Sharpening Handbook

Because *sharp enough* … usually is not

Chapter 2

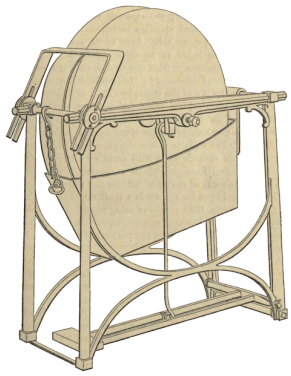
Grindstones and the Tormek

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SharpeningHandbook.info

The full handbook, and the latest version of this chapter, are on the web at **SharpeningHandbook.info**. This chapter: November 2026.

Grindstones and Other Sharpening Media



This page addresses grindstones, grinding wheels, and other sharpening media. It is broken up into the following sections:

1. **Honing the tool** - a process for getting the edge super sharp.
    - For carving, this is what is done most often.
    - Wood turners often overlook this step, but is is really key for getting a beautiful finish on the wood, especially for certain woods like maple.
    - When resharpening knives, this is often all that is needed to get those edges back into great shape.
    - Unless the scissors need to have a really honed edge, honing is not recommended for scissors. Stop after the sharpening step (but with a high grit level - 1,000 or so).
2. **Sharpening the tool** - a process for getting a tool sharp, and ready for honing.
    - Take caution when sharpening carbide tools or tools with carbide inserts. Grinding introduces cracks in carbide, and can make it more brittle. It is best to use low grit grinding up to the final angle, and then switch to a high grit grinding for finishing the grinding.
3. **Shaping the tool** - a process for gross removal of metal to change the shape of the cutting edge. This is something not done often, so it is listed 3rd.

Some other useful information can be found at these links:

1. **Proper alignment for grindstones when affixing them to the machine** (see Aligning a Grindstone WhenAttaching It to the Tormek, in this chapter) - with comments about why this is important.
2. **Caring for grindstones** (on the web site) - comments about truing, grading, and de-glazing.
3. **Storing water stones and wheels** (see Storing Water Stones & Wheels, in this chapter) - comments and ideas about storing the wheels for allow them to dry.
4. A quick **Grinding Media Comparison** and **Materials Hardness Scale** (on the web site) - comparing grinding materials with materials being sharpened.
5. A **Quick Select Table** (see Grindstones and Other Sharpening Media: Quick Selection Guide, in this chapter) provides a recommended selection of sharpening media, based on the tool's material to be sharpened.
6. A discussion on getting **More Life From Your Grindstones** (see Getting More Life From Your Grindstones, in this chapter).

Tormek Wheel Comparison

Selecting a wheel for your Tormek machine can be confusing. Sharpening Supplies spoke with Stig from Tormek to help you understand the differences between the different wheels available.

The Basics of Honing | Part 14 | Tormek Live Sharpening Class

In this episode we go through the basics of one of the most important parts of the sharpening process – honing. Honing your edge after sharpening will deburr your edge, which is crucial to get it sharp and durable. In addition, it polishes the edge to give cleaner cuts.

But honing is also a means of maintenance for your edge between sharpenings. Many times, a couple of strokes on the honing wheel is all you need to get that razor sharpness back again. That will save both time and steel!

Key Note: At just past 18 minutes in the video, there are great microscopic pictures showing the effect of different grindstones on the ground surfaces. This is a great comparison of the various Tormek grindstones, but also about typical bench stones and CBN wheels also.

This is why we love diamonds | Tormek Diamond Wheel Special

For todays special episode, Sebastién speaks with Håkan, a real abrasive expert who also happens to be the CEO of Tormek. Together they dive into the details of the Tormek Diamond Wheels (DC-250, DF-250, DE-250). They also discuss the most frequently asked questions about sharpening with diamonds.

- Tormek Diamond Wheel options
- The development of the wheels
- The structure of the Diamond Wheels
- Steel core vs. Aluminium
- Life span
- Pressure and run-in period
- Why diamond instead of CBN?

Honing / Stropping the Tool		
Tormek Grinder	**Traditional Honing Wheel** Tormek LA-220 Leather Honing Wheel Tormek LA-120 Profiled Leather Honing Wheel Tormek CW-220 Composite Honing Wheel • +2° is recommended for optimal stropping (bessex.com). The backs of chisel blades are often honed by hand, though jigs are also recommended for other edges as +5° will start to round over the edge. • When in doubt, follow Wootz' rule, *"the softer the steel, the higher the angle"*. Really hard steels could have this decreased to +1.2°.	**Traditional Grindstone** Tormek SJ-250 Japanese Waterstone **Diamond Wheel** Tormek DE-250 Diamond Wheel Extra Fine • Finely honed edge from this stone is especially useful for finishing cuts • Use a diamond grinding wheel for tools with vanadium levels >3%. • Do not use diamond wheels for tools with ferrous metals unless they are cooled (e.g., with water). Hot iron molecules can dissolve diamonds, quickly eroding the surface.

Honing / Stropping the Tool

Bench Grinder	**<u>Paper Wheel</u>** Razor Sharp Edgemaking Paper Wheels • A common rule of thumb is *"Better to do two quick passes than one slow one"* to minimize edge softening with heating. • I use the 8-inch wheels on a 6 inch grinder.	**<u>Cubic Boro Nitride (CBN) Wheel</u>** Very high grit (800+) CBN • Use a CBN grinding wheel for tools with vanadium levels >3%. • Most CBN manufacturers recommend not using the CBN wheel with water. It can invalidate the warranty. • CBN wheels are not recommended for tools with high carbon steel. Those and other softer steels can "gum up" the wheel's surface. That said, a person I cannot remember has stated that grinding high speed steel (HSS) on the CBN wheel will clear the "gumming". • Resins accrued on tools when turning wet woods can also gum up the grit. Trend lapping fluid was recommended (on an AAW forum) by Reed Gray (aka, "Robo hippy") for cleaning the wheel.

