SLOVENSKI STANDARD
SIST EN 12094-12:2003

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Vgrajeni gasilni sistemi - Sestavni deli sistemov za gašenje s plinom - 12. del: Zahteve in preskusne metode za pnevmatske alarmne naprave

Fixed firefighting systems - Components for gas extinguishing systems - Part 12: Requirements and test methods for pneumatic alarm devices

Ortsfeste Brandbekämpfungsanlagen - Bauteile für Löschanlagen mit gasförmigen Löschmitteln - Teil 12: Anforderungen und Prüfverfahren für pneumatische Alarmgeräte

Installations fixes de lutte contre l'incendie - Eléments constitutifs pour systemes d'extinction a gaz - Partie 12: Exigences et méthodes d'essai pour dispositifs pneumatiques d'alarme

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13.220.10	Gašenje požara	Fire-fighting
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Fixed firefighting systems - Components for gas extinguishing systems - Part 12: Requirements and test methods for pneumatic alarm devices

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This European Standard was approved by CEN on 7 November 2002.

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, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, 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 document (EN 12094-12:2003) has been prepared by 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 September 2003, and conflicting national standards shall be withdrawn at the latest by September 2005.

This document 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 document.

This part of EN 12094 is one of a number of European Standards prepared by CEN/TC 191 covering components for gas extinguishing systems.

They are included in a series of European Standards planned to cover:

- gas extinguishing systems (EN 12094);
- sprinkler systems (EN 12259:1999+A1 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[1)].

This European 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 high pressure container valve assemblies and their actuators*
- Part 5: *Requirements and test methods for high and low pressure selector valves and their actuators for CO_2 systems*
- Part 6: *Requirements and test methods for non-electrical disable devices for CO_2 systems*

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1) Under preparation.

- Part 7: *Requirements and test methods for nozzles for CO_2 systems*
- Part 8: *Requirements and test methods for flexible connectors for CO_2 systems*
- 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 17: *Pipe hangers*
- 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, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the 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 surface mounted audible alarm devices powered by pneumatic energy (pneumatic alarm devices) to warn persons in flooding zones of CO_2-, Inert Gas- or Halocarbon gas fire extinguishing systems.

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 (including amendments).

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

EN 60651:1994, *Sound level meters (IEC 60651:1993).*

ISO 209-1; *Wrought aluminium and aluminium alloys - Chemical composition and forms of products - Part 1: Chemical composition*

3 Terms and definitions

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

3.1
A-weighted sound level
Sound pressure, expressed in dB, which is 20 times the logarithm to base ten of the ratio of the A-weighted sound pressure to the reference pressure of 20 µPa (20 µN/m^2). A-weighting characteristics are given in EN 60651:1994

3.2
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

3.3
CO_2-low-pressure installation
fire extinguishing installation in which the CO_2 is stored at low temperature, normally – 19 °C to – 21 °C

3.4
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

3.5
halocarbon gas installation
fire extinguishing installation in which the halocarbon gas is stored at ambient temperature

3.6
inert gas
non liquefied gas or mixture of gases which extinguish the fire mainly by reducing the oxygen-concentration in the protected zone, e.g. Argon, Nitrogen or CO_2 or mixtures of these gases

3.7
inert gas installation
fire extinguishing installation in which the inert gas is stored at ambient temperature

3.8
principal axis
line through the geometrical centre of the sound radiation cone, perpendicular to the front surface of the audible alarm device

3.9
reference point
point where the principal axis of the audible alarm device intersects its mounting surface

4 Requirements

4.1 Compliance

The test sample shall comply with the documentation (drawings, parts lists, description of functions, operating and installation instructions) when evaluated in accordance with 5.3.

4.2 Design

Components with passages in the gas flow with free flow cross sections ≤ 7 mm^2 shall be permanently equipped with a filter. The filter shall be made of corrosion resistant metal.

