

Ventilation for Buildings - Performance testing of components for residential buildings - Multifunctional balanced ventilation units for single family dwellings, including heat pumps

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

|   |  |
|---|--|
| See Eesti standard EVS-EN 16573:2017 sisaldab Euroopa standardi EN 16573:2017 ingliskeelset teksti.                 | This Estonian standard EVS-EN 16573:2017 consists of the English text of the European standard EN 16573:2017.                      |
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English Version

Ventilation for Buildings - Performance testing of  
components for residential buildings - Multifunctional  
balanced ventilation units for single family dwellings,  
including heat pumps

Ventilation des bâtiments - Essais de performance des  
composants pour les bâtiments résidentiels - Centrales  
de ventilation double flux multifonctions pour les  
logements individuels, comprenant des pompes à  
chaleur

Lüftung von Gebäuden - Leistungsprüfung von  
Bauteilen für Wohnbauten - Multifunktionale Zu-  
/Abluft-Lüftungseinheiten für Einzelwohnungen,  
einschließlich Wärmepumpen

This European Standard was approved by CEN on 22 July 2016.

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COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

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## European foreword

This document (EN 16573:2017) has been prepared by Technical Committee CEN/TC 156 "Ventilation for buildings", the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by August 2017, and conflicting national standards shall be withdrawn at the latest by August 2017.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: 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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## 1 Scope

This European Standard specifies the laboratory test methods and test requirements for aerodynamic, energy rating and acoustic performance, of multifunctional balanced units intended for use in a single dwelling.

In the case of units consisting of several parts, this standard applies only to those designed and supplied as a complete package with the mount instructions.

It covers units that contain at least, within one or more casing:

- supply and exhaust air fans;
- air filters
- common control system;

and one or more of the additional components:

- air to water heat pump;
- air to air heat pump;
- air-to-air heat exchanger.

Units including only an air to air heat exchanger and/or an exhaust air to supply air heat pump are covered by EN 13141-7.

A non-exhaustive list of possible configurations of multifunctional units covered by this standard is given in Clause 5.

The standard does not cover the thermal aspects of humidity transfer in the air-to-air heat exchanger.

This standard does not deal with non-ducted units on supply and extract air side.

This standard does not deal with collective units (centralized or semi-centralized systems)

These multifunctional balanced units can be connected to ground heat exchanger for air preheating, solar collector or other heating systems. This standard does not cover the testing with these additional components.

This standard does not cover units including combustion engine driven compression heat pumps and sorption heat pump.

## 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.

EN 12102, *Air conditioners, liquid chilling packages, heat pumps and dehumidifiers with electrically driven compressors for space heating and cooling - Measurement of airborne noise - Determination of the sound power level*

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

EN 13141-7:2010, *Ventilation for buildings - Performance testing of components/products for residential ventilation - Part 7: Performance testing of a mechanical supply and exhaust ventilation units (including heat recovery) for mechanical ventilation systems intended for single family dwellings*

EN 14511 (all parts), *Air conditioners, liquid chilling packages and heat pumps with electrically driven compressors for space heating and cooling*

EN 16147, *Heat pumps with electrically driven compressors - Testing and requirements for marking of domestic hot water units*

EN ISO 5135, *Acoustics - Determination of sound power levels of noise from air-terminal devices, air-terminal units, dampers and valves by measurement in a reverberation room (ISO 5135)*

### 3 Terms, definitions and symbols

#### 3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 12792, EN 13141-7, EN 14511-1 and EN 16147, and the following apply.

##### 3.1.1

##### **declared maximum air volume flow**

maximum of the removed or fresh air volume flow corresponding to the declared total pressure of the unit at the maximum setting, without any recirculation, for standard air conditions (20 °C, 101 325 Pa)

[SOURCE: EN 13141-7:2010, 3.1.4, modified — The beginning of the definition has been redrafted and the expression “without any recirculation” has been added.]

##### 3.1.2

##### **declared total pressure difference**

total pressure difference between the outlet and the inlet of the unit, without any recirculation, declared by the manufacturer, and corresponding to 100 Pa or to a lower total pressure if the intended use declared by the manufacturer is less than 100 Pa

[SOURCE: EN 13141-7:2010, 3.1.6, modified — The original term was “ $P_{tud}/2$ ” and it was defined with the beginning of the present definition.]

##### 3.1.3

##### **multifunctional balanced ventilation unit**

unit intended for use in a single family dwelling to primarily provide balanced ventilation and in addition heating and/or cooling and/or hot water production and contains at least, within one or more modular casing supply and exhaust air fans, air filters, common control system and one more of the additional components, air to water heat pump, air to air heat pump, air-to-air heat exchanger

##### 3.1.4

##### **hydronic heating/cooling**

heating or cooling supplied by a water or brine circuit

##### 3.1.5

##### **air heating/cooling**

heating or cooling supplied by an air stream

##### 3.1.6

##### **air supply free cooling**

recovering of cooling energy produced by the heat pump while producing hot water

Note 1 to entry: Hot water has priority.