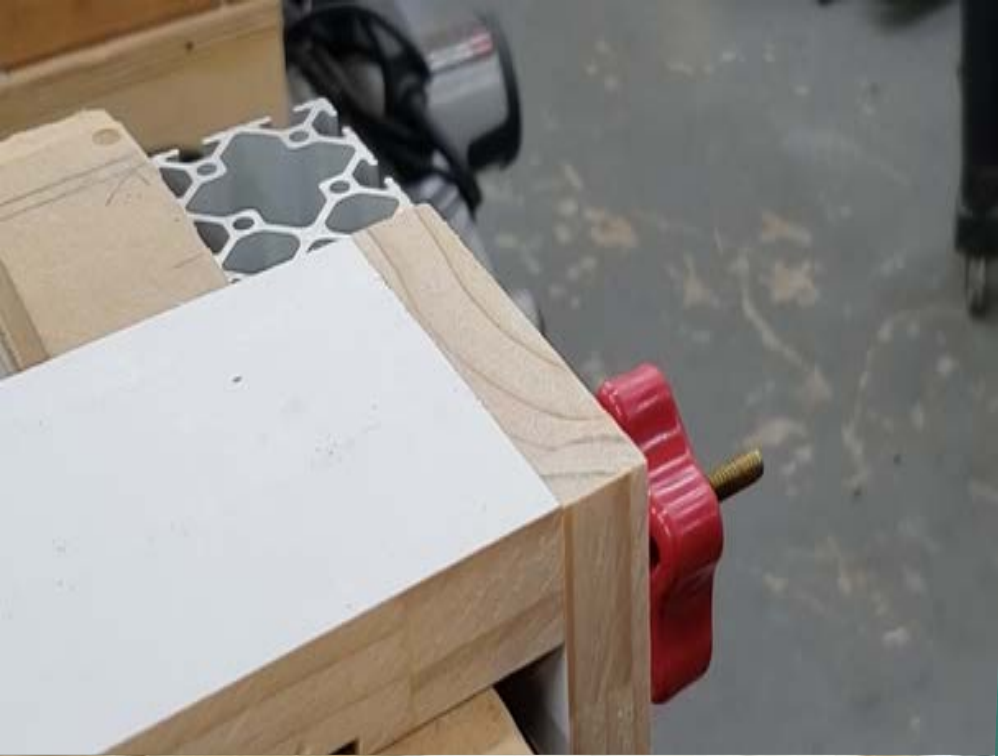


# Vetric Gadget Man Dovetail Maker Version 4.0

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.



# Dovetail Gadget Job Setup

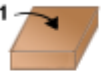


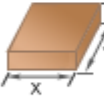
**Job Type** – Set to 'Single Sided'  
Milling operation is on the End of the material


**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): 0.733 inches  
Height (Y): 3.5 inches  
Thickness (Z): 0.733 inches  
**Units** ☒ inches ☐ mm

**Z Zero Position**  
  
☐ Material Surface  
☒ Machine Bed

**XY Datum Position**  
  
☐ Use Offset  
X: 0.0  
Y: 0.0

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

**Appearance**  
  
MDF v  
Solid Color: v

OK Cancel

**Job Size** – Width: Set to your material thickness

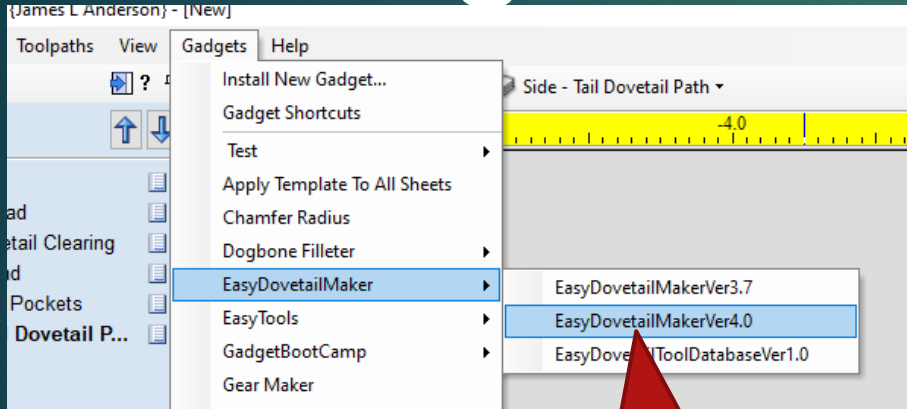
**Job Size** – Height: Set to your material Width

