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**Sistemi za nadzor dima in toplote – 9. del: Nadzorne plošče**

Smoke and heat control systems - Part 9: Control panels

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## Smoke and heat control systems - Part 9: Control panels

Systèmes pour le contrôle des fumées et de la chaleur - Partie 9

Rauch- und Wärmefreihaltung - Teil 9: Steuerungstafeln

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 191.

If this draft becomes a European Standard, 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.

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

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# Contents

Page

Foreword ..... 3
1 Scope ..... 7
2 Normative references ..... 7
3 Definitions and abbreviations ..... 7
4 General requirements ..... 10
5 Electrical systems ..... 16
6 Pneumatic systems ..... 30
7 Mechanical control panels (m.c.p) ..... 39
8 Design requirements ..... 40
9 Additional design requirements for software controlled control panels ..... 43
10 Marking ..... 46
11 General test requirements ..... 46
12 Tests ..... 49
13 Evaluation of conformity ..... 62
Annex A (informative) Explanation of access levels ..... 68
Annex B (informative) ..... 70
Annex C (informative) Limitations of the effect of faults (see also 5.1.5) ..... 71
Annex ZA (normative) Clauses of this European Standard addressing essential requirements or other provisions of EU-Directive ..... 72

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OSIST prEN 12101-9:2005
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# Foreword

This document (prEN 12101-9:2004) has been prepared by Technical Committee CEN/TC 191 “Fixed firefighting systems”, the secretariat of which is held by BSI.

This document is currently submitted to the CEN Enquiry.

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 European Standard is one of ten parts of the European standard EN 12101 covering smoke and heat control systems.

This European Standard has the general title Smoke and heat control systems and consists of the following ten parts:

Part 1, Specification for smoke barriers — Requirements and test methods

Part 2, Specification for natural smoke and heat exhaust ventilators

Part 3, Specification for powered smoke and heat exhaust ventilators

Part 4, Natural smoke and heat exhaust ventilation systems — Installation and test methods

Part 5, Design and calculation for smoke and heat exhaust ventilation systems (published as CR 12101-5)

Part 6, Design and calculation methods and installation procedure for pressure differential smoke control systems

Part 7, Specifications for smoke ducts

Part 8, Specifications for smoke dampers

Part 9, Control panels

Part 10, Power supplies

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EN 12101 is included in a series of European Standards planned to cover also:

— Gas extinguishing systems (EN 12094 and EN ISO 14520)

— Sprinkler systems (EN 12259)

— Powder systems (EN 12416)

— Explosion protection systems (EN 26184)

— Foam systems (EN 13565)

— Hose systems (EN 671)

— Water spray systems

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# Introduction

Smoke and heat exhaust ventilation systems create a smoke free layer above the floor by removing smoke and thus improve the conditions for the safe escape and/or rescue of people and animals and the protection of property and permit the fire to be fought while still in its early stages. They also exhaust hot gases released by a fire in the developing stage.

The use of smoke and heat exhaust ventilation systems to create smoke free areas beneath a buoyant smoke layer has become widespread. Their value in assisting in the evacuation of people from construction works, reducing fire damage and financial loss by preventing smoke logging, facilitating fire fighting, reducing roof temperatures and retarding the lateral spread of fire is firmly established. For these benefits to be obtained it is essential that smoke and heat exhaust ventilators operate fully and reliably whenever called upon to do so during their installed life. A heat and smoke exhaust ventilation system is a scheme of safety equipment intended to perform a positive role in a fire emergency.

Components for smoke and heat exhaust ventilation systems should be installed as part of a properly designed system.

Smoke and heat exhaust ventilation systems help to

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— keep the escape and access routes free from smoke;

— facilitate fire fighting operations by creating a smoke free layer;

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— delay and/or prevent flashover and thus full development of the fire;

— protect equipment and furnishings;

— reduce thermal effects on structural components during a fire;

— reduce damage caused by thermal decomposition products and hot gases.

Depending on the design of the system, natural or powered smoke and heat ventilators can be used in a smoke and heat control system.

Control panels are required to control all moving components in a SHEVS system, such as:

— Natural ventilators.

— Powered ventilators.

— Smoke barriers.

— Smoke dampers.

— Air inlets.