Sharpening the Tool

Tormek Grinder	**<u>Traditional Grindstone</u>** Tormek SB-250 Black Grindstone • Use for harder steels like HSS • Grade to 220 grit for initial sharpening, especially if the tool needs a bit of work. • Grade to 1,000 grit for final touch-up on sharpening, especially for tools which won't be honed. Tormek SG-250 Original Grindstone • Use for high carbon steel • Grade to 220 grit for initial sharpening, especially if the tool needs a bit of work. • Grade to 1,000 grit for final touch-up on sharpening, especially for tools which won't be honed.	**<u>Diamond Wheel</u>** Tormek DF-250 Diamond Wheel Fine • Good all-round wheel which leaves a smooth surface finish • Use a diamond grinding wheel for tools with vanadium levels >3%. • Do not use diamond wheels for tools with ferrous metals unless they are cooled (e.g., with water). Hot iron molecules can dissolve diamonds, quickly eroding the surface.

<table>
<tr><th colspan="3">Sharpening the Tool</th></tr>
<tr><td>Bench Grinder</td><td><u>Traditional Grindstone</u>

150 - 180 grit, very friable grindstone, such as aluminum oxide

• Friablility (en.wikipedia.org) reduces (but does not eliminate) the heat build-up. Be sure to manage the temperature so that the temper is not lost due to overheating.
• If there is a carbide insert, then DO NOT cool by dipping in water. This will cause the carbide to crack due to shocks. Otherwise, dip it frequently in water.
• Truing the stone may be necessary.
• 80 grit silicon carbide (green) is recommended for tools with carbide inserts, and especially for stone carving tools.</td><td><u>Cubic Boro Nitride (CBN) Wheel</u>

150 - 180 grit CBN

• Use a CBN grinding wheel for tools with vanadium levels >3%.
• CBN wheels are not recommended for tools with high carbon steel. Those and other softer steels can "gum up" the wheel's surface. That said, a person I cannot remember has stated that grinding high speed steel (HSS) on the CBN wheel will clear the "gumming".
• Resins accrued on tools when turning wet woods can also gum up the grit. Trend lapping fluid was recommended (on an AAW forum) by Reed Gray (aka, "Robo hippy") for cleaning the wheel.</td></tr>
<tr><td>Bench-mounted Belt Sander</td><td colspan="2">150 - 250 grit

• Be sure to manage the temperature so that the temper is not lost due to overheating.
• If there is a carbide insert, then DO NOT cool by dipping in water. This will cause the carbide to crack due to shocks. Otherwise, dip it frequently in water.</td></tr>
</table>

Shaping the Tool

Tormek Grinder	**Traditional Grindstone** Tormek SB-250 Black Grindstone • Use for harder steels like HSS • Grade to 220 grit, and re-grade often. • Truing the stone may be necessary, depending on the amount of grinding needed. • Use when the area to be ground is not great. Tormek SG-250 Original Grindstone • Use for high carbon steel • Grade to 220 grit, and re-grade often. • Truing the stone may be necessary, depending on the amount of grinding needed. • Use when the area to be ground is not great. 40 - 80 grit grindstone, such as aluminum oxide • Truing the stone may be necessary. • Management of the temperature is not critical as the speed is slow, and the process is also water cooled.	**Diamond Wheel** Tormek DC-250 Diamond Wheel Coarse • Use a diamond grinding wheel for tools with vanadium levels >3%. • Do not use diamond wheels for tools with ferrous metals unless they are cooled (e.g., with water). Hot iron molecules can dissolve diamonds, quickly eroding the surface.
Bench Grinder	**Traditional Grindstone** <100 grit, very friable grindstone, such as aluminum oxide • Friablility (en.wikipedia.org) reduces (but does not eliminate) the heat build-up. Be sure to manage the temperature so that the temper is not lost due to overheating. • If there is a carbide insert, then **DO NOT cool by dipping in water**. This will cause the carbide to crack due to shocks. Otherwise, dip it frequently in water. • Truing the stone may be necessary.	**Cubic Boro Nitride (CBN) Wheel** <100 grit CBN • Use a CBN grinding wheel for tools with vanadium levels >3%. • CBN wheels are not recommended for tools with high carbon steel. Those and other softer steels can "gum up" the wheel's surface. That said, a person I cannot remember has stated that grinding high speed steel (HSS) on the CBN wheel will clear the "gumming". • Resins accrued on tools when turning wet woods can also gum up the grit. Trend lapping fluid was recommended (on an AAW forum) by Reed Gray (aka, "Robo hippy") for cleaning the wheel.

Shaping the Tool	
Bench-mounted Belt Sander	**<u>Traditional Grindstone</u>** <150 grit • Be sure to manage the temperature so that the temper is not lost due to overheating. • If there is a carbide insert, then **DO NOT cool by dipping in water**. This will cause the carbide to crack due to shocks. Otherwise, dip it frequently in water.

Grindstones and Other Sharpening Media: Quick Selection Guide

Recommended Sharpening Media			
Material Type	Activity		
	Honing	Sharpening	Shaping
High Carbon Steel	• SJ-250 Japanese Waterstone • Leather honing wheel • Paper wheel	• SG-250 Original Grindstone, graded fine • DE-250 Diamond Wheel Extra Fine • DF-250 Diamond Wheel Fine • 150 - 180 grit, very friable grindstone • 150 - 250 grit, sandpaper	• SG-250 Original Grindstone, graded coarsely • DC-250 Diamond Wheel Coarse • 40 - 80 grit, very friable grindstone • <100 grit, sandpaper
High Speed Steel	• SJ-250 Japanese Waterstone • Leather honing wheel • Paper wheel	• SB-250 Black Grindstone, graded fine • DE-250 Diamond Wheel Extra Fine • DF-250 Diamond Wheel Fine • 150 - 180 grit CBN • 150 - 180 grit, very friable grindstone • 150 - 250 grit, sandpaper	• SB-250 Original Grindstone, graded coarsely • DC-250 Diamond Wheel Coarse • <100 grit CBN • <100 grit, sandpaper
Steel with >3% Vanadium	• SJ-250 Japanese Waterstone • Leather honing wheel • Paper wheel	• DE-250 Diamond Wheel Extra Fine • DF-250 Diamond Wheel Fine • 150 - 180 grit CBN	• DC-250 Diamond Wheel Coarse • <100 grit CBN

