

COLLECTOR'S EDITION: DOUBLE COVERS ARE BACK!

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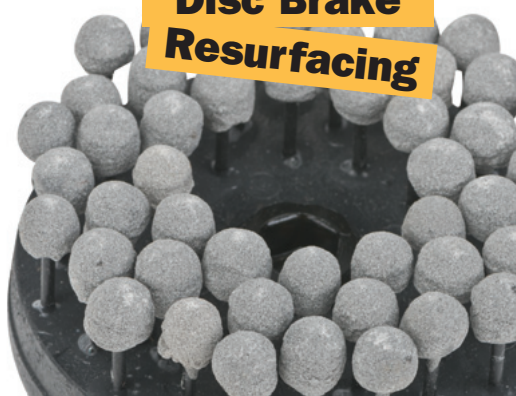
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- RACE AGAINST TIME**
Records Set by the Unknowns

QUICK TEST:

- Do-It-Yourself Disc Brake Resurfacing**



GLAZE IS FOR DONUTS

Do-It-Yourself Disc Brake Resurfacing

Text and Images by Jun Chen

DINGLEBERRY HONE, BALL HONE, GLAZE BUSTER OR bead brush. Whatever nickname you might have for the tool, the original Flex-Hone was designed in 1972 to refinish cylinder walls in automotive applications. Used by machine shops, do-it-yourselfers and just about everyone in between, the Flex-Hone tool allows users to achieve a plateau finish free of cut, torn and folded material. Advantages of this type of surface include faster engine break-in, better piston ring seal and increased performance. And while the cylinder-specific Flex-Hone has been offered for years in different bore sizes and abrasives, the new Flex-Hone for Rotors uses the same technology to now address flat surfaces.

Same Purpose, New Surface

Flywheels, clutch pressure plates and disc brake rotors also share many of the same surface finish issues as cylinder walls. While the surface finish of a rotor can suffer from corrosion, it can also pick up the glazing from an overheated brake pad. Glazing occurs when the pad is heated beyond its operating temperature range. The glaze can transfer from the pad to the rotor and cause the braking system to stop working as efficiently. After discovering the need for a surface finishing tool for metal discs and plates, Brush Research Manufacturing (BRM) developed its new Flex-Hone for Rotors. Designed to create the ideal surface finish for proper pad bedding, we decided to test the Flex-Hone for Rotors on a set of track-abused rotors.

Warped or Not

In the past, enthusiasts could either choose to replace or re-surface their rotors. While most people would like to replace their rotors every time the pads are changed, it simply isn't cost-effective. Re-surfacing rotors, otherwise known as "turning" the rotors, is the process of grinding the surface of a brake rotor flat. This process generally requires taking the rotors to a shop with both a lathe and the tooling necessary for rotor surface refinishing. In addition, the "warping" that most people attribute brake judder to, may not be what they think it is.

According to Frank Filipponio at StopTech / Centric Parts, most "warped" rotors aren't actually warped. Due to the type of iron used in modern rotors, Frank states "they are almost impossible to physically warp because of the rotor's hardness and stability." Rather, the vibration felt while braking is usually due to an uneven transfer layer of adherent pad friction material on the face of the rotor. Bedding the pads improperly often causes this issue. Other causes of brake judder include surface corrosion and unsuccessful machining of the rotor. Fortunately, many surface problems can be solved with the Flex-Hone for Rotors.

