Approval Standard for Angle Hose Valves

Class Number 1521

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Foreword

The FM Approvals certification mark is intended to verify that the products and services described will meet FM Approvals' stated conditions of performance, safety and quality useful to the ends of property conservation. The purpose of Approval Standards is to present the criteria for FM Approval of various types of products and services, as guidance for FM Approvals personnel, manufacturers, users and authorities having jurisdiction.

Products submitted for certification by FM Approvals shall demonstrate that they meet the intent of the Approval Standard, and that quality control in manufacturing shall ensure a consistently uniform and reliable product. Approval Standards strive to be performance-oriented. They are intended to facilitate technological development.

For examining equipment, materials and services, Approval Standards:

a) must be useful to the ends of property conservation by preventing, limiting or not causing damage under the conditions stated by the Approval listing; and

b) must be readily identifiable.

Continuance of Approval and listing depends on compliance with the Approval Agreement, satisfactory performance in the field, on successful re-examinations of equipment, materials, and services as appropriate, and on periodic follow-up audits of the manufacturing facility.

FM Approvals LLC reserves the right in its sole judgment to change or revise its standards, criteria, methods, or procedures.

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INTRODUCTION

Angle hose valves control water flow in individual hose lines at connections to sprinkler systems, fire pumps or standpipes.

FM Approval is based on examination and test of production samples, inspection of the manufacturing or quality control facilities, and satisfactory field experience. Particularly considered are functional suitability, adequacy of design and workmanship, uniformity and dependability of production, effectiveness of quality control, and assurance of service and replacement parts.

Minimum physical requirements given below are guides. Mere conformity does not assure Approval because other considerations may control. Nor is strict conformity necessary; devices having different characteristics may be considered and Approved, if shown to be essentially equivalent or superior in performance.

REQUIREMENTS

Materials

Valves shall be of corrosion-resistant material, except handwheel, valve disc and stem packing.

Sizes

Recognized sizes are 1, 1¼, 1½, 2, 2½ in.

Waterway

1. The waterway at the seat ring should be equal to or greater than the area based on the nominal pipe size inner diameter.

2. The lift of the disc holder (face of seat ring to face of disc when valve is wide open) should be at least that given in Table I.

Table I

Size of valve (inches)	1	1¼	1½	2	2½
Lift of disc (inches)	¾	⅞	1	1⅜	1¾

3. If a valve fails to meet requirements 1 or 2, above, the valve will be subjected to a friction loss test at the following flow.

Table II

Valve Size (in.)	*Flow GPM*
1	60
1¼	100
1½	150
2	250
2½	350

The friction loss shall not exceed 10 psig.

Disc

The disc material shall have a durometer reading of 80-94 based on the Shore ''A'' hardness scale.

Stem Seal

Valves shall have a suitable seal where the stem passes through the bonnet.

Operating Handle

Rotation to open must be in the counterclockwise direction. The operating handle shall have the word ''OPEN'' with a directional arrow pointing appropriately.

Seat Leakage

Valves shall give a tight shut-off against normal service pressures up to 175 psig.

TESTS

Valve-Body

Valve bodies will be hydrostatically tested to 700 psig for five (5) minutes. No body fracture is permissible.

Stem Seal

a. A sample valve will be subjected to 300 psig water pressure for 5 minutes. The test will be made with the valve in a partially open position and the stem turned both ways several times during the 5 minute duration. There shall be no leakage past stem seal.

b. The test will be repeated after the stem seal assembly has been subjected to 120°F for a period of 72 hours. There shall be no leakage by the stem seal.

Valve Stem Strength

Sample valves in a hand-tight, closed position will have a torque applied tending to further close the valve according to Table III.

Table III

Valve Size (in.)	*Torque (Ft-lb)*
1	30
1¼	40
1½	50
2	60
2½	75

There shall be no failure of the stem or other associated parts as a result of above tests.

Seat Leakage

Sample valves will be subjected to water pressures of 30, 60, 100, and 175 psig. There shall be no leakage.

MARKING

Valves shall be plainly marked with manufacturer's name or trade-mark, model number, valve size, rated working pressure and year of manufacture.