Recommended Sharpening Media			
Material Type	Activity		
	Honing	Sharpening	Shaping
Steel with Carbide Insert	• SB-250 Black Grindstone, graded fine • DE-250 Diamond Wheel Extra Fine • DF-250 Diamond Wheel Fine	• SB-250 Black Grindstone, graded coarsely • DC-250 Diamond Wheel Coarse • 150 - 180 grit CBN • 150 - 180 grit, very friable grindstone • 150 - 250 grit, sandpaper	• DC-250 Diamond Wheel Coarse • <100 grit CBN • <100 grit, very friable grindstone • <100 grit, sandpaper

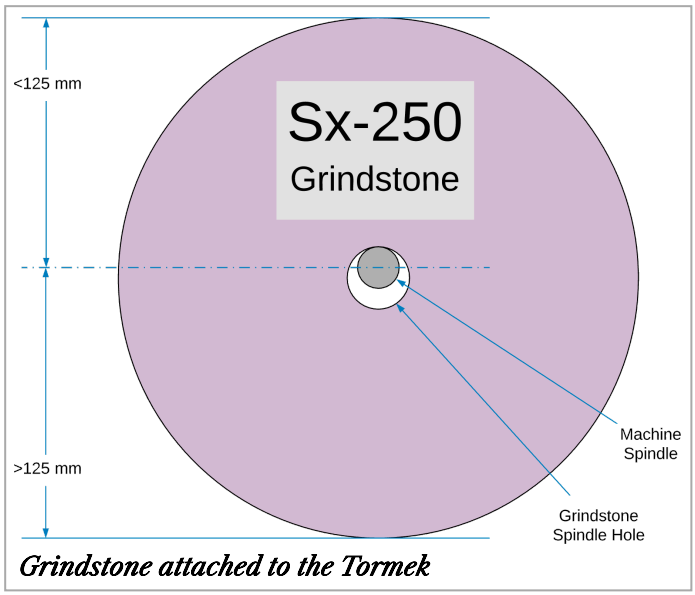
Aligning a Grindstone WhenAttaching It to the Tormek

This is a graphic depiction that is meant to help explain the concept, and all images were exaggerated; however I hope you see the value of re-attaching your grindstones the same way each time.

When attaching a grindstone to the Tormek, there is some play between the hole in the grindstone and the machine's shaft onto which it is installed. The picture to the right shows that in a bit of a an exaggerated manner.

Once the retaining nut is installed, this alignment remains fixed during the rotation; the stone does not slip up and down.

Here you can note that, even though the grindstone has a diameter of 250mm (radius = 125mm), there is not a full 125mm to each side. This will result in the grindstone seeming to be out of alignment when running. You will see the surface go up and down.



Grindstone attached to the Tormek

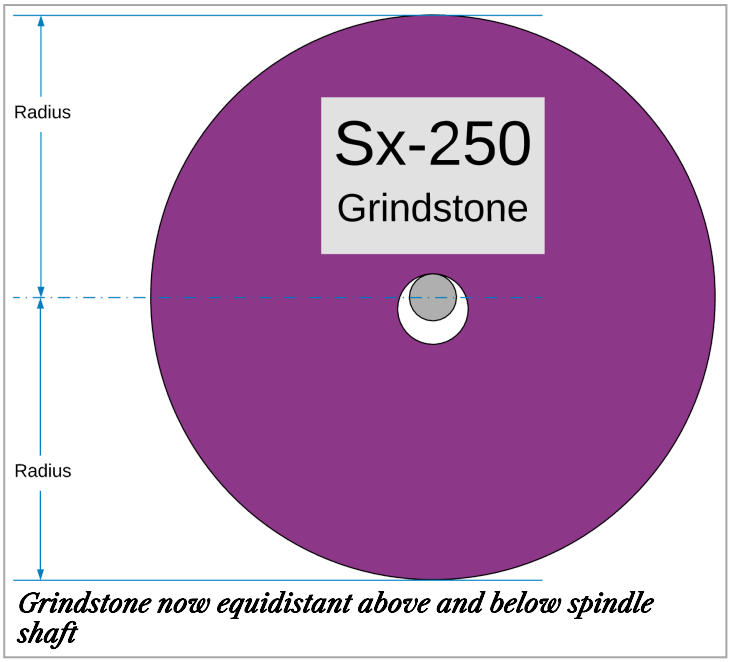
As a good sharpener, you will of course true the surface of the stone (on the web site) to get it flat and even. The picture to the right shows an area in light purple that would be removed during this process.



Grindstone after grading

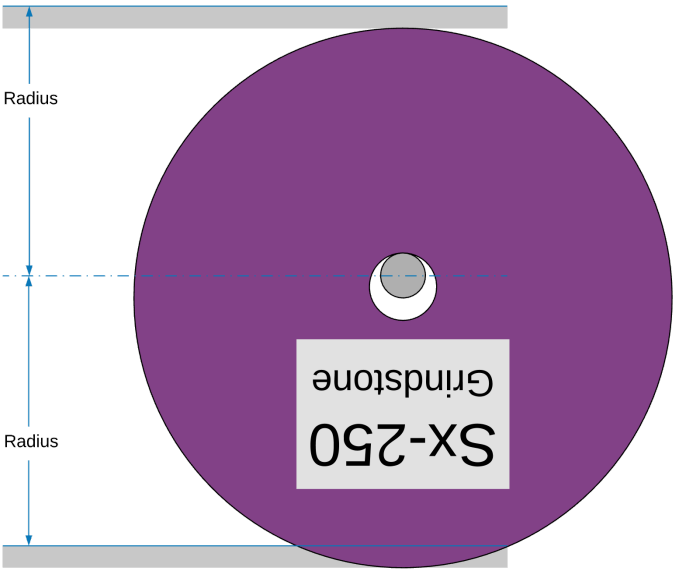
This results in a stone which has an equal distance from the spindle shaft's center of rotation to all surfaces around the grindstone's edge.

