

Demystifying the skew chisel

PHOTOGRAPHS BY KURT HERTZOG

This month, **Kurt Hertzog** talks about the skew chisel

Of the many tools in a woodturner's kit, the skew chisel alone usually falls into the love or hate category. Few woodturners are neutral on the tool. The classically trained tradesmen learn the power and versatility of the tool and it is often their 'go-to' tool for nearly all of their spindle work. The self-taught turner usually struggles with the skew chisel and, without some outside guidance or supreme perseverance, will rarely master the tool. Others who have had guidance during their learning will usually learn effective use of the tool provided their instructor is proficient with the tool. If you have mastered the skew, skip this column and go enjoy the rest of the magazine. It is beyond the scope of this article to teach you how to use the skew chisel, but I'll share a few of the 'rules' that have helped me. If you haven't truly mastered the skew, read on to see if we can take some of the mystery out of the tool and help with some pointers to assist with learning.

Safety

There is a very simple lathe tool available to take some of the anxiety out of learning and practising with the skew chisel, as well as enhancing the safety. Rather than using a four spur drive centre or other solid engagement drive centres to drive the workpiece, use a



Rather than the standard four spur, pick up a safety or cup centre. With or without the pin, it will aid your learning

safety centre – sometimes called a cup centre. This drive centre is readily available through the standard woodturning supply sources. Modestly priced, they drive the work via the friction of the engagement of a sharpened ring. When you have a catch, the work piece being driven will stop once the friction of the ring has been overcome. You can adjust

this threshold by how much force you have applied through the tailcentre force. Once you own a safety centre, you'll find many uses for it during your normal turning. If you remove the centre pin, it allows for infinite re-adjustment of the work at the headstock end, much like the pinless tailcentre, allows for minute adjustments.

Types of skew chisels

There are a host of skew chisels available from nearly all of the tool makers. These range in size, cross-sectional shape, skew angle, and type of grind. The skew chisel also can be readily made for the 'shop handy turner either from the appropriate tool steel or being a regrind of a flat scraper. Ignoring the grind style and size at this point, the most common skew chisel shafts are rectangular cross section, oval, or round. There are other woodturning tools that are in essence skew chisels in function, but bear a different name. We'll touch on them later. The different cross sections are convenient depending on the specific use. It is a fitting in issue that allows for selecting the largest tool that will fit into the application to make the cut(s) needed. You may find that any one of the different shaft profiles meets all of your needs or ultimately have one or more of the different shaft profiles.



Skew chisels come in all sizes and many different styles. Each has its own strengths



The most common cross-section skews are rectangular, oval, and round. Round are usually home-made

Terminology of the skew chisel



You can buy skews handled or unhandled. Opting for the larger sizes provides a larger sweet spot

All of the skew chisels that are ground at a skewed angle have common terminology. The shaft is pretty obvious whether rectangular in cross section, oval, or round. The bevel is the ground section on both sides of the skew. There is a toe or long point, which is the point farthest from the handle. The heel or short point is the point of the grind that is closest to the handle.

The three locations of the skew that are most commonly used to cut are the toe, heel and 'sweet spot' of the ground area. That sweet spot is the area of the ground length located from about 25–50% of the edge measured from the short point. It stands to reason that the bigger the skew, the bigger the sweet spot. There are occasions to use the entire cutting edge such as when making a peeling cut.

Cutting edge angle

The skew chisel gets its name from having the cutting edge ground at a 'skewed' angle with respect to the shaft of the tool. There are even some skews that are ground straight across with no skew angle. These will function nicely as a skew chisel but have two identical points rather than a heel and toe. Regardless of the cutting edge skewness to the shaft, there are two basic grinds that you'll run into. One is ground in a straight line between the heel and toe and the other is ground on a radius between those two points. There are proponents of both. I have experimented over the years with both grinds, but find my preference is for the straight grind. I also have a favourite skew angle but don't actually measure it. It is just a preference that I try to stay close to.



My largest skew and one of the smaller rectangular skews in my kit. I've moved to all straight grinds

Skew angle and included angles



All of my skews fall in the 70° range although I eyeball them when grinding rather than measure



My included angles vary, but my go-to skew for detailing is right around 40°. A good general purpose angle



Many times you'll hear grind as multiples of the length of grind x the shaft thickness

