

Tools

Soldering Torch

Most affordable, easy: Butane Torch, 500086 at Rio Grande, \$39.99. The jeweler's version has a larger flame, large output, and more even heat than the cheap kinds usually used for creme brulee...good news, you can still make the fancy dessert with this one.

More experienced: Smith Silversmith Torch with Acetylene/Ambient Air #239-193 (one tank of Acetylene, no oxygen tank). Hotter torch and bigger setup. Cyberweld price as of December 2016 is about \$180, which comes with NE180A handle and 00 tip (small) <http://store.cyberweld.com/sismsouu.html>. I would suggest adding an "0" tip, another \$25. You'll also need MC acetylene tank, which can be refilled. Current price at Cyberweld is \$55, but can be purchased or leased from a welding supply locally.



Other options: Smith Little Torch is a much hotter torch setup with much smaller tips. This torch is good for soldering gold, or heating large quantities of silver for casting. For new jewelry artists, the heat is hard to control and you may end up melting your pieces. I would not recommend this for new artists—it's overkill.

Soldering Tools

Silver solder: Silver solder is mix of silver and other metals to lower its melting temperature. You'll mainly use one of three varieties: easy, medium, and hard. Easy has the lowest melting temperature, and hard has the highest. It's important to have all three on hand. If there are multiple soldering operations, you'll generally start with hard (example, bezel), then use medium or easy to solder the second operation (bezel to backplate). You can purchase in wire, stick, sheet, or "chip/pallion" form factors. Two other levels of solder—"eutectic" solder and a super easy solder—melt at hotter and lower temperatures, respectively. I use eutectic solder if a piece is going to be enameled because it melts at a hotter temperature than enamel.



Soldering block: I prefer firebricks, which can be purchased inexpensively and thrown out when they become damaged. I get these at a pottery supply or you can pick up the ones shown at Tractor Supply for \$19.99 for 6. They are usually used to make kilns or put in wood-burning stoves. Charcoal blocks are also used in some cases, but can retain more heat and break down more easily. However, charcoal blocks work well for melting small silver balls for decoration, granulation, or other texture effects.

Paste flux & paintbrush: Flux keeps the metal from oxidizing (turning black) so the solder will flow. I prefer paste flux because it gives an indication of the temperature of the piece. It will first become fluffy and white, then eventually turn glassy right before the solder will flow. Handy Flux (Rio #504086) is a brand I use. A liquid type is Batterns Self-Pickling Flux from Amazon (still pickle your metal). If you are soldering copper, Prip's Flux is recommended.



Pickle Pot: A small crockpot will warm the acidic pickle to clean the metal. You'll pickle the metal both before and after soldering. A "little dipper" style works well. Look for one with a ceramic top if possible. About \$12 on Amazon.

Heavy duty bent copper tongs: You don't want to put steel tweezers into the pickle pot because it will contaminate the pickle. Rio Grande #501017, about \$8.

Pickle (acid): For the pickle pot, cleans the metal *before and after* soldering. You can use something called **pH Down**, which is used for spas. Usually around \$10 for a container, can be found at home improvement stores, pool supplies, and Amazon. Some artists use something called "Sparex," but Sparex can become dirty with a brown sludge on the top. A small container of pH Down will last you forever.



Small glass or ceramic bowl of water: After you solder the metal, you will quench it in water before transferring it to the “pickle” to clean the metal. This also prevents the pickle from splashing on your clothing and burning holes in it. Glass or ceramic is best.

Fine Tweezers: You’ll use these for placing small pieces of solder. Blue Heron tweezers (#115018) at Rio Grande are about \$2.75. The most important feature is a fine tip. Do not put the tip of the tweezers in the flame.



Needle-Nose Pliers: Use an old pair to hold things while soldering.

Solder Pick: The titanium solder picks (#503019) at Rio Grande are nice. They are used to make adjustments of your piece or solder placement in the flame.

T-Pins (optional): Can be helpful with sticky soldering situations. Can be pushed into the soldering block to hold things in place while soldering. Purchased at any office supply store.

Bailing or binding wire (optional): Some artists use fine steel wire to bind pieces together—like bezels—while soldering. I learned this way, but don’t recommend it.

Lazy Susan hardware (optional): Purchased at home improvement stores in the hardware department. Can be placed under the firebrick so that it can be rotated easily for even heating (could be screwed, but you’ll find yourself rotating the block as sides get dirty and coated with flux).



