

**Underwriters Laboratories Inc.®**A not-for-profit organization dedicated to public safety
and committed to quality service**February 16, 1994****Revision pages for****Standard for****Rubber Gasketed Fittings for Fire-Protection Service****UL 213, Second Edition**

Attached to this transmittal notice is a revision of the Second edition of UL 213.

A CHANGE ON A PAGE DATED FEBRUARY 16, 1994 IS INDICATED BY A SMALL
PRINT NOTE FOLLOWING THE AFFECTED ITEM, PRECEDED AND FOLLOWED
BY AN ASTERISK.

THESE NEW AND REVISED REQUIREMENTS ARE NOW IN EFFECT.

The new and revised requirements are substantially in accordance with UL's bulletin
on this subject dated July 16, 1993. The bulletin is now obsolete and may be
discarded.

Revised and/or additional pages may be issued from time to time.

With the inclusion of the accompanying material, the standard consists of pages
dated as shown in the following checklist:

Page	Date
1	April 28, 1993 (Reprinted: February 16, 1994)
2	—
3	February 16, 1994
4 – 6	April 28, 1993
7	February 16, 1994
8 – 13	April 28, 1993

APRIL 28, 1993

(Title Page Reprinted: February 16, 1994)

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UL 213

Standard for

**Rubber Gasketed Fittings for
Fire-Protection Service**

First Edition – August, 1978

Second Edition

April 28, 1993

An effective date included as a note immediately following certain requirements is one established by Underwriters Laboratories Inc.

Revisions of this standard will be made by issuing revised or additional pages bearing their date of issue. A UL Standard is current only if it incorporates the most recently adopted revisions, all of which are itemized on the transmittal notice that accompanies the latest published set of revision pages.

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(1 – 04/28/93 – 02/16/94)

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FOREWORD

A. This Standard contains basic requirements for products covered by Underwriters Laboratories Inc. (UL) under its Follow-Up Service for this category within the limitations given below and in the Scope section of this Standard. These requirements are based upon sound engineering principles, research, records of tests and field experience, and an appreciation of the problems of manufacture, installation, and use derived from consultation with and information obtained from manufacturers, users, inspection authorities, and others having specialized experience. They are subject to revision as further experience and investigation may show is necessary or desirable.

B. The observance of the requirements of this Standard by a manufacturer is one of the conditions of the continued coverage of the manufacturer's product.

C. A product which complies with the text of this Standard will not necessarily be judged to comply with the Standard if, when examined and tested, it is found to have other features which impair the level of safety contemplated by these requirements.

D. A product employing materials or having forms of construction differing from those detailed in the requirements of this Standard may be examined and tested according to the intent of the requirements and, if found to be substantially equivalent, may be judged to comply with the Standard.

E. UL, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. The opinions and findings of UL represent its professional judgment given with due consideration to the necessary limitations of practical operation and state of the art at the time the Standard is processed. UL shall not be responsible to anyone for the use of or reliance upon this Standard by anyone. UL shall not incur any obligation or liability for damages, including consequential damages, arising out of or in connection with the use, interpretation of or reliance upon this Standard.

F. Many tests required by the Standards of UL are inherently hazardous and adequate safeguards for personnel and property shall be employed in conducting such tests.

PERFORMANCE

5 General

5.1 Rubber gasketed fittings intended for installation on steel pipe without grooves (plain end) are to be tested with pipe having the minimum wall thickness specified by the manufacturer.

5.2 Rubber gasketed fittings intended for use with cut or rolled groove pipe are to be tested with pipe having minimum wall thicknesses as described in 4.3 or 4.4, respectively.

5.3 Representative samples of each size fitting are to be subjected to the tests described in these requirements. Test bars of metal used in castings, steel bolts, and samples of parts constructed of nonmetallic materials, such as rubber gaskets, are required for the physical and chemical tests described in these requirements.

