

# Sharpening – beyond the bench grinder

Continuing with the sharpening theme, **Kurt Hertzog** looks at two different alternatives to using the standard bench grinder

In woodturning know-how parts 10 and 11 – issues 261 and 262 – we covered the basics of sharpening and the simplest method I know of to put a repeatable, functional cutting edge on my tools. To some, that method is too simplistic and rudimentary. There are many who want to go beyond that level for a variety of reasons. The reasons can include already having a different sharpening system or having additional sharpening needs that will be better served using other methods or equipment. This month, we'll explore two alternatives to the bench grinder – water-cooled and belt systems. For the purpose of this, we will use the Sorby ProEdge – belt

system – and the Tormek – wet sharpening system. These are representative of these types of systems available, although specific jigs and fixtures vary according to make. These offer advantages based on their capabilities when compared with the standard bench grinder.

As we look at these different systems, we'll see that not only will they work well for your turning tools but also for a host of other items requiring edges. I won't go into detail on these other capabilities, but each of these and similar systems will allow you to add on accessories to sharpen nearly anything with a cutting edge, ranging from jointer knives to garden implements.

## KURT HERTZOG



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Makers' Guild Council and is a member of the Board of Directors of the American Association of Woodturners (AAW).

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◀ TWO DIFFERENT SYSTEMS

The belt and water-cooled sharpening systems are quite different in their approach to the mechanics of sharpening woodturning tools but as different as they are, they solve the same problems for the user. When you think of what you need in a sharpening system, there are three things that come to my mind. They are: a method to both shape and sharpen tools; a way to affix the grind angle based on the user needs; and a way to support the tool while it is being ground at that angle. Both of these sharpening systems fill those requirements well. Although they do it differently, both systems provide a method for addressing each of those needs.

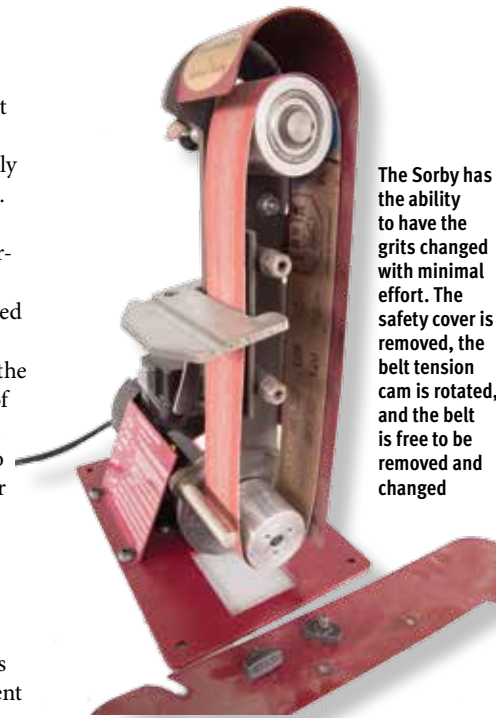


Moving beyond the bench grinder takes you into the belt grinder and water-cooled systems. The Sorby ProEdge and Tormek are the most prevalent of these types in the marketplace

SHAPING VERSUS SHARPENING

In the bench grinder method I use and have explained in the past, I've had to settle on a compromise in stone grits that will allow me to perform both shaping and sharpening on the same wheel. A work around could be changing the wheels to that with a different grit. I use a compromise grit to do both functions. I find this a quick and workable solution for the bulk of my tools. The Sorby ProEdge and the Tormek both have the ability to change grits to accommodate different aggressiveness with only minor effort. The Sorby ProEdge can have the belts it uses changed quite easily. There are two wing screws holding the safety cover in place. Removing these screws and safety cover allows for quick and tool-less access to the belt. A simple flip of the belt tensioning lever and the belt is ready to be changed. Sorby offers not only various grits in their product line but also different media types. There is an extensive line of belts available from the traditional aluminium oxide in grits from 60 to 240

