INTERNATIONAL STANDARD

ISO 23309

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Hydraulic fluid power systems — Assembled systems — Methods of cleaning lines by flushing

Transmissions hydrauliques — Systèmes assemblés — Méthodes de nettoyage des canalisations par curage

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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

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Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 23309 was prepared by Technical Committee ISO/TC 131, *Fluid power systems*, Subcommittee SC 6, *Contamination control*.

Introduction

In hydraulic fluid power systems, power is transmitted and controlled through a liquid under pressure within an enclosed circuit.

The initial cleanliness level of a hydraulic system can affect its performance and useful life. Unless removed, particulate contamination present after manufacture and assembly of a system can circulate through the system and cause damage to the system components. To reduce the probability of such damage, the fluid and the internal surfaces of the hydraulic fluid power system need to be flushed clean to a specified level.

Flushing of lines in a hydraulic system needs to be viewed as one means of removing in-built and residual contamination, and ought not be the sole method used for cleaning such systems.

Hydraulic fluid power systems — Assembled systems — Methods of cleaning lines by flushing

1 Scope

This International Standard specifies the procedures for flushing from the hydraulic lines of larger hydraulic fluid power systems solid particulate contamination that can be introduced during the initial build of a new hydraulic system or after maintenance or modification of an existing system.

This International Standard supplements, but does not replace, the requirements of the component supplier and customer, especially when those requirements are stricter than those specified by this International Standard.

This International Standard is not applicable to

a) the chemical cleaning and pickling of hydraulic tubes, or

b) the cleaning of major system components (see ISO/TR 10949).

Verification of the cleanliness of assembled systems is covered in ISO/TS 16431.

2 Normative references

The following referenced documents are indispensable for the application 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 4021, *Hydraulic fluid power — Particulate contamination analysis — Extraction of fluid samples from lines of an operating system*

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

ISO/TR 10949:2002, *Hydraulic fluid power — Component cleanliness — Guidelines for achieving and controlling cleanliness of components from manufacture to installation*

ISO/TS 16431, *Hydraulic fluid power — Assembled systems — Verification of cleanliness*

3 Terms and definitions

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

3.1
flushing
process of cleaning a hydraulic piping system that involves the circulation of turbulent hydraulic system fluid within piping system loops to remove, transport and filter out particles that can have been introduced into the system during manufacture and build and after maintenance

3.2
outflushing
unrestricted discharge of sufficient fluid volume to an open container or bucket to remove contamination from a dead end in the piping