



SLOVENSKI STANDARD SIST EN 1506:1999

01-september-1999

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

Lüftung von Gebäuden - Luftleitungen und Formstücke aus Blech mit rundem Querschnitt - Maße

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

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ICS:

91.140.30 Ú!^: !æ^çæ) ã Á|ã æ \ã Ventilation and air-conditioning
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EUROPEAN STANDARD

EN 1506

NORME EUROPÉENNE

EUROPÄISCHE NORM

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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

Lüftung von Gebäuden - Luftleitungen und Formstücke aus
Blech mit rundem Querschnitt - Maße

This European Standard was approved by CEN on 25 October 1997.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 156 "Ventilation for buildings", the secretariat of which is held by BSI.

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.

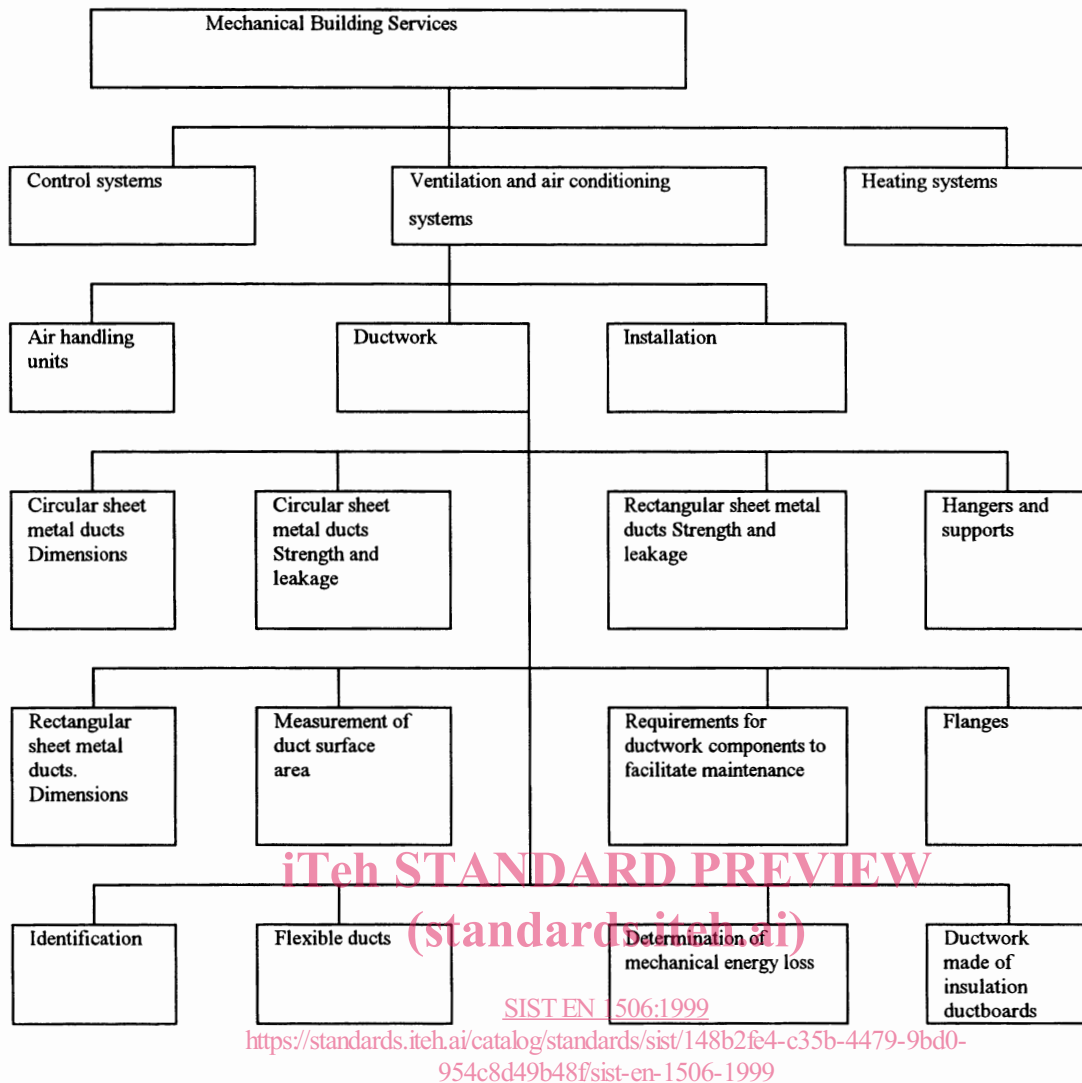


Figure 1: Position of EN 1506 in the field of mechanical building services

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 June 1998, and conflicting national standards shall be withdrawn at the latest by June 1998.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium,

Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Introduction

This 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: 1983¹⁾ 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 2/4¹⁾

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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 prEN 12237.

The corresponding Standard for rectangular ducts is EN 1505.

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 and 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.

CR 12792	Ventilation for buildings - Symbols and terminology
EN 1505	Ventilation for buildings - Sheet metal air ducts and fittings with rectangular cross-section - Dimensions
prEN 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 CR 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. [SIST EN 1506:1999](https://standards.iteh.ai/catalog/standards/sist/148b2fe4-c35b-4479-9bd0-954c8d49b48f/sist-en-1506-1999)

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 (l , l_1 , and l_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 (I_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_i 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	$17,7 \times 10^{-3}$	0,471
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: 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
l_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_1

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.

