



MAN Engines expands its portfolio to EU Stage V engines for inland waterway transport

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The complete power spectrum from 290 kW to 882 kW (394 HP to 1200 HP); sophisticated modular exhaust gas aftertreatment system, Selective Catalytic Reduction/Diesel Particulate Filter (SCR/DPF) or Selective Catalytic Reduction (SCR only)

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MAN Engines expands its portfolio to EU Stage V engines for inland waterway transport. In addition to the existing six-cylinder in-line engines there are four further power ratings which extend the power range from the current 290 kW to 882 kW (394 HP to 1200 HP). Thus the additions to the portfolio are two V12 engines, D2862 with 24.2 litres swept volume and a power of 882 kW or 735 kW (1200 HP or 1000 HP). In addition there are two six-cylinder in-line engines with 12.4 litres swept volume and rated power of 412 kW or 368 kW (560 HP or 500 HP). The availability of these four additional power ratings is scheduled for the fourth quarter of 2021. "Additional power ratings and types of engine for EU Stage V are a further building block in the continual expansion of our portfolio of marine engines.", says Claus Benzler, Head of Marine MAN Engines. Currently the engine manufacturer offers the MAN D2676 six-cylinder in-line engine as the LE487 marine propulsion unit at a power of 290 kW (394 HP) and as the LE328 as a marine auxiliary unit running at 1800 rpm and 1500 rpm.

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The solution ensuring compliance with the strict emission standards is the MAN Engines' modular exhaust gas aftertreatment system. The modular EGA allows for a wide range of installation possibilities, since the individual components can be positioned differently, enabling flexible system integration tailored to specific customer needs. This offers advantages not only in confined spaces or situations where access is difficult, but also in meeting the different requirements of the emission limit values: For engines of power ratings > 300 kW used on inland waterway transport, the legislators have set

MAN Truck & Bus is one of Europe's leading commercial vehicle manufacturers and transport solution providers, with an annual revenue of some 11 billion euros (2019). The company's product portfolio includes vans, trucks, buses/coaches and 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 37,000 people worldwide.



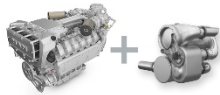
higher emission limits per engine for nitrogen oxides ($\text{NO}_x = 1.8 \text{ g/kWh}$) and particulate mass ($\text{PM} = 0.015 \text{ g/kWh}$). In addition the number of particulates is limited ($\text{PN} = 1.0 \cdot 10^{12} \text{ n/kWh}$). For this reason MAN Engines relies on an exhaust gas aftertreatment system with Selective Catalytic Reduction (SCR) and Diesel Particulate Filter (DPF) for engines rated $> 300 \text{ kW}$. At power ratings $< 300 \text{ kW}$ the statutory specifications for nitrogen oxides ($\text{NO}_x = 2.1 \text{ g/kWh}$) and particulate mass ($\text{PM} = 0.1 \text{ g/kWh}$) are satisfied using an SCR system on its own without employing a Diesel Particulate Filter.

MAN Engines' modular exhaust gas aftertreatment system for working boats was showcased at the International Workboat Show in New Orleans, La., back in late 2017. The system employed by the Man Engines business unit is all based on the expertise of MAN Truck & Bus SE. As one of the leading European commercial vehicle manufacturers, the Group has been successfully using SCR systems in its own trucks in high-volume production since 2006. As well as this, MAN Engines also benefits from the experience in fitting and installation gained from the agricultural and industrial sectors, where the technology has been in serial production since 2015 for in-line and V-engines. The EGA is also showing how practical it can be in field trials for working boats, which are currently running on Lake Constance and also in the Netherlands.



> 300 KW/ENGINE

- NO_x = 1.8 g/kWh
- PM = 0.015 g/kWh
- PN = 1.0 * 10¹² n/kWh



SCR + DPF

SCR only

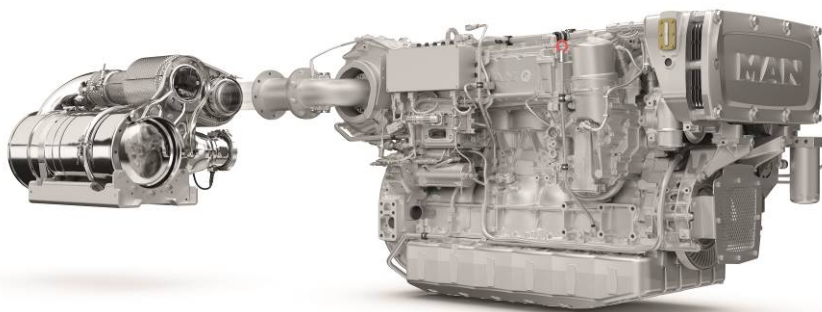
Engines available as at end of 2021:

- | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> ▪ D2862 LE447
735 kW (1,000 hp) ▪ D2862 LE43B
882kW (1,200 hp) | <ul style="list-style-type: none"> ▪ D2676 LE477
368 kW (500 hp) ▪ D2676 LE43B
412 kW (560 hp) |
|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|

Engines currently available:

- **D2676 LE487**
290 kW (394 hp)
- **D2676 LE328** (auxiliary engine)
290 kW @ 1,800 rpm
290 kW @ 1,500 rpm

Overview of the portfolio of marine engines from MAN Engines for EU Stage V



The MAN D2676 with 290 kW and EU Stage V is already available in series production. Ratings of 368 kW and 412 kW will be available at the end of 2021. Also shown: the solution with Selective Catalytic Reduction only (SCRonly) for 290 kW



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**EU
Stage V**

**MAN D2676
MAN D2862**

SCR + DPF

> 300 kW

For power ratings above 300 kW MAN Engines relies on Selective Catalytic Reduction (SCR) and diesel particulate filters (DPF), to achieve the emission values for EU Stage V.