



From power station to power plants

DOPAG provides precision metering systems for BMW engines

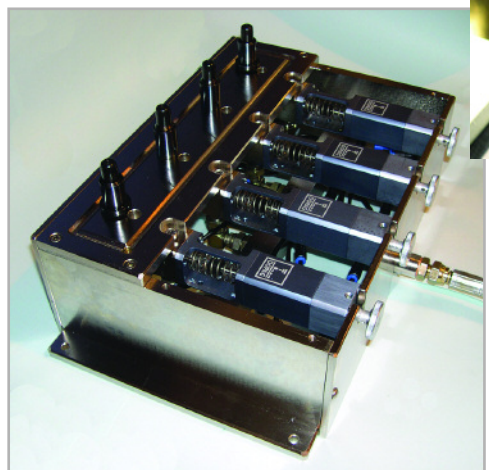


Once the site of Europe's largest power station, BMW's Hams Hall facility situated close to Birmingham in the industrial West Midlands, is the first BMW engine plant to be built outside Germany and Austria, recognising the importance of the UK as a major world economy.

The UK is also BMW's third largest market, after Germany and the USA and is also the



Placing the fuel rail in the lubricating fixture



The lubricating fixture with its cover removed showing the DOPAG metering valves

only country in which all three of BMW Group's premium brands - BMW, MINI and Rolls-Royce has a manufacturing presence.

Built at a cost of £400 million, production began at Hams Hall in January 2001 producing

all BMW four-cylinder petrol engines between 1.6 and 2.0 litres capacity for export to BMW vehicle plants in Germany, South Africa and Austria, powering the BMW 1 Series, 3 Series, Z4 Roadster and X3 models.

A significant milestone had been reached by early 2005 when the 500,000th BMW petrol engine built at Hams Hall came off the production line.

Currently employing 650 people, the Hams Hall factory will in future assemble the new generation of four-cylinder petrol engines for future MINI variants that will be built at the company's UK assembly plant at Oxford, leading to a significant increase in volume output and the creation of new job opportunities.

As part of this programme, DOPAG (UK) Ltd has recently supplied systems to BMW Hams Hall through Nottingham based machine building company TQC, to lubricate the fuel rails of the MINI variable valve engine during the assembly process.



Assembling the injector into the fuel rail

Each DOPAG system uses a 12 litre size pressure feed container to feed the light viscosity lubricant to four DOPAG precision shot metering valves.

The metering valves can be infinitely adjusted between the minimum and maximum shot size and in this case, the exact volume of lubricant that is required to be dispensed into each bore of the fuel rail amounts to a tiny 0.025 ml.

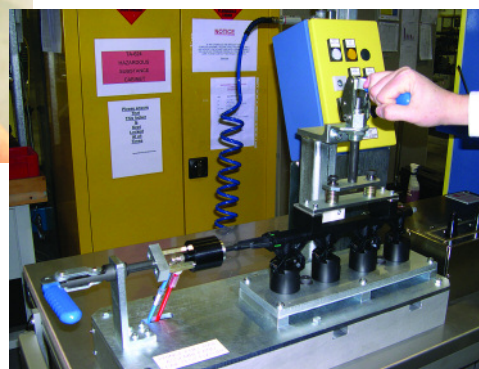
The four metering valves form part of a fixture that directs each separate shot of lubricant to one of four spigots that discharge the lubricant evenly around the inside bores of the fuel rail, when placed onto the fixture.



It is the downward force exerted by the operator when placing the fuel rail onto the fixture that signals the metering valves to automatically discharge the metered shots of lubricant, thus ensuring that the fuel rail is always positioned correctly before dispensing takes place.

The lubricant allows the fuel injector to be placed into the fuel rail smoothly and easily without any fear of damaging the "O" rings during the assembly process, which might potentially lead to leakage, causing unwanted quality problems.

Following assembly of the injector, the finished assembly is clamped into a second fixture and tested for any leakages as proof of acceptability.



Testing the assembled fuel rail for leaks

During the past five years, Hams Hall has established itself as an increasingly important player in BMW's international production network and plans to make an even bigger contribution to the company's development in the future by building many more engines in the years ahead for both the BMW and MINI brands.