

PHOTOGRAPHS BY RICHARD FINDLEY

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Richard is a registered UK professional woodturner living and working in Leicestershire. He discovered woodturning while working for his father as a joiner. Richard makes all kinds of work to commission, from replacement antique components, walking canes and stair spindles, to decorative bowls. It is the variety of work that he loves. He also offers demonstrations and a range of woodturning supplies.

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The bowl gouge is one of the key tools for a woodturner, especially if bowls are your main area of interest. Once proficient with the bowl gouge, you can produce a bowl from start to finish with a single tool, making everything from roughing cuts, shaping cuts, finishing cuts, scraping cuts and shear cuts. As with most tools, there is a steep learning curve and a huge range of variations available to trip up the unwary beginner and even some more experienced turners. The most common bowl gouge problems include:

- Tool choice
- Grind profile
- Bevel bounce
- Catches when entering the rim of a bowl
- Poor finish – tear-out
- Rippled surface
- Pimples and dimples at the bottom of bowls
- Cutting through the side

Tool choice

As we have seen before, we have tool choice as the first problem when choosing a tool. Manufacturers offer a dizzying array of tools and the bowl gouge is no exception. The options can be split into several areas of choice, including size, flute shape and metal type.



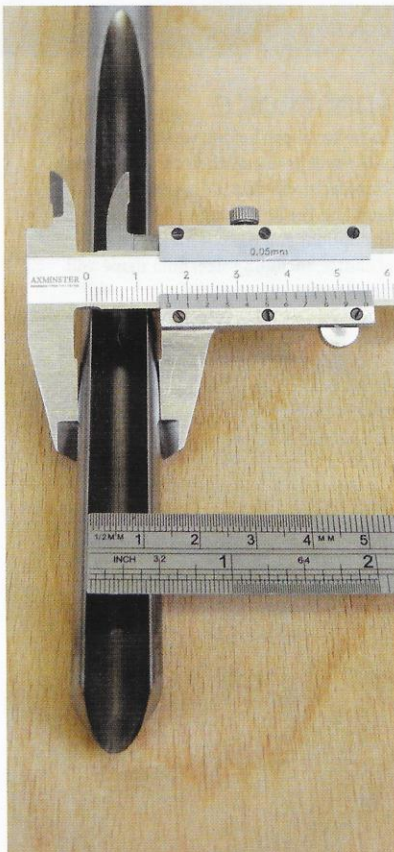
A selection of bowl gouges

Size

Spindle gouges worldwide are sized by their bar diameter, so a spindle gouge with a 10mm shaft is a 10mm spindle gouge. Simple. In the USA, this system applies to bowl gouges too, but here in the UK, we have a more complicated system, that even manufacturers can't seem to fully understand – and if they don't, how do we stand a chance?

Depending on who you talk to, measuring the size of a bowl gouge in the UK can be based on the width of the flute, or sometimes the measurement of the flute plus one side of the gouge. Basically speaking, a bowl gouge with a 12mm bar will usually be considered a 10mm bowl gouge, whereas in the US, a tool with a 12mm bar will be a 12mm bowl gouge. Confused yet?

To my mind, a UK 10mm bowl gouge – which has a 12mm bar diameter – is the best all-round size to use. This will handle bowls of most sizes, but if you do larger work or deep bowls, then you may benefit from a UK 12mm bowl gouge, which has a 16mm bar diameter, as this has more stability when you reach further over the toolrest. A UK 6mm bowl gouge, which has a 10mm bar diameter, can be useful for smaller bowl work and some finishing cuts, but I must admit to having never found the need to buy one.



Measuring a UK 12mm bowl gouge gives no clue to its actual size

MYTH BUSTERS:

Myth – 'Biggest is best! Get a big gouge and get big shavings flying!'

