Consistency in Quality & Performance

Disc Brake Rotors
Through many decades of manufacturing experience and unsurpassed knowledge through research and development, DBA has positioned itself as Australia’s most awarded manufacturer and a global leader in brake rotor manufacturing.

Through continuous improvements in engineering along with a thirst for innovation, DBA has managed to consistently re-define and deliver braking solutions for an extensive range of vehicle applications and conditions.
“From cast iron to the finished product – total control”

DBA XG-150 Cast Iron

After 30 years of design and development with race teams around the world, Disc Brakes Australia developed a proprietary cast iron formulation (XG-150) for use in all of its premium performance disc brake rotors.

DBA’s grey iron is rich in carbon and alloyed to produce excellent thermal characteristics, which is a key factor in the production of the casting. This is combined with our patented Kangaroo Paw ventilation design.

With a supersaturated solution of carbon in an iron matrix, the excess carbon precipitates out in the form of graphite flakes. The structural distribution of these graphite flakes provide excellent thermal properties, increasing the thermal shock resistance.

Also, when combined with DBA’s TSP process it allows the material to cope with rapid thermal cycling with core-heat levels reaching approximately 700°C and above.

The DBA developed TSP™ process, stress relieves the cast iron during the manufacturing process.

Unlike any other cast irons, the XG-150 formulation was developed to respond to the TSP process resulting in a rotor that is ideal for heavy duty braking and suitable for motorsport applications.

### XG-150 Features & Benefits

<table>
<thead>
<tr>
<th>Feature</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>High thermal conductivity</td>
<td>Reduced brake fade, improved heat dissipation, Consistent brake pedal feel</td>
</tr>
<tr>
<td>Thermal Stability</td>
<td>Minimises the risk of brake shudder/judder</td>
</tr>
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</table>
Where expectations are exceeded

With disc brakes, as with any safety component, there can be no short-cuts. Drivers the world over demand DBA products for consistent, reliable and superior performance. DBA ensures this by engineering discs that are far superior to generic and aftermarket counterparts. How? DBA sets the bar in quality, tolerances, premium metals and manufacturing equipment that delivers premium quality disc brake rotors.
The DBA difference

With years of experience in manufacturing and supplying Original Equipment, after-market and motorsport markets, DBA understands the materials, processes and tolerances required to produce a quality rotor.
Kangaroo Paw.
Home grown inspiration

Inspired within Australia’s heartland, DBA developed the Kangaroo Paw cooling system. This patented ventilation system provides a much more efficient method of keeping the rotors cool under the heaviest of braking applications.

Using a series of 144 diamond and teardrop patterned pillars (or columns) instead of conventional straight cooling vanes, the design increases cooling efficiency by up to 20% when compared with most other conventional ventilated disc rotors.

As well as providing cooler conditions, the Kangaroo Paw system also provides additional support to the friction face. This enables the rotor to maintain the fine tolerances over the life of the rotor better than a straight vane design, which can “balloon” and swell between the vanes when operating at high temperatures.

The Kangaroo Paw pillars are evenly spread across the disc face and make the rotor stronger, more stable and more consistent in operation.

Comparing the ventilation air space between friction faces of a DBA Kangaroo Paw design and a conventional straight vane sample

A recent discovery has found that “lightweight” inferior discs have reduced braking plate surface thickness. This is a common method employed to reduce manufacturing costs. The result is lower thermal mass causing unpredictable performance characteristics and sacrificing safety and longevity.
### Standard conventional straight vane vs DBA’s Kangaroo Paw cooling system

The ventilation system of a brake rotor is best described as the foundation and support between the friction surfaces.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Kangaroo Paw</th>
<th>Straight Vane</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface Area</td>
<td>12,937 mm²</td>
<td>8,100 mm² = 37.3% less surface area</td>
</tr>
<tr>
<td>Weight</td>
<td>8.28 kg</td>
<td>7.68 kg = 7.25% less mass</td>
</tr>
<tr>
<td>No. of Pillars</td>
<td>144</td>
<td>36 = 75% less support</td>
</tr>
</tbody>
</table>

Other than material composition, another major factor that affects the thermal performance of brake rotors is the surface area within the ventilation design. The more surface area, the more heat that can be removed from the brake rotor.

The mass of the brake rotor also plays an important role. The greater the mass, the more heat that can be stored and must be dissipated, this is why the design of the Kangaroo Paw is so effective. This minimises the risk of brake fade and restores normal braking much sooner.
A new standard in slot design

DBA’s T2 has greater braking advantages over the traditional straight slot designs.

The Bi-Symmetrical curve slots dampen the vibration harmonics or noise, resulting in a quieter, more responsive and smoother brake pedal feel.