Finishing

Liver of Sulfur or Gosiba: Chemicals that adds a dark finish to your piece that gives depth when polished off of the higher areas. Apply LoS to heated metal. I prefer Gosiba from Allcraft, which is not as finicky and leaves a soft gray patina.

Sandpaper: For sanding bezels flat, use 320-grit from Home Depot. You can also find fine sandpaper at auto parts stores. Advance Auto has a kit with 3M 220, 400, 800, and 1200 grit sandpaper for around \$8 (other parts stores only sell individually, kit is Part No. 03021).

Sanding Sticks: Sandpaper attached to sticks, or make your own with adhesive sandpaper and paint sticks.

3M Imperial Micro-Finishing Film: Extremely fine sandpapers. Kit at Rio Grande (#337310) includes seven sheets, 180, 220, 320, 400, 500, 600, and 1200 grit. About \$16.

3M Sponge Sanding Pads: With a soft backing, these are good for hand-finishing metal surfaces to a satin sheen. 80, 150, 320, 600, and 1000 grit. \$15 at Rio for the kit (#337318).



3M Radial Bristles (optional): Good for polishing metal using a Foredom Flex-Shaft or Dremel tool. Color-coded by grit. gray: 36-grit. teal: 50-grit. yellow: 80-grit. white: 120-grit. maroon: 220-grit. dark blue: 400-grit. pink: pumice. red: 6 micron. pale orange: 1 micron. Comes in three sizes on the small ones, and also in a kit with a variety and mandrels. Can get large ones for a polishing machine that replace polishing rouges and muslin buffs.

Variable Speed Lathe (optional): Good for polishing with either 3M large radial bristles or muslin buffs charged with red rouge, tripoli, or other polishing compounds. Around \$65 at Rio Grande (#330031).



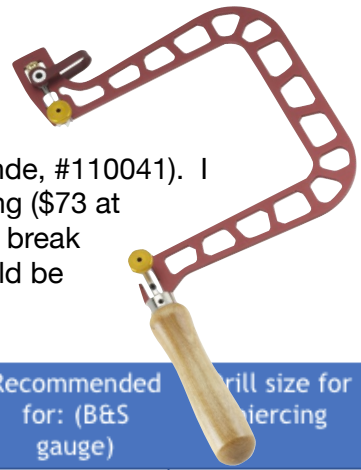
Flex Shaft (optional): A motor with a flexible shaft and handpiece used for polishing, drilling, and setting stones. If shopping on Rio Grande or Otto Frei, make sure the kit comes with a handpiece, which is sometimes sold separately. The SR Kit on Rio Grande (#117534) is around \$230, and includes a holder, foot pedal, handpiece, and polishing disks. You can also add small muslin buffs for polishing with polishing compounds. Handpieces are interchangeable, and you can upgrade to hammer handpieces that are used for setting stones in bezels.



Jewelry Tools

Cutting

Jeweler's Saw: Most jewelry artists start out with the standard jeweler's saw, which works just fine. There are different sizes, and a wide variety of prices. A basic Swiss 3" frame (\$18 at Rio Grande, #110059) is what I started with, and is easy to manage. Some people like the adjustable German type (\$16 at Rio Grande, #110041). I later upgraded to the Knew Concepts 5" frame with adjustable cam for tensioning (\$73 at Rio Grande, #110147). It is lightweight and easier to insert blades...handy if you break them a lot. Remember, let the saw do the work, and don't push hard. You should be able to guide the saw literally with two fingers—don't "white knuckle" it!



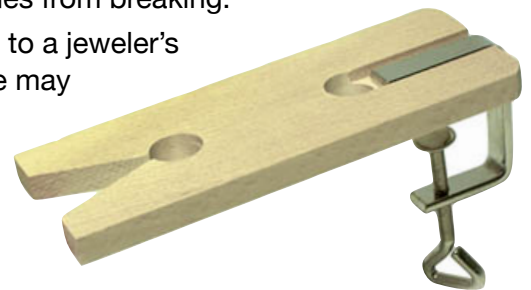
This chart is from Rio Grande, and shows the size of saw blade used with difference thicknesses of metal. A good all-around blade is a size 2/0, which from the chart shows can be used with 20-22 gauge metal, the size you will generally use. The chart also shows the drill size used for "piercing," which is openwork. You'll first drill a hole, then thread the blade through.

