

AXMINSTER

WORKSHOP

Code 502514

Dovetail Jig



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BOOK VERSION: 3

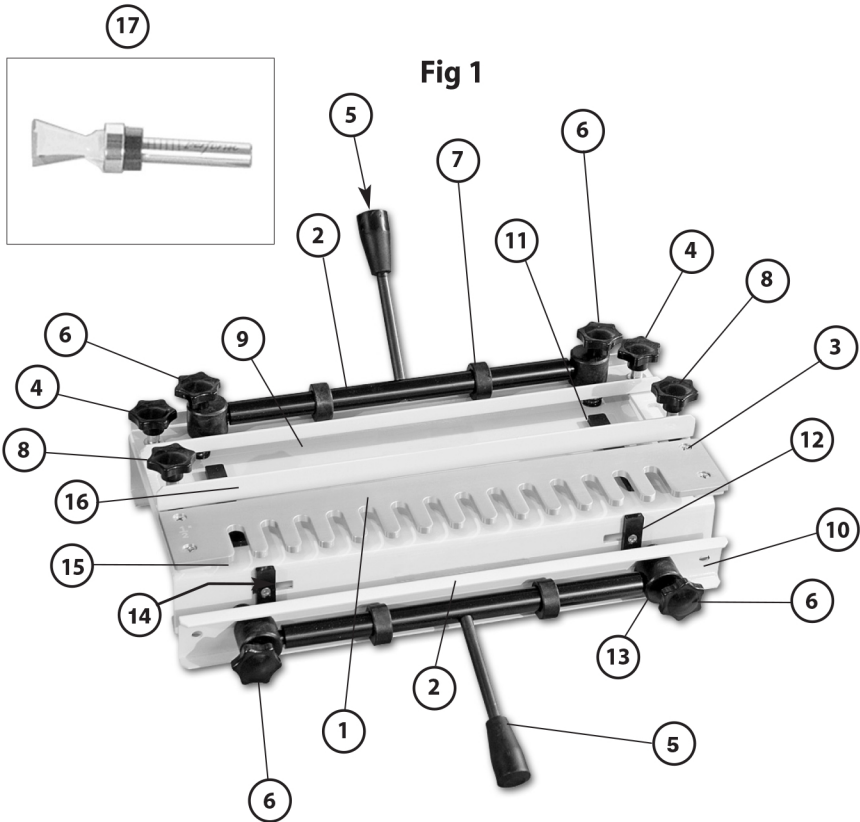
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What's in the Box

Part No	Item	Qty
1	Template	1
2	Eccentric Bar	2
3	Template Securing Screw	4
4	Template Adjusting Screw	2
5	Eccentric Bar Handle	2
6	Clamp Adjusting Screw	4
7	Eccentric Cam	4
8	Backstop Adjusting Screw	2
9	Top Clamp Bar	1
10	Front Clamp Bar	1
11	Long Stop Pin	2
12	Short Stop Pin	2
13	Eccentric Bar Mounting	4
14	Clamp Bar Spring	4
15	Main Body	1
16	Backstop	1
17	TCT Router Cutter (666039)	1

Illustration and Parts Description of Dovetail Jig



Introduction

You now own a jig that will make jointing drawers and boxes with your router a fast and easy task. Although most routers can be used successfully with this jig the medium sized machines with fine height adjusters are the most suitable. Follow these quick set up instructions and you can soon be producing accurate and good looking stopped or lapped dovetail joints without the need for time consuming and laborious hand work. This type of dovetail gives a

clean smooth interior to the box or drawer with a neat craftsman - like joint showing on the outside. A little time spent now getting to know your jig and establishing the correct settings will pay dividends in the future. Once adjusted to the thickness of your timber the cam action clamping system is a quick, one lever operation enabling fast alignment of work and a secure hold during machining.

