SLOVENSKI PREDSTANDARD

OSIST prEN 1506:2004

oct 2004

Ventilation for buildings - Sheet metal air ducts and fittings with circular cross-section - Dimensions

ICS 91.140.30

Referenčna številka
OSIST prEN 1506:2004(en)

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

DRAFT
prEN 1506

August 2004

ICS

Will supersede EN 1506:1997

English version

Ventilation for buildings - Sheet metal air ducts and fittings with circular cross-section - Dimensions

Ventilation des bâtiments - Conduits en tôle et accessoires à section circulaire - Dimensions

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.

This draft European Standard was established by CEN in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Warning : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

Contents

Page

Foreword

This document 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 1442:1998.

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(s).

This standard is one of a series of standards for ductwork used for ventilation and air conditioning of buildings for human occupancy, and it has a parallel standard referring to dimensions of rectangular ducts.

The position of this standard in the field of mechanical building services is shown in Figure 1.

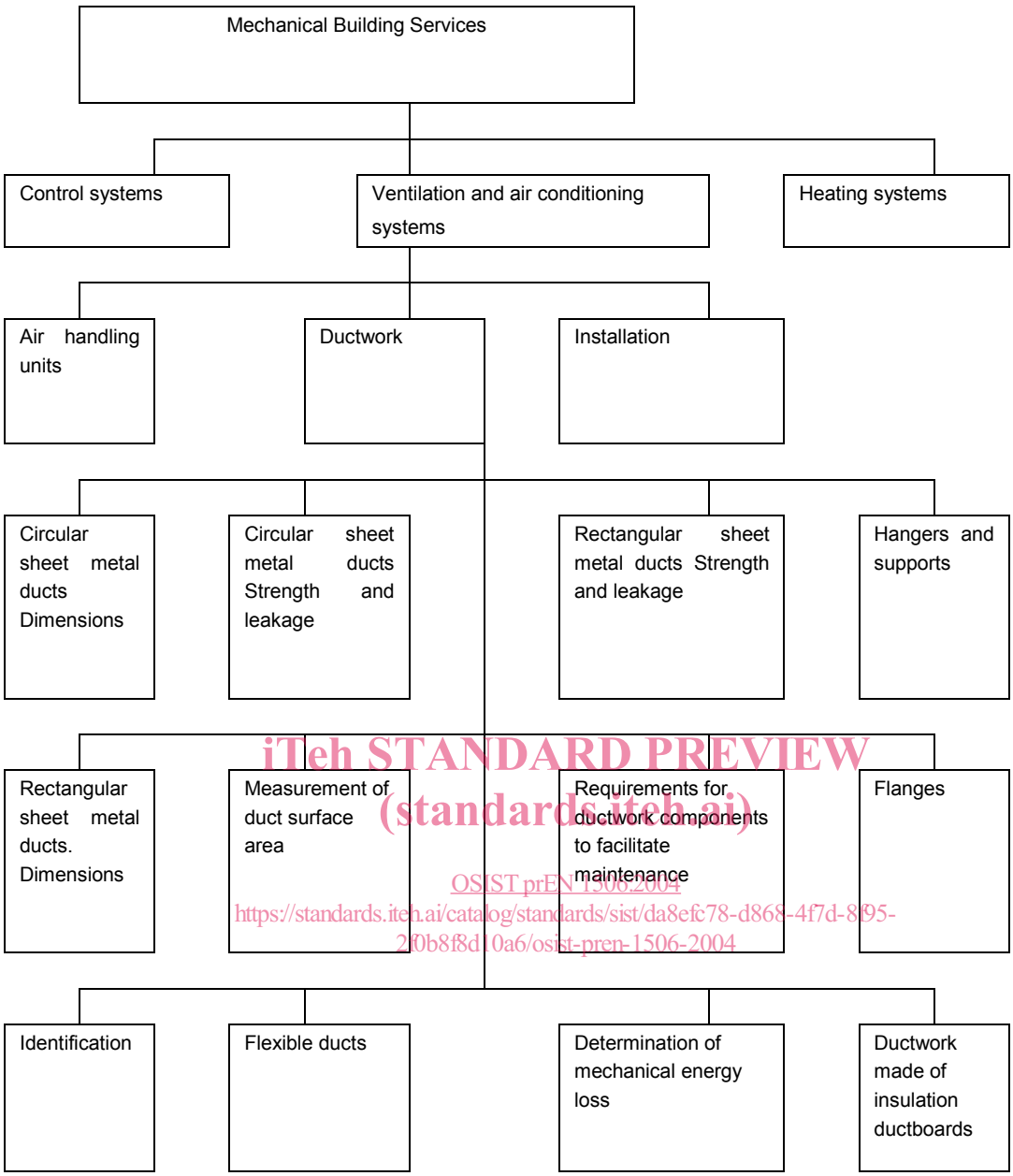

Figure 1 — Position of EN 1506 in the field of mechanical building services

Introduction

This revised standard has been prepared by CEN/TC 156 to specify standardized dimensions and tolerances for ducts and duct fittings with circular cross-section, used in ventilation systems.

