

Please read the instructions completely prior to installation.

If you are an installer, please give this document to the customer for their future reference.

INSTALLATION INSTRUCTIONS:

1. The Girodisc will replace the Original equipment disc directly. There is no need for modification or any special equipment. **Do not tighten or loosen the fasteners on the Girodisc when new. They are delivered ready to mount to the vehicle. Some fasteners may feel loose on delivery. This is normal. The pins are floating units and they will be evenly loaded through use on the vehicle.**

2. If you are not familiar with, or confident that you understand how to replace your discs. Refer to the factory service manual, or have a certified mechanic perform the installation.

3. **Always be sure to use appropriate jack stands and wheel chocks while working on a supported vehicle. Work on only one end of the vehicle at a time. A floor jack is NOT a jack stand!!**

4. The general procedure is to simply unbolt the caliper from the car, remove the OE disc, and replace it with the Girodisc. Place the caliper on the disc and tighten the caliper bolts to the upright with the correct torque. The correct torque value will be available from the vehicle manufacturer.

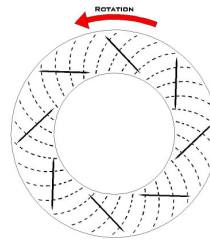
There is no need to loosen any hydraulic fitting. Do not loosen the brake lines during this installation.

5.

Install the discs according to the label on the disc. The direction of the vanes in relation to the direction of rotation of the disc is very important. The disc will not function properly if the vanes are not facing the correct direction.

Remove these labels from the disc before bedding and using the braking system.

Illustration at right is left hand side disc.



6. The minimum disc thickness is printed on the bell section of the disc. Please note this measurement. Check this measurement before and after track events especially. Do not use the disc beyond this point. Replacement discs for your application are available.

7. **Always install pads with “squeal tab” wear indicators to the inside of the caliper. Installing outboard could cause interference with the brake hats. Spin rotor after installation and verify clearance to squeal tabs before driving.**

GENERAL BEDDING PROCEDURE

The Girodisc rotor comes plated with zinc for corrosion resistance. This zinc will be removed from the friction surface during the bedding and normal braking process. Please note that braking may require more pedal pressure until this zinc is removed completely from the friction surface. Do not be alarmed by the initial change in brake feel when the rotors are new. Some rotors may be turned by us prior to shipping and these will be zinc-free on the pad surfaces.

- While the vehicle is stationary, pump the brake pedal to ensure pad contact. The brake pedal should feel firm, and have standard travel.

- Drive the vehicle cautiously a short distance to test fit and function. The brakes should be smooth, with no vibrations, judder, etc.
 - Drive the vehicle to a remote area and perform at least 20 brake applications of 3-second duration. Use light deceleration with varying starting speeds. Stoplight traffic can work well for this.
 - The purpose of this procedure is to gradually increase the temperature in the components without inducing thermal shock, and to mate the brake pad and disc friction surfaces.
 - After the repeated stops, drive the vehicle for several miles (on highway generally) with little or no braking in order to adequately cool the components.
 - While on highway, safely perform 10 more braking applications using light to medium pressure for periods of about 5 seconds, with at least one minute between applications for cooling.
 - After the above process is completed, the system is ready for normal use.
 - Note that pads and discs are a set once mated together. Changing to a different pad material after the previous material is bedded into the disc may cause pedal judder, vibration and squeal issues.
 - **Because of the heat build up in the brake system during extreme use, you need to let the brakes cool down by driving normally for a short distance before stopping. This cool down period not only helps the longevity of the brake system, but also the entire vehicle.**
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- **Race Specific bedding additional notes**
 - Rotors are bedded differently than pads and need to be done first. Rotors need to simply be brought up to temperature gradually, kept there awhile, and then cooled. The best method to do this starts with blocking off cooling ducts and/or removing undercar air directing scoops (as found on Porsche GT3 for example). Used pads are the preferred choice when bedding new rotors. The binders/resins at the pad face are already cooked off and make it easier/cleaner to bed new rotors. Be sure NOT to drag the brakes as this will glaze the rotors and pads, too much heat too quickly. The idea is to bring the discs up to temp gradually, using easy and then moderate braking actions. Once you've reached 700-800F pull into the pits and allow to air cool back to ambient. This will take a few laps to complete.
 - Once rotors have cooled, you can focus on finishing bedding the pads. The whole system needs to have some heat in it before you start pad bedding. Start by gradually increasing temperature as done previously when bedding the rotors. Multiple deceleration events with moderate pressure works well. Once the system has some heat in it, the real bedding can begin. At this point, refer to pad manufacturers bedding instructions. Each have their own procedure they would like followed. In general, they all involve multiple stops from increasing speeds and pressures until things are really hot, then allow for cooling. Then, do it again.
 - When everything is very hot, NEVER sit stopped with your foot on the pedal for any period of time. This will cause the pad to print to the rotor in one location and will lead to judder. It also could warp the rotor locally due to the pad acting as a heatsink. Chock the wheel in the pits to keep the car from rolling if necessary.
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Brake disc information for the GiroDisc system