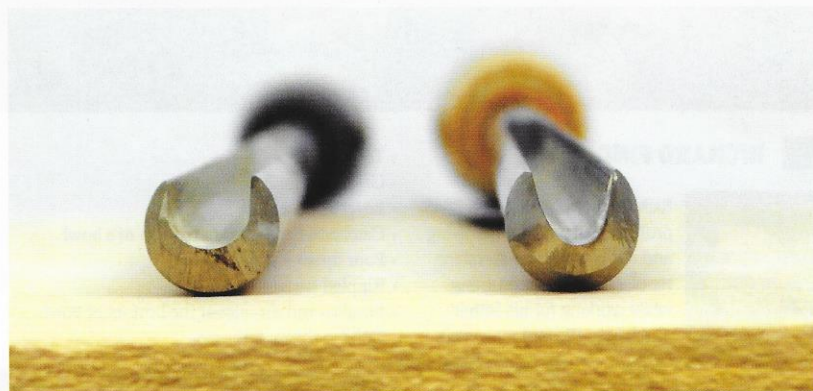
There are a few issues with going out and buying the biggest gouge you can find. Firstly, can your lathe handle it? Many mini and midi lathes won't have the power to handle the huge cuts that a large gouge is capable of. Secondly, a large heavy gouge is pretty hard work to handle for long periods, especially if it isn't really necessary. Thirdly, what sized work are you intending to do? Large bowl gouges come into their own on large work where the tool overhang can get quite large to reach the centre of the bowl and the longer handle is useful to counteract the leverage forces of turning large diameter work, but if you only intend to turn 305mm or 355mm bowls, there really isn't any need for a large bowl gouge. In my opinion, a 10mm bowl gouge is the best all-round size

Flute shape

The flute of a bowl gouge is a vital part of the tool's design. Unlike the spindle gouge, the bowl gouge has a deep flute, designed to help clear a large amount of shavings very quickly out of a bowl as you turn it. Spindle gouges tend to remove much smaller amounts of timber at a time, so have much shallower flutes, which gives the smaller tool better stability in use.

There are two main flute designs: 'U'-shaped flutes and 'V'-shaped flutes. The

difference is subtle and some turners will tell you in no uncertain terms that one is better than the other. That one will clear shavings better or achieve a better cut. In fact, both work, but it's more about which you get used to or prefer, than any real science. If you get the chance, try both before you buy. If you don't, then stick to a gouge from your favourite manufacturer and get used to it. Whatever shaped gouge you first buy will most likely be your personal favourite.



The two main flute shapes are 'U'-shaped and 'V'-shaped

Metal type

When I first started turning, which wasn't that long ago, there was the choice of carbon steel or high speed steel – HSS. Today most tools, but particularly bowl gouges, are available in a range of exotic metals. The problem is I'm no metal expert, far from it in fact, so I have to be guided by what the manufacturers tell me. There is little doubt that these modern exotic metals help a tool stay sharp for longer between sharpening, but naturally this comes at a cost.

Those that specialise in very hard woods or use a lot of abrasive timber, or do production type turning, will no doubt benefit from more exotic metals but I doubt your average hobby turner would notice much difference or benefit from the additional price tag that they carry.

Grind profile

Next month, I will be looking in more detail at the pitfalls of sharpening, but in an article about bowl gouges, the various profiles that can be achieved can't be overlooked. Grinds vary from 'standard', which has a single bevel and wings that are almost vertical when viewed from the side, to 'long-grind', which can have the wings ground back towards the handle by 25mm or more. Which is best and why? As usual, my approach to finding the perfect grind for my style of turning was pretty pragmatic. I started with a standard grind and gradually took the wings back a little further each time I sharpened the gouge, until it seemed to do what I wanted it to do. Over time, this will have varied a little, but I now use a grind which may be called a long-grind, but is nowhere near as long as

many turners use. I find this grind incredibly versatile and it works for me, but I am aware of the subjective nature of modern turning and realise that this may not be perfect for everyone. The pros and cons of each grind may form a list that would cover several pages, so I'll keep my list concise.



