

# 10 pc Super Spindle Lathe Chisel Set user manual



## WARNING:

Read instructions before using tools



**General & Specific Safety Rules:**

1. **Keep Work Area Clean** –Cluttered areas and benches invite accidents.
2. **Do Not Use in a Dangerous Environment** –Keep area well lit. Do not use tools in damp or wet locations or expose them to rain.
3. **Keep Children Away and Make Sure Workshop is Child Proof** –All visitors should be kept a safe distance from work area.
4. **Use the Right Tool** –Do not attempt to use a tool to do a job for which it was not designed.
5. **Maintain Tools** –For the best and safest performance, keep tools clean and sharp.
6. **Do Not Force Tool** –It will do a better and safer job in the manner for which it was designed.
7. **Wear Proper Apparel** –Do not wear loose clothing, ties, rings, or other jewelry than can get caught in moving parts. Wear non-slip footwear. Tie back or cover long hair.
8. **Use Safety Goggles or a Face Shield** –Everyday glasses are NOT safety glasses.
9. **Use a Face or Dust Mask** for operations that generate particulates.
10. **Do Not Over-reach** –Keep balance and footing at all times.
11. **Check for Damaged Parts** –Before use, check for any damage and determine if it will interfere with proper use of the tool. Damaged tools should be properly replaced.

Description	Cutting Tip	Page
1. 1" Skew Chisel	M2 HSS	4
2. 1" Roughing Gouge	M2 HSS	5
3. 3/16" Parting Tool	M2 HSS	6
4. 3/4" Spindle Gauge	M2 HSS	7-8
5. 5/8" Skew Chisel	M2 HSS	4
6. 3/8" LCWIZ Square Cut Chisel	Carbide	9
7. 3/8" LCWIZ Super Skew	Carbide	9-10
8. 1/4" Mini Spindle Gouge	M2 HSS	9
9. 1/4" Mini Skew Chisel	M2 HSS	4
10. 1/16" x 1-1/4" Tenon Tool	M2 HSS	6



## General Set Up and Usage of #LCSET10 Turning Tools

### Your Lathe:

Your lathe should be mounted on a stable surface. The height of the centerline should be approximately even with the bend in your elbow. The tool rest height will ideally be just a little below the lathe centerline.

The distance from the work piece and the tool rest should be just enough that when the chisel reaches the work piece, it is supported behind the bevel (Fig.1). This will provide good support as the chisel engages the work piece. When the stock is reduced, the tool rest should be moved closer to maintain chisel support. Other adjustments to the tool rest position may be necessary for certain tools and techniques.

### Holding Chisels - Best Practices:

The basic hold of turning chisels is that the dominant hand is placed on the handle while the other hand is used to guide the gouge on the tool rest. When turning, it is important to have a solid grip on the handle and brace it with the arm to reduce vibration from the impact of the cuts. The smaller the work piece is the higher on the handle the hand will be for more delicate control.

When gripping the chisels on the tool rest, the knuckles of your leading finger should be against the tool rest (Fig.1) to help maintain a steady guide for the tool.

If learning for the first time, try to start with smaller stock - around 1". The smaller pieces will require fine control mostly in the hands and forearms. Wider pieces will require more work from the arms, body, and legs. Learning from small to large allows the skills to adapt to the larger movements needed for bigger stock.

Make note that the larger the stock is, the lower the speed of the lathe should be. Bigger pieces turn with more force and higher speed on large stock can be very dangerous.

It is safer to cut from wider spots to narrower spots. Moving a chisel from narrow areas to wider areas increases the chance of the tool catching on the material. Also, avoid coming into the blank from the very end of the blank towards the center whenever possible to avoid catching the end grain.

### Practical Learning and Practice:

It is a good idea to read up on turning methods or to search for video advice online. The best advice after watching or reading about any aspect of woodturning is to practice. The easiest and fastest way to gain experience with the chisels is to purchase cheaper lumber and practice using different motions to see how the chisel works. This will provide practical demonstration without wasting valuable wood.

