

Looking through woodturning catalogs can be overwhelming—the choices in lathe tools alone are vast! One manufacturer lists over a dozen gouges in various sizes and styles. So, how do you choose? This brief guide will help you understand the basics of gouges and explain how to get the most from these indispensable tools.

Spindle-roughing gouge

Used for spindle turning only. The large cross-section at the cutting end is effective for roughing down square stock and for removing wood quickly. This tool is commonly sold in 1¼" and ¾" (32 mm and 20 mm). Size is determined by measuring across the flute. The inside profile of the flute is concentric with the outside of the tool. Wall thickness is consistently about ¼" (6 mm). The spindle-roughing gouge (SRG) is dangerous to use on bowl blanks because the shank has a thin cross-section where it enters the handle (see sidebar). (A notable exception is the SRG from P&N, an Australian manufacturer. The section that enters the handle is much heavier. Despite this, the tool should only be used on spindles.)

The SRG works best with a bevel angle of about 45°. A shorter bevel adds unnecessary resistance; a longer bevel creates an edge that is too fragile for roughing out work. The profile of the cutting edge is ground straight across, making sharpening a straightforward procedure.

In use, the flute faces up at 90° for the initial roughing cuts. In this position, the near vertical wings sever wood fibers as the large curved edge gouges away the bulk of the material. As the wood becomes a cylinder, the tool can be rolled to use other portions of the cutting edge. With practice, the straight portion of either wing can be presented in a shearing-planing cut similar to the cutting action of a skew chisel. ▶



A Guide to Gouges

Joe Lares

Spindle-roughing gouge profile



A spindle-roughing gouge (SRG) is used to turn a square spindle into a cylinder.

Spindle-roughing gouge

Until recently, spindle-roughing gouges were simply called roughing gouges. The name change/clarification came about because of the increasing number of woodturners who thought that a roughing gouge would be okay to use to rough out a bowl blank. Doing so caused numerous accidents when the small shanks of these large cross-sectioned tools snapped from the incredible force exerted by a rotating bowl blank.

For safety's sake, a roughing gouge, more correctly called a spindle-roughing gouge (SRG), is used only for roughing out between-center spindle work where the grain of the wood runs parallel to the bed of the lathe.



Resistance is diminished while at the same time the heavy cross-section supports an acute bevel angle. This thin cutting edge can then fit into tight intersections.

Most spindle gouges sold today have a fingernail or swept-back profile for the cutting edge. When looking at a spindle gouge with the flute facing up, the edge is usually shaped with the tip rounded and the edges curved toward the handle, the resulting profile resembling a fingernail.

The radius of the tip can vary; woodturners grind the shape of the tip to fit specific needs. For instance, if you were using the spindle gouge for cutting coves, a traditional spindle gouge with a gently rounded tip would be efficient. If you tried to cut deep V cuts with the same tool, however, the bottom cutting edge could make unwanted contact with the wood at the sharp intersection of a cove and its adjoining element. In this case, a tip that is more pointed would work better. Some turners grind the profile of their detail gouges almost to a point and use

Spindle gouges

Cutting coves in spindle-turned work defines what a spindle gouge does best; however, these versatile tools are also used to rough down stock, make V cuts, form beads, and hollow end-grain boxes. Richard Raffan uses a 1/2" spindle gouge for much of his work. He says, "Throughout my 30 years of teaching I've been saying that if you are limited to just one tool, that's the one. You can turn anything with a half-inch gouge."

A spindle gouge is measured by the diameter of the round rod the tool is manufactured from, which typically ranges from 1/4" to 5/8" (6 mm to 15 mm). The shape and depth of the flute, along with how the bevel is ground, help delineate the tool's cutting properties. Looking directly down the shaft of a spindle gouge, the

profile of the cutting edge as it wraps around the flute resembles a crescent moon. The depth that the flute is cut into the rod reaches about midway through the rod in a traditional spindle gouge. The width of the flute is wider, relative to the rod, than for a bowl gouge. It is this rounded portion of the flute that creates the curved cutting edge that allows the wood to be gouged or scooped.