But notice how the hole in the grindstone is not centered around the spindle shaft. This is not a problem as long as the stone is re-attached to the machine in the same orientation (in this case, with the grindstone's label at the 12:00 position).



Grindstone now equidistant above and below spindle shaft

If the grindstone is installed with the label at any other position, you will end up with a situation like shown to the right. This will result in a surface that goes up and down even worse than before!



Grindstone reinstalled incorrectly: not equidistant above and below spindle shaft

Storing Water Stones & Wheels

For the Tormek stones and wheels, it is good idea to store them so that they are allowed to dry.

- The stones absorb water when in use: the SG and SB stones absorb quite a bit; the SJ stone less. In any regard, the stone will take quite a while to dry.
- The diamond stones don't absorb water, but water does get between the wheel and the back cover.

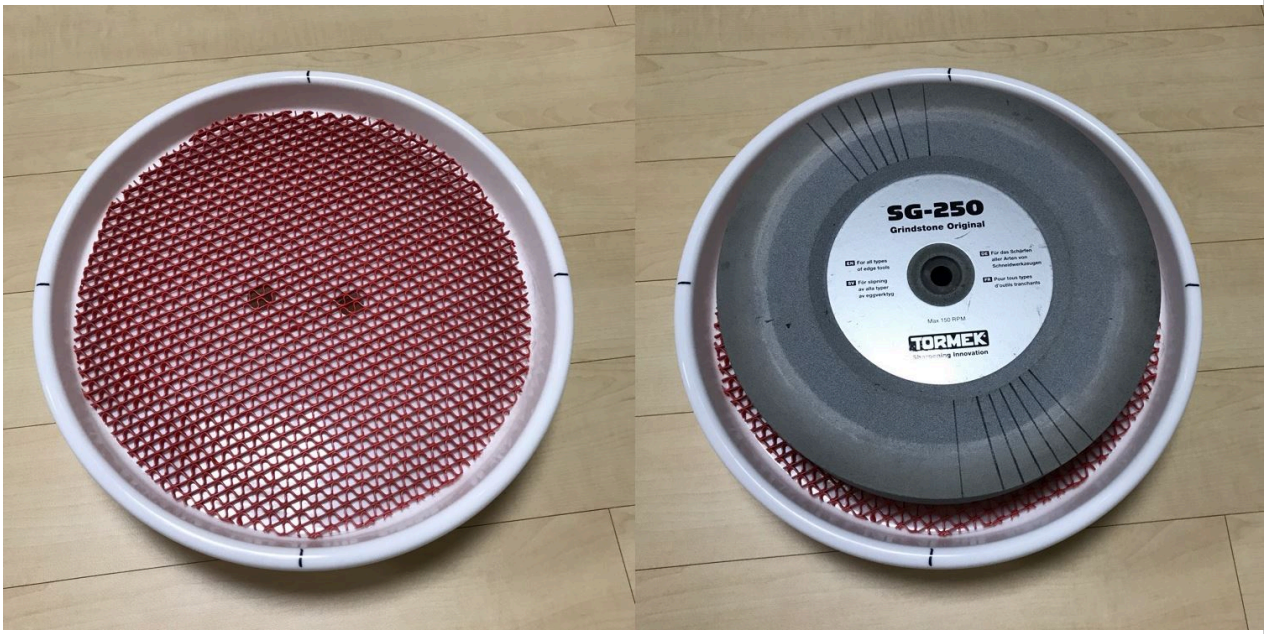
Note **:** *When the stones are dry, there may be some discoloration. This is typically not mould; rather it is probably rust from embedded iron particles in the stone (from the last sharpening session). This is more particularly seen on the SG stone as that stone is lighter in colour.*

The picture below from RickKrung is a great example of how to hang the stones. Hanging them vertically is recommended over laying them flat, though I can't give you a good reason why.



Storing grindstones vertically

The picture below from Ko Youngbin is a great example of how to store the stones horizontally. He uses a planting tray, with a mat to keep the stone above the tray's bottom.



Storing grindstones horizontally

Getting More Life From Your Grindstones

On the larger Tormek grinders (T-2000, T-7, & T-8), the traditional grindstone (not the diamond ones) starts out at 250mm diameter, and over time, wears down with use. But the sharpener should remember, grindstones are like wood pencils or brake shoes - consumables meant to be worn down with use. And, when the grindstone gets down to about 190mm, it is basically not usable as it won't reach down into the water any more.

***Practical Limits**: on the larger Tormeks (T-2000, T-7, & T-8):*

- *Longer knives = 200 mm diameter*
- *Everything else = 180 mm diameter*

Grindstones

Machine	Diameter		Width	Useful Life	Shaft Diameter
	Starting	Minimum			
T-2000	250 mm	180 mm	50 mm	1,182 cm^3	12 mm
T-7					
T-8					
T-1200	200 mm	130 mm	40 mm	726 cm^3	
T-3					
T-4					

