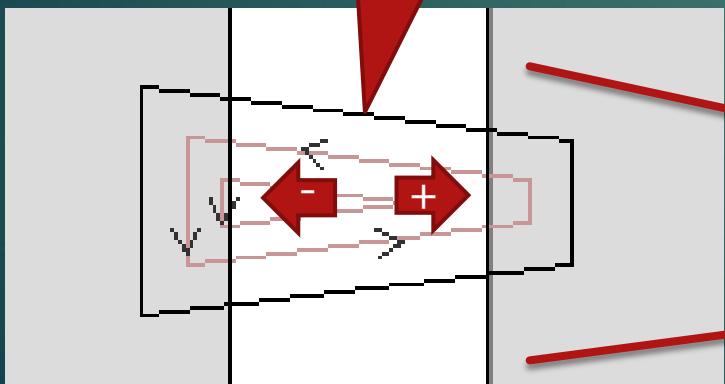
Select the Add New or Select a bit to edit



Dovetail Gadget Mill Setup



Note: The Pin Fit Amount (+/-) is integrated in the Front Pin geometry. Positive values will loosen the joint and negative values will tighten the joint

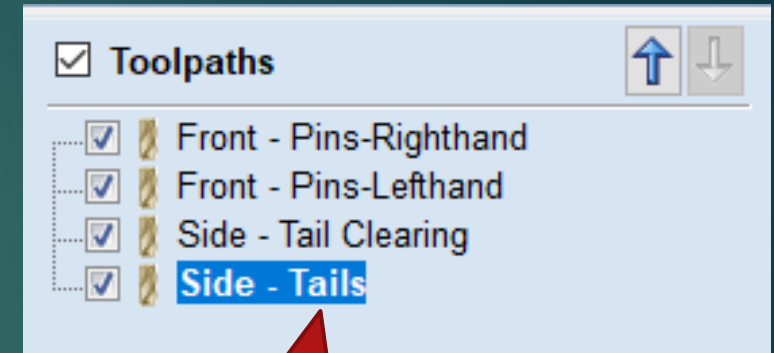
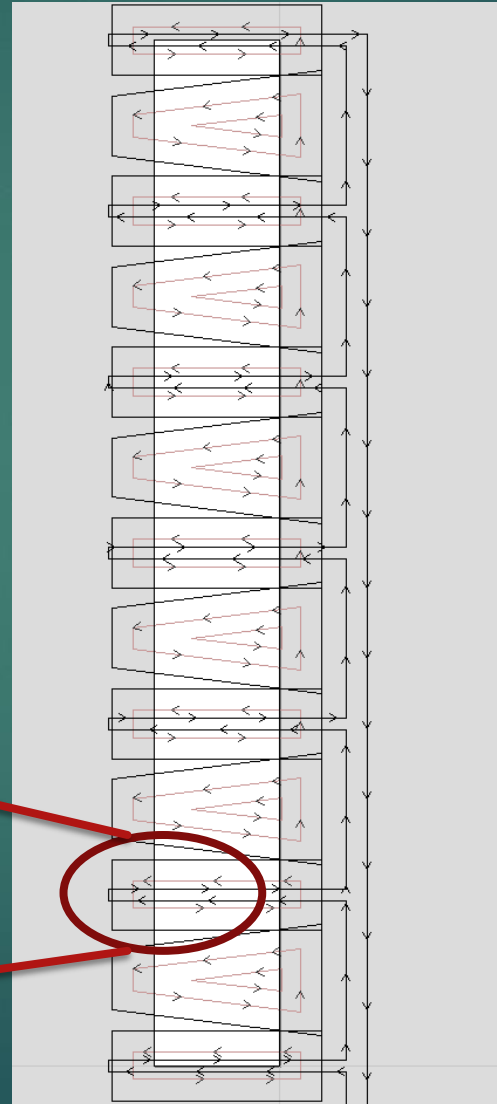
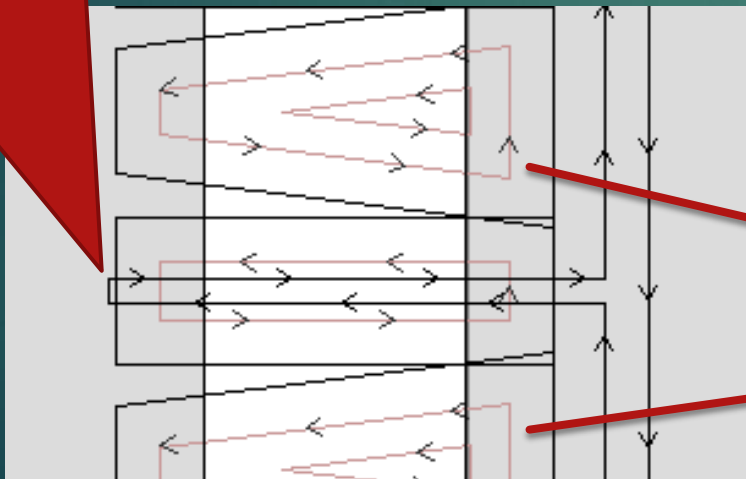


