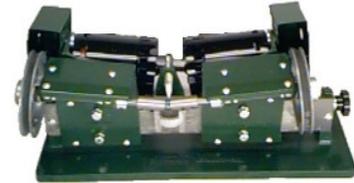




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INSTRUCTIONS FOR MODEL # 382 LITTLE SPHERE MAKER



INTRODUCTION

We recommend that an easy to work material be chosen for the first sphere cut on your new machine. Onyx and glass are two of these materials that will help the cutter acquire the fundamentals of basic operation associated with this machine. Contrary to general belief, the cutting of perfect spheres is relatively simple. All one needs is a good trim saw, a set of grinding wheels and polishing buff, and of course, your new sphere machine. You can make beautifully polished spheres from 1/4 to 1 inch in size.

DESCRIPTION

The downward slanted cutter and shafts of the machine run the preformed gemstone sphere in a bath of grit. This eliminates the need for constantly dabbing the preform with grit from a brush and also causes the grit slurry to run away from the bearings and grit slingers. In addition, the cutting action is much faster as the preformed sphere runs in grit. The grinding heads are spring-loaded so continuous adjustment is not necessary.

Replaceable nylon bearings give years of trouble-free service. Unit has adjustable ways (can adjust space between grinding cups). Sphere controller keeps grooves from forming on the sphere.

INSTALLATION

Safety: Before plugging your unit into your electrical supply, read the Covington Safety Demand Sheet. Check each nylon bearing for proper lubrication. Lubricate with 3 drops of # 20 SAE oil, if necessary.

Adjustment: ANY NEW MACHINE IS ADJUSTED AT THE FACTORY. Should adjustment be necessary, adjust in the following manner. Install a set of # 4 cutter cups. Using the large sphere sample, align the cups, making sure both cups close in evenly on the sample. Any VERTICAL misalignment is corrected by (1) loosening either head; and (2) loosening the shaft collar and pulley. By moving the arbor in, the cutter will be lowered. Moving the arbor out will raise the cutter. Any HORIZONTAL misalignment can be corrected by (1) loosening all four retaining screws of either bearing assembly, and (2) shifting the assembly to bring it in line with its mate.

Sphere cups # 3 and # 4 are held on the main arbor shafts with allen set screws. # 3 cup is the master cup on which # 1 and # 2 cups are mounted. Simply slip inside cup # 3 and tighten set screw with handy wrenches provided. Size of cups are: # 1- 1/4", # 2- 3/8", # 3- 5/8", # 4- 7/8".

PREFORMING OF MATERIAL

Select material that is free of visible fractures or defects. Saw the material into a cube larger than the sphere to be made. Cut all corners from the cube. Complete the preforming process by grinding off all corners and sharp edges until the cube is a rough sphere.

OPERATING

Loosen the nylon pencil guide. Spread the cups by turning the adjustment knob (44) clockwise. Insert the rough sphere in the cups and re-adjust the cup spacing. The sphere should be just free enough to turn by hand. Reset the nylon pencil so that the end contacts the preform sphere without exerting pressure.

Now, mix equal parts of 80 grit and Covington "Old Miser" lapping compound with water to make a creamy paste. Put just enough of this mixture in the grit pan so sphere can pick it up as it turns. Start both motors and then "Prime" the sphere by brushing on a little grit. This will enable the sphere to start picking up its own grit. Remember to keep the mixture stirred to insure efficient pick-up.

To properly lap, the sphere requires an irregular rolling motion be maintained. This is acquired by (1) adjusting the cutter heads to give a roll in one direction, and (2) adjusting the brake by loosening the top thumb screw and moving it in so that enough contact is made to interrupt the regular motion set by the first adjustment. **IMPORTANT:** Adjust tension on cups so the cutting action is maintained but not so hard as to wear a groove on the sphere.

FINISHING

After all the low spots have disappeared, and the sphere has a perfect 80-grit texture all over, it is ready for the 220 grit. This changing of grit requires a COMPLETE clean up. Should one grain of a coarser grit be carried from one operation to another, a final polish will never be obtained. When the 220-grit texture is obtained over the entire surface of the sphere, clean up and change to 400 grit. Proceed as before.

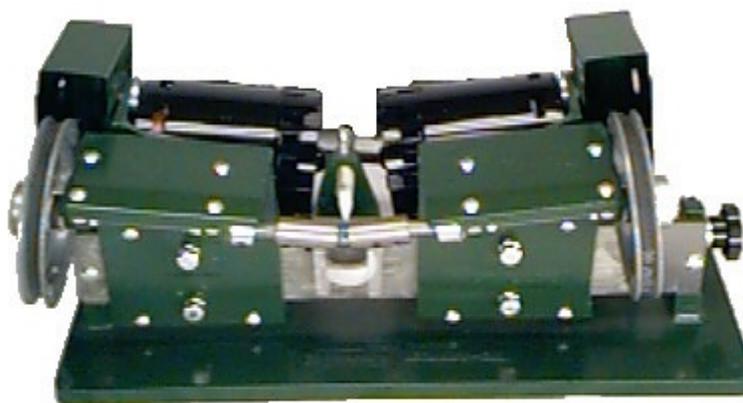
POLISHING

After the 400 grit clean up, place a piece of clean 10 oz. canvas, or light rug, over each of the cutter cups. These should be tied on with string so they revolve with the cups. Brush a little cerium oxide (mixed with water to the consistency of thick cream) into the canvas "pockets". Proceed the same as previous cutting operations. The finished product will be your own beautiful sphere. A quality piece you will be proud to show.

MAINTENANCE

Keep all moving parts lightly oiled. Oil motor bearings (located on each end of the motor) with one drop of 3-in-1 oil every six months. Do not over oil the motor.

WARNING: The motor has a normal working temperature, which is too hot to touch.



Adjustment knob