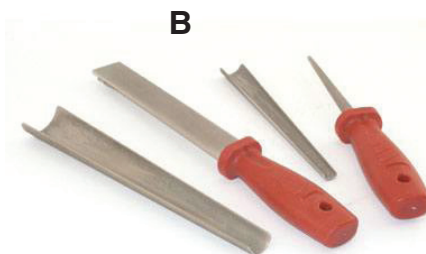
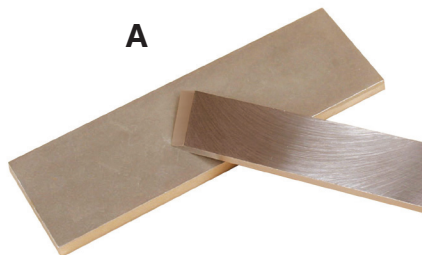
Do not try to use these practice sessions to make specific items; they are just to get a feel for how the tool cuts into the material, learn lathe adjustments such as tool rest position and speed, and to develop techniques for different shapes. Do not be discouraged if practice pieces get damaged. Try to turn away the damaged section with careful cuts. Once a practice piece is too small to continue, you can always start over with a new piece. Practice materials can include pine 2x4's, hardwood dowels, and inexpensive plastics.

### Keeping Chisels Sharp:

All High Speed Steel chisels in this set will require regular sharpening. A Bench Grinder (C) with an 8" wheel is recommended to maintain the proper curve on the bevel. In addition to the Grinder, flat (A) and curved (B) diamond plates will help in honing the edge of your tools in between sharpening. A setup such as the PSI 4pc Precision Sharpening System (D), which includes accessories that are very helpful in maintaining the correct angles on your tools as well as a Fingernail Jig that is indispensable for maintaining the fingernail grind on spindle gouges.



Fig 1: Holding the Chisel



## Skew Chisels –Set includes 1”, 5/8”, and 1/4”

The Skew chisel is one of the most versatile chisels in the wood turner’s arsenal. Unlike gouges, the skew is beveled on both the top and the bottom of the edge. Notice that the edge of the skew is on an angle to the shaft. Therefore there are two different points on either side of the edge. The longer point is called the “toe” and the shorter point is called the “heel”.

Skews can do tasks from planing surfaces smooth to cutting angled grooves and fine lines –it can even do curves. Larger sizes can handle thick spindles and small, thin sizes can be used to add extremely fine details in tight areas. The skew is one of the hardest tools to learn how to use fully, so it is very important to practice with this tool. Below are the two basic cuts which will establish skills needed for more advanced techniques.

### Using the Skew for a Planing Cut:

This is the basic cut for the skew chisel. It is used to smooth and even out the turning surface after the blank has been reduced close to its final shape. The sharp edge slices along the work piece reducing any raised ridges to match the surrounding surface. When done correctly, can leave a surface that does not necessarily need to be sanded.

To plane, the bevel follows the edge riding along the cut surface (Fig. 2). The skew is presented to the work piece at an approximately 25° angle (Fig. 3). Notice that the toe will be above the material and pointing away from the turner. When performing a planing cut, it is extremely important that the toe does not touch the turning surface as it will cause a significant catch. All cutting is done from the middle of the edge down to the heel.

The primary goal is to keep the tool alignment steady and the cut light. The angle is maintained on the handle end and the hand holding the shaft should help maintain a light touch and to prevent the tool from twisting, which might allow the toe to catch on the surface. Do not try to force the edge into the surface; simply allow it to cut a small amount of material. Repeat the pass until the surface is smooth.



Fig 2: Planing Cut –top view



Fig 3: Planing Cut –front view. Note toe is above surface

### Using Skew for Grooves:

This cut uses the toe to cut a v-groove into the material. This will require practice as the toe cuts are more aggressive. It is important to maintain a steady hand to keep the tool at the right angle during the approach and during the cut. Performing this will utilize some of the skills learned from using the gouges and parting tools. Learning this cut will open up the potential to do more advanced techniques.

The basic v-groove is done by lining up the toe and the edge in exactly the angle desired for one side of the groove. The toe starts above the material and the handle is raised up and away from the cut so the toe slides straight into the stock at the correct angle (Fig. 4). The skew is then flipped over to the other side of the groove and the toe will make the exact opposite cut until it meets the end of the previous cut in the center of the groove. Practice until the cuts match up consistently without needing to even up afterwards.

