

INSTRUCTIONS FOR VERTICAL GLASS BEVELER MODEL # 5051

INTRODUCTION

The information in this instruction is brief and basic. If at all possible, the beginner should work under the supervision of a skilled artisan or take a class under a trained instructor using a detailed glass-working text.

Beveling is the process where by the edges of a piece of glass are angled from some point on the surface to the rim.

The purpose of roughing is to shape the bevel; that is, to grind away excess glass until the proper angle is achieved. The 100 grit metal bond diamond wheel or the 220 grit grinding wheel as good devices for this purpose.

The purpose of smoothing is to repair the damage that has been done to the surface of the glass by roughing. The 360 grit metal bond diamond wheel or the 320 grit smoothing wheel is that a flat bevel can be put on the edge of the stone; thus, making it easier to work inside curves.

DESCRIPTION

This vertical wheel glass unit is a two-station arbor for roughing and smoothing with component parts mounted on Lam-I-Cushion base. Individual wheel tank and splash guard helps protect the work area from residue thrown by the wheels. Guard back plate with water/spray nozzle and sponge bench adjust for three wheel diameters,. Removable tank sides permit easy wheel change.

Arbor has steel 1" X 23-3/4" shaft and heavy duty ball bearings that are neoprene sealed and greased for life. Vertical beveler comes with 1/3 HP motor, belt guard, operating instructions and guarantee. Size: 24"L X 23"W X 18"H. Shipping weight: 65 lbs.

TERMINOLOGY

Roughing Wheel: The first wheel used to obtain the glass shape. It may be a silicon carbide, aluminum oxide or diamond wheel.

Smoothing Wheel: The second wheel used to obtain the glass shape, It may be a silicon carbide, Aluminum oxide or diamond wheel.

TERMINOLOGY (Continued)

Bevel: The term can be used to mean the entire piece of glass, the edges which have been slanted from the starting surface or, as in pencil bevels, with the remaining surface edge. The term also describes a slanted edge so far as its length is concerned.

Pencil Bevel: A term used to describe a piece of glass where the complete surface of the glass becomes beveled.

Mitre: This term describes the width of the bevel.

Angle: The term means the line made by the mitre with the untouched glass surface. It is also the line between continuous bevels. The mitre controls the angle. Thus, the bevel is the mitre plus the angles; in short, the entire piece of glass.

Grozzing: the abrading of the glass surface.

Scalloping: Sometimes called gouging. An effect that results from allowing glass to remain too long in one spot on the roughing plate.

Tapering: Where a bevel starts at one width and ends at another.

Step Bevel: The process of beveling within a bevel, giving the effect of steps going down to the edge. Sometimes called step-mitring.

Cross Bevel: Where the bevel changes direction within its plane; that is, it angles in a slightly different direction from the beginning of the bevel.

Notched Bevel: A bevel in which the angle has been worked with an engraving wheel to make scallops. The scallops can give a beaded effect.

Diminishing Bevel: Instead of running the length of the glass edge, the bevel fades into the surface part way down.

Facets: Waves within the area of the bevel. Usually the waves can be removed by the smoothing stone.

INSTALLATION

Safety: Before plugging the unit into your electrical supply, read the Covington Safety Demand Sheet.

Level: The vertical unit should be located on a sturdy, level table to avoid vibration.

Vibration: Covington units delivered with wheels installed are checked for vibration before the machine leaves the factory. Wheels are checked for balance, wobble and round at the time installed. **DO NOT** use the machine if the wheels do not run properly. Contact Covington Engineering for instructions.

AFTER ACCEPTING THE MACHINE, IT IS THE CUSTOMER'S RESPONSIBILITY FOR MAINTAINING THE WHEEL BALANCE.

INSTALLATION (Continued)

Wheel Installation (when not Factory Installed): When putting wheels on the shaft, be sure the arbor holes are the correct size and that there is no dirt between wheel and shaft. Wheels should not fit tightly on shaft. Allow up to .002" clearance for heat expansion. A soft material such as cardboard (less than 1/8" thick) or blotter paper (less than .025" thick) should be used between the flanges and the wheel to compensate for uneven surfaces. This will produce an even mechanical joint. Flanges used must be perpendicular to the shaft. Flat washers should not be used in place of recessed flange washers. Tighten nuts and secure wheels firmly in place. DO NOT over tighten, as this action may damage wheel. Rotation of shaft will keep retaining nuts tight when wheels are in motion. Rotate wheels and check for side wobble and round.