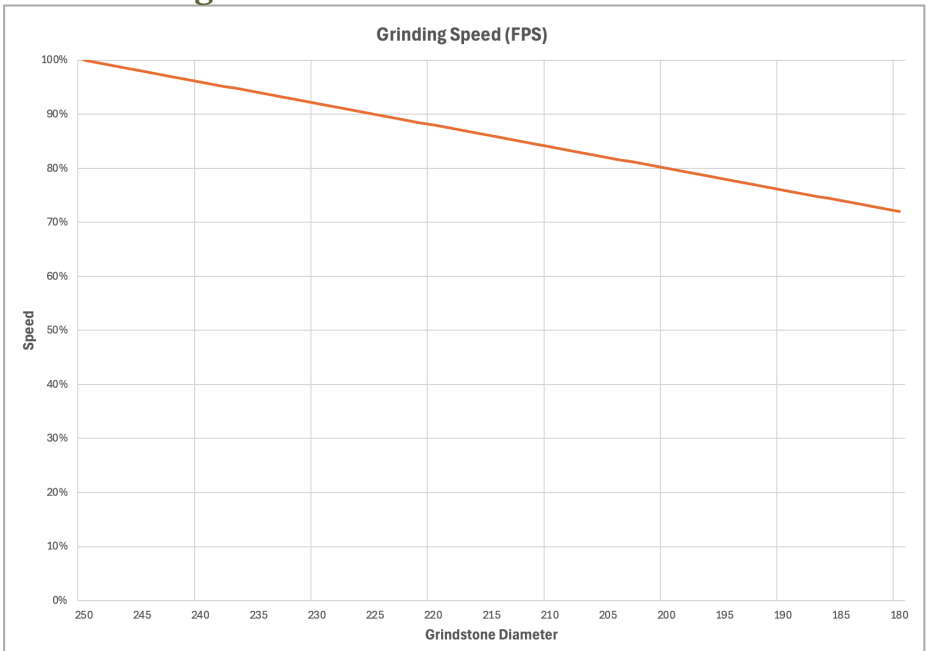
Fortunately, there are things you can do. But please note: experience has shown that there are limits to this endeavour.

When sharpening knives with long blades on a grindstone which has too small of a diameter, the side-to-side movement of the knife will be limited by the honing wheel or some other part on the Tormek machine's base. This happens when pulling the knife towards the honing wheel (the LA-220 Honing Wheel is 220 mm in diameter).

On the larger units (T-8, T-7, & T-2000) there is a minimum size limit of 180 mm. This is driven by the fact that, the Micro Adjust nut on the US-105 Universal Support prevents the TT-50 Truing Tool from being used on grindstones smaller than 180 mm.

Smaller Stones = Slower Grinding

A word of note: As the grindstone gets smaller, it takes longer to sharpen an edge. This is because the grinding speed is related to the grindstone's diameter according to this equation:



Grinding speed decreases with grindstone diameter
(click on the image to see a larger version)

$$Grinding\ Speed = Grindstone\ Diameter \times \pi \times Grinder\ Speed$$

The Tormek T-8 grinder runs at 100 rpm. Using that, we can compare a 250 mm grindstone (equation 1 below) to a one which has been ground down to 180 mm (equation 2).

$$\begin{aligned} Grinding\ Speed_{250mm} &= 250\ mm \times \pi \times 100\ rpm \\ &= 78,539.8\ mm/min \\ &\approx 4.3\ ft/sec \end{aligned} \tag{1}$$

$$\begin{aligned} Grinding\ Speed_{180mm} &= 180\ mm \times \pi \times 100\ rpm \\ &= 56,548.7\ mm/min \\ &\approx 3.1\ ft/sec \end{aligned} \tag{2}$$

This is not a huge difference, but there is one sharpener who replaces his grindstones when they get to 220mm. As shown in the chart to the right, at 220mm, the speed is down to 88%.

By the time the grindstone has worn down to 180mm, it is 72% of the speed that it was when new.

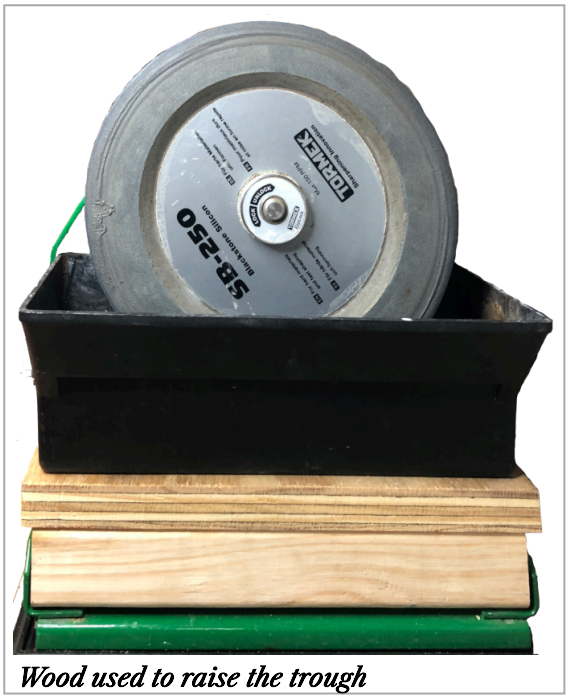
Option 1 : Raise the Water Trough

You can adjust the water level on the T-8 using the built-in feature. This is not a feature on the T-7 nor the T-2000.

The picture to the right shows the T-2000's water trough sitting on ¾ inch thick plywood which is screwed to a 2x4. This sets the water trough about 2 ½ inches (64 mm) above the base, which is about ½ inches (14 mm) higher than if the trough were hung normally on the machine's tabs.

Raising the water trough like this, raises the water level, allowing for use of more of the grindstone. And, as the grindstone is worn down to a smaller diameter, there is no issue with it rubbing on the bottom of the trough.

It isn't pretty, but it does work well (kinda like me).



Wood used to raise the trough

Option 2 : Use the Worn Grindstone on a T-3 or T-4

The grindstones from a bigger machine, once worn down to 200mm or less, will fit on a smaller machine. The grindstone is 50 mm wide (vs. the normal 200mm grindstone which is 40 mm wide), but it still fits. And, as noted in the table below, it gets another 51% out of the same stone.

Should you buy a T-4 just to get more use from your grindstones?

This approach has been questioned by some. They argue that the cost of a T-4 is high enough that purchasing a new grindstone may be a better financial option. If you need a T-4 anyway (e.g., to carry it to a farmers market), then this may be a good option.

Dan @ Exact Blade notes that his shop goes thru a 250mm grindstone every month on their larger machines (T-7 or T-8). He purchased some T-3s so that he could continue using the life left in those grindstones. This is a bit on the high end of use; however he does make a good case.