In addition, the T2 increases the number of out-gassing exit points, allowing friction gasses to escape and enhancing the pad bite.

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<tr>
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<td>T2</td>
<td>Bi-Symmetrical curve slots dampens the vibration harmonics</td>
<td>A quieter, responsive and smoother brake pedal feel</td>
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<td>32 precision CNC machined slots</td>
<td>Universal slot design</td>
<td>Eliminates the need for left and right discs</td>
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<td></td>
<td>Increased number of out-gassing exit points for brake pad friction gasses to escape through</td>
<td>Increases the consistency and effectiveness of every brake stop.</td>
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A new breed of performance braking

DBA’s T3 slot design is built on the T2 design but with an increased number of slots, taking it from 32 to 48 CNC machined slots.

The result is an even quieter, more responsive and smoother brake pedal feel. This is achieved from a series of tri-symmetrical ‘curved’ slots, which when aligned in a specific way, drastically dampen the vibration harmonics, that’s commonly associated with traditional straight slot (groove) rotor designs. The tri-symmetrical slots also increase the number of out-gassing exit points for brake pad friction gases to escape through, further increasing the consistency and effectiveness of every brake stop.

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Unique to the ClubSpec 4000 and 5000 series rotors
Better materials, better processes, better discs

The technologies employed by DBA are at the forefront of brake manufacturing and allows consumers to clearly identify why DBA discs are ultimately superior. The processes adopted by DBA through clever engineering allow consistent and premium performance characteristics, making DBA brake discs do what they do best, slow down vehicles!

Defining elements of DBA discs:

**Dimensionally Precise** – Most discs on the market are found to be ‘ground’ finished, but every DBA disc endures a special Cubic Boron Nitride (CBN) fine-turn process. The quality of the finish is measured as a surface roughness (engineering term Ra) in microns. One micron is 1 millionth of a metre (see diagram below). DBA rotors are machined to a maximum of 1.8 Ra or less.

![Dimensionally Precise](image)

How big is a Micron?

<table>
<thead>
<tr>
<th>Micron</th>
<th>1.8 Ra</th>
</tr>
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<tr>
<td>A human hair (magnified in comparison)</td>
<td></td>
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CBN finishing ensures an even pad transfer layer deposition which is important for the modern brake pad. This leads to a better pedal feel and eliminates the possibility of pad ‘knock’.

Cubic boron nitride (CBN) is known to be the second hardest material after diamond.
Behind every great wheel should be a great brake disc

**Performance metals** – Usually only found in high-end performance discs, XG-150 is a unique formulation developed for all DBA products. High carbon alloyed iron may look like regular iron found on standard discs, but DBA’s unique XG-150 iron formula has been tested the world over to the absolute limits of braking punishment.

**Built for abuse** – DBA uses a process called thermal stability profiling (TSP) on all HD and CLUBSPEC discs manufactured with XG-150. TSP re-aligns the micro-structure of the iron increasing density, resistance to extreme heat and reducing disc wear.

Additionally, thermo-graphic paint markings allow clear identification of disc temperature and disc performance.

**Protection in packaging** – DBA delivers added value to ensure their products are received in perfect condition by covering each and every disc in a moisture proof, corrosion protective dual layer package.

**Premium discs, premium appeal** – The premium paint coating found on all DBA discs* in non-friction areas ensures corrosion protection. DBA discs aid vehicle appearance and last longer against the elements.

*excludes street series OE replacement discs
DBA's two-piece rotors incorporate Alumalite centre hats made from 6061-T6 Aerospace grade aluminium. This material reduces unsprung weight for improved suspension and handling performance.

As well as allowing uniform expansion of the disc rotor during heavy use whilst reducing heat transfer in the hub bearings.
Superior components. Two piece 5000 series

The Alumalite centre hat is affixed onto the rotor ultising NAS bolts and self locking nuts. Unlike normal high tensile bolts, NAS bolts are made to National Aerospace Standards out of an 8740 high tensile strength alloy steel and are produced to extremely tight tolerances. The bolts are tightened on with precision formed hexagon self locking nuts, also referred to as 6-point nuts, that also have an extremely high tensile strength. Each nut is coated with a silver plate, designed to withstand high temperatures.

The Alumalite™ centre hats are machined by DBA from a solid billet of light-weight 6061-T6 aerospace grade aluminium material. The finished centre hat is then anodised to protect it from corrosion.
### Driver Style Suitability

<table>
<thead>
<tr>
<th>Style</th>
<th>Stage 1</th>
<th>Stage 2</th>
<th>Stage 3</th>
</tr>
</thead>
<tbody>
<tr>
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### Overview

100% confidence in fitment every time, not the cheap inferior alternative!