Different grind profiles of bowl gouges. The top and bottom are my personal preference of grind on different sized bowl gouges, the centre is a 'standard' grind

Standard grind:

- Many professionals will maintain that a standard grind gives a superior finishing cut when compared to a long-grind version, because of the profile near the tip
- Best used in a push cut, rather than the pull/draw cut or the shear cut
- The upright wings can be a catch hazard if you aren't aware of them as you turn

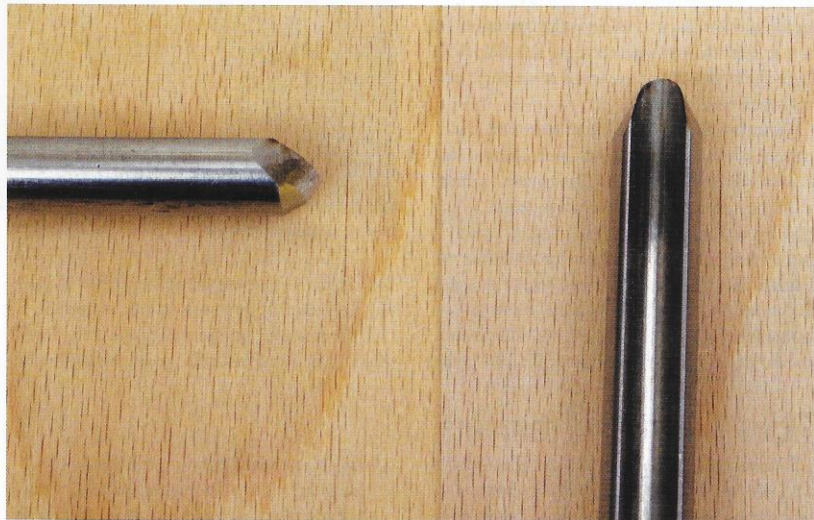
Very long grind:

- Good for pull/draw cuts

- Excellent for shearing cuts because of the long straight wing
- Aggressive cuts can turn into aggressive catches if you aren't aware of just how much wing you are using

My 'slightly' long-grind:

- Good for both push and pull/draw cuts
- The wing can be used for shear cuts
- The wing is large enough to take aggressive cuts, but not so long that they can get out of hand



My preferred grind, viewed from above and the side

Bevel angle

This debate could go on and on – ask 10 turners and you will certainly get 10 different answers. My personal preference is for a 60° angle and to remove the heel of the bevel. I find this is the best all-round angle, giving good access to the inside of bowls of all shapes, giving good control in the cut and offering a high quality of finish. Some turners will swear that a longer angle of around 45° will give a superior finish, but in my experience, it is harder to control and restricts access to the inside of some shapes. Other turners will tell you that you need several different gouges with different profiles and bevel angles for different situations. These turners will certainly have a perfect gouge for every bowl, but must have bigger wallets than me!

I believe that the bevel angle and profile that I use is the best all-round option. I am aware that this probably means that I compromise in some areas, but I am yet to find them!

Then the problems start...

So, you have finally chosen a tool and ground it to a profile that seems to work, generally speaking you can turn a bowl, but you still get a few problems...

Bevel bounce

This is a common problem that is hugely frustrating because it can be very hard to understand what is going on. Some timbers are more susceptible than others, but it can happen on almost any species. In my experience walnut (*Juglans regia*) and maple (*Acer campestre*) are frequent candidates.

Bevel bounce happens, usually on the outside of a bowl as you make a push cut around a curve. It makes a knocking noise and may or may not physically make the tool bounce. Either way, the outcome is a less than smooth surface on your bowl. There are three solutions to this problem:

1. Apply less pressure to the bowl. The cause of bevel bounce is too much pressure between the bevel of the tool and the wood, so make sure you apply your pressure tool to toolrest, rather than tool to wood
2. Try adjusting the angle of attack. Sometimes just lifting the handle of the tool a little will naturally reduce pressure between the tool and the timber
3. Remove the heel of your bevel. Softening the heel of the bevel makes the contact between the tool and the timber much more gentle and so the chances of bevel bounce are therefore greatly reduced.



