



SLOVENSKI STANDARD

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Ventili za vodooskrbo - Zahteve za ustreznost in overitveni preskusi - 6. del: Hidranti

Valves for water supply - Fitness for purpose requirements and appropriate verification tests - Part 6: Hydrants

Armaturen für die Wasserversorgung - Anforderungen an die Gebrauchstauglichkeit und deren Prüfung - Teil 6: Hydranten

Robinetterie pour l'alimentation en eau - Prescriptions d'aptitude à l'emploi et vérifications s'y rapportant - Partie 6: Poteaux et bouches

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English Version

Valves for water supply - Fitness for purpose requirements and
appropriate verification tests - Part 6: Hydrants

Robinetterie pour l'alimentation en eau - Prescriptions
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Poteaux et bouches

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die Gebrauchstauglichkeit und deren Prüfung - Teil 6:
Hydranten

This European Standard was approved by CEN on 25 September 2008.

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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 CEN Management Centre has the same status as the official versions.

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Foreword

This document (EN 1074-6:2008) 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of an identical text or by endorsement, at the latest by November 2008, and conflicting national standards shall be withdrawn at the latest by November 2008.

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.

This document supersedes EN 1074-6:2004.

The following technical changes were made to take into account the publication of EN 14339:2005 and EN 14384:2005:

- Clause 1 : deletion of the sentence stating that EN 1074-6 is a priority standard;
- Clause 3: addition of the definition of draining system depth;
- Clause 4: addition of a requirement on sealing material;
- Subclauses 5.1.4 and 5.2.3: deletion of pillar hydrants from Table 2 and addition of a reference to EN 14384:2005;
- Table 3: addition of draining system depth P_v .

EN 1074 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 European Standard.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, 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 the United Kingdom.

Introduction

This update results from the publication of EN 14339:2005 and EN 14384:2005 which are harmonised under CPD. Thus EN 1074-6 cannot be a priority standard. As the test of EN 1074-6 are currently used by EN 14339:2005 and EN 14384:2005, the test values have been aligned with these European Standards to prevent any ambiguous interpretation.

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

- 1) this European Standard provides no information as to whether the product can 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.

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1 Scope

This European Standard defines the minimum fitness for purpose requirements for hydrants 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 European Standard specifies the design requirements, the performance requirements, and the conformity assessment method for hydrants, whatever their type, materials and functions. Where hydrants can be used for fire fighting, irrigation or other function, additional requirements can be given in other standards.

This part of EN 1074 deals with the requirements applicable to both underground and pillar hydrants, in sizes DN 65 to DN 150, and PFA up to 16 bar.

This part of EN 1074 does not give requirements for the outlets or their interface with the hydrants, since they are subject to national standards.

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 558, *Industrial valves — Face-to-face and centre-to-face dimensions of metal valves for use in flanged pipe systems — PN and Class designated valves*

EN 681-1, *Elastomeric seals — Materials requirements for pipe joint seals used in water and drainage applications — Part 1: Vulcanized rubber*

EN 681-2, *Elastomeric seals — Materials requirements for pipe joint seals used in water and drainage applications — Part 2: Thermoplastic elastomers*

EN 681-3, *Elastomeric seals — Materials requirements for pipe joint seals used in water and drainage applications — Part 3: Cellular material of vulcanized rubber*

EN 681-4, *Elastomeric seals — Materials requirements for pipe joint seals used in water and drainage applications — Part 4: Cast polyurethane sealing elements*

EN 1074-1:2000, *Valves for water supply — Fitness for purpose requirements and appropriate verification tests — Part 1: General requirements*

EN 1074-2:2000, *Valves for water supply — Fitness for purpose requirements and appropriate verification tests — Part 2: Isolating valves*

EN 1074-3:2000, *Valves for water supply — Fitness for purpose requirements and appropriate verification tests — Part 3: Check valves*

EN 1092-2, *Flanges and their joints — Circular flanges for pipes, valves, fittings and accessories, PN designated — Part 2: Cast iron flanges*

EN 1267:1999, *Valves — Test of flow resistance using water as test fluid*

EN 12266-1:2003, *Industrial valves — Testing of valves — Part 1: Pressure tests, test procedures and acceptance criteria — Mandatory requirements*

EN 14384:2005, *Pillar fire hydrants*

EN 1074-6:2008 (E)**3 Terms and definitions**

For the purposes of this document, the terms and definitions given in EN 1074-1:2000 and the following apply.

- 3.1
hydrant**
connection to a water supply system including an isolating valve
- 3.2
pillar hydrant**
hydrant with a connection point located above ground level, for use by water utilities or to supply water to fire fighting equipment
- 3.3
breakable pillar hydrant**
pillar hydrant equipped with a specific device allowing its above ground part to separate from its below ground part, when submitted to an impact
- 3.4
underground hydrant**
hydrant with a connection point located under ground level, for use by water utilities or to supply water to fire fighting equipment
- 3.5
theoretical ground level**
limit between the above ground part and the underground part of the pillar hydrant as installed
- NOTE This point is used for pillar positioning on site, once the height of components of the above ground part, the depth of water supply pipeline axis and of the unfreezing device are defined.
- 3.6
draining system depth**
P_v
distance between the theoretical ground level and the orifice of draining system when the hydrant is fitted with a draining system

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4 Design requirements

Hydrants shall be designed in accordance with the design requirements given in Clause 4 of EN 1074-1:2000, with the following additional or different requirements.

Sealing material shall be in accordance with EN 681-1, EN 681-2, EN 681-3 or EN 681-4 and shall meet the requirements of 4.9 of EN 1074-1:2000.