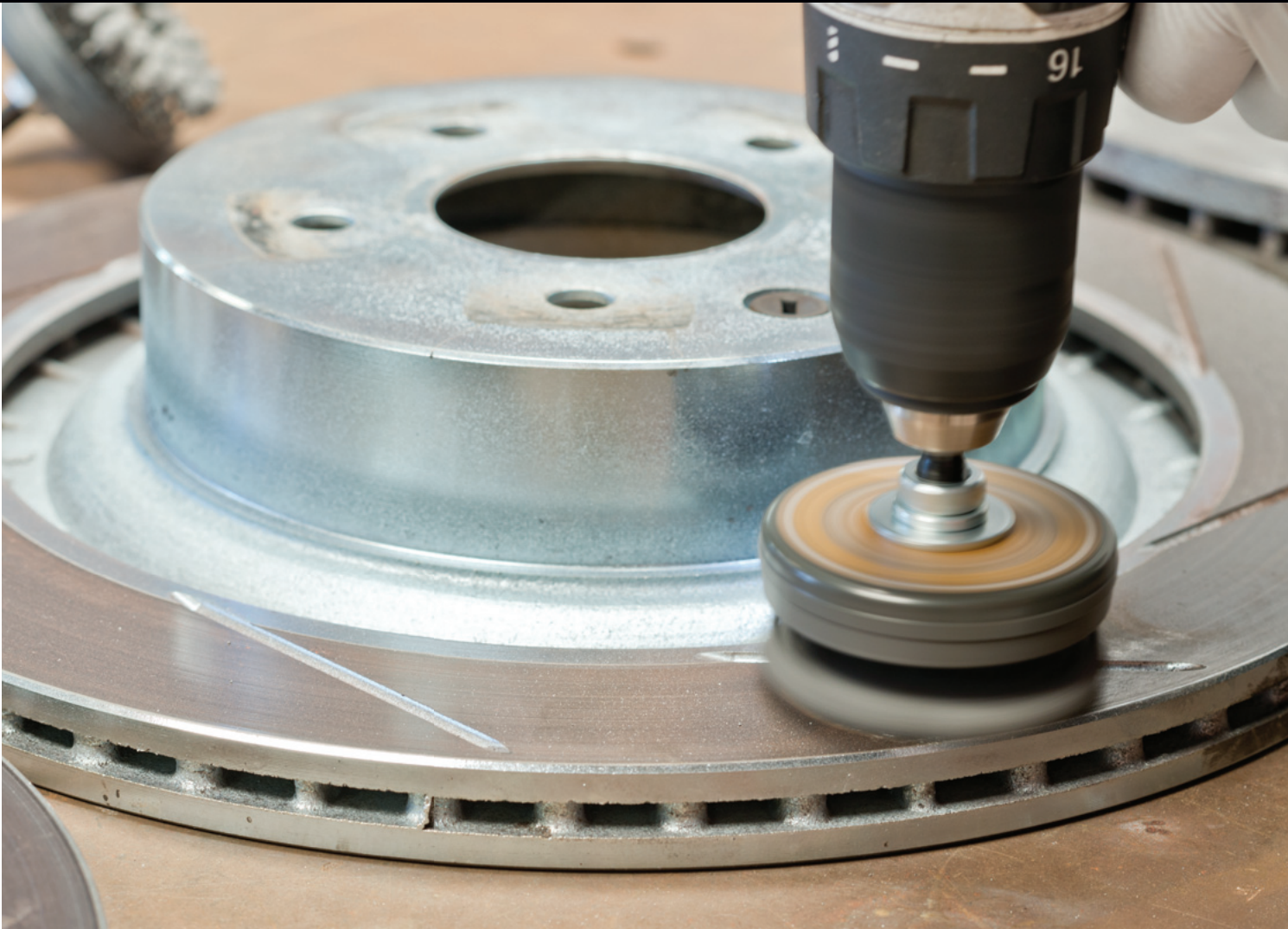
Rotor Refurbishment

The Flex-Hone for Rotors comes in coarse, medium and fine grits depending on the desired final surface finish. Although the coarse finish may work well to remove heavy buildup and corrosion, it leaves a relatively rough finish. In addition, the coarse grit can also take out the sharp edges on slots and cross-drilled holes. By removing these sharp edges, the rotors are much less prone to cracking from those machined areas.

