SLOVENSKI STANDARD

oSIST prEN 15727:2008

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Prezraļevanje stavb - Kanali - Tehniļni izdelki kanalov, klasifikacija tesnosti in preskuġanja

Ventilation for buildings - Ductwork - Technical ductwork products, leakage classification and testing

Lüftung von Gebäuden - Luftleitungen - Technische Luftleitungsprodukte, Klassifizierung entsprechend der Luftdichtheit und Prüfung

Ventilation des bâtiments - Réseau de conduits - Produits techniques des réseaux, classification de l'étanchéité et essais

Ta slovenski standard je istoveten z: prEN 15727

ICS:

91.140.30	Prezraļevalni in klimatski sistemi	Ventilation and air-conditioning

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English Version

Ventilation for buildings - Ductwork - Technical ductwork products, leakage classification and testing

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Lüftung von Gebäuden - Luftleitungen - Technische Luftleitungsprodukte, Klassifizierung entsprechend der Luftdichtheit und Prüfung

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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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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This document (prEN 15727:2007) 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 position of this standard in the field of mechanical services is shown in Figure N° 1.

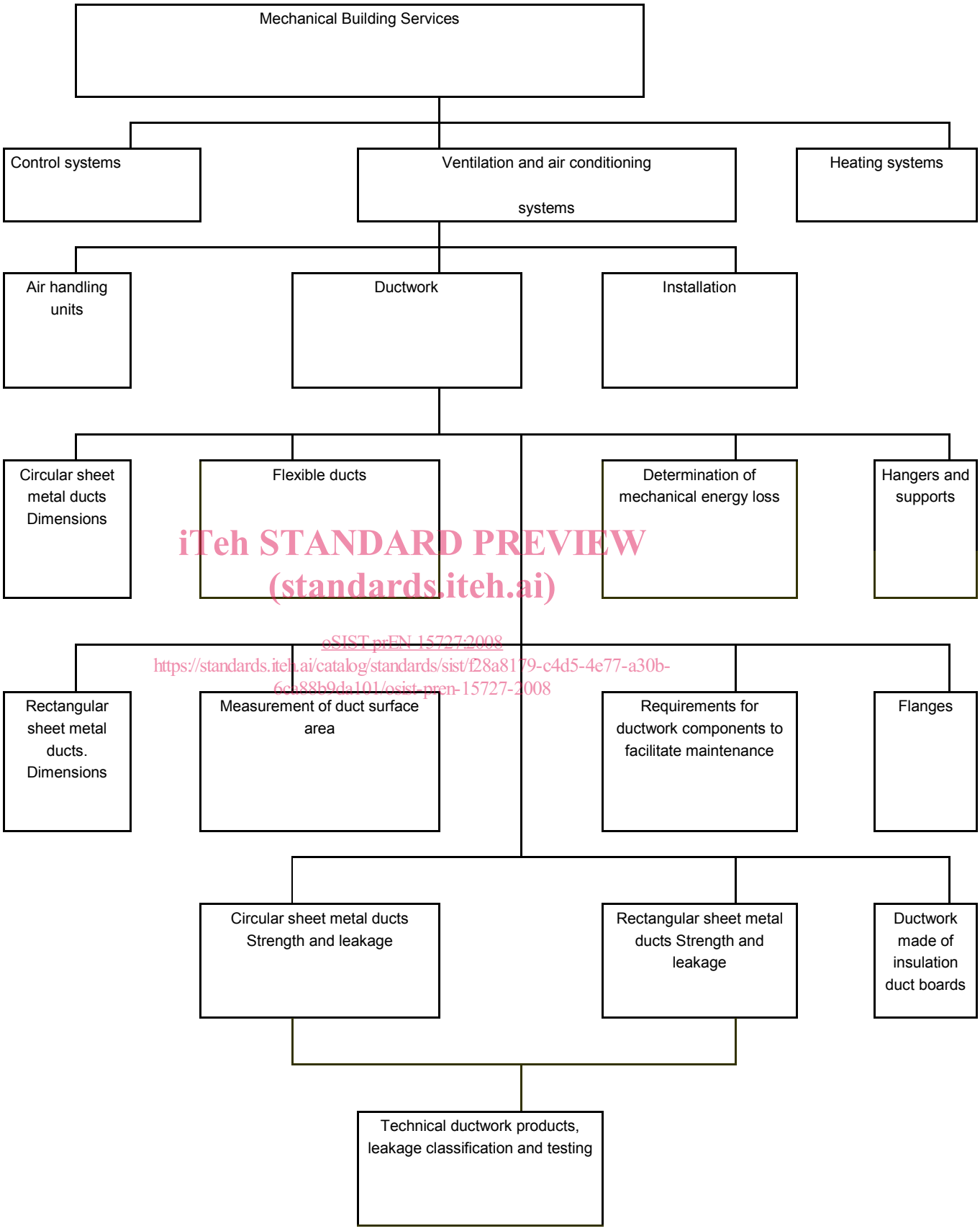

Figure 1 — Position of standard in the field of mechanical services

1 Scope

This standard applies to technical ductwork products, intended for installation in ductwork conforming to EN 1505, EN 1506, EN 13180 and EN 13403, used in air conditioning and ventilation systems defined in the scope of CEN/TC 156. This standard specifies the leakage requirements for technical ductwork products, i.e. components in the ductwork that has more functions than conveying air. Dampers according to EN 1751 are not included in this standard.