Whether a straight grind or a radius grind, you'll select or grind your skew chisel(s) to an angle you find comfortable to use. Unless it is really extreme from the typical angle, all skews can be made to cut nicely. That said, most turners find a grind angle that they favour and will get all of their skews to that angle over time. What angle do I suggest? I can only tell you that I had never measured the actual angle until preparing for this column. Common skew angles recommended by the masters are in the 70° range. I've just eyeballed it. When I did measure, most of my skews fall into 65–70° angle. I would consider that mainstream angle as a starting point if you're new. It will serve you well until you get

experienced and migrate to something a bit different. The included angle of the tool grind is another matter of choice. There are some guide numbers offered by the pros depending on what you are typically cutting. For general purpose, an included angle of 40° will work well for hardwoods and softwoods. If you need a hardwood skew, an included angle of 55° will perform the cutting and not be too fragile. To get better cuts in softwoods, grind your skew to an included angle of 25°. This will give you cleaner cuts and be tough enough for the softer woods. Of course, these are just guidelines. You will gravitate towards the included angle that you feel comfortable with. I don't measure the angle on my tools

except to share the numbers with you now. I tend to grind nearly all of my small and mid-size skews to a more acute angle. I do this for fitting rather than wood types. This allows me to get into smaller places and do fine detail. My larger skews are ground to a larger included angle so they can be the workhorses. I use them on larger work and for roughing, etc. Many times you'll hear the measurement for grinding in a 'number of T'. That is simply making the length of the bevel grind be a multiple of the thickness of the skew shaft. Numbers that float around are 1½T or 2T. Not a precise measurement, but a quick rule of thumb that will get a workable included angle on the sized tool you are using.

Types of grinds



You may opt for a flat grind based on your sharpening system. The Sorby ProEdge and other belts create this



I use a bench grinder for a hollow grind on my skews letting me touch them up with a diamond hone

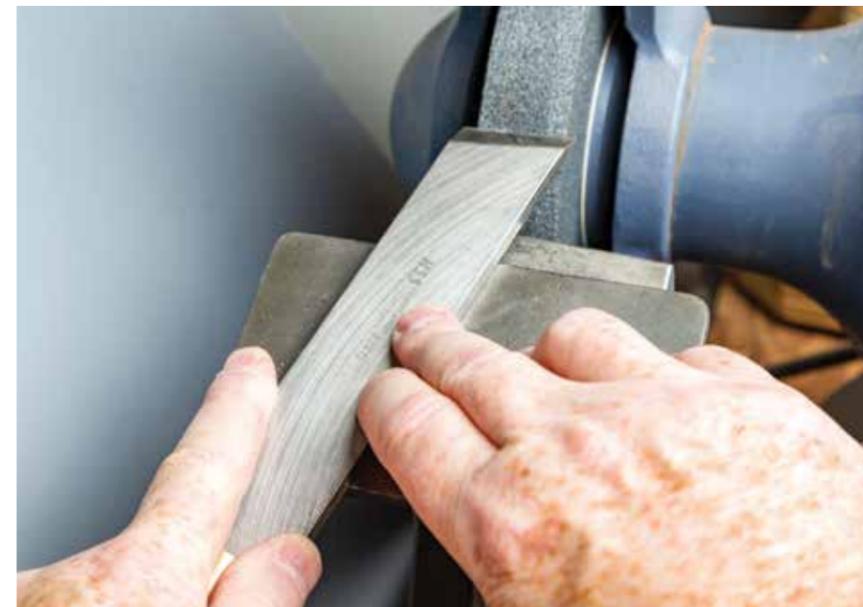


You may wish to try a convex grind. It has some forgiving qualities for the newcomer

Depending on your sharpening system, you'll be grinding your skews with a hollow grind or a flat grind. There are also those who will suggest a convex grind for special reasons. If you are using a standard style bench grinder or wet stone system, you'll be achieving a hollow grind with the radius of the wheel you are using. If you are using the Sorby ProEdge system or a similar belt sharpening system, you'll create a flat grind. Either will work nicely for you and make

all of the many cuts the skew can make. I use a bench grinder with 7in diameter wheels. I find this hollow grind has the feel that I want, along with the advantage of being able to be touched up with a diamond hone between trips to the grinder. There are those turners who will hone the skew chisel edge after grinding. I do this as well as use the diamond hone to keep the skew sharp. I think of it as keeping the tool sharp rather than honing the edge.

Sharpening



Adjust to the desired angle. Slide the tool up the rest to contact the wheel parallel to the edge

Depending on your skill sets, you can sharpen a skew chisel freehand or with the use of various available jigs. The Tormek has a very nice fixturing jig that will allow you to precisely set your skew angle. If you've purchased a skew that you are content with from a skew angle and included grind angle, your task of sharpening is pretty easy. Adjust your fixturing or rests to replicate your current angles and grind when needed. Use a black marker on the grind surface to check for accurate positioning. With some practice, you can freehand a skew chisel on a bench grinder with a fair sized rest. Adjust the rest for the desired angle. Once set, place the skew flat on the rest angled to present the tool bevel parallel to wheel, then slide the tool forward up