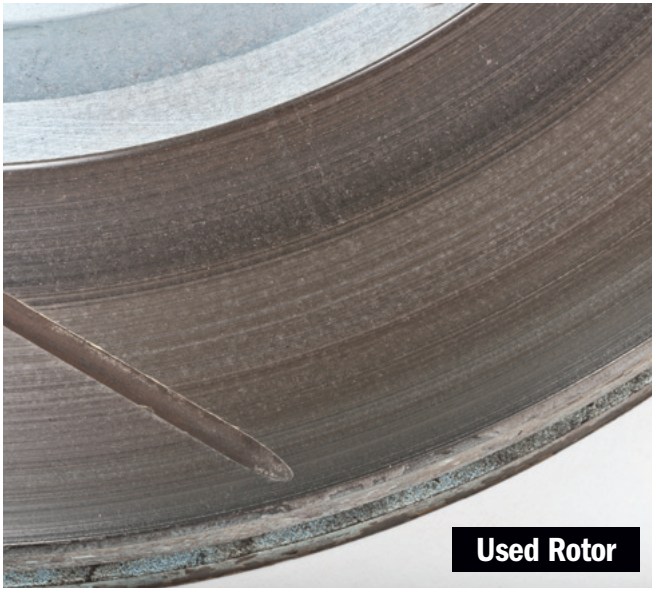
Our process involved using all three grits in order from coarse to fine to reach a like-new surface finish. However, the medium grit will probably be strong enough to knock off the old transfer layer of pad material. This will

THE VIBRATION FELT WHILE BRAKING IS USUALLY DUE TO AN UNEVEN TRANSFER LAYER OF ADHERENT PAD FRICTION MATERIAL ON THE FACE OF THE ROTOR.



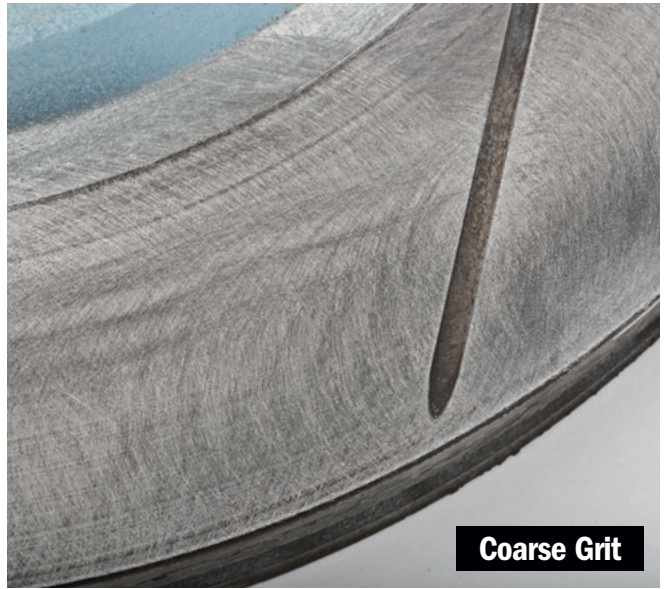


Flex-Hone for Rotors is available in three different abrasive materials for rotors of varying surface finish conditions.



Used Rotor

This used rotor showed signs of pad glaze transferred onto the rotor. Operating track pads below their temperature range can cause this.



Coarse Grit

Using coarse grit removed all of the transfer layer and exposed a new surface for friction material to adhere to.

create a fresh surface for the pads to bed into properly. As the grinding puts lots of iron particulates in the air, be sure to wear a facemask and safety glasses.

The set of test rotors we used came from a road-race car with a few track days worth of abuse. All four rotors featured a smooth, shiny surface with light circumferential grooving. While the instructions recommend users to attach the rotor securely to a brake lathe, we recognize that most people don't have a lathe at home. Instead, we decided to remove the rotors from the vehicle and place them on a workbench. With our drill charged up and the coarse grit attached, we began honing away on the rotor. To achieve a

consistent finish, the Flex-Hone head must stay square and flat against the rotor. Be sure to have at least a 50-percent overlap between passes to ensure that no rough or untouched edges remain. Use light, uniform pressure and keep the tool moving across the surface of the rotor.

After we finished removing the old transfer layer and exposed a new surface, we swapped out the coarse grit for medium grit. Working our way around the rotor using the same method as before, we kept honing until none of the marks left by the coarse grit were visible. Once no coarse marks remain, we switched to fine grit and remove any marks left by the medium grit attachment. This process will leave a finish very similar to a new rotor.