6 Metallic Materials

6.1 Specimen bars of metals used shall be prepared from the same heat or run of metal used in the fitting samples submitted for investigation and test. The specimen bars shall conform to the minimum physical property requirements of the latest edition of the applicable ASTM or equivalent specification. Samples of bolts shall be tested without special machining.

6A Elastomeric Parts Tests

6A.1 An elastomeric part used to provide a seal shall have the following properties when tested as specified in the Standard for Gaskets and Seals, UL 157:

- a) For silicone rubber (having poly-organo-siloxane as its constituent characteristic), a minimum tensile strength of 500 psi (3.4 MPa) and a minimum ultimate elongation of 100 percent.
- b) For natural rubber and synthetic rubber other than silicone rubber, a minimum tensile strength of 1500 psi (10.3 MPa) and minimum ultimate elongation of 150 percent; or a minimum tensile strength of 2200 psi (15.2 MPa) and a minimum ultimate elongation of 100 percent.
- c) Those properties relating to maximum tensile set; minimum tensile strength and elongation after oven aging; and hardness after oven aging, all as specified in UL 157. The maximum service temperature used to determine the oven time and temperature for oven aging is considered to be 60°C.

6A.1 added February 16, 1994

6A.2 The Standard for Gaskets and Seals, UL 157, provides for the testing of either finished elastomeric parts or sheet or slab material. Sheet or slab material is to be tested when the elastomeric parts are O-rings having diameters of less than 1 inch (25.4 mm). The material tested is to be the same as that used in the product, regardless of whether finished elastomeric parts or sheet or slab material is tested.

6A.2 added February 16, 1994

7 Nonmetallic Materials

Section 7 deleted February 16, 1994

8 Leakage Test

8.1 A rubber gasketed fitting shall be capable of withstanding for 1 minute, without leakage, an internal hydrostatic pressure of two times the rated working pressure of the fitting.

8.2 Leakage tests are to be conducted on one fitting of each size, assembled onto sections of pipe at least 15 inches (457 mm) in length. The ends of the pipe are to be closed to permit the assembly to be pressurized. Pipe ends that require cut grooves are to be cut to the dimensions specified by the manufacturer. Pipe ends that require rolled grooves are to be grooved using the manufacturer's specified grooving procedure and grooving machine. The pressure is to be increased to twice the rated working pressure and held for 1 minute.

9 Hydrostatic Test

9.1 A fitting shall be capable of withstanding, for 1 minute without rupture, a test pressure equal to a multiple of the rated working pressure as shown in Table 9.1.

Table 9.1
Hydrostatic test pressures

Nominal U.S.A. fitting size, inches ^a	Multiple of rated working pressure
1 through 6	5X
8 through 10	4X
12 and larger	3X
^a See ANSI B16.18-1984	

9.2 Pipe is to be attached to the fitting in accordance with the methods of 8.2, and the pressure specified in 9.1 applied to the entire assembly.

10 Flexural Tests

10.1 General

10.1.1 The angle of deflection of a joint assembled with a fitting shall be at least the deflection angle specified in the installation instructions when the assembly is subjected to the bending moment specified in 10.1.2. Also, the joint assembly shall not leak or rupture when subjected to the bending moment specified in 10.1.2. One sample of each size fitting is to be tested as described in 10.2.1, or 10.3.1 and 10.3.2, as applicable, using the test arrangement described in 8.2. During these tests the assembly is to be pressurized to rated working pressure.

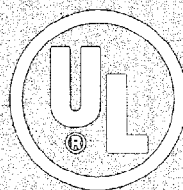
10.1.2 The bending moments specified in Table 10.1 are to be used if the applicable fitting size and pipe schedule combinations are specified therein. The bending moments are calculated based on twice the weight of the water filled pipe over twice the maximum distance between pipe supports specified in the Standard for Installation of Sprinkler Systems, NFPA 13-1991. Bending moments for fitting sizes and pipe combinations not specified in Table 10.1 are to be calculated on this basis.

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Underwriters Laboratories Inc.®

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