SLOVENSKI STANDARD
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Oprema za komercialne kuhinje - Sestavni deli za prezračevanje v komercialnih kuhinjah - 2. del: Kuhinjske prezračevalne nape - Projektiranje in varnostne zahteve

Equipment for commercial kitchens - Components for ventilation of commercial kitchens - Part 2: Kitchen ventilation hoods - Design and safety requirements

Großküchengeräte - Einrichtungen zur Be- und Entlüftung von gewerblichen Küchen - Teil 2: Küchenlüftungshauben

Équipement pour cuisines professionnelles - Éléments de ventilation pour cuisines professionnelles - Partie 2: Hottes de ventilation pour cuisines - 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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Equipment for commercial kitchens - Components for ventilation of commercial kitchens - Part 2: Kitchen ventilation hoods - Design and safety requirements

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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

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Foreword

This document (prEN 16282-2:2011) 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 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: 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 kitchen ventilation hoods (hereinafter called "hoods") in kitchens and other companies processing foodstuffs intended for commercial use from their nature and finish. It does not apply to household kitchens.

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 will be checked by way of inspection and/or measurement.

Additional or alternative national regulations on installation, appliance requirements and inspection, maintenance, operation have to be complied with.

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 16282-3, *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: Air inlets and outlets; 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 1717, *Protection against pollution of potable water installations and general requirements of devices to prevent pollution by backflow*

EN 1825-2, *Grease separators – Part 2: Selection of nominal size, installation, operation and maintenance*

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

EN 12464-1, *Light and lighting - Lighting of work places - Part 1: Indoor work places EN 12665, Light and lighting – basic terms and criteria for specifying lighting requirements*

EN 12665, *Light and lighting - Basic terms and criteria for specifying lighting requirements*

EN 13501-1, *Fire classification of construction products and building elements - Part 1: Classification using test data from fire reaction to fire tests*

Standards in the series
EN 50164, *Lightning protection components*

EN 50274, *Low-voltage switch gear and control gear assemblies – Protection against electric shock – Protection against unintentional direct contact with hazardous live parts*

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

EN 60529, *Degrees of protection provided by enclosures (IP-Code)*

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

EN ISO 4287, *Geometric product specifications (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*

Standards in the series
EN ISO 12543, *Glass in building – Laminated glass and laminated safety glass*

EN ISO 13565-1, *Geometric 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*

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

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

In the application of this standard the following terms apply:

3.1
kitchen ventilation hood
the part of a mechanical ventilation system enclosing a space for kitchens for supply air and exhaust air, can be equipped with integrated ceiling in accordance with prEN 16282-3

NOTE The lighting device is an integral part.

The purpose of kitchen hoods is to remove the heat, smoke, effluent, and other contaminants. The thermal plume from appliances takes up the contaminants that are released during the cooking process. Room air replaces the void created by the plume. If convective heat is not removed directly above the cooking equipment, impurities will spread throughout the kitchen, leaving discoloured ceiling tiles and greasy countertops and floors. Therefore, contaminants from stationary local sources within the space should be controlled by collection and removal as close to the source as is practical.

Appliances contribute most of the heat in commercial kitchens. When appliances are installed under an effective hood, only the radiant heat contributes to the HVAC load in the space. Conversely, if the hood is not providing sufficient C&C (Capture & Containment), convective and latent heat are 'spilling' into the kitchen thereby increasing both humidify and temperature.

Capture efficiency is the ability of the kitchen hood to provide sufficient C&C at minimum exhaust flow rate. The remainder of this chapter discusses the evolution and development of kitchen ventilation testing and their impact on system design.

3.2
kitchen
rooms and parts of a building in which food is stored, meals are prepared, given out and distributed as well as where crockery and utensils are being cleaned

3.3
collection area
an open bottomed area situated in front of the cooking fume extractor(s) serving to collect and buffer the rising vapour

3.4
exhaust plenum
a space enclosed on top and laterally situated behind the cooking fume extractor(s) which is connected with the outgoing air duct

3.5
aerosolate (cooking fumes)
separated aerosol (in this standard, the separated grease/oil/water mixture)

3.6
separator
device in accordance with 3.6.1 to 3.6.2 for separation of air-borne solid or liquid particles

3.6.1
cooking fume separator
device for the efficient separation of airborne solid or liquid particles. It is based on the effect of forces (mechanical forces or electrical field forces) that deflect the particles out of the airflow