Blade size	Blade thickness	Blade depth	Teeth per inch	Recommended for: (B&S gauge)	Drill size for piercing
8/0	.0063"	.0126"	89.0	up to 26	80
7/0	.0067"	.0130"	84.0	24-26	80
6/0	.0070"	.0140"	76.0	24	79
5/0	.0080"	.0157"	71.0	22-24	78
4/0	.0086"	.0175"	66.0	22	77
3/0	.0095"	.0190"	61.0	22	76
2/0	.0103"	.0204"	56.0	20-22	75
1/0	.0110"	.0220"	53.5	18-22	73
1	.0120"	.0240"	51.0	18-20	71
2	.0134"	.0276"	43.0	16-18	70
3	.0140"	.0290"	40.5	16-18	68
4	.0150"	.0307"	38.0	16-18	67
5	.0158"	.0331"	35.5	16	65
6	.0173"	.0370"	33.0	14	58
7	.0189"	.0400"	30.5	12	57
8	.0197"	.0440"	28.0	12	55



Blade Lubricant: This makes the blade glide easily when cutting the metal. I also use beeswax when I can't find my BurLife. Available from Rio Grande, (#117003), about \$5.50. An absolute necessity, it keeps your blades from breaking.

Bench Pin: A place to work while sawing, a bench pin can be attached to a jeweler's bench or table. An inexpensive, portable model like the one shown here may cost about \$9 at Amazon or Rio Grande. If you have a more permanent setup, there are angled bench pins that are screwed into your bench top. There are also angled bench pins included in interchangeable systems that can run hundreds of dollars (GRS Benchmate).



Metal Shears (optional): Like scissors that you can use with metal, these Xuron High Durability Shears can cut up to 12-gauge metal (Rio Grande #111172). HOWEVER, they can make the metal curl and sometimes distort, so you will have to hammer it flat. This particular type also has serrated jaws. Another version designed for cutting kevlar has smooth jaws (Amazon, the search Xuron NS). Sometimes sawing is the best option, but these can come in handy.



Joyce Chen Kitchen Shears (optional): These handy little red scissors are great for cutting thin metal up to 24 gauge (24-34 gauge) or plastics. Amazon, about \$21.



Shaping

Rawhide Mallet: A rawhide hammer can shape metal without marring the surface. Usually a 1-1/2" face on the hammer is good. They can be purchased anywhere that carries jewelry supplies, including local craft stores. Before using the first time, take it out to your porch and soften it by banging it on the concrete patio.



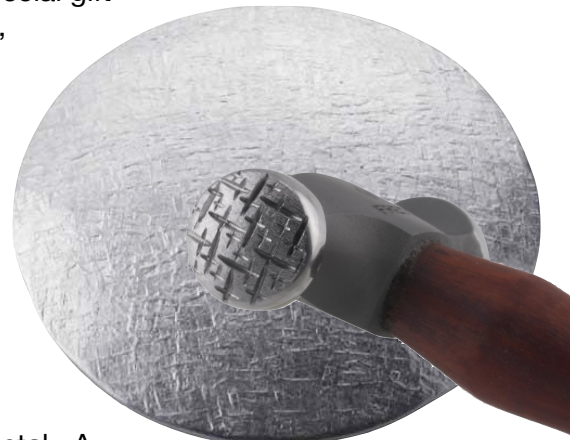
Chasing Hammer: For flattening and texturing metal. One side is perfectly flat, the other is like a ball peen hammer. An inexpensive hammer might be under \$10. Cheaper hammers might have to have the flat surface polished with fine sandpaper and/or polishing compound on a buffing wheel—any imperfections will be imparted onto the metal. A really good quality option is the Fretz Planishing Hammer HMR-1 (about \$50). It has a flat side and a slightly domed side, which is good for making a “hammered” texture. Fretz also makes an excellent quality chasing hammer (HMR-20M, about \$50).