as well as ceramic, zirconium, Trizact and diamond. You can easily change from 60 grit to 3,000 grit depending on your needs. The belts are readily available and all are modestly priced except, understandably, the diamond. The Tormek uses a grading stone to change the effective cutting grit of the 250mm water-cooled wheel. You can change the grit from 220 to 1,000 and back again as often as desired by applying the proper side of the grading stone to the wheel when under power. Both the Sorby and the Tormek have this advantage of shaping at a coarser grit and sharpening at a finer grit with minor effort to change and no disruption to the jigs or fixturing. Once your tools have been shaped, you are free to leave your systems at the finer grit arrangements to quickly sharpen whenever needed. If you wanted to have the same capability on your bench grinding system, you'd need to have two wheels of different grits to be changed as needed. Not unworkable but not as convenient as what's available with these systems.



The Sorby has the ability to have the grits changed with minimal effort. The safety cover is removed, the belt tension cam is rotated, and the belt is free to be removed and changed

The Sorby ProEdge has a family of available belts ranging from aluminium oxide to diamond. You can get grits as coarse as 60 and as fine as 3,000. All but the diamond are nominally priced

The wheel on the Tormek is 220 grit. The two sides of the grading stone allow the effective grit of the grinding wheel to be changed from 220 to 1,000 and back again as needed. This can be done on the fly



SETTING THE VARIOUS ANGLES

By virtue of its unique construction, the Sorby ProEdge uses a captive wrench that locks the table in one of many different preset positions. It is as simple as loosening the lock nut with the wrench and positioning the table per the chart attached using the positioning pin and retightening the lock nut. Notice the 60° angle for bowl gouges for deep hollowing. In the past, we've spoken about the need to have a steeper angle in the bottom curve of a bowl. The speed at which you can adjust to any of the preset angles is very fast with perfect repeatability. The Tormek has an infinitely adjustable system. Being quite different in design, the Tormek

has guide rods that are used in conjunction with the available platforms, jigs and fixtures. They provide a handy adjustment fixture allowing you to set your desired angles based on the position of the platforms or guide rod and fixture position. The adjustments will even comprehend the reduction in the wheel diameter over its lifetime. While not as quick and perhaps not exactly as repeatable as the Sorby, it is quite simple to use and provides excellent results. While the original setup gauge that was delivered with my Tormek works, the newer design has added much in the way of user friendliness and is a big improvement.



By design, the Sorby ProEdge has all of the commonly used grind angles built into the mechanics. This makes obtaining the desired angle a breeze but more importantly makes it very repeatable



With every typical grind angle available by locating the pin in the correct hole, the chart on the front shows the pattern. It also explains the typical uses for each of the angles



The Tormek adjustments are measured and locked into place. The new style gauge, lower, is far easier to use. Either will let you adjust the guide bars and jigs to your desired relationships. Infinitely flexible

JIGS AND FIXTURES

When you buy a Sorby ProEdge, it is available with the jigs and fixtures needed for the turning tools in your kit. There are some optional items but you'll be fixed nicely to begin sharpening anything you'll need for woodturning right out of

the box. The Tormek is available in a host of different bundle configurations depending on your particular needs. There is a woodturning bundle that includes all that is needed for the woodturning tools you'll have. At this point, both Sorby and Tormek provide the

angle setting, platform for scrapers, bowl and spindle gouge fixturing, swept wing grinds capability, skew chisels and the parting tool genres.



The Sorby ProEdge Plus Ultimate Sharpening System contains everything needed for the usual woodturner's sharpening needs. The few options are for very special applications and are available later



My Tormek jigs and fixtures have been accumulated over time. The Tormek is available with different user type packages, such as the woodturner's package, that includes the appropriate jigs and fixtures



◀ SCRAPERS

As we noted in the earlier columns, there is little that is critical about your scrapers. The angle can be 90° or something less, if you so choose. The repeatability for the sake of convenience is far more important than the absolute angle that is put on your tools. The Sorby ProEdge plaque and preset position at 80° is as good as any angle. Close to 90° and easily obtained, it will allow you to sharpen any and all of your scraping tools. The choice of abrasive grit for shaping and sharpening is easily dealt with. The platform allows a stable surface to present the tool and sweep it, though the arc or across the flat as appropriate. Using the same technique as explained with the bench grinder, the scraper is placed flat on the toolrest, slid forward to present it to the abrasive, and

