



Looking to Achieve a Diamond Finish?

Follow these steps to achieve an SPI #1 or SPI #2 Finish using BORIDE Polishing Stones, Diamond Compound, Miniature Brushes, Felt, and Rotary Equipment!

1. The first step with diamond polishing is to find an area in the shop that is clean and is away from other machining and polishing operations. Airborne dust and grit can greatly affect the final finish during the diamond polishing process. Make every effort to eliminate these conditions.
2. Make sure all stoning marks are brought to a 600 or finer grit finish on the mold surface. BORIDE manufactures a large selection of Made in USA Polishing Stones in both aluminum oxide and silicon carbide formulations in grits ranging from 80 to 1200. Reference our [Polishing Stone Application Chart](#) to help choose the right stone for your job.
3. The mold surface must be cleaned extremely well before moving on to the next step. All 600 or finer grit stone residue must be cleaned from the mold surface.
4. Next, use a miniature brush on a rotary tool with either Grade #30 Red or Grade #15 Dark Blue Diamond Compound to remove stoning marks. Use Diamond Thinner to thin the slurry and extend the life of the Diamond Compound. Use a slow rotary speed and light pressure. If heavy pressure is used it can cause a surface condition called "Orange Peel". This can be caused by over-stressing the mold surface with excessive heat created by too much pressure and speed.

BORIDE offers three unique brands of Diamond Compound. [DIAMAX](#) is considered our premium brand due to its superior finishing capability. It is a medium-heavy concentration that is either oil or water soluble and can be used with either an oil-based or water-based lubricant. DIAMAX offers more natural diamond particles and less synthetic diamond particles than our other brands resulting in it, due to the nature of the material, being the most aggressive of our compounds. [Mold Makers Diamond](#) is manufactured by BORIDE, is well known in the industry and is the most versatile of our diamond compounds due to the number of grades and concentrations (medium, heavy, extra heavy, and super heavy) offered. It is available in either oil-based or water-based formulations and offers a combination of natural and synthetic diamond particles resulting in an aggressive yet cost effective compound. Our [Adamas](#) brand is also manufactured by BORIDE and is similar to our Mold Makers Diamond brand in that it is offered in a large selection of grades and concentrations as well as both oil-based and water-based formulations. It is a more cost-effective brand due to the amount of synthetic diamond used in its formulation as opposed to natural diamond.

The concentration of diamond used is determined by the demands of the application, the polisher's experience and, ultimately, polisher preference. The most popular concentrations used by most mold and die makers is heavy or extra heavy.



Suggested Products:

- [Air Grinders](#)
- [Miniature Brushes](#)
- [Diamond Compound](#)
 - [DIAMAX](#)
 - [Mold Makers Diamond](#)
 - [Adamas](#)
- [Diamond Thinner](#)
 - For oil-based diamond compounds, [DIAMAX Diamond Thinner](#)
 - For water-based diamond compounds, [BORI-LUBE 10](#)

5. When all stoning marks are removed, clean the mold surface. Cleaning is a very critical part of this polishing process. Extra care must be used to make sure all previous grade Diamond Compound is removed. It is recommended to use a very soft tissue to clean the surface. This will help eliminate unwanted scratches during the cleaning process.
6. Next, use a medium to hard Felt Bob with Grade #15 Dark Blue or Grade #9 Green Diamond Compound to remove all brush marks from the previous polishing step.

Suggested Products:

- [Felt Bobs and Sticks](#)

7. Again, clean the mold surface and be sure all the previous grade Diamond Compound is removed.
8. Next, use a medium or soft Felt Bob with Grade #9 Green or Grade #6 Orange Diamond Compound.
9. Again, clean the mold surface and be sure all the previous grade Diamond Compound is removed.
10. Next, use a soft Felt Bob with Grade #3 Yellow Diamond Compound to achieve the SPI #2 Finish.
11. If you need a SPI #1 Finish, clean the mold surface and then use Grade #1 White or Finer Diamond Compound with a soft Felt Bob.



Diamond Compound FAQs

- **What is the difference between oil-based and water-based diamond compounds?**

Water based can be washed much more easily. The rule of thumb is that anything being coated requires a water-based compound. Residue can be left behind from the oil-based compounds and can cause problems in production.

Oil-based compounds were developed for the mold and die industry. With oil-based compounds, more heat can be applied without causing issues on the mold. It also stays where you put it.

- **How does a polisher choose between the medium, heavy, extra heavy and super heavy concentrations?**

It comes down to polisher preference just like anything else in mold and die polishing. The super concentration would accomplish more and get the job done more quickly, however things can go wrong quickly if being used by an inexperienced polisher. Most mold and die polishers will use the heavy concentration. Experienced polishers will use the extra or super heavy.

- **What type of thinner should I use?**

Our DIAMAX Thinner is a great option for the oil-based compounds. We've also seen alcohol, methanol and kerosene used as thinners. For the water-based compounds, our BORI-LUBE 10 water-based lubricant would be a great option.