

Some Advice: How to Cut & Use Rubber Jewelry Molds

by Peter W. Rowe

The following is a response by Peter W. Rowe to a question posted to the Orchid jeweler's web site in 2003. Used by permission of Peter W. Rowe.

I am sorry to report that there are really no books or video tapes on rubber mold cutting that are worth anything.

I always sorta like the substantial chapter in Murray Bovins classic book, "Centrifugal or Lost Wax Jewelry Casting". Sure, there are a lot of things it doesn't fully cover, and more than a few things that are outdated. But in general, it seems to give a pretty good discussion of at least the basics and general practices of mold cutting. If you "read between the lines" and study the photos as well as reading the text, you'll get additional ideas. Not much there for an already experienced mold cutter to gain additional info from, but certainly, for a beginner, it's a good start.

But of course, as you say, working with an already experienced mold maker will teach someone a whole lot more, and a lot faster, than a book. And, as you also say, there are myriad variations on technique. I don't think there are two mold cutters out there who actually would cut a mold exactly the same way. Everyone has their own subtle favorite tricks and methods, and with a bit of practice, almost any variation on the basics can be made to work. The rubber is pretty versatile.



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For the original poster, the question of parting lines in the wax is a universal one. You strive to minimize their impact on the wax model by cutting the parting lines either where they will be easy to clean up, either in the wax or the finished metal casting, or by trying to put the cuts right along edges of the piece, where they then really don't show as lines.

Take care also that you don't cut the rubber into very thin flimsy sections which can shift inside the mold when it's injected. With some complex molds, this is hard to achieve, but careful planning of where the mold will be cut usually can find good solutions. Sometimes, especially when you're learning, it's necessary to make several molds of a piece before you figure out just exactly the best way to cut the mold.

Whatever you do, be sure also that the mold halves are well "keyed" to each other. I "wiggle" the mold knife in a small "zig zag" motion whenever cutting rubber areas that are away from the actual model, so the rubber there is cut in wavy hills and valleys, and the whole mold surfaces lock in place to each other. This helps prevent misaligned areas in the wax injections.

If you have a mold that is persistently giving you fins and parting lines, then you should also take care to examine your injection technique.

Maybe you're clamping or hold the mold too tightly, deforming it, or not tightly enough, letting the halves of the mold separate from the wax pressure.

And often, beginners tend to use too high a pressure on the wax injector. You usually don't need more than 5 or 6 pounds of pressure on the wax, and often less. Using the least pressure that will still fill the mold will minimize parting lines and fins formed by excess wax pressure.

If you have a mold that requires higher pressure to fill completely, you can also look at the mold and determine whether the problem isn't actually not having enough vent cuts in the mold. A lack of vents in some details then needs you to use much more pressure to inject the mold and get blind details to fill. Vents can themselves give you parting lines, so be careful with this. Experience will teach you what you need.

Also, pay attention to the temperature of the wax. Too cool, and you'll need more pressure, perhaps causing problems. Too hot, and not only will the wax tend to stick to the mold, but you'll get much more shrinkage problems in the wax, with things like sunken areas in flat spots, and the like. This behavior is also much influenced by just which type of wax you use for injecting the molds.

Hope that helps.

Peter Rowe