



SLOVENSKI STANDARD
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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

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

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ICS:

91.140.30	Prezračevalni in klimatski sistemi	Ventilation and air-conditioning
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prEN 16282-4

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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

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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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.

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

Management Centre: Avenue Marnix 17, B-1000 Brussels

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Foreword

This document (prEN 16282-4:2011) 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 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 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: 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**

prEN 16282-4:2011 (E)**1 Scope**

This standard applies to air passage components of ventilation systems in food processing facilities intended for commercial use, in accordance with their type construction. It does not apply to domestic kitchens.

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

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 requirement*

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

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

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

prEN 16282-7, *Equipment for commercial kitchens – Components for ventilation in commercial kitchens – Part 7: Installation and use of fixed fire suppression systems*

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

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

EN 573-3, *Aluminium and aluminium alloys – Chemical composition and form of wrought products – Part 3: Chemical composition*

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

EN ISO 3274, *Geometrical Product Specifications (GPS) - Surface texture: Profile method - Nominal characteristics of contact (stylus) instruments*

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

EN ISO 4288, *Geometrical Product Specifications (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 characterisation using the linear material ratio curve*

Regulation 1935/2004/EC, *Materials and articles intended to come into contact with food and repealing Directives 80/590/EEC and 89/109/EEC*

3 Terms and definitions

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

3.1

kitchen

a room and parts of a building in which food is stored, meals are prepared, given out and distributed as well as where crockery and appliances are being cleaned

3.2

ceiling air passage device

inlet or outlet for extract and supply air, which is integrated or built in the ceiling

3.3

wall air passage device

inlet or outlet for extract and supply air, which is built in 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 and 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. It can be designed as an adjustable air control system slot orifices

3.6

supply air side

3.6.1

air supplying cylinder

component housed in a box behind air passage components for the constant admission of the entire air passage area. 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 outlet at the end of the ventilation system. The individual parts of the grid can be 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

prEN 16282-4:2011 (E)**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. 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. Used as vertical, horizontal and tangential air outlet

3.7**exhaust air side**

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3.7.1**aerosol separator (exhaust air passage device with aerosol separating function)**

device for efficient removal of air-borne solid or liquid particles. 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. With a regulating device which can be easily accessed

4 Designations**4.1 Supply air side**

Supply air devices are shown in Table 1:

The following text shows example of current ceiling configuration and design criteria, but manufacturers are free to use alternative designs and configuration, provided, that the product/equipment comply with the essential requirements of the relevant directives and/or national regulations.

Table 1 — Designations for supply air passage devices

Type	Name of standard		
	Designations	Number	Attribute
low level displacement	air passage component	EN XXX	- D1
high level displacement	air passage component	EN XXX	- D2
mixed stream - vertical, horizontal and tangential air passage device	air passage component	EN XXX	- D3
textile air passage device	air passage component	EN XXX	- D4

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

Air Passage EN XXX -D2

4.2 Exhaust air side

Types of exhaust air passage components and their denominations are described in Table 2:

The following text shows example of current ceiling configuration and design criteria, but manufacturers are free to use alternative designs and configuration, provided, that the product/equipment comply with 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 XXX	- D5
exhaust air passage with aerosol separating function	air passage component	EN XXX	- D6

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

5 Construction and function

5.1 General remarks

Insofar as nothing to the contrary is stipulated, the requirements are checked by inspection and/or measurit.

5.2 Adjustment in the room

5.2.1 Supply air passage devices

It is recommended, that an apron or a ground clearance of at least 0,2 m installation height have to be provided for reasons of cleaning. The installation height shall be chosen in order to fulfil comfort requirements draught and to avoid any risk of bypass the supply air directly to the exhaust. prEN 16282-1 must be fulfilled.

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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 has to be conditioned prior to the access in the air duct using effective aerosol separation (see prEN 16282-2 and prEN 16282-3).

Exhaust air passage devices with aerosol separator have to be aerosol-proof.

Exhaust air passage devices without aerosol separator may only be used within areas in which no aerosol occurs

5.3 Design, construction, function

For installation in ceilings these have to be executed flush. The construction has to be such that the area where particles accumulate is as small as possible.

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

5.4 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 cleanability. Construction and design

Air passage devices are to be manufactured and installed in such way that a front-line regulation of the nominal volumetric flow rate is possible via integrated regulation devices for the volumetric flow. In this case a removal of the air steering device is temporarily allowable.

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 e.g. glass wool rock wool, which can be used as components shall never come into contact with food, and it shall never be possible for kitchen staff to inhale them.

Manufacturers are required to use the materials shown in Table 3: Table 3 — Materials

Component	Material	Surface
mounting parts/attachments	stainless steel steel	galvanised
exhaust air box/supply air distributor ^a	stainless steel steel aluminium	galvanised/colour-coated blank/anodised/colour-coated
extensive supply air distributing systems	stainless steel steel aluminium textile ^c plastic ^c	galvanised/colour-coated blank/anodised/colour-coated
holding devices for admission of visible parts ^a	stainless steel steel aluminium	galvanised/colour-coated anodised/colour-coated
room-sided visible internals such as restrictors, air steering devices, air flow uniformer	stainless steel aluminium steel	brushed, cut or colour-coated anodised/colour-coated galvanised and colour-coated