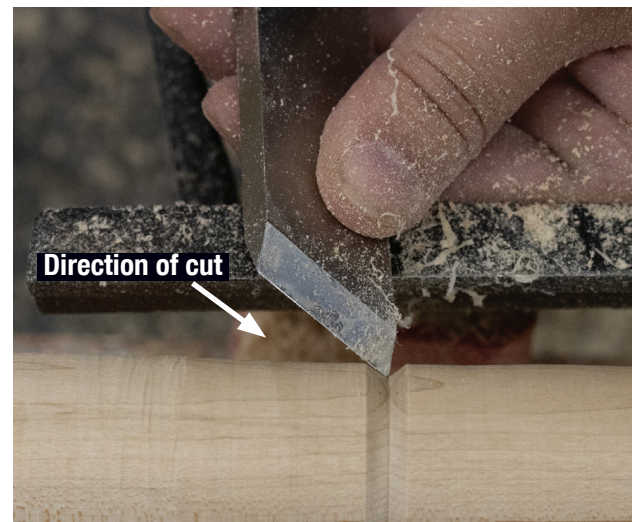


Fig 4: Cutting a v-groove

## Roughing Gouge –Set includes 7/8”

The Roughing Gouge is one of the primary tools for woodturning. Its main purpose is to remove stock quickly until the surface is a relative even diameter. The Roughing Gouge can do some decent final shaping as well with proper handling. The basics of turning, such as stance and chisel control are easiest to learn with the roughing gouge. Note that Roughing gouges are different from other spindle gouges. The tip is usually flat across, the curve of the gouge is u-shaped, and the thickness will be uniform around the flute.

**WARNING:** *Using a Roughing Gouge for Side Grain Turning can result in a broken gouge and serious injury to the turner. Only use for between center spindle turning. Under no circumstance should the Roughing Gouge be used for Bowl Turning or any cuts where the gouge will be cutting into the end grain.*

### Using the Roughing Gouge:

The basic hold of the gouge will have the flute facing up while the bottom of the gouge sits on the tool rest. When roughing, it is important to have a solid grip on the handle and brace it with the arm to reduce vibration from the impact of un-rounded stock.

The best approach is to allow the least amount of resistance when cutting the wood. The edge should be in line with the surface you are turning, and to do this you want to “ride the bevel”. This means the bevel should have as much contact with the material as possible. With this method, the edge is only deep enough to make small cuts and the bevel is resting along the freshly cut surface. This helps support and steady the edge and provides the least amount of drag as the material is cut.

Before the first cut, the gouge should be placed on the tool rest with handle low and the edge pointing above the spindle - the stock should not be in contact with the tool. To begin the cut, slowly raise the butt end of the handle to pivot the edge down towards the center of the stock. The stock will first start to hit the heel of the bevel (Fig. 5) and then the edge as the handle continues to rise. Raising the handle like this is how you can adjust the depth and aggressiveness of the cut. It also helps make sure the bevel remains in contact with the surface (Fig. 6).

Start with light cuts, moving along the stock to make the surface even (Fig. 7). Rapid sideways movement will cause ridges, slower movement will allow a more even surface. Continue to raise the handle to increase the depth of the cut as the stock is reduced to round. It may be necessary to move the tool rest closer to the material as the diameter is reduced to aid in supporting the tool.

As the stock becomes round, you will be able to feel the difference in vibration as the tool transitions from rounded to uncut stock. Stop the lathe to check how close to fully rounded the stock is. You may wish to gently touch the top of the stock to feel for any remaining flat sections. It is important not to touch anywhere that is near the tool rest when the stock is spinning; it can lead to injury.

Once stock is ready, you can may general shapes quickly with the roughing gouge. With some practice, many work pieces can come close to final shape using the roughing gouge only.



Fig 5: Initial contact with the heel of the bevel



Fig 6: Bevel remains in contact with cut material



Fig 7: Reducing to round

## Parting Tools

Parting and Tenon Tools are similar types of chisel. The difference between the parting and the tenon tools is the width of the cutting surface and the leverage for the cut. Parting tools are generally wider and so will cover longer sections quickly. The Tenon tool excels at making narrow, scraping cuts such as the narrow tenons on pen kits. The Tenon Tool can also be used to cut deep, straight grooves, such as those on a honey dipper.