**Job Size** – Thickness: Set to your material thickness

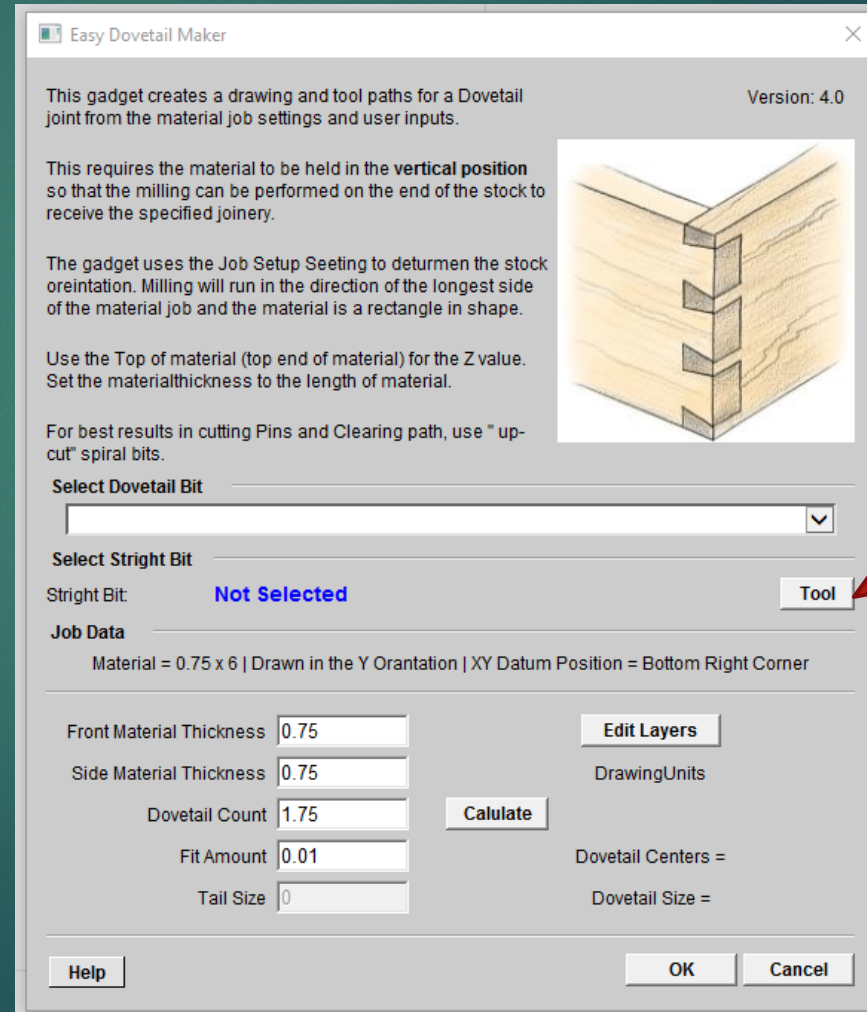
**XY Datum Position** – Set to your Mill  
I use the Lower Right on my Mill configuration

# 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



Easy Dovetail Maker

This gadget creates a drawing and tool paths for a Dovetail joint from the material job settings and user inputs. Version: 4.0

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

Select Straight Bit

Straight Bit: **Not Selected** Tool

**Job Data**

Material = 0.75 x 6 | Drawn in the Y Orientation | XY Datum Position = Bottom Right Corner

Front Material Thickness  Edit Layers

Side Material Thickness  Drawing Units

Dovetail Count  Calculate

Fit Amount  Dovetail Centers =

Tail Size  Dovetail Size =

Help OK Cancel

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

# Dovetail Gadget

## Running the Dovetail Gadget



Easy Dovetail Maker

This gadget creates a drawing and tool paths for a Dovetail joint from the material job settings and user inputs. Version: 4.0

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 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**

- 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
- MyBit 1234 Carbide Tipped Dovetail 8 Deg x 0.625 D x 0.8 CH x 0.5 SHK

**Job Data**

Material = 0.75 x 6 | Drawn in the Y Orantation | XY Datum Position = Bottom Right Corner

