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BSI Standards Publication

Hydraulic fluid power — Hose and hose assemblies — Method of collecting a fluid sample for analyzing the cleanliness of a hose or hose assembly

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National foreword

This Published Document is the UK implementation of ISO/TS 18409:2018.

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Hydraulic fluid power — Hose and hose assemblies — Method of collecting a fluid sample for analyzing the cleanliness of a hose or hose assembly

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Foreword

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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 voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 131, *Fluid power systems*, Subcommittee SC 4, *Connectors and similar products and components.*

Introduction

In hydraulic fluid power systems, power is transmitted and controlled through a pressurized liquid within a circuit where piping allows the fluid to flow between components. Part of the piping may consist of hose assemblies, usually manufactured by assembling a length of hose, cut out from a hose coil, with specific connectors at its ends.

One of the functions of the hydraulic liquid in a system is to separate and lubricate the moving parts of components. The presence of solid particles produces wear, resulting in loss of efficiency, reduced component life and subsequent unreliability. Thus, hydraulic liquid cleanliness is very important for the system's uninterrupted operation and long life.

The amount of solid contamination present in a hydraulic system at start-up has a great influence on reliability during initial operation and subsequent component life. Components should be cleaned to an appropriate level after manufacturing and prior to use.

Hose assemblies are potential sources of contamination because of the bulk hose manufacturing processes, which can be intrinsically dirty, and because of other contaminants coming from assembly operations (hose cutting, dirty connectors, etc.) and/or storage.

It may be required to assess the actual built-in solid contamination of hose assemblies before installation (e.g. ISO 4413: 2010, 5.4.6.4, in general requirements for piping).

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TECHNICAL SPECIFICATION **ISO/TS 18409:2018**

Hydraulic fluid power — Hose and hose assemblies — Method of collecting a fluid sample for analyzing the cleanliness of a hose or hose assembly

1 Scope

This document specifies two methods for collecting a fluid sample to be used to analyse the cleanliness of hydraulic fluid power hoses or hose assemblies within a certain inside diameter and length range (this range includes the majority of hose assemblies of real fluid power applications).

The two methods described in this document are intended for collecting only solid particulate contamination; they may not be appropriate for collecting contamination in liquid or grease form.

This document is a specific application of ISO 18413:2015, specifically Annexes A and B.

The scope of this document does not include providing efficient and effective cleaning methods for hose assemblies. These methods are recommended for statistical validation of other hose cleaning methods, which are more suitable for systematic processing of large production batches.

Contamination analysis is excluded from the scope of this document.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 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 4406, *Hydraulic fluid power — Fluids — Method for coding the level of contamination by solid particles*

ISO 4407, *Hydraulic fluid power — Fluid contamination — Determination of particulate contamination by the counting method using an optical microscope*

ISO 4788, *Laboratory glassware — Graduated measuring cylinders*

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

ISO 11500, *Hydraulic fluid power — Determination of the particulate contamination level of a liquid sample by automatic particle counting using the light-extinction principle*

ISO 18413, *Hydraulic fluid power — Cleanliness of components — Inspection document and principles related to contaminant extraction and analysis, and data reporting*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 5598 and ISO 18413 and the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/