Australian engineered and quality assured to the highest possible standards for the safety of drivers the world over! Manufacturing to OEM standards are our minimum requirements. With added extras like protective paint coatings, T2 wiper slots extending pad life and X Gold catering for the big brake look!

**Stage 1**
- Patented ‘Kangaroo Paw’ ventilation design*
- CBN (Cubic Boron Nitride) machine turned
- Moisture proof corrosion protection packaging

**Stage 2**
- Patented ‘Kangaroo Paw’ ventilation design*
- Bi-Symmetrical T2 curve slots
- Paint protection on non-friction areas
- CBN (Cubic Boron Nitride) machine turned
- Moisture proof corrosion protection packaging

**Stage 3**
- Patented ‘Kangaroo Paw’ ventilation design*
- Non-directional cross-drill and slot design
- Paint protection on non-friction areas
- CBN (Cubic Boron Nitride) machine turned
- Moisture proof corrosion protection packaging

* Kangaroo Paw is not available on all part numbers, ask your supplier for details.
These discs utilise High Carbon Alloyed Iron (XG-150) and Thermal Stability Profiling (TSP) allowing constant extreme heat cycles designed for those “late braking scenarios”.

4000 XS and 5000 XS provides improved braking performance, better brake pedal feel and with the benefit of looking the part as well.

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**Patented ‘Kangaroo Paw’ ventilation design**

- XG-150 High Carbon Alloyed Iron
- TSP (Thermal Stability Profiling)
- Paint protection on non-friction areas
- Heat paint markings
- CBN (Cubic Boron Nitride) machine turned
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Allow these discs to take the heat, don’t risk it with a stock set-up! **Contact DBA today**
Sharing all the benefits of the HD and Survival 4x4 series, we are now witnessing the ultimate in performance direct OE replacement discs. Inclusive of a tri-symmetrical slot design dampening harmonics, increasing responsiveness and improving that all important 'pedal feel'.

The 6061-T6 Alumalite hats on the Club Spec 5000 T3 are critical for reducing wear and reducing weight.

The Aerospace grade aluminium hats reduce unsprung weight, allow for uniform disc expansion and lower heat transfer from disc to hub.

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- **Patented ‘Kangaroo Paw’ ventilation design**
- Tri-Symmetrical T3 Slot
- XG-150 High Carbon Alloyed Iron
- TSP (Thermal Stability Profiling)
- Protection paint on non friction surfaces
- Heat paint markings
- CBN (Cubic Boron Nitride) machine turned
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- Heat paint markings
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- Replacement rotor ring only
  - Supplied with 12 x NAS lock-nuts
  - Patented ‘Kangaroo Paw’ ventilation design*
  - Tri-Symmetrical T3 Slot
  - Paint protection on the outer vents
  - Heat paint markings
  - CBN (Cubic Boron Nitride) machine turned
  - Moisture proof corrosion protection packaging

This is the Ultimate DBA disc upgrade. **Contact DBA for track ready performance.**
Replacement aluminium hats
Available in Black or Gold anodised finish
Supplied with complete set of NAS nuts/bolts
NAS = National Aerospace Standard

Driver Style Suitability

<table>
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Overview

4WD vehicles often suffer significant brake fade and reduced performance when it comes to heavy towing, big downhill sections and disc cracking / shudder due to rapid heat changes during water crossings. DBA solves these safety and performance issues with the Survival Series T2 & 4000 series T3 rotors for extreme 4-wheel driving and / or towing. Looking for a visual upgrade mated to quality DBA discs, choose the Survival T2. Want all the benefits of the Club Spec series, look no further than the ultimate 4x4 OE replacement, the Survival series 4000 T3 discs!

Patented ‘Kangaroo Paw’ ventilation design*
Bi-Symmetrical T2 curve slots
Paint protection on non-friction areas
CBN (Cubic Boron Nitride) machine turned
Moisture proof corrosion protection packaging

* Kangaroo Paw is not available on all part numbers, ask your supplier for details

Driving heavy? Increased stress on 4x4 brakes off-road is a serious risk. Fit DBA 4X4 Survival discs today!
RACE SPEC PADS FOR ROAD USE
ULTIMATE STOPPING POWER
FADE RESISTANT
Ferodo ® DS Performance brake pads are designed for the driver who demands the ultimate in braking performance.

Designed to provide the kind of braking power normally associated with race cars – all without the need to build up and maintain high operating temperatures, which makes it a perfect option for performance street vehicles. DS Performance has been developed to deliver great comfort, combining passenger car refinement with pedigree performance.

With rigorous testing and development including extensive road and race circuit trials, DBA have finally found the perfect brake pad match to compliment the CLUBSPEC range of performance brake rotors. To add to this, Ferodo ® DS Performance brake pads and CLUBSPEC rotors have been used as the preferred product of choice for over four years by V8 Race in all their vehicles.

