ENDLESS

BRAKE TECHNOLOGY (EUROPE)

Nylund Motorsport AB

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10 years of excellence

ENDLESS BRAKE TECHNOLOGY (EUROPE)
1999
-
2009

BRAWN GP

Endless

Official Team Supplier of Brawn GP Formula One Team

BP FORD ABU DHABI WORLD RALLY TEAM

OFFICIAL

ENDLESS

PARTNER

ENDLESS®

ADVANCED RACING BRAKE TECHNOLOGY

2009

HISTORY OF ENDLESS

In 1986 Isao Hanazato founded ENDLESS ADVANCE to develop brake pads based on his own racing experiences. He had found that the racing pads available in many cases had insufficient performance and suffered from many compromises hampering the serious racer.
During the 1987 season, the newly developed pads made their debut in the Japanese F3000 championship at Suzuka. This first outing was a great success and within a year ENDLESS had acquired 70% of the brake pad market in Japanese circuit racing, winning championships in both F3000 and group C sports car racing.
Based out of Saku-City in Nagano where all manufacturing and development takes place, ENDLESS has since had great success in all racing classes in Japan and throughout the Asia-Pacific region.
From 1996 and on ENDLESS has also been involved in the European competition scene supplying brake pads to several of the major teams in BTCC, and being part of the championship wins with Volvo and Ford in 1998 and 2000 respectively.
The World Rally Championship is also part of the ENDLESS arena for competition, originally in FIA Allstars, and thereafter supplying both equipment and technical development assistance to several teams in WRC as well as to both factory and private teams in group N, PWRC and JWRC/Super 1600, achieving great success in co-operation with amongst other Renault Sport, Ford Motorsport and Mitsubishi Ralliart, and Subaru Motorsport.
Since 2003 Endless has also been involved in Formula One as a supplier of brake fluid to the Honda Racing F1 Team, a coperation that continued when the team bacame Brawn GP.

ENDLESS®
The will to WIN.

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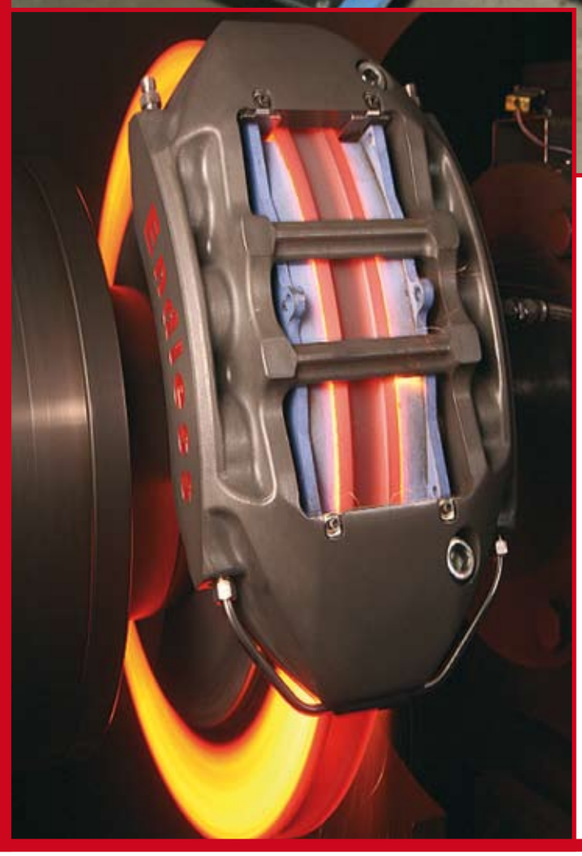

FORGED MONOBLOC RACING CALIPER

Endless monoblock caliper is manufactured with a forging pressure of several thousand tons. This give is it unmatched density and strengh.

Endless spent a total of five years developing the ultimate monoblock caliper with extensive trials, tests and participation in races to determine the full potential of the new design. The design was changed several times based on data recieved through the rigorous endurance test, and the piston design solves a lot of current issues.

The caliper body uses a new superhard Alumite (anodized) coating process to give maximum protection.

