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

GB/T 46719.4-2025

**Aerospace - Hydraulic filter elements test methods - Part 4:
Verification of collapse/burst pressure rating**

航空航天 液压滤芯试验方法 第4部分：压溃/破裂压力等级验证

(English Translation)

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents".

Drafting.

This document is Part 4 of GB/T 46719 "Test Methods for Aerospace Hydraulic Filter Elements". GB/T 46719 has been published as follows.

Part 2.

---Part 2: Regulatory Role;

---Part 4: Validation of Crushing/Rupture Pressure Rating;

---Part 6: Cleanliness Levels this document is equivalent to ISO 14085-4:2015 "Aerospace series hydraulic filter elements - Test methods - Part 4: Crushing/rupture".

Pressure level verification.

The following minimal editorial changes have been made to this document.

---To align with existing standards, the standard title has been changed to "Aerospace Hydraulic Filter Element Test Methods Part 4: Crushing/Rupture Pressure".

Force Level Verification;

---Added a note explaining the meaning of "-" (see Table 1).

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed and is under the jurisdiction of the National Aircraft Standardization Technical Committee (SAC/TC435).

Introduction

GB/T 46719 aims to provide a unified and consistent procedure for performance testing of aerospace hydraulic filter elements, and is proposed to consist of six parts.

---Part 1: Test Sequence. The purpose is to specify the test sequence and provide guidelines for acceptance criteria.

---Part 2: Regulation. This section describes the filter element's thermal conditions and cold start test procedure.

---Part 3: Filtration Efficiency and Retention Capacity. This section describes the test procedures for the filtration efficiency and retention capacity of filter cartridges.

---Part 4: Crushing/Rupture Pressure Rating Validation. This section describes the crushing/rupture pressure test procedure for filter elements.

---Part 5: Resistance to Flow Fatigue. This section describes the test procedures for resisting flow fatigue in filter elements.

---Part 6: Cleanliness Class. This section describes the test procedures for the initial cleanliness of the filter element.

In aerospace hydraulic fluid power systems, power is transmitted and controlled through pressurized fluid. This fluid serves as both a lubricant and a...

It is the power transmission medium. The presence of solid contaminant particles in the liquid can interfere with the lubrication ability of the hydraulic oil and lead to component wear and failure.

The degree of contamination in the fluid directly affects the system's performance, reliability, and safety, and needs to be controlled within the system's permissible level.

Filters typically consist of a filter element enclosed in a housing, which controls the contamination level of oil by removing solid contaminant particles. The filter element is...

A porous element that performs the actual filtration process. The assembly consisting of the filter element and the housing is called a filter.

Because filter elements have a filtration function, clogging of the filter element, and an

increase in pressure differential to a certain value, will affect its structural strength. The filter element maintains a specific medium...

The ability to achieve a certain level of cleanliness depends on its performance and structural integrity. If the pressure difference of the filter element is too high, both its performance and structural integrity will be affected.

Crushing/rupture pressure testing is used to measure the filter element's ability to withstand a high pressure differential, which may be caused by filter element blockage or other factors.

It is born in an unsteady operating environment, such as cold start and negative pressure shock.

This document provides a procedure for verifying that a filter element can withstand a specified high pressure differential without failure.

Aerospace hydraulic filter element test methods Part 4: Verification of Crushing/Rupture Pressure Rating

1 Scope

This document describes a method for validating the crush/rupture pressure rating of aerospace hydraulic filter elements. This is achieved by injecting contaminants to reduce the filter element's differential pressure.

The pressure is gradually increased until crushing/rupture occurs or the maximum expected differential pressure is reached without faults, to determine the filter element's normal flow direction (specified flow).

The ability to withstand a specified pressure difference downwards.

The crush/rupture pressure test involves continuously injecting contaminants until a specified pressure differential is reached in the filter element, in accordance with ISO 14085-3:2015.

The filtration efficiency test procedure was carried out together.

This document is not applicable to conformity verification of filter elements under specific operating conditions. Only dedicated test procedures developed for this purpose can be used.

The sequence includes the actual usage conditions, such as the working medium or contaminants.

The test data presented in this document are applicable to evaluating the performance of aerospace hydraulic filter elements.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included.

For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies.

This document.

ISO 1219-1 Graphical symbols and circuit diagrams for fluid dynamic systems and components - Part 1: Graphical symbols Note. GB/T 786.1-2021 Graphical symbols and circuit diagrams for fluid transmission systems and components - Part 1: Graphical symbols (ISO 1219-1:2012, IDT) Note. GB/T 14041.1-2007 Hydraulic filter elements - Part 1: Verification of structural integrity and determination of initial bubble point (ISO 2942:2004, IDT) Note. GB/T 17446-2024 Vocabulary of Fluid Transmission Systems and Components (ISO 5598:2020, MOD) Note. GB/T 21540-2022 Calibration and Validation Methods for Hydraulic Transmission Online Liquid Automatic Particle Counting Systems (ISO 11943:2018, MOD) ISO 12103-1 Test dust for evaluating filters in road vehicles - Part 1: Test dust containing silica (Roadvehicle-Note. GB/T 28957.1-2023 Test dust for evaluating filters in road vehicles - Part 1: Test dust for silica (ISO 12103-1.

2016, MOD)

ISO 14085-3:2015 Aerospace hydraulic filter elements - Test methods - Part 3: Filtration efficiency and retention capacity ty)