

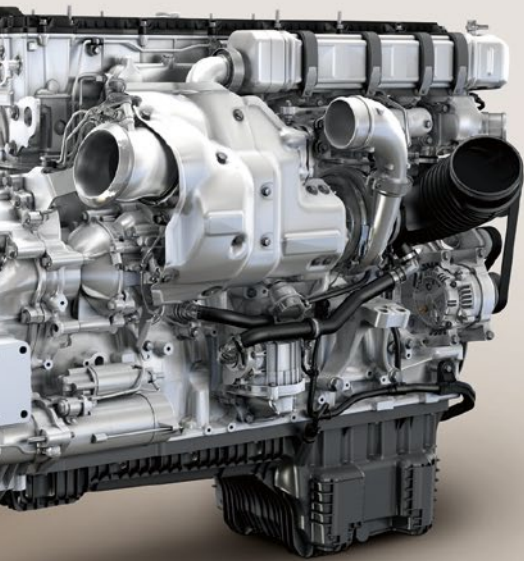
ENGINES

Clean Diesel Engines

8 Four-Cylinder In-line Engine
Deutz TCD 3.6 for Agricultural
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1000–1500 Engines for EU Stage V
Hans-Ulrich Adt, Anna Patzschewitz,
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In 2019, the world's strictest exhaust emissions standard will be introduced in Europe. EU Stage V is to apply to all engine power classes by 2020. This new exhaust standard was presented by the EU in September 2016. In other words, the industry was only given just over two years of preparation time between the presentation date and the introduction of the standard.

Engine manufacturers have taken on this challenge. Many of them will already be presenting their solutions at the next Agritechnica in November. Deutz, for example, has further developed its TCD 3.6 four-cylinder inline engine for the agricultural sector. The further development was aimed at raising power output and above all achieving a significant increase in torque, thus allowing it to be used, for example, to replace larger-capacity engines. Numerous problems had to be solved during the development process, such as keeping the same geometrical installation conditions and maintaining the performance figures. At the same time, it was necessary to meet the continuous demand for short development periods to fulfil competitive time-to-market requirements combined with validated emissions behaviour.

Engines for the off-highway sector need to be suitable for many different applications due to the low production volumes involved. MTU Friedrichshafen has decided to offer its 1000, 1100, 1300 and 1500 series of engines for EU Stage V as series-production engines as early as June 2018. In order to ensure that the engine system is fully developed before going into production, the extensive test bench tests were supplemented with various field trials. In total, some 150 engine systems were tested in different applications and vehicles during the field trials and pre-series tests. In addition to gaining valuable experience with the new engine systems, the OEMs who took part in the field trials began various vehicle optimisations in the joint projects and already implemented and tested them. As a result, these early and extensive field trials offer benefits for all partners involved.

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