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A06

A06 is Endless economy competition compound developed specifically to give good performance in racing and rally for teams and drivers competing at a regional level on a tight budget. You can get most of the performance and durability of the more advanced compounds for a very attractive price that matches competitor brands.
And all this with the Endless quality still in place.

The A06 compound is available for most Japanese and European car applications and is well suited to everything from group N rally cars down to "trackday racing" with stock sportscars.

TECHNICAL DATA

FRICTION VALUE
0.30 - 0.40μ

rs600

Endless can also supply you with pads for your motorcycle.
The RS600 compound is suitable both for advanced street use when demand is high (including "trackdays") as well as for competition use in Superstock /Supersport class racing.
Available for stock caliper applications on the most common Japanese and European "R-bikes"

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TECHNICAL ASPECTS AND DEVELOPMENT

ENDLESS goal in development is to create a well balanced braking system with excellent performance as a whole.
As a result of this they started in the beginning of the 90´s to develop brake discs and brake fluid exceeding all DOT specifications. The latter years has also seen the introduction of their own 4- and 6-piston calipers which has proved themselves in the Japanese GT series. One of the latest additions to that lineup is the monobloc 6POT calipers to answer the highest demands in racing.
In addition to a vast variety of different compounds available "off the shelf" to suit various needs, ENDLESS can also develop special compounds according to your specific requirements should this be required. Pad shapes are available for basically any racing caliper, but if the need arises special shapes can be manufactured for your application from drawings or samples.

All development and manufacturing is made in-house to keep full control of the end quality of the product.

ENDLESS IN EUROPE

ENDLESS BRAKE TECHNOLOGY (EUROPE) is the European sales agent for Endless Advance. We handle all sales and tech support for the European market including dealers and customer teams. We are also responsible for dealer development and product lineup adaption.

The company started in 1999 to promote Endless high performance competition brake products in the European markets. The first achiement was in rallying where several major private teams found Endless brake pads to be what they where looking for in terms on performance without sacrifycing the endurance. WRC also followed with Mitsubishi being the first factory rally team to select Endless as a partner.
After the initial succes the Endless brand and dealer network has steadily grown in Europe as the choice for uncompromising brake products with continous development towards excellence.

Endless Brake Technology (Europe) is based outside Västerås in Sweden.

ENDLESS
BRAKE TECHNOLOGY (EUROPE)
Nylund Motorsport AB

LOCAL TEAM SUPPORT

We will ensure our full support to your team by being available for assistance and consulting during test sessions, development work and competition, as well as supplying you with the best brake equipment on the market.

Working in co-operation with your technicians we can assist you in enhancing the brake performance of your vehicle and adapt it to suit driver preferences, tire specifications and surface conditions, whether it is circuit racing or tarmac/gravel rally, resulting in the best brake setup in any given situation.

Lets *you* set the pace…

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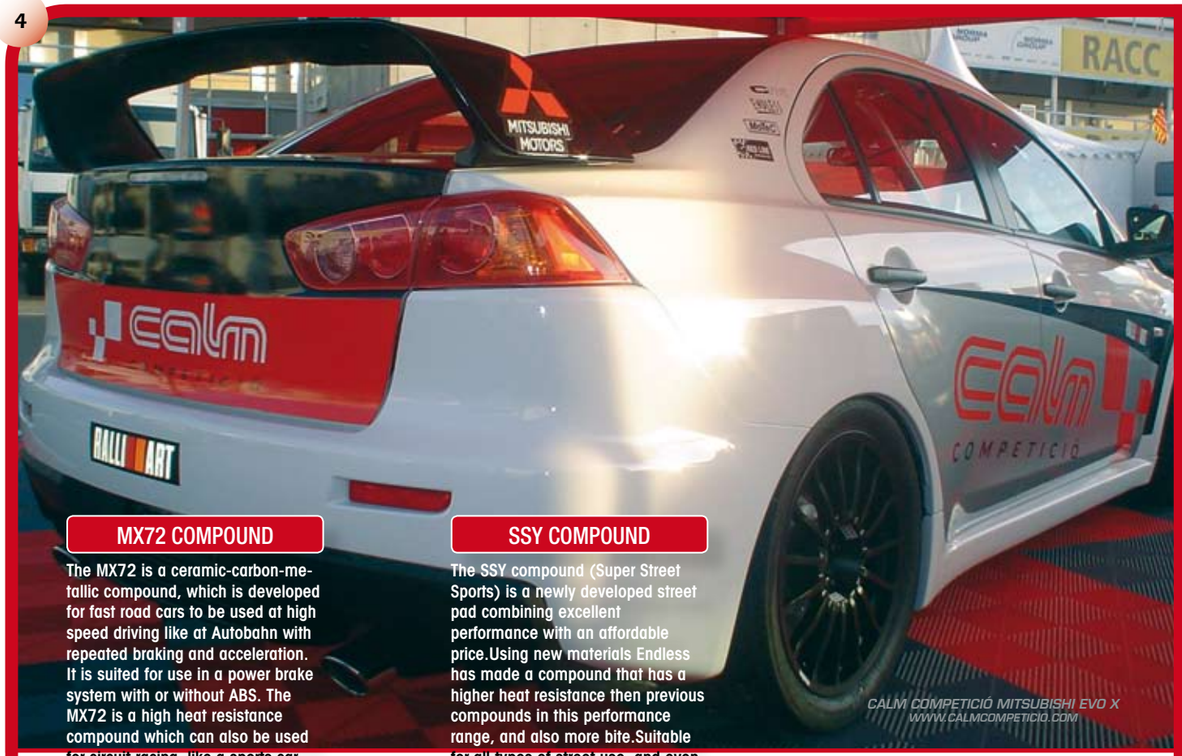