3.6.2
filter
specific design of storage separators comprising an ordered and/or unordered structure of a number of individual fibres/wires (e.g. fabric filters) or porous surfaces/bodies (e.g. activated carbon)

3.7
convection fumes
fumes between the place of origin and the separator. States of matter, distribution of particle sizes and concentration alter constantly depending on the conditions in which they originate and are transported

3.8
outgoing fumes
fume residual after the separator as a far as the aperture of the outlet air. States of matter, distribution of particle sizes and concentration alter constantly depending on the conditions of transport

3.9
ventilating outlet
element connecting the hood to the outgoing air duct

3.10
fume separator taper/strip
device in the hood serving to accept fume separators

3.11
baffle plate
plate serving to adjust the airflow volume of the individual fume separators as well as the defined arrangement of cooking fume separators (extraction focal points)

3.12
collection channel
channel worked into the hood to collect the cooking fumes and cleaning fluid

3.13
outlet duct device
device serving to allow the exit of fumes and cleaning fluid at the lowest point of the channel. It involves drain taps, plugs, trays (pots) or drainage ducts fixed permanently to the channel

3.14
air supply box/attachment
a device connected to the hood to feed air into the kitchen, consisting of a supply air chamber and corresponding supply air outlets

3.15
hood facia
design element for the upper surface of the hood

3.16
hood trim
trim element between hood and structure

3.17 hoods types

3.17.1
standard hood
hood which is subdivided by one or more fume separators into one or more air ducts and collection areas respectively

3.17.2
lateral extraction hood
hood in which large panels are arranged in front of the cooking fume separator to form a suction vent

3.17.3
induction hood
hood in which supply air is fed into the hood opposite the cooking fume separators

3.17.4
condensate hoods
hood which would include condensation removal (typically with an internal baffle to increase surface area for condensation.)

3.18 hood construction

3.18.1
wall hood
hood of which at least one side is located on a wall is preferably installed over wall device strips

3.18.2
central hood
suspended hood which his installed above free-standing equipment clusters

3.18.3
bar hood/counter hood
hood that is directly installed on the cooking equipment cluster. The hood is arranged so that a bar/ a counter is situated above the hood top

3.18.4
grill hood
wall hood of which the rear and side walls are pulled down onto the cooking equipment

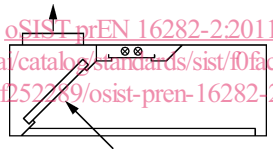
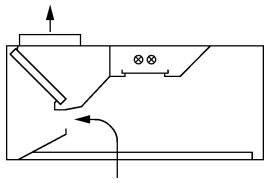
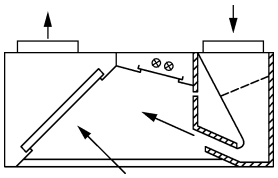
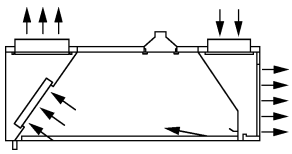
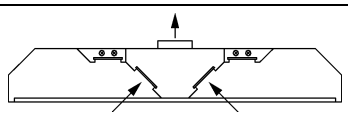
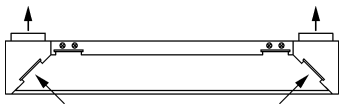
3.19
hood design
there are several divert hood design in the market e.g. trapezoid- or cuboid hood

4 Design of hoods

Hood and their classification are shown in Table 1:

The following text shows example of current hood 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 — Examples for different hood design

Design	Picture (example)	Standard designation		
		Designations	EN number	Classification
Standard wall hood as box / cuboid hood		Kitchen ventilation hood	prEN 16282-2	-B1
Lateral extraction wall hood as box / cuboid hood		Kitchen ventilation hood	prEN 16282-2	-B2
Induction wall hood as box / cuboid hood		Kitchen ventilation hood	prEN 16282-2	-B3
Induction wall hood as box / cuboid hood with additional supply air		Kitchen ventilation hood	prEN 16282-2	-B4
Standard central hood as box / cuboid hood, central suction		Kitchen ventilation hood	prEN 16282-2	-B5
Standard central hood as box / cuboid hood, central suction at side		Kitchen ventilation hood	prEN 16282-2	-B6