BS ISO 4548-6:2012

BSI Standards Publication

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

Part 6: Static burst pressure test

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National foreword

This British Standard is the UK implementation of ISO 4548-6:2012. It supersedes BS 7403-6:1991 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee MCE/21/5, Filters for lubricating oil.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Compliance with a British Standard cannot confer immunity from legal obligations.

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BS ISO 4548-6:2012

INTERNATIONAL STANDARD

ISO 4548-6

Second edition
2012-09-15

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 de pression d'éclatement statique

Reference number
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Contents

Page

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 4548-6 was prepared by Technical Committee ISO/TC 70, *Internal combustion engines*, Subcommittee SC 7, *Tests for lubricating oil filters*.

This second edition cancels and replaces the first edition (ISO 4548-6:1985, including ISO 4548-6:1985/Cor 1:1990), which has been technically revised.

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: Differential pressure/flow characteristics*

— *Part 2: Element by-pass valve characteristics*

— *Part 3: Resistance to high differential pressure and to elevated temperature*

— *Part 4: Initial particle retention efficiency, life and cumulative efficiency (gravimetric method)*

— *Part 5: Method of test for cold start simulation and hydraulic pulse durability*

— *Part 6: Static burst pressure test*

— *Part 7: Vibration fatigue test*

— *Part 9: Inlet and outlet anti-drain valve tests*

— *Part 11: Self-cleaning filters*

— *Part 12: Filtration efficiency using particle counting, and contaminant retention capacity*

— *Part 13: Static burst pressure test for composite pressure vessel materials*

— *Part 15: Vibration fatigue test with composite materials*

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.

INTERNATIONAL STANDARD ISO 4548-6:2012(E)

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

Part 6: Static burst pressure test

1 Scope

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 or plastic components.

2 Normative references

The following referenced documents are indispensable for the application 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 4548-1, *Methods of test for full-flow lubricating oil filters for internal combustion engines — Part 1: Differential pressure/flow characteristics*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 4548-1 apply.

4 Test rig

Hydraulic hand pump or other appropriate technology, with high-pressure tubing and valves, pressure gauge with measuring range of 0 kPa to 3000 kPa or higher (see 6.6). A transparent safety shield shall be used.

5 Test liquid

ISO Grade 22 oil with a 96 VI (or 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.

6.5 Raise the pressure gradually to 200 kPa, maintain for about 1 min, and check the filter and all fittings for leaks.

NOTE If appropriate burst pressure is known, the first pressure increment can be 50 % of the known value. This shortens the test time for high pressure filters without a loss in data quality.

6.6 Now raise the pressure at a controlled pressure ramp up to approximately 345 kPa to 690 kPa per minute and maintain for approximately 15 s and check filter for leaks or distortion. Continue until a specified (see 7g)pressure objective is reached as determine by the customer, or otherwise failure occurs.

6.7 Relieve the pressure to zero. Check the filter for permanent distortion and tightening torque.

Take note of 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 approximately 345 kPa to 690 kPa and maintain for approximately 15 s until ultimate failure occurs.

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, i.e. ISO 4548-6;

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 as determined by the customer and whether reached (see 6.6);

h) the remaining tightening torque (see 6.7);

i) visible permanent distortion (see 6.7);

j) the burst pressure (see 6.8);

k) the mode of failure and its location.

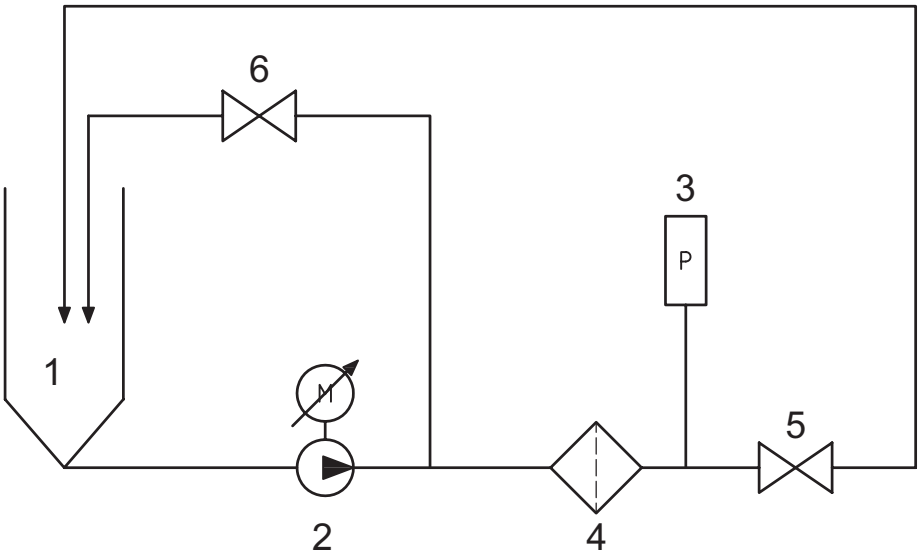

Figure 1 — Static burst pressure test stand

Key

1 Oil sump
2 Pump
3 Pressure sensor
4 Filter under test
5 Valve
6 Pressure regulating valve

ICS 27.020
Price based on 3 pages

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