If mesh filters are used, the unrestricted filter surface area shall be at least five times the sum of the gas flow areas in the component and the mesh of the filter shall be between 0,5 times and 0,8 times the smallest dimension of any passage in the gas flow.

If sintered metal filters are used, the surface area of the filter in the gas flow divided by the porosity shall be at least five times the sum of the gas flow areas in the component.

The manufacturer shall specify:

- A-weighted sound level over the pressure range;
- pressure range;
- type of supply gas;
- maximum flow rate of supply gas in the specified pressure range;
- minimum operating temperature: - 20 °C or lower;
- maximum operating temperature: + 50 °C or higher.

Where the manufacturer specifies extended temperature ranges, these temperatures shall be used for the requirement in 4.4 and the test in 5.5.

4.3 Function at normal temperature

The components shall generate an A-weighted sound level between 90 dB(A) and 120 dB(A) at a distance of 1 m, for at least 30 min, when tested in accordance with 5.4.

In this test the flow rate shall not exceed the value given by the manufacturer.

4.4 Function at high and low temperature

Components shall generate an A-weighted sound level not more than ± 15 dB(A) different from their sound level at normal temperature, when tested in accordance with 5.5 at the minimum and maximum specified operating temperatures.

In this test the flow rate shall not exceed the value given by the manufacturer.

4.5 Functional reliability

Components shall generate an A-weighted sound level between 90 dB(A) and 120 dB(A) at a distance of 1 m, when tested in accordance with 5.6 with the minimum and maximum specified supply pressure

In this test the flow rate shall not exceed the value given by the manufacturer.

4.6 Operational reliability

The sound level of the components shall vary not more than ± 6 dB(A), when tested for 100 h in accordance with 5.7.

4.7 Function in cold and moist atmosphere

Components shall generate an A-weighted sound level not more than ± 15 dB(A) different from their sound level at normal temperature, when tested in accordance with 5.8.

4.8 Corrosion

Components shall generate an A-weighted sound level between 90 dB(A) and 120 dB(A) at a distance of 1 m, for at least 5 min, when tested in accordance with 5.4 after being subjected to corrosive atmosphere in accordance with 5.9.

4.9 Stress corrosion

Any copper alloy part used in the component shall not crack, when tested as described in 5.10.

4.10 Vibration

The components shall show no sign of damage and shall generate an A-weighted sound level between 90 dB(A) and 120 dB(A) at a distance of 1 m, for at least 5 min, when tested in accordance with 5.4 after being subjected to vibration in accordance with 5.11.

During vibration the components shall generate a sufficient sound level.

4.11 Impact

Components shall show no sign of damage which could impair proper operation and shall generate an A-weighted sound level between 90 dB(A) and 120 dB(A) at a distance of 1 m, for at least 5 min, when tested in accordance with 5.4 after being subjected to an impact in accordance with 5.12.

4.12 Documentation

4.12.1 The manufacturer shall prepare and maintain documentation.

4.12.2 The manufacturer shall prepare installation and user documentation, which shall be submitted to the testing authority together with the test sample(s). This documentation shall comprise at least the following:

a) a general description of the component, including a list of its features and functions;

b) a technical specification including:

   1) the information mentioned in 4.2;

   2) sufficient information to permit an assessment of the compatibility with other components of the system (if applicable e.g. mechanical, electrical or software compatibility);

c) installation instructions including mounting instructions;

d) operating instructions;

e) maintenance instructions;

f) routine testing instructions, if appropriate.

4.12.3 The manufacturer shall prepare design documentation, which shall be submitted to the testing authority together with the test sample(s). This documentation shall include drawings, part lists, block diagrams (if applicable), circuit diagrams (if applicable) and a functional description to such an extent that compliance with this European Standard may be checked and that a general assessment of the design is made possible.

5 Test methods

5.1 Test conditions

The components shall be assembled for test as specified in the documentation. The tests shall be carried out at a temperature of (25 ± 10) °C, except when otherwise specified for a particular test.

The tolerance for all test parameters is 5 %, unless otherwise stated.