

SLOVENSKI STANDARD**SIST EN 1151-1:2007****01-januar-2007****BUXca Yý U.****SIST EN 1151:2000**

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Pumps - Rotodynamic pumps - Circulation pumps having a rated power input not exceeding 200 W for heating installations and domestic hot water installations - Part 1: Non-automatic circulation pumps, requirements, testing, marking

iTeh STANDARD PREVIEW

Pumpen - Kreiselpumpen - Umwälzpumpen mit elektrischer Leistungsaufnahme bis 200 W für Heizungsanlagen und Brauchwassererwärmungsanlagen für den Hausgebrauch - Teil 1: Nicht-automatische Umwälzpumpen, Anforderungen, Prüfung, Kennzeichnung

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Pompes - Pompes rotodynamiques - Circulateurs de puissance absorbée n'excédant pas 200 W, destinés aux installations de chauffage central et d'eau chaude sanitaire domestique - Partie 1 : Circulateurs non auto-régulés, exigences, essais, marquage

Ta slovenski standard je istoveten z: EN 1151-1:2006**ICS:**

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Pumps

SIST EN 1151-1:2007**en**

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English Version

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This European Standard was approved by CEN on 27 February 2006.

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This European Standard exists 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 Central Secretariat has the same status as the official versions.

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Foreword

This document (EN 1151-1:2006) has been prepared by Technical Committee CEN/TC 197 “Pumps”, the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 2006, and conflicting national standards shall be withdrawn at the latest by October 2006.

This document, together with EN 1151-2:2006, supersedes EN 1151:1999.

EN 1151 consists of the following parts under the general title *Pumps — Rotodynamic pumps — Circulation pumps having a rated power input not exceeding 200 W for heating installations and domestic hot water installations*:

-Part 1: Non-automatic circulation pumps, requirements, testing, marking

-Part 2: Noise test code (vibro-acoustics) for measuring structure and fluid-borne noise

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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Introduction

For the purpose of this document, circulation pumps having a rated power input ≤ 200 W are generally considered for domestic use and circulation pumps having a rated power input > 200 W are considered for professional/commercial use.

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1 Scope

This part of EN 1151 establishes general principles for the construction, use and testing of circulation pumps of the glandless type, having a rated power input $P_1 \leq 200$ W, intended to be used in heating installations and domestic hot water service installations.

NOTE The requirements of this document may apply to circulation pumps for domestic use having a rated power input above 200 W up to and including 300 W. However, this decision depends on agreement between the supplier and purchaser.

Circulation pumps with a rated power input above 200 W for professional/commercial use are excluded from the scope of this document.

This document applies to:

- a) A.C. circulation pumps having a rated power input $P_1 \leq 200$ W intended for use in ordinary heating water systems with a maximum permissible inlet temperature of $T_F \leq 110$ °C and a maximum outlet working pressure $p_{2\max o} \leq 6$ bar.
- b) A.C. circulation pumps having a rated power input $P_1 \leq 200$ W intended for use in domestic hot water installations with a permissible inlet temperature of $T_F \leq 65$ °C and a maximum outlet working pressure $p_{2\max o} \leq 10$ bar.

This document applies to circulation pumps, which are manufactured after the date of issue of this document.

This document covers the performance for circulation pumps. All known hazards which are likely to occur at normal installation and operation are covered by the European Standards EN 809 and EN 60335-2-51.

As regards safety for electrotechnical parts of circulation pumps, EN 60335-2-51 applies.

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2 Normative references

The following referenced documents are indispensable for the application 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.

EN 1151-2, Pumps — Rotodynamic pumps — *Circulation pumps having a rated power input not exceeding 200 W for heating installations and domestic hot water installations — Part 2: Noise test code (vibro-acoustics) for measuring structure- and fluid-borne noise*

EN 60034-1, *Rotating electrical machines - Part 1: Rating and performance (IEC 60034-1:2004)*

EN 60335-2-51:2003, *Household and similar electrical appliances — Safety — Part 2-51: Particular requirements for stationary circulation pumps for heating and service water installations (IEC 60335-2-51:2002)*

EN ISO 12100-2:2003, *Safety of machinery — Basic concepts, general principles for design — Part 2: Technical principles (ISO 12100-2:2003)*

HD 472 S1:1989, *Nominal voltages for low voltage public electricity supply systems*

3 Terms and definitions

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

3.1 circulation pump
centrifugal pump which circulates heating water and/or domestic hot water, as determined by its type

NOTE A circulation pump is a pumping device consisting of a hydraulic, a mechanical and an electric part including a motor.

3.2 rated power input
electrical power input at nominal voltage at normal operational condition and maximum load

3.3 glandless pump
circulation pump where the rotor of the motor is in direct contact with the water being pumped

3.4 speed setting
setting attained (for pumps with different settings) when the speed of the electric motor is changed

3.5 range of operation
range of the $H(Q)$ characteristic specified by the manufacturer for normal operation of the pump

3.6 maximum inlet pressure (static pressure)
highest inlet pressure to which the pump is subjected during operation

NOTE All pressures in this document are gauge pressures except for the differential pressure measured in 6.2.2.2.

3.7 differential pressure
gain in pressure between the pump inlet and pump outlet

NOTE All pressures in this document are gauge pressures except for the differential pressure measured in 6.2.2.2.

3.8 maximum outlet working pressure
sum of maximum inlet pressure and maximum differential pressure at rated conditions

4 Symbols and units

For the purpose of this document, the symbols, quantities and units given in Table 1 apply.

Table 1 — Symbols and units

Symbol	Quantity	Unit
g	Acceleration due to gravity	m/s^2
H	Head (water gauge)	m
P_1	Rated power input	W
p	Pressure	bar
$p_{1\text{max o}}$	Maximum inlet pressure	bar
p_{1-2}	Differential pressure	Pa
$p_{2\text{max o}}$	Maximum outlet working pressure	bar
Q	Flow rate	m^3/h
T	Temperature	EC
T_F	Fluid temperature at inlet port	EC
v	Average velocity of water	m/s
ρ	Density	kg/m^3

5 Performance and safety requirements

5.1 Hydraulic characteristic

The hydraulic characteristic of the circulation pump shall be in accordance with the data published by the manufacturer. For circulation pumps with different speed settings, the performance curve of each setting shall be given (see 6.2 for test arrangement).

5.2 Rated power

For circulation pumps with different speed settings, the rated power input, P_1 , shall be given for at least the maximum and minimum settings (see 6.3 for test arrangement).

5.3 Starting characteristics

The circulation pump shall start satisfactorily (see 6.4 for test conditions).

5.4 Resistance to internal pressure

During the test in accordance with 6.5, the circulation pump shall be pressure tight.

5.5 Temperature resistance

During the test in accordance with 6.6, the circulation pump shall be resistant to temperatures there defined.

5.6 Resistance to thermal cycling

During the test under the conditions specified in 6.7 the circulation pump shall be resistant to thermal cycling.