CALM COMPETICIÓ MITSUBISHI EVO X
WWW.CALMCOMPETICIO.COM

MX72 COMPOUND

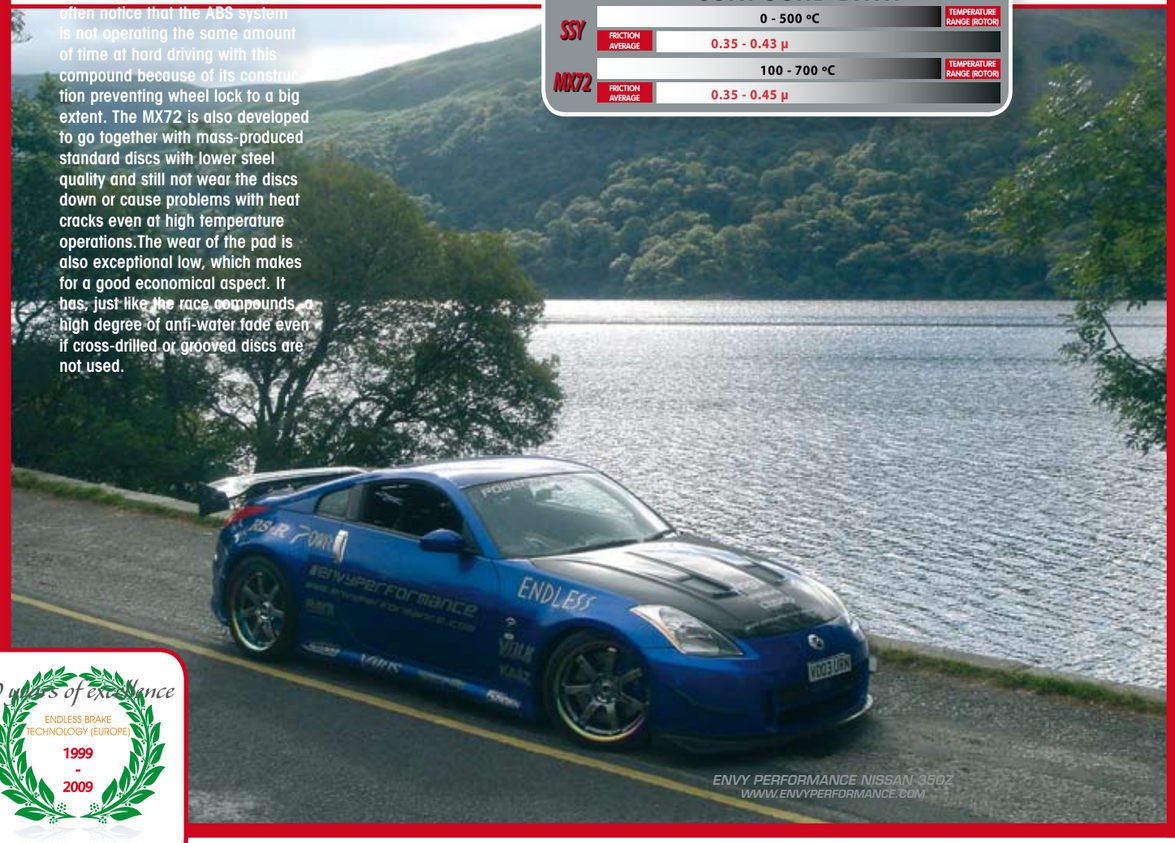
The MX72 is a ceramic-carbon-metallic compound, which is developed for fast road cars to be used at high speed driving like at Autobahn with repeated braking and acceleration. It is suited for use in a power brake system with or without ABS. The MX72 is a high heat resistance compound which can also be used for circuit racing, like a sports car club race day. There is no need to change pads for such an event. The initial bite and response is excellent even at very high speed like 250-300 km/h and so also the pedal feel and brake balance.One can often notice that the ABS system is not operating the same amount of time at hard driving with this compound because of its construction preventing wheel lock to a big extent. The MX72 is also developed to go together with mass-produced standard discs with lower steel quality and still not wear the discs down or cause problems with heat cracks even at high temperature operations.The wear of the pad is also exceptional low, which makes for a good economical aspect. It has, just like the race compounds, a high degree of anti-water fade even if cross-drilled or grooved discs are not used.

