



GUIDE
FOR
THE INVESTIGATION
OF
HOSE VALVES
FOR
FIRE-PROTECTION SERVICE
UNDERWRITERS' LABORATORIES OF CANADA

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OF
HOSE VALVES
FOR
FIRE-PROTECTION SERVICE

FIRST EDITION. February 1975

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In Reply
Please Refer to ULC Subject C668-1975

GUIDE FOR THE INVESTIGATION OF HOSE VALVES FOR FIRE-PROTECTION SERVICE REQUIREMENTS

1. Scope

1.1 These Requirements cover the design and construction of angle-pattern and straightway-pattern hose valves intended for use on standpipes, fire pumps, and hydrants supplying water for fire-protection service.

1.2 Requirements for the installation of hose valves include the Standards of the National Fire Protection Association for the Installation of Standpipe and Hose Systems, NFPA No. 14-74, for Installation of Centrifugal Fire Pumps, NFPA No. 20-74 and for Outside Protection, NFPA No. 24-73.

ASSEMBLY AND DESIGN

2. General

2.1 A hose valve shall be designed and constructed to provide the following at supply pressures up to and including the rated working pressure:

- A Completely tight valve closure (no weepage);
- B Completely tight body and bonnet casting (no weepage);

- C Completely tight joints where body and bonnet are joined (no weepage); and
- D Completely tight stuffing box when fully packed and adjusted so that, with the valve partially opened, there will be no leakage along the stem, or an equally effective sealing method.

3. Sizes

3.1 Hose valves covered by these Requirements include the following patterns and sizes:

- A Angle (90-Degree) Patterns for use on standpipes. Made with inlet and outlet openings of the same size or with the inlet larger than the outlet. Openings are to have nominal diameters of 1, 1-1/2, 2-1/2, or 3 inches;
- B Angle (90- and 120-Degree) Patterns for use on wet-pipe sprinkler equipment. Made with 1-inch inlets and 1-1/2-inch outlets;
- C Straightway Patterns for use on fire pumps and hydrants. Made with inlet and outlet openings of the same size, having nominal diameters of 2-1/2 inches; and
- D Straightway Patterns for use on standpipes. Made with inlet and outlet openings of the same size or with the inlet larger than the outlet. Openings are to have nominal diameters of 1, 1-1/2, 2-1/2, or 3 inches.

4. Working-Pressure Ratings

4.1 Standard working-pressure ratings for hose valves are 175 and 300 pounds per square inch (psi), and designs shall be based on these ratings.

5. Materials

5.1 The acceptability of materials of which valve parts are made shall be judged by their known characteristics, by the conditions of use to which the parts will be subjected, and by tests designed to develop their capabilities.

5.2 A hose valve intended for use on standpipes and fire pumps shall be made entirely of brass or bronze, except for the handwheel and for the valve disc of an angle-type valve.

5.3 A hose-gate valve intended for use on hydrants, and for assembly thereto by bolting to the outside of the hydrant barrel at the hose outlets, may have a cast-iron body and a bonnet designed to be bolted together. The remaining valve parts shall be made of brass or bronze, except for the handwheel.

5.4 A handwheel shall be made of material capable of withstanding abuse without breaking equivalent to malleable iron.

6. Strength

6.1 Valves rated for working pressures of 175 and 300 psi shall be designed to withstand hydrostatic pressure tests of 875 and 1500 psi, respectively, without rupture.

6.2 The body and bonnet portions of an outside hose-gate valve for use on hydrants shall be bolted together. The bolting shall be of such strength that the maximum stress at the bottom of the screw threads will not exceed 8750 psi, computed on an area out to centreline of bolts and based on the rated working pressure.

7. Direction to Open

7.1 A hose valve should be designed to open by turning the handwheel to the left (counterclockwise) as viewed from the top. Opening of a valve by clockwise rotation of the handwheel may be recognized if specifically ordered to fit existing equipment.

8. Gate Rings and Body-Seat Rings

8.1 The gate ring and body-seat ring of a hose valve shall have machined faces.

8.2 The seat ring in a brass- or bronze-body hose valve shall be cast integral with the body.

8.3 The seat ring in an iron-body hose valve shall be made of brass or bronze and shall be held in place by screw threads, cold swaging, or the equivalent.

9. Inlet Threads and Attachment Means

9.1 A fire pump and a standpipe hose valve shall be fitted at the inlet end with American National Standard (ANSI B2.1-1968) female pipe threads.

9.2 A hydrant hose valve shall be designed to attach to hydrant barrels by use of two 3/4-inch tap bolts, spaced horizontally 5-5/8 inches on centres.

10. Outlet Nipples and Threads

10.1 A hose-valve outlet will usually be finished with a nipple having male hose threads, but a design finished with female-threaded outlets may be recognized by these Requirements.

10.2 A hose nipple at the outlet of a brass- or bronze-body hose valve shall be cast integral with the body.