BSI Standards Publication

Ventilation for buildings — Air terminal devices — Aerodynamic testing of damper and valves

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National foreword

This British Standard is the UK implementation of EN 1751:2024. It supersedes BS EN 1751:2014, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee RHE/2, Ventilation for buildings, heating and hot water services.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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Published by BSI Standards Limited 2024

ISBN 978 0 539 21308 9

ICS 91.140.30

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This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 May 2024.

Amendments/corrigenda issued since publication

Date	Text affected

EUROPEAN STANDARD **EN 1751**

NORME EUROPÉENNE

EUROPÄISCHE NORM

May 2024

ICS 91.140.30

Supersedes EN 1751:2014

English Version

Ventilation for buildings - Air terminal devices - Aerodynamic testing of damper and valves

Ventilation des bâtiments - Bouches d'air - Essais aérodynamiques des registres et clapets

Lüftung von Gebäuden - Geräte des Luftverteilungssystems - Aerodynamische Prüfungen von Drossel- und Absperrelementen

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Ref. No. EN 1751:2024 E

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European foreword

This document (EN 1751:2024) has been prepared by Technical Committee CEN/TC 156 “Air terminal devices”, 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of an identical text or by endorsement, at the latest by November 2024, and conflicting national standards shall be withdrawn at the latest by November 2024.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 1751:2014.

In comparison with the previous edition, EN 1751:2014, the following technical modifications have been made:

— Annex C Classification of a damper or valve leakage;

- Closed blade leakage now has the addition of formulae for the calculation of classification levels and an improved graph;
- Case leakage now has formulae for classification which are based on ductwork leakage classes in EN 16798-3:2017, Table19 taking a reference case length of 1 m and also an improved graph.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

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1 Scope

This document specifies methods for the testing and rating of dampers and valves used in air distribution systems with pressure differences up to 2 000 Pa.

The tests incorporated in this document will address:

— leakage past a closed damper or valve (for classification, see Annex C);

— casing leakage (for classification, see Annex C);

— flow rate/pressure requirement characteristics;

— torque: (see Annex A);

— thermal transmittance: (see Annex B).

The tests specified above are applicable to the following:

— measurement of leakage past a closed damper or valve;

— measurement of casing leakage;

— determination of flow rate and pressure requirements;

— measurement of torque characteristics (see Annex A);

— measurement of thermal transfer characteristics to determine insulation properties (see Annex B).

This document does not apply to the acoustic testing of dampers and valves.

NOTE Certain aspects of the dynamic performance of dampers and/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 document. Also, in common with other air distribution components, the results from tests carried out in accordance with this document might not be directly applicable if the damper or valve is situated in an area of non-uniform flow.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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, *Ventilation for buildings — Symbols, terminology and graphical symbols*

EN 16798-3:2017, *Energy performance of buildings — Ventilation for buildings — Part 3: For non-residential buildings — Performance requirements for ventilation and room-conditioning systems (Modules M5-1, M5-4)*

CEN/TS 17153, *Ventilation for buildings — Correction of air flow rate according to ambient conditions*

EN ISO 5167-1, *Measurement of fluid flow by means of pressure differential devices inserted in circular cross-section conduits running full — Part 1: General principles and requirements (ISO 5167-1)*

EN ISO 5167-2, *Measurement of fluid flow by means of pressure differential devices inserted in circular cross-section conduits running full — Part 2: Orifice plates (ISO 5167-2)*