The cuts

The skew chisel in the various permutations is one of the most powerful tools in your kit for spindle turning. It does have some application in bowl and faceplate turning, but it really excels for the spindle turner. In capable hands, it can do nearly everything needed except deep coves. Some of the cuts that the skew does extremely well are planing, peeling, slicing, and V cuts. You can also use the skew when rolling beads and as a scraper in certain applications. Save these cuts for further down the road after you get some of the other cuts mastered. The few 'rules' and starter techniques that I'll share with you have helped me over the years. Raise the tool rest and work up higher for planing cuts. This gives you a better control of the tool as opposed to having the tool handle down by your side. Choke up on the tool for control and let the tool do the work. A sharp skew cuts so effortlessly that there is no need to muscle it. It is a finesse tool. Present it properly rubbing the bevel, give it a clearance angle, and let it cut. When planing cuts are being performed, keep the tool bevel angled at about 45° to the axis of the spindle. Present

the tool bevel edge so the cut will be made in the sweet spot. That is the area of the edge that is about 25–50% of the grind length as measured from the heel of the skew. Rub the bevel, give it a clearance angle, and keep the cut in the sweet spot as you traverse the length. The peeling cut, to remove lots of wood quickly, is an easily learned cut. The tool is laid flat on the rest and the face of the grind is presented to the work parallel to the axis of the work. It is presented high enough so that the tool can be manipulated to find the bevel. After finding the bevel, the tool handle is lifted as you follow the bevel rub as the material is removed. The handle motion is much like using a parting tool as you follow the decreasing diameter as you cut. This cut needs to be made with clearance for the heel. You can't make this cut in the middle of the spindle without considering where the heel will be going as you cut. The skew excels at end grain cuts. The end grain cut is performed with the toe of the skew. The face of the bevel is angled to be parallel with the face being cut. The toe is slowly brought into contact with the work from above as the tool handle is lifted.



The skew jig attachment to the Wolverine makes sharpening quick and easy



Grind surfaces aren't parallel or the cutting edge isn't dead centre? A sharp cutting edge works

the rest to contact the wheel. Once in contact, slide the tool side to side to grind the entire bevel, taking care to keep sufficient tool on the wheel as you approach the wheel edges. Repeat on the other side of the tool using the same procedure. When using the Tormek or Sorby ProEdge, simply follow their instructions for sharpening the skew chisel. They are very clear and easily followed. The Oneway skew attachment for the Wolverine sharpening system acts just like their sharpening arm for adjustment. Once adjusted, the two outside cradle positions sharpen the two sides of the skew. Again, take care to keep your tool positioned safely on the wheel width, keeping safely clear of the grinding wheel edge.

Once in contact, the tool is slightly angled away from the face being cut to ensure that the cut is being made by only the toe. If the cut creeps up the edge from the toe, there is a greater likelihood of a catch. Make the width being faced-off small, then cut only on the toe and you'll do well. These three cuts will get you started. Mastering these will make adding V cuts, rolling beads and roughing cuts a very easy task.



Some skews come with the corners 'broken'. You may need to do this to your skew for easy toolrest sliding



Rest a bit high, tool at 45°, bevel rubbing then clear, sharp edge, and it will cut curls rotating by hand



The skew excels at the planing cut. Stay in the sweet spot with a sharp tool and light touch



Right off the tool. What do you start sanding with? If you touch it with sandpaper, you made a mistake



Tool flat on the rest, edge parallel to the axis, rub the bevel and slowly lift the handle



As the diameter decreases, follow it right down as you would with a parting tool



The end grain cut works superbly to clean up torn grain. Take thin sections at a time for best results

Other 'skews'

There are other tools in the kit that are in essence skew chisels. They may be ground straight across or only from one side. Regardless, they cut like a skew and can be manipulated as you would using a skew. The parting tool, beading and parting tool, and bedan come to mind. The parting tool, ground in a different cross section, is indeed a mini skew and works nicely as such provided you pay attention to the same guidelines as a skew. The beading and parting tool with the square cross section does the same. Without a toe or heal, it works very nicely when rolling beads as well as being a larger turning parting tool. The bedan, being ground from only one side, functions as a straight across skew chisel. While being smaller in edge length than most skews, it can be used to make all of the same cuts if done carefully.



Looking at the skew chisel, do you think these four to the right are related?

Conclusions

I hope I've presented enough to take some of the mystery out of the skew chisel. The skew works the same as all of the other cutting tools in your kit, but does have a few rules that can't be violated. As with your other cutting tools, you rub the bevel, provide a clearance angle, and the tool cuts. There are many videos available through retail channels as well as on the Internet. Many are helpful and safe; others, not so. Be cautious in your selection of whom to learn from. There are plenty of wannabe woodturning YouTube stars that are not truly knowledgeable or safe. One that I can recommend is by the late Allan Batty; it is available on YouTube and runs 54 minutes. It is in the Craft Supplies USA library and is titled 'The Skew Chisel with Allan Batty - Full Length Video'. There are others but this is an excellent video to begin with. Don't violate the few key rules, keep your skews sharp, and practice. It won't be long before you will likely find the skew chisel as one of your favourite tools. ●



With just a little effort and practice, you can add the skew chisel to your favourite tools