Activity	Starting Diameter	Min. Diameter	Useful Life
Use 1st part on larger machine: 250 mm grindstone used down to 180 mm	250 mm	180 mm	1,182 cm^3
Use remaining life on smaller machine: 180 mm grindstone used down to 130 mm	180 mm	130 mm	609 cm^3
		Total life	**1,781 cm^3**

Dan @ Exact Blade does this, and has provided the pictures below.



The T-3 nut fits over the wider grindstone without any modifications



As the grindstone gets used, the water trough can be raised to raise the water level



Very little of the stone is remaining

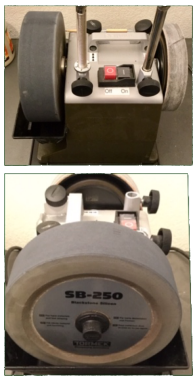
Notes:

1. As the grindstone wears down on the smaller machine, you can also raise that trough, further extending the grindstone's life on that machine as well. Dan shows that in the middle picture above.

Personal Anecdote: After many years, my SB-250 grindstone was down to 180 mm, and I was no longer able to use it on my T-2000. Fortunately though, Curtis (CB on the Tormek forum) was able to make use of this grindstone on his T-4.

The benefits of this are:

1. Curtis is able to get an SB grindstone for his T-4 (pictures of my old grindstone on his T-4 are to the right), and
2. The grindstone is not simply collecting dust in my shop ... instead it is providing many more years of proud use to another sharpener.



Used SB-250 grindstone taken from a T-2000 and put onto a T-4

Tormek Tips Tricks and Techniques

Using a Tormek is like driving an automobile with a manual gearbox (“stick shift” for us on this side of the pond). There is a bit of a learning curve, one which thousands of users have completed successfully. Here is our advice to develop your “clutch foot”.

Information Resources

Spend some time becoming very familiar with the videos from Tormek. You may have found them before even purchasing your Tormek.

Read your Tormek Handbook; do not be afraid to make it your own by highlighting and marking it up, and be sure to keep it nearby.

Keep a Permanent Marker Handy

Every Tormek user should have a permanent marker (e.g., a Sharpie). The permanent marker, as shown in the videos and handbook, allows the user to quickly verify grinding angles.

Some prefer black markers; others prefer red. You should try both to determine which you prefer (I prefer red).

This is an essential tool which should be in your toolkit.

Get a Mindset for the Grindstone

All too often, new users of the Tormek approach the grindstone with a sense of reverence and a believe that they should preserve it. Whilst proper use is important, it should be remembered that the grindstone is designed to be worn away during use. Look at the grindstone as you would a set of good tires or brake linings. Good care extends its useful life, however, they are designed to be worn out.

The Tormek SG grindstone is designed to be used as either a coarse wheel or a finer wheel, depending on how the grading stone is used. The wheel actually has a third grading when freshly dressed with the TT-50 diamond dresser (more coarse).

Truing the Grindstone

Do not try to squeeze a bit more life out of your wheel or a bit of time off the sharpening operation by skipping the grading operation. Proper use of the TT-50 grader is well covered in the videos and Tormek Handbook. Follow these instructions!

Getting the Most From Your Grindstones

There are some other techniques you can use for getting more life from your grindstones (see Getting More Life From Your Grindstones, in this chapter), and they are worth reviewing. At the end of the day though, the minimum diameters for the grindstones are shown in the table to the right.

Machine	Diameter	
	Starting	Minimum
T-2000	250 mm	180 mm
T-7		
T-8		
T-1200	200 mm	130 mm
T-3		
T-4		

Grindstone Rotation Direction

Should you have the grindstone rotate towards you, or away from you?

When you grind with the wheel rotating away from you you will get a bigger burr that takes more effort to properly remove.

I sharpen most things with the wheel rotating towards me and have not had issues with it removing too much material. Some well known sharpeners also use the wheel rotating away from them, and swear by it. It is your choice.

The front vertical base (FVB) is useful for burr removal. That is generally no longer availabile, but the Tormek MB-102 Multi Base is an replacement jig which provides the same functionality.

There is a book written by the late Dr. Vadim Kraichuk, *Knive Deburring* (available at most book-stores). If you want to dive deeper on this topic, this is an excellent resource.

Leather Honing Wheels

Tormek offers two standard honing wheels:

- the traditional leather honing wheel which uses the Tormek PA-70 Honing Compound (8,000 grit), and
- a composite honing wheel (2,000 - 2,500 grit).

If you choose to go the route of the composite honing wheel, you do not need to apply the honing compound, but you should periodically clean it. Alcohol is the recommended liquid to use.

As it regards the leather wheels, there are more options.

- A traditional honing wheel in sizes for both the larger machines and smaller machines.
- Profiled honing wheels used for honing turning and carving tools. There are also some narrow discs which can be swapped out for the reguular discs.

Oiling the Leather Wheels

New leather wheels need to be oiled before use. Do not saturate the surface; add only enough oil to evenly discolor the entire surface.

Several years ago, a staff member of the US Tormek importer noted that putting oil on a new leather honing wheel was unnecessary, as one of the ingredients in the honing compound was oil. He meant well, but was mistaken. Without the initial oil, you will not get proper adhesion of the honing compound, and instead you will get flakes.

If you do over-oil, you can use a dull metal blade (e.g., as a scraper) to scrape it off.

Adding Compound to Leather Wheels

You only need to apply a pea-sized amount of the honing compound to the leather honing wheel. Eventually you'll get a feel for how much compound to apply. It is not catastrophic if you add too much, but it is a waste of the honing compound as it will just come off on the edges of your tools.

The Water Tray

The water tray on all machines except the T-8 have to be lifted to lower it. This will often splash the water out. One very effective way to address this is to use a turkey baster to remove water from the tray before lifting it.

If you have concerns with water dripping onto the Tormek machine, one user designed a drip tray (see Chapter 3) which returns the spilt water back to the water tray.