Why discs are slotted

Slotting aids the disc in several ways:

- The edges of the slots continuously clean and refresh the pad surface. This will allow the pads to have to have a maximized friction surface always available. Additionally, they prevent containments from collecting between the pad and disc interface.
- The disc is lightened, decreasing its rotational inertia.



- Slots prevent the formation of a water film on the disc in wet weather, maintaining the best brake response.

Why reducing the weight of the braking system benefits the vehicle

The mass of any vehicle requires energy to accelerate or decelerate. Reducing the vehicle mass improves acceleration, and requires less energy to be dissipated during deceleration. Rotating mass requires additional energy in order to increase or decrease its speed of rotation. Decreasing the mass of the disc has a great benefit due to the reduction in the rotational inertia. This will allow more of the braking force to be available to decelerate the vehicle, not the disc.

Additionally, the mass of the brake system is also unsprung mass. Reducing the unsprung mass has the benefit of improved suspension performance, resulting in enhanced ride and handling. This is due to the fact that rotating masses require additional energy to vary the plane on which they turn. The lighter the disc, the quicker the response of the vehicle steering due to the reduction in gyroscopic effect from the reduction of the rotational inertia of the disc.

Directional rotation of the discs

For an internally vented disc, the geometry of the vanes dictates the direction of rotation. There are many ways in which a vented disc can have the vanes oriented.

For maximum airflow and superior cooling, the Girodisc system uses the curved vane system. The curved vane creates a centrifugal air pump. The rotation of the disc causes air to be pumped from the center of the disc, through the vanes, and out through the outside diameter of the disc. This greatly enhances the disc's ability to dissipate heat.

The curved vane system was developed for racing vehicles where the removal of excess heat is critical for braking system performance.

DISCLAIMER OF WARRANTY

Girodisc brake discs are sold as Racing and Off-highway equipment. Girodisc cannot control the end use of the product in regards to proper installation, bedding, and use, and therefore cannot make applicable any expressed warranty or guarantee for any specific period of time.

Girodisc warrants the brake rotors as delivered as free from defects in materials and or workmanship while in new, unused condition. Once the product has been mounted to vehicle and/or used in any way, the product is the responsibility of the owner.

Exclusions from warranty of new product: 1.) Improper installation. 2.) Modification or alteration. 3.) Cases of misuse or intentional damage. 4.) In any case where the part or component has been damaged as the result of an accident or impact due to use beyond the intended and normal life of the product. Any defective Girodisc product must be returned in the original packaging in unused condition freight pre-paid for inspection. If a product is found to be defective in material or workmanship, it will be replaced and return shipped without charge.

This disclaimer applies to the original purchaser and all other persons as well

Racing brakes and equipment are consumable parts that must be maintained to ensure safe and optimal results. A regular schedule of inspection must be employed for checking fatigue, damage and wear.

