

OUT BRAKED

Many of you E46 M3 owners who enjoy a track day slog have been disappointed with BMW's OEM brakes. We've tested a well-priced alternative that may be the answer to your prayers.





E46 M3 owners find braking points get worse on track-days the longer and harder the car is pushed

For what reasons do people buy the E46 M3? It's a status symbol, naturally, one that says 'I've done well and I like a driver's car'. It also happens to be, in many people's eyes, one of the most practical supercars available on the market. 343bhp, 0-60mph in five seconds and enough room to comfortably sit three passengers for luxurious motorway cruising. Who could wish for more?

Well, that little 'M' in front of the 3 stands for Motorsport, as we all know. This means we can safely assume the car will also be an excellent track day performer then? Yes, in many respects, but it appears after talking to some of you readers at race tracks, the car's biggest failing in this department is its brakes.

A mistake from BMW, then? Well, not really. The car has to be considered a road vehicle first and foremost by the company, and if we're honest, around 95% of all M3

owners will never truly use the car to its full potential on a track. Therefore, supplying expensive and possibly squeaky OEM race brakes wouldn't be necessary, nor desired, for the majority of M3 owners.

However, since we are *Performance BMW* and know a lot of you readers enjoy nothing more than taking your M cars on to circuits, we thought we'd address the issue of the E46 M3's somewhat un-motorsport anchors. Realistically speaking, the M3's OEM brakes are brilliant for day-to-day usage, but if you really want to use the car properly, you're going to have to upgrade.

Now don't get scared. We're not talking massive multi-pot caliper big brake systems that can set you back a small fortune – although these will solve any braking woes you have. Instead, Performance Friction Brakes approached us with a slightly less wallet-bashing alternative.

The US brake company has a European base in Brackley, Northants, and thanks to

its experience providing products to the BMW Mini series, ETCC, WTCC and M3 GTR racers, we were keen to see how well its brakes fared against stock BMW anchors. Any excuse to give two M3s some abuse at Bruntingthorpe Proving Ground, eh?

Looking at the price of Performance Friction's latest Z-rate road compound brakes available for the M3 (see end of feature), it's clear that these costs are comparable to standard OEM BMW parts. So the price is good, but are they actually better than BMW's factory product?

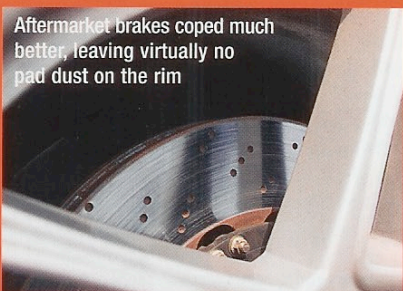
Enter two E46 M3 owners. The first is Dom Evans, MD of XL Motorsport and driver in the Kumho BMW Championship with a Class C E30 325i and a Class A E36 M3. He has also just treated himself to an E46 M3 with just a few thousand on the clock. The second is Mitesh Makwana, who had Performance Friction front brakes fitted for testing on his E46 M3 before a recent track day trip to the

Below: Chris Witter from Performance Friction uses his gun to measure the temperature of his company's brakes. Even at 681°C they were performing well



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Photos: Matt Barnes

Standard E46 M3's brakes suffered badly during our hardcore tests



Nürburgring. Both joined us at Brunters for the testing.

Chris Witter from Performance Friction Europe was present on the day to instruct each driver through the incredibly tough braking tests, while we sat in the back seats, risking whiplash and projectile vomiting due to constant heavy braking. The things we do for you readers.

Our first test was in Dom's standard-braked M3: performing soft, medium and hard braking to a standstill from 50km/h, then 100km/h and finally 130km/h. Dom said the brakes felt fine at this point, but there was no real bite there. Then again, he is used to racing brakes on his Kumho race cars. Everyone in Dom's car did notice some graunching at the 100km/h braking, with it becoming even more pronounced when stopping from 130km/h.

Immediately afterwards, the same test was performed again. From 50km/h and 100km/h, a squeal was very

noticeable when braking soft or medium, though not when braking hard. From 130km/h to zero there was a very noticeable graunch during hard and medium stops.

The next test was even more severe. Accelerating to 140mph and then heavy braking down to 60mph. The plan was to do this ten times, but Dom had to stop after seven tries; the brakes were officially cooked. The pedal was getting increasingly softer each time, and Dom lost all confidence in the OEM anchors before ten of these harsh stops were performed.

"If you are going to put an M3 on the track," Dom said, "the suspension and brakes simply have to be upgraded, otherwise it's useless." With his track experience and after destroying a set of pads on his E46 M3 very quickly, we were inclined to agree.

