
Oprema za komercialne kuhinje - Sestavni deli za prezračevanje v komercialnih kuhinjah - 7. del: Inštalacije in delovanje stalnih sistemov za gašenje

Equipment for commercial kitchens - Components for ventilation in commercial kitchens - Part 7: Installation and use of fixed fire suppression systems

Großküchengeräte - Einrichtungen zur Be- und Entlüftung von gewerblichen Küchen - Teil 7: Einbau und Betrieb von stationären Feuerlöschanlagen

Équipement pour cuisines professionnelles - Éléments de ventilation pour cuisines professionnelles - Partie 7: Installation et utilisation de systèmes fixes de lutte contre l'incendie

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**Equipment for commercial kitchens - Components for ventilation
in commercial kitchens - Part 7: Installation and use of fixed fire
suppression systems**

Équipement pour cuisines professionnelles - Éléments de
ventilation pour cuisines professionnelles - Partie 7:
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von gewerblichen Küchen - Teil 7: Einbau und Betrieb von
stationären Feuerlöschanlagen

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 156.

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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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (prEN 16282-7:2014) has been prepared by Technical Committee CEN/TC 156 “Ventilation for buildings”, the secretariat of which is held by BSI.

This document is currently submitted to the CEN Enquiry.

The activities of CEN/TC 156/WG 14, cover the calculation of the air volume and the design and testing of major components for ventilation equipment and systems for commercial kitchens.

The structure of the standard series is as follows:

prEN 16282 *Equipment for commercial kitchens – Components for ventilation in commercial kitchens*

- Part 1: General requirements including calculation method
- *Part 2: Kitchen ventilation hoods; Design and safety requirements*
- *Part 3: Kitchen ventilation ceilings; Design and safety requirements*
- *Part 4: Air inlets and outlets; Design and safety requirements*
- *Part 5: Air duct; Design and dimensioning*
- *Part 6: Aerosol separators; Design and safety requirements*
- *Part 7: Installation and use of fixed fire suppression systems*
- *Part 8: Installations for treatment of cooking fumes; Requirements and testing*
- *Part 9: Capture and containment performance of extraction systems – Test methods*

1 Scope

This European Standard specifies requirements and gives recommendations for the design, installation, testing, maintenance and safety of kitchen fire suppression systems in buildings.

This European Standard is applicable to ventilation systems in commercial kitchens, associated areas and other installations processing foodstuffs intended for commercial use. Kitchens and associated areas are special rooms in which meals are prepared, where tableware and equipment is washed, cleaned, food is stored and food waste areas and restaurant areas.

This European Standard is not applicable to domestic kitchens or industrial food processing facilities.

Unless otherwise specified, the requirements of this standard shall be checked by way of inspection and/or measurement.

NOTE Please note the possible existence of additional or alternative local national regulations on installation, appliance requirements and inspection, maintenance and operation.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 10088-1, *Stainless steels - Part 1: List of stainless steels*

EN ISO 9001, *Quality management systems – Requirements*

3 Terms and definitions

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

3.1

fire suppression system

fixed system, which automatically detects and extinguishes fires

3.2

fire detection systems

installation which detects fire and activates the fire suppression system

3.3

cylinders

vessels designed to contain the fire suppressing media

3.4

nozzle

device used to discharge the fire suppressing media

3.5

servicing

all measures required to keep the system operational and to identify the system's condition

Note 1 to entry: Fire extinguishers have to be inspected and maintained to ensure their functional readiness at all times

3.6**testing**

measures required to inspect the present status of the system's technical devices

3.7**maintenance**

all measures required to keep the system fully operational

3.8**reconditioning**

all measures required to re-establish a fully operational system

3.9**kitchen**

part of a building where cooking processes are carried out, their connecting floors and distribution corridors, ancillary rooms such as food stores, cold rooms, food preparation areas and appliances are being cleaned

3.10**authority**

organization, office or individual responsible for approving equipment, installations or procedures

3.12**log book**

book to record service and maintenance activity including any component replacement and design changes

4 Fire hazard/Fire load**4.1 General requirements**

The following clause comprises guidelines for fixed fire suppression systems to be installed in order to secure a best possible protection for operator and personnel and to preserve the equipment's condition value.

Consideration shall be given to the location of a kitchen, particularly if it is in store and adjacent to residential accommodation.

NOTE It has to be recognized that all cooking appliances using oil/grease as well as the exhaust ventilation system are a potential fire hazard regardless of the amount of oil/grease being used in the cooking process.

4.2 Kitchen equipment classification according to the fire load and risk**4.2.1 General**

Commercial kitchen equipment is available in different configurations. Every device represents a different fire risk according to its power supply or its fire load depending upon the combustibles used.

4.2.2 Installation of a fixed fire suppression system

All appliances utilizing oil/fat are considered to be fire hazards and shall be protected. Ventilated ceilings/hoods and duct entrances shall also be protected and actuated simultaneously if connected to the same common exhaust duct.

