

## Router Know-how

A wide variety of sizes of roundover cutters – back row – cove cutters – middle row – and corebox cutters – front row



PHOTOGRAPHS BY GMC/ANTHONY BAILEY

# Roundover, ovolo, cove and corebox cutters

**The Editor** turns his attention to a group of cutters that not only appear in most cutter sets but get quite a bit of use because they are so versatile

At first glance lumping these four patterns of cutter together may not seem to make a lot of sense. However, an ovolo is simply a roundover with a smaller bearing or vice versa, a cove is the reverse profile and corebox is effectively the same without any bearing. However, it is likely to be the humble roundover which gets the most usage, as it deals with the problem of improving or finishing the edges of a workpiece.

### TYPICAL USES Roundover or ovolo?

**1** You will find that roundover cutters and their bearing modified ovolo equivalents vary tremendously in size from a tiny 1.6mm radius right up to a very large 38.1mm – which are actually sized at 1½in. Most users of these cutters will hover in the middle with sizes from 6.4mm up to around 19mm radius.

Welcome to 'Router Know-how,' a new series devoted to routing by our very own router devotee Anthony Bailey, otherwise known as 'The Editor.'

Following on from 'Router Class,' Anthony now looks at the subject more from the 'sharp end'; telling you all that he knows about cutters, how to use them, care for them, and the best routers and jigs to use with them. As always, Anthony would like to hear your questions and views on this very broad subject, and who knows, you may get published in our brand new 'Community' pages. Read on...

**2** Roundovers suit modern style work and look best when used on softwood and light hardwoods such as maple (*Acer campestre*) or beech (*Fagus sylvatica*). When machining red 'mahogany type' timbers one is often looking for a more traditional look, in this case the ovolo usually wins because the presence of one or both steps or 'quirks' that the ovolo produces immediately tells us that the look and design is more classical.



**1** Cutter sizes vary tremendously but the most used will fall between these two extremes shown

**3** However, when I am working with oak I never use either of these types for removing the arris – two meeting edges – a corner, is referred to as the arris – instead I invariably opt for a bearing guided bevel cutter. It looks right with oak and you can create a stopped bevel effect which itself is a traditional moulding feature. So this is very much an aesthetic as well as a practical decision; every user and every design is different, there is no hard and fast rule to follow.

**4** When producing any piece of furniture or joinery raw edges have the potential to not only hurt on contact but also to produce vicious splinters, sometimes quite large ones. Normally the minimum requirement is to 'break' the arris. This means lightly sanding a raw corner to take away any sharp or hazardous



**5** A child's stool looks and feels better with a very positive roundover on all edges



**2** Although not an absolute rule, light coloured woods suit contemporary styling and mahogany type woods the more traditional appearance with more intricate mouldings

edges. It also looks more finished; however, the use of a roundover – or bevel – can improve the look further still and improve on any torn or rough surfaces by removing edge damage.

**5** What degree of rounding over is correct? This isn't just aesthetic, for instance, toys or furniture for children have to be made to the relevant British Standards and are usually accompanied by a lot of medium radius rounding over for comfort and to improve safety.

**6** If you want to fit a maple worktop in a kitchen, for example, then such large roundover tends to look wrong but is also unnecessary. I normally use a 3.2mm roundover which keeps the square, clean look but also creates a very pleasant 'comfort edge'.



**6** This kitchen worktop has a small 3.2mm radius roundover for comfort and appearance





7

The remaining 'land' for the bearing is only just wide enough and may not look right either, a smaller roundover would be better

7 Traditional furniture tends to be more ornate, even in the simplest styles. There will be square edges but less of them and the use of an ovolo is useful to reduce the bulk of an otherwise unbroken edge. Choosing the right size ovolo is partly taste and partly based on material thickness. It can be instructive studying antique furniture to see how mouldings have been used in the past. In the case of an ovolo it is pointless using it if there isn't much of a step left behind as it will look wrong and be precarious, as the bearing could slip off the remaining unmoulded edge. With any bearing guided cutter you must of course leave enough material for the bearing to run against.

