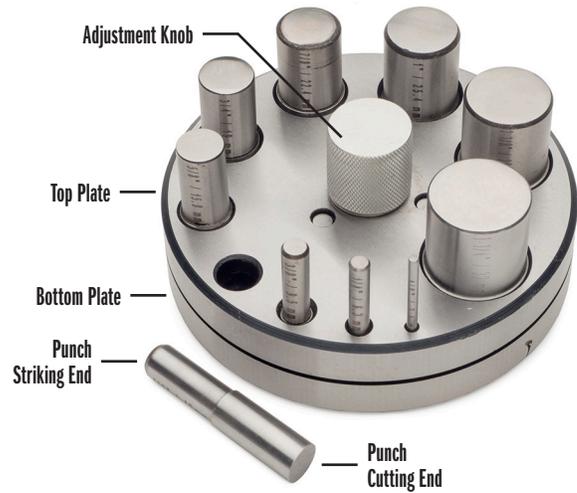


INSTRUCTIONS FOR DISC CUTTERS



Before using your disc cutters for the first time, wipe the surface with a rag to remove most of the oil coating. When separating adjustable plates for the first time, suction from the oil coating may make it difficult. Always leave a light coating of oil on the plates and cutters to prevent rust.

- The striking end of the punches may be slightly smaller in diameter than the rest of the punch. The edge is usually rounded or beveled.
- The cutting end of the punch has sharp edges and is usually shiny. It may be slightly angled for easier cutting.
- Adjustable cutter sets may have one or more alignment posts with an adjustment knob or lever for adjusting the opening between the top and bottom plates.

Cutting Discs

1. Remove all the punches from the plates.
2. If the plates are adjustable, separate them enough to slide your metal sheet between them. Once your metal is positioned under the hole you want to punch, tighten the plates to keep the metal from moving.
3. Select the punch that fits into the hole you have selected. Insert the punch into the cutter until it touches the metal sheet. If the punch sticks, rotate it slightly. Do not force the punch into the hole.
4. To punch the disc, hit the striking end of the punch with a heavy hammer with sufficient force to punch through the metal. You'll get a much cleaner cut if you can cut through in one strike, but thicker sheet may require more than one strike.
5. To remove the cutter, simply lift the plates and let the cutter slide free along with your disc.



INSTRUCTIONS FOR CENTER POSITIONING DIES

1. Determine the size of the washer you want to make. Make note of both the exterior diameter of the washer and the interior diameter of the hole in the center. You'll be punching both diameters with your disc cutter, so make sure you have the two punch sizes you need.
2. First, you'll punch the interior hole in your washer. Position your piece of sheet metal within your disc cutter block so that there is enough space to punch out the entire washer (*figure 1*). If your block features a locking/tightening mechanism, lock your sheet metal in position.
3. If you have a urethane pad or similarly cushioned surface, place your disc cutter on it to protect the cutting end of the punches from damage. Apply a small amount of beeswax or bur lubricant to the edge of the cutting punch and place the punch in the appropriate hole of the block. Using a heavy hammer (brass works well), strike the head of the punch until it cuts completely through the sheet metal.
4. Remove the cutting punch from the block and reposition your sheet metal so that the hole you just punched is roughly centered in the hole you will use for the outside of your washer. Do not lock/tighten the metal inside the block yet.
5. Place the appropriate center positioning die into the block with the pointed end down (*figure 2*). The point of the die will automatically position your sheet metal so that the interior hole of your washer is perfectly centered within the exterior diameter hole you're about to punch.
6. Remove the center positioning die from the block and, if your disc cutter features a locking/tightening mechanism, lock your sheet metal between the two plates of the block.
7. Apply a small amount of beeswax or bur lubricant to the edge of the appropriate cutting punch and place the punch in the block. Using a heavy hammer, strike the head of the punch until it completely cuts through your sheet metal. Your complete washer will be pushed through to the bottom of the block. Remove the cutting punch and your metal from the block.

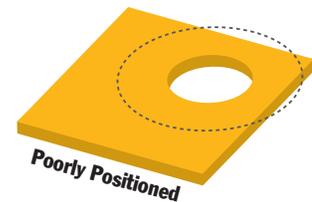
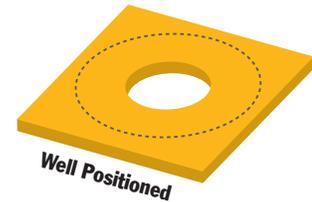


figure 1

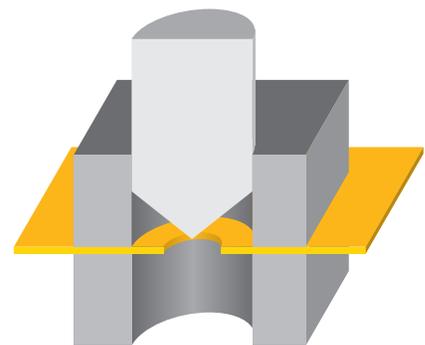


figure 2