Note: The Milling is on the Front board

Dovetail Gadget Mill Setup



Note: The Tail Fit Amount is integrated in the Dovetail path geometry. The larger the Tail Fit Amount number the wider the Dovetail milling path



Note: Milling is on the Side boards

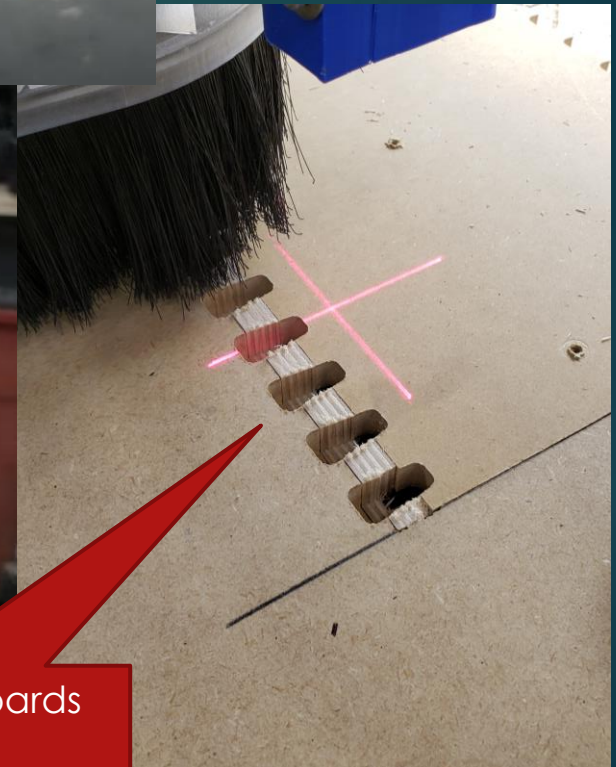
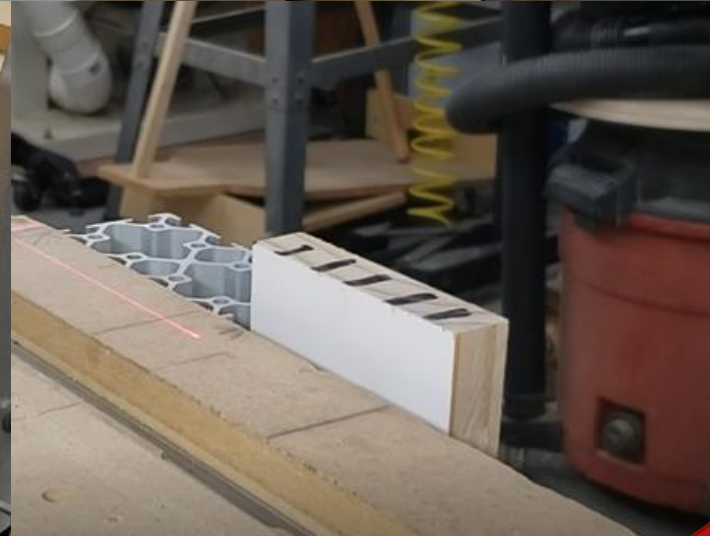
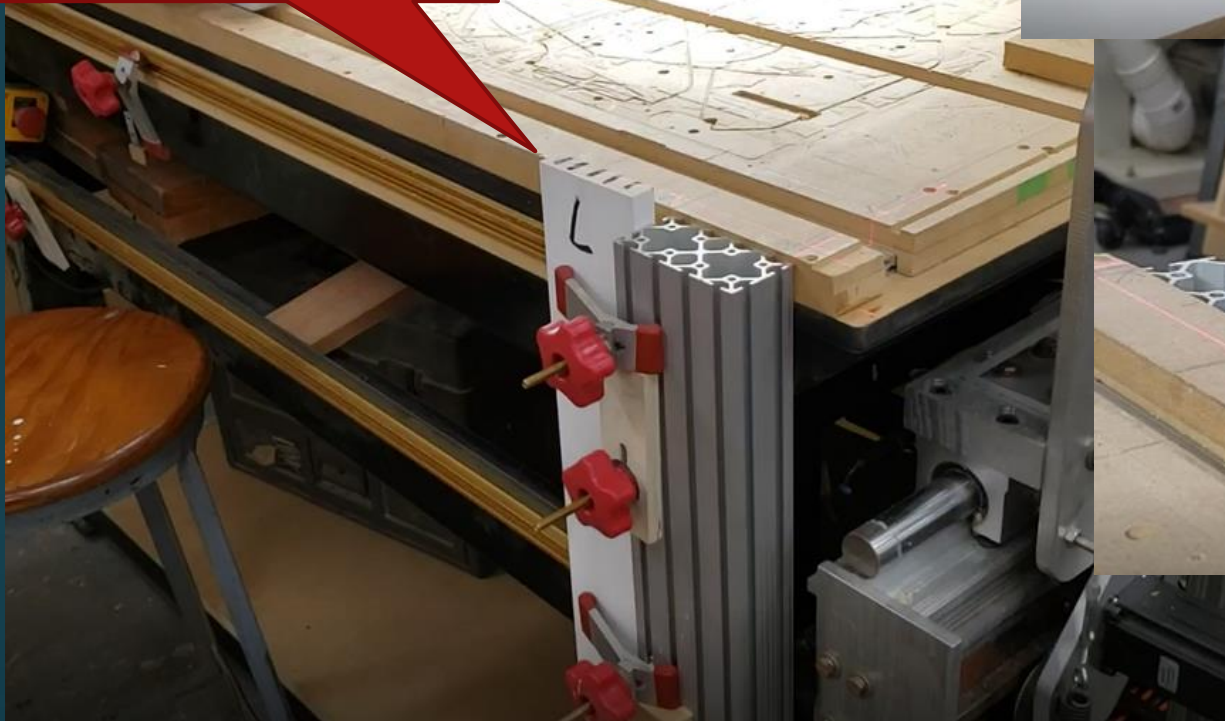
Dovetail Gadget

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.



