

ICS 13.040.50

CCS Z 64



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

GB 15097-2016

**Limits and measurement methods for exhaust pollutants from
marine engines (China I, II)**

船舶发动机排气污染物排放限值及测量方法（中国第一、二阶段）

Issued on: December 23, 2016

Implemented on: July 1, 2018

Issued by: Ministry of Environmental Protection

Table of Contents

1	Scope
2	Normative references
3	Terms and definitions
4	Type test and test information disclosure
4.2	Information disclosure requirements
4.3	Prototype and fuel for type test
5	Technical requirements and tests
5.2	Provisions for exhaust pollutants
5.2.3	Durability requirements
5.2.5	Requirements for rebuilding and replacement of marine engines
5.2.5.1	Requirements for rebuilding of marine engine
6	Provisions on the control of sulfur oxide emissions from ships
7	Production consistency inspection
7.1	General requirements
7.2	Provisions for production consistency inspection
8	Marine engine's label
9	Determine the parameters of marine engine family
9.1	Working cycle
9.2	Cooling medium
9.4	Single cylinder displacement
9.5	Intake method
9.6	Combustion chamber type
9.7	Fuel injection system
9.9	Ignition system (gas engine)
9.10	Other features
10	Selection of parent engine...

1 Scope

GB 15097 is the emission standard for marine engines at the China I and II stages, and it is the document that brought inland and coastal shipping into China's emission control regime. It covers the type test and the information the manufacturer must disclose, the technical requirements and tests, the control of sulphur oxides from ships, production

conformity, the engine label, the definition of an engine family and the choice of its parent engine, and the implementation timetable, with ten annexes carrying the test procedures and the rules for inspection, conformity and rebuilding. At 35,000 words it is a certification manual rather than a specification. Issued on 23 December 2016, in force since 1 July 2018; first edition. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the edition it replaces are taken from there. The clause text, the tables and the numeric limits are not reproduced on this page - they are in the document itself, which is delivered in full in English translation.

This standard specifies the emission limits and measurement methods for the exhaust pollutants of compression ignition engines and ignition gas fuel (including diesel and natural gas dual fuel) engines (hereinafter referred to as marine engines) used for ships. This standard is applicable to the type test, production consistency inspection, durability requirements of category 1 and category 2 marine engines (including main engines and auxiliary engines) which have a rated net power greater than 37 kW for inland vessels, coastal vessels, river-sea ships, channel ships and fishing ships. This standard also stipulates the emission requirements for ships and marine engines after rebuilding. This standard does not apply to emergency marine engines used for ships, marine engines installed on lifeboats, marine engines on any equipment or devices used only in emergency situations. Category 3 marine engines implement the requirements of GD 01. Marine engines which have a rated net power not exceeding 37 kW implement the GB 20891 standard.

2 Normative references

The contents of this standard refer to the following documents or their clauses. For the cited documents without dates, the valid version applies to this standard.

GB 252 General diesel fuels

GB 20891 Limits and measurement methods for exhaust pollutants from diesel engines of non-road mobile machinery

GB/T 6072.3-2008 Reciprocating internal combustion engines - Performance - Part

3 Terms and definitions

The following terms and definitions apply to this standard.

3.1 Inland vessel Vessels sailing on rivers and lakes.

3.2 Coaster vessel Vessels sailing between coastal ports.

3.3 River-sea ship Ship sailing in coastal waters and river channels.

3.4 Channel ship A ship sailing in the waters across the channels or between islands.

3.5 Fishing ship Refers to ships engaged in fishing production and ships belonging to the aquaculture system serving fishing production, including. fishing ships, breeding vessels, aquatic transportation and sales vessels, refrigerated processing vessels, fishing oil vessels, fishing supply vessels, fishing guidance vessels, fisheries scientific research survey vessels, fisheries teaching practice ship, fishing port engineering ship, fishing tug, fishing transportation ship, fishing barge, fishing administration ship, fishing supervision ship, etc.

3.6 Category 1 marine engine Marine engines which have a rated net power greater than or equal to 37 kW and a single cylinder displacement of less than 5 L.

4 Type test and test information disclosure

4.1 Type of marine engine within the scope of application of this standard shall be subject to type test in accordance with the requirements of this standard.

4.3 Prototype and fuel for type test

4.3.1 A marine engine that conforms to the characteristics of the "marine engine type" (or "parent engine") described in Appendix A shall be submitted to the testing agency responsible for type test, to complete the test content specified in this standard.

4.3.2 The fuel requirements for type test are as follows:

4.4 Exemption for type test For marine engines with special purposes such as export, exhibition, rescue, emergency, matching test, etc., it may submit an application to the competent department to be exempted from type test. The information submitted to the competent authority shall include model, power, manufacturer, use, emission standard stage reached, quantity and production date.

5 Technical requirements and tests

5.1 General The manufacturer shall take technical measures to ensure that the marine engine's emission control system operates normally under the normal working conditions and within the specified service life; the pollutant emission meets the requirements of this standard.

5.2 Provisions for exhaust pollutants

5.2.1 Test procedures and sampling system The measurement and sampling procedures of marine engine's exhaust pollutants are carried out in accordance with the provisions of Annex BA in Appendix B.

5.2.2 Limits The specific emissions of carbon monoxide (CO), hydrocarbons (HC), nitrogen

oxides (NOX) and particulate matter (PM) in the exhaust pollutants of marine engines are multiplied by the degradation coefficient (marine engine equipped with exhaust after-treatment system) as determined in accordance with Annex BD of this standard, or plus the degradation correction value determined in accordance with Annex BD of this standard (marine engines without exhaust after-treatment system).

5.2.3 Durability requirements

5.2.4 In-use compliance requirements Manufacturers shall take measures to ensure that the marine engines installed on ships under normal conditions of use have their emission control devices operating normally during their normal lifespan and meet the emission standards during their effective lifespan. The in-use compliance verification of the marine engine is carried out in accordance with the on-board verification procedures specified in GD 01.

5.2.5.1 Requirements for rebuilding of marine engine

5.3 Requirements for installation of marine engines on ships The marine engine installed on the ship shall meet the following requirements for characteristics during the type test of the marine engine.

6 Provisions on the control of sulfur oxide emissions from ships

6.1 Inland vessels, river-sea ships and fishing ships operating in inland rivers shall use diesel fuel that complies with GB 252.

6.2 For coastal vessels, channel ships and fishing ships operating in offshore areas, if marine fuel oil is required for the design of marine engine, it shall use the low-sulfur marine fuel oil complying with national standards and regulations; for ships with pollution control devices, if its sulfur dioxide (SO₂) emissions do not exceed the use of low-sulfur marine fuels, it may use other fuels and the ship shall be clearly marked.

6.3 For the ships covered by this standard, if the design of the installed marine engine requires the use of other fuels (such as NG fuel and mixed fuel, etc.), it shall use the commercial fuels that meet the standard.

7 Production consistency inspection

Manufacturers shall take measures in accordance with the requirements of Appendix G, to ensure production consistency. The measured values of engine's gaseous pollutants and particulate matter in the production consistency inspection shall be corrected according to the actual deterioration coefficient (or deterioration correction value).