
**Hydraulic fluid power — Method
for evaluating water separation
performance of dehydrators**

*Déshydrateurs fluides hydrauliques — Méthode d'évaluation des
performances de séparation de l'eau*

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ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

	Page
Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Symbols	2
5 Principle of test	2
6 Apparatus	2
7 Accuracy of measuring instruments and test conditions	4
8 Summary of information required prior to testing	4
9 Dehydrator performance test	5
9.1 Preliminary preparation.....	5
9.2 Addition of water to the test fluid.....	6
9.3 Dehydrator test procedure.....	6
10 Reporting	7
11 Identification statement	8
Annex A (informative) Test circuit	9
Annex B (normative) Test fluid specification	10
Annex C (informative) Test fluid quality checks	11
Annex D (informative) Test results sheet giving example data	13
Annex E (normative) Sampling and analysis procedures	14
Annex F (informative) Example graph	15
Bibliography	17

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 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 6, *Contamination control*.

Introduction

In hydraulic fluid power systems, one of the functions of the hydraulic fluid is to separate and lubricate the moving parts of components. The presence of water contamination in the lubricant causes corrosion, loss of lubrication properties, increased oxidation rates, worse filterability, reduced filter service life and produces wear, resulting in loss of efficiency, reduced component and hydraulic fluid life and subsequent unreliability.

Hydraulic fluid dehydration equipment is used to remove the water contamination from these hydraulic fluids to well below the hydraulic fluid's water saturation level. Hydraulic fluid dehydrators are usually self-contained systems, designed to perform the function of water removal from a body of hydraulic fluid using different types of principles and methodologies. This document provides a procedure by which to evaluate the water removal performance of the various types of hydraulic fluid dehydrators in a well-defined, repeatable manner. This enables the purchaser of the hydraulic fluid dehydrator to compare the available products evaluated using the same test procedure.

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Hydraulic fluid power — Method for evaluating water separation performance of dehydrators

1 Scope

This document specifies:

- test equipment, test circuit and a procedure for the evaluation of the water separation capabilities of a dehydrator;
- a procedure for preparing test fluid;
- a procedure for obtaining and analysing the test fluid samples.

This document applies only to those dehydration units that can dry a hydraulic fluid to less than 20 % of the hydraulic fluid's water saturation level at the test temperature.

This document provides a test procedure that yields reproducible results for dehydrator water removal performance so that the performance of candidate units is compared on the same basis using the same test fluid.

This procedure can be used to test the dehydrator's capabilities on different types of hydraulic fluids at different conditions. Parts of the procedure might need to be changed to suit the hydraulic fluid's characteristics. For example, the testing of hydraulic fluids with high water solubility (many synthetic and fire-resistant fluids) needs higher concentrations of water at the start of the test; the testing of hydraulic fluids with zinc-based additives needs modifications to the Karl Fischer analysis procedure. However, comparison of performance can be made under the conditions defined in 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 760, *Determination of water — Karl Fischer method (General method)*

ISO 1219-1, *Fluid power systems and components — Graphical symbols and circuit diagrams — Part 1: Graphical symbols for conventional use and data-processing applications*

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 6743-5, *Lubricants, industrial oils and related products (class L) — Classification — Part 5: Family T (Turbines)*

3 Terms and definitions

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

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

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>