They are also used to part off support pieces when they are no longer needed. Another handy use is reducing the edges of sections to be turned or to reduce small sections next to beads or bevels prior to cutting those shapes -clearing space for the cuts.

### Using the 3/16" Parting Tool:

The primary cutting edge of the Parting tool is the narrow side. The tool is held so the wide edge is perpendicular to the floor.

To make a shear cut, the parting tool is held with the handle low and the point above the center line over the surface of the stock. To begin the cut, the handle is raised, which lowers the edge into the stock and controls the depth of the cut (Fig. 8). To reduce friction, a slight twisting of the handle will help to widen the sides of the cut.

Long sections can be made moving the tool halfway to the side, so it overlaps the cut and the uncut sections and making additional cuts to the same depth (Fig. 9).

To part off the supporting sections a work piece, use the parting tool to narrow the connection point. All sanding and polishing should be finished before the final separation cut. Be sure to lightly hold the work piece so that it does not fall and get damaged once the support piece is removed.

### Using the 1/16" x 1-1/4" Tenon Tool:

The narrow cutting surface and large blade depth of the tenon tool helps to make clean straight corner cuts. The tenon tool will work better with a scraping cut. To do a scraping cut, the edge will be below the centerline and the handle will be angled up (Fig. 11). Cut is made raising the edge into the stock.

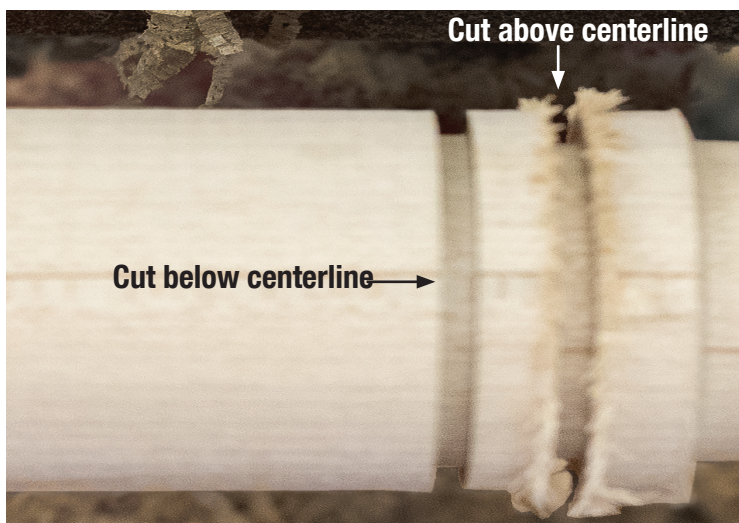


Fig 11



Fig8: Single cut



Fig 9: Overlapping cuts for long sections



Fig 10: Scraping cut below centerline

The wideness of the flat helps in creating leverage and fine control during the cut.

The scraping cut will create a cleaner edge than one made above the centerline (Fig11).

## Spindle Gouge –Set includes 3/4” and 1/4”

Spindle Gouges are meant to do fine shaping. They can do Beads and Coves, as well as straight cuts and gradual sloping. The tip shape is referred to as a fingernail grind and the bevels that sweep back from the tip are referred to as “wings”. The fingernail tip allows for a more focused cut than the roughing gouge allowing dynamic control of shapes through the position of the flute and handle.

The two sizes of Spindle gouges included with the set will perform the same type of cuts. However, there will be a difference in the size of the shapes than can be made. The 1/4” gouge will be capable of making smaller coves and beads with a tight radius, while the 3/4” will create larger shapes.

### Using Spindle Gouges:

The main advantage of a spindle gouge is in making curved patterns. The fingernail profile brings an added dimension to chisel position. With the flat tip of the roughing gouge, the handle can be rotated without changing the cutting edge. The fingernail grind on the spindle gouges, however, means that twisting the handle will alter the cut.

### Cutting a Bead:

A bead is a reasonably easy shape to make with the spindle gouge. Using the following technique, the bead will practically cut itself.

Initially the flute will face upwards at the center of where the bead will be (Fig. 12). To form the bead, you will rotate the handle so the gouge rolls towards the edge of the bead while increasing pressure (Fig. 13). You can also swing the back end of handle out so that it angles away from the center.

