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Aerospace series — Hydraulic filter elements — Test methods —

Part 6: Initial cleanliness level

Série aérospatiale — Eléments filtrants hydrauliques — Méthode d'essais —

Partie 6: Niveau de propreté

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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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 20, *Aircraft and space vehicles*, Subcommittee SC 10, *Aerospace fluid systems and components*.

ISO 14085 consists of the following parts, under the general title *Aerospace series — Hydraulic Filter elements — Test methods*:

— *Part 1: Test sequence*

— *Part 2: Conditioning*

— *Part 3: Filtration efficiency and retention capacity*

— *Part 4: Verification of collapse/burst pressure rating*

— *Part 5: Resistance to flow fatigue*

— *Part 6: Initial cleanliness level*

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Introduction

In aerospace hydraulic fluid power systems, power is transmitted and controlled through a liquid under pressure. The liquid is both a lubricant and power-transmitting medium. The presence of solid contaminant particles in the liquid interferes with the ability of the hydraulic fluid to lubricate and causes wear and malfunction of the components. The extent of contamination in the fluid has a direct bearing in the performance, reliability, and safety of the system, and needs to be controlled to levels that are considered appropriate for the system concerned.

Filters are used to control the contamination level of the fluid by removing solid contaminant particles, typically consisting of a filter element enclosed in a filter housing. The filter element is the porous device that performs the actual process of filtration. The complete assembly is designated as a filter.

Hydraulic fluid circuits require high levels of cleanliness which are not to be degraded by the filter element itself when installed into the circuit. This procedure defined a test method to determine the initial cleanliness level of a new hydraulic filter element.

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Aerospace series — Hydraulic filter elements — Test methods —

Part 6: Initial cleanliness level

1 Scope

This part of ISO 14085 defines a reference method for determining the level of cleanliness of new filter elements for use in aircraft hydraulic systems, after production prior to shipment, or prior to installation in the circuit.

It applies to filter elements used on systems requiring fluid cleanliness conditions defined in the particular specification.

The tests data resulting from application of this part of ISO 14085 can be used to compare the cleanliness of aerospace hydraulic filter elements.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies

ISO 3722, *Hydraulic fluid power — Fluid sample containers — Qualifying and controlling cleaning methods*

ISO 4405, *Hydraulic fluid power — Fluid contamination — Determination of particulate contamination by the gravimetric method*

ISO 5598, *Fluid power systems and components — Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 5598 and the following apply.

3.1
extraction liquid
test liquid extracted from the filter housing in which the filter element is installed during agitation

4 Summary of test method

The test consists of inserting the test filter element into a pre-cleaned filter housing and adding a solvent. The filter assembly shall then be agitated to flush and collect built-in contaminant from a new filter element. Multiple extraction liquid samples shall be used to achieve maximum contaminant removal. The collected contaminant shall then be analysed using particle counting or gravimetric techniques, and the amount of contamination shall be reported.

5 Materials and equipment

5.1 Test liquid: Use a suitable solvent with a viscosity less than 5 mm^2/s at test temperature. The test liquid shall be compatible with all materials used in the filter, as well as with the functional liquid of the

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