

# Fully-Floating 2-Piece Brake Rotors

Craftsmanship meets fine materials in our highest performing rotor to date



**EBC Brakes Racing's new range of fully-floating 2-piece brake rotors inject a new level of quality to high performance brake components.**

After an extensive development program, thousands of hours dyno testing, and the construction of a brand-new production line at the EBC Brakes World Headquarters in Northampton, UK, EBC are pleased to launch a new range of high performance 2-piece fully-floating brake rotors under the newly formed EBC Brakes Racing sub-brand.

Embarking on this project, the EBC Brakes Racing team's mission was a clearly defined one; to develop the highest quality 2-piece floating brake rotor available on today's marketplace. The componentry and technology used in these brake rotors exemplifies this pursuit of ultimate and absolute quality, culminating in a brake rotor that is perfectly matched to the highest braking demands of modern performance road and race cars.

## G3500 Disc Alloy Friction Rings



Every outer ring is cast from the highest-grade disc alloy 'G3500'. Derived from race technology and having a high carbon and high copper metallurgy, G3500 disc alloy has superior thermal conductivity and heat cycling durability for maximum brake rotor life and performance, particularly during harder driving or track driving.

In today's marketplace where 2 geometrically identical rotors are wrongfully seen as 'equal' to one another, EBC Brakes Racing would like to emphasise that we put as much effort into development of our rotor metallurgy as what we put into development of our pad friction materials. The pad and rotor combined form the friction coupling; if either component is of poor quality then the outcome will likely be poor overall system performance. The best brake pad in the world used on a low-quality rotor with a bad metallurgy will result in merely average overall performance, since the pad will not be able to deposit the 'transfer layer' onto the brake disc that is critical to high brake system performance. For this reason, EBC Brakes Racing use only the highest quality disc alloy available, G3500.

The benefits of using a high-performance metallurgy are evident after testing EBC Brakes Racing's 2-piece floating rotors against the recently introduced and extremely harsh 'Reg 90' dynamometer routine. The EBC 2-piece rotors completed two full test cycles back-to-back with zero disc cracking and no visible disc crazing. To put this into perspective, most OE discs show signs of cracking at stop 40 and then fail at 50% through just one R90 test, at stop 80 of 150. The quality of EBC's metallurgy coupled with the fact that the disc is fully-floating in its design allows EBC's 2-piece rotors to outperform most OE discs by a factor of over 4x in the 'R90 Thermal Fatigue Test'.

EBC Brakes Racing's 2-piece fully floating rotors have been tested to withstand hundreds of hours of even the harshest track driving. However, these rotors are not a track only product. Features such as anodised hubs, stainless-steel hardware and the incorporation of anti-rattle clips mean these rotors are road friendly, making them the perfect choice for customers who enjoy regular track days yet also drive their cars on the public highway.

## 48 Curved Vanes



All cast iron rings feature 48 curved vanes and are handed left and right, ensuring the vanes always rotate in the correct direction, giving maximum cooling efficiency.

On many modern vehicles the vanes rotate in the wrong direction on one side of the vehicle, resulting in a higher disc temperature that leads to a temperature imbalance left to right. Unlike many OEM's who sacrifice performance in search of cost savings on tooling, EBC Brakes Racing have chosen to make our rotor rings handed for improved brake system performance.

Furthermore, whilst it is almost impossible to determine differences in quality between two brake rotors by looking at the exterior machined surfaces, a quick look down the vanes is often revealing. Look down the vanes of an EBC Brakes Racing rotor ring and it will be immediately apparent how smooth the cast features are compared to most competitor rotors. That's because EBC use a precision moulding resin sand to create our castings, resulting in a much smoother cast surface that is less restrictive for air flowing over the cooling vanes. A less turbulent flow means improved flow velocity. When thinking of the rotor ring as one large centrifugal pump, it's easy to see how a higher flow velocity leads to improved disc cooling, allowing the disc to perform more efficiently as a heat exchanger. Quite simply, you can push an EBC Brakes Racing rotor ring harder for longer before it reaches a given operating temperature. This lower operating temperature extends the life of the brake rotor (and all other components of the brake system) and reduces the onset of brake fade.

## Aerospace Grade Aluminium Bells



The mounting bells used in EBC Brakes Racing's 2-piece rotors are each precision machined from a billet of aerospace grade aluminium, ensuring they are both strong and lightweight.

The bells are subsequently black anodised, providing an aesthetically pleasing and corrosion-resistant finish, allowing the mounting bells to be re-used for multiple outer friction rings thus leading to lower long-term running costs.

## Stainless-Steel SD-Drive™ Bobbins



One of the smallest yet most innovative components used in EBC's 2-piece fully-floating brake rotors is the stainless-steel SD-Drive™ bobbin. Unlike most competitor bobbins that are machined from steel and then zinc plated to cut cost, every SD-Drive™ bobbin is machined from a single piece of stainless-steel, meaning these bobbins can **never** rust.

Not only does the lack of rust mean that EBC Racing's 2-piece discs continue to look great through your wheels for years to come, the elimination of corrosion around the drive bobbins also ensures that the brake rotor continues to float freely throughout its entire life on the vehicle, providing a robust and low-maintenance solution to rotor radial heat expansion.

Often you will hear misinformed brake technicians stating that 'floating rotors are for track use and should not be used on the public road', however EBC's innovative stainless-steel SD-Drive™ bobbins provide a solution that allows our 2-piece rotors to be used on the road without regular maintenance, even in countries where adverse weather and road gritting are commonplace. Additionally, every bobbin location makes use of a spring clip that prevents disc rattle. This ensures the rotors are totally silent during operation and can be used on the public roads without the off-brake 'rattle' that plagues many other 2-piece floating rotors.

SD-Drive™ bobbins operate on a 'float in disc' principle, meaning any wear resulting from regular expansion and contraction of the cast iron ring occurs in the slots in the cast iron ring itself, i.e. the component that becomes worn anyway after thousands of miles of braking. This allows the drive bobbins (along with the aluminium bell) to be re-used for multiple outer friction rings, meaning only the outer ring needs to be replaced after a period of use, leading to significantly **lower long-term running costs**. Re-use of high quality components, coupled with the fact that EBC fully-floating rotors are far less prone to disc cracking, results in long-term disc running costs (or pence-per-mile costs) that is not all that dissimilar to much cheaper and much lower performance 1-piece cast iron rotors.

It is also worth pointing out that replacement cast iron rings from EBC are much more competitive than replacement rings from our main competitors.