

# Fixed firefighting systems — Components for gas extinguishing systems —

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

The European Standard EN 12094-6:2006 has the status of a  
British Standard

ICS 13.220.20

## National foreword

This British Standard is the official English language version of EN 12094-6:2006. It supersedes BS EN 12094-6:2001 which is withdrawn.

The UK participation in its preparation was entrusted by Technical Committee FSH/18, Fixed firefighting 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 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

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### Summary of pages

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

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

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<sub>2</sub> systems,

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- 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<sub>2</sub> 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 =  $10^5 \text{ N m}^{-2}$  = 100 kPa.

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### 1 Scope

This European Standard specifies requirements and test methods for non-electrical disable devices for CO<sub>2</sub>, 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<sub>2</sub>-high-pressure installation**

fire extinguishing installation in which the CO<sub>2</sub> is stored at ambient temperature. For example, the pressure of the CO<sub>2</sub> in storage is  $p_{abs} = 58,6$  bar at 21 °C

#### 3.4

##### **CO<sub>2</sub>-low-pressure installation**

fire extinguishing installation in which the CO<sub>2</sub> 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<sub>2</sub>

**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.

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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.

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### 4.4 Operating force

The force required to operate the non-electrical disable device shall not exceed:

- a) 150 N for hand operation or
- b) 50 N for finger pull operation or
- c) 10 N for finger push operation

when tested in accordance with 5.6.

### 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 and 4.2 including the information required by EN 12094-5, if applicable;
  - 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 instruction, if appropriate.

**4.5.3** The manufacturer shall prepare design documentation, which shall be submitted to the testing authority together with the sample(s), except where the conditions of supply to the manufacturer make this impossible. 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 document may be checked and that a general assessment of the design is possible.

## 5 Type test methods

### 5.1 Conditions

The components shall be tested assembled as recommended for installation by the manufacturer. The tests shall be carried out at a temperature of  $(25 \pm 10) ^\circ\text{C}$ , except when otherwise stated.

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

## 5.2 Samples

The manufacturer shall submit for tests three samples.

The sequence of tests is shown in Table 1 and is given by the numbers 1, 2, 3 etc. in the table. A, B and C are the different samples.

**Table 1 — Order of tests**

Tests methods	Order of tests for		
	sample A	sample B	sample C
5.3 Compliance	1	1	1
5.4 Function	3	4	—
5.5 Test for resistance to load	4	—	—
5.6 Determination of operating force	2/5	3	—
5.7 Test for resistance to corrosion	—	2	—
5.8 Test for resistance to stress corrosion	—	—	4
5.9 Vibration test	—	—	3
5.10 Operational reliability	—	—	2

## 5.3 Compliance

A visual and measurement check shall be made to determine whether the non-electrical disable device corresponds to the description in the technical literature (drawings, parts lists, description of functions, operating and installation instructions).

## 5.4 Function

NOTE This test relates to the requirements of 4.3.2.

The device shall be set in the disabled position and the actuator of the system shall be triggered. It shall be ensured that the device has functioned correctly. The system and the non-electrical disable device shall be reset.

This test shall be repeated 10 times.

Following this test cycle a test of the correct function of the device in the non-disabled condition, permitting correct operation of the system, shall be made.

## 5.5 Test for resistance to load

NOTE This test relates to the requirements of 4.3.3.

Non-electrical disable devices shall be subjected to all relevant loads or forces. In each case the load or force shall be twice the maximum occurring in the system.

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### 5.6 Determination of operational force

NOTE This test relates to the requirements of 4.4.

The force needed to set and reset the non-electrical disable device shall be measured when the system is in the quiescent condition.

Additionally the force needed to reset the non-electrical disable device shall be measured when the system is in the activated condition.

### 5.7 Test for resistance to corrosion

NOTE 1 This test relates to the requirements of 4.3.4.

NOTE 2 The purpose of this test is to evaluate the ageing of components in automatic extinguishing systems where they are located in a corrosive environment. Ageing is accelerated to enable testing within an abbreviated period of time. The content of the corrosive agent in the atmosphere has consequently been intentionally elevated to a level higher than what would normally be expected in practice.

