SLOVENSKI STANDARD
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Vgrajeni gasilni sistemi - Cevni sistemi - 2. del: Cevni koluti s plosko cevjo

Fixed firefighting systems - Hose systems - Part 2: Hose systems with lay-flat hose

Ortfeste Löschanlagen - Wandhydranten - Teil 2: Wandhydranten mit Flachschlauch

Installations fixes de lutte contre l'incendie - Systemes équipés de tuyaux - Partie 2: Postes d'eau muraux équipés de tuyaux plats

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13.220.10	Gašenje požara	Fire-fighting
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EUROPEAN STANDARD

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Fixed firefighting systems - Hose systems - Part 2: Hose systems with lay-flat hose

Installations fixes de lutte contre l'incendie - Systèmes équipés de tuyaux - Partie 2: Postes d'eau muraux équipés de tuyaux plats

Ortfeste Löschanlagen - Wandhydranten - Teil 2: Wandhydranten mit Flachschlauch

This European Standard was approved by CEN on 1 March 2001.

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.

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 Management Centre 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
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Contents

Foreword

This European Standard has been prepared by Technical Committee CEN/TC 191 "Fixed firefighting system", the secretariat of which is held by BSI.

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of an identical text or by endorsement, at the latest by October 2001, and conflicting national standards shall be withdrawn at the latest by January 2003.

This European Standard replaces EN 671-2:1994.

EN 671 has the general title "*Fixed firefighting systems – Hose systems*" and is in three parts;

Part 1: Hose reels with semi-rigid hose

Part 2: Hose systems with lay-flat hose

Part 3: Maintenance of hose reels with semi-rigid hose and hose systems with lay-flat hose

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association and supports the essential requirements of EU Directive 89/106/EEC.

For relationship with EU Directives, see informative Annex ZA, which is an integral part of this standard.

Annexes A, B, C, D and E are normative.

This European Standard includes a bibliography.

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

Hose systems in proper condition provide a very effective firefighting facility with a continuous supply of water available immediately.

The requirements of this standard have been framed to ensure that hose systems can be operated efficiently by one person and that such systems will have a long service life and will not need excessive maintenance.

1 Scope

This European Standard specifies requirements and methods of test for the construction and performance of fire hose systems with lay-flat hose for installation in buildings and other construction works, permanently connected to a water supply, for use by the occupants.

Its requirements may apply in general for other applications, for example in marine applications or in aggressive environments, but additional requirements may be necessary in such cases.

For convenience of application in conformity testing, the normative annexes of this standard are arranged so that annex A gives the sequence of testing for conformity assessment and annexes B, C, D and E are in the correct sequence for testing.

NOTE All pressures are gauge pressures and are expressed in megapascals. 1 MPa = 10 bar.

2 Normative references

This European Standard incorporates by dated or undated reference, 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 (including amendments).

EN 671-3:2000, *Hose systems – Part 3: Maintenance of hose reels with semi-rigid hose and hose systems with lay-flat hose*.

prEN 1924-2:1995, *Non-percolating layflat delivery hoses and hose assemblies for fire fighting purposes.*

EN ISO 4892-2:1999, *Plastics – Methods of exposure to laboratory light sources – Part 2: Xenon-arc sources (ISO 4892-2:1994).*

ISO 7-1:1994, *Pipe threads where pressure-tight joints are made on the threads - Part 1: Dimensions, tolerances and designation.*

ISO 9227:1990, *Corrosion tests in artificial atmospheres; salt spray tests.*

ISO 5208:1993, *Industrial valves, pressure testing of valves*.

3 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply:

3.1
fire hose system; hose system
firefighting appliance consisting essentially of a cabinet or cover, hose support, manual stop valve, lay-flat hose with couplings, shut-off nozzle

3.2
cabinet
box to protect the hose system against environmental or physical damage

3.3
hose support
device used to hold the hose

3.4
lay-flat hose
hose which is flat-sectioned except when it is internally pressurized

3.5
coupling
device used to connect the hose to the valve and to the shut-off nozzle

3.6
shut-off nozzle
component at the end of the hose used to direct and control the discharge of water

4 Designation

4.1 General

A hose system shall be designated according to its method of mounting (see 4.2), the form of hose support (see 4.3), the diameter of hose in millimetres and the length of hose in metres.

Thus the hose system in a cabinet for surface mounting, with the hose on a reel, fitted with 52 mm diameter hose of length 20 m, is designated:

EN671-2C-1/52-20.

4.2 Method of mounting

A hose system shall be designed for mounting in one of the following forms:

- form A : in a wall recess with cover;

- form B : in a cabinet in a wall recess;

- form C : in a cabinet for surface mounting.

4.3 Hose support

4.3.1 General

The hose support shall be one of the following types:

- type 1 : rotating reel;

- type 2 : cradle with the hose double coiled;

- type 3 : hose basket with the hose flaked.

4.3.2 Type 1

The reel shall rotate around a spindle so that the hose can be withdrawn freely. The inside drum shall have a minimum diameter of not less than 70 mm and shall have a slit not less than 20 mm wide across the full diameter of the drum into which the folded hose is located.

4.3.3 Type 2 and type 3

Type 2 and 3 supports if fixed to the cabinet shall allow a swing to a position at 90^0 to the plane of the back of the cabinet. The turning axis shall be vertical. No deformation, which may harm the function of the hose support, shall occur when tested in accordance with 9.2.2.

5 Hose and hose assemblies

5.1 General

The hose shall be lay-flat and conform to prEN 1924-2:1995.

5.2 Hose bore

The nominal diameter shall not exceed 52 mm.

5.3 Maximum length

The nominal length of the hose shall not exceed 20 m, except where, for certain specific applications, regulations permit greater lengths.