Specifications

Axminster No	502514
Rating	Home Workshop
Dovetail Size	15mm
Material Thickness	15 to 32mm
Material Width	275mm
Material Thickness	Front and back pieces 1/2" (12.7mm) to 11/4" (32mm)
	Side pieces 3/8" (9.5mm) to 3/4" (19mm)
Joint Size	The template and cutter supplied will produce dovetail pins and sockets approximately 3/8" (9.5mm) deep and spaced 1" apart. The purchase of a bearing guided straight cutter, (order no. 666106), will enable 1/2" wide box joints to be made in timber up to a maximum thickness of 3/4"(19mm)

1. Assembling and Mounting the Jig

Screw the front and top handles into the eccentric bars in such a way that the workpiece is locked when the top handle is pushed away from you and when the lower handle is pushed downwards. Mount the jig to a firm and stable workbench at a comfortable height, remembering that the router sits on top of the jig. The jig must be mounted close to the front edge so as to leave clear passage for the timber to the front, vertical clamp. Also, leave ample clearance to the rear of the jig

to accommodate the longest length of timber you are likely to want to work a dovetail joint on.

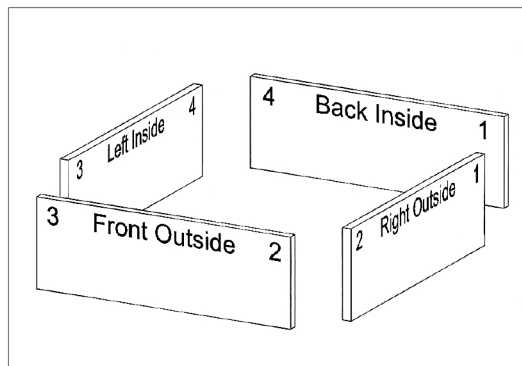
There are two holes provided in the base for securing the jig to the bench. The front clamp holds the side piece and the top clamp holds the front or back piece of the drawer. The complete joint is cut in a single pass through the side piece (making the pins) and into the back or front piece (making the pockets).

2. Preparation of Timber

As with all joinery work the drawer or box components must be sized and cut square accurately. It is preferable that the width of the timber is in exact steps of 1/2" (i.e. 5", 5 1/2", 6", 6 1/2", etc.) as this will give a series of fully-formed dovetails without part-formed pins or sockets at the ends. The dovetail joints are cut with the insides of the components facing

outwards and the edges that will form the top drawer hard up against the side stops of the jig, therefore the right hand side of the drawer and corresponding front joints are cut on the left hand side of the jig and vice versa. It is a good idea to identify the drawer pieces as in Fig 2 so that they are positioned correctly in the jig.

Fig 2



3. Setting the End Stops

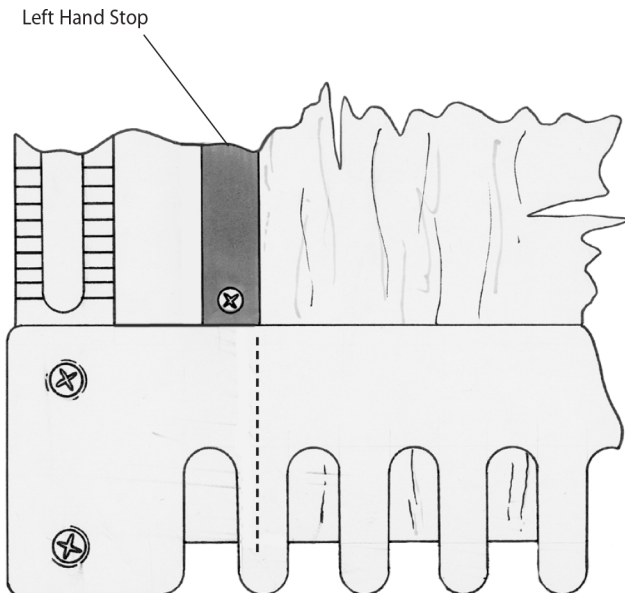
Start by temporarily removing the front clamp bar from the jig. Now draw a pencil line across the template, halfway across the first finger and square to the edges of the template.(see Fig 3).

Set the top left hand stop in line with the line marked on the template and square to the body of the jig.

