SS 333:2022
(ICS 13.220.50; 91.140.30)

SINGAPORE STANDARD

Specification for fire dampers

Singapore Standards Council

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Foreword

This Singapore Standard was prepared by the Working Group on Fire Dampers set up by the Technical Committee on Building Maintenance and Management under the purview of the Building and Construction Standards Committee.

It is a revision of SS 333:2012, “Specification for fire dampers”. Air-conditioning and ventilation ducts have to traverse through fire rated walls, floor and ceiling in order to provide an economical and effective system for any building. This system, however, provides an effective means whereby fire and smoke (fire-smoke damper) can infiltrate throughout the whole building. Hence, there is a necessity to have fire dampers in order to preserve the integrity of each compartmented area in the event of an outbreak of fire.

This standard covers the installation and construction of the fire damper assemblies. The materials and assemblies, which, through field experience, found in this standard have been found acceptable for such application.

The key changes made in the standard are as follows:

a) The definition, specifications and test requirements of fire-smoke dampers are included.

b) The release mechanism and latching device are not applicable to a fire-smoke damper.

c) The locations where fire dampers are prohibited are included.

d) The air leakage calculation of a fire-smoke damper is included.

In preparing this standard, reference was also made to the following publications.

1. Code of Practice for Fire Precautions in Buildings 2018

2. Fire Safety (Fire Safety Managers) Regulations 1994

3. ISO 834 : Parts 1 to 9 : 1999-2009 – Fire-resistance tests – Elements of building construction

Permission has also been sought from the following organisations for the reproduction of materials from their publications into this standard:

1. AS 1530.4:2005 — Methods for fire tests on building materials, components and structures
Part 4: Fire-resistance test of elements of construction

2. AS 1682.1:1990 — Fire dampers
Part 1: Specification

3. NFPA 80:2010 — Standard for fire doors and other opening protectives
(Reproduced and adapted with permission from NFPA Copyright © 2009, National Fire Protection Association, Quincy, MA. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.)

4. UL 555S:2014 Standard for safety smoke dampers
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5. UL 555 Ed 7:2016 Standard for safety for fire dampers
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Acknowledgement is made for the use of information from the above publications.

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

NOTE

1. *Singapore Standards (SSs) and Technical References (TRs) are reviewed periodically to keep abreast of technical changes, technological developments and industry practices. The changes are documented through the issue of either amendments or revisions. Where SSs are deemed to be stable, i.e. no foreseeable changes in them, they will be classified as "mature standards". Mature standards will not be subject to further review unless there are requests to review such standards.*

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Specification for fire dampers

1 Scope

This Singapore Standard specifies the requirements for the materials, design, manufacture, performance, testing, marking, inspection and maintenance of fire dampers which may be of rectangular or circular face, of single or multi-blade or curtain construction, operate by gravity, spring or electric / pneumatic actuator (s).

This standard is also applicable to fire-smoke dampers.

2 Normative references

The following referenced documents are indispensable for the application of this standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

AMCA 500-D	Laboratory methods of testing dampers for rating
AS 1397	Continuous hot-dip metallic coated steel sheet and strip – Coatings of zinc and zinc alloyed with aluminium and magnesium
AS 1444	Wrought alloy steels – Standard, hardenability (H) series and hardened and tempered to designated mechanical properties
AS 1562	Design and installation of sheet roof and wall cladding Part 1: Metal
AS 1566	Copper and copper alloys – Rolled flat products
AS/NZS 1567	Copper and copper alloys – Wrought rods, bars and sections
AS 1890	Thermally released links
ASTM A653/A653M-11	Standard specification for steel sheet, zinc coated (galvanized) or zinc-iron alloy-coated (galvannealed) by the hot-dip process
EN 1751	Ventilation for buildings – Air terminal devices – Aerodynamic testing of damper and valves
UL 33 Ed. 8	Standard for heat responsive links for fire-protection service