

## საქართველოს სტანდარტი

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ვამლისა და სიცხის კონტროლის სისტემები - ნაწილი 3: სპეციფიკაციები  
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თბილისი

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English Version

## Smoke and heat control systems - Part 3: Specification for powered smoke and heat control ventilators (Fans)

Systèmes pour le contrôle des fumées et de la chaleur -  
Partie 3 : Spécifications relatives aux ventilateurs pour le  
contrôle de fumées et de chaleur

Rauch- und Wärmefreihaltung - Teil 3: Bestimmungen für  
maschinelle Rauch- und Wärmeabzugsgeräte

This European Standard was approved by CEN on 12 January 2015.

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 CEN-CENELEC 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 CEN-CENELEC 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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## European foreword

This document (EN 12101-3:2015) 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of an identical text or by endorsement, at the latest by February 2016, and conflicting national standards shall be withdrawn at the latest by May 2017.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 12101-3:2002.

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) and/or EU Regulation(s).

For relationship with EU Regulation(s), see informative Annex ZA, which is an integral part of this document.

This European Standard is part of the package of the European Standards EN 12101 covering smoke and heat control systems.

EN 12101, *Smoke and heat control systems*, consists of the following parts:

- *Part 1: Specification for smoke barriers — Requirements and test methods*
- *Part 2: Specification for natural smoke and heat control ventilators*
- *Part 3: Specification for powered smoke and heat control ventilators*
- *Part 4: Natural smoke and heat control ventilation systems — Installation and test methods* (published as CEN/TR 12101-4)
- *Part 5: Design and calculation for smoke and exhaust ventilation systems* (published as CEN/TR 12101-5)
- *Part 6: Specification for pressure differential systems- kits*
- *Part 7: Smoke duct sections*
- *Part 8: Smoke control dampers*
- *Part 10: Power supplies*
- *Part 11: Smoke control in car parks*
- *Part 12: SHEVS – Time dependent fires*
- *Part 13: Pressure differential systems (PDS) design and calculation methods, acceptance testing, maintenance and routine testing of installation*

According to the CEN/CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## Introduction

Smoke and heat control 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.

In specific cases some fans are used to convey smoke (e.g. in tunnels or car parks). These fans, called jet fans or impulse fans are also within the scope of this standard.

The use of smoke and heat control 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 control ventilators operate fully and reliably whenever called upon to do so during their installed life. A heat and smoke control ventilation system is a scheme of safety equipment intended to perform a positive role in a fire emergency.

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

Smoke and heat control ventilation systems help to:

- keep the escape and access routes free from smoke;
- facilitate fire fighting operations by creating a smoke free layer;
- 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 and the ventilator, powered or natural smoke and heat ventilators can be used in a smoke and heat control system. Powered smoke and heat control ventilators (fans) can be installed in the roof or upper part of walls of building or in a ducted system with the ventilator inside or outside the smoke reservoir or in a plant room.

Powered smoke and heat control ventilation systems should operate based on powered ventilators (fans). The performance of the powered smoke and heat control system depends on:

- the temperature of the smoke;
- size, number and location of the exhaust openings;
- the wind influence;
- size, geometry and location of the inlet air openings;
- the time of actuation;
- the location and conditions of the system (for example arrangements and dimensions of the building).

Smoke and heat control ventilation systems are used in buildings or construction works where the particular (large) dimensions, shape or configuration make smoke control necessary.

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