



SLOVENSKI STANDARD
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Prezračevanje stavb - Preskušanje lastnosti sestavnih delov/izdelkov za prezračevanje stanovanjskih stavb - 5. del: Prezračevalne kape in strešni iztoki na strehah

Ventilation for buildings - Performance testing of components/products for residential ventilation - Part 5: Cowls and roof outlet terminal devices

Lüftung von Gebäuden - Leistungsprüfung von Bauteilen/Produkten für die Lüftung von Wohnungen - Teil 5: Hauben und Dach-Fortluftdurchlässe

Ventilation des bâtiments - Essais de performance des composants/produits pour la ventilation des logements - Partie 5 : Extracteurs statiques et dispositifs de sortie en toiture

Ta slovenski standard je istoveten z: prEN 13141-5

ICS:

91.140.30	Prezračevalni in klimatski sistemi	Ventilation and air-conditioning systems
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ICS 91.140.30

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**Ventilation for buildings - Performance testing of
components/products for residential ventilation - Part 5:
Cowls and roof outlet terminal devices**

Ventilation des bâtiments - Essais de performance des
composants/produits pour la ventilation des
logements - Partie 5 : Extracteurs statiques et
dispositifs de sortie en toiture

Lüftung von Gebäuden - Leistungsprüfung von
Bauteilen/Produkten für die Lüftung von Wohnungen -
Teil 5: Hauben und Dach-Fortluftdurchlässe

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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[SIST EN 13141-5:2021](https://standards.iteh.ai/catalog/standards/sist/74391fa5-e8d4-4f97-92ce-c86f3f4aac8c/sist-en-13141-5-2021)

<https://standards.iteh.ai/catalog/standards/sist/74391fa5-e8d4-4f97-92ce-c86f3f4aac8c/sist-en-13141-5-2021>

European foreword

This document (prEN 13141-5:2017) 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 will supersede EN 13141-5:2004.

A list of all parts in the EN 13141 series, published under the general title *Ventilation for buildings — Performance testing of components/products for residential ventilation* can be found on the CEN website.

In addition to a number of editorial revisions, the following main changes have been made with respect to EN 13141-5:2004:

- modification of the title and scope to add assisted cowls;
- in the scope, replacement of term “hybrid ventilation” by “mechanical ventilation”;
- exclusion from the scope of roof exhaust fan which are tested according to EN 13141-4;
- correction of the formula used to compute the volume flow rate;
- in 5.4 (suction effect of cowl), for the preliminary test, use of a wind of 8 m/s instead of “a wind of sufficient speed to give easily measurable pressure differences”;
- in 5.4 (suction effect of cowl), for the testing of the flow rate effect, removal of the two following measurements points: $V = 0,5$ m/s and $1,5$ m/s;
- in 5.4 (suction effect of cowl), for the test for wind effect (see 5.4.4.3), more precise definition of the three series of measurements to carry out (i.e. $V = 0$ m/s, $V = 4$ m/s and $0 \text{ m/s} < V < 4 \text{ m/s}$);
- for additional testing (e.g. acoustics and aerodynamic) for fan assisted cowls, reference to EN 13141-4 is replaced by reference to EN ISO 5801 and more developed information are given;
- addition of a test method for measuring the combined effect of natural wind and wind from the fan assisted cowl;
- addition of a detailed clause concerning the test report;
- review of the entire document in order to make it more accessible regarding the changes made.

Introduction

The position of this document in the field of standards for the mechanical building services is shown in Figure 1.

