



## Spirit S5- 5.2l 414hp Complete Conversion for the 545i Saloon & Touring

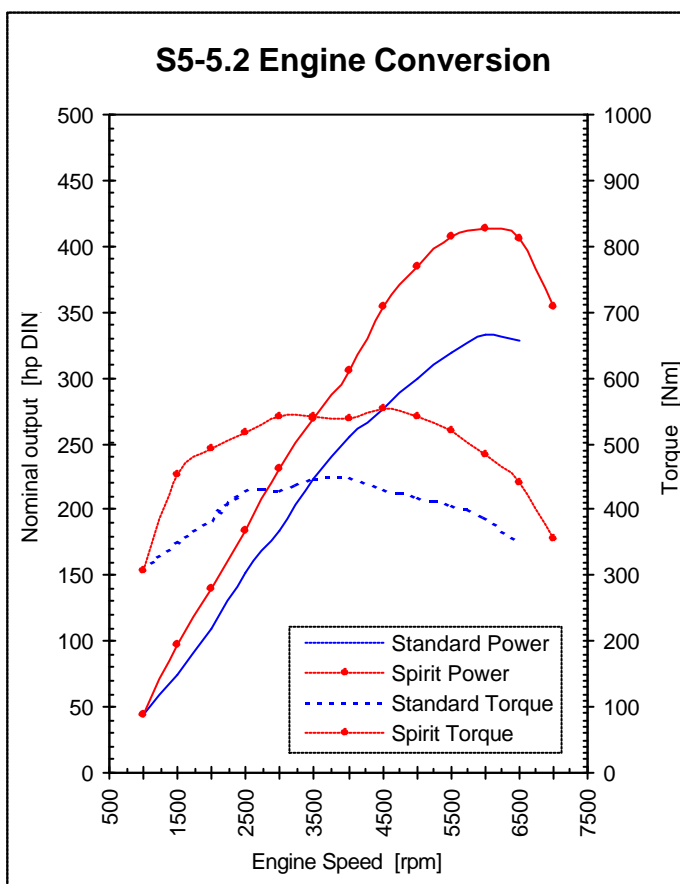
The conversion for the BMW Valvetronic V8 (N62 B44) engine includes a full engine and exhaust conversion and is designed and built for specifically for this new power plant. Spirit is our own brand of engine technology and exists where Hartge have no current engine solutions. Type Approval accreditation of the German Vehicle testing standards body, the TÜV, ensures the quality and consistency of such conversions. The converted engine is comprehensively guaranteed, and all unaffected components on the car retain the BMW manufacturers warranty.

This engine conversion is available for the standard BMW E60 545i saloon, E63 645i coupe or convertible, E65 745i saloon and later models of the E53 X5 4.4i. It is available for both the manual and automatic gearbox. Lead-time for conversions is 6 weeks, with 2 weeks required to complete the installation into the car.

Model	Standard	Converted
Engine Type	N62	S62-412
Capacity - cc	4398	5156
Bore - mm	92	92
Stroke - mm	82.7	97
Output - hp	333	412
@RPM	6100	6100
Torque (NM)	450	550
Torque (lbft)	331	405
@RPM	3600	3900
Compression	10.0	10.5
Vmax	155 mph	186 mph



Illustrated above shows the E60 equipped with Hartge wheels, suspension and body equipment.



### Conversion Specifics:

Specially engineered components have been designed for this engine and include a crankshaft, pistons, connecting rods, exhaust manifolds, racing catalysts and rear silencers. Specific engine management software has been developed for this engine, including a raised speed limit to 186mph.



BMW



Mercedes



Mini



Interiors

The engine is a spirit conversion, which is BIRDS own brand of tuning technology. The brakes are AP Racing brake systems and every other product is Hartge manufactured.



**The complete conversion consists of the following items. We will be pleased to revise specifications and pricing to your individual requirements.**

<b>Engine</b>	11-603-412	S5-5.2 412hp Engine Conversion
<b>Exhaust</b>	18-600-450	Stainless Steel Rear Silencer, Dual Ovoid Outlets
<b>Suspension</b>	31-600-200	Sport Suspension Springs
<b>Brakes</b>	34-398-356	Sport Brakes, Red 6 Piston 378x36
<b>Wheels &amp; Tyres</b>	37-600-430	20" Classic Wheel & Tyre Set



**Sport exhausts** are primarily utilised in maximising the power output from the engine. The standard system is not normally restrictive, but when the performance of the engine is increased, the capacity of the exhaust may be exceeded. The metal catalysts are part of the engine performance kit, and remove the exhaust backpressure, which allows the engine to breath more air, creating more power.

**Sport Rear Silencers** are not part of the engine conversion, but manufactured in lightweight stainless steel, they improve the aural quality of the exhaust, and whilst they still meet the criteria of the European D4 noise limits, the tonal change improves the sound to a deep rumble.



**Sport Suspension Springs** are stiffer than standard, yielding benefits in both roll and cornering poise, and are lower by approximately 25 mm. Our chassis development partners have tuned the ride height balance between the front and rear axles to minimise the inherent under-steer of the standard chassis. Ride quality is retained as with all of our chassis solutions. Other options are available, including a fully adjustable suspension kit.



**Sport Brakes** 378x36mm curved vane ventilated and grooved discs for the front axle, featuring low weight alloy hubs, with a unique floating rotor system to prevent vibration and fade. Six piston alloy calipers for reduced weight and mighty stopping power. The feel and progression of these brakes allow fierce braking right up to the point of ABS actuation, both in the wet and dry. Fully protected against corrosion, and they work from cold right up to racing temperatures. Rear Brakes to match are also available.



**Hartge 20" Classic Wheels** - The set is fully compatible with all of the factory traction, dynamic stability and puncture protection systems, and ride quality has been maintained by careful design and attention to installed weight of the wheel and tyre assembly. Fully compatible with any of the standard equipment, and of course with all Hartge equipment. 20" Hartge Classic wheels sets come with Pirelli or Continental with 9.0 & 10x20 with 245/30 & 285/25 high performance tyres, which eliminate the uncomfortable ride of the standard run-flat units. Hartge wheels sets are verified for the maximum speed of the car.



**Hartge 19" Classic 2 wheels (optional)** - The new Hartge Classic 2 in 19" is now available for the 545i. The dimensions of 8.5 & 9.5x19 with 245/35 nearly fill the wheel arches. Continental tyres have been specially selected for their quiet running, impeccable wet road traction, and impressive speed rating, even when fully loaded. All of the benefits of the Hartge Classic, with the added advantage of radial spokes that integrate with the diamond turned outer rim, making the wheel appear larger than 19", but retaining the ride quality required for day-to-day use.



**Body Exterior** - Hartge front spoilers are designed to reduce aerodynamic lift at high speeds, whilst improving cooling to both engine and brakes. Crosswind stability is improved, drag reduced, and the aesthetics of the car dramatically changed.



**Interior Accessories (optional)** - Interior detailing, including aluminium alloy pedals, footrests, handbrake levers and gear lever knobs, and bespoke carbon fibre trims complete any conversion to the tastes of the individual.