A subcategory of spindle gouges is the detail gouge. For detail gouges, the flute is shallower than for a regular spindle gouge, making the curve of the flute less pronounced. The result is a heavier cross-section of the bevel, which can mean more resistance when cutting wood. On the other hand, the thicker tool provides more stability (the tool does not easily flex). A solution is to grind a double bevel:

In general, spindle gouges are not meant for use with bowl turning, especially for a beginning turner. The shallow flute of a spindle gouge creates a different shape of the cutting edge than that of a bowl gouge and the bevels are generally ground at a steeper angle, making the cutting action more aggressive. Severe catches can result.

Spindle gouge profile



A spindle gouge cleanly cuts coves.

Detail gouge profile



A detail gouge is primarily used for spindle turning and is ideal for cleanly cutting tight transitions.

them in much the same fashion as a skew chisel.

The overhang needed for the required depth of some cuts could cause the thinner cross-section of a traditional spindle gouge to vibrate and result in chatter. In this case, a detail gouge, ground with a double bevel and having a smaller-radius tip, would be the superior tool. Ground in this manner, the detail gouge is also ideal for turning beads.

Experienced turners will use spindle gouges on bowls and faceplate work, specifically for adding details such as beads and grooves. The flute should never face up, however. The cutting edge would be unsupported and a severe catch could result. If you keep the flute facing to the side or angled slightly, you will limit how much of the tool's edge will engage with the wood and a safe cut is possible for detailing a bowl.

For spindle turning, I recommend that beginning woodturners purchase a $\frac{3}{8}$ " or $\frac{1}{2}$ " (10 mm or 13 mm) traditional spindle gouge with a fingernail grind and a gently rounded profile for the tip. The bevel angle should be in the range of 35° to 40°. This is a useful general-purpose tool and this profile and bevel angle is a good compromise between cutting edge retention and the ability to reach into tight intersections. ▶

Detail gouge

Q & A with Michael Hosaluk

Q: *What are the features of a detail gouge that make it versatile?*

A: It is thick in cross-section resulting in less vibration, which means that the tool can hang off the toolrest more so than a traditional spindle gouge. This tool is useful for off-center turning and for cleaning up the sides inside deep vessels.

Q: *How does the shallower flute of a detail gouge compare to the deeper flute of a traditional spindle gouge?*

A: Thompson Tools makes detail gouges for me—the flute is slightly shallower than other designs, which allows me to reach into tight areas in a way that is similar to using a skew chisel. If the flute is too deep, that will limit this possibility. With the shallow flute I get more of a slicing action.

Q: *You are well known for using a double-bevel grind. What is the purpose of the double bevel?*

A: Since the detail gouge is thick in cross-section and has a shallow flute, if ground with one bevel, the bevel is very long from the heel to the cutting edge. Creating a secondary bevel allows easier reference from the second heel to cutting edge, which makes the tool less grabby. Some people remove the hollow grind altogether to create a radius that removes the reference of a heel.

Q: *What bevel angle do you usually use?*

A: The long bevel is 30° and the top bevel is 32° to 34°. The profile is like the fingernail on my pinky. I try to make the profile identical on both sides so that when I roll beads the result is the same. I have, however, seen them ground in every shape and get results. In the end, all that matters is what the turning looks like when you are finished.

Q: *Does the bevel vary depending on the type of wood? Does it vary for any other reason(s)?*

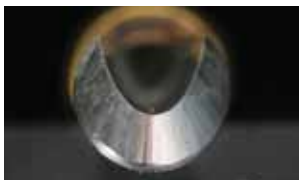
A: The longer the bevel angle, the sharper the edge and the further it can reach into tight spaces. Mine are factory ground to a specific angle that is good for general work, but never be afraid to change the angle of any gouge to suit the work at hand, after all they are just tools. When the technical aspects of turning are broken down to the basics, we turners (1) start with a revolving piece of wood, and (2) shape it with a tool. Where the two make contact you want the least amount of resistance.