The Sorby as adjusted to 80° for the scrapers in your kit. As discussed in a previous edition, the angle on scrapers isn't critical and anything less than 90° will work nicely. Sorby has chosen 80°

then moved or rotated as needed to sharpen the entire face of the scraper. The Tormek works in exactly the same way: you can

Setting the Tormek platform for sharpening scrapers isn't a fixed position. You select your angle and set it. Since it isn't critical, the ability to set it quickly and repeatedly is more important

mark the ground surface with a magic marker or you can use their gauge to set things up.

STANDARD CUTTING TOOLS

As we did with the cutting tools on the grinder, the angle usually selected is somewhere around 45°. In the Sorby ProEdge, they recommend and have a preset for that angle. Using their 'V' block in the channel provided on the platform, the tool is presented to the abrasive and rotated through the arc to achieve the desired grind. This will work on spindle roughing gouges, spindle gouges and bowl gouges. The Tormek adjustment can be any angle you wish but something in the same range is a good choice. The jig used for grinding gouges can be positioned appropriately by positioning the extension in the fixture and the distance of the guide rod from the wheel. Infinitely adjustable as to angle but there are handy guide lines on the adjustment setup jig that allows for exact setting of the tool extension from the jig and repeat settings of the guide bar to wheel distance. Skew chisels fall into the

standard cutting tool category. The Sorby jig that fits nicely into the platform track provides one angle of skewness. The tool is flipped to the other jig position to do the other side. All works nicely especially since their entire belt assembly can be unlocked and tipped over to nearly horizontal. This makes the skew grinding process very easily controllable and more visually open. All is well if you are content with their angle for the skew both in skewness and included angle. If you prefer something else, you'll need to make some other arrangements for settings and guide. Their particular choice isn't troublesome but in the desire to make things easily setup and repeatable, the ability of the user to vary easily from their selection was sacrificed. The Tormek requires a bit more time and effort to setup the skew but by virtue of design, the user has a tremendous amount of flexibility as to their choice of skewness and included angle.

The Sorby ProEdge can be tilted to a very convenient position for working on the skew chisel. The fixture provided is solid and easily used. It is fixed, however, and the user can't easily change the included or skew angle



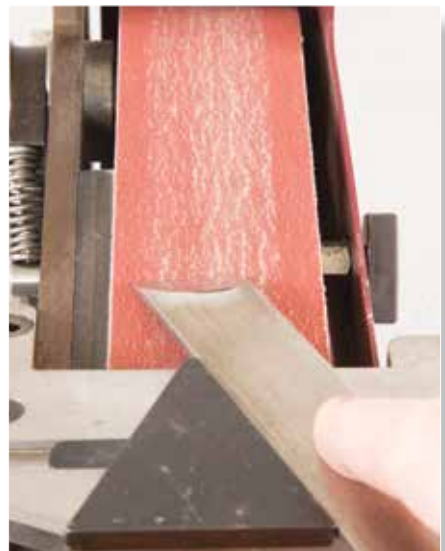
As discussed in prior issues, barring special needs, use 45° for most cutting tools. The 'V' block fixture riding in the platform with the Sorby machine set for 45° is quick, easy and repeatable



In contrast, the Tormek skew jig has a wide range of adjustment for the skew angle and included angle. This can be good or bad. It gives flexibility but it also requires a bit more time to repeat accurately



Not locked into hard position but being user adjustable, 45° or in that range is easily set on the Tormek. The setup jig makes the tool extension and the guide bar positioning quick and easy