Front Material Thickness: 0.75

Side Material Thickness: 0.75

Dovetail Count: 1.75

Fit Amount: 0.01

Tail Size: 0

**Edit Layers**

DrawingUnits

**Calculate**

Dovetail Centers =

Dovetail Size =

**Help** **OK** **Cancel**

Select a Dovetail bit



# Dovetail Gadget

## Running the Dovetail Gadget



Easy Dovetail Maker Version: 4.0

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

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 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

Amana Tool 45810 Carbide Tipped Dovetail 7 Deg x 0.750 D x 0.875 CH x 0.500 SHK

Select Stright Bit

Stright Bit: **Not Selected**

Job Data

Material = 0.75 x 6 | Drawn in the Y Orantation | XY Datum Position = Bottom Right Corner

Front Material Thickness 0.75

Side Material Thickness 0.75

Dovetail Count 1.75

Fit Amount 0.01

Tail Size 0

Calculate

Edit Layers

DrawingUnits

Dovetail Centers =

Dovetail Size =

Help OK Cancel

Select a straight Tool from the standard Tool database

# 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 (0.2500 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 (0.2500 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

Easy Dovetail Maker Version: 4.0

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

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 materialthickness to the length of material.

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

Select Dovetail Bit  
Amana Tool 45810 Carbide Tipped Dovetail 7 Deg x 0.750 D x 0.875 CH x 0.500 SHK

Select Stright Bit  
Stright Bit: End Mill (0.2500 inch) Up Tool

Job Data  
Material = 0.75 x 6 | Drawn in the Y Orantation | XY Datum Position = Bottom Right Corner

Front Material Thickness: 0.75  
Side Material Thickness: 0.75  
Dovetail Count: 1.75  
Fit Amount: 0.01  
Tail Size: 0

Edit Layers  
DrawingUnits  
Dovetail Centers =  
Dovetail Size =

Calculate

Help OK Cancel

Displays the Tool Selected

Display the Layer and Tool-path naming dialog

Select the Calculate button to display the Joint data

# Dovetail Gadget

## Running the Dovetail Gadget

A screenshot of a software dialog box titled "Layer Setup". It contains two sections: "Layer Names" and "Tool Path Names". Each section has several input fields with labels on the left and text on the right. The "Layer Names" section includes fields for "Side - Broad", "Side - Dovetail Clearing", "Side - Dovetail Path", "Front - Broad", and "Front - Pockets". The "Tool Path Names" section includes fields for "Side - Dovetail Path", "Side - Clearing", and "Front - Pins". At the bottom are "Cancel" and "OK" buttons.

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

Edit Layer and Tool-path names



# Dovetail Gadget

## Running the Dovetail Gadget



Easy Dovetail Maker

Version: 4.0

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

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 materialthickness to the length of material.

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

Select Dovetail Bit

Amana Tool 45810 Carbide Tipped Dovetail 7 Deg x 0.750 D x 0.875 CH x 0.500 SHK

Select Stright Bit

Stright Bit: **End Mill (0.2500 inch) Up** Tool

Job Data

Material = 0.75 x 6 | Drawn in the Y Orantation | XY Datum Position = Bottom Right Corner

Front Material Thickness: 0.75

Side Material Thickness: 0.75

Dovetail Count: **4**

Fit Amount: 0.01

Tail Size: 3

Edit Layers

DrawingUnits

**Calculate**

Dovetail Center = 6

Dovetail Top = 3.0921...

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



Easy Dovetail Maker

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

Version: 4.0

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 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

Amana Tool 45810 Carbide Tipped Dovetail 7 Deg x 0.750 D x 0.875 CH x 0.500 SHK

Select Stright Bit

Stright Bit: **End Mill (0.2500 inch) Up** Tool

Job Data

Material = 0.75 x 6 | Drawn in the Y Orantation | XY Datum Position = Bottom Right Corner

Front Material Thickness: 0.75

Side Material Thickness: 0.75

Dovetail Count: 4

Fit Amount: 0.01

Tail Size: 3

Edit Layers

DrawingUnits

Calculate

Dovetail Center = 6

Dovetail Top = 3.0921...

