
International Standard



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**Methods of test for full-flow lubricating oil filters for
internal combustion engines —
Part 6: Static burst pressure test**

Méthodes d'essai des filtres à huile de lubrification à passage intégral pour moteurs à combustion interne — Partie 6: Essai d'éclatement à la pression statique

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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.

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 4548/6 was prepared jointly by Technical Committees ISO/TC 70, *Internal combustion engines*, and ISO/TC 22, *Road vehicles*.

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

Methods of test for full-flow lubricating oil filters for internal combustion engines — Part 6: Static burst pressure test

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0 Introduction

This International Standard 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.

1 Scope and field of application

This part of ISO 4548 specifies a method of testing full-flow lubricating oil filters for internal combustion engines to determine their ability to withstand a static pressure objective and to determine their burst pressure and the failure mode concerned.

It does not apply to filters for use in aeronautical applications.

2 Reference

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

3 Definitions

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

4 Test rig

Hydraulic hand pump with high-pressure tubing and valves, pressure gauge with measuring range of 0 to 30 bar¹⁾, or higher if the specified pressure objective (see 6.6) requires it, adaptor to attach the complete filter. A transparent safety shield shall be used.

5 Test liquid

SAE 5 W oil at ambient temperature shall be used.

6 Preparation and test procedure

6.1 Assemble the complete filter using the recommended tightening torque. If a tolerance is given, apply the minimum tightening torque. The filter to adaptor connection shall be equivalent to the production mounting conditions.

6.2 Connect the pump to the inlet of the filter or adaptor, and the outlet of the filter or adaptor to an open valve. The outlet of the valve should be the highest point of the system.

6.3 Introduce oil into the system by operating the pump until oil is seen to emerge from the outlet of the valve. This indicates that all the air has been excluded from the system.

6.4 Close the valve and position the safety shield between observer and filter.

1) 1 bar = 100 kPa

6.5 Raise the pressure gradually to 2 bar, maintain for about 1 min, and check the filter and all fittings for leaks.

6.6 Now raise the pressure gradually in increments of about 2 bar, maintain for about 1 min at each increment, and check the filter for leaks or distortion. Continue until a specified pressure objective is reached (or otherwise a failure occurs).

6.7 Relieve the pressure to zero. Check the filter for permanent distortion and tightening torque. Note the remaining tightening torque and if loosening has occurred, restore the initial value.

6.8 Gradually apply pressure again until the previous pressure is reached, then proceed gradually in increments of about 0,5 bar and maintain for about 10 s at each increment. Continue until ultimate failure occurs, i.e. bursting or leaking.

6.9 Examine the filter for details of the failure mode.

7 Report of test results

The test report shall indicate at least the following:

- a) a reference to this part of ISO 4548;
- b) test establishment;
- c) filter type (manufacturer model No. and batch No.);
- d) date of test;
- e) a description of the filter, whether it is new or used (in the latter case, approximate period of service);
- f) the torque applied initially (see 6.1);
- g) the specified pressure objective and whether reached (see 6.6);
- h) the remaining tightening torque (see 6.7);
- j) visible permanent distortion (see 6.7);
- k) the burst pressure (see 6.8);
- m) the mode of failure and its location.

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