

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

ICS 23.100.60

National foreword

This British Standard reproduces verbatim ISO 4407:2002 and implements it as the UK national standard. It supersedes BS 5540-8:1991 which is withdrawn.

The UK participation in its preparation was entrusted by Technical Committee MCE/18, Fluid power systems and components, to Subcommittee MCE/18/-/6, Contamination control, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

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

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contamination — Determination of
particulate contamination by the counting
method using an optical microscope**

*Transmissions hydrauliques — Pollution des fluides — Détermination de la
pollution particulaire par comptage au microscope optique*



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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

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 International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 4407 was prepared by Technical Committee ISO/TC 131, *Fluid power systems*, Subcommittee SC 6, *Contamination control and hydraulic fluids*.

This second edition cancels and replaces the first edition (ISO 4407:1991), which has been technically revised.

Introduction

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

The presence of particulate contamination in the liquid interferes with its ability to lubricate and causes wear to the components. The level of contamination in the liquid has a direct bearing on the performance and reliability of the system, and should be controlled to a level appropriate for the system concerned.

Quantitative determination of particulate contamination requires precision in obtaining a representative sample of the liquid and in determining the level of contamination. The method of particle counting using the optical microscope is an accepted means of determining the extent of contamination. The accuracy of particle count data can be affected by the techniques used.

This International Standard details procedures for the separation of particles in liquid samples by vacuum filtration and subsequent analysis of the particles deposited on an analytical membrane filter by microscopic techniques. The techniques involve counting using transmitted or incident light both manually and using image analysis techniques. This International Standard specifies methods to ensure accurate and consistent results.