5 Safety requirements

5.1 General

Parts of a fixed fire suppression system, as described in this standard, can be fixed to ceilings and hoods used to distribute and extract air from the kitchen areas. They can be located within the air flow. The design and installation of fixed fire suppression systems shall be co-ordinated appropriately to ensure that neither air ventilation nor the kitchen operations are disturbed or affected (in particular in the working zones of the protected devices).

Cleaning and access for service and maintenance of the ventilation systems shall be taken into consideration during the project's design phase.

Any propellant shall have a minimum greenhouse effect and the lowest possible ozone depletion.

Pipe penetration through the hood/ventilated ceiling shall be grease tight sealed.

The fire suppression system shall be installed as a fixed system. Location of the installation may not provide any personal risk. The release mechanism shall be secured against unauthorized access.

Stainless steel housing shall be provided for the release mechanism and cylinder in case it is exposed to food stuff.

5.2 Components

5.2.1 General

All components of the fire suppression system shall be approved by an independent third party test institute.

5.2.2 Fire detection system

Fire detectors shall be installed above individual cooking equipment units and/or before or behind the aerosol separators and at entrances of exhaust ducts.

5.2.3 Suppressing media container

The container shall be marked according to relevant regulations in terms of the suppressing media and propellant used.

NOTE Cylinders have to conform to the Pressure Equipment Directive and Transportable Pressure Equipment Directive as applicable.

5.2.4 Suppressing pipe work

Pipes, brackets and visible pipe hangers, as well as pipe hangers fixed in the exhaust air range shall be at least of Cr-Ni steel EN 10088-1. This is not applicable to flexible connections.

Flexible pipe work shall only be used where moving equipment shall be protected. Cutting ring connectors, thread connectors or compression fittings shall be used. Flexible pipework shall be evaluated by a credible testing laboratory for use specifically in cooking related fire suppression systems.

Other materials are possible but proof there must be shown by the manufacturer, there is no food hygiene risk.

All national food hygienic and water supply regulations should be complied with. A grade of stainless steel shall be used that is in accordance with EN 10088-1.

5.2.5 Suppressing media

The following list provides the main characteristics of the fire suppressant:

- may not be toxic
- the qualification of the suppressing media shall be proven as part of the third party approval testing of the complete system – see 5.5.

5.2.6 Manual release device

The Fire Suppression System shall have at least one manual release device. They shall be located on the fire escape route.

5.3 Shut down functions

The power supply for the kitchen equipment as well as the supply air of the ventilation system, shall be switched off automatically upon actuation of the fixed fire suppression system. The fire suppression system's manufacturer/ installer have to provide a suitable voltage (potential) free contact for this purpose.

5.4 Electrical equipment

Electrical systems and equipment shall be compliant with the national electrical standard.

5.5 Certification of the fixed fire suppression system

The systems and components shall be tested by a third party approval body.

The supplier of the fire suppression system shall provide the following to the end-user / authority:

- name and address of third party approval body;
- name of the test standard;
- number of test report / file number;
- inspection date / last update;
- scope of testing.

6 Hygienic requirement

All visible pipes, fittings, nozzles, detectors, suppressing cylinders and all pipes installed within the air extract system have to conform to the relevant national laws and regulations.

Adequate measures to prevent backflow of cleaning liquids into other pipework shall be provided that they conform to national requirements.

The fixed fire suppression system's manual shall specify details for approved flushing and cleaning liquids.

7 Service and testing

Fixed fire suppression systems as referred to in this standard, shall be tested, serviced and maintained in regular intervals to ensure their function.

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Works to be carried out for service and maintenance as well as the intervals shall be described in detail in the operation and maintenance manual.

Service and the maintenance of the system shall be carried out by the manufacturer or by personnel, trained and approved by the manufacturer.

A design check shall be performed during every service.

The operator is responsible for arranging regular maintenance as it is described in the operating instructions, service and inspection of the kitchen fire suppression system at least every six months. The operator is also responsible for the log book and its availability in the kitchen.

The replacement of time critical components shall be recorded in log book.

8 Installation**8.1 Installation instructions**

Installation instructions shall be in the national language of the country of the place of use and shall be enclosed for assembly with each device.

The installation instructions shall at least contain the following information:

- reference that national regulations on installation shall be complied with
- instructions for switching off power supply for the kitchen equipment as well as the supply air of the ventilation system.

8.2 Commissioning and training

The documentation, as well as the specific operations instructions of the system shall be handed over during commissioning.

The operator shall be instructed in the system's function with a special emphasis on the appropriate actions required in case of a fire or breakdown. The instruction shall be reported in the log book in writing.

8.3 Operating instructions

The operating instructions for the user in the national language shall be enclosed with each device.

- The instructions shall be kept brief and contain all the important information for operation and cleaning in an easy-to-understand way. The operating instructions shall contain at least the following information:
- how often the devices should be cleaned;
- the scope of maintenance works as well as the frequency of maintenance;
- advice in respect of operation and maintenance of integrated cleaning devices, where applicable;
- clear and easy-to-read instructions for operation of the system in case of fire displayed at a prominent position in the kitchen.