SLOVENSKI STANDARD
SIST EN 1074-3:2001

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Ventili za vodooskrbo - Zahteve za ustreznost in ustrezni preskusi - 3. del: Protipovratni ventili

Valves for water supply - Fitness for purpose requirements and appropriate verification tests - Part 3: Check valves

Armaturen für die Wasserversorgung - Anforderungen an die Gebrauchstauglichkeit und deren Prüfung - Teil 3: Rückflußverhinderer

Robinetterie pour l'alimentation en eau - Prescriptions d'aptitude a l'emploi et vérifications s'y rapportant - Partie 3: Clapets de non retour

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23.060.50	Blokirni ventili	Check valves
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EUROPEAN STANDARD

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English version

Valves for water supply - Fitness for purpose requirements and appropriate verification tests - Part 3: Check valves

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This European Standard was approved by CEN on 26 November 1999.

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 Central Secretariat or to any CEN member.

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.

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

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Contents

Foreword

This European Standard has been prepared by Technical Committee CEN/TC 69 "Industrial valves", 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of an identical text or by endorsement, at the latest by October 2000, and conflicting national standards shall be withdrawn at the latest by October 2000.

It consists of six parts:

Part 1: General requirements

Part 2: Isolating valves

Part 3: Check valves

Part 4: Air valves

Part 5: Control valves

Part 6: Hydrants.

Part 1, in conjunction with the subsequent parts, lays down the general requirements and test procedures to be carried out in production and during the assessment of conformity of these valves (type tests). The detailed requirements, which depend on the types of valves, are defined in parts 2 to 6 of this standard.

Annex A of this European standard is normative.

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

Introduction

In respect of potential adverse effects on the quality of water intended for human consumption caused by the product covered by this standard:

1) this standard provides no information as to whether the product may be used without restriction in any of the Member States of the EU or EFTA;

2) it should be noted that, while awaiting the adoption of verifiable European criteria, existing national regulations concerning the use and/or the characteristics of this product remain in force.

1 Scope

This European Standard defines the minimum fitness for purpose requirements for check valves to be used in, or connected to, water supply pipe systems, above or below ground (see EN 805), carrying water intended for human consumption.

This standard specifies the design requirements, the performance requirements, and the conformity assessment method for check valves, whatever their type and materials.

This standard applies in priority to any other product or test standard: the requirements from other standards apply only when this standard refers to them.

This standard deals with the requirements applicable to check valves up to DN 2000 and PFA 6 bar to PFA 25 bar. It does not apply to anti-pollution check valves which are covered by other standards.

2 Normative references

This European Standard incorporates, by dated or undated references, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 736-1, *Valves - Terminology - Part 1: Definition of the types of valves.*

EN 1074-1, *Valves for water supply - Fitness for purpose requirements and appropriate verification tests - Part 1 : General requirements.*

EN 1267, *Valves - Test of flow resistance using water as test fluid.*

EN 805, *Water supply - Requirements for systems and components outside buildings.*

3 Definitions

For the purpose of this standard, the definitions of EN 1074-1 apply together with the following definitions:

3.1 **check valve:** Valve which automatically opens by fluid flow in a defined direction and which automatically closes to prevent fluid flow in the reverse direction (EN 736-1).

4 Design requirements

Check valves shall be designed in accordance with the requirements given in clause 4 of EN 1074-1.

Check valves can be equipped with a device to assist closure or balance the weight of the obturator; however, such valves are not considered to have a mechanically operated obturator.

The manufacturer shall indicate in the relevant technical documentation the orientations in which the check valves fulfil the requirements of this standard.

5 Performance requirements

5.1 Mechanical strength

5.1.1 Resistance to internal pressure of the shell and of all pressure containing components

Requirement and test shall be in accordance with 5.1.1 of EN 1074-1.

5.1.2 Resistance of the obturator to differential pressure

Requirement and test shall be in accordance with 5.1.2 of EN 1074-1.

The test shall be performed with the pressure applied to the downstream side of the obturator.

After the test, the obturator shall not be jammed nor wedged. After completing the test, the operating torque shall not exceed the initial operating torque by more than 10 %.

5.1.3 Resistance of valves to bending

Bending resistance is an optional requirement for check valves; if bending resistance is claimed by the manufacturer, the requirement and test shall be in accordance with 5.1.3 of EN 1074-1, for sizes DN 50 up to and including DN 500.

The test shall be performed with the pressure applied to the downstream side of the obturator. The bending moments *M* to be applied during the test shall be as given in table 1 as a function of DN, or shall be given by the manufacturer's technical documentation.

Table 1 - Bending moments

DN	*M* Nm
50	1 050
65	1 400
80	1 500
100	2 200
125	3 200
150	4 800
200	7 200
250	11 000
300	15 000
350	19 000
400	24 000
450	28 000
500	33 000

5.2 Leak-tightness

5.2.1 Leak-tightness of the shell and all pressure containing components

5.2.1.1 Leak-tightness to internal pressure

Requirement and test shall be in accordance with 5.2.1.1 of EN 1074-1.

5.2.1.2 Leak-tightness to external pressure

Requirement and test shall be in accordance with 5.2.1.2 of EN 1074-1.

5.2.2 Seat tightness

5.2.2.1 Seat tightness at high differential pressure

Requirement and test shall be in accordance with 5.2.2.1 of EN 1074-1. For a type test, the test duration shall be not less than 10 min.

The test shall be performed with the pressure applied to the downstream side of the obturator.

5.2.2.2 Seat tightness at low differential pressure

Requirement and test shall be in accordance with 5.2.2.2 of EN 1074-1, with the test duration given in 5.2.2.1.

The test shall be performed with the pressure applied to the downstream side of the obturator.

5.3 Hydraulic characteristics

Requirement shall be in accordance with 5.3 of EN 1074-1; the characteristic given by the manufacturer shall be the head loss as a function of flow.

When measured with a test installation in accordance with clause 4 of EN 1267, the head loss shall be not more than 1,1 times the value indicated by the manufacturer. Testing is not required for check valves greater than DN 300.

5.4 Resistance to disinfection products

Requirement and test shall be in accordance with 5.4 of EN 1074-1.

5.5 Endurance

Check valves shall keep their functional capacity after a significant number of operations (opening/closing cycles).

When, in order to verify this requirement, a check valve has been subjected to a test in accordance with annex A, comprising 2 500 opening/closing cycles, it shall still pass the leak-tightness tests in accordance with 5.2.1 and 5.2.2 and no breakage of any part shall be detected by visual inspection after dismantling the valve. Testing is not required for check valves greater than DN 300.

6 Conformity assessment

6.1 General

Requirement shall be in accordance with 6.1 of EN 1074-1.

6.2 Type tests

Requirement shall be in accordance with 6.2 of EN 1074-1; the type tests to be performed shall be those given in table 2. They shall take place with the valve in the horizontal position, or in the position indicated by the manufacturer depending on the possibilities of use of the check valve.

6.3 Control of production process and quality system

Requirement shall be in accordance with 6.3 of EN 1074-1; the production control tests in table 2 are informative.

7 Marking

Requirement shall be in accordance with clause 7 of EN 1074-1. In addition, the direction of flow shall be marked.

8 Packaging

Requirement shall be in accordance with clause 8 of EN 1074-1.