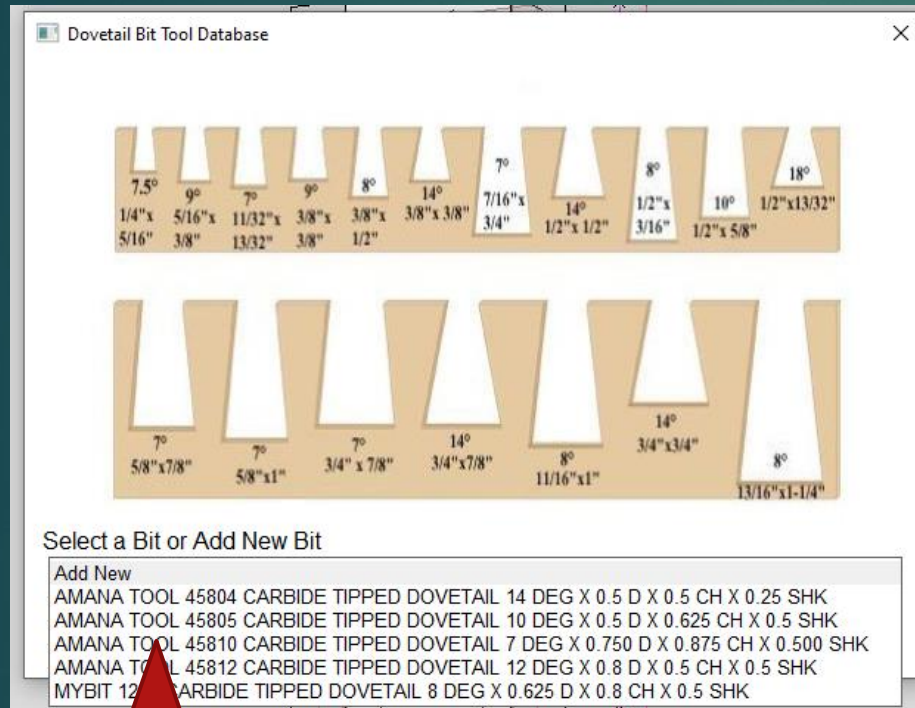
Note: Use material to flush the top so it is projected above the mill table.



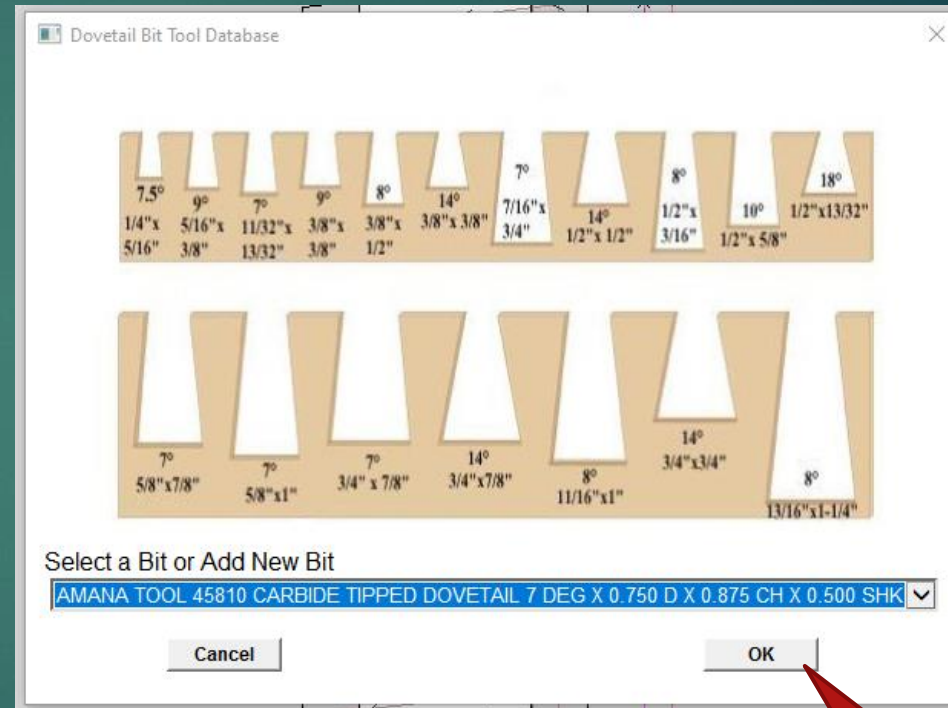
Note: Use Backer Boards to prevent chip out.