SSY COMPOUND

The SSY compound (Super Street Sports) is a newly developed street pad combining excellent performance with an affordable price.Using new materials Endless has made a compound that has a higher heat resistance then previous compounds in this performance range, and also more bite.Suitable for all types of street use, and even the occasional trip to the racetrack.

COMPOUND DATA

SSY	0 - 500 °C	TEMPERATURE RANGE (ROTOR)
	FRICTION AVERAGE 0.35 - 0.43 µ	
MX72	100 - 700 °C	TEMPERATURE RANGE (ROTOR)
	FRICTION AVERAGE 0.35 - 0.45 µ	



ENVY PERFORMANCE NISSAN 350Z
WWW.ENVYPERFORMANCE.COM

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RF-650

Racing brake fluid originally developed especially for long endurance races ("24-hours") where extreme high temperature stability is required. The ultimate choice for any type of circuit racing or rally (especially tarmac events). Great linear pedal feel.
Dry boiling point: 323 °C / 622 °F
Wet boiling point: 218 °C / 424 °F

Endless is the official supplier of brake fluid to the Brawn GP Formula One team, where the RF-650 is used exclusively in all testing and racing activities.

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BRAWN GP

BRACKLEY
23 APRIL 2009

BRAWN GP AND ENDLESS ADVANCE CONTINUE TECHNICAL PARTNERSHIP

Brawn GP is pleased to confirm the continuation of its team supplier partnership with Endless Advance for a sixth consecutive year.

Through its European operating agent, Endless Brake Technology Europe based in Sweden, Endless will provide the Brawn GP team with its RF-650 competition brake fluid throughout the 2009 Formula One season. Since its creation ten years ago, Endless Brake Technology Europe has been a market leader in Europe for advanced motorsport brake technologies.

Ross Brawn, Team Principal of Brawn GP, said: "Over the past five years, the team has developed a close working relationship with Endless Advance and we have been very happy with the quality and performance of their brake fluid. We are pleased to be continuing our partnership this season."

Lucas Nylund, Managing Director of Endless Brake Technology Europe commented: "We are extremely proud that the Brawn GP team has confidence in our technologies and we will continue supplying our RF-650 competition brake fluid for the 2009 Formula One season. We look forward to working together with the team and a successful season ahead."

