SLOVENSKI STANDARD
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Vgrajeni gasilni sistemi – Sestavni deli sistemov za gašenje s plinom – 6. del: Zahteve in preskusne metode za neelektrične naprave za zaustavitev

Fixed firefighting systems - Components for gas extinguishing systems - Part 6: Requirements and test methods for non-electrical disable devices

Ortsfeste Brandbekämpfungsanlagen - Bauteile für Löschanlagen mit gasförmigen Löschmitteln - Teil 6: Anforderungen und Prüfverfahren für nicht-elektrische Blockiereinrichtungen

Installations fixes de lutte contre l'incendie - Éléments constitutifs des installations d'extinction a gaz - Partie 6: Exigences et méthodes d'essai pour dispositifs non électriques de mise hors service

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Fixed firefighting systems - Components for gas extinguishing systems - Part 6: Requirements and test methods for non-electrical disable devices

Installations fixes de lutte contre l'incendie - Éléments constitutifs des installations d'extinction à gaz - Partie 6: Exigences et méthodes d'essai pour dispositifs non électriques de mise hors service

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This European Standard was approved by CEN on 9 March 2006.

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, 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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Foreword

This European Standard (EN 12094-6:2006) has been prepared by Technical Committee CEN/TC 191 “Fixed firefighting systems”, 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 2006, and conflicting national standards shall be withdrawn at the latest by April 2009.

This European Standard supersedes EN 12094-6:2000.

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this European Standard.

This European Standard is part of a series concerned with gas extinguishing system components.

The following European Standards are planned to cover:

— gas extinguishing systems (EN 12094),

— sprinkler systems (EN 12259 and EN 12845),

— powder systems (EN 12416),

— explosion protection systems (EN 26184),

— foam systems (EN 13565),

— hose systems (EN 671),

— smoke and heat control systems (EN 12101),

— water spray systems (EN 14816).

This standard has the general title "Fixed firefighting systems – Components for gas extinguishing systems" and will consist of the following parts:

— Part 1: Requirements and test methods for electrical automatic control and delay devices,

— Part 2: Requirements and test methods for non-electrical automatic control and delay devices,

— Part 3: Requirements and test methods for manual triggering and stop devices,

— Part 4: Requirements and test methods for container valve assemblies and their actuators,

— Part 5: Requirements and test methods for high and low pressure selector valves and their actuators,

— Part 6: Requirements and test methods for non-electrical disable devices,

— Part 7: Requirements and test methods for nozzles for CO_2 systems,

— Part 8: Requirements and test methods for connectors,

— Part 9: Requirements and test methods for special fire detectors,

— Part 10: Requirements and test methods for pressure gauges and pressure switches,

— Part 11: Requirements and test methods for mechanical weighing devices,

— Part 12: Requirements and test methods for pneumatic alarm devices,

— Part 13: Requirements and test methods for check valves and non-return valves,

— Part 16: Requirements and test methods for odorizing devices for CO_2 low pressure systems,

— Part 20: Requirements and test methods for the compatibility of components.

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.

Introduction

It has been assumed in the preparation of this European Standard that the execution of its provisions is entrusted to appropriately qualified and experienced people.

All pressure data in this European Standard are given as gauge pressures in bar, unless otherwise stated.

NOTE 1 bar = 10^5 N m^{-2} = 100 kPa.

1 Scope

This European Standard specifies requirements and test methods for non-electrical disable devices for CO_2, Inert gas- or Halocarbon gas fire extinguishing systems.

Examples are:

a) an isolating valve in the pipework to the flooding zone or in a pneumatic pilot line;

b) a device blocking the actuator at the bank of containers or the container valve in single-zone installations or the actuator of selector valves in multiple-zone installations.

2 Normative references

The following referenced documents are indispensable for the application of this European Standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 12094-5, *Fixed firefighting systems — Components for gas extinguishing systems — Part 5: Requirements and test methods for high and low pressure selector valves and their actuators*

EN 60068-2-6:1995, *Environmental testing — Part 2: Tests — Tests Fc: Vibration (sinusoidal) (IEC 60068-2-6:1995 + Corrigendum 1995)*

EN ISO 9001:2000, Quality management systems — Requirements (ISO 9001:2000)

3 Terms and definitions

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

3.1
activated condition
condition when the system operates after alarm

3.2
actuator
component which causes a valve to operate

3.3
CO_2-high-pressure installation
fire extinguishing installation in which the CO_2 is stored at ambient temperature. For example, the pressure of the CO_2 in storage is p_{abs} = 58,6 bar at 21 °C

3.4
CO_2-low-pressure installation
fire extinguishing installation in which the CO_2 is stored at low temperature, normally –19 °C to -21 °C

3.5
disabled state
state of the non-electrical disable device, when operated and disabling the release of the extinguishing agent into the flooding zone

