



UL 555S

STANDARD FOR SAFETY

Smoke Dampers

UL 555S Smoke Dampers

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UL Standard for Safety for Smoke Dampers, UL 555S

Fifth Edition, Dated February 13, 2014

Summary of Topics

The Fifth Edition of the Standard for Safety for Smoke Dampers, UL 555S, has been issued to reflect the latest ANSI approval date and to incorporate the proposal dated December 6, 2013 which includes the following:

- **Revision to Long Term Holding Test**

The revised requirements are substantially in accordance with Proposal(s) on this subject dated December 6, 2013.

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The requirements in this Standard are now in effect, except for those paragraphs, sections, tables, figures, and/or other elements of the Standard having future effective dates as indicated in the note following the affected item. The prior text for requirements that have been revised and that have a future effective date are located after the Standard, and are preceded by a "SUPERSEDED REQUIREMENTS" notice.

The following table lists the future effective dates with the corresponding reference.

Future Effective Date	References
January 25, 2015	3.7, 6.5, 15.2



FEBRUARY 13, 2014

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ANSI/UL 555S-2014

UL 555S

Standard for Smoke Dampers

The first, second and third editions were titled Leakage Rated Dampers for Use in Smoke Control Systems.

First Edition – September, 1983

Second Edition – November, 1993

Third Edition – October, 1996

Fourth Edition – June, 1999

Fifth Edition

February 13, 2014

This ANSI/UL Standard for Safety consists of the Fifth Edition.

The most recent designation of ANSI/UL 555S as an American National Standard (ANSI) occurred on February 13, 2014. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, Title Page, or effective date information.

The Department of Defense (DoD) has adopted UL 555S on July 29, 1994. The publication of revised pages or a new edition of this Standard will not invalidate the DoD adoption.

Comments or proposals for revisions on any part of the Standard may be submitted to UL at any time. Proposals should be submitted via a Proposal Request in UL's On-Line Collaborative Standards Development System (CSDS) at <http://csds.ul.com>.

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INTRODUCTION

1 Scope

1.1 These requirements cover smoke dampers intended for use in heating, ventilating, and air conditioning (HVAC) systems. Smoke dampers are intended:

- a) To restrict the spread of smoke in HVAC systems that are designed to be automatically shut down in the event of a fire, or
- b) To assist with the control of pressure differentials across smoke barriers when the HVAC system is part of an engineered smoke control system.

1.2 Dampers covered by these requirements are evaluated for use as either:

- a) Smoke Dampers – For use in HVAC systems where ducts pass through smoke barriers.
- b) Combination Fire and Smoke Dampers – For locations in HVAC systems where a fire damper and a smoke damper are required at a single location, or
- c) Corridor Dampers – For locations in HVAC Systems where air ducts penetrate or terminate at openings in the ceilings of interior corridors when permitted by authority having jurisdiction.

1.3 Smoke dampers are used for the protection of openings in smoke barriers or in engineered smoke control systems in accordance with the Standard for Installation of Air Conditioning and Ventilating Systems, NFPA 90A. These damper assemblies are intended for installation in accordance with codes such as the BOCA National Mechanical Code, the SBCCI Standard Mechanical Code, the ICBO Uniform Mechanical Code, and the International Mechanical Code.

1.4 Combination fire and smoke dampers and corridor dampers shall also comply with the applicable requirements in the Standard for Fire Dampers, UL 555.

2 General

2.1 Components

2.1.1 Except as indicated in 2.1.2, a component of a product covered by this standard shall comply with the requirements for that component. See Appendix A for a list of standards covering components generally used in the products covered by this standard.

2.1.2 A component is not required to comply with a specific requirement that:

- a) Involves a feature or characteristic not required in the application of the component in the product covered by this standard, or
- b) Is superseded by a requirement in this standard.

2.1.3 A component shall be used in accordance with its rating established for the intended conditions of use.

2.1.4 Specific components are incomplete in construction features or restricted in performance capabilities. Such components are intended for use only under limited conditions, such as certain temperatures not exceeding specified limits, and shall be used only under those specific conditions.

