

ICS 27.020
CCS J 91



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

GB/T 1147-1987

Replacing GB/T 1147.1-2017

**Small and medium power internal combustion engines - Part 1:
General technical specifications
(English Translation)**

Issued on: October 31, 2025

Implemented on: May 1, 2026

Issued by: State Administration for Market Regulation

Table of Contents

Preface
Introduction
1 Scope
2 Normative References
3 Terms and Definitions
4 Technical Requirements
5 Test Methods
6 Inspection Rule
7 Marking, Packaging, Transport and Storage
Appendix A (Normative) Names of Major Components of Diesel Engines
Appendix B (Normative) Names of Major Components of Gasoline Engines

Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents".

Drafting.

This document is Part 1 of GB/T 1147 "Internal Combustion Engines of Medium and Small Power". GB/T 1147 has already published the following parts.

---Part 1: General Technical Specifications;

---Part 2: Experimental Methods.

This document replaces GB/T 1147.1-2017 "Small and Medium Power Internal Combustion Engines - Part 1: General Technical Conditions", and is consistent with GB/T 1147.1-Compared to 2017, aside from structural adjustments and editorial changes, the main technical changes are as follows.

- a) Added terms and definitions (see Chapter 3);
- b) The calibration requirements for fuel and oil consumption rates have been changed (see 4.4, 3.4 in the 2017 edition);
- c) The uniformity of operation for each cylinder has been changed (see 4.6, 3.8 in the 2017 version);
- d) The torque reserve requirement has been changed (see 4.7, 3.9 in the 2017 version);

- e) The speed regulation characteristic requirements have been changed (see 4.8, 3.10 in the 2017 version);
- f) The mechanical vibration requirements have been changed (see 4.16, 3.21 in the 2017 edition);
- g) The smoke opacity requirements have been changed (see 4.20, 3.25 in the 2017 version);
- h) Emissions requirements have been changed (see 4.21, 3.26 in the 2017 edition);
- i) Increased electromagnetic compatibility requirements (see 4.22);
- j) The thermal shock requirements have been changed (see 4.23, 3.27 in the 2017 edition);
- k) Reliability requirements have been changed (see 4.24, 3.28 in the 2017 version);
- l) The durability requirements have been changed (see 4.25, 3.29 in the 2017 version);
- m) Delivery requirements have been removed (see 3.31 in the 2017 edition);
- n) Increased requirements for the electronic control system (see 4.27);
- o) Added requirements for OBD, NCD, and PCD systems (see 4.28);
- p) The marking requirements have been changed (see 7.1, 6.1 in the 2017 edition).

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed by the China Machinery Industry Federation.

This document is under the jurisdiction of the National Technical Committee on Standardization of Internal Combustion Engines (SAC/TC177).

Introduction

Small and medium power internal combustion engines (rated power not exceeding 560kW) are widely used in road vehicles, ships, agricultural tractors, forestry machinery, and industrial machinery.

It provides power for various supporting machinery, such as engineering machinery, generator sets, and irrigation and drainage machinery.

GB/T 1147 "Small and Medium Power Internal Combustion Engines" is a general technical standard for small and medium power internal combustion engines, aiming to provide a framework for their development.

GB/T 1147 provides a basis for development, production, inspection, trade (delivery) and technical exchange. It consists of two parts.

---Part 1: General Technical Specifications. The purpose is to establish general requirements for small-power internal combustion engines for different applications.

---Part 2: Test Methods. The aim is to establish test methods for small and medium power internal combustion engines, including general performance test methods and specific test methods.

Special performance testing methods.

Part 1: Small and Medium Power Internal Combustion Engines General Technical Specifications

1 Scope

This document specifies the technical requirements, inspection rules, marking, packaging, and transportation of small and medium power internal combustion engines (rated power not exceeding 560kW).

The corresponding experimental methods are described, including storage and other aspects.

This document applies to small and medium power vehicles, ships, agricultural tractors and forestry machinery, construction machinery, generator sets, and irrigation and drainage machinery.

For internal combustion engines, other small and medium-power internal combustion engines for which there are currently no applicable documents shall refer to this guideline.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included.

For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies.

This document.

GB/T 191 Pictorial Symbols for Packaging and Storage GB/T 725 Rules for Compiling Product Names and Model Numbers for Internal Combustion Engines GB/T 726 Direction of rotation, cylinder and cylinder head valve markings for reciprocating internal combustion engines; right and left engine markings for inline internal combustion engines.

Definition of engine orientation GB/T 1147.2-2025 Small and Medium Power Internal Combustion Engines - Part 2: Test Methods GB/T 1883 (all parts) Terminology for Reciprocating Internal Combustion Engines GB/T 2820.2-2009 Reciprocating internal combustion engine driven alternator sets - Part 2: Engines GB/T 3475 Technical

requirements and test methods for speed control systems of marine diesel engines GB/T 3821 Cleanliness limits and test methods for small and medium power internal combustion engines GB/T 6072.1 Performance of reciprocating internal combustion engines - Part 1: Calibration and test methods for power, fuel consumption and oil consumption Additional requirements for general-purpose engines GB/T 6072.4 Performance of reciprocating internal combustion engines - Part 4: Speed regulation GB/T 6388 Transport Packaging Receipt and Delivery Marks GB/T 6809 (All Parts) Terminology for Components and Systems of Reciprocating Internal Combustion Engines GB/T 7184-2023 Vibration Assessment Method for Reciprocating Internal Combustion Engines GB 8840 Exhaust smoke limits for marine diesel engines GB/T 9486 Steady-state exhaust smoke opacity and its determination method for diesel engines GB/T 10398 Vibration rating and test methods for small gasoline engines GB/T 10826 (All Parts) Vocabulary of Fuel Injection Devices GB 11871 Limits for air noise radiated by marine diesel engines GB/T 14097-2023 Noise Limits for Reciprocating Internal Combustion Engines GB 14023-2022 Limits and methods of measurement for radio interference characteristics of vehicles, ships and internal combustion engines for protection of external receivers.

GB 14762-2008 Emission limits and measurement methods for exhaust pollutants from gasoline engines and automobiles for heavy-duty vehicles (China Stage III and IV) GB 15097-2016 Emission Limits and Measurement Methods for Exhaust Pollutants from Marine Engines (China Phase I and II) GB/T 15370 (all parts) General technical conditions for agricultural tractors