

# Working with a Flex Shaft on Metal Clay Greenware

Deborah E. Love Jemmott ©2007

The flexible shaft machine is one of the most versatile pieces of equipment in a jewelers' studio. It consists of a motor, usually suspended from a pole, a foot pedal with a rheostat control, and a flexible shaft that leads to the handpiece. There are several choices of motors and a wide variety of handpieces. The most common handpieces are the basic chuck key handpiece (#30 on the Fordham), a hammer handpiece and a quick release handpiece.

A plethora of small bits, grinding wheels, burs, buffs and wheels can be chucked up into the handpiece to speed up or refine processes once powered solely by "elbow grease." In addition, most flex shaft machines can be mounted to become small drill presses, mini-lathes, small cut-off wheels or small bench-mounted grinders, among other applications.

## Safety

Safety goggles or eye protection should always be worn when working with a flex shaft. Little pieces of polishing compound, the metal being worked on or even the bit itself can fly off and injure an unprotected eye.

In addition, a dust mask or respirator should be worn when performing any operation that produces dust particles.

Artists usually work in metal clay using additive techniques. The flex shaft allows the artist to approach the medium through a subtractive process, thus opening up new possibilities for design in texture, shape and form.

The use of a selection of burs and wheels in the flex shaft offers the opportunity to carve metal clay in the greenware state in ways that would otherwise be too difficult, too time consuming or almost impossible to achieve through other methods. The flex shaft can speed up the removal of excess metal clay from the back, sides, or interior of a molded piece. And for those pieces that just cannot be saved, it is a quick and easy way to grind up the greenware so it can easily be reconstituted back into usable clay.

## Wheels / Burs / Etc.

There are several specific burs and wheels that suit the purpose of working in greenware metal clay with the flex shaft. In general, coarse burs – often labeled as wax burs – work well. Fine cut burs tend to clog more easily and are therefore not as desirable. Diamond burs work well, also, especially the cheaper, coarser ones. Also

# Working with a Flex Shaft on Metal Clay Greenware

Deborah E. Love Jemmott ©2007

useful are the 3-M Radial Bristle Discs, some of the silicone polishing wheels, bristle wheels and drill bits.

Recommended burs include:

Ball Burs – a variety of sizes

Krause Burs – generally one or two of these (a medium and a small)

Square Crosscut Burs – a variety of sizes

Stone Setting Burs – sizes to accommodate the stones being used

## Handling the Metal Clay Greenware

Metal clay greenware is very fragile. Breaking a piece when it is partially finished is not uncommon when working with hand tools. The flex shaft creates even greater forces on the greenware, so even more care must be taken. There are some techniques that can help minimize breakage.

- The greenware **MUST** be completely dry before beginning to work on it with a flex shaft. All of the burs, diamond wheels, drill bits, etc. will immediately clog with clay if the piece is even slightly damp. To test for dryness, place the greenware on a hot warming tray until it is hot. Remove it and immediately place it on a piece of cool or room temperature metal sheet. After a few seconds, remove the piece and examine the metal where it rested. If there is any sign of moisture, the piece is **NOT** ready to be worked on a flex shaft.
- Cradle the piece **GENTLY** in your fingertips while working. It is better to hold loosely and to surround it with your fingertips than to hold it in one small area. You do need to hang on tightly enough to keep control of the piece.
- Set up a large (18" X 24") piece of smooth paper to catch the dust while you are working.
- Work on the **BACK SIDE** of the wheel. For right-handed jewelers, the wheel is rotating over the top and at you from underneath. If you work on the bottom of the wheel (the usual position), all of the dust will get thrown at your face, instead of being thrown onto the dust-catching, paper sheet.