SHEVS control panels may also provide control for day to day ventilation and signals to other fire safety equipment under fire conditions.

SHEVS control panels may be for Extra Low Voltage or Low Voltage electrical systems or pneumatic systems or any combination of these.

Power supply equipment for control panels are dealt with in EN 12101-10.

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# 1 Scope

This part of EN 12101 specifies the product performance requirements, classifications and test methods for control panels designed for use in smoke and heat control systems in buildings.

# 2 Normative references

The following referenced documents are indispensable for the application of this document. 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, *Quality systems — Model for quality assurance in design/development, production, installation and servicing (ISO 9001:1994)*

EN ISO 9002, *Quality systems — Model for quality assurance in production, installation and servicing (ISO 9002: 1994)*

EN ISO 9003, *Quality systems — Model for quality assurance in final inspection and test (ISO 9003: 1994)*

EN 54

EN 54-5

EN 54-11

EN ISO 6988

EN 50130-4

EN 60068-1

EN 60068-2-1

EN 60068-2-6

EN 60068-2-52

EN 60068-2-56

EN 60068-2-75

EN 60529

ISO 3098-1

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# 3 Definitions and abbreviations

## 3.1 Definitions

**3.1.1**
**access level**
one of several states of a c.p. in which selected

— controls can be operated;

— manual operations can be carried out;

— indications are visible, and/or;

— information can be obtained.

NOTE Further information on access levels is given in annex A.

**3.1.2**
**addressable point**
a point which can be individually identified at the c.p

**3.1.3**
**basic control panel**
single operation initiating device for a SHEVS component e.g. fireman's switch, manual call point or single use gas bottle assembly

**3.1.4**
**fire condition**
when a fire signal has been received and processed by the c.p., b.c.p. or m.c.p. fire operational position

**3.1.5**
**fire operational position**
configuration of a SHEVS component specified by its designer to be achieved and sustained while the system is venting smoke and heat

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**3.1.6**
**frangible element**
a component which is glass or has the appearance of glass and which after receiving a blow or pressure as instructed, is physically broken or is visibly displaced by change of position and remains in that condition until replaced or reset

**3.1.7**
**mechanical control panel**
operation initiation device for a SHEVS component where the initiation is provided by release of tension in a mechanical linkage (usually a cable) between the panel and the component

**3.1.8**
**powered smoke and heat exhaust ventilator**
hot gas fan that is suitable for handling hot gases for a limited period only

**3.1.9**
**response time**
period between the signal to operate being received by the control panel and the achievement of the fire condition

**3.1.10**
**site specific data**
information that the main program uses and that is specific to the installation. This may include information such as allocation of devices to specific zones, time settings and sensitivity levels

**3.1.11**
**smoke and heat control system**
arrangement of components installed in a construction work to limit the effects of smoke and heat from a fire

**3.1.12**
**smoke and heat exhaust ventilator (SHEV)**
device specially designed to move smoke and hot gases out of the construction work under conditions of fire

**3.1.13**
**smoke and heat exhaust ventilation system (SHEVS)**
smoke and heat exhaust ventilation system consists of components jointly selected to exhaust smoke and heat to establish a buoyant layer of warm gases above cooler, cleaner air

**3.1.14**
**standby condition**
the quiescent condition when the c.p., b.c.p. or m.c.p. is fully operational and waiting to receive a fire signal