This standard is a parallel standard to EN 12237, EN 1507, EN 13180 and EN 1751, based on the same leakage classification.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 1505, *Ventilation for buildings — Rectangular sheet metal air ducts and duct fittings — Dimensions*

EN 1506, *Ventilation for buildings — Circular sheet metal air ducts and duct fittings — Dimensions*

EN 1751, *Ventilation for buildings — Air terminal devices — Aerodynamic testing of dampers and valves*

EN 1886, *Ventilation for buildings — Air handling units – Mechanical performance*

EN 12237, *Ventilation for buildings — Circular sheet metal air ducts — Strength and leakage — requirements and testing*

EN 12097, *Ventilation for buildings — Requirements for ductwork components to facilitate maintenance of ductwork systems*

EN 12792, *Ventilation for buildings — Symbols and terminology*

EN 13180, *Ventilation for buildings — Ductwork — Dimensions and mechanical requirements for flexible ducts*

EN 13403, *Ventilation for buildings Non metallic ducts — Ductwork made from insulation ductboards*

EN 14239, *Ventilation for buildings — Measurement of ductwork surface area*

EN 1507, *Ventilation for buildings — Sheet metal air ducts with rectangular section —- Requirements for strength and leakage*

3 Terms, definitions and symbols

3.1 Terms and definitions

For the purposes of this European Standard the terms and definitions given in EN 12792, together with the following, apply.

3.1.1
nominal diameter d_n
the nominal diameter according to EN 1506 for ductwork of circular cross-section

3.1.2
total joint length *L*
total length of the periphery of the joints of technical products

3.1.3
virtual product surface area A_c
virtual surface area of the product under test. The surface area for the entire ductwork, or for the whole system including the air handling units, is determined in accordance with EN 14239, and may deviate from the sum of the product areas

3.1.4
test pressure p_{test}
static pressure difference between the pressure within the product to be tested and the pressure of the ambient air

3.1.5
static pressure limit p_s
the static pressure limits, positive and negative, for the appropriate air tightness class are specified in Table 2

3.1.6
air leakage rate q_{vl}
air leakage flow rate of the product under test

3.1.7
measured air leakage rate $q_{vlmeasured}$
air leakage flow rate before correction

3.1.8
air temperature *t*
temperature of the ambient air during the test

3.1.9
atmospheric pressure p_a
barometric pressure of ambient air during the test

3.1.10
air leakage factor f_c
leakage flow rate per unit surface area of the product

3.1.11
air leakage limit f_{max}
maximum permitted leakage factor for the product according to its air tightness class

3.1.12
technical ductwork product
a component, including its connection pieces, installed in the ductwork that has one or more functions more than conveying air

NOTE Sound attenuators, filter boxes and duct fans are typical examples of technical ductwork products and can be tested separately according to this standard. These technical ductwork products are also a part of the ductwork and can be included in the tests in duct systems according to EN 12237 and EN 1507.

Ductwork components like bends, reducers and T-pieces are not within the scope of this standard. EN 12237 and EN 1507 apply.

3.2 Symbols

The nomenclature shown in Table 1 is used throughout this European Standard.

Table 1 — Symbols

Symbol	Quantity	Units
d_n	Nominal diameter	m
L	Total joint length	m
A_c	Virtual product surface area	m^2
f_c	Product Air leakage factor	$l\ s^{-1}\ m^{-2}$
f_{max}	Air leakage limit	$l\ s^{-1}\ m^{-2}$
p_a	Atmospheric pressure	Pa
p_s	Static pressure limit (p - pa)	Pa
p_{test}	Test pressure	Pa
C_f	Correction factor	-
$q_{vlmeasured}$	Measured air leakage volume rate	$l\ s^{-1}$
q_{vl}	Leakage volume rate of air flow	$l\ s^{-1}$
t	Air temperature	°C

4 Instrumentation

4.1 Calibration

All instruments shall be checked at intervals as appropriate but not exceeding 12 months.

4.2 Air flow rate measurement

Leakage air flow meters shall have a minimum indicated accuracy according to the ranges in Table 2.

Table 2 — Accuracy of leakage air flow meters

Range $l{\cdot}s^{-1}{\cdot}m^{-2}$	Accuracy of measurement
Up to and including 0,018	$\pm$ 0,0009 $l{\cdot}s^{-1}{\cdot}m^{-2}$
More than 0,018	$\pm$ 5 %

4.3 Pressure measurement

Manometers for pressure measurement shall have a minimum indicated accuracy of ± 2 %.

4.4 Temperature measurement

Measurement of temperature is carried out, for example by means of mercury-in-glass thermometers, resistance thermometers or thermo-couples. Instruments shall be graduated, or give readings in intervals not greater than 0,5 K, and calibrated to an accuracy of 0,25 K.

5 Requirements

5.1 Leakage

The leakage factor (f_c) shall be lower than the air leakage limit (f_{max}), corresponding to the required air tightness class, specified in Table 2, for all test pressure (p_{test}) between the static pressure limit (P_s).

5.2 Special guidelines for certain products

Damper

According to EN 1751. If the product has other functions than a damper use the rules in this standard.

Air handling unit

According to EN 1886. Air handling units are not included in the scope of this standard. They have an own air tightness classification, and regarding air leakages they are not considered as technical ductwork components.

Flexible ducts

According to EN 13180. Flexible ducts are not included in the scope of this standard. They have an own air tightness classification, and regarding air leakages they are not considered as technical ductwork components.

6 Test rig specifications

The test rig shall be inspected by the user before use on site and shall have a calibration certificate, chart or graph, indicating satisfactory calibration not older than 12 month.

The product to be tested shall be sealed off before commencing the test with end caps of the jointing system specified by the manufacturer. The end caps do not have to be attached with screws or rivets that will cause damage to the product under test. The test rig shall be equipped so that the product can be pressurized and the pressure p_{test} and the volume airflow q_{vl} can be measured se example in Figure 2.