### Cove or corebox?

8 Both these types are counter-profiles to the roundover and ovolo but are often used a bit differently. Firstly, the cove takes away a much larger chunk of wood so more and shallower passes to depth are needed to avoid straining the cutter and router motor and reduce any



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The principle of the rule joint for table flaps – flap hinges are fitted underneath



8

These biro marks show how much more wood is machined away by a cove cutter compared to a roundover and why you need to take more passes as a result

tendency to tearout. Indeed the last pass should be very shallow, just a cleaning up pass.

9 Like the ovolo, when machining an edge with a cove cutter ensure there is enough 'land' left for the bearing to run against. The cove when used on edges is more of a strong visual statement and may appear less on a traditional piece but look better on contemporary furniture if used correctly. The cove does not produce a step like the ovolo; for that you need to choose a specific moulding cutter that can do it.

10 You can buy matched roundover and cove cutters intended for creating rule joints on



11

The corebox is ideal for creating sink water run offs on wooden draining surfaces



9

This carcass exterior looks OK square but the undercut cove for the shelf relieves the look of this unit

traditional Pembroke and sofa tables. With the correct flap hinges fitted the hinged edges slide neatly as the flaps are raised or lowered.

11 The corebox – sorry, I don't know the origin of the name – tends to be reserved for a column fluting effect on reproduction furniture or more practical uses such as window sill drip grooves or on kitchen worktop draining surfaces. It can also be used to create coves, especially in larger sizes where some form of guidance is used. Corebox cutters do not have bearing guidance or they would be cove cutters instead. The exception would be where a bearing is fitted above the cutter for template following.

## TOP TIPS

1 Choose cutters where the bearings can be interchanged. A mixed cutter set may have several bearing sizes that can be swapped around. This will help you go from roundover to ovolo easily.

2 Often you may only want one quirk such as on a narrow shelf edge. You can do this with a roundover just by setting the cutter down enough to create one step.

3 When depth setting with a roundover make the final depth fractionally less than the surface so the cutter cannot dig in and create a tiny lip that is hard to sand away.

4 Make sure that you have a good selection of sizes to suit a variety of jobs. Using too large a radius of cutter along two opposing edges, for example, can result in a slight overlap 'peak' and spoil the resulting profile.

5 Remember that if you have cutters professionally resharpened the profile will no longer match the bearing diameter.



7

The top flute has a slight burn which is hard to sand out; it can often be worse than this, especially with a slightly blunt cutter – keep the router moving



8

The cutter on the left is really too big for the shank; the one on the right is well supported by a much bigger shank



1

Two bearings give the option of a roundover or an ovolo without buying two dedicated cutters



3

Always set the cutter depth up a fraction to avoid creating a ridge line that cannot be sanded out

6 When using a cove cutter, the depth of each pass needs to be less the deeper you go, as the cutter will remove an increasingly large amount due to the profile shape.

7 Corebox cutters burn the wood quite easily, because the speed at the very centre is slow, in fact no movement in the absolute middle, perhaps an atom's width. Do not dawdle at the start and stop of each flute when doing stopped cuts.

8 Larger size cutters are better on 1/2in shanks, especially cove cutters, as the strain is less on the shanks and more power is available.



9

Cove cuts in particular need extra support to avoid the work chattering and the moulding being marred as a result of this



2

Even a roundover cutter can create a one step ovolo type effect as for a shelf shown here



4

This is exaggerated but demonstrates the need to choose a smaller roundover and avoid a peak which ruins the job and means the finished profile isn't supported by the outfeed fence either

9 Straight cutting coves is better done on the router table using a 'tunnel' or plenty of hold downs to give an even, chatter-free finish. In this example a batten has been pinned to the underside of a piece of ply to act as a hold down and spring fingers have been used at the side, held in place with a number of clamps. ■

### Router cutter manufacturers and suppliers

Wealden [www.wealdentool.com](http://www.wealdentool.com)

Trend [www.trend-uk.com](http://www.trend-uk.com)

CMT [www.cmttools.co.uk](http://www.cmttools.co.uk)

Titman [www.titman.co.uk](http://www.titman.co.uk)

Makita [www.makita.co.uk](http://www.makita.co.uk)

Axcaliber [www.axminster.co.uk](http://www.axminster.co.uk)

Whiteside [www.routercutter.co.uk](http://www.routercutter.co.uk)

Infinity [www.infinitytools.co.uk](http://www.infinitytools.co.uk)