ENDS

Notes to Editors

Endless Advance is a world leader in the development and production of competition brake pads, brake fluid and complete brake systems for the most demanding applications. Since its inauguration in 1987 the company, which is based in the Japanese city of Nagano, has achieved great success in every range of motorsport competition, and continues to be at the forefront of development through the 'Endless Challenge'.

www.endless-brake.info

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www.BrawnGP.com/media

Made from recycled stock

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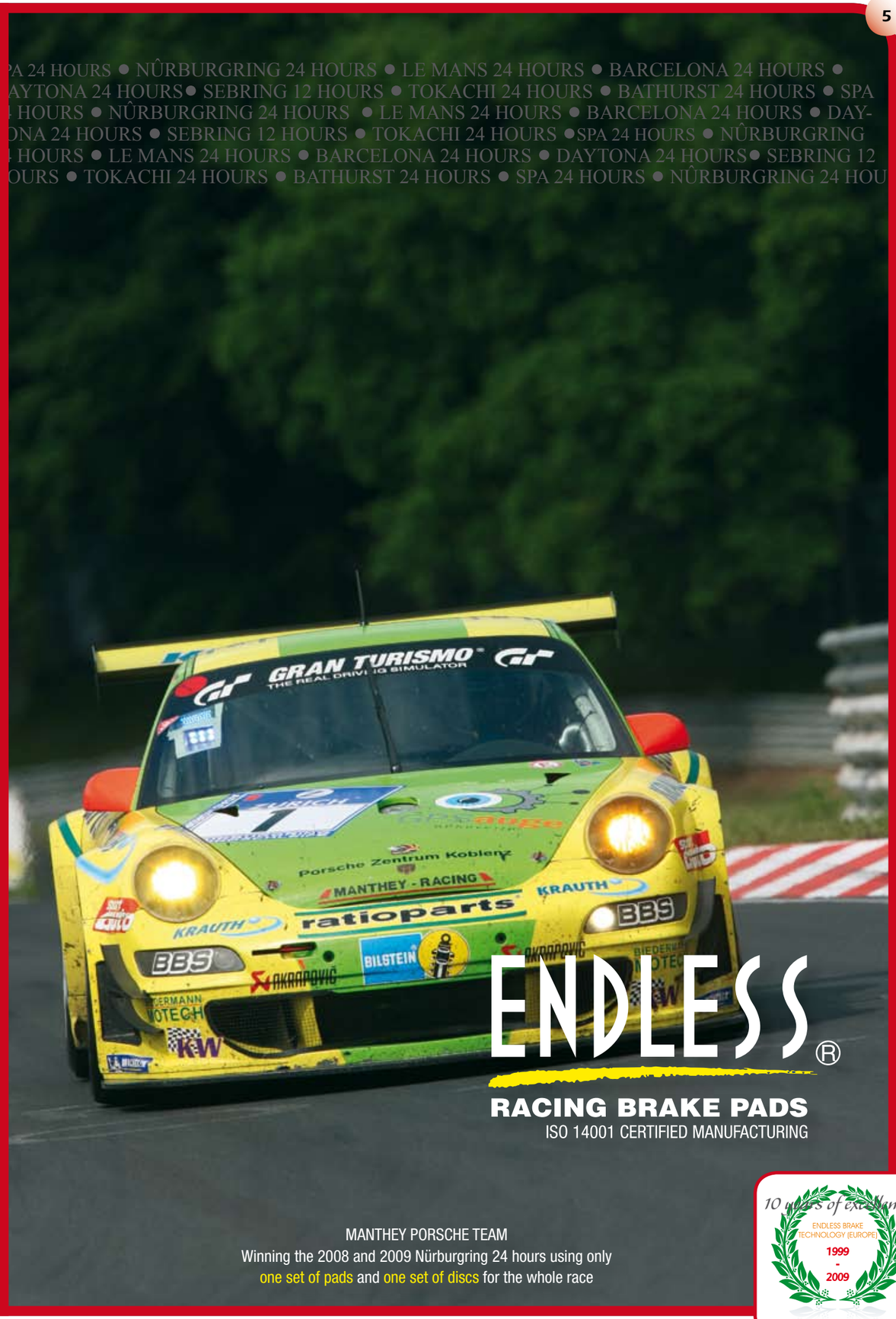

MANTHEY PORSCHE TEAM
Winning the 2008 and 2009 Nürburgring 24 hours using only
one set of pads and one set of discs for the whole race

