



SLOVENSKI STANDARD
oSIST prEN 17170:2017

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Ventilatorji - Varnostne zahteve

Fans - Safety requirements

Ventilatoren - Sicherheitsanforderungen

Ventilateurs - Prescriptions de sécurité

Ta slovenski standard je istoveten z: prEN 17170

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ICS:

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Zračniki. Vetrniki. Klimatske
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Ventilators. Fans. Air-
conditioners

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EUROPEAN STANDARD
NORME EUROPÉENNE
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DRAFT
prEN 17170

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English Version

Fans - Safety requirements

Ventilateurs - Prescriptions de sécurité

Ventilatoren - 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.

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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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European foreword

This document (prEN 17170:2017) 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.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive 2006/42/EC.

For relationship with EU Directive, see informative Annex ZA, which is an integral part of this document.

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prEN 17170:2017 (E)**Introduction**

This document is a type C standard as stated in EN ISO 12100:2010.

The machinery concerned and the extent to which hazards, hazardous situations and hazardous events are covered are indicated in the scope of this document.

When provisions of this type C standard are different from those which are stated in type A or B standards, the provisions of this type C standard take precedence over the provisions of the other standards, for machines that have been designed and built according to the provisions of this type C standard.

Where specific type C standards exist for particular applications of fans, the provisions of these type C standards shall take precedence over the provisions of this standard.

In addition, machinery should comply as appropriate with EN ISO 12100:2010 for general machinery hazards which are not covered by this standard.

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1 Scope

This European Standard is applicable to all types of fans other than fans that are household appliances intended for domestic use.

NOTE 1 Fans intended for household purposes are typically used on desks, ceilings, free standing or, partitions (e.g. window and wall fans) and ducts. They are assumed to have mainly electricity related risks. These fans are in the scope of EN 60335-2-80.

It deals with all significant hazards, hazardous situations and events relevant to fans during transport, assembly and installation, commissioning and use as defined in EN ISO 12100:2010, Annex B, when they are used as intended and under conditions of misuse which are reasonably foreseeable by the manufacturer (see 3,24).

NOTE 2 This standard deals a.) with standalone fan units, ready for operation, complete with control systems and all other features that ensure safety in use and b.) with fans for installation (e.g. in ventilation systems) or incorporation with other equipment where control systems and all other features that ensure safety are provided by others, (details should be provided by the fan manufacturer).

This European Standard applies to electrically driven fans and, apart from the hazards related to the drives, it shall also apply to fans driven from other energy sources.

Further safety measures may be required for the additional hazards due to the application.

This European Standard does not deal with the hazards due to the use of fans in a potentially explosive atmosphere (see e.g. EN ISO 14986).

This European Standard is not applicable to fans, which are manufactured before the date of its publication.

2 Normative references

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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 349, *Safety of machinery; minimum gaps to avoid crushing of parts of the human body*

EN ISO 14120, *Safety of machinery - Guards - General requirements for the design and construction of fixed and movable guards (ISO 14120)*

EN 1037, *Safety of machinery — Prevention of unexpected start-up*

EN 1672-2, *Food processing machinery — Basic concepts — Part 2: Hygiene requirements*

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

EN 61000-6-4, *Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments*

EN 61310-1:2008, *Safety of machinery — Indication, marking and actuation — Part 1: Requirements for visual, auditory and tactile signals*

EN 61511-1, *Functional safety — Safety instrumented systems for the process industry sector — Part 1: Framework, definitions, system, hardware and software requirements (IEC 61511-1)*

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EN 62061, *Safety of machinery - Functional safety of safety-related electrical, electronic and programmable electronic control systems*

EN ISO 4413:2010, *Hydraulic fluid power - General rules and safety requirements for systems and their components (ISO 4413:2010)*

EN ISO 4414:2010, *Pneumatic fluid power - General rules and safety requirements for systems and their components (ISO 4414:2010)*

EN ISO 4414, *Pneumatic fluid power - General rules and safety requirements for systems and their components (ISO 4414)*

EN ISO 4871, *Acoustics - Declaration and verification of noise emission values of machinery and equipment (ISO 4871)*

EN ISO 5136, *Acoustics - Determination of sound power radiated into a duct by fans and other air-moving devices - In-duct method (ISO 5136)*

EN ISO 11200, *Acoustics - Noise emitted by machinery and equipment - Guidelines for the use of basic standards for the determination of emission sound pressure levels at a work station and at other specified positions (ISO 11200)*

EN ISO 11205, *Acoustics - Noise emitted by machinery and equipment - Engineering method for the determination of emission sound pressure levels in situ at the work station and at other specified positions using sound intensity (ISO 11205:2003)*

EN ISO 11688-1, *Acoustics — Recommended practice for the design of low-noise machinery and equipment, Part 1: Planning*

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EN ISO 11688-2:2000, *Acoustics — Recommended practice for the design of low-noise machinery and equipment, Part 2: Introduction to the physics of low-noise design*

EN ISO 12100:2010, *Safety of machinery - General principles for design - Risk assessment and risk reduction (ISO 12100:2010)*

EN ISO 12499, *Industrial fans - Mechanical safety of fans - Guarding (ISO 12499)*

EN ISO 13732-1, *Ergonomics of the thermal environment - Methods for the assessment of human responses to contact with surfaces - Part 1: Hot surfaces (ISO 13732-1)*

EN ISO 13732-3, *Ergonomics of the thermal environment - Methods for the assessment of human responses to contact with surfaces - Part 3: Cold surfaces (ISO 13732-3)*

