SLOVENSKI STANDARD
oSIST prEN 16282-7:2011

01-september-2011

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

Ta slovenski standard je istoveten z: **prEN 16282-7**

ICS:

91.140.30	Prezračevalni in klimatski sistemi	Ventilation and air-conditioning
97.040.99	Druga kuhinjska oprema	Other kitchen equipment

oSIST prEN 16282-7:2011 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

DRAFT
prEN 16282-7

July 2011

ICS 97.040.99

English Version

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: Installation et utilisation de systèmes fixes de lutte contre l'incendie

Großküchengeräte - Einrichtungen zur Be- und Entlüftung 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.

This draft European Standard was established by CEN 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.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, 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.

Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Warning : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.

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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No. prEN 16282-7:2011: E

Contents

Page

Foreword 3

1 Scope 4

2 Normative references 4

3 Terms and definitions 5

4 Fire hazard/Fire load 6
4.1 General 6
4.2 Kitchen equipment classification according to the fire load and risk 6
4.2.1 General 6
4.2.2 Equipment with a significant fire load 6
4.2.3 Equipment with fire risks 7
4.2.4 Installation of a fixed fire protection system 7

5 If a fixed fire protection system for given groups of kitchen devices is installed according to paragraph, it is mandatory that all units as per Tables 1 and 2 are integrated in the protection system. Safety criteria 7
5.1 General 7
5.2 Components 8
5.2.1 Fire detection system 8
5.2.2 Extinguishing agent storage tank 8
5.2.3 Extinguishing pipe work 8
5.2.4 Extinguishing medium 8
5.3 Shut down functions 9
5.4 Electrical equipment 9
5.5 Suitability of the fixed fire protection system 9
5.6 Discharge pressure of the agent during the test 9

6 Hygienic criteria 9

7 Commissioning and training 10

8 Service and inspection 10

9 Installation 10
9.1 Installation instruction 10
9.2 Operating instruction 10

10 Marking 11

Bibliography 12

Foreword

This document (prEN 16282-7:2011) 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 8: Installation for treatment of cooking fumes; Requirements and testing***

— ***Part 9: Ventilation of buildings – capture and containment performance of extraction systems for commercial kitchen – test methods***

1 Scope

This standard applies to fixed fire protection systems, designed and installed to comply with the requirements of professional kitchens and food processing enterprises. It is applicable to foodstuff companies, not for domestic kitchens.

This standard identifies the requirements for fixed fire protection systems for local applications including all relevant hygiene and safety characteristics. This standard is not valid for total flooding room protection systems.

This standard contains decision making aids, whether a fixed fire protection system shall be installed.

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.

prEN 16282-1, *Equipment for commercial kitchens – Components for ventilation in commercial kitchens – Part 1: General requirements including calculation method*

prEN 16282-2, *Equipment for commercial kitchens – Components for ventilation in commercial kitchens – Part 2: Kitchen ventilation hoods; Design and safety requirements*

prEN 16282-3, *Equipment for commercial kitchens – Components for ventilation in commercial kitchens – Part 3: Kitchen ventilation ceilings; Design and safety requirements*

prEN 16282-4, *Equipment for commercial kitchens – Components for ventilation in commercial kitchens – Part 4: Outlets; Design and safety requirement*

prEN 16282-5, *Equipment for commercial kitchens – Components for ventilation in commercial kitchens – Part 5: Air duct; Design and safety requirements*

prEN 16282-6, *Equipment for commercial kitchens – Components for ventilation in commercial kitchens – Part 6: Aerosol separators; Design and safety*

prEN 16282-8, *Equipment for commercial kitchens – Components for ventilation in commercial kitchens – Part 8: Installation for treatment of cooking fumes; Design and safety requirements*

prEN 16282-9, *Ventilation of buildings – capture and containment performance of extraction systems for commercial kitchen – test methods*

EN 2, *Classification of fires*

Standards of the series
EN 3, *Portable fire extinguishers*

Standards of the series
EN 54, *Fire detection and fire alarm systems*

DIN EN 203-1, *Gas heated catering equipment - Part 1: General safety rules*

EN 10088-2, *Stainless steels - Part 2: Technical delivery conditions for sheet/plate and strip of corrosion resisting steels for general and construction purposes*

EN 60204-1, *Safety of machinery - Electrical equipment of machines - Part 1: General requirements*

EN 60335-1, *Household and similar electrical appliances - Safety - Part 1: General requirements*

EN 61140, *Protection against electric shock - Common aspects for installation and equipment* EN ISO 9001, *Quality management systems - Requirements*

HD 22, *Rubber insulated cables of rated voltages up to and including 450/750 V*

PDA pressure tank regulation, *Directive 97/23/EC of the European Parliament and of the Council of 29 May 1997 on the approximation of the laws of the Member States concerning pressure equipment*[1)]

BGR 111, *(previously ZH 1/37), Operations in commercial kitchens*[1)]

LMBG, *Act on the handling of food, tobacco products, cosmetics and other consumer goods [Food and Consumer Goods Act]*[1)]

LMHV, *Ordinance on food hygiene and amendment of the ordinance on food transport vessels [Food hygiene ordinance (LMHV)]*[1)]

