International Standard 7244

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION•МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ•ORGANISATION INTERNATIONALE DE NORMALISATION

Air distribution and air diffusion — Aerodynamic testing of dampers and valves

Distribution et diffusion d'air — Essais aérauliques des registres et des clapets

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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 7244 was developed by Technical Committee ISO/TC 144, *Air distribution and air diffusion*, and was circulated to the member bodies in January 1982.

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

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

The member bodies of the following countries expressed disapproval of the document on technical grounds:

France
USA

Printed in Switzerland

Air distribution and air diffusion — Aerodynamic testing of dampers and valves

1 Scope

This International Standard specifies methods for the aerodynamic testing and rating of dampers and valves used in air distribution systems with pressures up to 2 000 Pa. (See clause 4.)

The tests incorporated in this International Standard are :

a) leakage past a closed damper or valve;

b) casing leakage;

c) flow rate/pressure requirement characteristics.

The acoustic testing of dampers and valves is not included in this International Standard.

2 Field of application

The tests specified in clause 1 apply to the following :

a) testing for damper and valve leakage;

b) testing of casing leakage;

c) testing of flow rate/pressure requirements for dampers or valves mounted in a duct system.

NOTE — Certain aspects of the dynamic performance of dampers or valves are dependent upon the air distribution system to which they are connected and are, therefore, difficult to measure in isolation. Such considerations have led to the omission of these aspects of the dynamic performance measurements from this International Standard.

Also, in common with other air distribution components, the results from tests carried out in accordance with this International Standard may not be directly applicable if the damper or valve is situated in an area of non-uniform flow.

3 References

ISO 3258, *Air distribution and air diffusion — Vocabulary.*

ISO 5221, *Air distribution and air diffusion — Guide to methods of measuring air flow rate in an air handling duct.*

4 Definitions

The definitions of terms used in this International Standard are in accordance with ISO 3258.

5 Symbols and abbreviations

The following nomenclature is used throughout this International Standard.

5.1 Symbols

Symbol	Designation	Units	Dimensions
A	Internal cross-sectional area of duct	m^2	L^2
D_e	Equivalent diameter $\sqrt{\frac{4A}{\pi}}$	m	L
p	Absolute pressure	Pa	$ML^{-1}T^{-2}$
p_a	Atmospheric pressure	Pa	$ML^{-1}T^{-2}$
p_d	Velocity pressure $\varrho \frac{v^2}{2}$	Pa	$ML^{-1}T^{-2}$
p_r	Stagnation (or absolute total) pressure	Pa	$ML^{-1}T^{-2}$
p_s	Static gauge pressure $(p - p_a)$	Pa	$ML^{-1}T^{-2}$
p_t	Total pressure $(p_r - p_a)$	Pa	$ML^{-1}T^{-2}$
Δp	Flow meter pressure difference	Pa	$ML^{-1}T^{-2}$
Δp_t	Conventional total pressure differential for an air density of 1,2 kg/m^3 at the inlet to the damper or valve under test	Pa	$ML^{-1}T^{-2}$
ζ	Mean total pressure loss coefficient		
q_V	Volume rate of air flow at the flow meter	m^3/s	L^3T^{-1}
q_{VL}	Leakage volume rate of air flow	m^3/s	L^3T^{-1}
ϱ	Air density	kg/m^3	ML^{-3}
θ	Temperature	°C	Θ
v	Velocity	m/s	LT^{-1}