



Examination Standard for Seismic Gas Shutoff Valves

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Foreword

This standard is intended to verify that the products and services described will meet stated conditions of performance, safety and quality useful to the ends of property conservation. The purpose of this standard is to present the criteria for examination of various types of products and services.

Examination in accordance with this standard shall demonstrate compliance and verify that quality control in manufacturing shall ensure a consistent and reliable product.

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1 INTRODUCTION

1.1 Purpose

- 1.1.1 This standard states testing and certification requirements for seismic gas shutoff valves.
- 1.1.2 Testing and certification criteria may include performance requirements, marking requirements, examination of manufacturing facility(ies), audit of quality assurance procedures, and a surveillance program.

1.2 Scope

- 1.2.1 This standard sets performance requirements for seismic gas shutoff valves that are designed to react to a predetermined minimum level(s) of seismic disturbance. These devices are used to shut off gas fuel supply lines, activate or deactivate other types of supply lines, and activate or deactivate electrical or pneumatic circuits. This standard also sets the level(s) of seismic disturbance below which the devices shall not respond. Valves designed so that upstream (inlet) pressure tends to open, or tends to hold open, the valve are not acceptable for certification.
- 1.2.2 The requirements of this standard shall be used to measure and describe the performance of these devices in response to seismic inputs; changes in ambient temperature; and, when applicable, dielectric strength, durability, hydrostatic pressure, external and internal leakage, and operating power variations.
- 1.2.3 The seismic disturbance operating characteristic criteria in this standard are based on the requirements of ASCE 25-16, Standard for Earthquake Actuated Automatic Gas Shutoff Devices. As actual seismic events contain many variables that determine shake intensity, the seismic gas shutoff valves evaluated to this standard may not actuate during all conditions where actuation is desired. See ASCE 25-16 for additional information and potential limitations.
- 1.2.4 The requirements for valves in this standard apply primarily to commercial and industrial applications. Gas valves for single or multi-family structures, of three stories or less, must also comply with applicable performance requirements in ANSI Z21.21 Standard for Automatic Valves for Gas Appliances and ASCE 25-16 Standard for Earthquake Actuated Automatic Gas Shutoff Devices. These requirements, if they differ from the certification agency's requirements, are so stated within the text below.

1.3 Basis for Requirements

- 1.3.1 The requirements of this standard are based on experience, research and testing, and/or the standards of other organizations. The advice of manufacturers, users, trade associations, jurisdictions and/or loss control specialists was also considered.
- 1.3.2 The requirements of this standard reflect tests and practices used to examine characteristics of seismic shutoff valves for the purpose of obtaining certification.

1.4 Basis for Certification

Certification is based upon satisfactory evaluation of the product and the manufacturer in the following major areas:

- 1.4.1 Examination and tests on production samples shall be performed to evaluate:
 - the suitability of the product;
 - the performance of the product as specified by the manufacturer and required for certification,

- the durability and reliability of the product.

1.4.2 An examination of the manufacturing facilities and audit of quality control procedures may be conducted to evaluate the manufacturer's ability to consistently produce the product which is examined and tested, and the marking procedures used to identify the product. Subsequent surveillance may be required by the certification agency in accordance with the certification scheme to ensure ongoing compliance.

1.5 Basis for Continued Certification

The basis for continual certification may include, the following based upon the certification scheme and requirements of the certification agency:

- production or availability of the product as currently certified;
- the continued use of acceptable quality assurance procedures;
- compliance with the terms stipulated by the certification;
- satisfactory re-examination of production samples for continued conformity to requirements; and
- satisfactory surveillance audits conducted as part of the certification agencies product surveillance program.

1.6 Effective Date

The effective date of this examination standard mandates that all products tested for certification after the effective date shall satisfy the requirements of this standard.

The effective date of this standard is eighteen (18) months after the publication date of the standard for compliance with all requirements.

1.7 System of Units

Units of measurement used in this Standard are United States (U.S.) customary units. These are followed by their arithmetic equivalents in International System (SI) units, enclosed in parentheses. The first value stated shall be regarded as the requirement. The converted equivalent value may be approximate. Conversion of U.S. customary units is in accordance with ANSI/IEEE/ASTM SI 10.

Two units (liter and bar), outside of but recognized by SI, are commonly used in international fire protection and are used in this standard.

1.8 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 cited edition applies.

ANSI/IEEE/ASTM SI 10, *American National Standard for Metric Practice*

ANSI Z21.21, *Standard for Automatic Valves for Gas Appliances*

ASCE 25-16, *Standard for Earthquake Actuated Automatic Gas Shutoff Devices*