



# TOP THREE QUESTIONS FROM ENGINE SHOPS

ANSWERED BY BOB DOLDER, SENIOR SALES AND APPLICATION ENGINEER

**Q: What are the best Rk, Rpk and Rvk numbers for an engine?**

**DOLDER:** This question typically comes from our racing/performance engine customers and there is no cookie-cutter answer. The ring manufacturer's specs must be evaluated and questions regarding fuel (alcohol, methane or gasoline) and the engine block (is it race hardened, or a virgin block) must be answered. A proper evaluation of process, tooling and abrasives is then conducted, based on the specifics of each engine. Another key is access to an accurate profilometer. I always ask the customer if he has a good way to measure the bore finish ...otherwise, it's a shot in the dark.

**Q: What abrasives and tooling do I need to get the best ring seal?**

**DOLDER:** This is also an "it depends" question. There are hundreds of abrasives and types of honing tools. Achieving the best seal is going to depend on the type of engine, as well as its application.

For example, a V-6 passenger car engine requires customers with diamond hones to use a 320-grit diamond stone and a 150-grit brush for plateauing. Operators should run the diamonds to size and brush for 12 seconds. Using conventional abrasives on the same V-6 engine requires a 220-grit stone until there is 0.0003" of material to go, then finish to size with a 280-grit stone and plateau with a 400-grit for a few strokes. A 45-degree crosshatch angle is appropriate for both.

For an alcohol-fueled motor, diamond hone customers use a 220-grit diamond hone until there is between 0.0001" and 0.0002" of material remaining and then use a 900-grit stone to finish to size. The conventional abrasive process on the alcohol engine is to use a 150-grit stone to size and a 320-grit brush for 10 seconds. The crosshatch angle should be 30 to 36 degrees for the alcohol motor.

These examples are just one way to achieve a good ring seal. Every motor builder is like a chef in a kitchen--they have their own ideas on what they feel works best. Sunnen sales and application engineers are faced with these scenarios daily, and we can help you determine your best abrasive/tool "recipe."

**Q: Is Sunnen planning to get out of the automotive machine shop equipment business?**

**DOLDER:** Sunnen started as a honing machine manufacturer, and that is what we still do after more than 90 years. We serve industries where parts have a specific bore diameter, geometry or surface finish in order to function properly. This obviously includes automotive engines. In fact, there are over a dozen parts of an automotive engine with specific bore or surface finish specs, and we make machines and tools for all of them. Sunnen is and will continue to be in the automotive business...period!