Ball-Peen Hammer: This hammer is used to flatten or create a more dramatic texture on metal with the round end. You can even purchase them at a local hardware store, however, ones intended for general use do not have a polished head, and will create a dull texture on your metal...you can polish it out, but polishing diminishes the “hammered” effect. Instead, polish the faces of the hammer. The advantage of buying more expensive hammers is a polished surface, better quality metal that does not damage as easily, and a well-balanced hardwood handle. Companies such as Fretz also make less-expensive versions of their hammers...to the left is the “maker” version of their hammer, the Fretz Maker Precision Large Embossing Hammer (MKR-404, \$26). As you increase your skill, better quality hammers are a good investment (They’re also usually priced well for a special gift when relatives ask you, “what do you want for your birthday?” Suddenly, designer shoes become unimportant...).



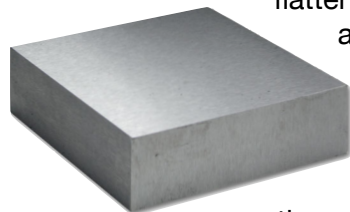
Texture Hammers: There are a variety of cool hammers that give you interesting surface textures. You can also make your own by purchasing cheaper hammers and filing them (not with your good files, though!). The one shown here is the Fretz Raw Silk hammer, about \$56 at Rio Grande. Other texture hammers can be less expensive, around \$10. Check Wubbers University for a tutorial on making a texture hammer (www.wubbersu.com).



Brass Mallet: Used for stamping. Brass is softer, and the hammer will not bounce off the stamps as easily.

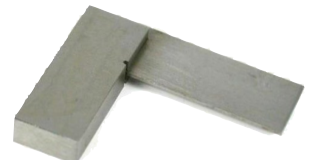
Metal Stamps: Letter stamps and other designs can be stamped into metal. A popular look and easy seller. Many fonts are available, but a good starter set can be purchased from Michael’s or Hobby Lobby...don’t forget to download a 40% off coupon or the app before going into the store. Sellers on Etsy will also make custom stamps for you.

Bench Block: You’ll need a metal block to stamp onto or provide a solid surface for hammering and flattening metal. Better quality blocks are a harder metal that doesn’t damage as easily and that come nicely polished (doesn’t impart a texture to the metal). Common sizes include 2”x2” or 4”x4”. I would suggest a larger one, which can run \$15-30. One nice upgrade you’ll find has a rubber base.



2” Machinist’s Square (steel): I get mine on Amazon, part number B000RB578W, which is \$14.99 for two. There are others for about \$7.50. These are good for marking bezels and

sheet for rings.



Hardwood Dapping Block: These are used for doming metal. The hardwood version does not mar the metal. Be sure to look for the one that's a set with two "punches." Some versions sold are the block only. Expect to pay around \$15.



I use this mostly for doming earrings or circles of metal that I will enamel, as a domed piece is stronger, and will not flex and crack the enamel as easily. Then you can use the torch-enameled pieces as large cabochons, which is cost-effective. I also used this dapping block on my flower ring. This one is from Rio Grande (#112199). Metal ones generally have a deeper dome, and are used for making hollow beads.

Mandrels: A steel ring mandrel is used to measure the size of your ring, and also to serve as a mandrel to hammer the metal into a round shape. A ring mandrel can also stretch a ring or bezel. One variety has a groove, and others don't. There are also round, oval, and square bezel mandrels, oval and round bracelet mandrels.



Brass Bezel Roller: I recommend a brass one because it will not mar the metal as much (brass is softer). I sanded one edge of mine with fine sandpaper to soften the edge. If budget is a concern, you can also use the handle of an old plastic toothbrush.



Measuring

Steel Ruler: You'll need a steel ruler with inches and centimeters.



Pocket Sliding Brass Gauge: This is a nice tool for measuring small items in millimeters, and for understanding the approximate size of stones and jewelry. Will help you start thinking in metric. (Amazon, B0058EE03G, \$16.99 Prime; Rio, \$11.50).

Digital Calipers: These are used for precise measurement of stones and setting burs. They can range a great deal in price, but a decent one with good ratings on Amazon may be around \$17 (B000GSLKIW). The least expensive at Rio Grande is around \$25.



Making Holes

Center Punch: The punch will create a starter hole that will keep your drill bit from dancing around the metal. Search for "automatic center punch" or "spring punch" on Amazon (B000HTAH70).

