



# SLOVENSKI STANDARD SIST EN 1506:2007

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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

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

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**Ta slovenski standard je istoveten z: EN 1506:2007**

**ICS:**

91.140.30 Ú!^: !æ^çæ) á Á|ã æ \ã Ventilation and air-conditioning  
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**SIST EN 1506:2007**

**en,fr,de**

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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 24 May 2007.

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 CEN Management Centre 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 CEN Management Centre has the same status as the official versions.

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

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

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## Foreword

This document (EN 1506:2007) 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 December 2007, and conflicting national standards shall be withdrawn at the latest by December 2007.

This document supersedes EN 1506:1997.

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.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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

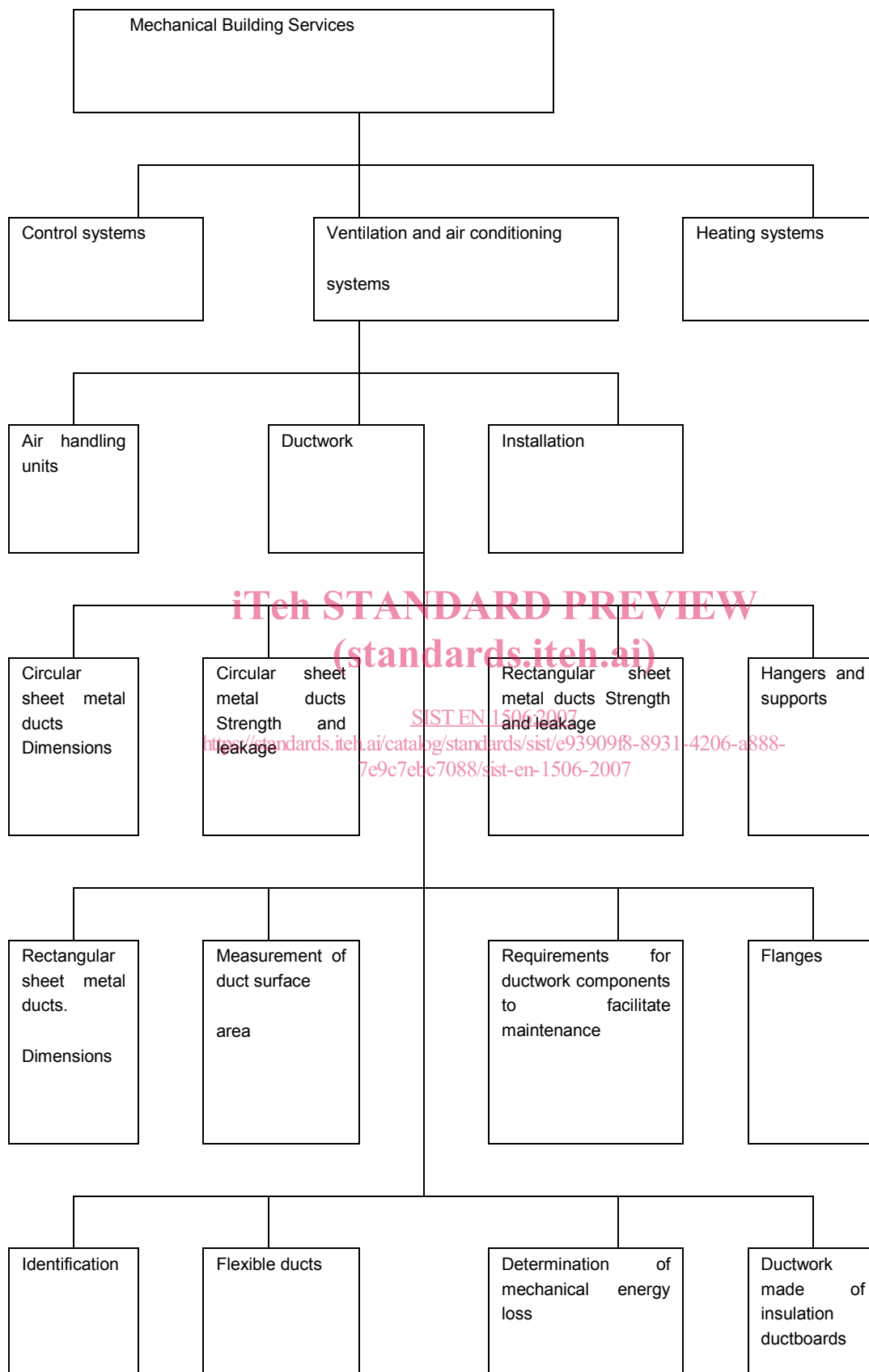


Figure 1 — Position of EN 1506 in the field of mechanical building servicesIntroduction

## 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 [3] 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 [4].

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## 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 [2].

The corresponding standard for rectangular ducts is EN 1505 [1].

## 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 12792:2003, *Ventilation for buildings - Symbols, terminology and graphical symbols*

## 3 Terms, definitions and symbols

For the purposes of this document, the terms and definitions given in EN 12792:2003 and the following apply.

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### 3.1

**nominal size ( $d$ ,  $d_1$ ,  $d_2$ ,  $d_3$  and  $d_4$ )** (standards.iteh.ai)

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 outer 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 by which a straight duct contributes to the overall length of the air distribution system

### 3.4

**overlap (insertion) length ( $l_p$ )**

length by 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

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**3.7.4****clearance**

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

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**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, $d$ 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

### 5.1 General

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.

### 5.2 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	$\geq 25$	$\geq 50$	$\geq 100$

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

### 5.3 Bends

#### 5.3.1 General

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

Table 3 — Radius of bends

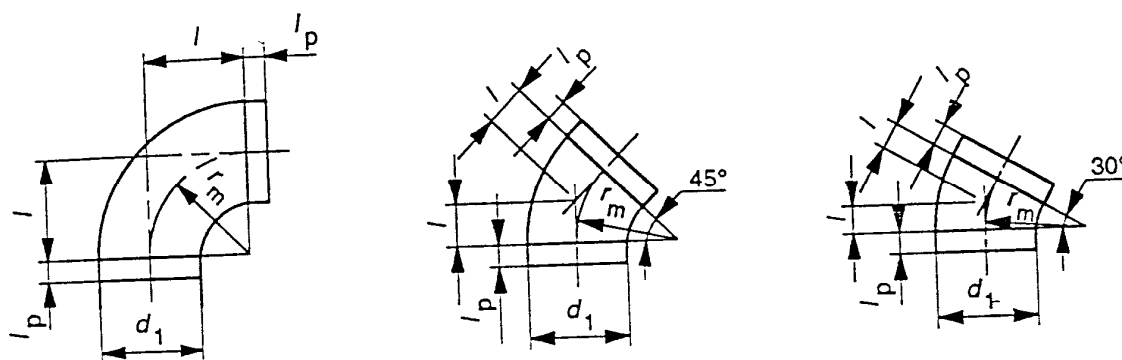
$d_i$ in mm	$r_m$ in mm
$\leq 100$	100
$> 100$	$d_i$

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

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

#### 5.3.2 Pressed bends

Examples of pressed bends are shown in Figure 2.



#### Key

a) 90° bend,  $l = r_m$

b) 45° bend,  $l = 0,41 r_m$

c) 30° bend,  $l = 0,27 r_m$

Figure 2 — Dimensions for pressed bends