



World première: 16.2-litre D4276 engine from MAN Engines for construction machinery sets new benchmark

High torque at low speeds; high power-to-weight ratio for the most arduous applications

At Bauma, MAN Engines will be debuting its new straight-six engine, the D4276, with 142 mm bore and 170 mm stroke. This power unit has been developed specially for applications that demand high power with full power operation at up to 70 percent of the duty cycle. It delivers its maximum torque of 3,280 Nm at speeds as low as 1,100 rpm and maintains a constant torque up to 1,500 rpm. The straight-six engine offers not only high torque but also an impressively high power-to-weight ratio. With a dry weight of just 1,280 kilograms, it is one of the lightest engines in its displacement class, and delivers an output between 450 and 515 kW (604 and 690 hp) depending on its power stage. Its design is based on the D3876 engine range, which has been a well-established success on the market since 2014. "We are proud that we can offer our customers an engine that perfectly matches the requirements in the heavy-duty application field but at the same time combines all the advantages of the meticulously developed D3876 engine," explains Reiner Rößner, head of sales at MAN Engines.

Greater displacement for more power

In this context, the D4276 represents a consistent progressive development which satisfies the demand for increased power to cope with the toughest off-road applications. Despite the large displacement and the resulting increase in power, the 16.2-litre engine has the same compact installation dimensions as the D3876 (1,464 x 978 x 1,131 mm; length x width x height). This allows designers the freedom to achieve perfect integration of the engine into the machine, even in complex installation situations. In addition, the virtually identical interfaces of the two engine ranges ensure that OEM customers require only a single installation variant – depending on the

MAN Truck & Bus is one of Europe's leading commercial vehicle manufacturers and transport solution providers, with an annual turnover of some 10 billion euros (2017). The company's product portfolio includes vans, trucks, buses/coaches, diesel and gas engines along with services related to passenger and cargo transport. MAN Truck & Bus is a company of TRATON SE and employs more than 36,000 people worldwide.

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level of power needed – to allow both the D3876 and also the D4276 to be integrated without major design changes. A major feature of the development has been the ability to reach the highest possible torques in combination with a broad torque plateau for maximum power development. In particular, it has been possible not only to increase the displacement, but also to modify the common-rail injection system. The fuel flow has been significantly improved by the use of a newly developed high-pressure pump. An additional increase in the flow rate through the injectors, coupled with injection pressures of up to 2,500 bar, ensure a perfect combustion process. This provides not only an optimum torque curve, but also an ideal degree of fuel atomisation. This results in lower fuel consumption over a wide map range, coupled with a reduction in particulate emissions. In addition, the powerful six-cylinder engine is also equipped with a VTG (variable turbine geometry) turbocharger proven for use in off-road applications; this helps maintain maximum power and torque over the a wide engine speed range. The D4276 therefore comes in useful for applications such as abrading asphalt, large excavators, mobile cranes and mining trucks, as well as in recycling machines such as shredders.

Expertise applied to ensure high quality and reliability

The D4276 has inherited tried-and-tested components such as the basic power unit from the modern D3876 engine series. As a result, the customer can have confidence in the components taken from long-running mass production, which, in the case of the D3876, have already been fitted to thousands of proprietary MAN commercial vehicles since 2014. In addition, the MAN Engines engineers have benefited from the experience and expertise from use in a vast variety of agricultural applications, for which the engine has been successfully used since 2016. The D3876 has proved a versatile and robust engine and was awarded “Diesel of the Year” in 2016. The D4276 also features many identical components, as well as proven concepts such as top-down cooling. This involves the coolant being pumped downwards from the top of the engine and distributed longitudinally through the upper cooling jacket of the cylinder head. The coolant flows on a cylinder-specific route along the injector jacket to provide special protection to points subject to high thermal stress in the cylinder head, such as injectors and valve seats. This ensures that a consistently high rate of cooling along the entire cylinder head. Modifications have been made to the crankcase and pistons to further improve the D4276’s cooling system. Since the lightweight design concept was also adopted from the D3876, the D4276 likewise has a dry weight of just 1,280 kg and is one of the lightest and most compact engines in its displacement and performance class. OEM customers will



benefit not only from the latest generation of design advantages incorporated in the D4276, but also from MAN's highly-reputed customer service, which offers high-quality maintenance together with strong availability of spare parts for MAN engines.

Modular exhaust gas aftertreatment

For exhaust gas aftertreatment, the D4276 relies on an exhaust gas recirculation (AGR) system with water cooling. As you would expect, the MAN Engines modular exhaust gas aftertreatment has been configured to suit the requirements of the 16.2-litre unit. The exhaust gas aftertreatment system consists essentially of the two DOC/DPF modules (diesel oxidation catalytic converter/diesel particulate filter), coupled with an SCR (selective catalytic reduction) system. The engine thus meets the most recent emission standards such as EU Stage V and US Tier 4. For countries with less stringent requirements, emissions downgrades to EU Stage IIIA/IIIB are available. These can be satisfied and costs can be saved by leaving out individual components of the exhaust gas aftertreatment system. Engines with no exhaust gas aftertreatment at all satisfy the EU Emissions Directive Stage IIIA, while engines fitted with just the SCR system satisfy EU Stage IIIB. The compact and lightweight exhaust gas aftertreatment system offers the manufacturer flexibility by allowing free choice of where to install components, meaning that solutions can be individually configured for a huge range of applications and target markets.

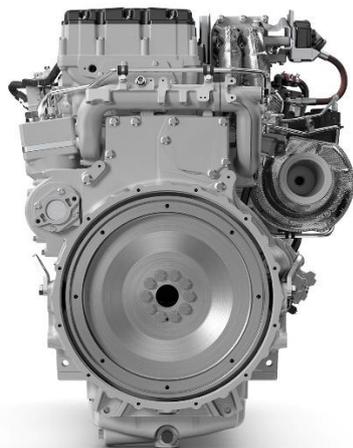
MAN Engines at Bauma

MAN Engines will be attending Bauma in Munich from 8 to 14 April 2019, and will be exhibiting its latest products at Booth 312 in Hall A4. This includes the world première of the D4276 and the newly launched D1556 for construction machinery. In addition, MAN Truck & Bus will be presenting more than 1,000 square metres of products and services for the construction site at Booth 325 in Hall B4.

Photos:



The MAN D4276 offers an impressive power-to-weight ratio and is perfectly designed for the requirements of construction machinery



Thanks to its lightweight design, the D4276 has a dry weight of just 1,280 kg, and is one of the lightest and most compact engines in its displacement and performance class