

INTERNATIONAL STANDARD

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Methods of test for full-flow lubricating oil filters for internal combustion engines —

Part 8 : Inlet anti-drain valve test

*Méthodes d'essai des filtres à huile de lubrification à passage intégral
pour moteurs à combustion interne —*

Partie 8 : Essai du clapet amont de non-retour



Reference number
ISO 4548-8:1989(E)

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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 4548-8 was prepared by Technical Committee ISO/TC 70, *Internal combustion engines*.

ISO 4548 consists of the following parts, under the general title *Methods of test for full-flow lubricating oil filters for internal combustion engines*:

- Part 1: Pressure drop/flow characteristics
- Part 2: Element by-pass component characteristics
- Part 3: Resistance to high pressure drop and to elevated temperature
- Part 4: Initial particle retention efficiency, life and cumulative efficiency (gravimetric method)
- Part 5: Cold start simulation and hydraulic pulse durability test
- Part 6: Static burst pressure test
- Part 7: Vibration fatigue test
- Part 8: Inlet anti-drain valve test
- Part 9: Outlet anti-drain valve tests

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- *Part 10: Presence of water in oil*
- *Part 11: Filters with self cleaning*
- *Part 12: Particle retention ability and contaminant holding capacity using particle counting*

Annex A of this part of ISO 4548 is for information only.

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Introduction

ISO 4548 establishes standard test procedures for measuring the performance of full-flow lubricating oil filters for internal combustion engines. It has been prepared in separate parts, each part relating to a particular performance characteristic.

Together the tests provide the minimum information necessary to assess the characteristics of a filter, but if agreed between the purchaser and the manufacturer, the tests may be conducted separately.

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Methods of test for full-flow lubricating oil filters for internal combustion engines —

Part 8 : Inlet anti-drain valve test

1 Scope

This part of ISO 4548 specifies a method of measuring the effectiveness of an inlet anti-drain valve if fitted to full-flow lubricating oil filters for internal combustion engines.

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this part of ISO 4548. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this part of ISO 4548 are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 4548-1:1982, *Methods of test for full-flow lubricating oil filters for internal combustion engines — Part 1: Pressure drop/flow characteristics*.

3 Definitions and graphical symbols

3.1 Definitions

For the purposes of this part of ISO 4548, the definitions given in ISO 4548-1 apply.

3.2 Graphical symbols

The graphical symbols used in this part of ISO 4548 are in accordance with ISO 1219.

4 Principle

Assessment of the capability of the inlet anti-drain valve to prevent oil contained in the filter from draining out of the inlet when the engine is stopped, and the filter is installed in an inverted position.

5 Test rig

The test rig shall include the following components, together with the necessary tubing, connectors and supports (see figure 1 which shows a suggested test rig diagrammatically: where items are identified by reference numbers, the following are used):

- a) stop clock (1);
- b) measuring cylinders (2);
- c) test mounting block capable of turning through 180° around a horizontal axis (3);
- d) header tank (4) (use a separating funnel).

6 Test liquid

The test liquid shall be mineral oil with a kinematic viscosity of $8 \text{ mm}^2/\text{s} \pm 2 \text{ mm}^2/\text{s}$ ¹⁾ at 20 °C;

7 Test procedure

7.1 Carry out the test at an ambient temperature of $25 \text{ °C} \pm 5 \text{ °C}$.

7.2 Fit the test mounting block (3) into the test rig in an inverted position compared with that shown in figure 1.

7.3 Assemble the filter to be tested onto the mounting block using a suitable gasket to seal the thread.

7.4 Open the inlet cock to the filter and the cock in the base of the separating funnel used as header tank (4).

7.5 Pump test liquid into the system until all air is expelled and a $600 \text{ mm} \pm 10 \text{ mm}$ head is obtained above the base of the filter, then close the inlet cock and the cock in the base of the header tank.

NOTE 1 The filter is filled in the position described in order to achieve a more complete expulsion of air.

7.6 Disconnect the inlet pipe at the base of the filter and turn the filter through 180° to the position shown in figure 1.

7.7 Open the cock at the base of the header tank and remove the bleed screw from the test mounting block. Leave for 5 min to drain surplus test liquid from the test mounting block.

7.8 Replace the bleed screw and place a suitable measuring cylinder (2) beneath the outlet pipe, and start the stop clock (1).

7.9 Leave for a test time of 3 h and measure the amount of test liquid that leaked from the filter in this time.

7.10 Maintain the level of test liquid contained in the header tank at $600 \text{ mm} \pm 10 \text{ mm}$.

8 Report of test results

The test report shall include the following:

- a) a reference to this part of ISO 4548;
- b) test establishment;
- c) filter type (manufacturer, model number and batch number);
- d) date of test;
- e) amount of test liquid leaked from the filter;
- f) test temperature.

1) $1 \text{ mm}^2/\text{s} = 1 \text{ cSt}$