SLOVENSKI STANDARD
SIST EN 14239:2004

01-september-2004

Prezraļevanje stavbï Zraļnivodiï Merjenje povrġine zraļnih vodov

Ventilation for buildings - Ductwork - Measurement of ductwork surface area

Lüftung von Gebäuden - Luftleitungen - Messung von Luftleitungsoberflächen

Ventilation des bâtiments - Réseau de conduits - Mesurage de l'aire superficielle des conduits

Ta slovenski standard je istoveten z: EN 14239:2004

ICS:

91.140.30	Prezraļevalni in klimatski sistemi	Ventilation and air-conditioning

SIST EN 14239:2004 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 14239

January 2004

ICS 91.140.30

English version

Ventilation for buildings - Ductwork - Measurement of ductwork surface area

Ventilation des bâtiments - Réseau de conduits - Mesurage de l'aire superficielle des conduits

Lüftung von Gebäuden - Luftleitungen - Messung von Luftleitungsoberflächen

This European Standard was approved by CEN on 3 November 2003.

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.

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

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

Ref. No. EN 14239:2004: E

Contents

page

Foreword 3
Introduction 5
1 Scope 5
2 Normative references 5
3 Terms and definitions 5
4 Measurement of circular ductwork 5
5 Measurement of rectangular ductwork 7
Annex A (informative) Duct surface areas for use in calculations 9
Bibliography 11

Foreword

This document (EN 14239:2004) 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of an identical text or by endorsement, at the latest by July 2004, and conflicting national standards shall be withdrawn at the latest by July 2004.

The standard is one of a series of standards for ductwork used for ventilation and air conditioning of buildings for human occupancy.

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

Annex A is informative.

This document includes a bibliography.

