BRITISH STANDARD

BS EN
12094-16:2003

Fixed firefighting systems — Components for gas extinguishing systems —

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

The European Standard EN 12094-16:2003 has the status of a British Standard

ICS 13.220.20

BSI
British Standards

National foreword

This British Standard is the official English language version of EN 12094-16:2003.

This European Standard is the subject to transitional arrangements agreed under a Commission mandate which is intended to lead to CE marking in support of the Construction Products Directive. In order to allow for any changes in national regulations, the Member States have agreed a transition period of 21 months before CE marking becomes effective.

The UK participation in its preparation was entrusted by Technical Committee FSH/18, Fixed fire fighting systems, to Subcommittee FSH/18/6, Gaseous extinguishing media and systems, which has the responsibility to:

— aid enquirers to understand the text;

— present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;

— monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the *BSI Catalogue* under the section entitled "International Standards Correspondence Index", or by using the "Search" facility of the *BSI Electronic Catalogue* or of British Standards Online.

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This British Standard was published under the authority of the Standards Policy and Strategy Committee on 2 April 2003

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Fixed firefighting systems - Components for gas extinguishing systems - Part 16: Requirements and test methods for odorizing devices for CO_2 low pressure systems

Installations fixes de lutte contre l'incendie - Eléments constitutifs pour installations d'extinction à gaz - Partie 16: Exigences et méthodes d'essai pour dispositifs odorisants pour installations à CO_2 basse pression

Ortsfeste Brandbekämpfungsanlagen - Bauteile für Löschanlagen mit gasförmigen Löschmitteln - Teil 16: Anforderungen und Prüfverfahren für Odoriergeräte für CO_2-Niederdruckanlagen

This European Standard was approved by CEN on 21 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.

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

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Contents

Foreword

This document (EN 12094-16:2003) 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 September 2003, and conflicting national standards shall be withdrawn at the latest by September 2003.

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*
- 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*

[1)] Under preparation.

- 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 compo*nents

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.

Product certification: Users of this European Standard are advised to consider the desirability of independent certification of product conformity with this European Standard based on testing and continuing surveillance, which may be combined with an assessment of the manufacturer's quality management system in accordance with EN ISO 9001.

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 describes test methods for odorizing devices for CO_2 low pressure systems which release an odorizing substance into the extinguishant during discharge.

This European Standard is applicable to odorizing devices for CO_2 low pressure systems, which are not pressurized before discharge.

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).

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

ISO 228-1, *Pipe threads where pressure-tight joints are not made on the threads - Part 1: Dimensions, tolerances and designation.*

3 Terms and definitions

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

3.1
CO_2-low-pressure installation
fire extinguishing installation in which the CO_2 is stored at low temperature, normally –19 °C to –21 °C

3.2
odorizing device
component which release an odorizing substance into the extinguishant during discharge

3.3
working pressure
pressure at which the component is used in the system

4 Requirements

4.1 General design

The component except seals shall be made of metal. Metal parts of the component shall be made of corrosion resistant materials, e.g. stainless steel, copper, copper alloy or corrosion-protected steel (e.g. galvanized steel, cadmium-plated steel).

The component shall be designed not to restrict flow of the extinguishant.

The component shall be specified by the manufacturer for a working pressure of at least 25 bar.

The manufacturer shall specify the minimum velocity of the CO_2 flow which is necessary for effective operation.

4.2 Connection threads

Connection threads shall conform to International Standards or European Standards for threads, e.g. ISO 7-1 or ISO 228-1.

4.3 Resistance to internal pressure and leakage

The housing of the component shall not leak when pressurized at 37,5 bar in accordance with 5.4.

4.4 Function

The component shall operate and release the odorizing substance into the extinguishant when tested in accordance with 5.5.

4.5 Documentation

4.5.1 The manufacturer shall prepare and maintain documentation.

4.5.2 The manufacturer shall prepare installation and user documentation, which shall be submitted to the testing authority together with the 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 4.1;

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

c) installation instructions including mounting instructions;

d) operating instructions;

e) maintenance instructions;

f) routine testing instructions, if appropriate.

4.5.3 The manufacturer shall prepare design documentation, which shall be submitted to the testing authority together with the sample(s). This documentation shall include drawings, parts 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 possible.

5 Test methods

5.1 Test conditions

The components shall be tested assembled as recommended for installation by the manufacturer. The tests shall be carried out at a temperature of (25 ± 10) °C, except when otherwise stated.

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

5.2 Test samples and order of tests

For the test three samples are required. The order of tests is shown in Table 1.

Table 1 — Order of tests

Test exposure	Test order for		
	Sample A	Sample B	Sample C
5.3 Compliance	1	1	1
5.4 Internal pressure and leakage	2	2	2
5.5 Function	3	-	-

5.3 Compliance

This test relates to the requirements specified in 4.1.

A visual and measurement check shall be made to determine whether the test samples correspond to the description in the drawings, parts lists, description of functions, operating and installation instructions.

5.4 Internal pressure and leakage test

This test relates to the requirements specified in 4.3.

The odorizing device shall be connected to a suitable hydraulic pressure supply. Provision for venting shall be available.

Vent the system of air and increase the pressure at (2 ± 1) bar/s up to the test pressure.

Maintain this pressure for a period of (10^{+1}_{0}) min. At the end of this period release the hydraulic pressure.

5.5 Function test

This test relates to the requirements specified in 4.4.

The test sample shall be installed in a test pipe of nominal diameter DN 50 in accordance with the manufacturers instructions.

Flow CO_2 through the pipework at the minimum velocity as specified by the manufacturer and at a pressure of 10 bar for 2 min.

Verify compliance with the requirements of 4.4.

6 Marking

The components shall be marked with:

a) the name or trademark of the manufacturer or supplier; and

b) the model designation (type); and

c) the nominal pressure; and

d) some mark(s) or code(s) (e.g. serial number or batch code), by which, at least, the date or batch and place of manufacture (if several places of manufacture) can be identified by the manufacturer; and

e) the flow direction, if necessary.

The markings shall be non-detachable, non-flammable, permanent and legible.

Bibliography

EN 45011, *General requirements for certification bodies operating product certification systems (ISO/IEC Guide 65:1996).*

EN ISO 9001, *Quality management systems – Requirements (ISO 9001:2000).*

EN ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories (ISO/IEC 17025:1999).*

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British Standards are updated by amendment or revision. Users of British Standards should make sure that they possess the latest amendments or editions.

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