



400-F Commerce Circle
Yorktown, VA 23693
Phone: 757-898-5645
Fax: 757-597-7737
www.ezbore.net

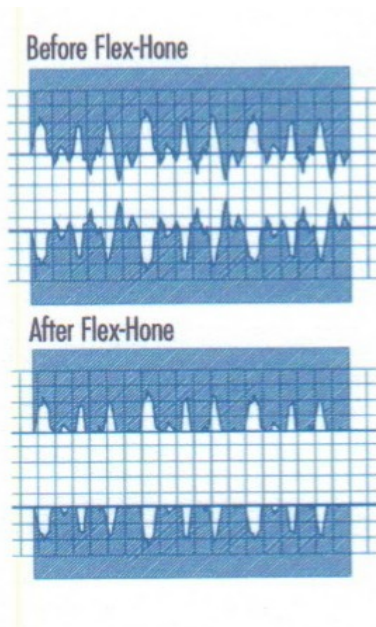
IMPROVE SMALL ENGINE PERFORMANCE AND LONGEVITY WITH FLEX-HONE PRODUCTS

Background:

For years in all forms of small engine performance work, surfaces have been prepped to add small amounts of additional clearance and surface crosshatch. The soft cutting action of Flex-Hones produces a longer-wearing surface and improves oil retention on honed surfaces due to the cross hatch finish. These tools are very simple to use and by design will self-align during operation.

Similar size and shape hones are available but most people are not aware that the abrasive material and grits are different, depending on surface to be prepped.

No, one hone **doesn't** fit all applications. Because of the variety of materials and grits, Flex-Hone products provide excellent results. Many specialty materials will be more expensive due to limited applications, smaller production quantities and will require longer lead time for special made orders.



Many question the purpose of running a Flex-Hone through a bore after an engine block has been prepped on a rigid type hone. Basically, all surfaces that are enlarged using a rigid hone have what is referred to as high (Rms, Rq, Rpk and Rvk) values. Under magnification, the surface has high peaks and valleys, metal that is literally smeared and torn. This will naturally occur because of the grit of stones and the pressure needed to remove material for enlargement.

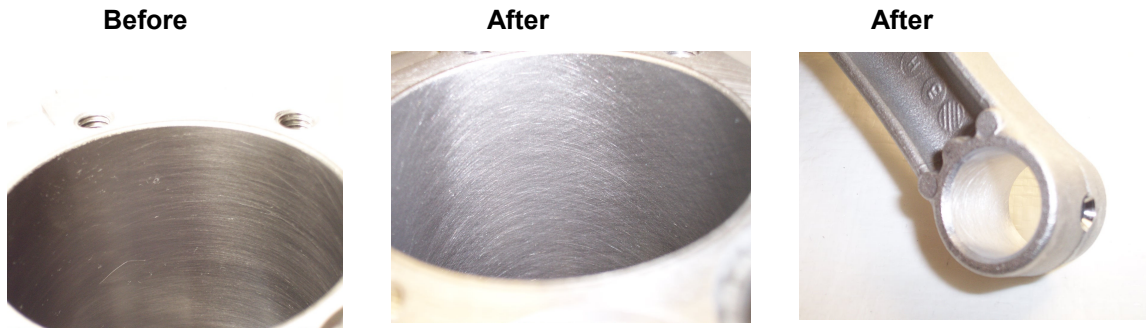
Flex-Hones, also referred to as plateau finish-type hones, will remove that rougher surface. The new surface allows rings to seal much more quickly, and the cylinder surface to be less aggressive to newly installed rings.

This rough surface is not visible to the average eyesight. We set up race engines with ring gaps tighter than factory specification to achieve maximum ring seal, but without a plateau finish, that ring gap opens up instantly when the refreshed engine is fired off. That tighter end gap will be maintained if the cylinder surface is more stable, versus the gap sitting on the high peaks of the cylinder surface.

When it comes to ring seal, I can assure you over the last 20 years we have changed the minds of knowledgeable engine builders by getting them to start using Flex-Hones, or to replace a worn hone.

Instruction:

Simply use a small hand-held drill with a RPM range of 300 to 500. Spray surface with a light weight oil (WD-40 works very well). Keep hone turning before entering and exiting part to be honed. Move hone back and forth in bore at approximately 60 to 120 strokes per minute for approximately 30 to 60 seconds. Once honing is complete, wipe bore with a paper towel and examine the finish pattern. Honing pattern should have crossing lines at a 45 degree angle. If lines are more circular or at a smaller angle, reduce drill speed and/or stroking speed until desired crossing pattern is achieved.



Couple notes of caution:

Some sanctioning rules do not allow heavy radius of outer edges (such as the connecting rod outer bearing surfaces). For those applications, keep hone straight and reduce honing time.

Many engine builders have fabricated rod honing fixtures - which are two pieces of tubing with the same I.D. as bore and spaced at a distance on either side just outside surface to be honed. This jig allows for longer periods of honing for increased clearances without creating an uneven surface, and minimal contact with outer bearing edges.

Any brand NEW hone should be broken in with a scrap part. Sometimes a crystal of abrasive material will set-up on the top of a honing globule which could cause a deeper than desired cut during first usage of hone. Approximately 1 to 2 minutes' break-in time should true and prep honing material. This would also be a good time to practice honing technique for proper cross hatch.

After ANY type of honing, it is highly recommended that parts are cleaned in a hot solvent. This would be recommended on a honing operation other than Flex-Hone as well. The best description we can give would be if after working in the shop you washed your hands with soap and water the surface is clean, but after a close examination there would be grease remaining in the creases of your skin. That grease would be removed after taking a long shower or washing a sink full of dishes. Your engine parts are the same way: abrasive material imbeds itself in pores of the metal; simply rinsing the part with a solvent will not totally remove all abrasive material -- We strongly recommend cleaning any internal part or engine block in a hot solvent for approximately 20 minutes. One of the best solutions that we have found is a bucket of hot Dawn dishwashing detergent and scrubbing with a nylon cleaning brush. Next time you are building a racing motor that has been honed, check cleanliness with a white paper towel moistened with lacquer thinner. Any gray residue would be abrasive material left in the pores of the metal.



Many products that appear to be similar are available but we have tested and redesigned products to give you the maximum performance needed to build a competitive race engine. *Sometimes the extra engine performance is in the details!*

Please feel free to contact us regarding any questions that you may have. You may reach us by sending an eBay message, by email at sales@ezbore.net, or by telephone at 757-898-5645.