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**INTERNATIONAL STANDARD****4021**

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

*Transmissions hydrauliques — Analyse de la pollution par particules — Prélèvement des échantillons de fluide  
dans les circuits en fonctionnement*

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Price based on 2 pages

## FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up 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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 4021 was developed by Technical Committee ISO/TC 131, *Fluid power systems and components*, and was circulated to the member bodies in March 1976.

It has been approved by the member bodies of the following countries :

Australia	Italy	Sweden
Austria	Japan	Turkey
Belgium	Mexico	U.S.A.
Chile	Netherlands	U.S.S.R.
Germany	Poland	Yugoslavia
Hungary	South Africa, Rep. of	
India	Spain	

The member bodies of the following countries expressed disapproval of the document on technical grounds :

France  
United Kingdom

# Hydraulic fluid power — Particulate contamination analysis — Extraction of fluid samples from lines of an operating system

## 0 INTRODUCTION

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

Reliable system performance requires control of the fluid medium. Qualitative and quantitative determination of particulate contamination in the fluid medium requires precision in obtaining the sample and determining the nature and extent of contamination.

The most representative sample is obtained from a system while the fluid is flowing in a turbulent manner. This International Standard gives the procedure for obtaining that sample, known as a dynamic sample.

## 1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a method of extracting dynamic fluid samples from a line of an operating hydraulic fluid power system.

The hydraulic fluid samples must be representative of the particulate contaminant in the fluid flowing at the point of sampling. (The samples are used for particulate contamination analysis.)

## 2 REFERENCES

ISO 1219, *Fluid power systems and components — Graphic symbols*.

ISO 5598, *Fluid power — Vocabulary*.<sup>1)</sup>

## 3 DEFINITIONS

**3.1 fluid sampling, dynamic** : The extraction of a sample of fluid from a turbulent section of a flow stream.

**3.2 fluid sampling, static** : The extraction of a sample of fluid from a fluid at rest.

**3.3 sampler, turbulent** : A device for creating turbulence in the main stream while extracting a fluid sample.

**3.4** For definitions of other terms used, see ISO 5598.

## 4 GRAPHIC SYMBOLS

Graphic symbols used are in accordance with ISO 1219.

## 5 RULES

**5.1** Use a dynamic fluid sampling method (see clause 7).

**5.2** Control the rate of sample extraction only by means of a capillary restriction.

**5.3** Attach the sampling device permanently, or by a quick disconnect coupling.

1) In preparation.