The components and properties of the reagents and the test specification are:

- a) solution consists of NaCl in distilled water;
- b) pH value: 6,5 to 7,5;
- c) concentration of the solution:  $5 \pm 1$  %;
- d) spray pressure: 0,6 bar to 1,5 bar;
- e) spray volume: 1 ml/h to 2 ml/h on an area of 80 cm<sup>2</sup>;
- f) temperature in the test cabinet:  $(35^{+1,0}_{-1,7})$  °C;
- g) position of the sample: 15 ° to the vertical axis;
- h) spray time:  $(240 \pm 2)$  h;
- i) drying time: 7 d at a maximum humidity of 70 %.

### 5.8 Test for resistance to stress corrosion

NOTE This test relates to the requirements of 4.3.5.

Use a suitable container of known capacity in litres fitted with a capillary tube vent. The aqueous ammonia solution shall have a specific mass of  $(0,94 \pm 0,02)$  kg/l. The container shall be filled with  $(10 \pm 0,5)$  ml of the solution for each litre of container volume.

Degrease the sample for test and expose for 10 d to the moist atmosphere of ammonia and air, at a temperature of  $(34 \pm 2)$  °C. The samples are positioned  $(40 \pm 5)$  mm above the level of the liquid.

After testing, the samples are cleaned and dried and subjected to careful visual examination. Any cracking shall be clearly apparent. To make cracking clearly visible, the liquid penetration method shall be used.

## 5.9 Vibration test

NOTE This test relates to the requirements of 4.3.6.

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.

The sample shall be attached to a vibration table using fixing materials provided by the manufacturer.

The test apparatus and procedure shall be as described in EN 60068-2-6:1995, Test Fc:

- frequency range: 10 Hz to 150 Hz;
- acceleration amplitude for components which are intended to be attached to machinery:
  - 10 Hz to 50 Hz: 1,0  $g_n$ ;
  - 50 Hz to 150 Hz: 3,0  $g_n$ ;
- acceleration amplitude for components which are intended to be attached to walls:
  - 10 Hz to 50 Hz: 0,2  $g_n$ ;
  - 50 Hz to 150 Hz: 0,5  $g_n$ ;
- sweep rate: 1 octave per 30 min;
- number of sweeps: 0,5 per axis;
- number of axes: 3 mutually perpendicular.

Components shall not operate during the test caused by the vibrations. No deterioration or detachment of parts shall occur.

## 5.10 Operational reliability

NOTE This test relates to the requirements of 4.3.7.

Set the device in the disabled position and trigger the actuator of the system. Reset the systems and the non-electrical disable device.

This test shall be repeated 100 times.

## 6 Marking

Non-electrical disable devices shall be marked with the following:

- a) manufacturer's or supplier's name or trademark;
- b) nominal diameter or model designation;
- c) working pressure, if applicable;
- 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;

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- e) mounting position, if applicable;
- f) direction of flow, if applicable.

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

Where the requirements of ZA.3 give the same information as in this clause, the requirements of this clause have been met.

## 7 Evaluation of conformity

### 7.1 General

The compliance of the component with the requirements of this European Standard shall be demonstrated by:

- initial type testing;
- factory production control by the manufacturer.

**NOTE** The manufacturer is a natural or legal person, who places the component on the market under his own name. Normally, the manufacturer designs and manufactures the component himself. As a first alternative, he may have it designed, manufactured, assembled, packed, processed or labelled by subcontracting. As a second alternative he may assemble, pack, process, or label ready-made products.

The manufacturer shall ensure:

- that the initial type testing in accordance with this European Standard is initiated and carried out (where relevant, under the control of a product certification body), and
- that the component continuously complies with the initial type testing samples, for which compliance with this European Standard has been verified.

He shall always retain the overall control and shall have the necessary competence to take the responsibility for the component.

The manufacturer shall be fully responsible for the conformity of that component to all relevant regulatory requirements. However, where the manufacturer uses components already shown to conform to those requirements relevant for that component (e.g. by CE marking) the manufacturer is not required to repeat the evaluation which led to such conformity. Where the manufacturer uses components not already shown to conform, it is his responsibility to undertake the necessary evaluation to show conformity.

### 7.2 Initial type testing

**7.2.1** Initial type testing shall be performed to demonstrate conformity with this European Standard.

All characteristics given in Clause 4 (except 4.5) shall be subject to this initial type testing, except as described in 7.2.3 to 7.2.5.

**7.2.2** In the case of modification of the component or of the method of production (where these may affect the stated properties), initial type testing shall be performed. All characteristics given in Clause 4 (except 4.5), which may be changed by the modification, shall be subject to this initial type testing, except as described in 7.2.3 to 7.2.5.

