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**Hydraulic fluid power — Filter  
elements — Verification of fabrication  
integrity and determination of the  
first bubble point**

*Transmissions hydrauliques — Éléments filtrants — Vérification de la  
conformité de fabrication et détermination du point de première bulle*

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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](http://www.iso.org/directives)).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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](http://www.iso.org/iso/foreword.html).

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

This fifth edition cancels and replaces the fourth edition (ISO 2942:2004) which has been technically revised.

This revision permits the use of test fluids other than 2-propanol for determination of fabrication integrity. Specifically:

- a) in [4.2](#), acceptable test fluids for determination of fabrication integrity are defined;
- b) in [5.2.1](#), a formula to calculate the minimum allowed fabrication integrity pressure for an element in the test liquid is provided;
- c) in [5.3.1](#), a formula is provided to calculate the pressure normalized to the surface tension of 2-propanol;
- d) in [Annex A](#), the manufacturer's minimum specified fabrication integrity is now listed, as well as the first bubble point in the test liquid and the normalized first bubble point; and
- e) in [Annex B](#), the theoretical underpinning for relating bubble point data obtained in one fluid to the bubble point that would be obtained using a different fluid is presented.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

## Introduction

In hydraulic fluid power systems, power is transmitted and controlled through a liquid under pressure within an enclosed circuit. Filters maintain fluid cleanliness by removing insoluble contaminants.

The ability of a filter to achieve and maintain the required level of performance depends, among other parameters, upon its filtration rating and structural integrity. Any imperfections in the structure, either through poor manufacturing techniques or lack of strength, allow by-passing of unfiltered fluid.

The integrity of the element after manufacture can be evaluated using a non-destructive filter integrity test. This test determines whether flaws are present which would allow the fluid to bypass the filtering process and provides for quality control. The test is also used to evaluate whether damage has been sustained by the element during both service and laboratory tests.

The first bubble point test is used for investigative product development or production process evaluation. The acceptability of filtration performance cannot be determined by the first bubble point test.

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