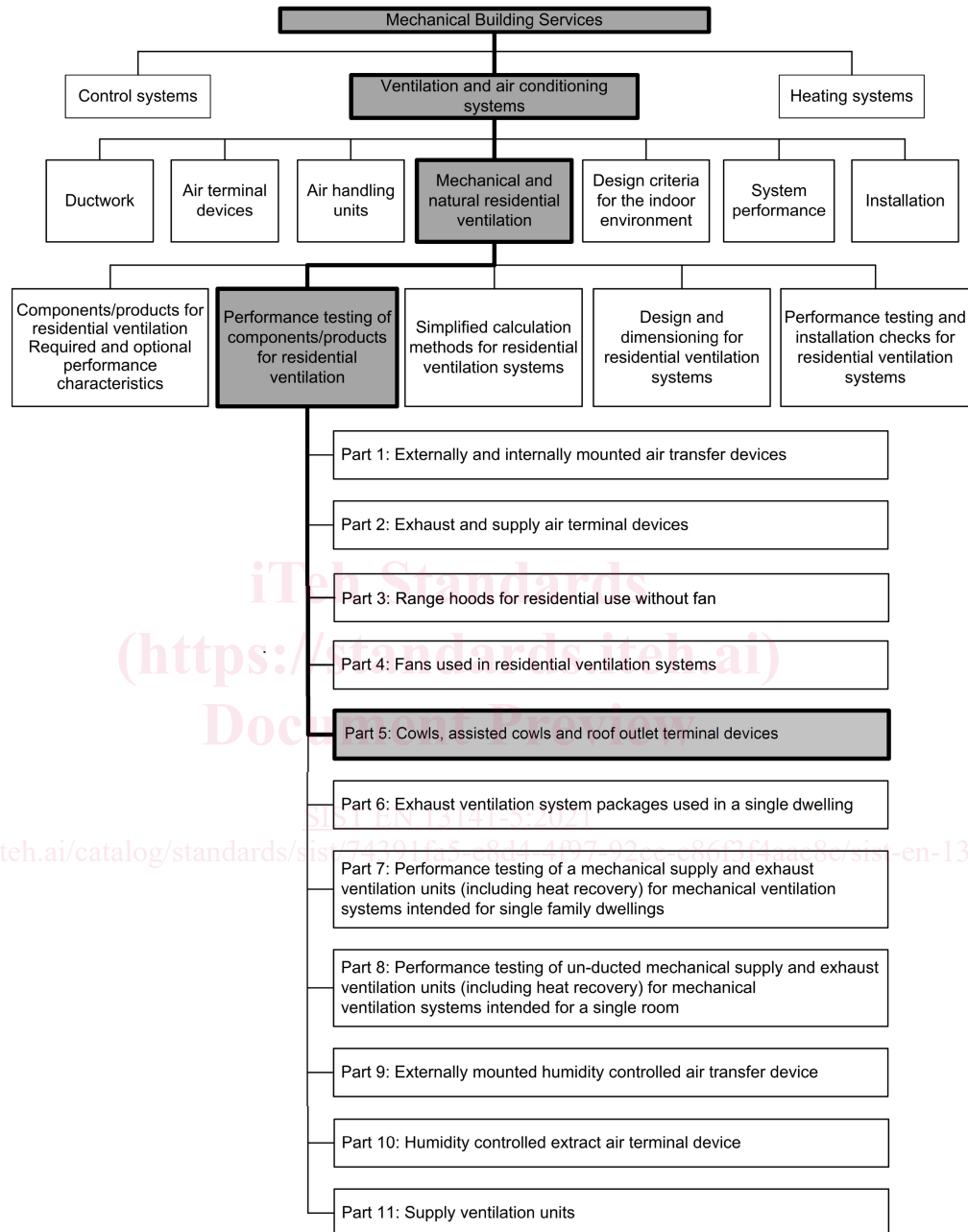


Figure 1 — Position of EN 13141-5 in the field of the mechanical building services

1 Scope

This document specifies methods for measuring the aerodynamic and acoustic characteristics of cowls, assisted cowls and roof outlets used in both natural and hybrid ventilation.

Only cowls, assisted cowls and roof outlets used in both natural and hybrid ventilation and fitted onto ducts which project above the roof surface are covered by this document.

Regarding the assisted cowls, only the fan assisted cowls are covered by this document, other types (e.g. injection assisted cowls) being too recent to be adequately considered for the time being.

This document does not apply to roof exhaust fan which are tested according to EN 13141-4.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

EN 1506:2007, *Ventilation for buildings - Sheet metal air ducts and fittings with circular cross-section - Dimensions*

EN 12792, *Ventilation for buildings - Symbols, terminology and graphical symbols*

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 5801, *Industrial fans - Performance testing using standardized airways (ISO 5801)*

EN ISO 7235, *Acoustics - Laboratory measurement procedures for ducted silencers and air-terminal units - Insertion loss, flow noise and total pressure loss (ISO 7235)*

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*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 12792 and the following apply.

ISO and IEC maintain terminological databases for the use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO online browsing platform: available at <http://www.iso.org/obp>

3.1 cowl

air terminal device with or without moving component, intended to be fitted on top of an exhaust duct, with aim, by creating negative pressure depending of the wind speed, to avoid reverse flow and to increase the extracted flow rate in presence of wind

3.2**assisted cowl**

cowl fitted with an auxiliary device using an energy source other than wind to compensate for lack of suction effect

3.3**fan assisted cowl**

assisted cowl where the auxiliary device is a fan

3.4**roof outlet**

air terminal device used for mechanical ventilation systems

3.5**pressure factor**

ratio of the measured pressure difference to the dynamic pressure of the wind at a given vertical wind approach angle

Note 1 to entry: The pressure factor represents the measure of the suction effect due to the wind.

3.6**test voltage**

voltage to be used for supplying the motorised cowl during the testing

4 Symbols and abbreviations

For the purposes of this document, symbols listed in Table 1 apply.

Table 1 — Symbols and abbreviated terms

Symbol	Quantity	Unit
$C_{(\text{anglex}^\circ)}$	pressure factor	—
D	duct diameter	—
e	roughness of the duct	—
L	duct length	—
L_W	sound power level	dB
L_{WA}	A-weighted sound power level	dB(A)
L_{wo}	radiated sound power in the outdoor space (including casing)	—
n	air flow exponent	—
p_a	ambient pressure	Pa
p_d	dynamic pressure	Pa
$p_{\text{dyn,duct}}$	dynamic pressure in the duct	Pa

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Symbol	Quantity	Unit
p_{dw}	dynamic pressure of the wind	Pa
P_E	electrical power input	W
$P_{E,max}$	maximum electrical power input	W
p_f	fan pressure	Pa
p_{fs}	static fan pressure	Pa
$p_{s,ext}$	static pressure difference	Pa
p_{14}	p_6 (measured) corrected for the pressure drop of the duct measured before the cowl set up	Pa
q_v	volume flow rate	dm ³ /s or m ³ /s or l/s or m ³ /h
$q_{v,cor}$	corrected volume flow rate	dm ³ /s or m ³ /s or l/s or m ³ /h
$q_{v,m}$	measured volume flow rate	dm ³ /s or m ³ /s or l/s or m ³ /h
q_{vmax}	maximum air volume flow	—
q_{vref}	air volume flow	m ³ /s or l/s or m ³ /h
v	air speed in the test duct	—
Δp	total pressure difference	Pa
Δp_d	dynamic pressure difference	Pa
Δp_s	static pressure difference	Pa
θ_a	ambient temperature	°C
ρ	air density in the test duct	—