



Member of the FM Global Group

Examination Standard for Angle and Straightaway Hose 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 angle and straightaway hose valves for use in aboveground standpipe systems, hose cabinets, and in fire pump discharge lines with playpipes.
- 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 audit program.

1.2 Scope

- 1.2.1 This standard encompasses the design and performance requirements for right angle and straightaway hose valves for use in aboveground standpipe systems.
- 1.2.2 This standard has been based on NPS (Nominal Pipe Size) 1-1/2 and 2-1/2 in (DN 40 and DN 65 mm) common sizes. Other sizes may be considered for certification on case-by-case basis.
- 1.2.3 Hose valves considered under this standard may be designed with horizontal, bib-nosed, oblique, or right angle body patterns.
- 1.2.4 This standard encompasses traditional hose valves, pressure restricting hose valves, and pressure reducing hose valves. Definitions of the valves can be found in section 1.9.
Note: Hose valves with pressure reducing features are not intended to replace the pressure reducing valve that sets the water supply pressure for combined systems that supply water to the sprinkler system and the standpipe system.
- 1.2.5 The minimum rated working pressure for hose valves evaluated using this standard is 175 psi (1205 kPa).

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 hose valves for the purpose of obtaining certification. Hose valves having characteristics not anticipated by this standard may be certified if performance equal, or superior, to that required by this standard is demonstrated.

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 made 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 audits may be required by the certification agency in accordance with the certification scheme to ensure ongoing compliance.

1.5 Basis for Continued Certification

1.5.1 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;
- satisfactory field experience;
- 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 agency's surveillance audit 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.

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
ASME B36.10M, *Welded and Seamless Wrought Steel Pipe*
ASTM D 471-12a, *Standard Test Method for Rubber Property – Effect of Liquids*
ASTM D 572, *Standard Test Method for Rubber – Deterioration by Heat and Oxygen*
BS 336, *Specification for Fire Hose Couplings and Ancillary Equipment*
NFPA 14, *Standard for the Installation of Standpipe and Hose Systems*

1.9 Terms and Definitions

For purposes of this standard, the following terms apply:

Accepted

This term refers to installations acceptable to the authority enforcing the applicable installation rules (Authority Having Jurisdiction). Acceptance is based upon an overall evaluation of the installation. Factors other than the use of certified equipment impact upon the decision to accept the product. Acceptance is not a characteristic of a product; it is installation specific. A product accepted for one installation may thus not be acceptable elsewhere.

Authority having Jurisdiction

This term refers to an organization, office or individual responsible for enforcing the requirements of a code or standard or for approving equipment, materials, an installation or a procedure.

Bib-Nose Body Pattern

This term refers to a body shape that results in the valve stem being roughly 90 degrees from the valve inlet, and the valve outlet being roughly 135 degrees from the valve stem.

Combined Standpipe System

This term refers to the piping arrangement where a common main feeds both the fire sprinkler system and the hose connections.

End Connections

The term refers to the types of joints used to connect components of a pipe system. Typical end connections in hose pipe systems are: threaded (pipe threads), threaded (hose threads), flanged, instantaneous connections (those meeting the requirements of BS 336), and Storz connections.

Horizontal Body Pattern

This term refers to a body pattern shape that results in the inlet and outlet connections sharing the same axis. The waterway flow path typically resembles that of a globe valve in that the fluid enters the valves and then enters the seat ring from underneath, passes up and around the sealing assembly, and then falls back toward the valve outlet.

Hose Station

This term refers to the combination of a hose rack or reel, hose nozzle, fire hose, and hose valve with threaded connection.

Landing Valve

This term is commonly used to describe a hose valve used at each floor of a multi-story structure.

Oblique Body Pattern

This term refers to a body pattern shape that results in the valve stem being in line with the valve inlet, and the valve outlet being at an angle of roughly 45 degrees in relation to the valve stem.

Pressure Reducing Hose Valve

This term refers to a hose valve designed for the purpose of reducing the outlet water pressure. The valve design replaces the traditional bonnet and stem assembly with a single stage regulator. The field adjustable regulator feature will limit the outlet pressure of the hose valve by balancing the water supply pressure against the force generated by an internal component (i.e. spring). If the inlet pressure is above the set pressure rating the pressure reduction feature engages and the valve will limit outlet pressure to the maximum set pressure. The valve must still operate if the inlet pressure is below the set pressure.

Pressure Restricting Hose Valve

This term refers to a hose valve that has been designed with an adjustable stop that limits travel of the rising stem of the hose valve when the valve is opened. The purpose of the adjustable stop is to increase the friction loss through the valve by restricting the opening distance between the sealing ring and the seat ring within the valve. The restricting valve is designed to restrict the outlet water pressure and has a pin that can be removed by firefighters to override the restricting device and fully open the valve. Pressure restriction is only observed under flowing conditions.

Rated Working Pressure

The rated working pressure for a product described in this standard is the maximum pressure at which the hose valve can be expected to operate in normal service. The minimum rated working pressure for hose valves considered for certification is 175 psi (1205 kPa). The rated working pressure of an assembly is that of its lowest pressure rated component.

Right Angle Body Pattern

This term refers to a body pattern shape that results in the stem being in line with the valve inlet connection, and the outlet connection being at an angle of roughly 90 degrees from the inlet connection.

Schedule 40 Steel Pipe

This term refers to a combination of outside diameter and pipe wall thicknesses that are commonly used within industry for hose pipe systems. For clarity, the dimensional values may be referenced in ASME B36.10, Welded and Seamless Wrought Steel Pipe.

Snoot

This term refers to a threaded adapter that allows the connection of fire hose to standpipe connections. Common connections utilize different combinations male or female tapered pipe threads x male or female hose threads.

Standpipe

This term refers to the piping within a building that provides water supply to the hose connections, hose stations, as well as sprinkler systems (on combined systems). Further explanation on standpipe systems can be found in NFPA 14.

Storz Connection

This term refers to a joint comprised of mating identical ends with interlocking hooks and flanges originally designed by August Guido Storz. The joint is made with the insertion of the hooks into the receiving hole on the mating flange, and then turning a quarter turn until the joint locks in place.