2.2 Units of measurement

2.2.1 Values stated without parentheses are the requirement. Values in parentheses are explanatory or approximate information.

2.3 Undated references

2.3.1 Any undated reference to a code or standard appearing in the requirements of this standard shall be interpreted as referring to the latest edition of that code or standard.

3 Glossary

3.1 For the purpose of this standard the following definitions apply.

3.2 CONTROLLED CLOSURE – The closure of a damper by means of electric, pneumatic, hydraulic, or other similar device that inhibits the rate of closure.

3.3 DYNAMIC CLOSURE – The closure of a fire damper under conditions of airflow and heat upon activation of the heat responsive device.

3.4 HEATED AIR OPERATION – The operation of a smoke damper by means of the actuator when the damper is subjected to a condition of airflow and heat.

3.5 MULTIPLE SECTION DAMPER ASSEMBLY – Two or more dampers assembled together to function as a single smoke damper, or corridor damper or combination fire and smoke damper.

3.6 NON-CONTROLLED CLOSURE – The closure of a damper by means of spring operation, gravity or other similar device that does not inhibit the rate of closure. Non-controlled closure is also referred to as instantaneous closure, rapid closure or slam shut closure.

3.7 SAME DESIGN FAMILY – Actuators composed of the same gear train and motor but incorporates a transformer, among other features, for different input voltages and has nominally the same force/torque output.

3.7 effective January 25, 2015

3.8 SMOKE CONTROL SYSTEM – An engineered system that uses mechanical fans to produce airflows and pressure differences across smoke barriers to limit (see Table 16.1, Leakage classifications) and direct smoke movement.

3.9 VOLUME CONTROL DAMPER – A fire damper employing position devices that enable the fire damper to remain in positions other than fully open or fully closed.

CONSTRUCTION

4 General

4.1 All electrical components, damper actuators, fusible links, and heat responsive devices shall be examined and tested, as required, for their intended function.

4.2 A heat responsive device provided with a corridor damper and combination fire and smoke damper shall have a temperature rating which is equal to or less than the temperature rating of the damper.

5 Protection Against Corrosion

5.1 A ferrous metal part used in the damper assembly shall be one of the 300 Series of stainless steel or shall have one of the following corrosion-protection systems:

a) A coating of hot-dipped mill galvanized sheet steel complying with the coating Designation G60 or A60 in the Weight (Mass) of Coating Requirements table in the Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process, ASTM A653, with not less than 40 percent of the zinc on any side, based on the minimum single spot test requirement in this ASTM Designation. The weight of the zinc coating is to be established in accordance with the Standard Test Method for Weight (Mass) of Coating on Iron and Steel Articles with Zinc or Zinc-Alloy Coatings, ASTM A90. An A60 (alloyed) coating shall also comply with the requirements of 5.4.

b) A zinc coating, other than that provided on hot-dipped mill galvanized sheet steel, uniformly applied to an average thickness of not less than 0.00041 inch (0.01041 mm) on each surface with a minimum thickness of 0.00034 inch (0.00864 mm). The thickness of the coating is to be established in accordance with the test method in the Standard Guide for Measurement of Electrodeposited Metallic Coating Thicknesses by the Dropping Test, ASTM B555. An annealed coating shall also comply with the requirements of 5.4.

c) A cadmium coating not less than 0.0005 inch (0.0127 mm) thick on both surfaces. The thickness of coating is to be established in accordance with the test method in the Standard Guide for Measurement of Electrodeposited Metallic Coating Thicknesses by the Dropping Test, ASTM B555.

d) Two coats of an organic finish of the epoxy or alkyd-resin type or other outdoor paint on each surface. The acceptability of the paint is to be determined by its composition or by corrosion tests, as specified in the Standard for Organic Coatings for Steel Enclosures for Outdoor Use Electrical Equipment, UL 1332.

5.2 Coated or uncoated metals used in the assembly of dampers shall be galvanically compatible.

5.3 Component springs and bearings used in the assembly of dampers shall be of material having resistance to atmospheric corrosion equivalent to brass or bronze.