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BASIC COMPETITION COMPOUNDS

ME22 COMPOUND

ME22 is a semi-metallic compound, developed for racing and rally. It has a very good pedal feel with a good response and initial bite. It is suited for drivers that prefer to use a high pedal pressure and still have a controlled braking and modulation. It does not create lock-ups easily and it has a good brake performance at various speeds. It also gives the driver the ability to brake late with hard deceleration into corners. It has excellent heat resistance and wear characteristics for both pads and discs, especially at very high disc temperatures. Between 550 °C and 700 °C the brake performance and pedal feel is very good. Even in cold weather operations the ME22 works excellent with a good initial bite and brake power at very low temperatures. In snow rallying at –25 °C the brake response is still on the same level. ME22 reaches its working temperature after only a few decelerations, and has no problems with water fade during wet conditions.

ME20 COMPOUND

ME20 is a semi-metallic compound, developed for racing and rally. It is a step up in initial bite and is more "straight-forward" with regards to brake power. Originally developed for BTCC Super Touring Cars where you have high traction afforded by suspension setup and tire compounds.The pedal feel and brake power is excellent and equal across the speed range with an easy modulation in all instances. With the ME20 it is possible to perform very hard and late braking into corners. As with the friction and bite the ME20 is a step up in heat resistance compared to the ME22 and it has shown a very good stabile brake performance at high disc temperatures over 650 °C. The wear characteristics of both pads and discs are on par with the ME22, and for cold weather and wet conditions it retains the same excellent resistance to water fade. The ME20 also reaches operating temperature very fast, although the range begins 100 °C higher.

BP FORD ABU DHABI WORLD RALLY TEAM — OFFICIAL ENDLESS PARTNER

N03W COMPOUND

The N03W is a substantial step up in initial bite from ME20. The pedal is easy to modulate for a good feeling between the fast response and hard brake power especially at high-speed braking. The reaction of the compound is excellent, which enables the driver to attack a corner with a higher speed. At lower speeds the driver only needs a swift touch of the pedal to create a good deceleration and reaction. As usual the compound is water fade resistant and works excellent during cold conditions.
It also has a fast response time in reaching working temperature and does not give the driver any unwanted surprises. The brake balance is very good at different speeds.The N03W is suitable for drivers that likes the ME20 but would like a step up in initial bite. The wear characteristics of both pads and discs are excellent. Especially the discs are nice and shiny even after extended high heat operations and does not easily develop heat or tension cracks.

N35S COMPOUND

The N35S has a slightly higher initial bite than N03W and represents straighter line between initial bite and brake power. It is still easy to control and a special characteristic is that driver can initiate light braking with a slight touch of the pedal and then directly continue into a hard braking manoeuvre with high pedal pressure if it is requested. The lock up tendencies is low and it has the same easy modulation as the N03W.The N35S has proved to be very well balanced in both wet and dry conditions, which has made it very popular in rallying for both tarmac and gravel. It is also excellent for race cars with a very high traction and down force. This pad is very much liked by drivers that prefers not to use such a high pedal pressure and would like to have a quick initial bite and in that way keep the overall speed up and a good rhythm of driving. The high heat resistance is the same as N03W and ME20, and so are the disc and pad wear characteristics. The disc wear is exceptionally good, which makes it a safer choice for endurance races.

BRAKE SHOES FOR HAND BRAKE

Brake shoes developed for use on the hand brake of Mitsubishi Evo and Subaru WRX Group N rally cars that has an integrated brake drum inside the rear discs.
These brake shoes has a compound specifically made for this use. Normally the brake shoes on these models retain a lot of heat generated by the normal rear disc brakes, and this causes them to overheat and loose their friction properties.
When this happens the use of the hand brake to control the cars rear end in tight corners and such is greatly diminished, in many cases hampering the driving style considerably.
These brake shoes are specifically made to combat this problem with their high heat resistance and stable friction.