Q: *Are their disadvantages to using a detail gouge?*

A: For turning bowls, a detail gouge is not as appropriate as a bowl gouge, but for spindles they are ideal. I do use a detail gouge on bowls, however, for finishing cuts. After you get to know woodturning tools, you will find you can use any of them for most aspects of turning, but we all develop preferences.

Bowl gouge profiles

Ellsworth



Glaser



Traditional



A roughing cut on the outside of a bowl.



A pull cut is used to reach into a tight area and to clean up torn grain. For an even finer shear-scraping cut, rotate the tool slightly clockwise and drop the handle.



A light touch and a sharp edge will produce fine shavings and a cleanly cut surface on the outside of a bowl.

Bowl gouges

Bowl gouges are workhorses of bowl turning. Their size, the profile of the cutting edge, and the angle of the bevel can be varied to meet individual needs. Large gouges are essential for roughing out a bowl blank, medium-size ones are ideal for refining the shape of the bowl, and smaller gouges assist in adding detail. Bowl gouges are commonly available from ¼" to ⅝" (6 mm to 15 mm), as measured by the distance between the flutes. They are made from round rod stock. A typical ½" (13 mm) bowl gouge is made from ⅝" (15 mm) diameter rod and a typical ⅜" (10 mm) bowl gouge is made from ½" (13 mm) diameter rod. (Some tool manufacturers, however, measure their gouges by the actual diameter of the tool steel.) The

deep, relatively narrow flute produces a cross-section that is strong, much in the same manner that channel-shaped steel beams offer strength. The sturdiness of bowl gouges allows for overhanging the tool from the toolrest, which is important when hollowing deep bowls.

The shape of the flute can vary from a U to a V. Some U-shaped flutes have sides that curve inward. The bottom of the U or V has the smallest radius. The shape of the flute affects how effectively shavings are channeled and acts to break the wood fibers so that the shavings can be ejected. The U-shaped flute tends to eject shavings more efficiently than the V shape.

When looking at the tool with the flute facing upward, most bowl gouges have a fingernail-grind profile similar to that of spindle gouges. This fingernail grind (or

swept-back or Ellsworth grind) makes the bowl gouge versatile. By rotating the tool and presenting the cutting edge at different points along the flute (from the tip to the side), the amount of wood that is gouged, scooped away, or finely shaved can vary from large to delicately fine. For instance, to achieve a fine shearing cut, use a deep-fluted bowl gouge with the flute pointed up and lightly cut the wood. Angle the tool slightly, add more force, and substantial shavings will fly, as when rough turning the interior or exterior of a bowl. In addition, a sizeable portion of the long swept-back edge can be used to efficiently gouge away the bulk of the material.

Alternatively, while working on the outside of a bowl when refining the profile or cleaning up torn grain, position the flute facing the wood and a shearing cut is possible using the trailing edge of the tool. With this cut, there is little chance of the tool catching; fine shavings and a clean cut are the result. The fingernail profile also allows access to the outside of the bowl near the base. By using a pull cut with the flute facing the wood (leading edge just clearing but not touching the wood), this area of the bowl can be shaped and cleanly cut.

Traditional-grind bowl gouge

Although it is versatile, the swept-back (fingernail) grind is by no means the only grind on a bowl gouge that is effective. When hollowing the interior of a bowl, professional turner Mike Mahoney believes the traditional grind is the best for hollowing the bottom third inside a side-grain bowl. "I use a traditional grind, which is ground straight across. You can grind the wings back minimally, but that can affect the cleanness of the cut. If the wings make contact, you are not holding the tool in the correct position. My argument to grind it straight across is to make it easier to sharpen," he comments. Although he understands that it takes more skill to use the traditional grind, he believes it's worth learning. "For me it cuts cleaner in almost all circumstances than the fingernail grind, but since it doesn't have a leading

edge (like the nose of the fingernail grind) it is harder to control. The traditional grind, however, is less effective for bulk removal.”

