BS ISO 18413:2015

BSI Standards Publication

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

This British Standard is the UK implementation of ISO 18413:2015. It supersedes BS ISO 18413:2002 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee MCE/18/-/6, Contamination control.

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

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

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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 131, *Fluid power systems,* Subcommittee SC 6, *Contamination control.*

This second edition cancels and replaces the first edition (ISO 18413:2002), of which it constitutes a minor revision.

Introduction

In hydraulic fluid power systems, power is transmitted and controlled through a pressurized liquid within an enclosed circuit. Contaminants present in the circulating working liquid can degrade system performance. The presence of particles residual from the manufacturing and assembly processes can cause a substantial increase in the wear rates to the system during the initial run-up and early life and can even cause catastrophic failures. In order to achieve reliable performance of components and the system, control over the amount of particles introduced during the build phase is necessary. Accurate assessment of the effectiveness of part and component cleaning requires documentation of both the cleanliness requirement and the methods used for contaminant extraction and analysis and data reporting.

INTERNATIONAL STANDARD ISO 18413:2015(E)

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

1 Scope

This International Standard specifies the content of an inspection document that specifies both the cleanliness requirement for the specified hydraulic fluid power component and the inspection method to be used for evaluating its cleanliness level. In addition, guidelines for relevant extraction methods and analysis methods are given.

Determination of what constitutes as an appropriate cleanliness level requirement for any particular component is beyond the scope of this International Standard. ISO 12669 provides a method of determining the required cleanliness of a hydraulic system. ISO TR 10686 provides a method of relating the required cleanliness of components to the required cleanliness of the hydraulic system.

For the purposes of this International Standard, approved functional liquids are considered to be components.

This International Standard is applicable to the particulate contamination on the wetted surfaces and volumes of any hydraulic fluid power system component. Appearance defects and liquid or gaseous contamination are not covered by this International Standard.

This International Standard does not address safety problems that might arise from hazardous materials, operations, and equipment associated with its use. The user of this International Standard is responsible for establishing appropriate safety and health practices and determining the applicability of regulatory limitations prior to use.

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 4021, *Hydraulic fluid power — Particulate contamination analysis — Extraction of fluid samples from lines of an operating system*

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

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

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 11171, *Hydraulic fluid power — Calibration of automatic particle counters for liquids*

ISO 11943, *Hydraulic fluid power — On-line automatic particle-counting systems for liquids — Methods of calibration and validation*

ISO 12103-1, *Road vehicles — Test dust for filter evaluation — Part 1: Arizona test dust*