Drill Bits: You'll want high-speed steel bits, but the large jeweler's sets at Rio can be pretty expensive. Try Dremel drill bit sets from a home improvement store, or a Mini Twist Drill Bit Kit from Amazon (B000GSLKIW) for around \$14 (Prime.) Sizes used in jewelry drill bits are different than kits that you get at a home improvement store, which are usually measured in inches (1/8", 3/32"). I usually refer to a drill bit size chart at Rio Grande when ordering. Jeweler's sets can run \$50-70 or more, so I usually make do with what I can find and measure them with calipers.

Europunch (hole punching) Pliers: In various sizes, these pliers can easily punch holes through sheet metal. About \$12 on Amazon (B003L7PLNK).

Precision Hole Punch (helicopter style): This type of hole punch has two sizes, and runs about \$20. I prefer the Europunch pliers, but I've had one of these for years. This gets crummy reviews on Rio Grande...

Setting Burs for Tube Settings, Faceted Stones: If you want to set faceted stones, you'll need a Dremel or Foredom and a set of setting burs. A decent set of 24 from Rio is about \$57 (#344396). Since stones vary in size, having a wide range is handy. You'll also need a set of bezel setting tools...the "value line" set of 16 at Otto Frei is about \$45 (#153.149).



Files

I personally think a good quality file is one of the most important investments you'll make. Most students start out with a tiny kit of files and find they hate filing. A good hand file makes jewelry making more enjoyable.

Used for shaping metal, a good half-round file is versatile. If you were to purchase only one better quality file, I would recommend a **#2 cut half-round hand file**, which might run \$30-35 (Rio Grande, #114705). If you could afford a second, I would purchase a **#4 cut barrette file** (Rio Grande #114719, \$28), which has a sharp angle and one side that doesn't cut—it's good for getting into little corners. Eventually, you might purchase a **#0 cut half-round file** (Rio Grande #114928, \$31). With files, the larger the number, the finer the file. A 0-cut is a very aggressive file, used for removing a lot of material. Once you use the coarser file, then you progress to the 2-cut, then 4-cut to eliminate file marks. If you don't have the #0 file, then you'll just have a little more work with the #2 file, then finish up with the #4. Additional cleanup can be done with sanding sticks.

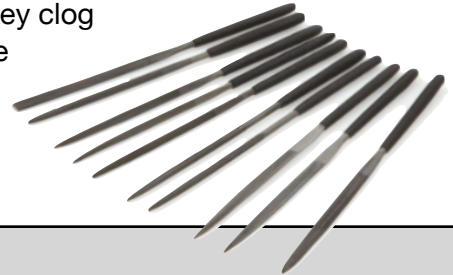


When shown in catalogs, you'll see a section of the file—little marks show where the file has cutting surfaces. Most hand files will not come with plastic or wood handle. You can use it without a handle just fine, or one can be purchased an added.



Another file set that works well is one I got at Home Depot, the Husky Multi-Purpose File Set, with three files for about \$8.00. If you're on a budget, this flat file is a good one to start with, and add a needle file set that can be purchased at a home improvement store for about \$8. This will include shapes that make it easier to get into tight spaces. Although they will work, I don't recommend diamond files...they clog

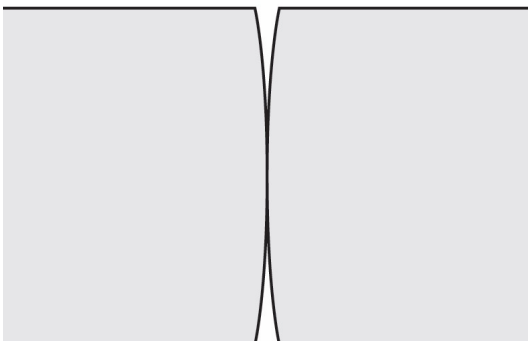
easily. Look for regular cut files. There are also very tiny 4" files available, but they can be expensive, maybe \$50 or so.



FILING TRICK: File in ONE DIRECTION ONLY.

The file only removes metal when being pushed away from you. File in slow, deliberate strokes. This is especially important when you're filing the ends of a ring or a bezel that need to be soldered together. Rounded ends will not work when you are trying to solder them together...solder should not be relied on to fill gaps. Make sure the material is well-supported on a bench pin.

gap will not fill with solder



correct



A girl can dream...

Disc cutter: If you cut a lot of circles, a disc cutter is really nice to have. The “Cadillac” of disc cutters shown here is the Swanstrom (\$267). Smaller, more affordable versions can be found on Amazon in the \$30 range...be sure to check the reviews.