3.6
Halocarbon Gas
extinguishing agent that contains as primary components one or more organic compounds containing one or more of the elements fluorine, chlorine, bromine or iodine

3.7
Halocarbon Gas installation
fire extinguishing installation in which the Halocarbon Gas is stored at ambient temperature

3.8
Inert Gas
non liquefied gas or mixture of gases which extinguish the fire mainly by reducing the oxygen-concentration in the protected zone, such as Argon, Nitrogen or mixtures of these gases with CO_2

3.9
Inert Gas installation
fire extinguishing installation in which the Inert Gas is stored at ambient temperature

3.10
non-electrical disable device
component that prevents any kind of unintentional release (automatic or manual) of fire extinguishing systems during maintenance work in the protected room or object, without disabling the fire detection and alarm functions

3.11
operational state
state of the non electrical disable device, when not operated and not disabling the release of the extinguishing agent into the flooding zone

3.12
quiescent condition
condition when the system is ready to operate

3.13
working pressure
pressure at which the component is used in the system

4 Requirements

4.1 General design

4.1.1 Disable devices except seals shall be made of metal. All mechanical parts of the actuator shall be made of metal. Operating moving parts shall be manufactured of stainless steel, copper, copper alloy or corrosion-protected steel (e.g. galvanised steel).

All materials shall be resistant to media with which they come into contact.

4.1.2 The non-electric disable device shall isolate either the mechanical and/or pneumatic release triggering or the flooding of a single zone.

NOTE Guidelines for planning and installation may require that each flooding zone can be disabled separately.

If the design of the non-electrical disable device prevents the disablement of each flooding zone in multi zone systems separately, the manufacturer shall limit the use of the component to single zone systems only.

4.1.3 The disabled and the operational states shall be clearly indicated. This indication shall be given at the non-electrical disable device itself.

The non-electrical disable device shall be lockable in the disabled and operational states.

4.1.4 The non-electrical disable device shall not affect the fire detection and pre-warning alarms. The requirement is fulfilled, if compliance is made possible by the design.

NOTE Guidelines for planning and installation may require that fire detection and pre-warning alarms are not affected, when the non-electrical disable device is in the disabled state.

4.1.5 The test sample shall comply with the technical description (drawings, parts list, description of functions, operating and installation instructions) when checked in accordance with 5.3.

4.1.6 The component shall be specified by the manufacturer either for installation on walls only or for installation on both walls and machinery.

4.1.7 The non-electrical disable device shall be able to be reset from the disabled state to the operational state, when the system is in the quiescent condition, and also when the system is in the activated condition.

4.2 Disabling valves

Pilot line disabling valves shall vent any pressure from the pilot line to the atmosphere between disabling valve and the actuator when in the disable position. This may be done by using a 2-position, 3-port ball valve.

NOTE Standards for planning and installation may require monitoring of the status of isolating valves.

For valves in the pipework to the flooding zone and in pilot lines the requirements of 4.1, 4.4, 4.5 and Clause 6 of this European Standard and the applicable clauses of EN 12094-5 shall apply.

Applicable clauses of EN 12094-5 for selector valves covering the requirements and the relevant test methods shall be as follows:

— General design;

— Connection threads and flanges;

— Function and ambient temperature (requirements for opening and closing time are not relevant);

— Internal pressure and leakage;

— Resistance to bursting;

— Operational reliability;

— Flow characteristics (only for valves in the pipework to the flooding zone);

— Corrosion;

— Stress corrosion;

— Vibration.

4.3 Disable devices other than valves

4.3.1 Connection threads

Connection threads shall comply with European or International Standards for threads, e.g. ISO 7-1 and EN ISO 228-1.

4.3.2 Function

The non-electrical disable device shall function, when tested in accordance with 5.4.

4.3.3 Resistance to load

The non-electrical disable device shall withstand in disabled position at least twice the maximum load (force, pressure etc.) occurring in the system and shall show no signs of deterioration, when tested in accordance with 5.5.

4.3.4 Resistance to corrosion

The non-electrical disable device shall operate when tested in accordance with 5.4, after being subjected to the corrosion test in accordance with 5.7.

4.3.5 Resistance to stress corrosion

Any copper alloy part used in the non-electrical disable device shall not crack, when tested in accordance with 5.8.

4.3.6 Resistance to vibration

The drawings and technical data shall be checked to determine whether vibration could have an adverse effect on the performance of the non-electrical disable device. If necessary, vibration tests shall be carried out either in the operational state or in the disabled state (unlocked).

The non-electrical disable device shall not change its state of operation or be damaged, when tested in accordance with 5.9.

4.3.7 Operational reliability

There shall be no deterioration of performance, when a disable device is tested in accordance with 5.10.