The result of bevel bounce is a series of spiral ridges around the outside of your bowl

❑ Catches on the rim of a bowl

Catches can happen at any time when turning. A momentary lapse in concentration and BANG! The most common and probably most frustrating of these catches when turning bowls is on the rim, as you begin to cut into the bowl. There are a number of approaches to reduce or even eliminate this problem altogether: keep your tool sharp – standard advice to solve any turning problem! Present the tool at the correct angle – the tool needs to be on its side – and begin with the flute at 3 o'clock. Only once you are safely in the bowl should you open the flute to around 2 o'clock to achieve the optimum cut. If you start the cut with the flute at 2 o'clock, then the tip touching the wood at an angle can pull it off to one side.

Some bevel angles are easier to control than others: on one occasion, I was demonstrating bowl work at a club and couldn't seem to make a clean entry cut, no matter what I tried. It was only when I got back to my workshop that I realised my bevel angle had, over a number of trips to the grinder, lengthened from my usual 60° to around 45°. I must confess to not fully understanding the reason why 45° should be harder to make a clean entry cut than 60°, but it



A catch on the rim of a bowl

did, which only strengthened my belief that 60° is a better angle to use on a bowl gouge!

Make a safety cut: as a safety measure, I will often make a groove in the position that I want

the rim of my bowl, with the tip of my skew chisel in scraping mode, which gives me a place to locate my bevel and so greatly reduces the chance of a catch.

Poor finish and tear-out

I covered this problem in detail a few months ago, but it is enough of a problem that it is worth touching on again. As you cut around a bowl, most common on the inside I find, there are two areas that always seem rough, either visibly or just to the touch. There are a few possible solutions here too:

1. Sharpen the tool. You must be fed up of reading this by now, but honestly, sharpening your tool correctly will solve or at least greatly reduce most common turning problems
2. Presentation: often a tiny adjustment to how you present the tool to the wood can make a world of difference. The natural

temptation when turning the inside of a bowl is to keep the tool on its side, with the flute facing around 3 o'clock. By simply rolling the tool by a small amount, so the flute sits around the 2 o'clock position, the geometry at the tip of the tool means the performance of the cut is greatly improved. Try making a cut on some spare timber, first with the tool fully on its side, then further passes, each with the flute a little more open than the last and see the difference it makes

3. Add some finish; the reason that the two particular areas feel rough is because they are where you are cutting against the grain

of the wood. There is nothing you can do about that, it is a physical fact of bowl turning that you will always cut against the grain twice in each rotation of the wood.

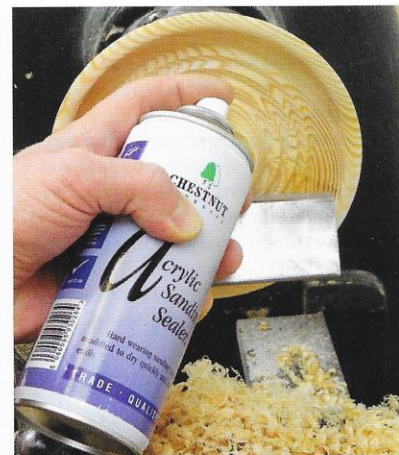
In these two areas, the fibres of the wood are being lifted in the wrong direction, by applying a coat of the finish you intend to use on your finished bowl – whether that is oil, lacquer, sanding sealer or wax, it doesn't really matter – it will get into the wood and support those difficult fibres, allowing them to be cut by your freshly sharpened and correctly presented gouge, which should combine to produce an almost perfect finish.



The familiar sight of tear-out on the inside of a bowl



The flute position is described as if the flute is looking at the face of a clock. 10 o'clock or 2 o'clock are the most common flute positions for the best results



Applying finish to difficult areas will often help to improve the surface finish

Rippled surface

There are several reasons for a rippled or uneven surface after a cut with a bowl gouge. The first is that you haven't moved the tool smoothly enough across the surface. This can only be improved with practice, good body movement and a bit more practice. If all else fails, you could resort to a scraper. Sometimes, however, ripples can be caused by the grind on your tool. Once again, these ripples are seen on the inside of a bowl, most often on bowls with a fairly tight curve and will tend to be evenly spaced. These are caused by the heel of your bevel rubbing behind the cut.