Offset the left hand vertical stop $1/2"$ to the right of the top one and square with the top face of the jig (Fig 4).

Mirror these two settings on the right hand side of the jig, ensuring that 90° alignment to the front edge of the jig is maintained.

Fig 3



3. Setting the End Stops

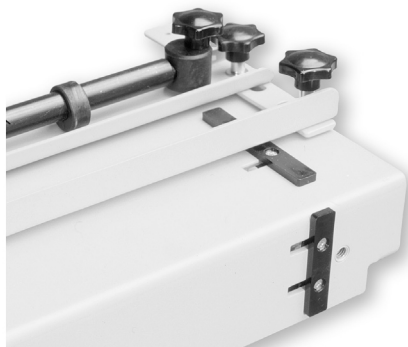
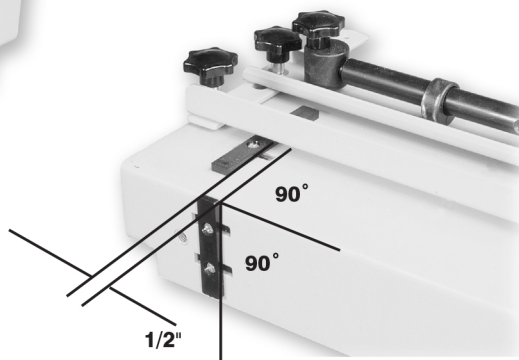


Fig 4



4. Setting Template and Backstop

Unlock the two locking knobs (4) see Fig 5 and position the template so that the tips of the fingers sit inside the vertically mounted timber by a minimum of 1/16"(1.5mm) for thin timber and 1/8" (3mm) for thick timber (see Fig 5).

Set the back stop so that the longest travel the cutter can make is twice the thickness of the vertically mounted drawer side pieces, plus the distance from the centre of the cutter to the edge of the router base plate that will contact the back stop, less half the diameter of the cutter (see Fig 5).

Example:- Using an router with a base width of 110mm, a drawer side 15mm thick and the standard cutter supplied with its tip diameter of 14.8mm, the distance from the tips of the template fingers to the vertical face of the backstop should be set at $(110/2) + (2 \times 15) - (14.8/2) = 77.6\text{mm}$.

It is not essential that this setting is exact at this stage as final adjustments can be made later on.

Ensure that the template and back stop stay in parallel with the front edge of the jig during this setting procedure.

4. Setting Template and Backstop

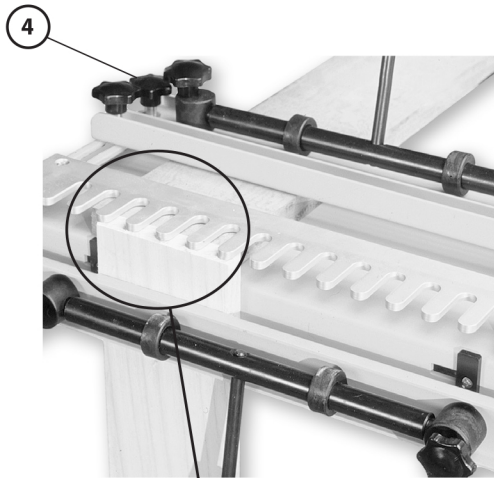
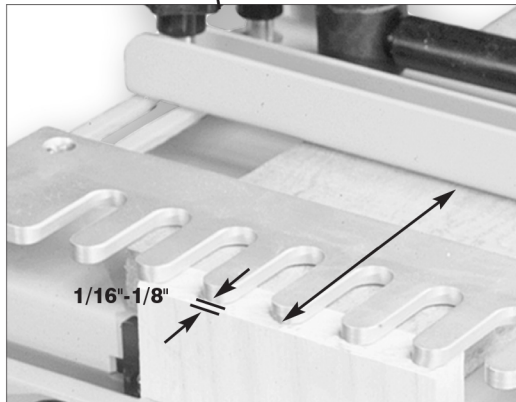


Fig 5



5. Assembling Timber into the Jig

Adjust the top and front clamp bars via the hand screws at either end of each bar so that the wood is held firmly in place when the cam clamp handles are operated. When narrower pieces of timber are being worked it is best to use a packing piece of the same thickness at the opposite end of the clamp bar to ensure an even grip and to avoid distorting the bars.

