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

GB/T 28949-2025

Replacing GB/T 28949-2012

**Inlet air cleaning equipment for internal combustion engines
and compressors - Performance testing**

内燃机和空气压缩机用进气空气滤清器 性能试验

(English Translation)

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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 replaces GB/T 28949-2012 "Performance Test of Intake Air Filters for Internal Combustion Engines and Air Compressors", and is consistent with...

Compared with GB/T 28949-2012, apart from structural adjustments and editorial changes, the main technical changes are as follows.

---A verification procedure for the efficiency measurement has been added (see 5.4.1 and Appendix H);

- The ISO dust sprayer table has been revised (see Table 1, Table 2 in the 2012 edition);
- The pre-filtration efficiency has been modified (see 7.8.2, 2012 version 7.8.2), and a formula for calculating the pre-filtration efficiency has been added [see formula (13)];
- The requirement for the secondary filter element collapse test has been removed (see 7.9.2.2.7 in the 2012 version);
- The clogging test for the secondary filter element has been removed (see 7.9.4 in the 2012 version);
- The formula for calculating Δp_{pc} has been modified [see Formula (A.2), Appendix A of the 2012 edition];
- The formula for calculating Δp_{pl} has been modified [see Formula (A.3) and Table A.1, Table A.1 in the 2012 edition];
- A new injector diagram has been added (see Figure B.18);
- Increased penetration sensitivity (see Appendix H).

This document adopts ISO 5011:2020 "Intake air filters for internal combustion engines and air compressors - Performance tests".

The following minimal editorial changes have been made to this document.

- Note added in 3.1.3;
- In ISO 5011:2020, the suspended section under 5.4 will be renamed 5.4.1, and the original 5.4.1 will be changed to 5.4.2 accordingly;
- Corrected the typographical error in Table A.1, changing "deltap" to "deltapl".

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 Ministry of Industry and Information Technology of the People's Republic of China.

This document is under the jurisdiction of the National Automotive Standardization Technical Committee (SAC/TC114).

1 Scope

This document specifies the test procedures, test conditions, and test parameters for laboratory performance testing of intake air filters for internal combustion engines and air compressors.

The equipment and test results are compiled to make the laboratory performance test results of similar air filters comparable.

This document applies to intake air filters used in internal combustion engines and air compressors for automotive and industrial applications.

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.

ISO 5167-1 Measurement of full-pipe flow rate using a differential pressure device installed in a pipe with a circular cross-section - Part 1: General principles and requirements Note. GB/T 2624.1-2006 Measurement of full-pipe fluid flow rate using a differential pressure device installed in a circular cross-section pipe - Part 1: General principles and requirements (ISO 5167-1:2003, IDT) ISO 12103-1 Test dust for evaluating filters in road vehicles - Part 1: Arizona test dust Note. GB/T 28957.1-2023 Test dust for evaluating filters in road vehicles - Part 1: Test dust for silica (ISO 12103-1.

2016, MOD)

3.1 Terms and Definitions

The following terms and definitions apply to this document.

3.1.1

air filter; air cleaner A device for removing particulate impurities suspended in fresh air drawn in by an internal combustion engine or air compressor.

3.1.2

filter element

The replaceable parts in the air filter (3.1.1) consist of filter material and support components.

3.1.3

Secondary element

The air filter element (3.1.1), installed downstream of the main filter element, provides dust protection for the engine in the following situations.

- a) When the main filter element fails for any reason;
- b) When the main filter element is removed for maintenance and there is dust on site.