- Track Level Friction for reduced stopping distance
- Excellent Performance in all conditions (hot/cold/wet/dry)
- Thermal under-layer eliminates fluid boil
- Low compressibility and wide thermal range
- Manufactured in Italy by Ferodo Racing Facility

The perfect partner in brake pads and DBA’s CLUBSPEC 4000/5000 series rotors
Motorsport Warranty Statement

Our Warranty will not apply in relation to use of the product for any form of motorsport or speed trial. Whilst we promote our product for use in motor sport applications, the main reason we cannot warrant the product when used in any form of motor sport is that it will be subjected to many variables that are not in our control (such as vehicle modifications, i.e. wheels, tyres, suspension). DBA cannot be held responsible for fitment, wear and tear and lack of maintenance, as well as situations that will take the materials used to manufacture our product way past the design limits for extended periods. This by no means detracts from the quality of the product we produce, it simply states that in motor sport applications, we have no control on how or by whom the product is used.

We all know that we have an exceptional record regarding our products use in motor sport, but there is a limit! For more information, please feel free to contact DBA: info@dba.com.au
Motorsport - important information

There are many factors that directly affect the longevity of disc rotors and the safety of the driver when using a high performance street vehicle on a race track.

The major considerations are listed below:

CORRECT BEDDING OF ROTORS
Generally, experienced drivers will use their track rotors on the street with standard pads for a week or two before any track use. Driving in normal traffic conditions for 200 to 300 km (180 miles) is more effective and less likely to prematurely fatigue the disc rotor material. If you are unable to utilise this method or prefer the accelerate and brake repetition shortcut, please warm your brakes up first. Drive for at least 1-2 kms (1 mile), with long easy braking. The thermal shock from braking at high speed on cold rotors WILL prematurely fatigue your brakes.

PAD SELECTION
Standard street pads are NOT suitable for track day applications. Core Temperatures of rotors used on track days are generally in the 450ºC to 600ºC (1110ºF) range and peak surface temperatures up to 800ºC (1470ºF) for 5 seconds or more. Street pads will generally start to break down at 300ºC to 350ºC (570ºF to 660ºF), causing brake pad fade and glazing of the rotor surface. Also the pad structure is degraded resulting in poorer product performance.

WARM UP & COOL DOWN
Disc rotors must be preheated before track sprints to reduce the thermal shock from sudden high speed braking. The greater the difference in rotor temperature from when the pad is applied to when the pad is released, is directly proportional to metal fatigue. This is also applicable after the event, when you exit the track. A cool down lap is advisable at reduced speed with lighter braking to lower the core temperature slowly, or if this is not possible, go for a short drive off the track for a few minutes. Do not ‘pull-up’ immediately after exiting the track with hot brakes if you plan on using them again!

NOTE : Applying the hand-brake on hot rotors after a track session will distort the rear discs as they cool down.

POST TRACK DAY ROTOR INSPECTION
All disc rotors should be inspected during and after track day events. This involves removing the rotor from the vehicle and inspecting for heat checking (surface cracking) and severe cracks from fatigue on the pad surfaces. If a suspected crack is found, rub the area with a light grade emery paper, 240 grit or higher, to confirm that it is a crack and not leaching or etching from the pad material. Pad etching looks similar to light cracking but will disappear with a light rub with emery paper. If the heat checking is advanced to the point where the surface cracks are clearly visible, discard the pair of rotors. One ideal method that should be adopted is to have two sets of rotors. One set for track use and one for street use. Changing to your street rotors after a track event encourages rotor inspection. Also, your street rotors can become your next track rotors with the advantage of being bedded in gradually. After the initial purchase of two sets of rotors you are still only replacing one set at a time. Users need to be mindful that in most motorsport applications the rotor can be deemed to have reached it’s usable life due to stress cracking well before it reaches minimum thickness at which point the rotor must be discarded.

ROTOR TEMPERATURES
Rotor temperature analysis is one method that can be used to enhance your driving technique. The use of thermo-graphic paint is the simplest method to record temperatures. To maintain optimal disc rotor life, the core temperatures should not exceed 610ºC (1130ºF). If you are exceeding this limit you should reconsider pad grades and driving technique. Take note of the time and distance the brakes are applied into a corner and compare them to other drivers. One or two seconds of additional braking can make a substantial difference in rotor temperature and product life.

SPECIAL NOTE: The technical tips listed above are recommendations only and may not suit all applications.
DBA’s Global Distribution Centres

Europe

Asia / China
(DBA sells into China)
“an increasing demand for higher quality products”

Australia

Disclaimer

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North America

Established for over 10 years and regarded as one of the leading disc brake rotor performance brands in North America

Quality product, and uniquely Australian, visit dba.com.au for more information.