'But the bevel is supposed to rub behind the cut', I hear you say! Correct, but sometimes,

if the bevel is too long it can prevent a smooth cut, in much the same way that a wide bandsaw blade will prevent you from cutting a smooth disc of a small diameter. The back of the blade binds in the cut, forcing the cutting part away from the line that you intend to cut. The only solution is to use a narrower bandsaw blade. This is exactly what is happening with the bevel of the gouge: the heel is preventing the tip from following the curve that you intend and even though you can't feel the problem as you cut, it presents itself as a series of evenly spaced ridges inside your bowl. Reduce the length of the bevel by removing the heel and grinding a secondary bevel.



The ripples caused by the heel of the bevel

Pimples, dimples, nipples and nubs

Whatever you call that little bit at the bottom of the inside of a bowl, it's annoying. You find you managed to get the rest of the bowl beautifully smooth and just as you finish the last cut on the bottom of the bowl, there it is again, a little lump or hollow, right in the centre.

There is something of a knack to removing this correctly. The main thing to understand is that the centre of the bowl is spinning much more slowly than the outer edge. While it is all travelling at the same RPM, think of a line of skaters moving in a circle, the centre skater barely moves to turn the same number of rotations as the outer skater, who has to skate very quickly to keep up.

Because the centre spins so much slower, there is no way you can feed the gouge at the same rate across the whole bowl and achieve an even finish. You need to slow down

the speed that you move the gouge as you approach the centre; this gives much more control and an improved finish, it also gives you a chance to position yourself correctly to finish off the cut.

As you slowly approach the very centre of the bowl, the gouge should be very slightly below the centreline, flute facing around the 2 o'clock position – pretending the bowl is a clock face – and you should see the tiny pip that remains just drop off into the flute of your gouge. Because of your slower movement, you will find that you have much more control over the tool and the risk of overshooting the centre – which almost always ends badly – is almost totally removed. Just a few practices should see the end of the problem of pimples, dimples, nipples and nubs.



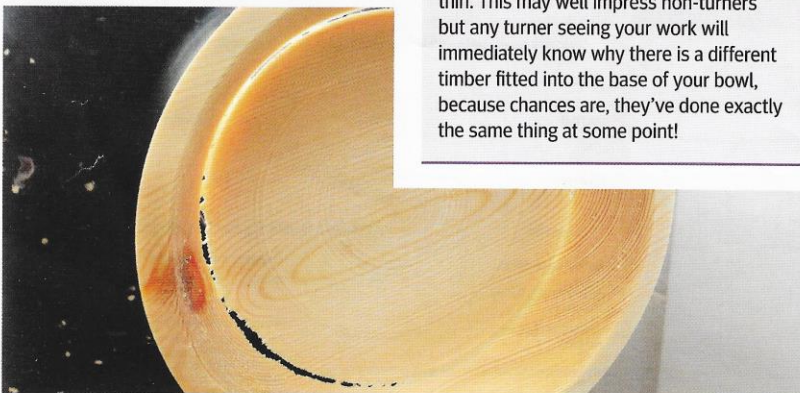
The pimple left in the bottom of a bowl



The correct way to remove the pimple at the bottom of a bowl

Cutting through the side of a bowl

While cutting through the side of a bowl is not strictly a bowl gouge problem, it seems to fit here – and it usually is a bowl gouge in your hand when this happens. It is a perennial problem that does become less common with practice, but it is hugely frustrating nonetheless. My main advice is to buy a decent set of callipers and don't be afraid to use them!



Oops! Too thin!

What can I do if I cut through the bottom of a bowl?

Something I have seen and indeed done myself, is to fit a contrasting or complementary plug into the bottom of the bowl where you may have gone a little too thin. This may well impress non-turners but any turner seeing your work will immediately know why there is a different timber fitted into the base of your bowl, because chances are, they've done exactly the same thing at some point!



Traditional hour glass calliper – right – and the modern Hope calliper – left – which look strange but are the best type I have found for bowl work



Hope callipers in use, the measuring scale shows exactly how much wood you have left