Help OK Cancel

Select the OK button to build the drawing and toolpaths

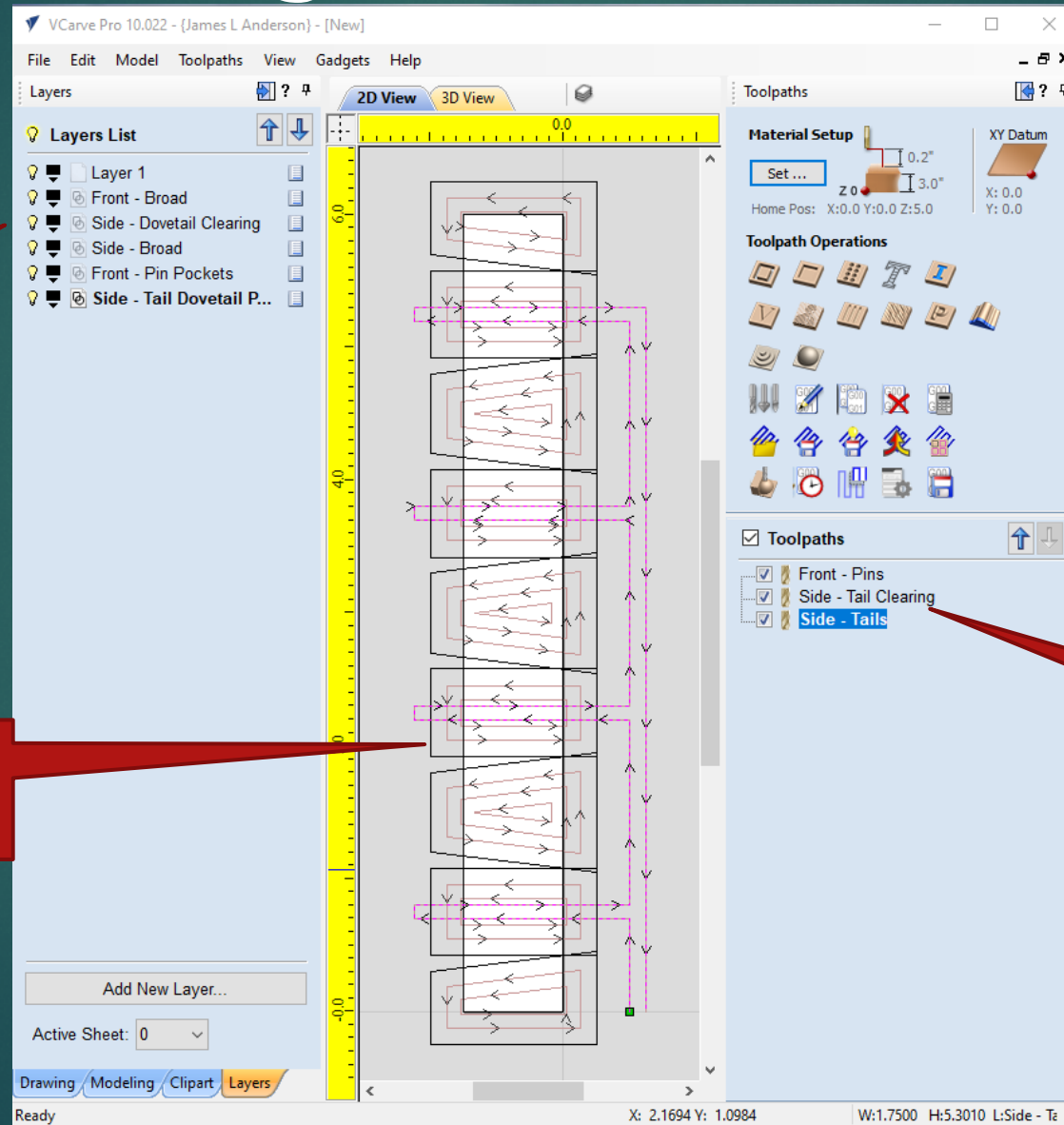


# Dovetail Gadget



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

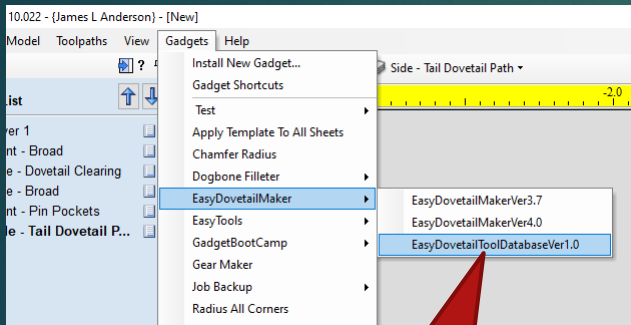
Toggle on and off layers to display the Joint cuts