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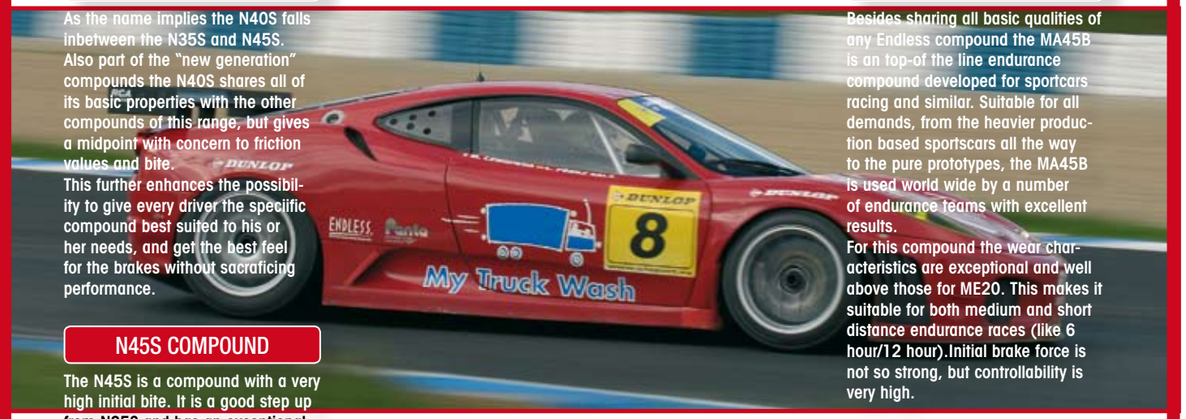
BASIC COMPETITION COMPOUNDS

N40S COMPOUND

As the name implies the N40S falls inbetween the N35S and N45S. Also part of the "new generation" compounds the N40S shares all of its basic properties with the other compounds of this range, but gives a midpoint with concern to friction values and bite.
This further enhances the possibility to give every driver the speciific compound best suited to his or her needs, and get the best feel for the brakes without sacraficing performance.

N45S COMPOUND

The N45S is a compound with a very high initial bite. It is a good step up from N35S and has an exceptional response. The brake power itself is also elevated so the difference between initial bite and maximum brake power is lower than N35S. The driver only needs about 15 bar of initial brake pressure to create a very good deceleration and even at very high speed the driver still only needs to apply a fairly low amount of pedal pressure. The modulation is still good and controllable, and gives a good brake balance. The compound is suitable for high-speed race cars with good traction and high down force, but has also shown itself to be usable to achieve extreme braking power in WRC Rally cars. Even in wet conditions it has a great pedal feel, and it lets the driver keep a good rhythm of driving. However, take notice that hard pedal force can cause lock ups under special conditions. It is also no problem with regards to water fade and even at high heat the fade is low.
The very high initial bite enables the driver to stay shorter periods of time on the pedal, which is also a good way to reduce disc temperatures.
If the traction is good the pad is an excellent option, however if the traction is lower, it can be too easy to lock up the wheels, especially in the front.The N45S is like the other compounds, gentle to the discs, has a low wear and does not create heat cracks or other disc problems.



MA45B COMPOUND

Besides sharing all basic qualities of any Endless compound the MA45B is an top-of the line endurance compound developed for sportcars racing and similar. Suitable for all demands, from the heavier production based sportscars all the way to the pure prototypes, the MA45B is used world wide by a number of endurance teams with excellent results.
For this compound the wear characteristics are exceptional and well above those for ME20. This makes it suitable for both medium and short distance endurance races (like 6 hour/12 hour).Initial brake force is not so strong, but controllability is very high.

YZ080 COMPOUND

The top of the line compound in Endless line up. The YZ080 is a full-metallic (sintered) compound developed for extreme demands like 24-hour endurance races. Made to withstand rotor temperatures of up to 1000 °C (1832 °F) and still keep its properties unchanged.
The friction is not so high, but the temperature stability and wear characteristics at very high temperatures are exceptional.
YZ080 is produced and offered on request only, and is not normally stocked.

COMPOUND DATA

	FRICTION AVERAGE	TEMPERATURE RANGE (ROTOR)
ME22	0.33 - 0.38 µ	200 - 800 °C
ME20	0.35 - 0.40 µ	300 - 800 °C
N03W	0.38 - 0.48 µ	300 - 800 °C
N35S	0.42 - 0.52 µ	300 - 800 °C
N40S	0.45 - 0.52 µ	300 - 800 °C
N45S	0.48 - 0.55 µ	300 - 800 °C
MA45B	0.30 - 0.35 µ	300 - 800 °C
YZ080	0.28 - 0.33 µ	300 - 1000 °C

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