**7.2.3** Tests previously performed in accordance with the provisions of this European Standard may be taken into account providing that they were made to the same or a more rigorous test method under the same system of attestation of conformity on the same component or components of similar design, construction and functionality, such that the results are applicable to the component in question.



NOTE Same system of attestation of conformity means testing by an independent third party under the responsibility of a product certification body which is now a notified product certification body.

**7.2.4** Components may be grouped into families where one or more characteristics are the same for all components within that family or the test results are representative of all components within that family. In this case not all components of the family have to be tested for the purposes of the initial type testing.

**7.2.5** Where the characteristics of the component have previously been demonstrated according to the requirements of EN 12094-5, no further evaluation of the component, in respect of these characteristics, is required to show conformity with this European Standard.

**7.2.6** Test samples shall be representative of the normal production. If the test samples are prototypes, they shall be representative of the intended future production and shall be selected by the manufacturer.

NOTE In the case of prototypes and product certification body certification, this means that it is the manufacturer not the third party who is responsible for selecting the samples. During the initial inspection of the factory and of the factory production control (see 7.3), it is verified that the component continuously complies with the initial type testing samples.

**7.2.7** If the technical documentation of the test samples does not give a sufficient basis for later compliance checks, a reference sample (identified and marked) shall remain available for this purpose.

**7.2.8** All initial type testing and its results shall be documented in a test report.

### **7.3 Factory production control (FPC)**

#### **7.3.1 General**

The manufacturer shall establish, document and maintain an FPC system to ensure that the components placed on the market conform to the stated performance characteristics.

If the manufacturer has the component designed, manufactured, assembled, packed, processed and labelled by subcontracting, FPC of the subcontractor may be taken into account. Where subcontracting takes place, the manufacturer shall retain the overall control of the component and ensure that he receives all the information that is necessary to fulfil his responsibilities according to this European Standard. The manufacturer who subcontracts all of his activities may in no circumstances discharge himself of his responsibilities to a subcontractor.

FPC is the permanent internal control of production exercised by the manufacturer.

All the elements, requirements and provisions adopted by the manufacturer shall be documented in a systematic manner in the form of written policies and procedures. This production control system documentation shall ensure a common understanding of conformity evaluation and enable the achievement of the required component characteristics and the effective operation of the production control system to be checked.

Factory production control therefore brings together operational techniques and all measures allowing maintenance and control of the conformity of the component with technical specifications. Its implementation may be achieved by controls and tests on measuring equipment, raw materials and constituents, processes, machines and manufacturing equipment and finished components, including material properties in components, and by making use of the results thus obtained.

#### **7.3.2 General requirements**

The FPC system shall fulfil the requirements as described in the following clauses of EN ISO 9001:2000:

- 4.2 except 4.2.1 a);
- 5.1 e), 5.5.1, 5.5.2;

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- Clause 6;
- 7.1 except 7.1 a), 7.2.3 c), 7.4, 7.5, 7.6;
- 8.2.3, 8.2.4, 8.3, 8.5.2.

The FPC system may be part of a Quality Management system, e.g. in accordance with EN ISO 9001:2000.

### 7.3.3 Component specific requirements

**7.3.3.1** The FPC system shall,

- address this European Standard, and
- ensure that the components placed on the market conform with the stated performance characteristics.

**7.3.3.2** The FPC system shall include a component specific FPC- or Quality-plan, which identifies procedures to demonstrate conformity of the component at appropriate stages, i.e.:

- a) the controls and tests to be carried out prior to and/or during manufacture according to a frequency laid down, and/or
- b) the verifications and tests to be carried out on finished components according to a frequency laid down.

If the manufacturer uses finished components, the operations under b) shall lead to an equivalent level of conformity of the component as if normal FPC had been carried out during the production.

If the manufacturer carries out parts of the production himself, the operations under b) may be reduced and partly replaced by operations under a). Generally, the more parts of the production are carried out by the manufacturer, the more operations under b) may be replaced by operations under a). In any case the operation shall lead to an equivalent level of conformity of the component as if normal FPC had been carried out during the production.

**NOTE** Depending on the specific case, it may be necessary to carry out the operations referred to under a) and b), only the operations under a) or only those under b).

The operations under a) centre as much on the intermediate states of the component as on manufacturing machines and their adjustment, and measuring equipment etc. These controls and tests and their frequency are chosen based on component type and composition, the manufacturing process and its complexity, the sensitivity of component features to variations in manufacturing parameters etc.

