



**280bhp E21**  
*Running a turbo'd 3.8 Commodore V6*

**E30 turbo**  
*Stroked 2.7 six boasts 650bhp*



# PERFORMANCE BMW

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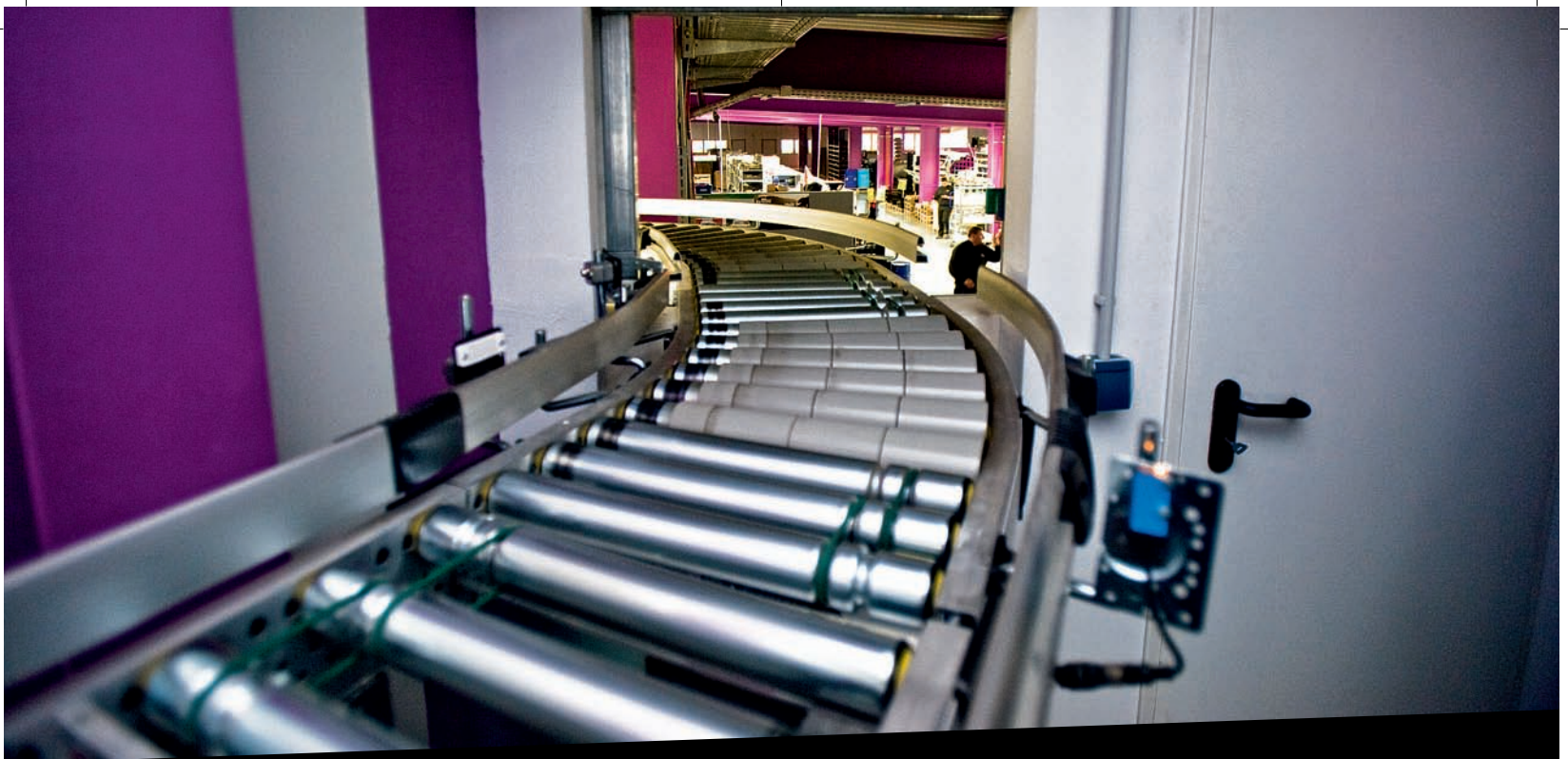


# 335BHP

*Caged '02 with a twin-turbo 3.0 motor, E30 M3 transaxle and one-off carbon styling is just perfect*

