THE NEW GENERATION OF THE AUDI 3.0 L V6 TDI ENGINE

PART 2 – THERMODYNAMICS, APPLICATION AND EXHAUST EMISSION CONTROL

The new 3.0 l V6 TDI engine with four valves per cylinder, piezo injectors, common rail fuel injection system, turbocharging with variable turbine geometry (VTG), swirl action control and dual coolant circuit with intelligent thermal management and integrated exhaust gas recirculation (EGR) cooling develops – depending on the intended application – between 150 kW and 184 kW and has a maximum torque of between 400 Nm and 550 Nm. It complies with Euro 5 exhaust emission limits and has very low CO₂ emissions. In the following thermodynamics, application and exhaust emission control of the new engine are described. The first part of the article in MTZ 10 already depicted the design and the mechanics of the new engine.
MODULAR CONSTRUCTION

The new second-generation 3.0 l V6 TDI engine is a further systematic development of Audi’s successful diesel strategy. A high standard of refinement is combined with sporty performance, but the strictest exhaust emission limits are also complied with and extremely low fuel consumption figures are achieved: these were the main development objectives for the new-generation V6 TDI engine, ❶.

Since the Audi V6 TDI engine is suitable for a wide range of applications in various vehicle categories, great value was attached during its development to modular construction and an identical parts strategy, in order to achieve maximum synergy between the various applications and have an optimally configured engine available for each of them, ❷. The basic engine is always the same, but by choosing between two camshaft patterns, three turbocharger settings and two fuel injection systems it can be given the thermodynamic characteristics that yield the best results in each case, ❸. Further details of the components used and their specific characteristics are given below.

PIEZO COMMON RAIL SYSTEM

All versions of the second-generation V6 TDI are equipped with piezo common rail...