Dovetail Bit Gadget

Adding and Editing Dovetail Bits



Select Add New or Select
a bit to edit



Select the OK button to
Open the

Dovetail Bit Gadget

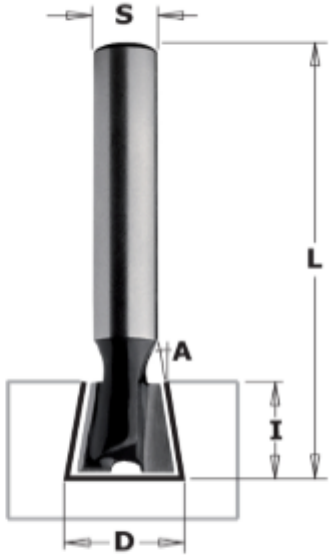
Adding and Editing Dovetail Bits



Update the tool data as needed

Edit Dovetail Bit

Tool Brand	Amana Tool
Tool Type	Carbide Tipped
Model Number	45810
Bit Angle (A)	7
Cut Depth (I)	0.875
Flute Count	2
RPM	18000
Base Dia (D)	0.75
Shank Dia (S)	0.5
Overall Length (L)	2.625
Feed Rate	22
Plunge Rate	22
Note	Test 3



Bit Units

Mill Rate

Help OK Cancel

Select the OK button to save your changes

Dovetail Bit Gadget

Adding and Editing Dovetail Bits



Note: If needed, You can edit the Dovetail bit database in the Registry Editor

Registry Editor

File Edit View Favorites Help

Computer\HKEY_CURRENT_USER\SOFTWARE\Vetric\VCurve ProV10\EasyDovetailToolDatabase2.0

Name	Type	Data
(Default)	REG_SZ	(value not set)
Bit1-BitAngle	REG_SZ	14.0000000000
Bit1-BitDia	REG_SZ	0.5000000000
Bit1-BitLength	REG_SZ	1.7500000000
Bit1-BitName	REG_SZ	Amana Tool 45804 Carbide Tipped Dovetail 14 Deg ...
Bit1-Brand	REG_SZ	Amana Tool
Bit1-CutDepth	REG_SZ	0.5000000000
Bit1-FeedRate	REG_DWORD	0x00000018 (24)
Bit1-Flutes	REG_DWORD	0x00000002 (2)
Bit1-Notes	REG_SZ	System Default bit - Edit as needed
Bit1-PartNo	REG_SZ	45804
Bit1-PlungRate	REG_DWORD	0x00000011 (17)
Bit1-Rates	REG_SZ	inches/min
Bit1-RPM	REG_DWORD	0x00004650 (18000)
Bit1-ShankDia	REG_SZ	0.2500000000
Bit1-Type	REG_SZ	Carbide Tipped
Bit1-Units	REG_SZ	inch
Bit2-BitAngle	REG_SZ	7.0000000000
Bit2-BitDia	REG_SZ	0.5312500000
Bit2-BitLength	REG_SZ	2.5000000000
Bit2-BitName	REG_SZ	PorterCable 43776PC Carbide Tipped Dovetail 7 De...
Bit2-Brand	REG_SZ	PorterCable
Bit2-CutDepth	REG_SZ	0.7500000000
Bit2-FeedRate	REG_DWORD	0x00000014 (20)
Bit2-Flutes	REG_DWORD	0x00000002 (2)
Bit2-Notes	REG_SZ	Amazon \$29.50
Bit2-PartNo	REG_SZ	43776PC
Bit2-PlungRate	REG_DWORD	0x00000013 (19)
Bit2-Rates	REG_SZ	inches/min

Computer\HKEY_CURRENT_USER\SOFTWARE\Vetric\VCurve ProV10\EasyDovetailToolDatabase2.0

LastRun

Note: Your Application Name may be deferent

Computer\HKEY_CURRENT_USER\SOFTWARE\Vetric\VCurve ProV10\EasyDovetailToolDatabase2.0

Thank
You