

Technical specifications for centrifugal pumps
Class II
(ISO 5199 : 2002)
English version of DIN EN ISO 5199

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EN ISO 5199

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Technische Anforderungen an Kreiselpumpen –
Klasse II (ISO 5199 : 2002)

European Standard EN ISO 5199 : 2002 has the status of a DIN Standard.

A comma is used as the decimal marker.

National foreword

This standard has been published in accordance with a decision taken by CEN/TC 197 to adopt, without alteration, International Standard ISO 5199 as a European Standard.

The responsible German body involved in its preparation was the *Normenausschuss Maschinenbau* (Mechanical Engineering Standards Committee).

DIN EN 22858 and DIN EN 23661 are the standards corresponding to International Standards ISO 2858 and ISO 3661, respectively, referred to in clause 2 of the EN.

Amendments

ISO 5199 having been adopted as a European Standard, the status of the corresponding DIN Standard (DIN ISO 5199) has been changed accordingly.

Previous editions

DIN ISO 5199: 1983-03, 1987-02.

National Annex NA

Standards referred to

(and not included in **Normative references**, **Bibliography** and **Annex ZA**)

DIN EN 22858 End-suction centrifugal pumps (rating 16 bar) – Designation, nominal duty point and dimensions (ISO 2858 : 1975)

DIN EN 23661 End-suction centrifugal pumps – Baseplate and installation dimensions (ISO 3661 : 1977)

EN comprises 61 pages.

English version

Technical specifications for centrifugal pumps

Class II

(ISO 5199 : 2002)

Spécifications techniques pour
pompes centrifuges – Classe II
(ISO 5199 : 2002)

Technische Anforderungen an Kreiselpumpen – Klasse II (ISO 5199 : 2002)

This European Standard was approved by CEN on 2002-03-11.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

The European Standards exist in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

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Foreword

International Standard

ISO 5199 : 2002 Technical specifications for centrifugal pumps – Class II,

which was prepared by ISO/TC 115 'Pumps' of the International Organization for Standardization, has been adopted by Technical Committee CEN/TC 197 'Pumps', the Secretariat of which is held by AFNOR, as a European Standard.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, and conflicting national standards withdrawn, by September 2002 at the latest.

In accordance with the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard:

Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

Endorsement notice

The text of the International Standard ISO 5199 : 2002 was approved by CEN as a European Standard without any modification.

NOTE: Normative references to international publications are listed in Annex ZA (normative).

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Introduction

This International Standard is one of a set dealing with technical specifications of centrifugal pumps; they are designated as Classes I, II and III. Class I comprises the most severe and Class III the least severe requirements.

The selection of the class to be used is in accordance with the technical requirements for the application for which the pump is intended. The class chosen should be agreed between the purchaser and supplier. Furthermore, additional safety requirements concerning the field of application should be taken into account.

However, it is not possible to standardize the class of technical requirements for centrifugal pumps for a certain field of application, because each field of application comprises different requirements. All classes (I, II and III) can be used in accordance to the different requirements of the pump application. So it may happen that pumps built in accordance with Classes I, II and III may work beside one another in the one plant.

Further requirements covering specific applications or industries may be dealt with in separate standards.

Criteria for the selection of the required class of a pump for a certain application may include

- reliability,
- required operating life,
- operating conditions,
- environmental conditions, and
- local ambient conditions.

Cross-references in boldface and the checklist in annex H indicate where a decision may be required by the purchaser, or where agreement is required between the purchaser and the manufacturer/supplier.

1 Scope

1.1 This International Standard specifies the requirements for Class II centrifugal pumps of single-stage, multistage, horizontal or vertical construction, with any drive and any installation for general application. Pumps used in the chemical process industries (e.g. those conforming to ISO 2858) are typical of those covered by this International Standard.

1.2 This International Standard includes design features concerned with installation, maintenance and safety for these pumps including baseplate, couplings and auxiliary piping, but it does not specify any requirements for the driver other than those related to its rated power output.

1.3 Where application of this International Standard has been called for and requires a specific design feature, alternative designs may be offered which meet the intent of this International Standard provided that the alternative is described in detail.

Pumps not complying with all the requirements of this International Standard may be offered for consideration provided that all deviations are stated.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 76, *Rolling bearings — Static load ratings*

ISO 281-1, *Rolling bearings — Dynamic load ratings and rating life — Part 1: Calculation methods*

ISO 2858, *End-suction centrifugal pumps (rating 16 bar) — Designation, nominal duty point and dimensions*

ISO 3069, *End-suction centrifugal pumps — Dimensions of cavities for mechanical seals and for soft packing*

ISO 3274, *Geometrical Product Specifications (GPS) — Surface texture: Profile method — Nominal characteristics of contact (stylus) instruments*

ISO 3661, *End-suction centrifugal pumps — Baseplate and installation dimensions*

ISO 3744, *Acoustics — Determination of sound power levels of noise sources using sound pressure — Engineering method in an essentially free field over a reflecting plane*

ISO 3746, *Acoustics — Determination of sound power levels of noise sources using sound pressure — Survey method using an enveloping measurement surface over a reflecting plane*

ISO 7005-1, *Metallic flanges — Part 1: Steel flanges*

ISO 7005-2, *Metallic flanges — Part 2: Cast iron flanges*

ISO 7005-3, *Metallic flanges — Part 3: Copper alloy and composite flanges*

ISO 9906, *Rotodynamic pumps — Hydraulic performance acceptance tests — Grades 1 and 2*

ISO 9614-1, *Acoustics — Determination of sound power levels of noise sources using sound intensity — Part 1: Measurement at discrete points*

ISO 9614-2, *Acoustics — Determination of sound power levels of noise sources using sound intensity — Part 2: Measurement by scanning*

3 Terms and definitions

For the purposes of this International Standard, the following terms and definitions apply.

3.1 operating conditions

all parameters (e.g. operating temperature, operating pressure) determined by a given application and pumped liquid

NOTE These parameters will influence the type of construction and construction materials.

3.2 allowable operating range

range of flows or heads at the specified operating conditions of the pump supplied as limited by cavitation, heating, vibration, noise, shaft deflection and other similar criteria

NOTE The upper and lower limits of the range are denoted by maximum and minimum continuous flow.

3.3 rated conditions

conditions (driver excluded) that define the guarantee values necessary to meet all defined operating conditions, taking into account any necessary margins

3.4 driver rated power output

greatest continuous driver power output permitted under defined conditions

3.5 basic design pressure

pressure derived from the permitted stresses at 20 °C of the material used for the pressure-containing parts

3.6 maximum allowable working pressure

pressure for a component on the basis of materials used and on the basis of calculation rules at the specified operating temperature

3.7 rated inlet pressure

inlet pressure of the operating conditions at the guarantee point

3.8 rated outlet pressure

outlet pressure of the pump at the guarantee point with rated flow, rated speed, rated inlet pressure and density