



SLOVENSKI STANDARD

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Vgrajeni gasilni sistemi - Sestavni deli sistemov za gašenje s plinom - 11. del: Zahteve in preskusne metode za mehanske naprave za tehtanje

Fixed firefighting systems - Components for gas extinguishing systems - Part 11:
Requirements and test methods for mechanical weighing devices

Ortsfeste Brandbekämpfungsanlagen - Bauteile für Löschanlagen mit gasförmigen
Löschmitteln - Teil 11: Anforderungen und Prüfverfahren für mechanische
Wägeeinrichtungen

Installations fixes de lutte contre l'incendie - Eléments constitutifs pour installations
d'extinction a gaz - Partie 11: Exigences et méthodes d'essai pour dispositifs de pesée
mécaniques

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13.220.10 Gašenje požara Fire-fighting

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Fixed firefighting systems - Components for gas extinguishing systems - Part 11: Requirements and test methods for mechanical weighing devices

Installations fixes de lutte contre l'incendie - Eléments constitutifs pour installations d'extinction à gaz - Partie 11: Exigences et méthodes d'essai pour dispositifs de pesée mécaniques

Ortsfeste Brandbekämpfungsanlagen - Bauteile für Löschanlagen mit gasförmigen Löschmitteln - Teil 11: Anforderungen und Prüfverfahren für mechanische Wägeeinrichtungen

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.



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Foreword

This document (EN 12094-11:2003) 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 systems¹⁾.

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 CO₂ systems*
- Part 6: *Requirements and test methods for non-electrical disable devices for CO₂ systems*

¹⁾ Under preparation.

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- Part 7: *Requirements and test methods for nozzles for CO₂ systems*
- Part 8: *Requirements and test methods for flexible connectors for CO₂ 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 CO₂ 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.

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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.

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EN 12094-11:2003 (E)**1 Scope**

This European Standard specifies requirements and test methods for mechanical weighing devices for continuous monitoring of containers of CO₂-, Inert Gas- or Halocarbon Gas-Fire Extinguishing Installations.

This European Standard does not cover weighing devices for non-transportable containers which are filled and refilled on site, e.g. CO₂-low-pressure containers.

2 Terms and definitions

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

2.1**CO₂-high-pressure installation**

fire extinguishing installation in which the CO₂ is stored at ambient temperature. For example, the pressure of the CO₂ in storage is $p_{\text{abs}} = 58,6$ bar at 21 °C

2.2**CO₂-low-pressure installation**

fire extinguishing installation in which the CO₂ is stored at low temperature, normally – 19 °C to –21 °C

2.3**gross load**

mass of a container filled with extinguishing medium including valve and actuator

2.4**fill ratio**

the mass of extinguishing medium related to the nominal internal volume of a container expressed in kilograms per litre

2.5**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

2.6**halocarbon gas installation**

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

2.7**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 CO₂ or mixtures of these gases

2.8**inert gas installation**

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

2.9**net load**

mass of the extinguishing medium in a container

3 Requirements

3.1 Compliance

The test sample shall comply with the documentation (drawings, parts lists, description of functions, operating and installation instructions) when assessed in accordance with 4.3.

3.2 Design

A weighing device may be designed for monitoring containers of various sizes, with various fill ratios or with various gases.

NOTE 1 Different combinations of size, fill ratio (where applicable) and type of gas result in different values for gross and net load.

For each combination of gross load and net load, which the weighing device is used for, the manufacturer shall specify:

- a) type of gas;
- b) nominal internal volume of the container;
- c) net load;
- d) gross load;
- e) fill ratio, if applicable.

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A weighing device shall be adjustable to give a loss indication when a mass loss between 5 % and 10 % of the net load occurs. The loss indication shall be maintained until corrective action is taken.

NOTE 2 Normal building movement should not generate a false loss indication.

3.3 Function at normal temperature

A weighing device shall respond to a mass loss of between 5 % and 10 % of the net load, when tested in accordance with 4.4.1.

3.4 Function at high and low temperature

A weighing device shall respond to a mass loss of between 5 % and 10 % of the net load, when tested at – 20 °C and + 50 °C in accordance with 4.5.

3.5 Overload

A weighing device shall respond to a mass loss of between 5 % and 10 % of the net load, when tested in accordance with 4.4.2, after being loaded with twice the maximum gross load in accordance with 4.6.

3.6 Corrosion

A weighing device shall respond to a mass loss of between 5% and 10% of the net load, when tested in accordance with 4.4.2, after being subjected to the corrosive atmosphere in accordance with 4.7.

3.7 Documentation

3.7.1 The manufacturer shall prepare and maintain documentation.

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3.7.2 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 3.2;
 - 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.

3.7.3 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, 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 made possible.

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4 Test methods**4.1 Test conditions**

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The component 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.

4.2 Test samples and order of tests

For the tests one sample is needed. The order of tests is shown in Table 1.

Table 1 — Order of tests

Order of test	Test
1	4.3 Compliance
2	4.4.1 Function at normal temperature
3	4.5 Function at high and low temperature
4	4.6 Overload
5	4.4.2 Function at normal temperature
6	4.7 Corrosion
7	4.4.2 Function at normal temperature

4.3 Compliance

This test relates to the requirements of 3.1.

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

4.4 Function at normal temperature

4.4.1 This test relates to the requirements of 3.3.

If a weighing device is specified by the manufacturer for one combination of gross load and net load, the following sequence a) to d) shall be conducted with the specified gross load and net load.

If a weighing device is specified by the manufacturer for several combinations of gross load and net load, the following sequence a) to d) shall be conducted with the following combinations of gross load and net load:

- maximum gross load, maximum net load;
- maximum gross load, minimum net load;
- medium gross load, medium net load;
- minimum gross load, maximum net load;
- minimum gross load, minimum net load.

- a) Load the test sample with the gross load including an amount of water. The mass of the water shall be at least 15 % of the net load;
- b) Adjust the test sample in accordance with the installation instructions of the manufacturer to correspond to the actual test load applied;
- c) Carry out the following steps:
 - 1) decrease the test load corresponding to a loss of 5 % of the net load by draining water in a period of 2 min to 5 min into a collecting container;
 - 2) stop when loss is indicated;