It is IMPORTANT to install wheels properly and AVOID VIBRATION. Should vibration occur, mark wheels and loosen nuts; turn each of two wheels in the opposite direction 1/8" revolution and repeat check until balance is obtained. CAUTION: An out of round wheel CAN NOT BE BALANCED.

Diamond Wheels: Sharpen wheel by reversing its direction of rotation periodically (turn it around on the shaft). Use more water and flush wheel clean. Some suppliers recommend dressing wheel with coarse silicon carbide stick and flushing away all grit.

Silicon Carbide and Aluminum Oxide Wheels: The wheel will wear with use, although not rapidly. If the surface becomes grooved or wavy, it may be dressed by using a coarse silicon carbide dressing stick. Use continuous water spray while dressing. Smooth surface with 100 grit silicon carbide sandpaper over a wood block. This method can be used to put a flat bevel on the rim of the smoothing stone (for inside bevels).

OPERATION

Keep the roughing or smoothing wheel wet. Running it dry against the glass will ruin the wheel. Keep a wet sponge below it touching the surface of the wheel. This is not to keep the wheel wet (the water spray will do that), but to keep the water from splashing.

Before you rough glass, see if there are any sharp edges. These should be removed by scanning the edge of the glass blank on the vertical diamond prior to forming the rough bevel. This makes the edge smooth, removing all sharp pin points that may remain from cutting and breaking.

Put the lower edge of the glass down on the wheel and hold it to start the grinding or smoothing process. Do not let your fingers hide the area where you will be working. Hold the curve VERTICALLY to the vertical wheel- not horizontally across it. Holding the edge of the curve parallel to the rim surface of the wheel will also enable you to make outside curves.

Once you have the edges parallel, keep turning the glass so that each section touching the wheel remains parallel to its rim. Turn just enough to keep the working edge parallel to the edge of the wheel and stop the turn when it looks like you are going too far. The object is to keep the edge that you are cutting directly parallel to the wheel's edge. If you are getting some scalloping in the bevel area, it means that you are applying uneven pressure as you turn the glass.

OPERATION (Continued)

Smoothing Stone: By putting a flat bevel (not round) on the edge of the stone, it is easier to work inside curves on the edge. The bevel, in effect, makes a narrower smoothing stone for working an inside curve.

If you work the flat surface without beveling the edge of the stone, keep the working glass area parallel to the edge of the wheel. Once you have done that, do light, fast, feather smoothing.

It is best to stand parallel to the wheel, not directly in front. Standing correctly will save time by allowing you to exert pressure if necessary. Maintain a smooth motion, remembering to keep turning the glass so that the surface being ground is always parallel to the rim of the wheel.

The diameter of the wheel will determine the amount of glass surface that will be touching. On a 8-inch wheel you will have ½-inch to ¾-inch of the flat surface of the glass touching.

Maintain even pressure. It should not be too soft or too hard. Stop frequently and look at the edge of the glass.

HELPFUL HINTS

New Stone: AS new smoothing wheel, until it is broken in and partially glazed, will tend to cut rough. When glass is fed into the wheel, it produces glaze on the surface. Glazing a stone wheel can be accomplished with a few hours use. After this has been done, there is a much quieter glass contact on the wheel due to a smoother surface. If you clean your wheel after several hours use, you must re-glaze the wheel. You can do this by running a small piece of slab glass across the surface. This works well to glaze and clean the wheel of debris.

Scratches: If the stone becomes contaminated with grit, a piece of emery cloth and water will clean the wheel surface.

Edge Thickness: The edge thickness should be between 1/8-inch and 1/16-inch. If the edge is much thicker, the mitre will be too slight. If the edge is much thinner, the mitre will be weak and tend to crumble during assembly.

Lubrication: The amount of water you have flowing by the wheel will depend on how fast you want to remove glass, as opposed to how much you want to ease the drag, or pull, of the wheel on the glass. A small amount of water dripping on the stone will speed cutting but increase drag. The smoothing process will take longer if water cushions the glass applied to the wheel.

Overnight Storage: When finished for the day, move the sponge bench to the smoothing wheel back so the stone will not soak up water and lose its balance. Also check and ascertain that the water valves are completely shut off.

Remove all the sand with the smoothing wheel, not just most of it.

Take a break when your hands begin to feel the strain.

MAINTENANCE

Oil the motor after each 500 hours of use using S.E.A. 20 oil. The tank and splash guard should be cleaned periodically to prevent excessive build-up of residue. DO NOT allow water absorbed by a wheel to upset its balance. After each use, grit wheels should be run dry for at least one minute before the machine is stored for the day. NEVER allow the wheel to set in water when not in use.