Note: The tool-paths for milling the dovetails

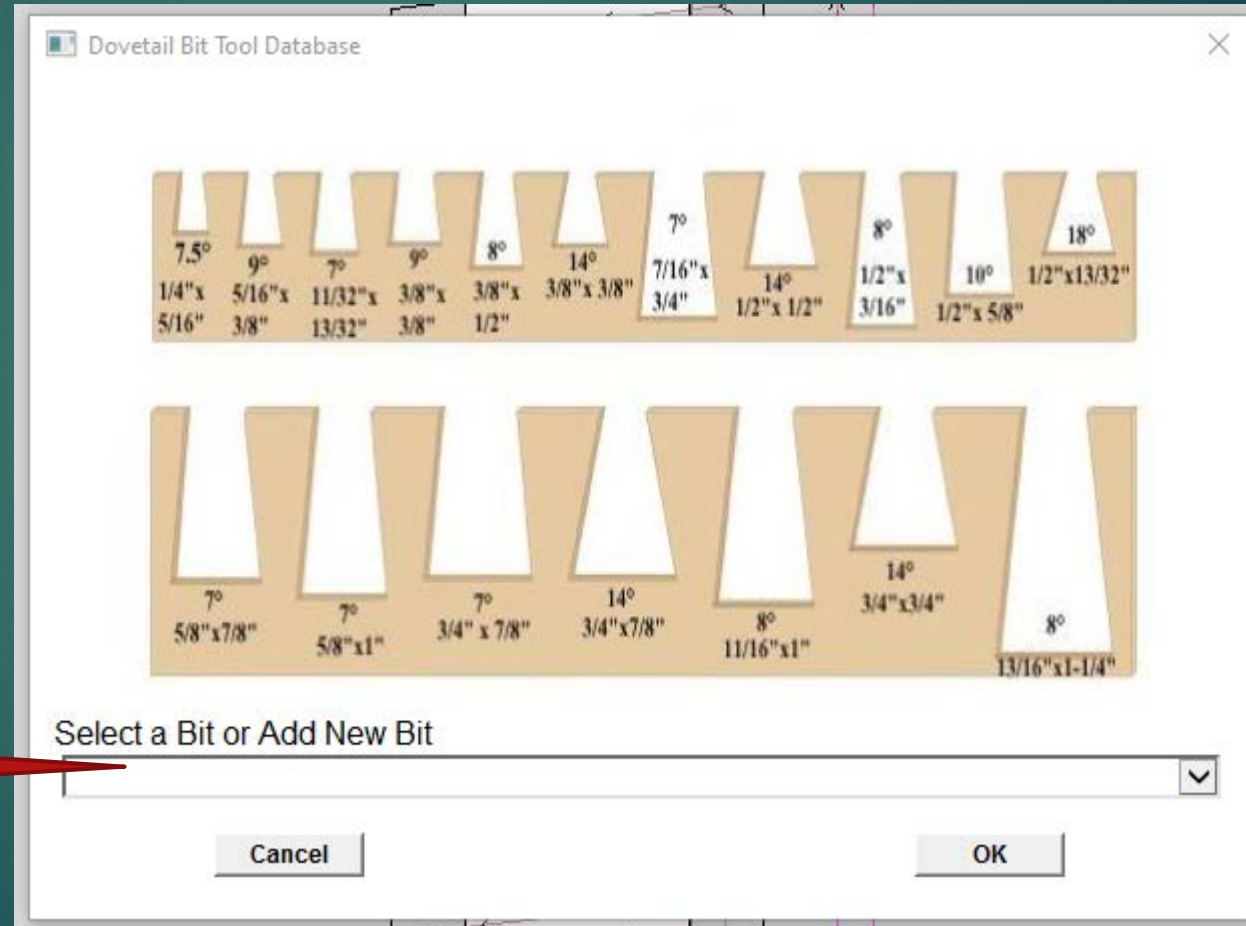
# Dovetail Bit Gadget

## Adding and Editing Dovetail Bits



Open the Dovetail Tool Database Gadget

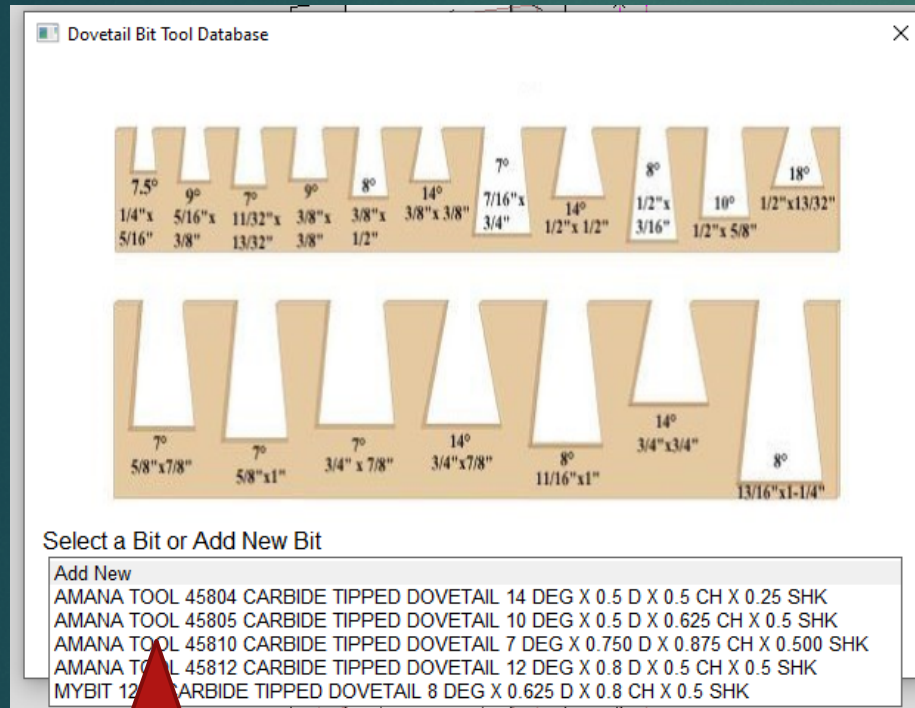
Select the Add New or Select a bit to edit



