



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

**GB/T 8243.12-2021**

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**Methods of test for full flow lubricating oil filters for internal  
combustion engines - Part 12: Filtration efficiency using  
particle counting and contaminant retention capacity**

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## Foreword

GB/T 8243 "Test Methods for Full-Flow Oil Filters for Internal Combustion Engines" includes the following parts.

- Part 1.Differential pressure-flow characteristics;
- Part 2.Filter element bypass valve characteristics;
- Part 3.High pressure resistance and high temperature resistance characteristics;
- Part 4.Original filtration efficiency, life and cumulative efficiency (gravity method);
- Part 5.Cold start simulation and hydraulic impulse durability test;
- Part 6.Static pressure bursting resistance test;
- Part 7.Vibration fatigue test;
- Part 9.Inlet and outlet check valve test;
- Part 12.Filtration efficiency and ash capacity of particle counting method;
- Part 13.Static pressure bursting resistance test of composite filter;
- Part 14.Cold start simulation and hydraulic pulse durability test of composite filter;
- Part 15.Vibration fatigue test of composite filter.

This part is Part 12 of GB/T 8243.

This section was drafted in accordance with the rules given in GB/T 1.1-2009.

This part replaces GB/T 8243.12-2007 "Test methods for full-flow oil filters for internal combustion engines Part 12.Using particle counting

Method to determine the filtration efficiency and ash capacity. Compared with GB/T 8243.12-2007, the main technical content changes are as follows.

- Modified the scope of application (see Chapter 1, Chapter 1 of the.2007 edition);

---Modified the normative reference documents (see Chapter 2, Chapter 2 of the.2007 edition);

---Modified the impurity preparation (see 5.2.1.2, 6.1.2 of the.2007 edition);

---Modified and increased the measurement accuracy of the test conditions (see Table 1, Table 1 of the.2007 edition);

---Modified the index value of the number of qualified particles in the verification of the filter test loop (see 7.1.6, 8.1.6 of the.2007 edition).

The translation method used in this part is equivalent to ISO 4548-12:2017 "Test Methods for Full-Flow Oil Filters for Internal Combustion Engines Part 12.

Filtration efficiency and ash capacity of particle counting method".

The Chinese documents that have a consistent correspondence with the international documents cited in this section are as follows.

---GB/T 14041.1-2007 Hydraulic Filter Element Part 1.Structural Integrity Verification and Determination of Initial Bubble Point

(ISO 2942:2004, IDT)

---GB/T 17486-2006 Evaluation of pressure drop flow characteristics of hydraulic filters (ISO 3968:2001, IDT)

---GB/T 17489-1998 Hydraulic particle pollution analysis Extract liquid samples from working system pipelines (idtISO 4021:1992)

---GB/T 18854-2015 The calibration of hydraulic fluid automatic particle counter (ISO 11171:2010, MOD)

---GB/T 21540-2008 Online automatic particle counting system calibration and verification method for hydraulic transmission fluid (ISO 11943.

1999, IDT)

---GB/T 27613-2011 Hydraulic transmission liquid pollution is measured by the weighing method for particle pollution (ISO 4405:1991,

MOD)

---GB/T 28957.1-2012 Road vehicles used for filter evaluation test dust Part 1.Silicon oxide test dust

(ISO 12103-1:1997, MOD)

This part was proposed by China Machinery Industry Federation.

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The previous releases of the standards replaced by this part are as follows.

---GB/T 8243.12-2007.

## Introduction

GB/T 8243 specifies the standard test procedure for determining the performance of full-flow oil filters for internal combustion engines. The standard consists of individual parts. Compiled, each part relates to a certain job characteristic.

The whole set of tests provides the necessary information for evaluating the characteristics of the filter, but if the user and the manufacturer reach an agreement, each test can be separated

get on.

Test method for full-flow oil filter of internal combustion engine

Part 12. Filtration efficiency and ash capacity of particle counting method

## 1 Scope

This part of GB/T 8243 stipulates that under continuous injection test impurity conditions, the online particle counting method is used for multiple passes.

The filter test is used to evaluate the performance of the full-flow oil filter for internal combustion engines. The scope of this part is limited to steady-state conditions, and the flow rate does not fluctuate