5.4 Couplings

5.4.1 General

The coupling shall be as specified by, or agreed with, the purchaser.

NOTE It is normally appropriate for couplings to comply with national standards of the country in which the equipment is to be installed.

5.4.2 Coupling bindings

The coupling shall be bound to the hose by means of an even pressure over the complete perimeter of the hose against the coupling shank.

6 Shut-off nozzle

6.1 General

The hose shall terminate in a shut-off nozzle, which shall give the following control settings:

a) shut; and

b) spray; and/or

c) jet.

NOTE When both spray and jet are provided it is recommended that the sequence should be as above with the spray setting between the shut setting and the jet setting.

Any spray discharge shall be in the form of either a sheet spray or a conical spray.

6.2 Resistance to impact

The nozzle shall not break or show any visible leakage when tested in accordance with E.1.

6.3 Operating torque

The torque necessary to operate the nozzle to each control setting at maximum working pressure shall not exceed the appropriate value given in Table 1 when determined after testing in accordance with E.2.

Table 1 - Maximum operating torque of nozzle control

Control setting	Maximum operating torque, Nm
Opening	7
Spray	7
Jet	7
Flowrate control	7

6.4 Marking of control settings

6.4.1 Rotary operated nozzles shall be marked to show the direction of closing and opening.

6.4.2 Lever operated nozzles shall be marked to show the settings for

a) shut; and

b) spray; and/or jet.

7 Inlet stop valve

7.1 A manual stop valve shall be fitted to the hose system.

NOTE It is normally appropriate for valves and valve connections and valve combinations to comply with national standards of the country in which the equipment is to be installed.

7.2 The valve shall be screwdown or other slow-opening type.

7.3 The inlet shall be threaded according to ISO 7-1:1994.

7.4 The inlet and outlet shall form an angle of not less than 90^{o} and not more than 135^{o}.

7.5 The valve shall be closed by turning the handle in a clockwise direction and the direction of opening shall be marked.

7.6 When tested in accordance with ISO 5208:1993 for a maximum working pressure of 1,2 MPa the valve shall conform to the appropriate requirements of ISO 5208:1993.

8 Cabinets

8.1 General

Cabinets shall be fitted with a door and may be fitted with a lock. Lockable cabinets shall be provided with an emergency opening device, which may be protected only by transparent frangible material. The screwdown valve shall be positioned in such a way that there is at least 35 mm free space around the external diameter of the handwheel, when the valve is in any position from fully open to fully closed.

If the emergency opening is protected by a frangible glass front this shall be of the type which when broken does not leave jagged or sharp edges which might cause injury when the emergency opening is operated. Cabinets shall be free of sharp edges which might damage the equipment or cause injury.

Cabinets may also be used to contain other firefighting equipment, provided that the cabinet is of sufficient size and the equipment does not interfere with the prompt use of the valve and hose. Cabinet doors shall open to minimum 170^{o} to allow the hose to be run out freely in any direction. For service in some climatic conditions it may be necessary to provide the cabinet with suitable ventilating openings.

8.2 Opening device

An opening device shall be provided to allow periodical inspection and maintenance. The opening device shall have provision for a security seal to be fitted.

NOTE The force necessary to open and secure the seal should be not less than 20 N and not more than 40 N, and the opening device should be reasonably difficult to operate to minimise misuse and theft.

8.3 Form C cabinets

Cabinets for form C shall have a hole or holes in the base to allow drainage of water.

9 Materials

NOTE 1 Where hose systems are connected to a public domestic water supply, the appropriate authority may specify materials which are, or are not, acceptable to the authority.

NOTE 2 The advice of the manufacturer should be requested in cases of special corrosion risk.

9.1 Resistance to external corrosion

Any metal parts shall provide adequate protection when coated parts are tested in accordance with B.1 and uncoated parts are tested in accordance with B.2.

9.2 Plastics materials

9.2.1 Components subjected to pressure

Nozzles made of plastics materials shall meet the requirements in 6.2 when tested in accordance with E.1 after the ageing test in accordance with Annex C.

9.2.2 Components not subjected to pressure

After the ageing test in accordance with Annex C, all hose supports made of plastics materials shall meet the requirement in 4.3.3.

9.3 Resistance to corrosion of waterways

There shall be no significant corrosion defects and the mechanical operation of all working parts shall be unimpaired when waterways are tested in accordance with Annex D.

10 Hydraulic properties

10.1 Resistance to internal pressure

Hose assemblies shall be designed for the following pressures:

- maximum working pressure 1,2 Mpa;

- test pressure: 2,4 Mpa;

- minimum burst pressure: 4,2 Mpa.

10.2 Security of couplings

Hose assemblies shall not leak when tested to the test pressure in accordance with E.5.

10.3 Minimum flow rate

The flow rates in jet and spray settings shall be not less than the appropriate values given in Table 2 when the hose system is tested in accordance with E.4.1.

Table 2 - Minimum flow rates and minimum k-coefficient according to pressure

Nozzle diameter or equivalent diameter, mm	Minimum flow rate *Q* l/min			*K*-coefficient (see note)
	P = 0,2 MPa	*P* = 0,4 MPa	*P* = 0,6 MPa	
9	66	92	112	46
10	78	110	135	55
11	93	131	162	68
12	100	140	171	72
13	120	170	208	85
NOTE Flowrate *Q* at pressure *P* is related to the equation $Q = K\sqrt{10P}$, where *Q* is in litres/minute and *P* is in megapascals				

10.4 Effective throw range

The effective throw ranges of the discharges at a pressure 0,2 MPa when determined in accordance with E.4.2 shall not be less than as follows:

- jet discharge 10 m;

- sheet spray discharge 6 m;

- conical spray discharge 3 m.