SLOVENSKI STANDARD
oSIST prEN 16282-4:2014

01-december-2014

Oprema za komercialne kuhinje - Sestavni deli za prezračevanje v komercialnih kuhinjah - 4. del: Dovodi in odvodi zraka - Projektiranje in varnostne zahteve

Equipment for commercial kitchens - Components for ventilation in commercial kitchens - Part 4: Air inlets and outlets; Design and safety requirements

Großküchengeräte - Einrichtungen zur Be- und Entlüftung von gewerblichen Küchen - Teil 4: Luftdurchlässe; Gestaltungs- und Sicherheitsanforderungen

Équipement pour cuisines professionnelles - Éléments de ventilation pour cuisines professionnelles - Partie 4 : Entrées et sorties d'air ; Conception et exigences de sécurité

Ta slovenski standard je istoveten z: **prEN 16282-4**

ICS:

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

oSIST prEN 16282-4:2014 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

DRAFT
prEN 16282-4

October 2014

ICS 97.040.09

English Version

Equipment for commercial kitchens - Components for ventilation in commercial kitchens - Part 4: Air inlets and outlets; Design and safety requirements

Équipement pour cuisines professionnelles - Éléments de ventilation pour cuisines professionnelles - Partie 4 : Entrées et sorties d'air ; Conception et exigences de sécurité

Großküchengeräte - Einrichtungen zur Be- und Entlüftung von gewerblichen Küchen - Teil 4: Luftdurchlässe; Gestaltungs- und Sicherheitsanforderungen

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, 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 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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No. prEN 16282-4:2014 E

Contents

Page

Foreword

This document (prEN 16282-4:2014) 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 of ventilation equipment 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 the requirements covering the construction and operation of air passage components including technical safety, ergonomic and hygienic features.

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.

This European Standard is not applicable to ventilation systems that are used in domestic kitchens.

A method of verification of each requirement is also specified.

This standard stipulates the requirements covering the construction and operation, including the technical safety, ergonomic and hygienic features and their testing.

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

NOTE Pleas note the possible existence of additional or alternative 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.

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

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

EN ISO 3274, *Geometric product specifications (GPS) – Surface texture: Profile method – Nominal characteristics of contact (stylus) instruments*

EN ISO 4287, *Geometric product specification (GPS) – Surface texture: Profile method – Terms, definitions and surface texture parameters*

EN ISO 4288, *Geometric product specification (GPS) – Surface texture: Profile method – Rules and procedures for the assessment of surface texture*

EN ISO 13565-1, *Geometrical product specifications (GPS) – Surface texture: Profile method – Surfaces having stratified functional properties - Part 1: Filtering and general measurement conditions*

EN ISO 13565-2, *Geometric product specifications (GPS) – Surface texture: Profile method – Surfaces having stratified functional properties – Part 2: Height characterization using the linear material ratio curve*

3 Terms and definitions

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

3.1
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

3.2
ceiling air passage device
inlet or outlet for extraction and supply of air, which is integrated or built into the ceiling

3.3
wall air passage device
inlet or outlet for extraction and supply of air, which is built into the wall or just in front of it

3.4
exhaust air connector
connection element of the air chamber or the plenum chamber to the exhaust air line air passage that has an essential influence on the function of the air passage due to arrangement and geometry

3.5
device regulating the airflow
component for the fine adjustment of the airflow

Note 1 to entry: It can be designed as an adjustable air control system slot orifice.

3.6
supply air side

3.6.1
air supplying cylinder
cylindrical component, containing compressed gas housed in a box behind air passage components which continually supplies air to the air passage area

Note 1 to entry: It is cylindrically shaped with perforated surfaces.

3.6.2
supply air passage control
component at the end of the ventilation system in commercial kitchens for the controlled supply of processed air, through the orifice of which air is supplied to the kitchen

3.6.3
grid
device distributing supply air and steering air as an outlet at the end of the ventilation system

Note 1 to entry: The individual parts of the grid can designed to be fixed or so that the required air flow in the room can be adjusted with respect to the direction

3.6.4
injector
orifice for distributing supply air and steering air

3.6.5
air passage device in form of a hole
laminar orifices for the supply of air, usually designed as perforated steel plates

3.6.6
air passage adjuster in form of a slot
single or multi-row linear air passage supply component, which is often equipped with steering components for a differentiated division of the air flow

3.6.7
supply air distributor
component in circular, quadratic or rectangular construction with built-in parts steering air in different direction

3.6.8
textile air passage device
lint-free fabric hose permeable to air installed in ceiling area for low induction when supplying air

3.6.9
air passage components and respective air flow modes of supply air

3.6.9.1
low level displacement air passage component (for creating layers of air flow)
supply air inlet located near to the floor for the supply of low velocity turbulence free air to be supplied to the room

Note 1 to entry: It looks like a box with perforated outlets incorporating arrangements steering and distributing the air.

