DEPARTMENT OF COMMERCE
BUREAU OF STANDARDS
George K. Burgess, Director

CIRCULAR OF THE BUREAU OF STANDARDS, No. 269

[Issued July 7, 1925]

UNITED STATES GOVERNMENT MASTER SPECIFICATION FOR RUBBER-METAL GASOLINE HOSE

FEDERAL SPECIFICATIONS BOARD SPECIFICATION No. 136a

[Revised July 6, 1925]

This specification was officially promulgated by the Federal Specifications Board on May 1, 1924, for the use of the Departments and Independent Establishments of the Government in the purchase of rubber-metal gasoline hose.

CONTENTS

I. GRADE

Hose shall be furnished in one grade only.

II. MATERIAL AND WORKMANSHIP

Hose shall be free from defects in material and workmanship.

III. GENERAL REQUIREMENTS

1. Construction.—Hose shall consist of:

(*a*) Flexible metal tube, (*b*) rubber tube, and (*c*) cotton jacket.

Hose shall be furnished with couplings attached, in lengths of 10, 12, or 25 feet, as ordered.

2. Flexible Metal Tube.—Metal tube shall be made from a continuous strip of smoothly galvanized steel, brass, bronze, or copper.

3. Rubber Tube.—The rubber tube shall fit the metal tube tightly and shall be free from all imperfections. The thickness of tube at any point shall be not less than one-sixteenth of an inch. By thickness is meant the distance from outside of metal tube to bottom of impressions left by cotton jacket.

4. Cotton Jacket.—The jacket shall be woven from a good grade of cotton. It shall be even and firm in texture throughout, and as free from all injurious or unsightly defects as is consistent with the best manufacturing practice. It shall cover the rubber tube uniformly and tightly.

5. Couplings.—Couplings shall be free from porosity or other injurious defects, and shall be securely attached to the hose in a workmanlike manner. The design shall be as stated in the proposal.

IV. DETAIL REQUIREMENTS

1. Bending Test of Metal Tubing.—When a sample of the metal tubing from which the rubber tubing and cotton jacket have been removed is bent to a U shape between the flat heads of a compression machine, the tubing shall not fail under an applied load less than that stated in the table.

2. Bending Test of Hose.—When a sample of hose is bent as in paragraph 1 above, the cotton jacket shall show no indication of failure under the load stated in the table.

3. Crushing Test of Hose.—The load required to produce an indentation of one-half inch in the hose when applied to a flat metal block 1 inch long, placed longitudinally on top of the hose, shall be not less than that stated in the table. The load shall be applied at a point not less than 3 inches from the end of hose.

4. Hydrostatic Test of Hose.—A 10-foot length of hose, lying straight and filled with water, shall withstand an internal pressure, as stated in the table, for five minutes without leakage. The hose shall then withstand the greater pressure, as stated in the table, without failure. In each case the pressure shall be increased at the rate of 100 lbs./in.^{2} per minute.

5. Physical Tests of Rubber.—The rubber tube shall meet all requirements stated in the table.

Physical Test Requirements

Size of hose, diameter—inches	1	1¼	1½	2	2½	3
Bending test of metal tubing as described in IV, 1, applied load, minimum—pounds	175	250	300	350	400	450
Bending test of hose, as described in IV, 2, applied load, minimum—pounds	200	300	350	400	450	500
Crushing test of hose as described in IV, 3, applied load, minimum—pounds	550	800	900	1,000	1,000	1,000
Hydrostatic test of hose for leakage as described in IV, 4, pressure—lbs./in.²	200	200	150	150	100	100
Hydrostatic test of hose for strength as described in IV, 4, pressure—lbs./in.²	350	350	300	300	250	250
Tensile strength of rubber tube, minimum—lbs./in.²	1,000	1,000	1,000	1,000	1,000	1,000
Ultimate elongation of rubber tube, minimum—inches	2–7	2–7	2–7	2–7	2–7	2–7
Set, rubber tube:						
Stretch, 10 minutes—do	2–6	2–6	2–6	2–6	2–6	2–6
Set after 10 minutes' rest, maximum—per cent	20	20	20	20	20	20

6. Chemical Test.—Immerse completely in a glass-stoppered bottle a 10 g sample of rubber compound in not less than 35 cc and not more than 70 cc of gasoline. The gasoline shall be distilled from gasoline purchased as 57 to 62° B., using only the fraction distilled below 130° C. (266° F.). After 48 hours' immersion at a temperature of 70 to 80° F. the gasoline shall be poured off and the bottle and sample washed clean with 25 cc more of fresh gasoline. These portions shall be combined, evaporated to dryness in a weighed glass flask on a water bath or electric hot plate and then dried in an air oven for one hour at 220° F. and weighed. A blank test shall be conducted, in which the same amount of standard gasoline shall be evaporated and dried in the same manner, and a correction applied to the weight in the above test. The amount of nonvolatile matter extracted shall be not more than 2 per cent of the weight of the compound first taken.

V. INSPECTION AND TESTS

The manufacturer shall notify the purchaser sufficiently in advance of the completion of the hose to permit of arrangements for inspection.

Inspection and tests shall be made at place of manufacture unless otherwise specified, manufacturer providing a place for conducting tests; also necessary help, equipment, etc.

One length shall be taken from each 2,000 feet or less for test. This length shall be accepted by the purchaser as part of the order if material meets specification requirements in all respects.

The inspector shall, after tests, mark the remainder of samples with manufacturer's name, order, requisition, and item numbers, and forward them to the testing laboratory for any further tests.

Any lot represented by a sample which fails in one or more tests may be retested at the expense of the contractor. For this purpose two additional samples shall be selected. Failure of either in any respect shall be cause for rejection.

VI. PACKING AND MARKING

Packing shall be as called for in the proposal. A permanent and distinctive brand to include manufacturer's name, trade name of hose, and year and month of manufacture shall be placed on each length of hose.

VII. ADDITIONAL INFORMATION

No details specified.

VIII. GENERAL SPECIFICATIONS

All tests shall be made in accordance with the methods described in United States Government General Specifications for Rubber Goods, F. S. B. Specification No. 59a, in effect on date of proposal.

ADDITIONAL COPIES
OF THIS PUBLICATION MAY BE PROCURED FROM
THE SUPERINTENDENT OF DOCUMENTS
GOVERNMENT PRINTING OFFICE
WASHINGTON, D. C.
AT
5 CENTS PER COPY