Rolling Mill: After you decide that shoes over \$20 are completely overrated, you'll be ready for a rolling mill. These are good for rolling patterns onto metal, reducing the thickness of metal, flattening solder, and fold forming. Expect to pay around \$600 or more for a good one.

Gwen Youngblood's Riveting Essentials Kit: Cold connections are pretty hot, and the easiest way I've found to do them is with Gwen's kit. Check Etsy for seller “MetalArtLab” for the lowest price, currently \$49.95 + shipping.



Lexi Erickson's Solder Station: This heavy, powder-coated workstation protects your table or desk from the heat of your soldering torch. The turntable makes it easy to distribute heat while soldering. About \$199. Look in the “Wubbers Innovations” at www.wubbersushop.com for the Solder Station. Turntable and tray can be purchased separately.

Aubin Tumbler: A tumbler makes polishing your jewelry very efficient, removing any polishing compound while tumbling to a bright finish. There are several types out there in a wide range of prices. However, the Aubin Model 510 Rotary Tumbler has an easy-to-open canister, a direct drive, and it's quieter than most because of the softer plastic. This was my third tumbler, and well worth the price. About \$250. Purchased from Allcraft Tools. www.allcraftusa.com.



Dapping Block and Punches: This type of set is essential for the creation of spinner rings, as it's what's used to flare the ring so that the spinner bands cannot slip off. It's also used for making hollow round beads. This version is \$45 at Rio Grande (#112929), and another is \$38 at Otto Frei (#125.107). Really good sets will run into the hundreds of dollars, but for as often as you'll use this, you're better off investing that money elsewhere.

Pliers and Cutting

No matter what type of jewelry you're creating, you'll need some pliers. Better quality pliers have better finishing and harder metal. Even if you're on a budget, you can find starter tools that are not too expensive. Try Amazon, or even Michael's or Hobby Lobby, and don't forget the coupon!



Just the basics

Chain nose pliers: These are like regular pliers but with no teeth, so they don't mar your metal.

Round nose pliers: These are used to make loops, bails, and wind spirals.

Flush cutters: Good for cutting wire and solder.



I've got extra in my budget...

Medium flat nose pliers: These are really good for getting bezels lined up correctly for soldering, and also for making the bend on handmade earwires. If it's in your budget, get all three—narrow, medium, and wide.

Bent nose pliers: These are the best for opening jump rings.

Bail making pliers: These are good for creating earwires and bails on the backs of larger pendants (although you can also use pens and pencils in the beginning...).

Looping pliers: Different types of looping pliers are available that make a loop for dangles, earwires, or wrapped components.

Gauges of Metal and Common Use

The thickness of metal increases as the number of the gauge diminishes. So a 24-gauge piece of silver is much thinner than a 20-gauge. You will rarely use anything thicker than 18-gauge in sheet.

There are also different hardnesses of wire and sheet. With sheet, I almost always use “soft.” With wire, it depends on the application, but mostly dead soft with the exception of earwires.

Use the “cut” of the thickness gauge (shown below) to measure the thickness (not the round part).

Gauge	Inches	Millimeters
0	.325	8.26
2	.257	6.54
4	.204	5.19
6	.162	4.12
8	.128	3.26
10	.102	2.59
12	.081	2.05
13	.072	1.83
14	.064	1.63
15	.057	1.45
16	.051	1.29
18	.040	1.02
19	.036	.912
20	.032	.812
21	.028	.723
22	.025	.644
23	.023	.573
24	.020	.511
25	.018	.455
26	.016	.405
27	.014	.360
28	.013	.321
29	.011	.286
30	.010	.255
32	.0080	.2019
34	.0063	.1600

Sheet

18-gauge: Ring shank or very heavy backplate to bezel set ring.

20-gauge: Good for backplate, or anticlastic ring (like spinner ring).

22-gauge: Thin backplate to ring, or thicker appliqué sweat-soldered to other plate.

24-gauge: Backplate to a piece that has a rigid frame or bezel. Backplate does not protrude past edge of bezel. Thinner appliqué.

28-gauge: Used in Marne Ryan’s texture techniques as a backplate. Very thin appliqué.

Wire

14-gauge: Wire barrettes, thicker wire ring shank (dead soft).

