

The Bench Grinder as a Valuable Clay Studio Tool

The most important piece of equipment you can own for making clay tools, adapting existing tools, and sharpening any of your tools is a good stationary bench grinder with 6"-diameter grinding wheels. You can get one for 50 bucks at your local home improvement superstore or on amazon. The SKIL and Rockwell bench grinders on amazon are good examples. Some bench grinders come with a built-in lamp, but if not, find an old desk lamp or appropriate clamp light to provide light. That's important.

In order to make a bench grinder effective as a clay studio tool, you need to replace one of the grinding wheels with an abrasive flap wheel. Abrasive flap wheels are composed of hundreds of strips of abrasive cloth, and thus they have some give to the surface. Search online for a 6" by 1" 120-grit abrasive flap wheel with a 1" bore, and then be sure to get the necessary adaptor bushings to fit the shaft on your bench grinder (usually 1/2" or 5/8"). Sometimes the adaptor bushings come with the flap wheel, but otherwise you have to purchase them separately. Remove one of the grinding wheels from your bench grinder (keep it as a spare) and mount the abrasive flap wheel.

With a grinding wheel and an abrasive flap wheel you are equipped with both rigid and pliable grinding/sanding surfaces for shaping and sharpening tools. These grinding media are effective on most surfaces including wood, metal, and plastic. The grinding wheel is perfect for sharpening all sorts of tools, for hogging off material when shaping modeling tools or ribs, and for finishing flat surfaces.

For heavy duty grinding use only the face of the grinding wheel. But for light-duty sanding and shaping, the side of the grinding wheel can be used like a sanding disk and provides a very good wide flat work surface.

The abrasive flap wheel provides a flexible sanding/grinding tool ideal for rounding off surfaces which have been rough-shaped on the grinding wheel. Initially the flap wheel will cut very aggressively, to the point where it may be hard to control. If so, work a rock or a piece of hardbrick against the spinning wheel to soften the tooth, making it more manageable.

Here are some cautionary notes, and bear in mind that these apply to anyone in the vicinity.

- First, whenever using a bench grinder (or any kind of grinder) there will be flying particles, so wear proper safety goggles or preferably a full face shield.
- Second, all grinding/sanding processes create dust, so wear a proper respirator with P-100 dust cartridges.
- Third, whenever you start a bench grinder always stand off to the side while the wheels comes up to speed. If someone accidentally whacked a grinding wheel with a 2 by 4 it could be cracked, and could fly apart with explosive force as it comes up to speed. Off to the side you are out of the line of fire.

- Fourth, when you are shaping wood pottery tools on the bench grinder or abrasive flap wheel, there may be some smoke. Your dust respirator will not stop that, so make sure that the area is well ventilated.

What Can You Do With Your Bench Grinder?

This might seem obvious, but you can use your bench grinder to sharpen your trimming tools (except or tungsten carbide tools such as Bison tools). You can also use it for coarse sharpening of axes, shears, loppers, and other such tools, but don't even come near a bench grinder with a good kitchen knife. That would be a travesty.

Once your bench grinder is equipped with an abrasive flap wheel on one end of the arbor and a stock grinding wheel on the other, there are many things you can do. In use, hold the work against the steady rest whenever possible, and be sure to wear safety goggles and a dust mask. As mentioned above, be sure to provide good ventilation to exhaust any smoke or fumes while grinding or sanding. If the surface of the grinding wheel gets clogged with wood residue, grind a piece of scrap steel against the rotating wheel for a few seconds.

Because of availability and durability, hardwood and bamboo are the best choices for many clay tools. Avoid softwoods, as they will absorb water and break down quickly. Do not leave wood tools soaking in water, and once a month clean and dry them, coat generously with mineral oil and let the oil soak in overnight. For the very best protection for you wood tools, melt beeswax and mineral oil together, and periodically rub that compound on the wood tools.

Short lengths of dowel can be rotated against the face or corner of the grinding wheel, shaping the piece as on a wood lathe. With practice you can achieve precise symmetrical points, ball-ends, or finials on the business end of a tool, or as a decorative feature on the handle end. A piece of 5/16" dowel sharpened against the grindstone and slightly sanded on the end makes a good tool for signing pots, for shallow incising, or for sgraffito at the hard-leather-hard stage.

To make pin tools, cut and finish a piece of 1/2" dowel and drill a 1/16" hole into the end. Epoxy the dull end of a heavy sewing needle into the hole. Better yet, use stainless steel surgical needles.

To make a superior sponge stick, round off both ends of a 14" length of 5/16" dowel. Grind a shallow groove 3/8" from one end by rotating the dowel against the corner of the grinding wheel. Wrap one edge of a small piece of sponge over this "ball end," so that most of the sponge protrudes off the end. At the point where the groove is located tie off with some nylon thread or brass wire to permanently hold the sponge in place.

The throwing stick or "jug finger" is useful for lifting narrow thrown forms or for "bellying out" a jug or bottle. The best jug fingers are formed with a curved shaft, but a serviceable one can be made from a 14" length of 1/2" dowel. Round off the ends and grind a groove 1/2" from one end to form a ball end. For a very small throwing stick for use in making teapot spouts and thin bottle necks, grind away the material adjacent to the ball end to create a thin "neck"

connecting the handle and the ball end.

For a larger throwing stick or jug finger, wrap a scrap piece of sponge completely over the ball end, wrap a circle of chamois over the sponge, and tie off the chamois with nylon thread or brass wire. Make sure to wrap the wire or thread where the groove is located. Cut off all excess chamois. The result will be similar to the padded drumstick used with a kettle-drum. In use, soak the business end in your water bucket. This tool is self-lubricating and works very well to lift or shape the form from the inside after all water has been removed from the vessel.

For making ribs and modeling tools you need access to hand and/or power saws. Purchase a short length of thick hardwood lumber and resaw it along the grain with a circular saw or bandsaw to create a supply of 1/4"-thick boards. If you can find fairly large-diameter bamboo, cut off the joints and discard them, retaining the hollow portion between the joints. With a hammer and a chisel or heavy knife split the bamboo into the desired widths - thin strips for modeling tools, wider strips for ribs. In either case, cut to the appropriate lengths, and if possible cut out the desired shape with a power bandsaw, scroll saw, or saber saw. If none of those are available, use a hand coping saw. Shape and finish the edges with the grinding wheel and abrasive flap wheel. Keep in mind that a sharpened edge will rake clay and moisture from the surface with minimal friction, and works especially well on thrown forms, while a rounded edge will smooth and compress the clay, and is especially appropriate for smearing coils together in handbuilding, and for "rib-and-hand" forming.

You can make ribs from plastic, heavy rubber, or sheet-metal, but these materials offer more of a challenge when cutting and shaping. These are just a few suggestions. The possibilities are unlimited, depending on your imagination and sense of innovation.