The manufacturer shall establish and maintain records which provide evidence that the production has been sampled and tested. These records shall show clearly whether the production has satisfied the defined acceptance criteria and shall be available at least for ten years. Where the component fails to satisfy the acceptance measures, the provisions for non-conforming products shall apply, the necessary corrective action shall immediately be taken and the components or batches not conforming shall be isolated and properly identified. Once the fault has been corrected, the test or verification in question shall be repeated.

The results of controls and tests shall be properly recorded. The component description, date of manufacture, test method adopted, test results and acceptance criteria shall be entered in the records under the signature of the person responsible for the control/test. With regard to any control result not meeting the requirements of this European Standard, the corrective measures taken to rectify the situation (e.g. a further test carried out, modification of manufacturing process, throwing away or putting right of component) shall be indicated in the records.

**7.3.3.3** Individual components or batches of components and the related manufacturing documentation shall be completely identifiable and retraceable.

### 7.3.4 Initial inspection of factory and FPC

**7.3.4.1** Initial inspection of factory and FPC shall generally be carried out when the production is already running and the FPC is already in practice. It is however possible, that the initial inspection of factory and FPC is carried out before the production is already running and/or before the FPC is already in practice.

**7.3.4.2** The following shall be assessed to verify that the requirements of 7.3.2 and 7.3.3 are fulfilled:

- the FPC-documentation, and
- the factory.

In the assessment of the factory it shall be verified:

- a) that all resources necessary for the achievement of the component characteristics required by this European Standard are or will be (see 7.3.4.1) available, and
- b) that the FPC-procedures in accordance with the FPC-documentation are or will be (see 7.3.4.1) implemented and followed in practice, and
- c) that the component complies or will comply (see 7.3.4.1) with the initial type testing samples, for which compliance with this European Standard has been verified; and
- d) whether the FPC system is part of a Quality Management system in accordance with EN ISO 9001 (see 7.3.2) and as part of this Quality Management system is certified and has yearly surveillance by a certification body.

**7.3.4.3** All factories of the manufacturer, where for the relevant component final assembling or at least final testing is performed, shall be assessed to verify that the conditions of 7.3.4.2 a) to c) are in place. One assessment may cover one or more components, production lines and/or production processes. If the FPC system covers more than one component, production line or production process, and if it is verified that the general requirements are fulfilled, the assessment of these general requirements does not need to be repeated when assessing the product-specific requirements for another product.

**7.3.4.4** Assessments previously performed in accordance with the provisions of this European Standard may be taken into account providing that they were made to the same system of attestation of conformity on the same component or components of similar design, construction and functionality, such that the results may be considered applicable to the component in question.

**NOTE** Same system of attestation of conformity means testing by an independent third party under the responsibility of a product certification body which is now a notified product certification body.

**7.3.4.5** All assessment and its results shall be documented in a report.

### 7.3.5 Continuous surveillance of FPC

**7.3.5.1** All factories which have been assessed according to 7.3.4 shall be re-assessed once a year, except as stated in 7.3.5.2.

In this case each FPC assessment shall verify a different component or production process, where applicable.

**7.3.5.2** If the manufacturer provides proof of continuing satisfactory operation of his FPC system the frequency of the re-assessment may be reduced to once every four years.

**NOTE 1** Sufficient proof can be the report of a certification body, see 7.3.4.2 d).

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NOTE 2 If the overall Quality Management system in accordance with EN ISO 9001 is well implemented (verified in the initial assessment of factory and FPC) and continuously practised (verified in QM-audits), it can be assumed that the integrated FPC-relevant part is well covered. On this basis, the work of the manufacturer is well controlled, so that the frequency of special FPC-surveillance-assessments can be reduced.

**7.3.5.3** All assessment and its results shall be documented in a report.

**7.3.6 Procedure for modifications**

In the case of modification of the component, the method of production or the FPC system (where these may affect the stated properties), a re-assessment of the factory and of the FPC system shall be performed for those aspects which may be affected by the modification.

Any assessment and its results shall be documented in a report.

## Annex ZA (informative)

### Clauses of this European Standard addressing the provisions of the EU Construction Products Directive

#### ZA.1 Scope and relevant characteristics

This European Standard has been prepared under Mandate M/109 given to CEN by the European Commission and the European Free Trade Association.

The clauses of this European Standard shown in this annex meet the requirements of the Mandate given under the EU Construction Products Directive (89/106/EEC).