Okay, now on to Mitesh and his Performance Friction front discs and pads. Although his E46 M3 had recently been to the Nürburgring with these brakes for a

The 'Science Bit' by Chris Witter, Technical Sales Engineer, Performance Friction Europe.

The OE discs on the BMW E46 M3, although a floating two-piece design, do not offer the same level of control as a race-bred two-piece floating attachment system, as with the Performance Friction offering. In terms of pads BMW will have opted for a road compound that is suitable for say 95% of the road users who spend most of their time in built-up areas or adhering to the speed limits on motorways, and are unlikely to venture on to a race track. Cost is also a major consideration, and most performance pads are considered too expensive for an OE manufacturer to even contemplate using. Therefore, considering the very basic rule of thumb that road pads are only suitable for cold to medium temperatures and race pads are only suitable for medium to high, it is not surprising to learn that whenever a customer decides to push their M3 to the limit, either on the road or on track, due to the high temperatures this means the road pads are going to struggle to cope. Performance Friction has taken a different approach when it comes to designing its fast road direct replacement disc and pad package. In essence, Performance Friction has started with its race-winning brake technology and refined it for road use. This results in a pad and disc combination that is capable of withstanding temperatures in excess of 800°C.

Due to further refinements offered on the Z-rate range of pads not found on a race pad, noises such as squeal and graunch are virtually eliminated, making the entire system not only excellent for performance, but noise-free.

Performance Friction brakes exceeded expectations on our gruelling tests



track day, Mitesh had reported no problems. The soft, medium and hard braking from different speeds gave results noticeably better than the standard-braked M3. Literally no fade, graunching or squeaking. Very impressive for this first test.

The real difference was apparent with the high-speed 140mph to 60mph braking. After witnessing first hand how quickly the stock brakes had gone off in Dom's car, we needed no further convincing quite how good Performance Friction's product was. The car easily managed ten stops from 140mph to 60mph, with Mitesh reporting that the pedal bite-point went down about half an inch during the stops, but never lower than that. In our opinion, Mitesh could have continued this tough braking test for quite a while longer. Very impressive to say the least.

Chris from Performance Friction took a temperature reading of 685°C on the discs and pads after this test – higher than in most race cars – yet Mitesh's car still bit strongly. That is serious heat in anyone's

book, so we feel these brakes could certainly handle a hard track day no matter what your driving style.

The end of the day results were telling. Plenty of pad deposit on Dom's standard-braked M3's wheels, next to none on Mitesh's. Mitesh bought the test set of Performance Friction pads and discs there and then, and has recently collected rear ones for his M3 as well. The proof's in the pudding, as they say. Dom still had a soft pedal and a noticeable brake squeak half an hour after the test.

So, if you don't want to invest in a big brake kit, the brakes offered by Performance Friction – after we saw them tested to the max in these tests – are a brilliant and cheaper alternative. With BMW not providing the likes of Porsche's renowned Ceramic Composite Brake (PCCB) as standard (which are more suitable for track use), if you are planning to circuit-bash your M3, make sure you get your anchors sorted first ●



E30/E36/E46 M3 PERFORMANCE FRICTION BRAKES PRICING:

E30 M3 FRONT BRAKE PADS: £53.04

E30 M3 REAR BRAKE PADS: £40.97

E36 M3 FRONT BRAKE DISC ASSEMBLY: £159.46

E36 M3 FRONT BRAKE PADS: £41.45

E36 M3 REAR BRAKE PADS: £40.97

E46 M3 FRONT BRAKE DISC ASSEMBLY: £197.30

E46 M3 FRONT BRAKE PADS: £41.45

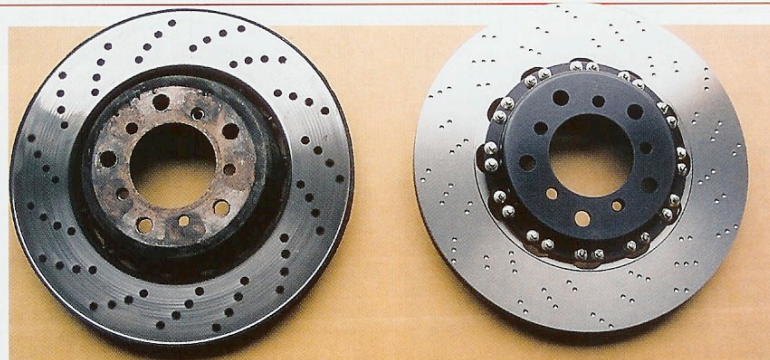
E46 M3 RACING FRONT BRAKE PADS: £133.69

E46 M3 RACING REAR BRAKE PADS: £105.45

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THANKS TO: Chris Witter, Mitesh Makwana, Dom Evans (www.xlmotorsport.com)



Standard M3 brakes (left) differ considerably yet cost similar to the aftermarket discs (right)