What it CAN fix:

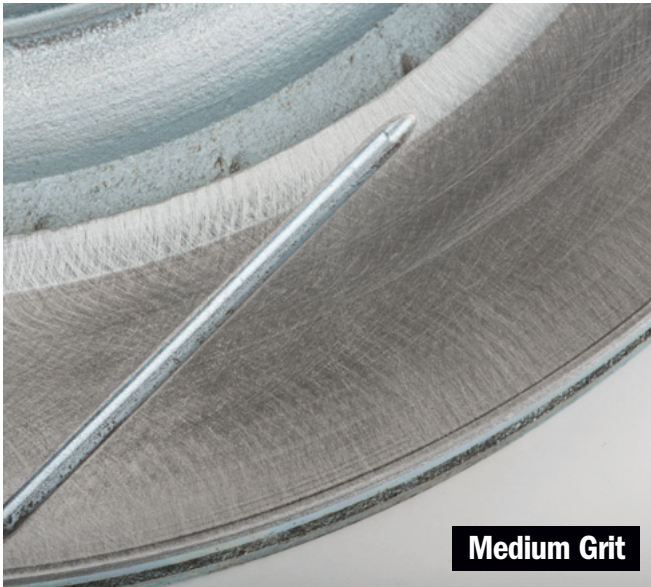
- Improperly bedded rotors
- Surface corrosion on the rotor
- Removes sharp edges from slots and cross-drilled holes

What it CAN'T fix:

- Cracked and/or heavily grooved rotors
- Rotors worn beyond minimum thickness
- Actual warped rotors

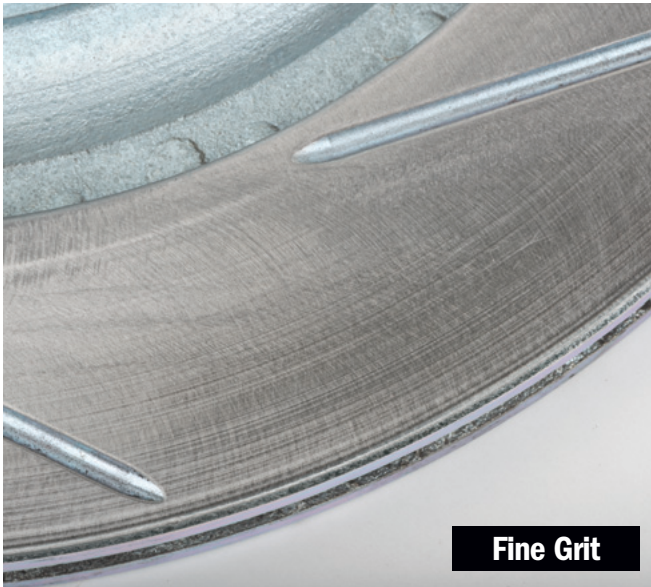
THE MEDIUM GRIT WILL PROBABLY BE STRONG ENOUGH TO KNOCK OFF THE OLD TRANSFER LAYER OF PAD MATERIAL.





Medium Grit

Following coarse grit, we used medium grit to further clean up the surface and remove any marks left by the coarse grit.



Fine Grit

We finished off the surface with fine grit to achieve a like-new surface. Notice the smooth edges on the slots compared to the used rotor.

Final Conclusions

Once we finished surfacing both sides of one rotor, we got the hang of the process and the next few went by pretty quickly. Make sure to always keep your lungs and eyes protected from the iron particles flying around in the air. While we didn't test the product on a flywheel or clutch pressure plate, the resurfacing process is likely similar. With a drill, some elbow grease and patience, the Flex-Hone for Rotors can help save you a few bucks and get rid of that annoying brake judder for good.

Price List:

Part Number	Product	Price
RMFH240Z25	FLEX-HONE FOR ROTORS 240Z #1525 FINE	\$44.99
RMFH120Z25	FLEX-HONE FOR ROTORS 120Z #1525 MEDIUM	\$44.99
RMFH60Z25	FLEX-HONE FOR ROTORS 60Z #1525 COARSE	\$44.99

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MAKE SURE TO ALWAYS KEEP YOUR LUNGS AND EYES PROTECTED FROM THE IRON PARTICLES FLYING AROUND IN THE AIR

The Flex-Hone for Rotors features a self-leveling design to deliver equalized pressure to the entire surface area of the rotor.

