

Guide to using the design tool

Hopefully the forms in the design tool are fairly self-explanatory, as they have extensive context-sensitive help. Guidance on using the form is provided in context at various places in the How To pages. This document provides help on each element of the tool.

Warning – if you are not logged in, do not reload or navigate away from the design tool page when using it or all entered data will be lost.

If you are logged in then the page will initially display the last joint you entered.

The Main Form

Basic details

Name of joint / project:

Use a name which describes not only the project, but also the specific joint - e.g. 'Chest of drawers - top drawer - back'. If logged in, using a new name will save the project as new.

Saw kerf of your bandsaw:

The thickness of timber removed by your bandsaw blade. See the preparation section of the How To for details. It is suggested that you use millimetres for this and all other measurements, although you can use whatever units you like so long as you are consistent.

Jig Information (if using jig method)

Jig name:

Enter a meaningful name, referring to size etc. If logged in, using a new name will save the jig details as new.

Thickness of jig base:

The distance from the jig surface to the table surface - see How To for more details.

Fence allowance:

The closest distance from the pivot point to the centre of the moveable fence, when rotated - see How To for more details.

Width of moveable fence:

The width of the moveable fence. If your holes are not exactly central, use twice the distance from the leading hole centre to the inside edge of the fence.

Distance between pivot fixings:

The distance between the centres of the two pivot points. NB the blade should be in the centre, equidistant from them.

Diameter of pivot fixings:

The diameter of the pivot fixings (they should be the same).

Dist from lead hole in fence to stop block:

The distance from the centre of the lead hole in the moveable fence to the stop block. Approx. 60mm is recommended - see How To.

Dist between leading and trailing registration holes:

The distance between the leading and trailing hole (centres) on the moveable fence.

Diameter of lead hole:

The diameter of the lead hole. It should be different from the trailing hole.

Diameter of trailing hole:

The diameter of the trailing hole. It should be different from the leading hole.

Board sizes

Width of boards:

If using the spacer method, the boards should be exactly the same width. If using the jig method, enter the larger board width. Read the relevant section of the How To for more details.

Thickness of pin board:

The thickness of the board which will have the dovetail pins cut into it (e.g. the front or back of a drawer).

Thickness of tail board:

The thickness of the board which will have the dovetail tails cut into it (e.g. the sides of a drawer). (This is for information only – it is not required for the calculations).

Required joint

Number of tails required:

Just what it says - how many tails do you want your dovetail to have?

Dovetail angle:

Any angle (in degrees) greater or equal to zero and less than 90 degrees. If you enter zero, you will get finger joints, but read the notes in the How To. If you enter large angles, you will get some pretty weird and impracticable joints, which the tool will attempt to draw (while also giving you relevant error messages). 8 degrees is about 1:7.

Width (at base of) half pin on Edge "A":

"Base" refers to the fatter side of the pin that mates with the base of the tails. Make this width more than the main pins as it is unsupported on one side.

Cut-away on edge "A":

If the boards are to remain the same width (e.g. for a box) this will be zero. Otherwise, if the pin board will be cut down on edge "A", enter the amount here. This will be added to the half-pin amount for this edge.

Width (at base of) main pins

'Base' refers to the fatter side of the pin that mates with the base of the tails. Something just wider than a chisel size is convenient. This width needs to be large enough for the saw to pass between the tails. If not, an error message is given but the joint is still drawn.

Width (at base of) half pin on Edge "B":

"Base" refers to the fatter side of the pin that mates with the base of the tails. Make this width more than the main pins as it is unsupported on one side.

Cut-away on edge "B":

If the boards are to remain the same width (e.g. for a box) this will be zero. Otherwise, if the pin board will be cut down on edge 'B' (or [jig method only] is already smaller), enter the amount here. This will be added to the half-pin amount for this edge. (Jig method only: enter a negative amount if the pins board is wider than the tails board)

End trim allowance:

This refers to the trim allowance on the end of the **tail** board. In other words, a positive number is the amount by which the tails will protrude beyond the face of the pin board. 0.5mm is a sensible allowance.

