

THE VILLAGES GEM & MINERAL SOCIETY

DIAMOND DRILLS

Drilling holes into a Stone

Source: Kingsley North

- Start the hole by allowing only a minimum amount of drill tip to protrude beyond the collet or chuck jaws since the shank size is only .020.
- Once the hole is started, adjust the drill length as necessary
- Run at 10,000 rpm minimum or more
- Submerge stone in water or use a constant flow
- Use a drill press. Hand held tool not recommended.
- Use rapid up or down motion when drilling, light to moderate pressure
- **IMPORTANT:** Always recognize that the drill tip must always have coolant. A combination of excessive speed, pressure, dwell without lifting the drill, will deprive the drill of water and the tip may overheat and poof!

Note: Automatic drills do not have sufficient pressure. Use hand feed.

Instruction for drilling holes in small stones for pendants:

Since it is easy to ruin a diamond bit with too much heat you must use light pressure and keep the stone wet by either dipping the stone in a bowl of water frequently or by mounting the stone in a small, shallow container of water with clay to hold it while drilling. To drill a hole in the stone, it is usually easier to use a small diamond burr to start the hole in the stone where you want to drill the hole. This makes a small indent so that it is easier to start the wire drill. Use the wire drill with light pressure in up and down motions until you are through the rock. Use caution when you are about to go through the other side so that you don't chip the stone when it comes through the other side. Sometimes it is better to drill from the other side when you get close to coming out the other side.

Note: many factors figure in to the time it takes to drill a hole. In hard agate to drill ¼" to 3/8" it may take 10 minutes or more where in a softer rock it can probably be done in 5 minutes or so. The other hard to determine factor is number of holes you achieve per bit. Again, the hardness of the rock you are drilling, the heat generated if you overdue on pressure or too little cooling water all figure in to the number of holes. Considering these factors, probably you can expect 2 to 12 holes per drill in hard material and more in soft materials.

Always wear eye protection when using lapidary equipment.