16-gauge: Thin ring shank (I use this for dichroic rings, dead soft).

18-gauge: I use this for some wire decoration soldered to a backplate or a heavier bead drops (dead soft).

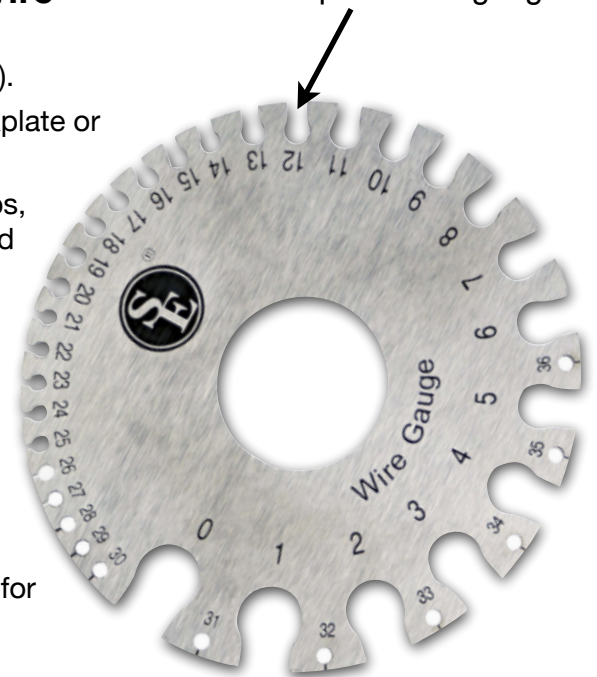
20-gauge: I use this for heavier earwires and wrapped bead drops, jump rings, and also soldered decoration (all dead soft). Also used for the frame in wire weaving (dead soft).

21-gauge: The perfect thickness for handmade earwires (half-hard) or small jump rings (dead soft), and more delicate decoration. For earwires, use a 0.8 ID cup bur designed for 21-gauge wire in a Dremel or handle to soften the wire ends and make them more comfortable (#344541 Rio Grande, \$11).

22-gauge: Good for small jump rings, delicate decoration (dead soft).

24-gauge: In fine silver, used for Viking knitting. Also works well for very delicate bead wraps and wire weaving (dead soft).

Use this part of the gauge



Jewelry Resources

Some companies only sell wholesale and require a tax ID. All of the companies listed below should be available to anyone.

Jewelry Tools

Rio Grande: www.riogrande.com. Out of Albuquerque, usually very quick shipping with UPS Ground (2-3 days). Prices are decent, great selection. You can purchase precious metals from Rio, including something called Argentium, which is a variation of silver. You can also send them old jewelry for credit toward purchases.

Otto Frei: www.ottofrei.com. A competitor to Rio Grande with a great selection. Google for the 5% coupon code when you shop. Shipping is not as quick, and if something's not in stock, they aren't as good at telling you before backordering. However, sometimes the prices on larger items is much lower; I bought my Kerr Electro-Melt from Otto Frei, used a coupon, and saved about \$100 over Rio Grande.

Allcraft Tools: www.allcraftusa.com. Good prices on large hardware purchases, but shipping might be a little slower than other options. However, the pricing may be worth the wait. The only source of Gosiba. Tavel is the person to talk to. Sometimes better to call than shop online, but ask if you call. 1-800-645-7124.

Amazon: Sometimes Prime delivery options...and good for reviews. However, watch for a scam happening on Amazon where companies with silly names like "USAGift" are selling at much higher prices. It looks like when you place an order, they order it from someone else and ship it to you, selling it for 2-4x the price! Be sure to watch the number of reviews and the prices.

Wubbers: www.wubbersushop.com. Wubbers makes pliers, and sells a lot of other items in their online shop. Sometimes their bundles will have good prices that include stands and cutters.

Other Resources

The Clam Shell: www.theclamshell.net. If you want spectacular stones, such as druzi and other exotics, this is a good place to get them. If you're interested in anything in particular, you email them to tell them what you're looking for, and they'll send you photos of their inventory (pretty standard with a lot of stone folks). They will be a little pricey, but amazing quality.