**3.1.15**
**ventilator**
device for enabling the movement of gases into or out of a construction work

## 3.2 Abbreviations

b.c.p. = basic control panel

c.p. = control panel

m.c.p. = mechanical control panel

p.s.e. = power supply equipment

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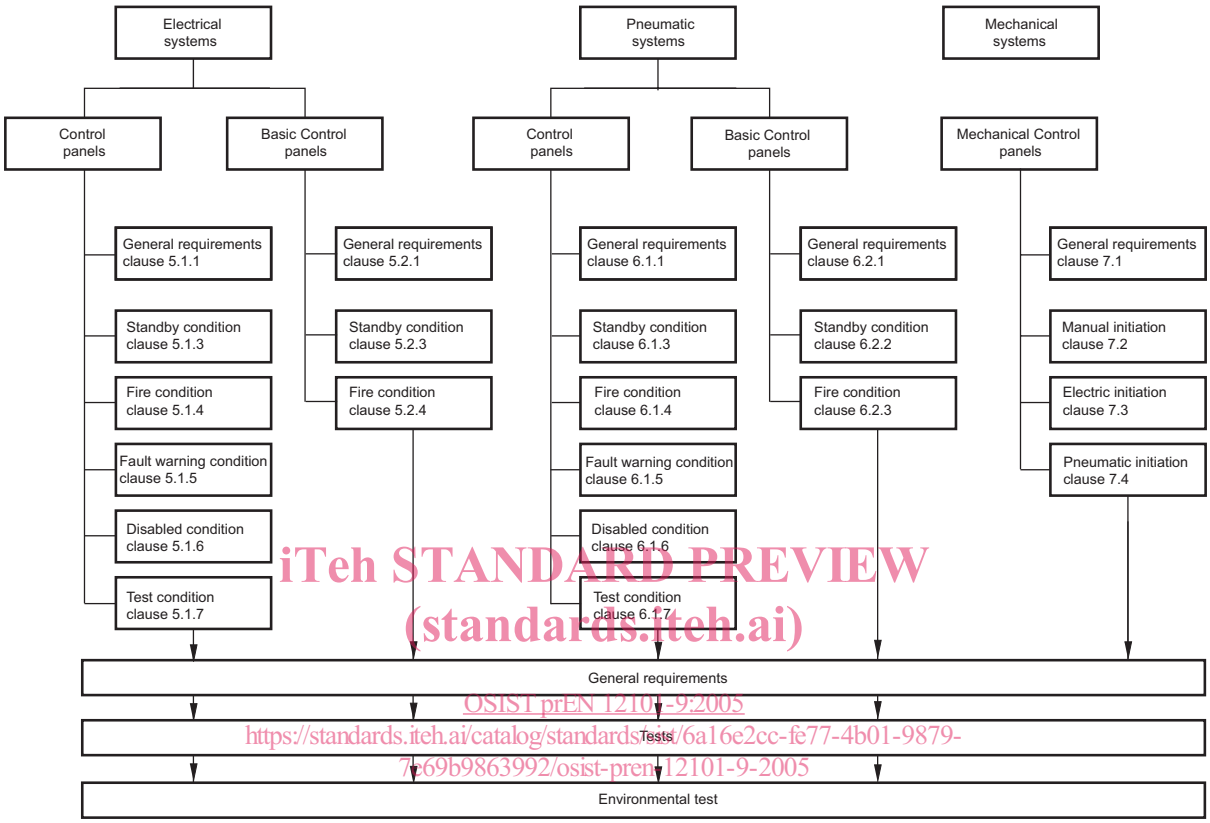
# 4 General requirements

## 4.1 Overview

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## 4.2 General requirements

**4.2.1** If an optional function with requirements is included in the c.p. or b.c.p., then all the corresponding requirements shall be met.

**4.2.2** If functions other than those specified in this European Standard are provided they shall not jeopardise any requirements of this European Standard.

**4.2.3** For the purposes of this European Standard, control panels shall be classified as

Class A Mechanical control panels

Class B Basic control panels and pneumatic only control panels

Class C control panels without detectors (See Figure 1)

Class D control panels with detectors (See Figure 2)

See annex B for a summary of the functions relevant to each class.