Feb 2010  
£4.50





# THE MASTER OF SUSPENSION

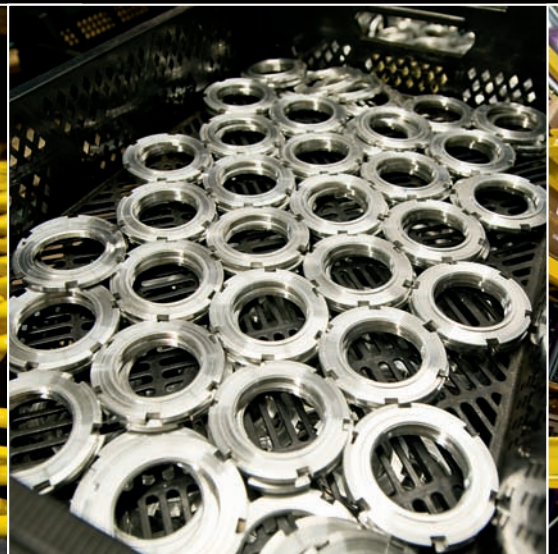
Having equipped three of her BMs with KW's suspension, Louise thought she'd have a look behind the scenes and pay a visit to the German factory to see how it's all made.

Words: Louise Woodhams Photos: Matt Richardson

In 1995, suited and booted business bods from established suspension specialists must have been pretty taken aback to see KW Automotive – at that time just a three-man team – presenting its first products at the prestigious German tuning accessories exhibition; the Essen Motor Show. KW must have made quite some impression though because production began the following year, and by

1998 the company had grown so rapidly, it was forced to relocate to new headquarters, in Fichtenberg, that was over six times the size of the previous facility. Now around 16,000 square metres, with 130 staff, and a further 70 employees world-wide located at branch offices in the USA, Switzerland, Canada and Great Britain, I don't think even KW could have predicted it would have the largest line-up of coilover suspension in the marketplace less than 15 years





down the line. Even the KW colours; yellow and purple, are patented, joining the likes of Nivea, Coca-Cola and Telecom.

In 2005, KW took over the manufacturer Belltech and its sister company, Suspension Techniques. Oh, and the brand's LSD (Lambo-Style Doors) and Weitec – yep you guessed it – are also under the KW umbrella. And it doesn't stop there, working alongside prestigious car tuners, including the likes of AMG (CLK 63 and SL65 Black Series are of particular note), Roush (Ford), Mopar (Chrysler, Jeep, and Dodge) and

Novitec Russo (Ferrari), and sports car manufacturers Gumpert and Mosler, to name just a few. And let's not forget KW's involvement on the track as series sponsor of the World Touring Car Championship, Suzuki Swift Rallye Cup and Mini Challenge, on top of equipping a variety of teams in the German hillclimbing championship and legendary Berg Cup. It's most impressive success, perhaps, is the Manthey Racing Porsche 997 GT3 RS-R, which has won the 24-hour race at Nürburgring for four consecutive years. Altogether more than 70 teams relied on KW suspension during the '07 race.

KW's philosophy "from motorsport racing directly to the streets", albeit strangely translated, actually begins to make sense when you find out how the company was founded. Basically it all began with a chap called Klaus Wohlfarth (that's where the initials came from), a competitive hill-climber, who, desperate to outshine his fellow VW rivals and fed up with the state of the roads, fettled with the suspension on his Opel Kadett C himself, and went on to become overall winner of the Group H Divinol Cup in 1994. Having successfully distributed car component parts from a 75

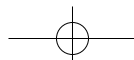


## KW AUTOMOTIVE UK

KW UK began in 2005 and has proved to grow year-on-year within the aftermarket sector. Now working alongside small UK car manufacturers as well, it has come to be a trusted name in the business.

Furthermore, the British branch of KW has enjoyed a very successful 2009 motorsport season, with Mini Challenge UK, Sports Maxx, Britcar, Khumo Cup and over 20 race teams relying on its technology, know-how and support at the track.

With a growing sales team, KW UK can answer your enquires, be it for a basic kit or a full race setup for the circuit.



Below left to right: KW's latest product in action, the hydraulic lift system, we reckon it'll be a big hit. One of 18 engineers at work using 2- and 3-D CAD construction animations



square metre premises in Murrhardt since 1992 (under the name KW Tuning), the following year the KW coilover suspension was born, having passed the stringent safety standards implemented by the German Technical Control Board (TÜV). Since all cars in Germany have a regular safety inspection, in addition to smog testing, any aftermarket part used must also be TÜV-approved and has in fact now been adopted by most EU countries.

