Higher pressure also raises the efficiency of the injection system.
The injection system of the new six-cylinder in-line diesel engine has also benefited from a rigorous process of further development. The common-rail direct injection system plays its part in enhancing the engine's efficiency and promoting clean combustion by sending extremely precise quantities of fuel into the cylinders. The upgraded system raises the injection pressure of the piezo injectors to 2,200 bar. During each power stroke, three pre-injections, one main injection and four post-injections of fuel take place.
An ultra-high-performance pump channels the fuel to the combustion chambers through a common rail made from forged stainless steel.

The output and capacity of the cooling system have been given another boost, too. An additional low-temperature circuit supplied by an electric water pump controls the temperature of the intercoolers. The exhaust treatment system includes a diesel particulate filter and oxidation catalytic converter, which is located close to the engine in the same casing. More efficient exhaust cooling, meanwhile, minimises the formation of nitrogen oxides. And standard-fitted BMW BluePerformance technology, which includes a NO_X storage catalytic converter, helps the new diesel engine powering
the BMW M550d xDrive to meet the EU6 exhaust standard not due to come into force until 2014.

Eight-speed Sports automatic transmission with M-specific gearshift dynamics.
The combination of the most powerful diesel engine ever offered for a BMW with an eight-speed Sports automatic transmission ensures that drive is transferred onto the road surface extremely effectively and efficiently.
The configuration of the transmission management system for
the BMW M Performance Automobiles promotes dynamic acceleration.
The M-specification gearshift dynamics enable extremely rapid gear changes with an almost uninterrupted flow of power. The eight-speed Sports automatic transmission offers the driver two automated shift programs – D and S modes – as well as the option of changing gear manually (in M mode).

The automatic gearbox is operated using an electronic gearshift lever on the centre console adorned with an M logo. Manual mode allows the driver to change gears sequentially using either the gearshift lever or the paddles on