

## Tenon Countersink

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**⚠ Caution:** Be sure to follow the safety instructions that came with your hand drill. Make sure the workpiece is free from nails or other foreign objects, and always maintain proper footing and balance. As with any power tool accessory, **always** wear eye protection when using this product.

The Veritas® Tenon Countersinks are ideal for chamfering holes for fitting tapered shoulder tenons on rustic log projects. The included angle of 60° on these countersinks matches the tenons produced by the Veritas Power Tapered Tenon Cutters. (They cannot be used to bore a hole directly.)

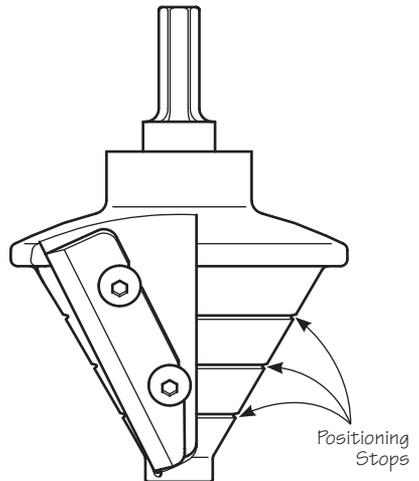
Designed for use in a power hand drill, the small tenon countersink has a hex shank that will fit a 3/8" (or larger) chuck and the large tenon countersink has a hex shank that will fit a 1/2" (or larger) chuck. These may also be used in a traditional hand brace with a tapered square-shank brace adapter. They are **not** to be used in a drill press for several reasons.

1. Because the workpiece must be rigidly clamped in line with the equally rigid axis of the drill-press chuck, any misalignment or movement can create high side loads on the tenon countersink, leading to the shank failing. Any quill run-out in the drill press contributes further to the problem.
2. Because there is much less feel as to how the cutter is performing when using a drill press, it is possible to overload the tenon countersink without realizing it. This, too, can lead to the shank failing.
3. Overloading the tenon countersink or operating it at high speeds can also lead to overheating the O1 tool steel blade, resulting in edge failure, loss of hardness, and a useless blade.

### Installing the Blade

**⚠ Caution:** Be aware that the blade is sharp; careless handling can result in serious injury.

The countersink body includes blade positioning stops that will set the blade in the proper position to produce a controlled cut. Set the blade on the flat machined bed with the bevel facing up. Press the blade down against the bottom of the machined pocket and outward, such that the cutting edge is against the stops at the top and bottom. Tighten the screws.



**Figure 1: Tenon countersink body.**

# Countersink and Bushing Sizes

Bushings sized for the hole to be countersunk will accurately locate and guide the countersink. The small countersink comes with 5/8", 3/4", 7/8" and 1" bushings; the large comes with 1 1/4", 1 1/2", 1 3/4" and 2" bushings.

## Installing the Bushing

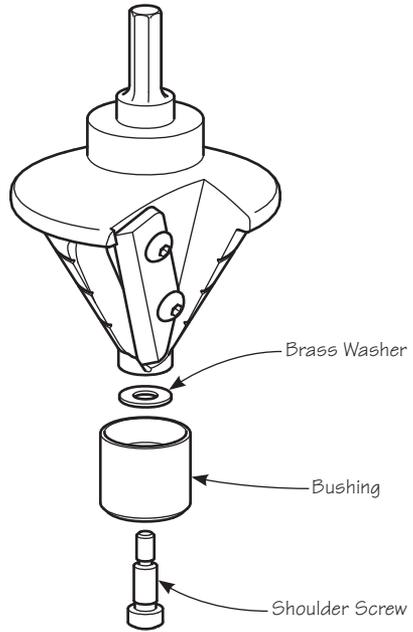
To install the bushing, place the brass washer between the bottom of the countersink body and the top of the bushing. Insert the shoulder screw, as shown in **Figure 2**, and tighten with the hex key provided. The shoulder screw will bottom out in the body but the bushing should still be free to spin.

## Cutting Countersinks

Firmly tighten the tenon countersink in the chuck of a power hand drill. For the large-size tenon countersink (1 1/4" to 2" dia.), a minimum 1/2" chuck is required, and a high-torque, low-speed (~500 rpm) drill is recommended.

Clamp the piece of wood with the hole to be countersunk securely in a vise with the hole horizontal or parallel to the floor so that the drill will be held horizontal.

**Tip:** If you do not have a vise, you can improvise with a piece of 2x4 with various sizes of V-shaped notches cut in it and two C-clamps. Place the piece of wood in a notch slightly smaller than its diameter, and clamp the 2x4 to a bench or any stable surface.



**Figure 2: Installing the bushing.**

Insert the bushing end of the countersink into the hole and adjust the drill by eye so that it is in line with the hole. Cut the countersink while holding the drill straight and level.

While leaning into the wood, switch on the drill at a moderate speed (500 to 700 rpm for 5/8" to 1" dia. holes, 100 to 200 rpm for 1 1/4" to 2" dia. holes). If the countersink stops cutting or does not cut at all, you will need to adjust the blade.

Continue cutting until the countersink has reached the desired depth. Check the fit and size by inserting the matching tenon. The grooves in the countersink body are spaced at 1/2" intervals and help to gauge the size or diameter of the countersink being cut.

## Sharpening the Blade

The O1 tool steel blade has a 30° bevel and is hardened to Rc58-60. The blade may be sharpened by almost any method. Stones (oil or water), abrasive sheets, belt sander or power sharpening system will all provide satisfactory results. As with other blades, it is a real time saver to hone a secondary or micro-bevel and rework the primary bevel only when required.

## Care and Maintenance

The anodized aluminum body of the tenon countersink is durable and corrosion resistant; however, the O1 tool steel blade may rust if exposed to moisture. If storage conditions are damp or humid, the tenon countersink should be wrapped in a cloth. This precaution will also guard against dings and scratches.

Periodically, or following exposure to moisture, take the tool apart to clean it. Remove the blade from the body and clean all parts using a cloth dampened with a dab of light machine or mineral oil. For heavy use, you may wish to apply a drop of light machine oil to lubricate the brass washer.

## Accessories

- 05J46.02** Tapered Tenon Cutter, 5/8"
- 05J46.04** Tapered Tenon Cutter, 3/4"
- 05J46.06** Tapered Tenon Cutter, 7/8"
- 05J46.08** Tapered Tenon Cutter, 1"
- 05J46.10** Tapered Tenon Cutter, 1 1/4"
- 05J46.12** Tapered Tenon Cutter, 1 1/2"
- 05J46.14** Tapered Tenon Cutter, 1 3/4"
- 05J46.16** Tapered Tenon Cutter, 2"
- 05J46.30** Repl. Main Tenon Blade, 5/8" to 1"
- 05J46.32** Repl. Main Tenon Blade, 1 1/4" to 2"
- 05J46.34** Repl. Finishing Blade
  
- 05J46.50** Small Countersink with 5/8" to 1" Bushings
- 05J46.53** Large Countersink with 1 1/4" to 2" Bushings
- 05J46.55** Replacement Blade, Small Countersink
- 05J46.57** Replacement Blade, Large Countersink