Compliance with these clauses confers a presumption of fitness of non-electrical disable devices covered by this annex for the intended use indicated herein; reference shall be made to the information accompanying the CE marking.

**WARNING — Other requirements and other EU Directives, not affecting the fitness for intended use can be applicable to non-electrical disable devices falling within the scope of this European Standard.**

NOTE 1 In addition to any specific clauses relating to dangerous substances contained in this standard, there may be other requirements applicable to the products falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the EU Construction Products Directive, these requirements need also to be complied with, when and where they apply.

NOTE 2 An informative database of European and national provisions on dangerous substances is available at the Construction web site on EUROPA (accessed through <http://europa.eu.int/comm/enterprise/construction/internal/dangsub/dangmain.htm>).

This annex establishes the conditions for the CE marking of the non-electrical disable devices intended for the uses indicated in Table ZA.1 and shows the relevant clauses applicable.

This annex has the same scope as Clause 1 of this standard and is defined by Table ZA.1.

**Table ZA.1 — Relevant clauses**

<b>Product :</b> Non-electrical disable devices			
<b>Intended use:</b> Components for use in gas extinguishing systems installed in buildings as a part of a complete operating system			
Essential characteristics	Clauses in this European Standard	Mandated levels and/or classes	Notes
Operational reliability	4.1, 4.2 <sup>a</sup> , 4.3.1 <sup>a</sup> , 4.3.2 <sup>a</sup> , 4.3.3 <sup>a</sup> , 4.3.7 <sup>a</sup> , 4.4	—	<sup>a</sup> Depending on the type of the device
Durability of operational reliability	4.3.4 <sup>a</sup> , 4.3.5 <sup>a</sup> , 4.3.6 <sup>a</sup>	—	<sup>a</sup> Depending on the type of the device

**EN 12094-6:2006 (E)****ZA.2 Procedure for the attestation of conformity of non-electrical disable devices****ZA.2.1 Systems of attestation of conformity**

The system of attestation of conformity of non-electrical disable devices indicated in Table ZA.1, in accordance with the Decisions of the Commission 96/577/EC of 1996-06-24 and 2002/592/EC of 2002-07-15 as given in Annex III of the mandate M/109, is shown in Table ZA.2 for the indicated use.

**Table ZA.2 — System of attestation of conformity**

Product	Intended use	Level(s) or class(es)	Attestation of conformity system
Non-electrical disable devices	Fire safety	—	1
System 1: See Directive 89/106/EEC (CPD) Annex III.2.(i), without audit testing of samples			

The product certification body shall certify the initial type testing of all relevant characteristics given in Table ZA.1 in accordance with the provisions of 7.2, and for the initial inspection of the factory and of the factory production control, and for the continuous surveillance, assessment and approval of the factory production control, all relevant characteristics shall be of interest to the approved body, see 7.3. The manufacturer shall operate a factory production control system in accordance with the provisions of 7.3.

**ZA.2.2 Certificate and Declaration of conformity**

When compliance with the conditions of this annex is achieved, the certification body shall draw up a certificate of conformity (EC Certificate of conformity), which entitles the manufacturer to affix the CE marking. The certificate shall include:

- name, address and identification number of the certification body;
- name and address of the manufacturer, or his authorised representative established in the EEA, and place of production;

NOTE 1 The manufacturer may also be the person responsible for placing the product onto the EEA market, if he takes responsibility for CE marking.

- description of the product (type, identification, use);
- provisions to which the product conforms (i.e. Annex ZA of this EN);
- particular conditions applicable to the use of the product (e.g. provisions for use under certain conditions);
- the number of the certificate;
- conditions and period of validity of the certificate, where applicable;
- name of, and position held by, the person empowered to sign the certificate.

In addition, the manufacturer shall draw up a declaration of conformity (EC Declaration of conformity) including the following:

- name and address of the manufacturer, or his authorised representative established in the EEA, and the place of production;
- name, address and identification number of the certification body;

- description of the product (type, identification, use), and a copy of the information accompanying the CE marking;

NOTE 2 Where some of the information required for the Declaration is already given in the CE marking information, it does not need to be repeated.

- provisions to which the product conforms (i.e. Annex ZA of this EN);
- particular conditions applicable to the use of the product (e.g. provisions for use under certain conditions);
- number of the accompanying EC Certificate of conformity;
- name of and position held by the person empowered to sign the declaration on behalf of the manufacturer or of his authorised representative.

The declaration and certificate shall be presented in the language or languages accepted in the Member State of the use of the product.

