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International Standard



5219

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**Air distribution and air diffusion — Laboratory  
aerodynamic testing and rating of air terminal devices**

*Distribution et diffusion d'air — Essai en laboratoire et présentation des caractéristiques aérauliques des bouches d'air*

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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been authorized has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 5219 was developed by Technical Committee ISO/TC 144, *Air distribution and air diffusion*, and was circulated to the member bodies in April 1981.

It has been approved by the member bodies of the following countries :

Australia	Germany, F.R.	South Africa, Rep. of
Austria	Italy	Sweden
Belgium	Korea, Rep. of	Switzerland
Czechoslovakia	Poland	United Kingdom
Egypt, Arab Rep. of	Romania	USA

The member body of the following country expressed disapproval of the document on technical grounds :

France

# Air distribution and air diffusion — Laboratory aerodynamic testing and rating of air terminal devices

## 1 General

### 1.1 Scope and field of application

This International Standard is intended to standardize laboratory aerodynamic testing and rating of air terminal devices, including the specification of suitable test facilities and measurement techniques.

This International Standard gives only tests for the assessment of characteristics of the air terminal devices under isothermal conditions. Annex D<sup>1)</sup> gives specifications for a supplementary but not mandatory test method under non-isothermal conditions.

### 1.2 Definitions

All definitions are in accordance with ISO 3258 and the following.

#### 1.2.1 Functional characteristics of air terminal devices

**1.2.1.1 nominal size of an air terminal device:** The nominal value of dimensions of the prepared opening into which the air terminal device is to be fitted.

NOTE — For an air diffuser, the nominal size is generally known as neck size.

#### 1.2.1.2 Core and specific areas

**1.2.1.2.1 core of an air terminal device:** That part of an air terminal device located within a convex shut surface of minimum area inside of which are all the openings of the air terminal device through which the air can pass.

**1.2.1.2.2 effective area** (of an air terminal device): Smallest net area of an air terminal device utilized by the airstream in passing through the air terminal device.

**1.2.1.2.3 free area** (of air terminal device): Sum of the smallest areas of the cross-section of all openings of the air terminal device.

**1.2.1.2.4 core of a grille:** That part of a grille located inside a convex shut plane curve of minimum length of contour, inside which are all the openings of the grille.

**1.2.1.2.5 core area** (of a grille): Area limited by the plane curve defined above.

**1.2.1.2.6 free area** (of a grille): Sum of the minimum measured areas of each opening through which the air can pass.

**1.2.1.2.7 free area ratio** (of a grille): The ratio of the free area to the core area.

**1.2.1.2.8  $A_k$  value** (of an air terminal device): The quotient resultant from measured air flow rate and measured air velocity as determined in a specified manner with a specified instrument.

#### 1.2.1.3 Aspect and vane ratios

**1.2.1.3.1 aspect ratio** (of a rectangular air terminal device): The ratio of the larger side to the smaller side of the rectangular core.

**1.2.1.3.2 vane ratio** (of a grille): The ratio of the chord length to the vane pitch.

#### 1.2.1.4 Special terms relating to air

**1.2.1.4.1 standard air:** Atmospheric air having a density of 1,2 kg/m<sup>3</sup> at 20 °C, 101 325 Pa (1 013,25 mbar) and 65% relative humidity.

**1.2.1.4.2 supply air:** Air entering a supply air terminal device from an upstream duct.

**1.2.1.4.3 induced air:** Air flow from the treated space induced by the supply air from a supply air terminal device.

**1.2.1.4.4 exhaust air:** Air leaving an exhaust air terminal device into a downstream duct.

1) Annexe D is being developed by ISO/TC 144/SC 1 and will be added when approved.