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Centrifugal, mixed flow and axial pumps — Code for hydraulic performance tests — Precision class

Pompes centrifuges, hélico-centrifuges et hélices — Code d'essais de fonctionnement hydraulique — Classe de précision

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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.

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. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 5198 was prepared by Technical Committee ISO/TC 115, *Pumps*.

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

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Centrifugal, mixed flow and axial pumps – Code for hydraulic performance tests – Precision class

0 Introduction

This International Standard is the first of a set of International Standards dealing with performance tests of centrifugal, mixed flow and axial pumps (in the rest of the text referred to as "pumps").

It specifies precision class tests (former class A). Engineering class I and class II tests (former classes B and C) will be the subject of a further International Standard.¹⁾

The aims of these classes are quite different.

The precision class is mainly used for research, development and scientific purposes in laboratories, where an extremely high accuracy of measurement is important.

The engineering classes are generally applied for acceptance tests.

In most cases, engineering class II is adequate for acceptance tests. The use of engineering class I is restricted to special cases when there is a need to have the pump performance more precisely defined. However, there may be cases of high importance, in which even an engineering class I acceptance test will be judged inadequate for the precision required for defining pump performance. In these cases the use of the precision class may exceptionally be necessary for an acceptance test.

Attention must be paid to the fact that the accuracy required for a precision class test significantly increases the test costs by comparison with the costs for an engineering class test.

Precision class tests may not always be practicable, even when great effort and expense are devoted to measurements. Performance tests to precision class specifications will be required, and are possible, only in suitable circumstances. Therefore both the purchaser and the manufacturer shall carefully examine whether the accuracy required for a precision class test might be achieved either on site, on the manufacturer's test bed or in a mutually agreed laboratory. It should be noted that it may not be possible to guarantee precision class accuracy in advance of the tests.

The purpose of this International Standard is to specify how to carry out a test with extremely high precision.

This International Standard does not recommend any constructional tolerance nor any global tolerance for acceptance purposes; it is devoted to specifying and describing procedure and methods for accurately ascertaining the performance of a pump under the conditions in which it is tested. Contractual interpretation of the test results must be the subject of a special agreement between the parties concerned (see annex B).

Pump performance may be greatly affected by the installation conditions, and this must be especially considered when drawing up the contract if a precision class test is to be carried out.

1 Scope

This International Standard specifies precision class performance tests for centrifugal, mixed flow and axial pumps.

It defines the terms and quantities that are used and specifies general requirements for tests. It specifies ways of measuring the characteristic quantities of the precision class so as to ascertain the performance of the pump and thus provide a basis for comparison with the performance specified in the contract.

The structural details of pumps and the mechanical properties of their components lie outside the scope of this International Standard.

This International Standard does not specify constructional tolerances, which are purely contractual.

2 Field of application

This International Standard gives recommendations for hydraulic performance testing of centrifugal, mixed-flow and axial pumps when these tests have to meet very special requirements for research, development or acceptance of industrial high-tech. pumps, or when very accurate knowledge of performance characteristics is of prime importance.

This International Standard also applies to models and prototypes whether the pumps are tested on a test bench or on site if installation conditions so permit.

1) At present, they are dealt with in ISO 2548 and ISO 3555.