Cutting the interior of a bowl

For bowl turning, one area that is challenging to cut cleanly is the interior, where the side of a bowl transitions into the bottom. With a bevel ground at 60°, it is often difficult to keep the bevel in contact with the wood while rounding the corner—it is just not possible to swing the handle far enough to keep the bevel on the wood. Some turners advocate using a bowl gouge with a shorter bevel of 75° to 80° for tackling this juncture—the handle would not need to swing as far to the left. Conversely, a ¼" (6 mm) bowl gouge with a long bevel (45° to 50°) will make a clean cut when turning the inside walls of a tall vessel.

I recommend a ½" (13 mm) bowl gouge with a fingernail profile and bevel angle of about 60° degrees as an all-purpose tool for beginning bowl turners. It is ideal for turning open bowl forms 8" to 10" (200 mm to 250 mm) in diameter. That bevel angle is nonaggressive and will allow the turner to maintain bevel-rubbing cuts on the exterior and interior of most bowls.

When selecting a new gouge, buy the highest quality tool you can afford—the quality of the steel varies from one manufacturer to the other. Look for the tool's cross-section to be uniformly shaped and the flute polished (mill marks removed). Seek help from experienced turners to properly grind and sharpen your gouges, then practice sharpening.

As you practice basic cuts and gain experience, you will discover the versatility of bowl and spindle gouges.

Different presentations or slight modifications in how the bevel is ground can make it possible to take just the right cut—don't be afraid to shape the tool to fit your needs.

Not many years ago, I purchased a ¼" bowl gouge from JoHannes Michelsen. I wanted the same grind he used for turning portions of the incredibly thin hats that he is famous for. He ground the edge on a 6" (150 mm) grinder, free-hand, with the easy grace that comes with mastery. When I questioned him about how I was going to maintain that shape, he just smiled and said, “One way or another, you need to learn how to make the tools work for you.” ■

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Tool placement for cutting inside a bowl



To help explain proper tool placement for turning the inside of a bowl, I cut a bowl in half and photographed four

bowl gouges, each with a different bevel angle and cutting-edge profile. The bowl's shape is relatively deep and has an undercut rim area. I selected this profile to better illustrate the broad range of tool placement needed to maintain bevel contact.

Three of the bowl gouges have a fingernail profile: a ¼" (6 mm) Glaser bowl gouge with a 35° bevel, a ½" (13 mm) generic bowl gouge with a 45° bevel, and a ½" (13 mm) Ellsworth bowl gouge with a 60° bevel. The fourth is a ¾" (10 mm) bowl gouge with a traditional-grind profile and a bevel of about 60°.

One photograph shows the four gouges together inside the bowl, which illustrates each of the four gouges placed where they work best. Additional photos show each gouge in five areas of the bowl.

Although bowl forms vary greatly, the area between #3 and #4 is typically the area that causes the greatest challenge to turners. Note the tool angle required for maintaining the bevel rubbing for this area for each tool. In the case of the Glaser gouge

with a 35° bevel, this long bevel, combined with the curved form of the bowl, means the inability to have the bevel support the cut beyond the wall area; the handle of the tool is outside the profile of the bowl.

Note: The toolrest is positioned in the same orientation for purposes of comparison. To obtain the least amount of tool overhang, the toolrest should be readjusted as hollowing proceeds.

The five areas are:

1. At the rim
2. Approximately 1/3 of the way down the bowl wall
3. Approximately 2/3 of the way down the bowl wall, just beginning the transition from wall to bottom
4. Lower portion of the bowl in the transition area between wall and bottom
5. Center of the bowl at the bottom

Medium bevel, positions one through five



Ellsworth-grind bowl gouge



Traditional-profile grind



Glaser gouge, ground with a long bevel