3 Terms and definitions

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

3.1
Fire extinguishing system
fixed systems, which automatically detects and extinguishes fires

3.2
Fire detection systems
installation which

— detects fire

— activates the fire extinguishing system

3.3
Storage Tanks
container (e.g. cylinders) to contain the fire extinguishing agent

3.4
Gas Container
container (e.g. cylinders) storing the extinguishing agent's propellant

3.5
Nozzle
device used to discharge the fire extinguishing agent

3.6
Pipework
pipe connection connecting nozzles with the container

3.7
Servicing
all measures required to keep the system operational and to identify the system's condition

---

1) Can be obtained from: Carl Heymanns Verlag KG, Luxemburger Str. 449, 50939 Köln

NOTE Fire extinguishers have to be inspected and maintenanced, to ensure their functional readiness at all times.

3.8
Testing (Inspections)
measures required to inspect the present status of the system's technical devices

NOTE Fire extinguishers are to be inspected in regular intervals.

3.9
Maintenance
All measures required to keep the system fully operational

3.10
Reconditioning
All measures required to re-establish a fully operational system

NOTE Fire extinguishers are to be refilled, eliminating damages and replacing parts.

4 Fire hazard/Fire load

4.1 General

Fire spread in commercial kitchens with cooking equipment as per Tables 1 and 2 using cooking fats and oils shall be prevented using fixed fire protection systems.

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

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 it's power supply or it's fire load depending on the combustibles used.

As a decision basis for fixed fire protection systems, paragraphs 4.2.2 and 4.2.5 describing configurations with different fire risks and fire loads.

4.2.2 Equipment with a significant fire load

Table 1 — Examples of fire loads of typical kitchen equipment

Type of equipment	Number of pans	Nominal power supply per pan kW	Nominal contents of fat / oil per pan [c] l
Table top deep fat fryer	1-2	4,5	7,5
Standard deep fat fryers	1	15	15
Double deep fat fryers	2	7,5	7,5
Large deep fat fryers	1	30	50 (min. 40)
Fat baking devices	1	10	15

Conveyer Fryer	1-2	45	75
Tilting frying pans	1	10 (15)	3,5 (5,0)
Automatic units for grilling	1	80	20 [b]
Wok	-	4-20	4

4.2.3 Equipment with fire risks

Table 2 — Samples of fire risks of typical kitchen equipment

Type of equipment	Nominal power load kW	Nominal contents L
Tilting frying pans	10 (15)	0,7 (1,0)
Frying and grilling appliances	6,5	2,5
Griddle plate	6,5	0,5
Glühsteingrillgerät	Oil and fat fire can easily ignite when using hot stones	
Gas heated range	Open gas fires can easily inflame oils and fats	
Gas heated Wok		
Spear fryer, gas heated		

4.2.4 Installation of a fixed fire protection system

Groups of kitchen equipment (as per Table 1) with a total fat/oil contents in excess of 50 litres shall be protected by a fixed fire protection system in case of a nominal power supply in excess of 60 KW.

5 If a fixed fire protection system for given groups of kitchen devices is installed according to paragraph, it is mandatory that all units as per Tables 1 and 2 are integrated in the protection system. Safety criteria

5.1 General

Parts of a fixed fire extinguishing 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 extinguishing systems has to 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 have to be taken into consideration during the project's design phase.

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

5.2 Components

5.2.1 Fire detection system

Fire detection systems shall comply with the EN 54 standard.

Fire detectors shall be installed above individual cooking equipment units as listed in Table 1 and/or before or behind the aerosol separators.

5.2.2 Extinguishing agent storage tank

The storage tank has to be marked according to relevant regulations in terms of the extinguishing agent and propellant used.

If mobile extinguisher's cylinders are used, regulations comply with EN3.

Storage and pressure tanks have to comply with the PDA pressure tank regulation (97/23/EG) and other applicable standards, e.g. health and safety regulations.

5.2.3 Extinguishing pipe work

Pipes, brackets and visible pipe hangers, as well as pipe hangers fixed in the exhaust air range, have to be at least of Cr-Ni steel EN 10088-2. This is not applicable to flexible connections.

Flexible pipe work may only be used where moving equipment has to protected. Cutting ring connectors, thread connectors or compression fittings have be used.

Materials

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

All national food-hygienic regulations had to be complied with.

As regards stainless steel, material No. 1, 4301 as per EN 10088-1 or higher quality stainless steel is to be used.

Surfaces of stainless steel are permitted to display a surface roughness Ra of 1.1 µm at measured according to EN ISO 3274, EN ISO 4287, EN ISO 4288, EN ISO 13565-1 and EN ISO 13565-2. The surface is to be produced with an even surface picture.

The material is to be strong enough to prevent the pipe from being warped or distorted. To fulfil that, the material of all components except the separator should have a minimum thickness of 1.0 mm.

5.2.4 Extinguishing medium

— may not be toxic

— Chemical or a water based extinguishing agents with chemical additives have to have an approval for edible fats and oils as to EN 2. The approval has to be issued by a certified inspection authority[2)] for extinguishing devices and extinguishing agents.

2) Z.B. Insitut der Feuerwehr NRW, Münster und die amtliche Prüfstelle in Freiberg/Sachsen