Dimensions and tolerances for straight ducts given in this standard are in accordance with ISO 7807: 1983[1)] concerning recommended sizes.

It is intended that the additional sizes (A) which are in use in some countries will be phased out and may be removed from a future edition of the standard.

The dimensions given for duct fittings are based on document EUROVENT 2/4[1)]

1) See annex B.

1 Scope

This European Standard specifies dimensions of ducts and duct fittings with circular cross- section. It applies to ductwork used in ventilating and air conditioning systems in buildings, subject to human occupancy. The wall thickness of ducts and fittings is not specified in this standard; strength and leakage are dealt with in EN 12237.

The corresponding Standard for rectangular ducts is EN 1505.

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.

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

EN 1505, *Ventilation for buildings — Sheet metal air ducts and fittings with rectangular cross-section — Dimensions*

EN 12237, *Ventilation for buildings — Strength and leakage of sheet metal air ducts with circular cross-section — Requirements and testing*

3 Definitions and symbols

For the purposes of this standard, the definitions given in European Technical Report EN 12792, together with the following, apply.

3.1
nominal size (d, d_1, d_2, d_3 and d_4)
reference dimension used for designation, calculation and application of ducts and fittings

d denotes the inner diameter of ducts and female ends.

d_1, d_2, d_3 and d_4 denote the inner diameters of male ends of fittings.

3.2
effective length of a fitting (1, 1_1, and 1_3)
length by which a fitting contributes to the overall length of the air distribution system

3.3
effective length of a straight duct (L)
length which a straight duct contributes to the overall length of the air distribution system

3.4
overlap (insertion) length (l_p)
length which a fitting overlaps the duct

3.5
cross-sectional area (A_c)
for ducts with circular cross-section the cross-sectional area A_c is equal to

$$A_c = \frac{\pi d^2}{4}$$

3.6
straight duct surface area (A_i)
product of the internal perimeter and the duct length

For ducts with circular cross-section the duct surface area per metre length is

$$A_i = \pi d$$

3.7 Deviation, tolerance, clearance (see Figure 10)

3.7.1
upper deviation
algebraic difference between the maximum limit of size and the corresponding nominal size

3.7.2
lower deviation
algebraic difference between the minimum limit of size and the corresponding nominal size

3.7.3
tolerance
difference between the upper deviation and the lower deviation. The tolerance is an absolute value without sign

3.7.4
clearance
positive difference between the sizes of a female connector or duct and of a male connector

4 Dimensions and values for ducts

The nominal diameter d, cross-sectional area A_c and duct surface area A_i are given in Table 1. The nominal diameters also apply to fittings. Tolerances, deviations and clearances are given in clause 6.

Table 1 — Ducts with circular cross-section: dimensions

Nominal diameter, d_1 mm	**Cross-sectional area,** A_c m^2	**Duct surface area,** A_i m^2/m
Recommended sizes		
63	$3{,}12 \times 10^{-3}$	0,197
80	$5{,}03 \times 10^{-3}$	0,251
100	$7{,}85 \times 10^{-3}$	0,314
125	$12{,}3 \times 10^{-3}$	0,393
160	$20{,}1 \times 10^{-3}$	0,502
200	$31{,}4 \times 10^{-3}$	0,628
250	$49{,}1 \times 10^{-3}$	0,785
315	$77{,}9 \times 10^{-3}$	0,990
400	0,126	1,26
500	0,196	1,57
630	0,312	1,98
800	0,503	2,51
1000	0,785	3,14
1250	1,23	3,93
Additional sizes		
150	$17{,}7 \times 10^{-3}$	0471
300	$70{,}7 \times 10^{-3}$	0,943
355	$98{,}9 \times 10^{-3}$	1,11
450	0,159	1,41
560	0,246	1,76
710	0,396	2,23
900	0,636	2,83
1120	0,985	3,52
NOTE Recommended sizes correspond to the sizes stated in ISO 7807.		

5 Dimensions for fittings

The nominal diameters are given in Table 1.

NOTE 1 Pressed fittings are available in various forms and are normally limited to diameters not exceeding 315 mm.

5.1 Joints

The overlap length of overlapping joints is given in Table 2.

Table 2 — Overlap length

Nominal diameter in mm	63 to 315	> 315 to 800	> 800 to 1250
1_p in mm	≥ 25	≥ 50	≥ 100

For butt joints (see Figure A.3d) the diameters of the ducts to be connected at the joints are equal.

5.2 Bends

5.2.1 General

The radius of bends r_m for different nominal sizes is given in Table 3.

Table 3 — Radius of bends

d_i in mm	r_m in mm
≤ 100	100
> 100	d_i

The effective length is given by the formula: $l = r_m \cdot \tan(\alpha/2)$

Bends with 15° and 30° angle are also available.

5.2.2 Pressed bends

Examples of pressed bends are shown in Figure 2.