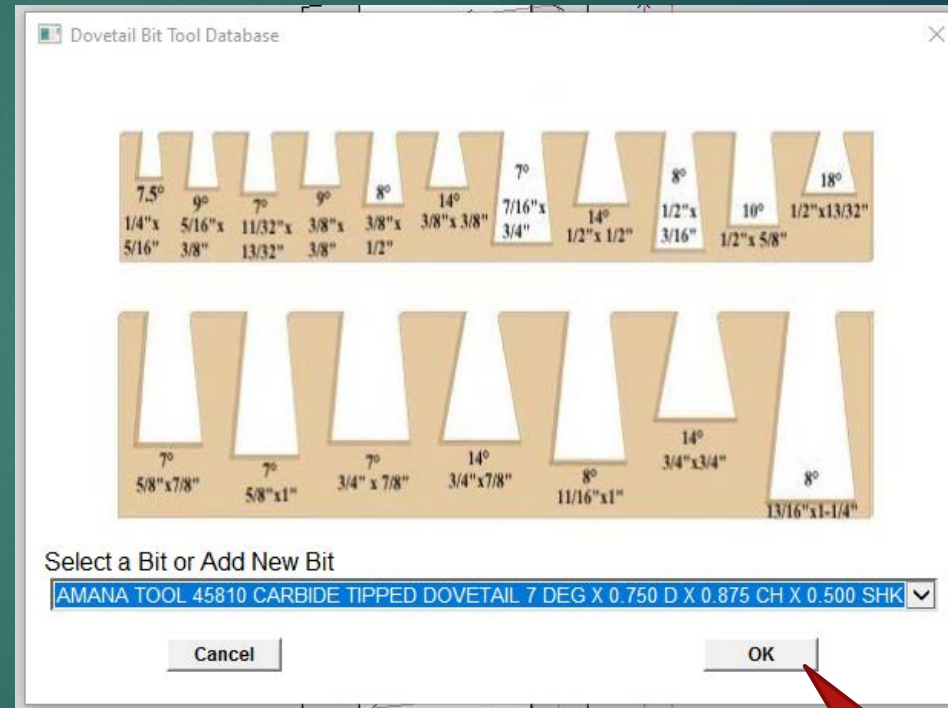


# Dovetail Bit Gadget

## 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: inch  
Mill Rate: inches/min

Help OK Cancel

Select the OK button to save your changes





# Dovetail Bit Gadget

## Adding and Editing Dovetail Bits

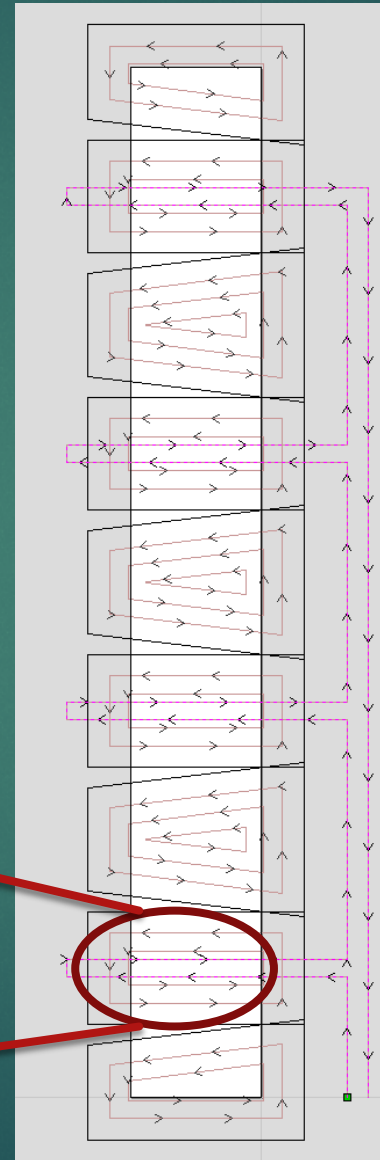
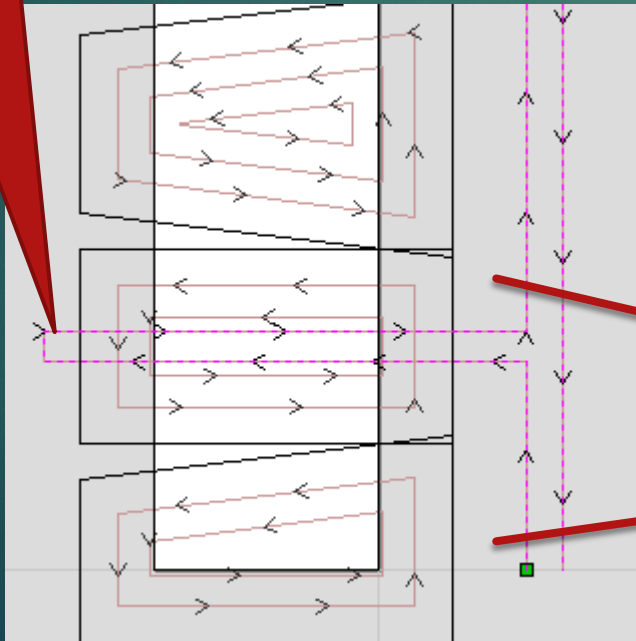
```
EasyDovetailMakerVer4.0.lua EasyDovetailToolDatabaseVer1.0.lua DovetailTool.ini x EasyDovetailMakerVer3.7.lua
1  #=====
2  # Easy Dovetail Maker
3  # May 2020
4  # By: Jim Anderson
5  #=====
6  [Amana Tool 45804 Carbide Tipped Dovetail 14 Deg x 0.5 D x 0.5 CH x 0.25 SHK]
7  Brand=Amana Tool
8  PartNo=45804
9  BitAngle=14
10 ShankDia=0.25
11 BitDia=0.5
12 Flutes=2
13 Type=Carbide Tipped
14 BitLength=1.75
15 CutDepth=0.5
16 RPM=18000
17 FeedRate=24
18 PlungRate=12
19 Units=inch
20 Rates=inches/min
21 Notes=Test 1
22 #=====
23 [Amana Tool 45805 Carbide Tipped Dovetail 10 Deg x 0.5 D x 0.625 CH x 0.5 SHK]
24 Brand=Amana Tool
25 PartNo=45805
26 BitAngle=10
27 ShankDia=0.5
```

Note: If needed, You can edit the Dovetail bit database in any Text editor

# Dovetail Gadget Mill Setup



Note: The Fit adjustment is integrated in the Dovetail path geometry.



## ☒ Toolpaths

- ☒ Front - Pins
- ☒ Side - Tail Clearing
- ☒ Side - Tails

Note: The Milling is by Side or Front board



# 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:** Remove material as shown here.

Thank  
You