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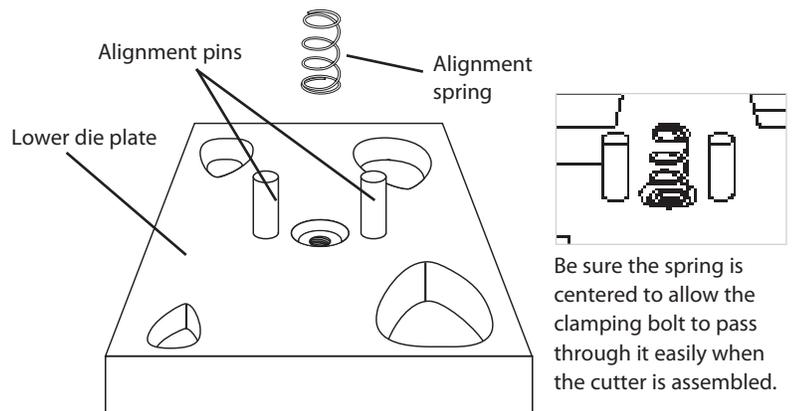
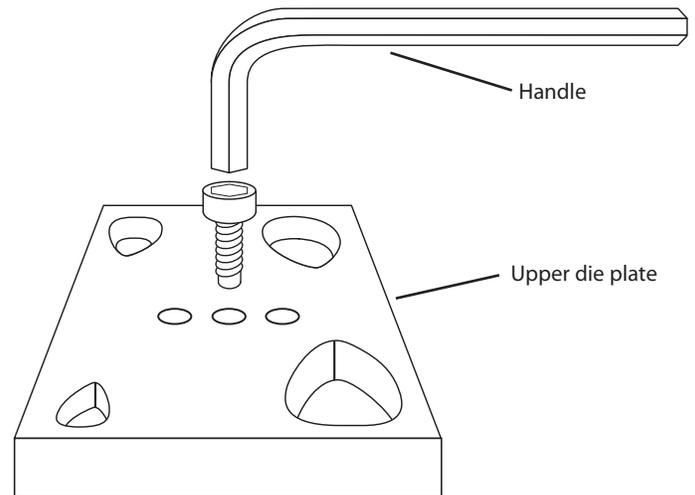
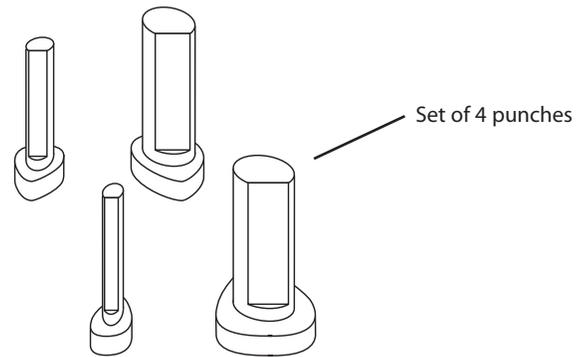
Swanstrom Teardrop-Shape Cutter & Center-Positioning Die Set Instructions (#112-664)

Swanstrom Teardrop-Shape Cutter Set

Manufactured exclusively for Rio by Swanstrom, this high-quality special-shape cutter set is made entirely from hardened and tempered shock-resistant tool steel. The cutting surface on each punch is angled to create a crisp, clean cut. All surfaces are precision-ground with a polished finish. Made in the USA.

Tips for Using the Teardrop Cutter

- Always use a lubricant such as Bur-Life® (available online and in your *Tools & Equipment* catalog) on the punches to prolong the life of the punch and to help ensure a smooth, defect-free cut.
- This cutter is suitable for punching soft gold, silver, copper and brass in thicknesses up to 20 gauge (.81mm). The cutter can be used to punch two or more matching pieces at once, provided that the combined thickness of the material is no more than 20 gauge (.032"/.81mm).
- When punching material thicker than 20 gauge, a hydraulic press should be used rather than a hammer to ensure sufficient cutting force.
- Set the disc cutter on a heavy workbench or other substantial work platform when punching.
Tip: Use a urethane pad (available online and in your *Tools & Equipment* catalog) underneath the plates to help complete the cut cleanly.
- To keep the die plates parallel to each other and to provide the best alignment, always place a shim (a piece of metal the same thickness as the metal you're going to punch) between the die plates across from the hole you will be punching.
- To prevent work-hardening the punches or your hammer, use a 2-lb. brass-head mallet to strike the punch (available online and in your *Tools & Equipment* catalog).



Be sure the spring is centered to allow the clamping bolt to pass through it easily when the cutter is assembled.

Swanstrom Teardrop-Shape Cutter (exploded view)

Using the Teardrop-Shape Cutter:

1. Turn the wrench handle slightly to loosen the clamping bolt and remove the upper die plate.
2. Place the material to be cut between the die plates, under the desired hole size.
3. Place a shim (of the same thickness as the material to be cut) between the die plates opposite the hole.
4. Tighten the clamping bolt to secure the material and shim in place. If the handle is blocking the area of the punch you will be using, remove the handle and re-position it so that it is out of the way.
5. Lubricate the cutter you will be using with Bur-Life® (available online and in your *Tools & Equipment* catalog; place the desired-size punch into the corresponding hole in the top die plate.
6. Strike the punch firmly with a 2-lb. brass-head mallet (available online and in your *Tools & Equipment* catalog).
7. Loosen the clamping bolt and lift both plates straight up off the work surface, allowing the cut metal and the punch to drop from the hole.

**To Create Washer Components with the Center-Positioning Dies:**

To create a washer component, you will first punch the center hole from your metal, then punch the outer circumference to form the washer. Remember to use your shims and Bur-Life® as you work. The Delrin® center-positioning dies ensure that your disc stays precisely centered for the second cut.

1. Select the punch with the size you want the center hole in your washer to be and punch the hole in your metal. Remember to leave enough room around this inner hole to accommodate the outer washer size.
2. Loosen the clamping bolt and move the metal under the hole size corresponding to the outer washer size you want.
3. Insert the positioning die of that size into the hole and gently tap it with your finger to allow the metal to center itself in the hole. Tighten the clamping bolt securely.
4. Remove the positioning die, place the appropriate punch in the hole, and cut the larger-sized shape from the metal.
5. Remove your perfectly symmetrical teardrop-shaped washer component.



Positioning dies allow you to center your metal to create perfectly centered teardrop-shaped washer components of just about any width.