The requirements of EN 558 (interchangeability) shall not apply to hydrants. When fitted with an inlet flange, it shall be in accordance with EN 1092-2. The outlets shall be in accordance with the national requirements.

For hydrants manually operated, the preferred direction of closure is clockwise.

Hydrants designed for anti-clockwise closure shall be marked to indicate the closing direction.

If fitted, the breaking system shall be above the ground level and shall be replaceable in-situ.

The manufacturer shall indicate in his technical documentation whether the hydrant is equipped with an automatic draining device. If fitted, such a device shall comply with the National Health and Safety Regulations.

The manufacturer's technical documentation shall indicate whether the hydrant is equipped with a non-return device.

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 1074-1:2000, except that leakage of an automatic draining device at a pressure less than 1 bar shall not be a reason for failure.

To conduct this test the outlets of the hydrant and a drilled drain plug if fitted shall be blanked off with any suitable device.

5.1.2 Resistance of the obturator to differential pressure

Requirement and test shall be in accordance with 5.1.2 of EN 1074-1:2000 and the test shall be performed in the direction of flow.

5.1.3 Resistance of hydrants to bending and to any force applied above the ground level

5.1.3.1 Resistance of the hydrant to bending

Requirements shall be in accordance with the first paragraph of 5.1.3 of EN 1074-1:2000.

The test shall be performed in accordance with Annex A on any hydrant in its delivery condition.

This test is not required for hydrants designed for installation in a chamber, as given in the manufacturer's documentation.

The bending moments M to be applied during the test shall be in accordance with the values given in Table 1 of EN 1074-2:2000.

5.1.3.2 Resistance of the pillar hydrant to a force applied above ground level

The test shall be performed in accordance with Annex B.

If not equipped with a breaking system, the pillar hydrant shall withstand the force, F , given in the corresponding part of Table 1, remaining leak-tight during the test.

If the hydrant is designed to break at ground level, the force to break the hydrant shall be as given in the corresponding part of Table 1. The pillar hydrant shall remain leak-tight after breaking, and all the parts below the breaking system shall be undamaged.

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Table 1 — Force applied above ground level

DN	Minimum force to apply for pillar hydrants not equipped with a breaking system F N	Range of the force to apply to break a pillar hydrant equipped with a breaking system F N
65, 80 and 100	25 000	between 10 000 and 30 000
150	30 000	

5.1.4 Resistance of hydrants to operating loads

Requirement shall be in accordance with 5.1.4 of EN 1074-1:2000.

The test shall be performed in accordance with Annex A of EN 1074-2:2000.

The test values shall be in accordance with Table 2 for underground hydrants or with 4.10 of EN 14384:2005 for pillar hydrants.

Table 2 — Torque requirements for underground hydrants

DN	65	80	100	150
MOT (maximum operating torque) (Nm)	85	105	130	195
MST (minimum strength torque) (Nm)	170	210	260	380

5.2 Leak-tightness

5.2.1 Leak-tightness of the shell and of 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 1074-1:2000, except that leakage of an automatic draining device at a pressure less than 1 bar shall not be a reason for failure.

To conduct this test the outlets of the hydrant and a drilled drain plug if fitted shall be blanked off with any suitable device.

5.2.1.2 Leak-tightness to external pressure

With the obturator in the closed position, hydrants shall prevent the ingress of air, water or any foreign matter into the water pipeline.

Requirement and test shall be in accordance with 5.2.1.2 of EN 1074-1:2000, the test being operated between the inlet connection and the closed obturator.

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 1074-1:2000.

After closing the hydrant by application of MOT (see 5.2.3), the leakage rate shall be rate A as defined in EN 12266-1:2003. For a type test, the test duration shall be not less than 10 min.

The test shall be performed in the direction of flow towards the outlet.

5.2.2.2 Seat tightness at low differential pressure

Requirement and test shall be in accordance with 5.2.2.2 of EN 1074-1:2000, with the torque and the test duration given in 5.2.2.1. The leakage rate shall be rate A as defined in EN 12266-1:2003.

The test shall be performed in the direction of flow towards the outlet.

5.2.2.3 Seat-tightness of the non-return device

When fitted, the non-return device shall be leak-tight (rate A as defined in EN 12266-1:2003).

The tests shall be in accordance with 5.2.2.1 and 5.2.2.2 of EN 1074-3:2000.

5.2.3 Maximum operating torque (MOT) for operation and seat-tightness

Requirement shall be in accordance with 5.2.3 of EN 1074-1:2000.

When, in order to verify this requirement, a hydrant valve in its delivery state is subjected to a test according to Annex C, the measured torque shall not exceed the maximum operating torque MOT as given in Table 2 for underground hydrants or in 4.10 of EN 14384:2005 for pillar hydrants.

5.2.4 Leak-tightness of gearboxes to external pressure

If applicable, requirement and tests shall be in accordance with 5.2.4 of EN 1074-1:2000.

5.3 Hydraulic characteristic

Requirement shall be in accordance with 5.3 of EN 1074-1:2000. The characteristic given by the manufacturer shall be the head loss as a function of flow, for each outlet independently, the other ones being closed.

When measured with a test installation in accordance with Clause 4 of EN 1267:1999 on a hydrant in its delivery state, the head loss shall be not more than 1,1 times the values given by the manufacturer.

Hydrants intended for fire fighting service shall comply with additional requirements of national or European Standards.

5.4 Resistance to disinfection products

Requirement and test shall be in accordance with 5.4 of EN 1074-1:2000.