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Hydraulic fluid power — Fatigue pressure testing of metal pressure-containing envelopes —

Part 1: Test method

Transmissions hydrauliques — Essais de fatigue des enveloppes métalliques sous pression —

Partie 1: Méthode d'essai



Reference number
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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 part of ISO 10771 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 10771-1 was prepared by Technical Committee ISO/TC 131, *Fluid power systems*, Subcommittee SC 8, *Product testing*.

ISO 10771 consists of the following parts, under the general title *Hydraulic fluid power — Fatigue pressure testing of metal pressure-containing envelopes*:

- *Part 1: Test method*
- *Part 2: Test rating* (in preparation)

Annexes A to D form a normative part of this part of ISO 10771.

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Introduction

In hydraulic fluid power systems, power is transmitted and controlled under pressure within an enclosed circuit. It is important for the manufacturer and user of hydraulic components to have information on their global reliability because of the importance of the fatigue failure mode and the relationship this has with the functional safety and service life of such components. This part of ISO 10771 provides a method for fatigue testing the pressure-containing envelope provided by hydraulic components.

During operation, components in a system may be subjected to loads that arise from:

- internal pressure;
- external forces;
- inertia and gravitational effects;
- impact or shock;
- temperature changes or gradients.

The nature of these loads can vary from a single static application to continuously varying amplitudes, repetitive loadings and even shocks. It is important to know how a component can withstand these loads, but this part of ISO 10771 addresses only the loading due to internal pressure.

There are many ways in which internal pressure loads are imposed upon a component. This part of ISO 10771 considers a broad range of waveforms within prescribed time limits, temperatures and environmental conditions, and only upon metals. It is expected that these limitations could still provide sufficient common ground for a method of fatigue pressure testing metal pressure-containing envelopes in hydraulic fluid power components. This method, therefore, provides the system designer with certain information to assist in a selection of components for an application. The system designer still has the responsibility of considering the other loading characteristics described above and determining how they could affect the component's pressure-retaining capability.