Align the timber so that the piece forming one of the sides of the drawer, mounted in the front vertical clamp, extends above the front edge of the jig by the thickness of the piece to be mounted in the top horizontal clamp (front or back of drawer). The piece in the top clamp is then butted up to this so that both are flush under the finger guide (see Fig 6).

Fig 6



6. Setting the Dovetail Cutter

Fit the bearing guided cutter securely into the router collet and then set the cutter depth, preferably using a fine height adjuster, until the bottom face of the cutter protrudes below the router base by 16mm (see Fig 7). Allowing for the 6mm thickness of the template this will give a nominal dovetail depth of between 9 and 10mm. The fitting of a packaging piece between the timber and the template should not be necessary provided that the cutter is set deep enough and the

router is held firmly on the template during cutting (see following comment).

The cutting depth is critical to the final fit of the joint, with as little as 0.5mm change in depth making all the difference. A number of trial cuts will probably be necessary, with adjustments to the cutter depth being made to achieve the best fit.

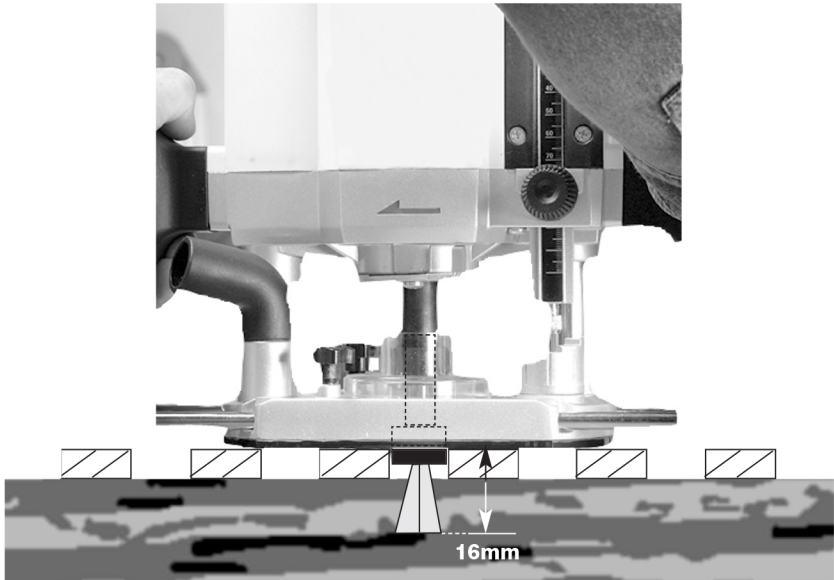


Fig 7

7. Cutting the Joint

Because there may be a need to alter one or more of the settings in order to get the joint to fit correctly it is wiser to carry out the initial cuts on two trial pieces of timber of the same width and thickness as the final components.

Position the router on the template with the cutter clear of the timber and switch on.

Now with just a light cut run the router from right to left across the work, just touching the end of each finger. Continue the cut allowing the router to do the work and avoiding any heavy-handed forced contact with the template. Follow the template in and out of the finger guides working from left to right. When completed switch the router off before lifting it from the jig.

It is important that a firm and even pressure is kept on the router whilst the joint is being cut; this will both ensure an accurate joint and prevent any possibility of the cutter guide bearing disengaging from the slots in the template.

Remove the pieces from the jig, make a trial fit and then, if necessary, make the following adjustments:

- **If the fit is too loose, increase the cutter depth by 0.5mm.**
- **If the fit is too tight, decrease the cutter depth by 0.5mm.**
- **If the pins stand proud of the joint, move the back stop further back.**
- **If the pins sit too deep in the joint, move the back stop further forward.**

Having made the necessary adjustments you can either make a second trial cut or proceed directly to the final joint. Once the correct settings have been made then production runs of joints can be undertaken, although the settings will need to be checked periodically to maintain accuracy.