Setting the Grind Angle

Historically, the WM-200 AngleMaster was the way the edge angle was set for sharpening. That is a fairly crude tool, so a number of people came up with calculators to better achieve the desired edge angle (the known calculators for the sharpener (on the web site) are listed).

The calculators work well, but there are now good options for setting the sharpening angle. The Tormek KS-123 Knife Angle Setter was introduced in 2025 and works exceptionally well. This is an easy tool to use, and is quite useful when switching between grindstones (e.g., starting the sharpening on the SG grindstone, and then switching to the SJ Japanese waterstone).

Why Use an FVB?

The front vertical base (see Chapter 3) (FVB) is quite useful for grinding the knife's edge very accurately, and repeatably.

You can make one yourself, or use the the Tormek MB-102 MultiBase. The MV-102 jig provides that functionality, and much more.

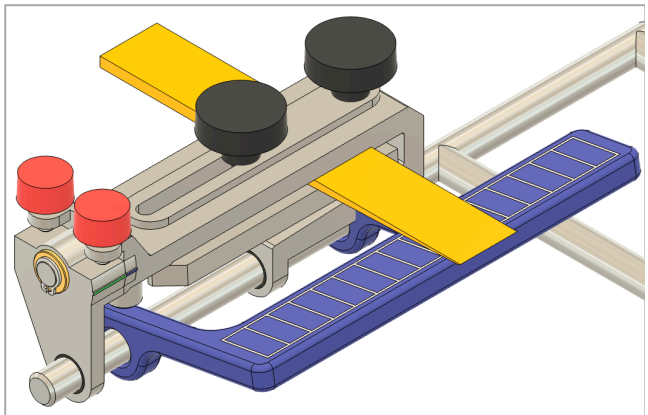
Time Saving Tips for the Tormek

These are ideas and techniques you can use to make using your Tormek faster and easier. These ideas are not free, but they are also not overly expensive.

You can click on any of the pictures to see a larger version.

Use an Alignment Jig for the SE-77

Use this jig to align the SE-77 Square Edge Jig, ensuring that the skew angle is set to 0°.



SE-77 Jig and the Alignment Jig

What is Needed

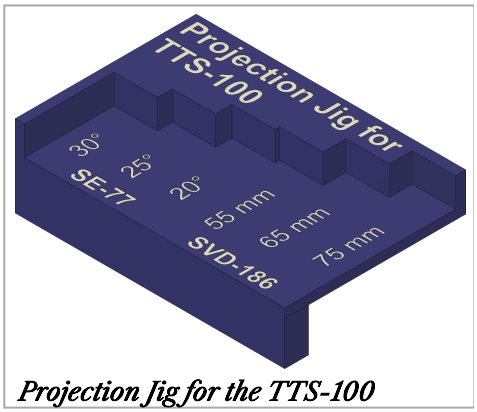
You need to 3D print (or get a friend to 3D print) this part:

- Alignment Jig for the SE-77 (see Chapter 3). That link provides the details on this.

The noted link above also provides instructions on the usage of this alignment jig.

Use a Setup Jig for the SE-77 with Standardized Angles

Setting everything up to use the SE-77 Square Edge Jig to sharpen a chisel or plane blade can be a bit onerous. Oftentimes, the Sharpie method ends up being used.



Projection Jig for the TTS-100

An alternate approach is to apply the same ideas as used in sharpening turning tools. The idea is to set the distance from the USB to the grinding stone using the B setting on the TTS-100 Turning Tool Setter, and then use calculated projections for the tool as held in the SE-77. This dramatically reduces the time required to start sharpening the tool

What is Needed

You need to 3D print (or get a friend to 3D print) this part:

- Projection Jig for the TTS-100 (see Chapter 3). That link provides the details on this.

Setting Everything Up

Once you have the Projection Jig:

1. Set the USB's height using the B setting on the TTS-100. (Or, use the dedicated USB for this.)
2. Set the tool's projection in the SE-77 using the projection jig.

Split Your SVS-50 in Two

Switching the SVS-50 Multi-Jig between the Open Seat and the Closed Seat is painful: I spent more time trying to figure out how to get it setup correctly than I did using the jig.

What is Needed

The good news is that you can order a few parts and make this jig into two separate tools, eliminating the need to swap the seats within the housing. You need these parts:

- Housing, part number 2200 (number 1 in the lower diagram to the right), and
- Locking Screw, part number 7090 (number 6 in the lower diagram to the right).



Open Seat

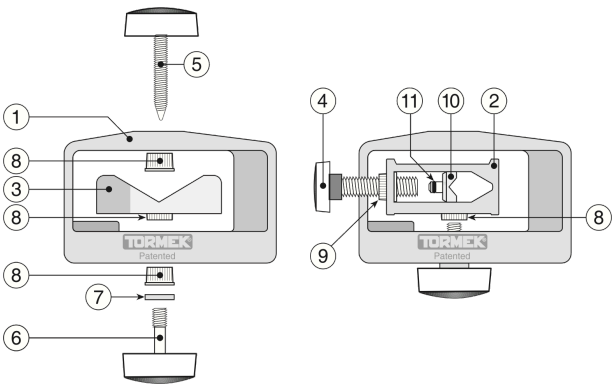


Closed Seat

Setting Everything Up

Once you have these two parts, you can assemble both the open seat and the closed seat as if they were two separate jigs.

The full parts breakdown for the SVS-50 is available on the Tormek web site and shows these parts.



SVS-50 Parts Breakdown *(from the Tormek diagram)*

Get Dedicated USBs for the Two TTS-100 Settings

You can quickly get to sharpening, and then back to woodworking, by using dedicated Universal Support Bars (USBs).

For many woodturning tools, the TTS-100 Turning Tool Setter is used to set the distance between USB and the grinding wheel using either the A or B setting. If you have pre-set USBs ready to go, one set for the TTS-100's A setting, and another for the B setting, then you can quickly get to sharpening, which gets you back to turning faster.