Intrinsic Trading: In Round Rock, Intrinsic Trading carries beads and some cabochons at good prices. They are regulars at all of the bead/gem & mineral shows.

eBay: I use eBay for affordable stones. However, when you start purchasing, you might use a ruler to see what the actual size is. It can be confusing when they list a stone that's in millimeters—sometimes the photo doesn't represent the size of the stone well. When I first started buying off eBay, I would take the photos and resize them in Photoshop and print them actual size. You can use a site called **eSnipe** to put bids in on eBay, which helps avoid emotional bidding. You can choose your maximum price, and eSnipe will jump in and bid 3 or 4 seconds before the end of bidding. It costs a little bit for the service, but you'll save in the long run. Also, take a critical look at the reflection shown on the stones...sometimes you can see poor finishing. One other thing to consider. A lot of the affordable stones on eBay come from India or somewhere in Asia. Shipping may take several weeks, and ranges from free to \$10 usually.

Gem and Mineral Shows: Most large cities host a gem and mineral show at least once a year. One of the biggest is held in Quartzsite, Arizona. The advantage of visiting a show is seeing the stones up close before purchasing. Just google "gem and mineral shows" or "bead shows" for more info.

Class Notes—December 19th, 2016

- Don't forget to use hard solder for bezels, medium or easy to solder to the backplate, and easy to solder the ring to the back of the bezel plate.
 - If you have both fine silver (.999 silver) and sterling silver (.925 silver), the quickest way to tell the difference is to use a torch and no flux. The sterling silver will oxidize in the flame and turn black almost immediately.
 - To anneal metal, put paste flux on the metal, heat, and when the flux turns glassy, immediately quench in water and pickle. An alternate method is to use a Sharpie mark on the metal...it will disappear completely when the metal is annealed (this also works well for fold-forming and copper).
 - Metal hardens as it is worked. If it becomes difficult to bend, anneal.
 - When filing, use the coarsest file first, which should be your #0 or #2 file. Then progress to the next finest file, and finish up with sandpaper, sanding sticks, or sanding sponges.
 - When looking at sandpaper that's measured in microns, remember that the higher the number, the larger the "grain" of the sandpaper. If you have 15-micron paper, and a micron is a "unit" of measure, 30 microns is going to be larger than 15, so obviously the sandpaper is coarser with larger "grains." (I have that "other" unit of measure that helps me remember, but I can't write it down!)
 - Bezel wire as purchased is usually 24-gauge fine silver (.999) because it is softer and can be pushed over the stone easier. Fine silver has a higher melting point than sterling silver. Make sure you use hard solder on bezels. If you have a problem with melting bezels, try heating the entire piece more evenly, make sure you're not dwelling on a particular area too long. If that doesn't work, you can also try using a tripod with a screen and heating from underneath, or even using a charcoal block (which absorbs heat), lifting the piece and "bouncing" the flame and heat from underneath.
 - If you are making a tab setting, don't use 24-gauge fine silver because it's too soft. Use 20, 22, or 24-gauge sterling silver.
 - When pushing a bezel down onto a stone, use a bezel roller or old toothbrush handle. Start on one side, then push the opposite side. If you were looking at a clock, you would push at 12 o'clock, 6 o'clock, 9 o'clock, 3 o'clock. Then push in the sides between those positions, and roll the bezel onto the stone.
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- The bezel generally comes about 1/3 up the height of the stone. Place the stone on your bench block and look at the bezel against it.
 - If your stone sits too low in the bezel, you can either sand the bezel down with 320-grit sandpaper, or cut a backing out of an old credit card.
 - The lady with the colored pencil jewelry is Deb Kerash. She uses Prismacolor colored pencils over a green chemical patina, sprays workable fixative between layers, and finishes up with Renaissance Wax. The colored pieces are then riveted to a silver backplate.
 - The guy who does beautiful Native American style stamped jewelry is Jeff Fulkerson. He has some great tutorials on Wubbers University, including one on making large beads out of copper. Sign up for a free account, verify the account, and use the code 12345 as your "enrollment key."
 - A lady known for torch-fired enamel jewelry is Barbara Lewis. She has a cool and funky style with lots of color.
 - A good resource for ring sizes is to google "ring size wiki." The wikipedia article is a handy place to find the length of metal for rings.
 - You can use a bench vice for small pancake dies and forming. If you wanted a custom pancake die, go to www.sheltech.net. <https://www.youtube.com/watch?v=Zoa4lszVu0k>. Dar Shelton can be reached at darshelton@hotmail.com, 505-864-8028.