

Sawing Sheet Metal

The skills listed here are not difficult, although they will require practice. If you get stuck or discouraged, ask for help from the teacher who can give you face to face guidance.

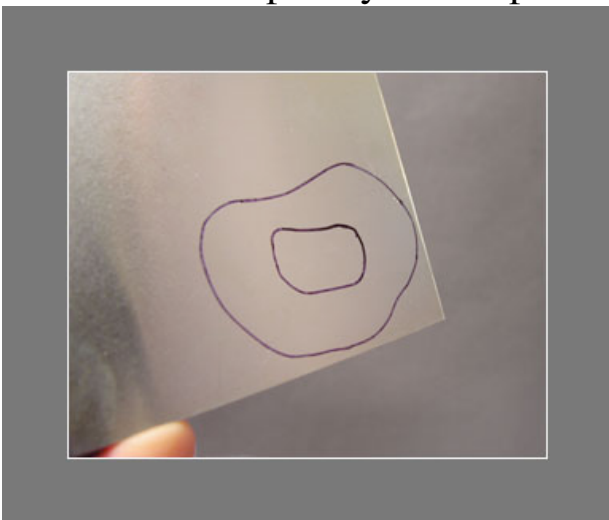
Safety Concerns:

- 1) Wear a particulate respirator mask whenever you stir up dust from metal, or polishing compounds.
- 2) Avoid eating, smoking and drinking in an area where there is metal or compound dust.
- 3) When working with power equipment, always wear safety glasses and avoid loose clothing.
- 4) Remove jewelry when working with a buffing machine.
- 5) Follow all safety recommendations that come with power tools such as the flex shaft or buffing machine.
- 6) Ask for help if you need it.

Create A Template

First ask yourself “What do I want to create?” You may find it helpful to sketch some ideas prior to making your template. Consider making your sheet metal piece out of cardstock and assembling it as if it is sheet metal. For example, if I am making a sheet metal pendant, I can join all of the necklace components together (including the sample in card stock) and try the piece on. I will be better informed about how successful my design is. Once you are committed to a concept, using card stock, draw and cut out a template to be used as a pattern.

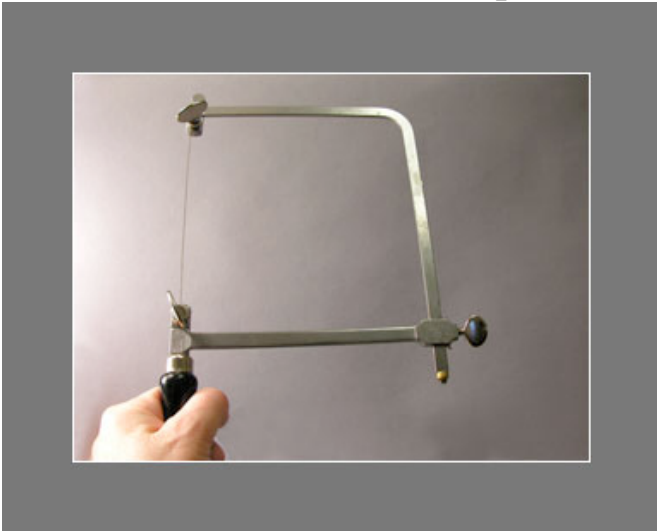
Transfer the shape of your template to sheet metal using a permanent pen.



Preparation: Secure The Saw Blade

Loosen the top screw of your jeweler's saw frame thereby opening the clamp where the blade can be secured. Carefully (blades are VERY sharp) place the top of your saw blade into the clamp and tighten the screw. Please see the chart below for determining the appropriate saw blade for the sheet metal you selected.

How do you know which way to place the blade in the clamp? Think of a fir tree. The branches face away from the trunk, and they slant down. The teeth of your saw blade should be facing away from the saw frame and slanting down. You can gently feel the blade to determine its correct position.



Now, the challenge is to tightly secure the bottom end of the blade in the lower clamp. Adjust the outside third screw of your saw frame so that the saw blade just touches the upper portion of the bottom, left clamp.

Place the top of your saw frame in the "V" of your bench pin. If you don't have a "V" in your bench pin you will need to cut one out with your saw frame after you secure the blade (see below). Press the bottom of the saw frame handle into your chest (If this procedure is uncomfortable, add more padding underneath the handle of your saw frame). This pushing action shortens the space between the upper and lower nuts.