The KW product range is as diverse as its client base. Next to sport spring sets and shock absorbers, it offers height-adjustable

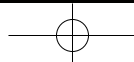
coilover kits (Street Performance) in three variations, as well as competition racing suspension with either two- or three-way adjustable damping technology. New to the portfolio in 2007 were springs and coilover kits for quads and all-terrain vehicles, as well as KW Clubsport to meet hobby racers' needs and the Street Comfort coilover suspension programme. KW prides itself on using relatively lower spring rates, but better damping control for a softer overall ride and similarly effective handling prowess. While spring stiffness supports the weight of the vehicle under steady state conditions, proper

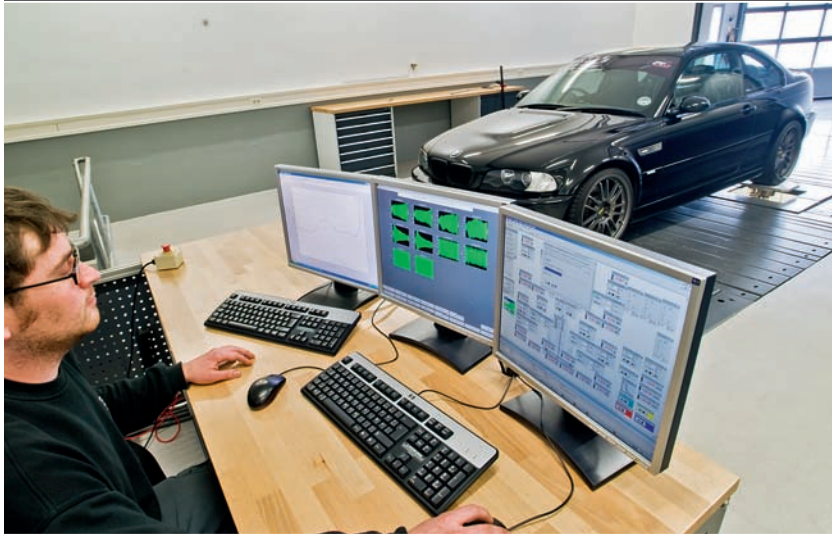
damping control is what actually keeps the tyres planted and the chassis stable. And I think three KW-kitted cars vouches for how much I think of its products.

I was particularly excited to hear about the latest innovation; the Hydraulic Lift System, launched at Tuning World Bodensee last year. HLS is available in two different versions: HLS 2, which is fitted to the front axle, and HLS 4, which can be attached to the front and rear axle, lifting the entire vehicle by up to 45mm. The hydraulic cylinder unit is located on the coilover body between the spring perch and spring, and is



The damper cylinder is partially filled with oil before the rod is inserted. Once the unit's assembled, oil is pumped in under pressure to fill the completed damper before being tested on a shock dyno





KW's 7-post rig allows accurate race track replications as well as suspension optimisation testing. Here, KW tests an M3 CSL after fitting a custom kit made up of clubsport and race components



activated from inside the vehicle, lowering it within four to five seconds. The advantage of a hydraulic system is that there is no compression of the extended cylinder unit so you don't get any unwanted additional suspension movement while driving. And best of all it can be operated at speeds of up to 50mph, and it can be installed using your existing coilovers, KW or not.

It was evident from the factory tour that every component involved in KW's suspension is designed and manufactured with typical Germanic thoroughness. As well as using the latest in CNC manufacturing equipment (including an endurance shock and spring dyno and salt spray test machine), quality control workers are always on hand to ensure every single

product meets KW's high standards. Impressively more than 18 engineers and technicians are continually busy with new ventures or looking how to improve existing products using two- and three-dimensional CAD construction animations, and with a warehouse on site, an entire suspension kit – from initial measurement to production – can be completed in-house and ready for delivery within 24 hours.

The highlight of the tour was a demonstration of KW's multi-million pound hydraulic seven-post rig, one of only 15 world-wide, generally used by Formula One race teams for research and development purposes. Bought secondhand from the BAR Honda F1 team (after post Autosport drinks in Birmingham nonetheless!), the hi-tech

testing station simulates brake and acceleration processes as well as aerodynamic loads (similar to track testing), giving KW a huge technological advantage over any rival companies when it comes to subjective testing of new developments.

Reliability, quality and performance – it's all very German – but whether you're looking to get sports springs and shocks, coilovers or a custom setup for your BMW, I can't recommend KW enough. Who'd have thought that a concept born from a petrolhead who simply wanted to beat his fellow competitors in hillclimbing would have turned into a company that, 15 years later, is one of the world's leading suppliers of suspension systems. Never has the phrase 'built by an enthusiast for enthusiasts' been so apt ●



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