If a negative amount is entered this will create a lapped dovetail. Obviously a negative number more than the width of the pin board makes no sense (but still will be drawn!).

You may also wish to have a trim allowance on the pins. This amount is not required by the design tool (so there is no data entry field for it) - it is entirely determined by where you mark the shoulder for the pins.

Fitting allowance:

This is the amount required for cleaning and fitting the joint. Enter the expected amount to be removed on each side of a tail (being the sum of amounts removed from the pin and the tail). See 'How To' for details.

Save & Submit:

Press the Submit button or hit "Enter" to launch the design tool calculator which draws your dovetails and calculates the required spacers/pegboard. You may get various error or warning messages. Errors (which make calculation impossible) will cause the offending field to be highlighted. The tool will still attempt to draw the joint despite any (non-fatal) warnings. This should help you to visualise what you have done wrong. To read the warnings again, just press Submit once more. If you are logged in then all the details will be saved (overwriting existing project/jig details if the names are unchanged, or creating new ones if the names are new or changed).

Post-calculation boxes

The drawing of the joint

After submitting the data, you will see the joint drawn to your specification. It is drawn looking down onto the face of the tail board. Edge "A" is on the left. The blue outline shows what the tails will look like when cut and the red outline shows the end of the pin board (before any edges are cut away). Any trim allowance on the tails should be visible. Measurements are referenced from edge "A" and the base shoulder line of the tail board. The positions of the pin board edge cut-aways (if any) are also marked - in amber and green (if zero, they will be shown at the edges of the pin board).

If you are using the jig method, then a diagram of the pegboard is also given, from which a larger scale version can be viewed and then a .dxf download taken.

The spacing box

If using the spacer method, this shows the spacers required to cut the joint designed. See the How To (spacers) for further information. The length of the "filler piece" (or protruding bolt) for the end spacer is also given. A button to "tweak" the spacers is given (see below).

If using the jig method, this box contains the hole spacing for the pegboard. Rather than use this directly, it is recommended that you download and print a paper template of the pegboard (you can use the data here to check that the scale is correct). If you are unable to download a template, then you can create one using the data in this box.

Tweak spacer widths (if using spacer method)

Press this button to launch the "spacer tweaks" box. The purpose of this is to allow you to re-use spacers which you may already have from another project (provided they are not too different in width from the calculated sizes).

The "spacer tweaks" box gives you three data entry fields - one for the main spacers and one for each end spacer (which may be the same width). Amending these and pressing "Apply" will amend the data (for the bases of the pins) in the main form accordingly and redraw the joint. Use the same units as you used in the main form.

Note that if there are any "tail tweaks" in place, these will not be reflected in the spacer width given in the first box - which will be the value **before** tail tweaks are applied. After applying the spacer tweaks, the saved tail tweaks will automatically be re-applied.

Close the box when you have finished. It is not recommended to have both the "spacer tweaks" box and "tail tweaks" box open at the same time. If you re-open the box, it will show the new spacer widths, since they have been incorporated into the base data.

Tweak tail sizes

Press this button to launch the "tail tweaks" box. The purpose of this is to allow you to customise your dovetails to whatever design you fancy (provided they all have the same angle).

The "tail tweaks" box gives you two data entry fields for each tail - one for the left hand side (lhs) - i.e. towards edge "A" - and one for the right hand side (rhs) - i.e. towards edge "B". Enter a positive number to widen the tail in the stated direction or a negative number to narrow it. Use the same units as you used in the main form. Amending these and pressing "Apply" will amend the spacers accordingly and redraw the joint. Note that the base data in the main form is unchanged - all tail tweaks are referenced off that base data.

Note that if there are any "spacer tweaks" in place, these will already be reflected in the base data, so the tail tweaks will apply to that new base data.

Close the box when you have finished. It is not recommended to have both the "spacer tweaks" box and "tail tweaks" box open at the same time. If you re-open the box, the tail tweaks in place will be shown and can be amended or cleared as required. If you change the base data (or apply spacer tweaks) then the current tail tweaks will be applied on top of the changed base data. Tail tweaks are not erased unless they are explicitly cleared or the page is reloaded.