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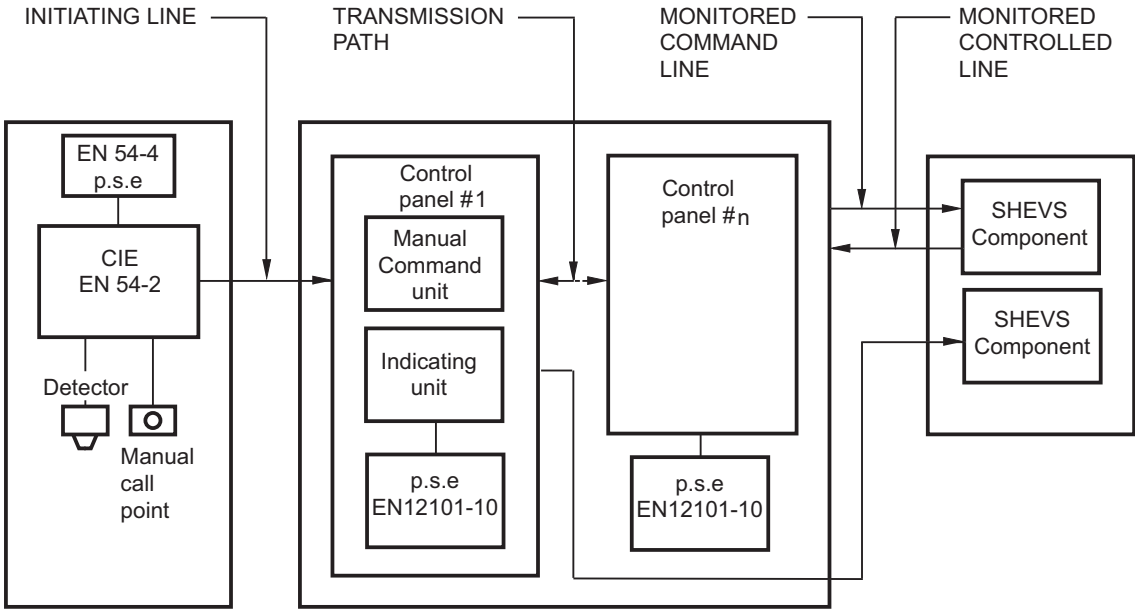


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**Figure 1 — An example of a class C control panel**

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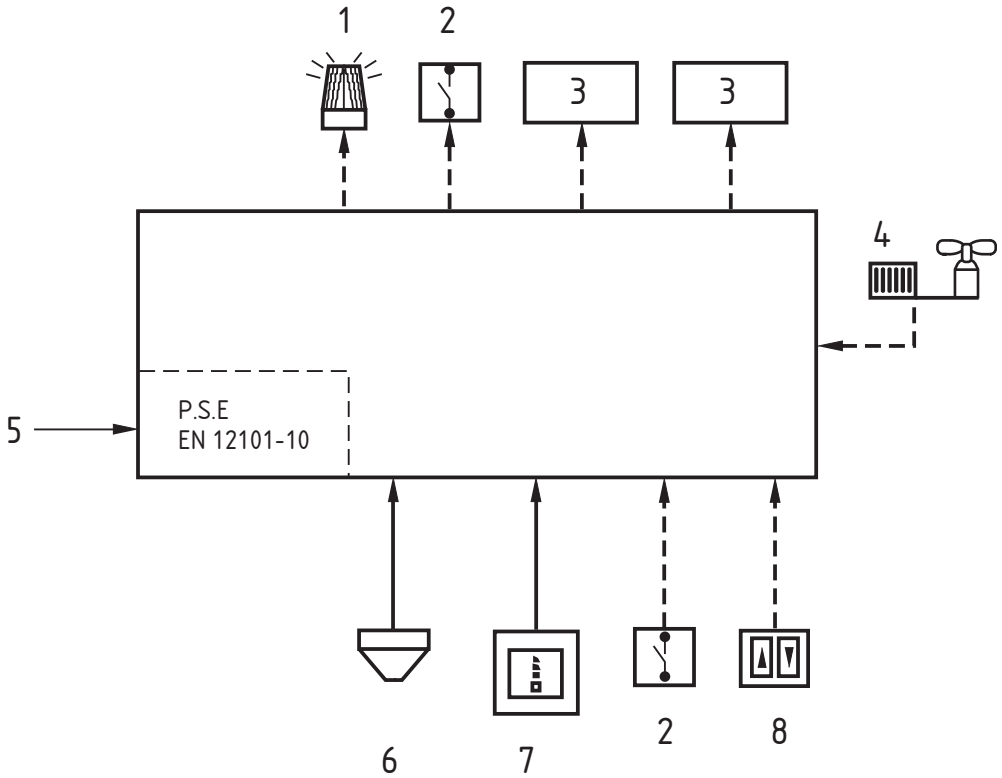


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**key**

1 = Buzzer lamp
2 = Potential free contact
3 = SHEV
4 = Wind / rain detector
5 = 230 V / 400 VAC Main power supply
6 = Smoke detector EN 54-7, Temperature detector EN 54-5
7 = Manual call point
8 = Vent button

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**Figure 2 — An example of a class D control panel**