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

GB/T 23337-2023

Replacing GB/T 23337-2009

**Internal combustion engines-Intake and exhaust
valves-Specification**

内燃机 进、排气门 技术条件

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Foreword

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

This document replaces GB/T 23337-2009 "Technical Conditions for Intake and Exhaust Valves of Internal Combustion Engines". Compared with GB/T 23337-2009, except In addition to structural adjustments and editorial changes, the main technical changes are as follows.

- a) Changed the hardness of the valve base after quenching and tempering treatment (see 4.4.1, 2009 version of 4.4.1);
- b) Changed the surface hardness of the chrome-plated valve stem (see 4.6.1, 2009 version of 4.6.1);
- c) Changed the requirements for nitriding and nitriding layers of high-temperature alloy valves (see 4.6.2, 2009 version of 4.6.2);
- d) Changed the austenite grain size requirements for the metallographic structure of austenitic steel valves (see 4.7.3, 2009 version of 4.7.3);
- e) The requirements for the microstructure of high-temperature alloys have been changed (see 4.7.4, 2009 version of 4.7.4);
- f) The surface roughness requirements of the conical locking clip groove have been changed (see 4.8.4, 4.8.4 of the 2009 edition);
- g) Increased the oblique circular runout tolerance of the stem axis of the nitrided unground valve disc cone surface (see 4.9.2);

- h) The disc cone surface roundness tolerance has been changed (see 4.9.3, 4.9.3 of the 2009 version);
- i) Added sodium filling requirements and inspection methods for hollow sodium-filled valves (see 4.13 and 5.11);
- j) Added requirements and inspection methods for plate forged metal flow lines (see 4.14 and 5.12);
- k) Added the coaxiality inspection method between the inner cavity of the hollow sodium-filled valve and the cylindrical surface of the stem (see 5.7.9);
- l) Added the coaxiality inspection method of the valve bottom cavity to the cylindrical surface of the stem (see 5.7.10);
- m) Increased the chemical composition and mechanical properties of high-temperature alloy Ni30 and cladding alloy P25 (see Table 1 and Table 2).

Please note that some content in this document may be subject to patents. The publisher of this document assumes no responsibility for identifying patents.

This document is proposed by China Machinery Industry Federation.

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

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This document was first published in 2009 and this is the first revision.

Internal combustion engine intake and exhaust valve technical conditions

1 Scope

This document specifies the technical requirements, inspection methods, inspection rules

and marking, packaging, transportation and storage of internal combustion engine intake and exhaust valves.

This document applies to the intake and exhaust valves of reciprocating piston internal combustion engines with a cylinder diameter of less than 200 mm.

2 Normative reference documents

GB/T 228.1

GB/T 230.1

GB/T 1804-2000

GB/T 1958

GB/T 2828.1

GB/T 3077

GB/T 4340.1

GB/T 4955

GB/T 4956

GB/T 6394

GB/T 6462

GB/T 6809.2

GB/T 9790

GB/T 11354-2005

GB/T 12773

3 Terms and definitions

The terms and definitions defined in GB/T 6809.2 and QC/T 469-2016 apply to this document.

4.1 General

Valve products should be manufactured according to drawings and technical documents approved through prescribed procedures, and should comply with the requirements of this document; the names of each part of the valve should be