Create a hollow-form ring that’s big on volume but light on the hand.

by Nanz Aalund

The ring is 17mm (9/32 in.) wide at the rim of the resin dish. When worn, it sits 13mm (1/2 in.) above the finger, yet is comfortable to wear, having only a 2mm (5/64 in.) thickness between the fingers.

inner space

©2006 Kalmbach Publishing Co. This material may not be reproduced in any form without permission from the publisher.
The high cost of materials is what first motivated jewelers to explore hollow-form construction techniques. Metalsmiths discovered that they could use this technique to make large and impressive ornaments that remained very lightweight. However, hollow-form construction techniques can also be applied to smaller jewelry items, such as rings. Similar to the flying buttresses of a Gothic cathedral, hollow-form jewelry garners its strength from the structure of its construction and not from the thickness of its walls.

To make this hollow-form ring, I used 22-gauge (0.6mm) platinum-sterling sheet. If you would like to make this project in traditional sterling, use 20- or 18-gauge (0.8 or 1.0mm) sheet. Traditional sterling requires a heavier gauge to accommodate the additional sanding needed to remove the firescale that will form on the surface during soldering.

[1–3] Make the shank. Use dividers to mark a 64 x 6mm (2½ x ¼-in.) strip on a 22-gauge (0.6mm) sheet of platinum sterling. Use a jeweler’s saw or a bench shears to cut the strip. Use a ring mandrel and a rawhide mallet to swage the strip into a cylinder, allowing the ends of the strip to overlap [1]. Saw through the strip where it overlaps [2]. Solder the cylinder closed with 10k white gold hard solder. Round the cylinder on a ring mandrel, and tamp it with a rawhide mallet to the correct size [3].

[4–6] Taper the shank. Use dividers set to 2mm (⅛ in.) to scribe a 9mm (⅜-in.)-long mark on each side of the solder seam on both shank edges [4]. Use a jeweler’s saw to taper the shank edges, sawing at an angle from the scribed line toward the shank edge [5]. Use a hand file to smooth the angle of the shank edges. Once the taper is evenly established on both edges, sand the shank edges with a consistent pressure in a figure 8 motion on flat sandpapers of progressively finer grits [6].


**drafting with a lightbox**

LIGHTBOXES are used by photographers and physicians to illuminate slides and x-rays. For drafting, a lightbox is used to illuminate a drawing from behind, making it easier to trace exactly over a sketch. Use this drafting technique to make symmetrical paper templates from your freehand sketches.

Sketch your ideas to develop a design. Working on a lightbox, put tracing paper over a freehand sketch. On the tracing paper, trace over the ideal parts of your sketch [a]. Flip the tracing paper over to trace the ideal parts as though they were the other half of the design. This is your first capture.

Find a circle on a drafting template that’s one size smaller than your ring size. Slide the drafting template over a ring mandrel to check each hole’s finger size. Use the hole on the drafting template to draw a circle and its centerline (horizontal), and cross line (vertical) onto a few sheets of tracing paper [b].

Draw the same circle on the first capture to indicate the finger hole. Make marks to indicate the circle’s centerline and cross line. Lay tracing paper with a circle drawing over the first capture, lining up the center and cross lines. Trace the remaining design lines, adjusting them so they appear symmetrical. Flip the tracing paper, drawing on both sides, to refine the symmetry of the drawing. Use additional pieces of tracing paper as needed.

To check that the drawing is symmetrical, fold the drawing along the cross line [c]. The circle for the finger hole and other design lines should line up. If they don’t, lay the folded drawing on the lightbox and continue to refine the symmetry.

CHECK THE SHANK FOR AN ACCURATE FIT. If the shank is not the correct size at this point, remake it or resize it. The ring size cannot be changed after the side panels are soldered in place.

REMEMBER THESE TWO KEY PROCEDURES FOR FABRICATING A HOLLOW-FORM RING. First, leave 1mm (1/32 in.) of overhanging metal at the seams until all soldering is completed. Second, make a hole in one of the walls so that expanding gases can escape during soldering.

Following these procedures will help the solder seams to close completely and remain flawless during cleanup and finishing. To accommodate the need for escaping gases, the side panels of the featured ring are decorated with a pierced pattern.

MAKE A PAPER TEMPLATE FOR YOUR SIDE PANELS. Use a lightbox and drafting templates to make the outline of your side-panel template, and the piercing patterns on it, symmetrical (see “Drafting with a Lightbox,” left).

[7] CUT OUT THE SIDE PANELS. Use a jeweler’s saw or a bench shear to cut two 32mm (1¼-in.) square panels of 22-gauge (0.6mm) platinum sterling. Use a glue stick to adhere the paper template to one panel.
[8] Cut tabs to lock the two panels together. You’ll need at least two tabs to hold the panels secure for later drilling and sawing. Choose the locations for the tabs at any point on the panels.

To make one tab, saw a straight line at a chosen point from the outside edge of the panel to the border of the design on the template. Remove the bottom panel, and set it aside. On the top panel, saw a second line to form a V-shaped notch. Replace the bottom panel. Fold the metal tab from the bottom panel up through the V-shaped notch, and press the tab against the top panel. Repeat in at least one other spot on the panels.