EN ISO 13849-1, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design*

EN ISO 13850, *Safety of machinery - Emergency stop function - Principles for design (ISO 13850)*

EN ISO 13857:2008, *Safety of machinery - Safety distances to prevent hazard zones being reached by upper and lower limbs (ISO 13857:2008)*

EN ISO 19353:2016, *Safety of machinery - Fire prevention and fire protection (ISO 19353:2015)*

IEC 60417-DB, *Graphical symbols for use on equipment*

ISO 21940-11, *Mechanical vibration — Rotor balancing — Part 11: Procedures and tolerances for rotors with rigid behaviour*

ISO 7000, *Graphical symbols for use on equipment — Registered symbols*

ISO 13347-1:2004, *Industrial fans — Determination of fan sound power levels under standardized laboratory conditions — Part 1: General overview*

ISO 13347-2, *Industrial fans — Determination of fan sound power levels under standardized laboratory conditions — Part 2: Reverberant room method*

ISO 13347-3, *Industrial fans — Determination of fan sound power levels under standardized laboratory conditions — Part 3: Enveloping surface methods*

ISO 13347-4, *Industrial fans — Determination of fan sound power levels under standardized laboratory conditions — Part 4: Sound intensity method*

ISO 13347-4, *Industrial fans — Determination of fan sound power levels under standardized laboratory conditions — Part 4: Sound intensity method*

ISO 13349, *Fans — Vocabulary and definitions of categories*

ISO 14694, *Industrial fans — Specifications for balance quality and vibration levels*

ISO 14695, *Industrial fans — Method of measurement of fan vibration*

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3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 12100:2010, EN ISO 12499, ISO 13349 and the following apply.

3.1

permanent fixed guard

guard kept in place, that is closed, permanently (by welding, rivets, etc.)

3.2

demountable fixed guard

guard kept in place by means of fasteners (screws, nuts, etc.) making removal/opening impossible without using tools in accordance with EN ISO 14120 and EN 13857

3.3

tool

implement such as a key or wrench designed to operate a fastener. An improvised implement such as a coin or nail-file cannot be considered a tool

4 List of significant hazards

This clause contains all the significant hazards, hazardous situations and events, as far as they are dealt with in this standard, identified by risk assessment as significant for this type of machinery and which require action to eliminate or reduce the risk.

NOTE EN ISO 12100 to be considered.

Hazards listed are:

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- hazards common to all fans listed under the heading „Generally applicable“;
- hazards which are unique for specific fans are listed under relevant headings.

Table 1 — Hazards

Hazards in accordance with Tables B.1 and B.4 of EN ISO 12100:2010	Reference to safety requirement in clause
4.1 Mechanical hazards	
4.1.1 Generally applicable	
— cutting and severing	5.2.1
— drawing in or trapping	5.2.1
— entanglement	5.2.1
— friction or abrasion	5.2.1
— injury due to fluid jets	5.2.1
— falling or ejection of impeller parts	5.2.4.1
— falling or ejection of structural or other parts	5.2.4.2
— loss of stability	5.2.5
— slipping, tripping and falling	5.2.6
4.2 Electrical hazards	
4.2.1 Generally applicable	
— electrical contact, direct or indirect	5.3.1.1, 5.3.2.1
— electrostatic phenomena	5.3.3.1
— external influences on electrical equipment	5.4.2
4.3 Thermal hazards	
4.3.1 Generally applicable	
— high or low temperatures, which can lead to injuries through burning, scalding or explosions	5.5.1, 5.5.2 5.5.5
— fire	
4.3.2 Hot gas fans	
— high temperatures which can lead to injuries	5.5.1
4.4 Noise hazards	
4.4.1 Generally applicable	
— hearing loss	5.6.1
— interference with communication	5.6.1
4.5 Hazards due to vibrations	
4.5.1 Generally applicable	
— hazards caused by transmitted vibrations	5.7.1
4.5.2 Conveying fans	
— hazards caused by transmitted vibrations	5.7.2

Hazards in accordance with Tables B.1 and B.4 of EN ISO 12100:2010	Reference to safety requirement in clause
4.5.3 Non-clogging fans	
— hazards caused by transmitted vibrations	5.7.3
4.6 Hazards generated by materials and substances	
4.6.1 Generally applicable	
— contact with or inhalation of harmful gases	5.8.1.1, 5.8.1.2
— hazards caused by gases, aerosols, vapours and dust	5.8.1.1, 5.8.1.2 5.8.3
— hazards caused by biological or microbiological substances	
4.6.2 Hot gas fans	
— hazards caused by gases and vapours	5.8.2.2
4.6.3 Gastight fans	
— danger due to discharges of gas	5.8.2.3
4.7 Hazards generated by neglecting ergonomic principles in machine design	
4.7.1 Generally applicable	
— neglected use of personal protection equipment	5.9
— human errors resulting from unsuitable positioning of control devices and instruments or inappropriate signage	5.9
4.8 Hazards caused by failure of energy supply, breakdown of machinery parts and other functional defects	
4.8.1 Generally applicable	
— failure of energy supply	5.10.1.1
— failure of control system, e.g. unexpected start-up and incompatible control system (e.g. giving too frequent starts/stops or speed variations)	5.10.1.1, 5.11.1.1 5.10.2.1 5.10.2.1
— failure of lubrication	
— breakdown of machinery parts, including failures due to dynamic stresses and/or increased stresses due to cyclic pressure variation	
4.8.2 Gastight fans	
— danger due to leakage's or discharges of gas	5.10.1.2
4.8.3 Hot gas fans	
— danger of burns	5.10.1.3
— failure of energy supply	5.10.1.3