USB with collar

What is Needed

The parts needed are:

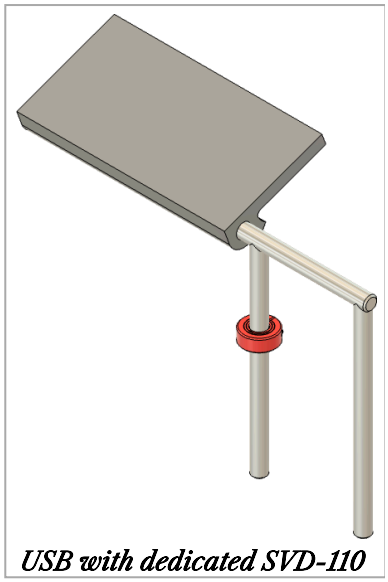
- Two USBs. I recommend the US-103 USBs as they are less expensive. The top bar is 10mm shorter than the US-105 USB, but that is not an issue for the woodturner. And you may be able to save some more money by getting them without the micro adjust nut (as it is not needed for this).
- Two 12mm collars (e.g., p/n 9506T6 from McMaster-Carr). One is shown as the red part on the USB's leg in the picture to the right.

Setting it Up

Once everything is in the correct position,

1. Lock each USB's height in place using the collar.
2. Label each USB as either A or B, corresponding to the TTS-100 setting.

Dedicate an SVD-110 for Scrapers



USB with dedicated SVD-110

This is another technique which allows you to quickly get to sharpening, and then back to woodworking.

Dedicate a Universal Support Bar (USB) and SVD-110 Platform Jig to sharpening scrapers. This works exceptionally well for negative rake scrapers where the upper and lower angles are the same.

What is Needed

The parts needed are:

- One USB. As noted above, I recommend the US-103 USB as they are less expensive. The top bar is 10mm shorter than the US-105 USB, but that is not an issue for the woodturner. And you may be able to save some more money by getting them without the micro adjust nut.
- One 12mm collar (e.g., p/n 9506T6 from McMaster-Carr). One is shown as the red part on the USB's leg in the picture to the right.
- One SVD-110 Platform Jig. I purchased an additional one just for this purpose as I also use the SVD-110 Platform Jig for other sharpening other tools.

Setting it Up

Once everything is in the correct position,

1. Lock the USB's height in place using the collar.
2. Lock the SVD-110's position. I removed the knob screw and replaced it with a set screw as that made it less likely to have the position changed.
3. And as usual, label each this USB/Jig combo so you can quickly see what you need to pull from the drawer.

Using This USB/Jig Combo

Now, when I want to sharpen a scraper, I grab the USB/Jig combo and drop it onto the Tormek. I sharpen the top side (if needed), and then the bottom. You need to sharpen the bottom last so that the burr will be left towards the top of the scraper.

Dedicate an SVD-110 for Skews



USB with dedicated SVD-110

If you want to sharpen skews with flat sides, this works well. It works especially well for the Alan Lacer type of skews as it is easy to keep the same edge angle on the curved part of the edge. And as above, it allows you to quickly get to sharpening, and then back to woodworking.

What is Needed

The parts needed are:

- One USB. As noted above, I recommend the US-103 USB as they are less expensive. The top bar is 10mm shorter than the US-105 USB, but that is not an issue for the woodturner. And you may be able to save some more money by getting them without the micro adjust nut.

- One 12mm collar (e.g., p/n 9506T6 from McMaster-Carr). One is shown as the red part on the USB's leg in the picture to the right.
- One SVD-110 Platform Jig. I purchased an additional one just for this purpose as I also use the SVD-110 Platform Jig for other sharpening other tools.

Setting it Up

Once everything is in the correct position,

1. Lock the USB's height in place using the collar.
2. Lock the SVD-110's position. I removed the knob screw and replaced it with a set screw as that made it less likely to have the position changed.
3. And as usual, label each this USB/Jig combo so you can quickly see what you need to pull from the drawer.

Using This USB/Jig Combo

Now, when I want to sharpen a scraper, I grab the USB/Jig combo and drop it onto the Tormek. Everything is ready to use, so I get to sharpening.

Dedicate a Universal Support Bar (USB) and SVD-110 Platform Jig to sharpening skews. You can drop this onto the Tormek, sharpen the one side, and sharpen the other.

Tormek Maintenance

Whilst not often required, it is important to know how to maintain your Tormek Grinder.

Tormek's HB-10 Handbook outlines the following user maintenance activities:

1. Re-true the grindstone often. This is especially true for the SG & SB grindstones, but also applies to the SJ Japanese grindstone. Make the TT-50 (tormek.com) your friend.
2. Grindstones are like brake shoes: they wear out with use. Replace the grindstone when it gets too small.
    - T-8, T-7, & T-2000 - Replace the 250mm grindstone when it gets to 180mm.
    - T-4 & T-3 - Replace the 200mm grindstone when it gets to 150mm.
3. If there is a bump in the leather honing wheel, carefully sand it off.
4. Every once in a while, you'll need to clean the rubber drive wheel (on the web site) (it is behind the leather honing wheel). That is the one which engages with the motor shaft. It can get dirty, especially in a wood worker's shop.
5. Re-grease the nylon shaft bearings (actually, they are bushings) with any type of "ball bearing grease". Most users recommend simple white lithium grease. This should be done annually.

If you have something else, contact Tormek for support. They are great.

Other points of note regarding the Tormek include these notes

1. Regarding the leather honing wheels, do not over-oil them. The oils in the honing paste are typically sufficient. Adding other oil is really only necessary if the wheel is very dried out.
2. Regarding oils for use on the leather honing wheels.
    a. Thin oils like sewing machine oil are best to use.
    b. General purpose oils like 3-in-1 are OK to use.
    c. Mineral Oil is OK to use.

    d. Do not use WD-40. It can degrade the leather.
    e. Do not use a lubricant with hardeners like paraffin.