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

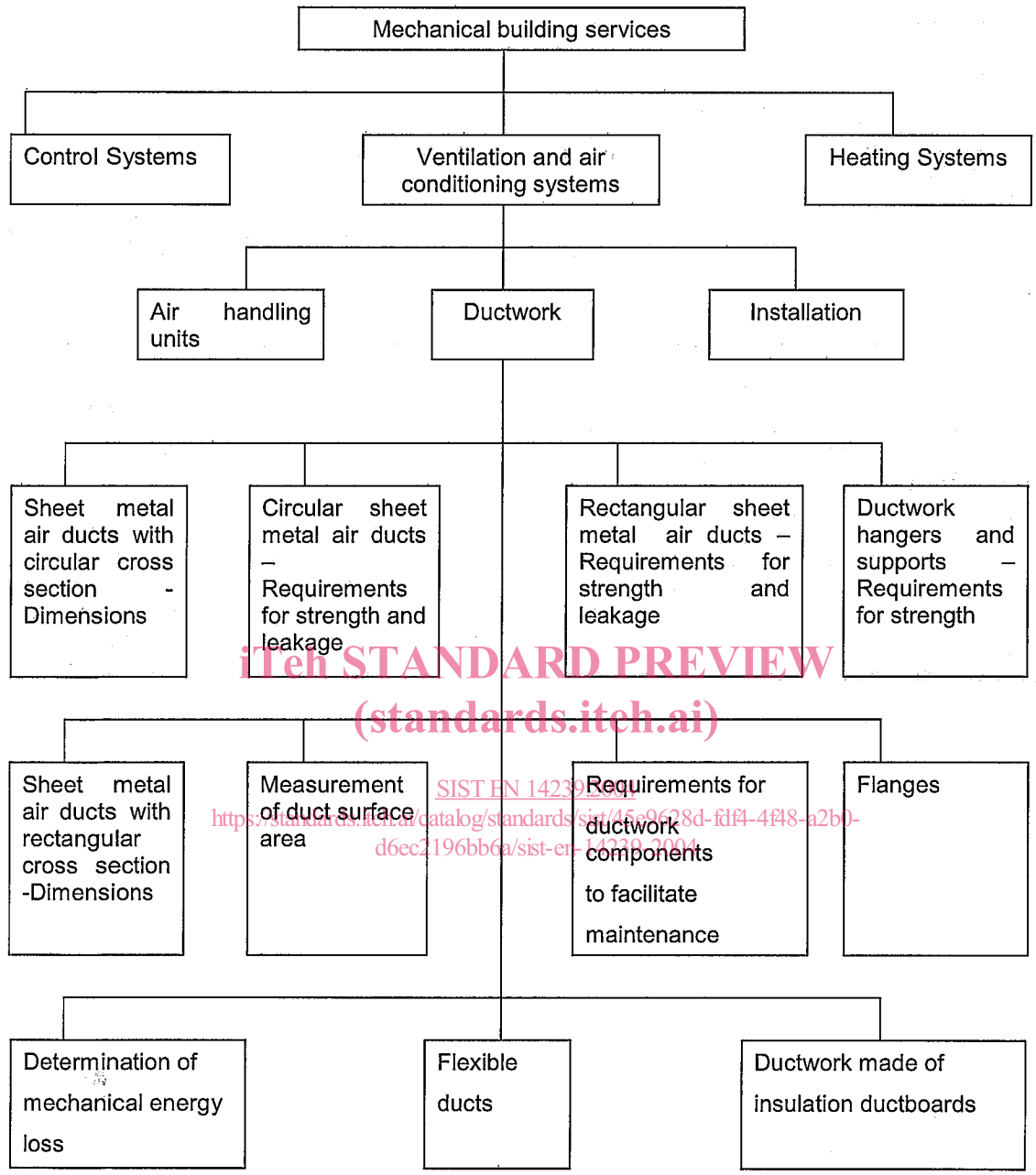

Figure 1 – Position of EN 14239 in the field of mechanical building services

Introduction

This European Standard provides a method of measurement to establish the surface area for use in further calculations for ductwork in ventilation and air conditioning systems.

1 Scope

This European Standard specifies the requirements for the measurement of the surface area of a duct for use in the determination of air leakage flow rate per unit surface area (leakage factor).

The standard is applicable to circular and rectangular ducts and components used in air conditioning and ventilation systems in buildings.

2 Normative references

This European Standard incorporates, by dated or undated reference, provisions from other publications. These references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references the subsequent amendments to the 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 (including amendments).

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

3 Terms and definitions

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

4 Measurement of circular ductwork

Measurement of circular ductwork shall be carried out in accordance with the following, where references in the text are as indicated in Figure 2 which shows a typical installation, and an example of calculation for this installation is shown in Table 1 using data given in annex A.

The length of each straight duct with the same diameter shall be measured between two points on perpendiculars to the axis of the duct. The lengths of separate components situated between the perpendiculars such as dampers (A) and transformation pieces (B) are thereby included. The accuracy of measurement shall be ± 10 mm. Openings, e.g. branch and inspection panels, shall not be deducted from the surface area. The surface area of end plates shall also be included. However, internal duct walls or guide vanes shall not be taken into account. Transformation pieces shall be calculated based on the largest dimension. In the case where the branch tap is located on a transformation piece, the main duct axis corresponds to the duct of the largest size.

The additional length of a bend (C) shall be calculated to the intersection of the straight centerlines, and the length of a branch shall be calculated from the axis of the principal duct (D).