Loosen the bottom screw and carefully introduce the bottom of the blade into the clamp. Tighten the screw and release the pressure on the handle. Gingerly test the blade by strumming your index fingernail from the back to the front of the blade (there are no teeth on the back of the blade so you are not in danger of cutting yourself). The blade is tight when you hear a high pitch “ping”. The blade should be taut and not collapse as you saw your sheet metal. If you are breaking blades one possible problem is the blade is not tight enough.

Preparation: Saw A “V” In The Bench Pin

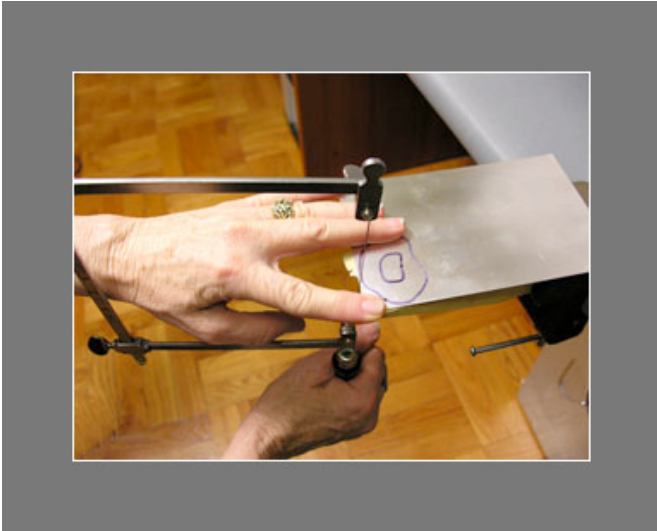
Place your bench pin on the worktable so that the flat side is facing up. With a pen mark a “V” on the right hand side if you are right handed, and on the left if your are left handed. My “V” is about $\frac{3}{4}$ inch at the base and 1 inch high. With your saw blade cut one side of the “V”. You do not need to put a lot of pressure on the blade – let it do the cutting. When you reach the top, loosen the upper nut and pull your saw frame down to release the blade from the wood. Secure the blade in the lower nut and cut the other side of the “V”. Please note: Some bench pins are flat on both sides and generally come with a clamp to secure it to your worktable. Others are constructed to fit into an anvil which is then clamped to your table. If you have the latter piece of equipment, introduce your bench pin into the anvil with the flat side facing up. The back of the bench pin should be sitting on top of your table.



Saw The Sheet Metal

Sawing is a skill that develops with practice. Add lubricant (beeswax, Cut Lube or Bur Life) to the blade by running the stick up and down the blade. The image shows you how to place your index and ring fingers to stabilize the sheet metal as you saw.

With smooth movements up and down with the saw frame, saw between your fingers and in the open “V” section of the bench pin. Sometimes you will have to re-position your fingers to stay clear of the saw blade. Saw the outside perimeter of the sheet metal.



Tips On Sawing

- 1) Use the correct size saw blade for the sheet metal gauge.
- 2) Make sure your blade is nice and tight.
- 3) Lubricate the blade.
- 4) Practice sawing on copper or brass sheet before diving into silver.
- 5) The blade should be perpendicular to the floor as you saw.
- 6) Saw with a light hand – no pressure on the blade.
- 7) Use long smooth movements; use most of the length of the blade to saw.
- 8) Turn corners by “sawing in place” as you turn the metal and the frame.

How To Saw A Hole In The Center

Some of your designs may require you to saw out the middle section. To do this, you will need a flexible shaft motor, Dremel, or a hand drill. Insert a small (#50 to #57) high speed steel twist drill into the drill collet. Insert about 1/3 of the drill bit into the collet – it is less likely to bend or break if you do this. In the image I am using a flex shaft inserted into a drill press especially designed for the Freedom Flex Shaft.

Alternatively, you can drill by holding the flex shaft handpiece in an upright position. Before drilling, use a center punch and a mallet to create a divot in the central section of the sheet metal. Note: You may also use a hole punch if your sheet metal does not

exceed the gauge tolerance for the punch.



Don safety glasses, hold the sheet metal with a ring clamp, place it on a piece of wood, and drill a hole into the divot. I suggest using a ring clamp to hold the metal instead of having your fingers in direct contact with the metal. Although it does not happen often, a drill bit can bend or break in which case you don't want your hands in the vicinity of the drill bit. Another unexpected thing can happen where the drill bit grabs the sheet metal which then spins up the bit. Again, you don't want your hands in contact with the sharp sheet metal.



Remove the blade from the bottom clamp of your saw frame. String the blade through the hole; reinsert the blade into the clamp.

Saw the inside section of your piece. Remove the sheet metal from the saw frame by loosening the bottom nut.

