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

*Séparateurs aérauliques placés à l'entrée des moteurs à combustion
interne et des compresseurs — Détermination des performances*

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 34, *Propulsion, powertrain and powertrain fluids*.

This fourth edition cancels and replaces the third edition (ISO 5011:2014), which has been technically revised. It also incorporates the Amendment ISO 5011:2014/Amd.1:2018. The main changes compared to the previous edition are as follows:

- added a validation procedure for verifying efficiency measurements;
- revised recommended ISO dust injector table;
- added formula for precleaner efficiency method;
- removed requirement for secondary element collapse test;
- added [Annex H](#) (Penetration sensitivity);
- added a new dust injector.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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

1 Scope

This document establishes and specifies uniform test procedures, conditions, equipment and a performance report to permit the direct laboratory performance comparison of air cleaners.

The basic performance characteristics of greatest interest are air flow restriction or differential pressure, dust collection efficiency, dust capacity and oil carry-over on oil bath air cleaners. This test code therefore deals with the measurement of these parameters.

This document is applicable to air cleaners used on internal combustion engines and compressors generally used in automotive and industrial applications.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 5167-1, *Measurement of fluid flow by means of pressure differential devices inserted in circular cross-section conduits running full — Part 1: General principles and requirements*

ISO 12103-1, *Road vehicles — Test contaminants for filter evaluation — Part 1: Arizona test dust*

3 Terms, definitions and symbols

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

3.1 Terms and definitions

3.1.1

air filter

air cleaner

device which removes particles suspended in the intake air as it is drawn into the engine

3.1.2

filter element

replaceable part of the *air filter* (3.1.1), consisting of the filter material and carrying frame

3.1.3

secondary element

air cleaner (3.1.1) element fitted downstream of the primary element for the purpose of providing the engine with protection against dust in the event of

- a) certain types of primary element failure, or
- b) dust being present during the removal of the primary element for servicing