SPECIAL BOWL GRINDS

Many of the bowl turners among us like a special grind. This can range from the straight across grind to the swept wing Irish grind. All variants are possible on the Sorby and Tormek. Both have the necessary jigs that allow the user to decide the nose angle and the sweep, both in length and contour. For the slightly swept wing bowl gouge, the Sorby jig is easily configured. Quick, easily setup, repeatable, with all of the necessary jigs and fixtures right in the box. The same capability exists with the Tormek using the Woodturner's package jigs and fixtures. Both machines along with their jigs

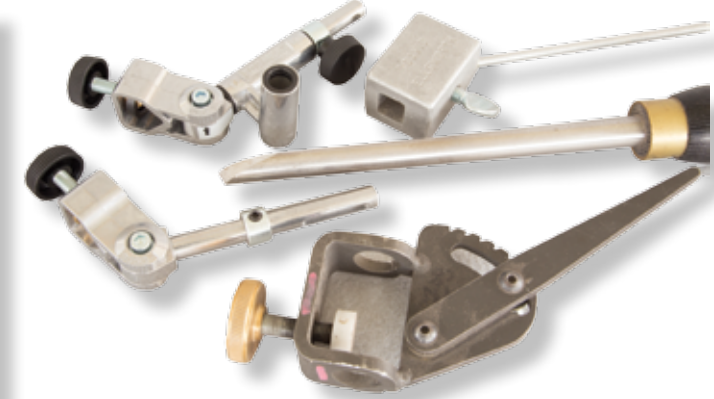
can be adjusted for just about any desired bowl profile. This entire operation is identical to the previously covered Vari-Grind jig as used for Irish grinds created using my bench grinder. The three interrelated adjustments on the adjustable jigs, tool extension in jig, angle set in jig and position of pivot point gives the user maximum flexibility to explore and arrive at their desired end point. It isn't often that the turner changes these settings after arriving at a comfortable one. The beauty of setting things and then just repeating them is the time saved and uniformity this creates as a result.



Setting the bowl gouge into the factory-set jig yields the swept back bowl gouge grind. An optional pivot block will provide additional length sweeps on the wings. Quickly setup and very repeatable



The Irish grind is possible using the Tormek jig. Once the user finds their favourite, the extension in the jig and guide-bar measurements are recorded and used over and over. It takes some easy measurement



All of the bowl grind jigs work similarly. The tool extension, the angle setting when available and the jig pivot point all interact to create the nose angle, sweep length and sweep contour

BUFFING AND HONING

Buffing and honing can be done on both the Sorby and Tormek. The Sorby has wheels and buffing compounds that can be used on the lower belt pulley. Once added, the tapered cone can stay in place and be ready for use as needed. The Tormek has a leather strop and honing compound that can be used on the tool right from the existing setup. There are a variety of leather strops that can be brought to bear on the inside of the tool surfaces as desired. A selection of rouge for the soft wheels and the choice of compound for the leather strops gives you some real opportunity to put a mirror finish on the razor edge you create.



Both the Sorby and the Tormek offer buffing or honing. More applicable to the skew chisel than other turning tools, a cotton wheel with jeweller's rouge or leather stop with honing compound is used

CONCLUSION

As shown, you certainly have many choices for your sharpening systems. There are a myriad of bench grinders available with many accessory rests, jigs and fixtures to complete the system. I've just presented two additional choices. These offer all of the same capabilities and even more. You can have either of these as your turning tool sharpening systems with the variable grits, buffing and honing and flexible angle choices. Are there drawbacks? As with everything, quality products have a cost attached to them.

Expanded functionality sometimes adds either complexity or cost, sometimes both. Your ability to invest for the long haul versus just getting started might just have an impact on your final decision. I have used all three systems and am pleased with the results I can obtain. I don't think any of them are wrong. As a simple rule, pick whichever system suits your needs, wallet and ability to meaningfully tell the difference in results. Regardless of your choice, proper use will provide you with an edge capable of doing your bidding. ●



The advantage of the Sorby ProEdge and Tormek is their ability to deliver finely ground edges. Take a look at 60, 200, 1,200 and a mix of 60 and 1,000. The time and investment cost difference is your call