Once the bead has been cut to one edge, re-center the gouge and perform the opposite action towards the other edge of the bead (Fig. 14). You can alter the depth and the curve by changing the angle of the handle and the rate of handle rotation in addition to how quickly you move along the work piece. Repeat on each side to deepen and refine the curve (Fig15).

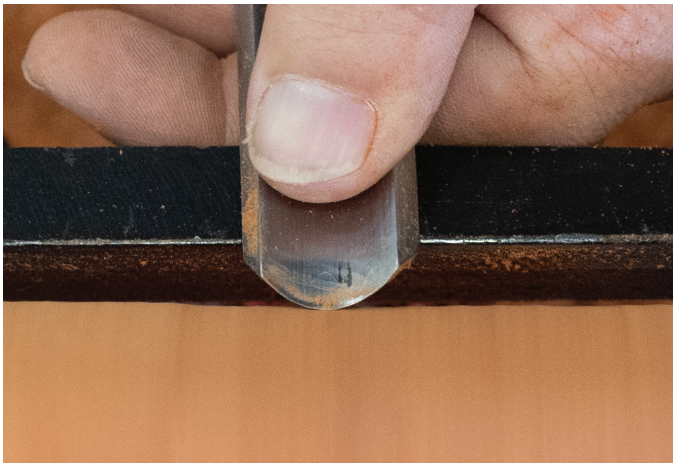


Fig 12: Start cut with flute facing up



Fig 13: Twist tool so flute rolls towards the cut



Fig 14: Do the same action in the opposite direction



Fig 15: Repeat and refine

## Spindle Gouge (continued)

### Cutting a Cove:

A cove is a rounded groove, and it is the opposite of a bead. Covens therefore require almost the opposite motions. It may help to imagine scooping ice cream using the side of the scoop. Try to do shallow covens to start; you want to avoid having the end of the wings catch on the material. Again, marking the center and edges of the cove will help.

Initially, the gouge will be held with the flute facing towards where the center of the cove will be. Start cutting at the desired edge of the cove (Fig. 16). While increasing pressure, twist the handle so the flute starts to rotate upwards and move the tip towards the center of the cove (Fig. 17). There will be slight resistance as the tool rotating away from the center while you are moving towards it.

Once the flute is facing directly upwards, reverse the flute direction and repeat the scoop from the opposite edge of the cove (Fig. 18). Join and smooth the two curves at the center with the flute facing up (Fig. 19). You can alter the depth and the curve of the cove by changing the angle of the handle and the rate of handle rotation in addition to how quickly you move the tip along the work piece.



Fig 16: Start with flute facing center of intended cove



Fig 17: Make cut with a sideways scooping action



Fig 18: Make a second cut from the other side



Fig 19: Both cuts meet in the middle with flute facing up



## Carbide Tools

Carbide tools offer an advantage over traditional high speed steel tools in that a carbide will last several times longer than a steel edge. The replaceable blades have several faces so that as one edge gets dull, the blade can be loosened using the included star key and rotated to present a fresh edge. When turning materials such as TruStone, a carbide tool is essential to resist dulling from the stone content in the material.

### The 3/8" #LCWIZ Square Cutter:

The Square Scraper is used for making roughing and shaping cuts. The blade has a 2" radius edge so that light cuts can be made away from the corners of the blade. As a scraper, the tool is presented at or below the centerline of the work piece. Generally, the tool is held parallel to the floor and the depth is controlled by moving the tool. It is important to make light cuts with this tool.

With all carbide blades, remember that the blade is very sharp and will stay sharp for a considerable length of time. This will make it more aggressive and can cause it to be too aggressive with certain delicate materials such as Acryl-ster. Too much pressure on delicate material can cause vibration and blowout. This aggression can be minimized by angling the tool downward so that the blade is below the center line and the handle is pointing up (Fig. 20).

This creates a negative rake, reducing the stress on the material and helping to reduce tearing and chipping of the material surface.



Fig 20: Holding #LCWIZ Square Cutter below center to create negative rake angle

### The #LCWIZ Super Skew:

The Super Skew is meant to shine as a shearing tool similar to the HSS Skew with the handle designed to hold the blade at an angle (Fig. 21). It promotes using the blade to slice the material rather than scraping which results in a cleaner and smoother cut.

The tool can sit on the tool rest on either of the angled sides to make passes in each direction. The Super Skew is presented to the material either along the tip edge or at the lower corner and side for roughing.

