

# Use and Maintenance of Adamas Diamond Wheels

If you have had prior experience with metal or resin bonded diamond wheels, I would like you to set aside what you know about previous products. Your knowledge might be applicable with Adamas diamond wheels or it might not. Adamas diamond wheels have been developed and tested by gem cutters in the year 2017, incorporating current technologies. Please abide by the methods I describe in this advice paper. If you want to do something other than follow the recommendations given here, do that after the warranty period has expired.

All Adamas diamond wheels have been ground flat and parallel to eliminate significant vertical runout and chatter. All Adamas diamond wheels are dynamically balanced to not contribute any vibration to the user's faceting machine. All Adamas metal bonded diamond wheels have a matrix alloy harder than those used by other manufacturers, resulting in a longer lasting flat surface. The diamond grit sizes and concentrations in Adamas diamond wheels were determined experimentally, not dictated by dogma or cultural metaphor, e.g. "More is better".

The Adamas Roughing wheel has a high diamond concentration of 34 micron nominal size. You can use this wheel up to 2000 rpms with a water stream on the lap. This lap grinds quickly and leaves a flat, frosted finish.

The Adamas 8&Over faceting wheel has a low diamond concentration of 12 micron nominal size. This wheel works best for most gem materials 8 Mohs and harder. Adamas recommends a lap speed of 200-1000 rpms with a fast water drip.

Likewise, the Adamas Under8 faceting wheel has a low diamond concentration of 9 micron nominal size. This wheel works best for most gem materials under 8 Mohs hardness. Adamas recommends a lap speed of 200-1000 rpms with a fast water drip.

Depending on your techniques, you would either subsequently employ a prepolishing lap or go directly to a polish after using one or the other of these faceting laps.

After you finish using one of these sintered laps, clean the cutting surface with water and Lava® soap. Run the lap at around 1000 rpms with a water stream, running the short side of the Lava® soap from the outside to the inside of the cutting surface several times. Let the lap surface rinse with just water for ten seconds, shut off the water and let the surface spin dry. Adamas sells 4 oz. bars of Lava® soap. Lava® soap is your friend.

Before storing the wheel, lightly coat it with an oil to prevent oxidation of the high carbon steel hub.

Adamas diamond wheels have a harder alloy matrix and higher diamond concentration than other, similar grit size sintered diamond wheels, so will not require dressing for quite sometime. However, after months or years of use, the cutting speed of the surface will slow down. Adamas sells two grit sizes of aluminum oxide dressing sticks for this purpose. A coarse for the stock removal wheel and a medium for the faceting wheels. **DO NOT USE ANY OTHER TYPE OF DRESSING STICK. YOU MAY CONTAMINATE THE WHEEL SURFACE AND WILL VOID THE WARRANTY IN DOING SO.** With a water stream at about 1000 rpms, lightly run the dressing stick from the inside to the

outside of the cutting surface several times. After properly dressing the wheel surface, always clean it as stated above with Lava® soap.

## Frequently Asked Questions

Q: Why don't you sell your laps using inches and U.S. mesh designations?

A: Because we use the Metric System so Adamas diamond wheels can be shipped to every other country in the world.

Q: Why don't you sell a 1200 mesh wheel?

A: Because our 12 micron nominal diamond wheel produces less subsurface damage.

Q: Why don't you sell a 3000 mesh wheel?

A: Because with a sintered wheel, that grit size usually produces a poor quality finish on colored stones.

Q: The frosted surface finish from the 12 micron wheel looks like the finish from my 600 mesh lap. Am I doing something wrong?

A: Other than judging by appearance alone, probably not. A 600 U.S. mesh grit size is about a 32 micron nominal size, which is over 2 ½ times the size of the 12 micron grit. The subsurface damage is much deeper on the coarser lap. However, on some gem materials, disturbed surfaces polish more quickly than surfaces with less fracture disturbance.

Q: I insist on using silicon carbide dressing sticks on my Adamas diamond wheel and refuse to accept your advice about the aluminum oxide dressing stick you provide. After dressing the lap my way, I got lots of scratches on the facet surface and can't use it any more. Can I exchange it for another wheel?

A: No. You didn't follow the wheel dressing advice. A wheel with a low diamond concentration and soft metal alloy matrix will be much less likely to have stray hard dressing grits protruding beyond diamond particles in the surface if those grits are worked into the surface. Adamas wheels have a harder alloy matrix so that stray grits must be removed or those could partially embed, protrude and produce scratches on a facet surface. Aluminum oxide grits are easier to remove than silicon carbide grits.

Q: Do I have to run the wheel only in the counter-clockwise direction?

A: No. You can run Adamas diamond wheels clockwise or counter-clockwise. These wheels use a reaction bonded alloy matrix so do not require supporting alloy behind each diamond grit like the lower quality, more expensive diamond wheels do.

Q: Do I need to send the wheel to you for redressing so I can run it in the clockwise direction?

A: No. See above.

Q: Are these the same wheels formerly sold by Gearloose that were manufactured in Russia?

A: Not at all. The specifications for these diamond wheels were researched independently by Adamas and the manufacturer was chosen and contracted by Adamas.