### ZA.3 CE Marking and labelling

The manufacturer or his authorised representative established within the EEA is responsible for the affixing of the CE marking. The CE marking symbol to affix shall be in accordance with Directive 93/68/EEC and shall be shown on the component, or a label attached to the component, together with the marking as specified in Clause 6, except d). In addition, the CE marking symbol shall appear on the packaging and/or on the accompanying commercial documents, together with the following information:

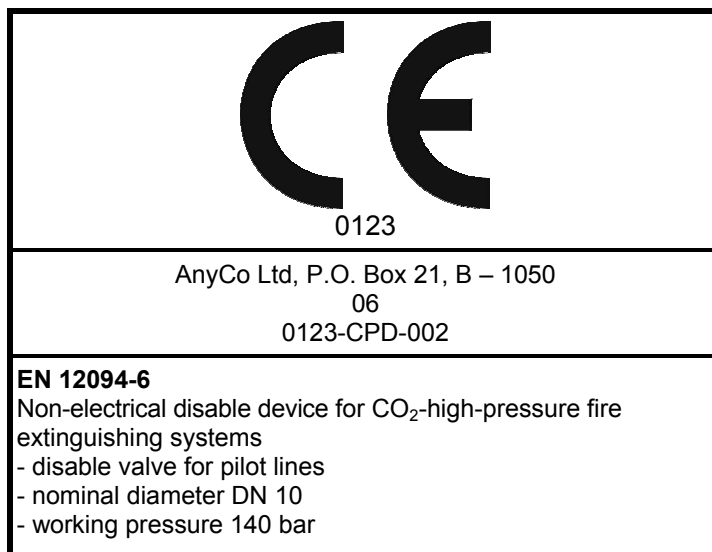
- identification number of the certification body, and
- the last two digits of the year in which the marking was affixed, and
- the appropriate number of the EC-certificate of conformity, and
- the number of this standard (EN 12094-6), and
- type of product (non-electrical disable device), and
- type of system (i.e. CO<sub>2</sub>-high-pressure fire extinguishing system, CO<sub>2</sub>-low-pressure fire extinguishing, Inert gas systems, Halocarbon gas systems), and
- disablement function (disable valve for pilot lines, disable valve for pipework or mechanical disable device), and
- only for disable valves: nominal diameter, and
- only for disable valves in pilot lines: working pressure, and
- the wording "wall mounting only"<sup>1)</sup>, if subjected to limited vibration testing, and
- the wording "for single zone systems only"<sup>1)</sup>, if applicable.

Figure ZA.1 gives an example of the information to be given on the packaging and/or commercial documents.

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1) A list with equivalent words in all languages accepted by each CEN member is under preparation.

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**Figure ZA.1 — Example CE marking information**

In addition to any specific information relating to dangerous substances shown above, the product should also be accompanied, when and where required and in the appropriate form, by documentation listing any other legislation on dangerous substances for which compliance is claimed, together with any information required by that legislation.

NOTE European legislation without national derogation need not be mentioned.



## Bibliography

- [1] prEN 12094-20, *Fixed firefighting systems — Components for gas extinguishing systems – Part 20: Requirements and test methods for the compatibility of components*<sup>2)</sup>
- [2] EN 45011, *General requirements for bodies operating product certification systems (ISO/IEC Guide 65:1996)*
- [3] EN ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories (ISO/IEC 17025:1999)*
- [4] EU Directive 93/68/EEC, COUNCIL DIRECTIVE 93/68/EEC of 22 July 1993 amending Directives 87/404/EEC (simple pressure vessels), 88/378/EEC (safety of toys), 89/106/EEC (construction products), 89/336/EEC (electromagnetic compatibility), 89/392/EEC (machinery), 89/686/EEC (personal protective equipment), 90/384/EEC (non-automatic weighing instruments), 90/385/EEC (active implantable medicinal devices), 90/396/EEC (appliances burning gaseous fuels), 91/263/EEC (telecommunications terminal equipment), 92/42/EEC (new hot-water boilers fired with liquid or gaseous fuels) and 73/23/EEC (electrical equipment designed for use within certain voltage limits)
- [5] EN ISO 228-1, *Pipe threads where pressure-tight joints are not made on the threads — Part 1: Dimensions, tolerances and designation (ISO 228-1:2000)*
- [6] ISO 7-1, *Pipe threads where pressure-tight joints are made on the threads — Part 1: Dimensions, tolerances and designation*

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2) Under preparation.

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