[9] Cut out and pierce the side panels. Use a center punch to dimple spots for drill holes, and drill all necessary holes.

Leaving the tabs in place, use a 2/0 blade to saw the side-panel shapes from the sheet. Use a 6/0 blade to pierce the pattern in the panels. Saw off the tabs.

[10–11] Solder the side panels to the shank. Place one side panel on a tripod. Place the shank on top of the side panel. Flux the shank and the side panel, and heat until the flux becomes a white crust. Place pallions of 10k white gold medium solder at the join, and continue to heat until the solder flows. Repeat to attach the second side panel [10]. Quench, pickle, and rinse the piece. Check your seams. Use a rotary file in a flex shaft or a hand file to evenly trim the edges of the side panels [11].

[12] Make the bowl. Cut a 22mm (7/8-in.) disk from a sheet of 22-gauge (0.6mm) platinum sterling. Place the disk in a large hemisphere on a dapping block, and dome it with an appropriate-size dapping punch. Repeat courses of dapping and annealing until the disk is domed to the desired depth. Use consistent pressure in a figure 8 motion on flat sandpaper to flatten and smooth the edge of the bowl.

[13] Make the coil. Cut a 25 x 3mm (63/64 x 1/8-in.) strip of platinum sterling. (I used a scrap piece from cutting the side panels.) Use roundnose pliers to make a coil. Use consistent pressure in a figure 8 motion on flat sandpaper to flatten and smooth the edges of the coil.

[14–15] Measure and cut the exterior wall. Use dividers to measure the width across the top of the ring [14]. Transfer that measurement with the dividers to an 89mm (3½-in.)-long sheet of
22-gauge (0.6mm) platinum sterling [15]. Use a jeweler’s saw or bench shears to cut out the strip.

[16] Mark the side panels for the placement of the bowl, and remove that area. Use the bowl to find a circle on the drafting template that is the correct size. Use the circle on the drafting template to mark the top of the ring where the bowl will be attached. Use a jeweler’s saw to remove that area from each side panel.

[17] Score and fold the exterior wall, and solder the fold. At the midpoint of the exterior-wall strip, file a score with the corner edge of a triangular hand file. The score should be no more than three-quarters of the depth of the metal.

Fold the strip at the score, and fit the strip to the point at the base of the ring. Use 10k white gold medium solder to solder the folded score.

[18] Solder the exterior wall. Use binding wire to hold the exterior-wall strip in place. Solder the exterior wall to the main body of the ring with 10k white gold medium solder. Either bind and solder as much of the exterior wall as possible at one time, or work in increments, binding and soldering one section at a time. Either option is viable as long as there are no gaps between the ring’s side panels and the exterior wall. Quench the ring in water, and remove the binding wire before pickling.

[19] Trim the exterior wall. Use a jeweler’s saw and hand files to trim the exterior wall to within 1mm (⅜ in.) of the side panels.

[20] Fit the top opening to the bowl. Use rotary files, large ball burs, and large, rounded, rubber abrasive bits with a flex shaft to shape the interior edges of the opening at the top of the ring until it will fit flush on the bowl. Work slowly and check for fit often; there should be no gaps.

[21] Solder the bowl to the ring. Flux the ring and the bowl. Place the bowl face down on the soldering pad, and balance the ring on top of it. Heat both, and bring 10k white gold easy solder to the join with a soldering pick. Quench and pickle the piece. If there are gaps in the seams, flux and reheat until solder flows throughout the seam.

Trim and clean all seams. Use rotary files, hand files, sandpaper strips on split mandrels, and sanding sticks to trim the excess metal from the ring. Continue to use increasingly finer grits...
of sandpaper until the ring is ready for polishing, or finish the ring as desired.

[22] Pour colored resin into the bowl. Mix clear epoxy resin according to the manufacturer’s instructions, and fill the bottom one-third of the bowl. Allow the resin to cure (see “Add Color with Resin,” right).

Install the coil. Mix a transparent color of epoxy resin according to the manufacturer’s instructions, and set the coil in the bowl. Pour the colored epoxy resin into the bowl around the coil. Allow the resin to cure.

---

**materials**

- Platinum sterling sheet: 22-gauge (0.6mm), half-hard, 64 x 89mm (2 1/8 x 3 1/2 in.)
- 10k white gold solder: hard, medium, easy

**tools & supplies**

- Dividers
- Jeweler’s saw, 2/0 and 6/0 blades
- Bench shear (optional)
- Ring mandrel
- Rawhide mallet
- Bench pin
- Hand files
- Sandpaper: various grits
- Lightbox (optional)
- Drafting templates
- Tracing paper
- Glue stick
- Center punch
- Flex shaft, drill bits
- Soldering station: torch, solder (hard, medium, easy), fire-resistant surface (soldering pad, firebrick, or charcoal block), pickle pot with pickle, flux, steel tweezers (cross locking and precision), copper tongs, pick, tripod, binding wire
- Rotary file
- Dapping block and punches
- Roundnose pliers
- Ball burs
- Rubber abrasive bits
- Split mandrels
- Epoxy resin:
  - Clear
  - Transparent color (optional)

---

The outline of an ancient Greek urn inspired the shape of this ring, while the Mediterranean Sea inspired the color of the resin.