



YANMAR

News Release

24 Models of Yanmar's Industrial Diesel Engines Get Certification for EU Stage V Emission Standards



<EU Stage V-compliant vertical water-cooled diesel engine model 4TNV88C>

Osaka, Japan (November 6, 2018) – Yanmar Co., Ltd. has released a list of diesel engines manufactured by the company that are certified for compliance with the European Stage V (EU Stage V) off-road emission standards set to come into effect from 2019. Yanmar has acquired certification not only for the stricter NOx^{*1} and PM/PN^{*2} standards imposed on the 19kW and over range, but also for the newly imposed emissions standards for the under 19kW range. The list of certified Yanmar diesel engines is shown in the table below.

The EU Stage V standards to be introduced in Europe are one level stricter than existing standards, and will be implemented over 2019 and 2020 towards limiting the impact of emissions and preserving the environment for future generations.

The 24 certified models of diesel engines sold in Europe are installed in a variety of industrial equipment such as construction equipment and agricultural equipment.

■ EU Stage V Certified Engines

(1) Air-cooled diesel engines (3 models)

Output Range	Engine Model
Less than 19 kW	L48V, L70V, L100V

(2) Vertical cylinder-type water-cooled diesel engines (21 models)

Output Range	Engine Model
Less than 19 kW	3TNM68, 3TNM72, 3TNM74F
	2TNV70, 3TNV70, 3TNV74F, 3TNV76
	3TNV80F, 3TNV80FT, 3TNV82A
	3TNV88, 3TNV88F
19 to 56 kW	3TNV88C, 3TNV86CT, 3TNV86CHT
	4TNV88C, 4TNV86CT, 4TNV86CHT
	4TNV98C, 4TNV98CT
56 kW and more	4TNV94FHT

■ European Stage V Off-Road Emission Standards (EU Stage V)

- The new European emissions standards, commonly referred to as "EU Stage V", will apply to engines installed in off-road mobile equipment, as stipulated according to engine output. The standards come into effect over 2019 to 2020. These EU Stage V standards will also be applicable to diesel engines with an output range of less than 19 kW which were previously not targeted by the existing standards.
- For models with an output of 19 kW and more, the permitted values for NO_x and PM emissions are one level stricter than existing standards. In addition, new PN standards have also been set making the new emissions standards generally the strictest in the world.
- Some diesel engine models operating in the European market now require engine management systems to limit operation in the event of a malfunction in emission control systems or if the engine has been illegally modified.

*1 NO_x: Nitrogen oxides such as Nitrogen oxide (NO) and Nitrogen dioxide (NO₂).

*2 PM: Particulate Matter. Airborne particles such as soot.

PN: Particulate Number. A standard that regulates the number of particulates contained within a mass unit of emissions; separate from the existing PM standards that regulate the mass of particulate matter contained within a mass unit of emissions.

<About Yanmar>

With beginnings in Osaka, Japan, in 1912, Yanmar was the first to succeed in making a compact diesel engine of a practical size in 1933. Then, with industrial diesel engines as the cornerstone of its enterprise, Yanmar has continued to expand its product range, services, and expertise to deliver total solutions as an industrial equipment manufacturer. As a provider of small and large engines, agricultural machinery and facilities, construction equipment, energy systems, marine equipment, machine tools, and components, Yanmar's global business operations span seven domains.

On land, at sea, and in the city, Yanmar's mission of "providing sustainable solutions focused on the challenges customers face, in food production and harnessing power, thereby enriching people's lives for all our tomorrows" is a testament to Yanmar's determination to provide us with "A Sustainable Future."

For more details, please visit the official website of Yanmar Co., Ltd.:
<https://www.yanmar.com/global/about/>

<NOTE>

The contents of this news release reflect what was mentioned in the press announcement. Please be aware that the contents of this release may differ with new information and developments.