



# SLOVENSKI STANDARD

## SIST EN 12094-8:2006

01-julij-2006

Nadomešča:  
SIST EN 12094-8:1998

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### Vgrajeni gasilni sistemi – Sestavni deli sistemov za gašenje s plinom – 8. del: Zahteve in preskusne metode za spoje

Fixed firefighting systems - Components for gas extinguishing systems - Part 8:  
Requirements and test methods for connectors

Ortsfeste Brandbekämpfungsanlagen - Bauteile für Löschanlagen mit gasförmigen  
Löschmitteln - Teil 8: Anforderungen und Prüfverfahren für Verbindungen

Installations fixes de lutte contre l'incendie - Éléments constitutifs des installations  
d'extinction a gaz - Partie 8: Exigences et méthodes d'essai pour raccords

Ta slovenski standard je istoveten z: EN 12094-8:2006

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#### **ICS:**

13.220.10      Gašenje požara      Fire-fighting

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NORME EUROPÉENNE  
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## Fixed firefighting systems - Components for gas extinguishing systems - Part 8: Requirements and test methods for connectors

Installations fixes de lutte contre l'incendie - Éléments constitutifs des installations d'extinction à gaz - Partie 8: Exigences et méthodes d'essai pour raccords

Ortsfeste Brandbekämpfungsanlagen - Bauteile für Löschanlagen mit gasförmigen Löschmitteln - Teil 8: Anforderungen und Prüfverfahren für Verbindungen

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

Management Centre: rue de Stassart, 36 B-1050 Brussels

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## Foreword

This European Standard (EN 12094-8:2006) 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 12094-8:1998.

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.

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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<sup>-2</sup> = 100 kPa.

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**EN 12094-8:2006 (E)****1 Scope**

This European Standard specifies requirements and describes test methods for flexible and rigid connectors used in CO<sub>2</sub> -, Inert Gas- or Halocarbon gas fire extinguishing systems.

This European Standard is applicable to connectors used:

- between container valves and the manifold (type 1 and type 5 connector);
- in pneumatic pilot lines (type 3 connector);
- in distribution pipework of fire extinguishing installations downstream of the manifold/selector valve (type 2 or type 4 connector).

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

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**3 Terms and definitions**

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

**3.1****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

**3.2****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

**3.3****fill ratio**

mass of extinguishing medium related to the net capacity of a container expressed as kilograms per litre (kg/l)

**3.4****connector**

component that joins two parts

**3.5****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

**3.6****Halocarbon Gas installation**

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



**3.7****Inert Gas**

non liquefied gas or mixture of gases which extinguish the fire mainly by reducing the oxygen-concentration in the protected zone, like Argon, Nitrogen or mixtures of these gases with CO<sub>2</sub>

**3.8****Inert Gas installation**

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

**3.9****type 1 connector**

flexible connector for connecting container valves to a manifold or check valve

**3.10****type 2 connector**

flexible connector for use in distribution pipework downstream of the manifold/selector valve for the connection of parts which may move relative to each other

**3.11****type 3 connector**

flexible connector for use in pneumatic pilot lines

**3.12****type 4 connector**

flexible connector for use in distribution pipework downstream of the manifold/selector valve for the connection of non-moving parts which allow for dimensional adjustments

**3.13****type 5 connector**

rigid connector for connecting containers to a manifold

**3.14****working pressure**

pressure at which the component is used in the system

**4 Requirements****4.1 General design**

Metal parts of connectors shall be made of stainless steel, copper, copper alloy or corrosion-protected steel (e.g. galvanized).

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

The type of connectors shall be specified by the manufacturer.

Connectors shall be designed so that their function cannot be adversely affected by ageing or environmental influences.

Non-metallic materials and elastomers shall be selected to be stable and not alter their performance over the working life recommended by the manufacturer.

Connectors shall be specified by the manufacturer for working pressure at least in accordance with Table 1.

Connectors may be specified by the manufacturer for use in systems with reduced and controlled pressure only.

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Connectors shall be specified by the manufacturer for bursting pressure of at least three times the working pressure according to Table 1.

The minimum bending radius of flexible connectors shall be specified by the manufacturer.

The maximum angle of deflection of flexible connectors may be specified by the manufacturer.

**Table 1 — Working pressure**

Type	Working pressure			
	in bar			
	CO <sub>2</sub> -high-pressure component	CO <sub>2</sub> -low-pressure component	Inert Gas component	Halocarbon Gas component
Type 1 connector	140	not applicable	see NOTE 1	see NOTE 1
Type 2 connector	60	25	As specified by the manufacturer	see NOTE 2
Type 3 connector	As specified by the manufacturer			
Type 4 connector	60	25	As specified by the manufacturer	see NOTE 2
Type 5 connector	140	not applicable	see NOTE 1	see NOTE 1

NOTE 1 This value is given as the developed pressure in the container at 50 °C with the highest fill ratio/superpressurization, where applicable, or – for components specified for use in systems with reduced and controlled pressure only – as specified by the manufacturer.

NOTE 2 This value is given as the developed pressure in the container at 20 °C with the highest fill ratio/superpressurization, where applicable, or – for components specified for use in systems with reduced and controlled pressure only – as specified by the manufacturer.

**4.2 Connection threads**

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

**4.3 Resistance to leakage**

Connectors shall not leak, and shall show no sign of damage which could impair proper function, when pressurized up to 1,5 times the working pressure according to Table 1 when tested in accordance with 5.4.

**4.4 Resistance to bursting**

Connectors shall not burst when pressurized up to 3 times the working pressure according to Table 1 when tested in accordance with 5.5.

**4.5 Resistance of type 2 and type 4 connectors to pressure and heat**

NOTE Only for type 2 and type 4 connectors.

Type 2 and type 4 connectors shall show no sign of damage which could impair proper function when tested in accordance with 5.6 at the pressure and temperature conditions given in Table 2 and shall not leak when subsequently tested in accordance with 5.4.

**Table 2 — Test conditions for resistance of type 2 and type 4 connectors to pressure and heat**

Test condition	Test pressure in bar	Test temperature in °C
CO <sub>2</sub> -low pressure component	25	600
CO <sub>2</sub> -high pressure component	60	600
Inert Gas component	working pressure (see Table 1)	600
Halocarbon Gas component	working pressure (see Table 1)	600

#### 4.6 Resistance of type 2 and type 4 connectors to heat and cold shock

NOTE Only for type 2 and type 4 connectors, used in CO<sub>2</sub> systems.

Type 2 and type 4 connectors shall show no sign of damage which could impair proper function when tested in accordance with 5.7 and shall not leak when subsequently tested in accordance with 5.4.

#### 4.7 Resistance of flexible connectors to cold

NOTE Not applicable for type 5 connectors.

Flexible connectors shall show no visible sign of damage when tested in accordance with 5.8 and shall not leak when subsequently tested in accordance with 5.4.

#### 4.8 Resistance of type 2 connectors to flexing

NOTE Only for type 2 connectors. <https://standards.iteh.ai/catalog/standards/sist/27c1fc83-aa96-4d28-8d2a-0af433d419a2/sist-en-12094-8-2006>

Type 2 connectors shall not leak when tested in accordance with 5.4 after being tested in accordance with 5.9.

#### 4.9 Documentation

4.9.1 The manufacturer shall prepare and maintain documentation.

4.9.2 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, electrical or software compatibility);
- c) installation instructions including mounting instructions;
- d) operating instructions;
- e) maintenance instructions;
- f) routine testing instructions, if appropriate.