Dimensions in millimetres

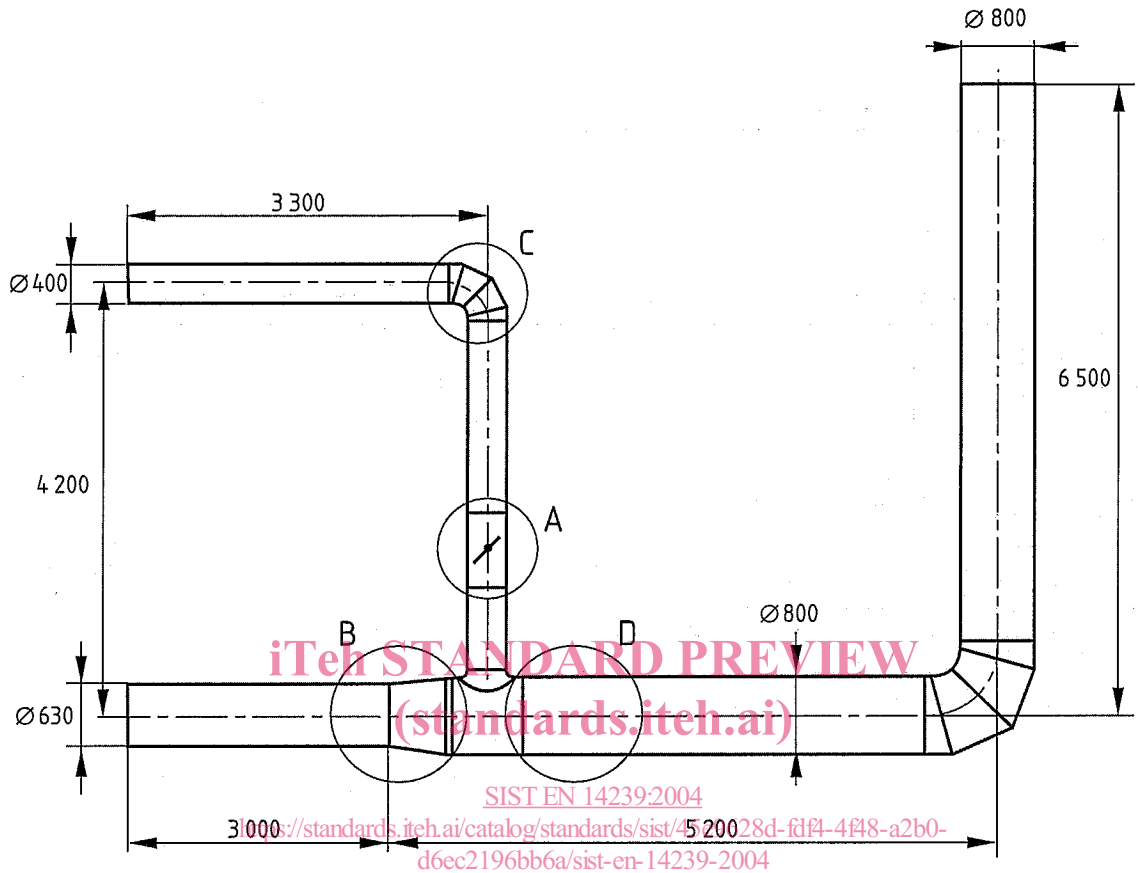

Figure 2 – Example of typical installation of ductwork with circular cross section

Table 1 – Example of calculation of duct surface area for circular ducts

Diameter mm	Duct surface area [a] per unit length m^2/m	Length m	Total duct surface area m^2
800	2,51	6,5 + 5,2	2,51 × 11,7 = 29,4
630	1,98	3,0	1,98 × 3,0 = 5,9
400	1,26	4,2 + 3,3	1,26 × 7,5 = 9,5
Total for installation shown in Figure 2			44,8

[a] From Table A.1

5 Measurement of rectangular ductwork

Measurement of rectangular ductwork shall be carried out according to the following where references in the text are as indicated in Figure 3, which shows a typical installation, and an example of calculation for this installation is given in Table 2 using data given in annex A.

The length of each straight duct of the same dimensions shall be measured between two points on perpendiculars to the axis of the duct. The accuracy of measurement shall be ± 10 mm. Openings, e.g. branch and inspection panels, shall not be deducted from the surface area. The surface area of end plates shall also be included. However, internal duct walls or guide vanes shall not be taken into account. The surface area of transformation pieces shall be calculated in the same manner as a straight duct based on the biggest dimension (A). In the case where the branch tap is located on a transformation piece, the main duct axis corresponds to the duct of the largest size.

The additional length of a bend shall be calculated to the intersection of the straight centerlines, and the length of a branch shall be calculated from the axis of the principal duct (B).

Dimensions in millimetres

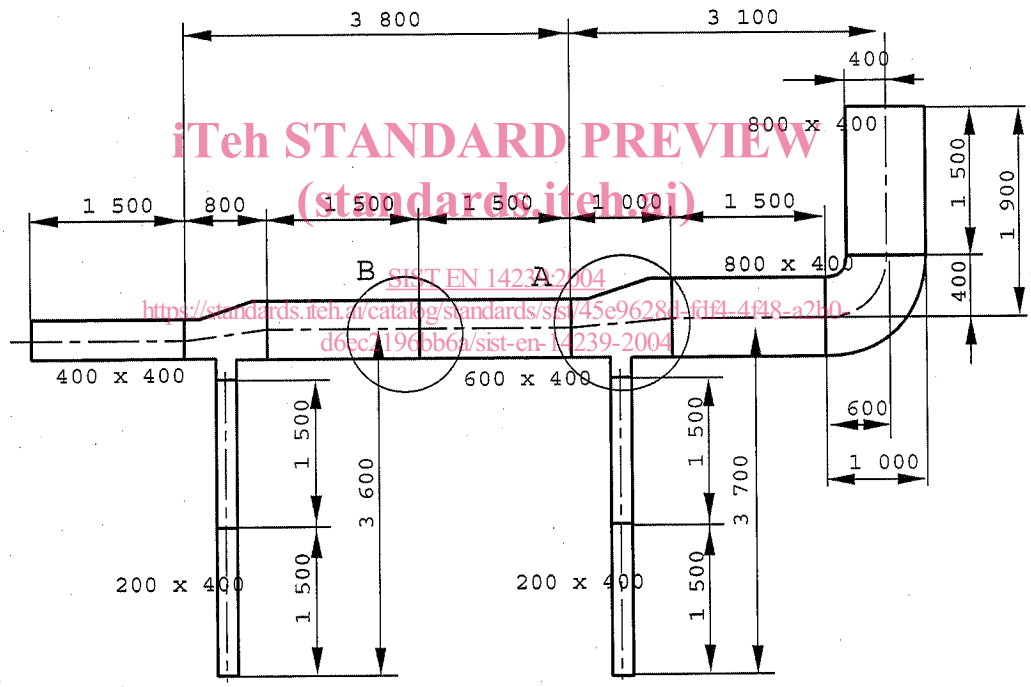

Figure 3 – Example of typical installation of ductwork with rectangular cross section