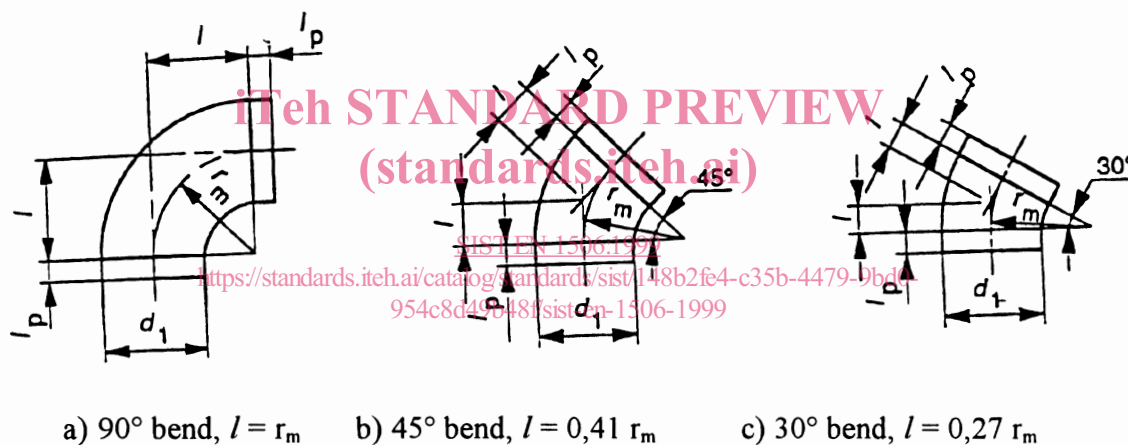


Figure 2: Dimensions for pressed bends

5.2.3 Segmented bends

Examples of segmented bends are shown in figure 3.

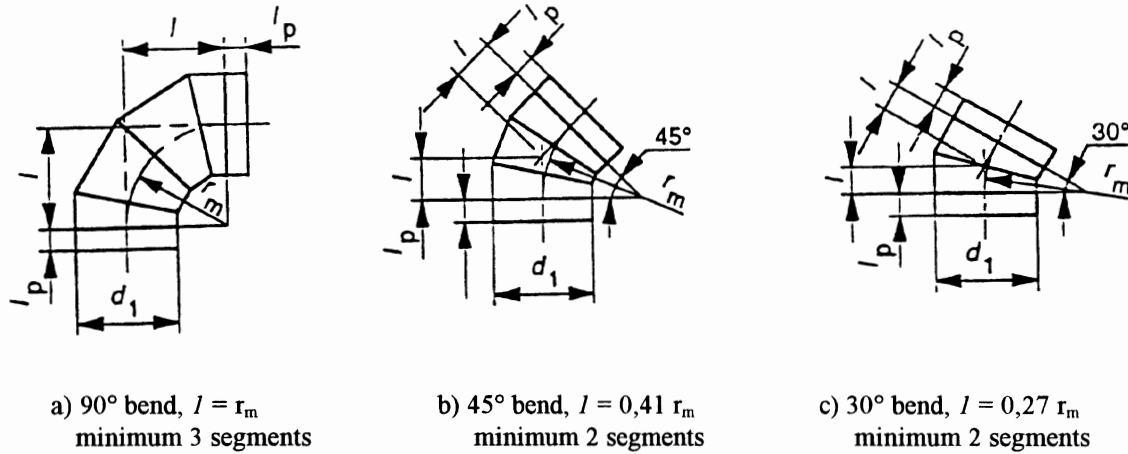


Figure 3: Dimensions for segmented bends

5.3 Branches and T-pieces

5.3.1 General

Dimensions for branches and T-pieces are given in table 4. Recommended sizes are indicated by an "R" and additional sizes by an "A".

Examples of branches and T-pieces are shown in figures 4, 5 and 6.

5.3.2 Branches

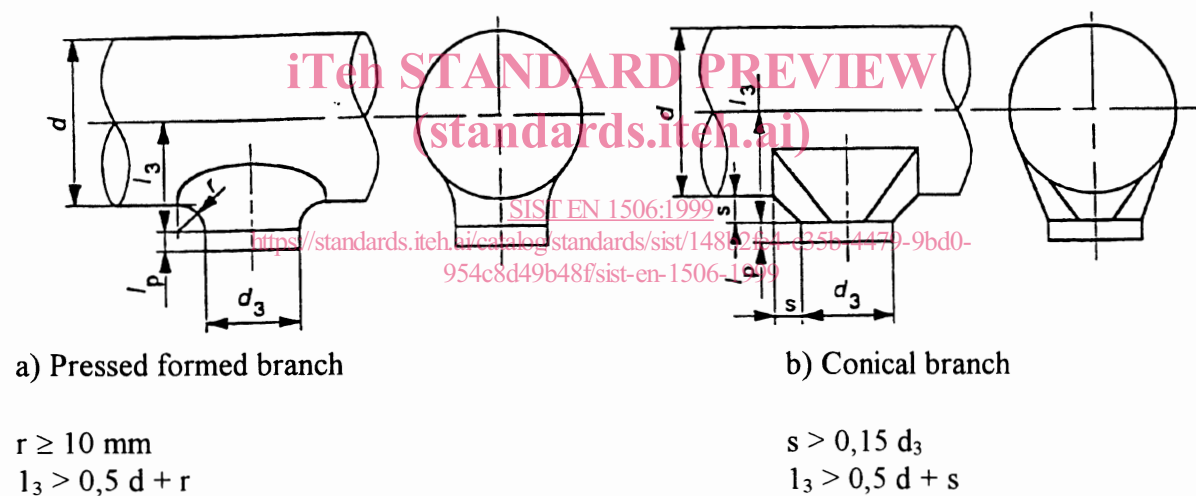


Figure 4: Examples of branches