3.6.9.2
high level displacement air passage component (for creating layers of air flow)
supply air inlet located near to the ceiling for the supply of low velocity turbulence free air to be supplied to the room

3.6.9.3
mixed stream – turbulent air passage device
air supply components for direct installation in plane ceilings

Note 1 to entry: Used as vertical, horizontal and tangential air outlet

3.7
exhaust air side

3.7.1
aerosol separator (exhaust air passage device with aerosol separating function)
device for efficient removal of air-borne solid or liquid particles

Note 1 to entry: It is based on the action of powers (mechanical powers or electrical fields) which leads to the deflection of the particles out of the flow path

3.7.2
exhaust air passage device without aerosol separating function
component built into the ceiling without aerosol separating function for flush installations with attached air collecting box and air duct outlet or for direct installation in existing exhaust air passage device

Note 1 to entry: With a regulating device which can be easily accessed.

4 Designations

4.1 Supply air side

Supply air passage devices are shown in Table 1.

The text in Table 1 shows examples of current ceiling configuration and design criteria, but manufacturers are free to follow the alternative designs and configuration, provided, that the product/equipment conforms to the essential requirements of the relevant directives and/or national regulations.

Table 1 — Designations for supply air passage devices

Design	Standard designation		
	Designations	EN number	Classification
Low level displacement	Air passage component	EN 16282-4	- D1
High level displacement	Air passage component	EN 16282-4	- D2
Mixed stream - vertical, horizontal and tangential air passage device	Air passage component	EN 16282-4	- D3
Textile air passage device[a]	Air passage component	EN 16282-4	- D4
[a] only in preparation area			

EXAMPLE The designations for a high level displacement (D2) are as follows:

Air Passage EN 16282-4-D2

4.2 Exhaust air side

Types of exhaust air passage components and their denominations are given Table 2.

The text in Table 2 shows examples of current ceiling configuration and design criteria, but manufacturers are free to use alternative designs and configuration, provided that the product/equipment conform to the essential requirements of the relevant directives and/or national regulations.

Table 2 — Designations for exhaust air passage devices

Type	Name of standard		
	Designations	Number	Attribute
Exhaust air passage device without aerosol separating function	Air passage component	EN 16282-4	- D5
Exhaust air passage with aerosol separating function	Air passage component	EN 16282-4	- D6

NOTE The requirements for the aerosol separator are given in prEN 16282-6.

5 Construction and function

5.1 General remarks

The requirements should be verified by inspection and/or measuring.

5.2 Adjustment in the room

5.2.1 Supply air passage devices

For low level displacement air passage component, it is recommended, that a ground clearance of at least 0.2 m installation height should be provided for reasons of cleaning. The installation height shall be chosen in order to fulfill comfort requirements and to avoid any risk of bypass the supply air directly to the exhaust. prEN 16282-1 shall be fulfilled.

5.2.2 Exhaust air passage devices

Aerosol-loaded exhaust air from kitchens such as cooking areas, portioning rooms, meal distribution areas, meal serving areas (also in the dining hall), crockery and washing-up rooms shall be conditioned prior to the access in the air duct using effective aerosol separation in accordance with prEN 16282-2 and prEN 16282-3.

Exhaust air passage devices with aerosol separator shall be aerosol-proof.

Exhaust air passage devices without aerosol separator are only permitted to be used within areas in which no aerosol is used.

5.3 Design, construction and function

For installation on ceilings, these shall be executed flush. The area where particles accumulate shall be as small as possible.

The document prEN 16282-1 distinguishes the supply air passage devices with reference to the manner of the exhaust of air and shall be considered when it comes to selection and calculation of the volumetric air flow.

NOTE A coverage of connecting ducts should be taken under consideration if the installation height is such as there is no visibility of the upper surface of the supply air passage in terms of the ability to be cleaned.

5.4 Construction and design

Air passage devices are to be manufactured and installed so that a front-line regulation of the nominal volumetric flow rate is possible via the integrated regulation devices for the volumetric flow. In this instance, a removal of the air steering device is temporarily permitted.

5.5 Materials and their surfaces for air passage devices

The materials used should be rot-proof, non-porous, wear-resistant, inert to foods and beverages, detergents and disinfectants.

Materials such as glasswool or rockwool, which are often used as components shall never come into contact with food, and shall not be in the vicinity of kitchen staff, as inhalation is dangerous.

The materials required are shown in Table 3.

Table 3 — Materials

Component	Material	Surface
Mounting parts/attachments	stainless steel steel	 galvanized
Exhaust air box/supply air distributor [a]	stainless steel steel aluminium	 galvanized/colour-coated blank/anodized/colour-coated
Extensive supply air distributing systems	stainless steel steel aluminium textile [c] plastic [c]	 galvanized/colour-coated blank/anodized/colour-coated
Ceiling grid [a]	stainless steel steel aluminium	 galvanized/colour-coated anodized/colour-coated