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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 36658-2018

**Technical specification for marine diesel-natural gas dual fuel
engines**

船用柴油天然气双燃料发动机技术条件

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009. This standard is proposed and managed by the National Marine Machinery Standardization Technical Committee (SAC/TC137). This standard was drafted. China Shipbuilding Industry Corporation Seventy-one Research Institute, China Shipbuilding Industry Comprehensive Technology and Economic Research Institute, China National Petroleum Group Jichai Power Co., Ltd., Weichai Heavy Machinery Co., Ltd., Harbin Engineering University. The main drafters of this standard. Li Xiang, Sun Meng, Zhang Dongke, Liu Yuran, Tao Wenhui, Ma Long, Fan Jianxin, Liang Gang, Sun Chenglei, Song Jie, Song Enzhe. Marine diesel natural gas dual fuel engine technical conditions

1 Scope

China's national specification for marine dual fuel engines running on diesel and natural gas. It specifies the technical requirements, the test methods, the inspection rules and the marking, packaging and storage. A dual fuel engine burns gas as its main fuel, ignited by a small pilot injection of diesel, and can revert to diesel alone when gas is not available. That flexibility is the whole point at sea: a ship trades worldwide, and LNG bunkering is available in some ports and not others, so an engine that can only burn gas constrains where the ship can trade. The reason to burn gas at all is the emissions regulation. Marine fuel oil is high in sulfur and its combustion produces the nitrogen oxides and particulates that the international limits have progressively tightened; natural gas produces almost no sulfur or particulate and much less nitrogen oxide. The specification's difficulty is that the engine must satisfy its requirements in both modes, and they are different machines thermodynamically.

This standard specifies the technical requirements, test methods, inspection rules and requirements for marine diesel natural gas dual fuel engines (hereinafter referred to as engines). Marking, packaging, transportation, storage, etc. This standard applies to the design, manufacture and acceptance of four-stroke engines operating in both pure diesel and dual fuel modes.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article. Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 191 packaging storage and transportation icon

GB/T 725 internal combustion engine product name and model preparation rules

GB/T 3475-2008 Technical requirements and test methods for marine diesel engine speed control systems

GB/T 5741 marine diesel engine exhaust smoke measurement method

GB/T 6072.1-2008 Performance of reciprocating internal combustion engines - Part 1 . Calibration and testing of power, fuel consumption and oil consumption Method of general engine additional requirements

GB/T 6388 transport packaging receipt and delivery mark

GB/T 8190.1 Determination of emissions from reciprocating internal combustion engines - Part 1

GB/T 8190.4 Determination of emissions from reciprocating internal combustion engines - Part 4

GB 8840-2009 Marine diesel engine exhaust smoke limit

GB/T 9911 Method for measuring airborne noise emitted by marine diesel engines

GB/T 9969 General guidelines for the use of industrial products

GB 11871-2009 Airborne noise limits for marine diesel engines GB/T 13306 signage

GB 15097 Marine engine exhaust pollutant emission limits and measurement methods (China's first and second stages)