Additional cutter available:

Axcaliber Dovetail Cutter (**Order no: 951241**)

With a greater cutting depth this cutter is offered as an alternative to the standard cutter supplied with the Axminster dovetail jig and is suitable for material thickness of approx 19-30mm.

8. Box Jointing

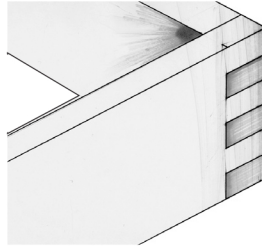
Box joints can be formed in timber with a maximum thickness of 3/4" using a 1/2" template profile cutter, Stock No 666106. The procedure is different from that used for dovetailing in that both boards are mounted vertically in the front clamp and cut independently of each other with the fingers in one board offset by 1/2" from those on the other.

First of all, the template assembly needs to be brought forward as far as possible and locked in position with the locking knobs (4) see Fig 5; this will allow the cutter to move far enough in the fingers to cut the full 3/4" thickness of timber. Next, the template assembly should be raised high enough to allow the cutter to cut to its full depth without fouling the top surface of the jig body. This can be achieved by placing a timber spacer (or spacers) underneath both the rear clamp

and the template and locking in position with the rear clamp. The spacer should be at least 1/8" (3mm) thicker than the timber being jointed which should be enough to ensure that the cutter will cut the full depth without contacting the body of the jig.

The depth of the cutter below the router base plate should be set to give the required joint depth plus the thickness of the template (e.g. 19 + 6 = 25mm in the case of 3/4" timber). It is important to note that when thinner timber is used the guide bearing will sit higher up in the template and in this case it may be necessary to position the timber below the bottom of the template (with the aid of a thin plywood shim) so that the bearing still runs within the depth of the template.

Fig 8

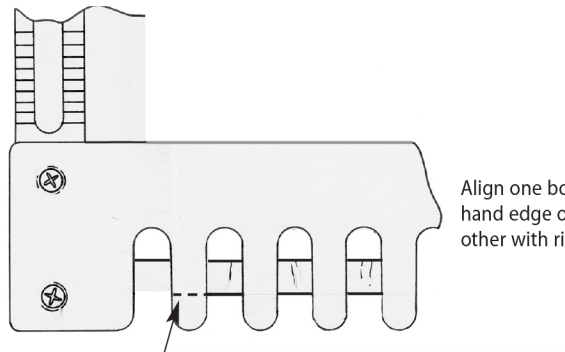


The first board should be positioned in the jig with its left hand edge in line with the left hand edge of one of the template fingers and its top edge in contact with the underside of the template as shown in Fig 9. Place the router on the template with the cutter clear of the timber, start up the router and then trace around the template fingers. When cutting is completed switch off the router and let it come to a stop before removing from the jig. The second board is cut in the same way except that its left hand edge is lined up with the right hand edge of one of the

template fingers; this will automatically produce the necessary 1/2" offset between the two halves of the joint. If multiple joints are to be made then it may be more convenient to use the vertical end stop to position the timber correctly relative to the template quickly and accurately each time.

WARNING Before starting to cut the timber make sure that (a) the bottom of the cutter is well clear of the top face of the body of the jig and (b) the cutter guide bearing is running correctly in the template.

Fig 9



Align one board with left hand edge of finger, the other with right hand edge.

Miniature Joints

There is a special kit available, consisting of fine finger template, template guide and cutter, which can produce 6mm deep dovetails spaced 11mm apart for making small boxes, drawers, jewellery boxes and similar small projects. There is also a fine comb jointing cutter for use with the same template.

(Order from Axminster Power Tool Centre under the following numbers):

- 410227** Fine Dovetail Set
- 666267** Fine Comb Joint Cutter

Axmister Tools, Axminster, Devon EX13 5PH

axminstertools.com