The handle should be pointing out from the lathe, close to 90°. Make light passes to take down the corners, always move towards the cutting direction. Deeper passes can be used as the material becomes round (Fig. 22).

A deep cut using the tip and side is very effective in rapid material removal but can also be very aggressive. Avoid allowing the top corner to contact the material (similar to regular skew). This cut can also be used lightly to do small, smooth cuts on highly brittle material because the smaller surface area will help reduce resistance. Increasing lathe speed and slower movement of the tool will also help limit catches and chips.

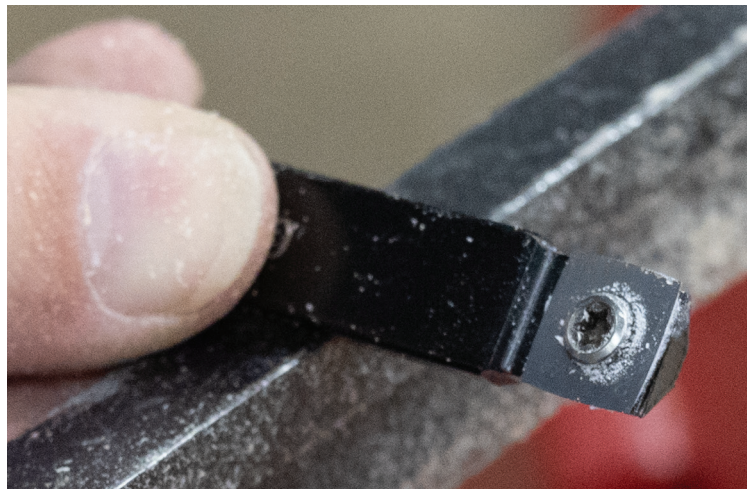


Fig 21: #LCWiZ Super Skew's shape provides a stable shearing angle

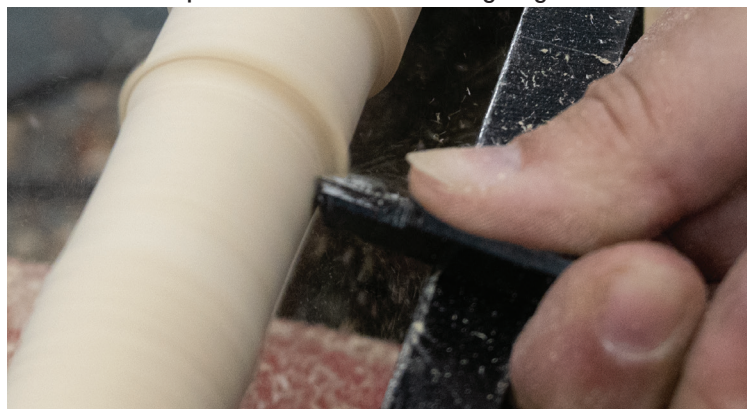


Fig 22: Top of Super Skew facing into the cut

**#LCWIZ Super Skew (continued):****Planing Cut with the Super Skew:**

The shaft sits on the tool rest on one of the angled sides. The top of the blade should face towards the direction of the cut with handle angled away from it (Fig. 23). Skim along the surface with the edge touching the wood and the tip of the tool holder lifted slightly away (Fig. 24). As you make your pass, you should see the material coming off in thin ribbons or threads.



Fig 23: Top of blade towards direction of cut



Fig 24: Holder tip slightly away from surface

The Super Skew can also be used to make grooves in a similar manner to the HSS Skew. By turning the Super Skew to the side so the blade is vertical, thin lines can be cut with the corner.

## WARRANTY

This chisel set is engineered and manufactured to the highest standards of quality. You will find this product an essential accessory to your workshop. This chisel set is warranted against defects in material and workmanship for a period of two years for all components. This warranty applies to the original purchaser of the product and is limited to the repair and/or replacement of the product, or its parts at the discretion of PSI Woodworking Products. Excluded are use of the tools for purposes other than wood turning or use with materials other than those appropriate for turning on a wood lathe. Also excluded are direct or consequential damages to persons, properties, or materials. Your invoice serves as proof of purchase and must be referenced to authorize any warranty repair.

Call your PSI dealer for proper authorization.

