

S7.2.2 *End fittings.* * * *

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(b) A designation that identifies the manufacturer of that component of the fitting, which shall be filed in writing with: Office of Vehicle Safety Compliance, Equipment Division NVS-222, National Highway Traffic Safety Administration, 400 Seventh St. SW., Washington, DC 20590. The designation may consist of block capital letters, numerals, or a symbol.

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(d) The nominal inside diameter of the hose to which the fitting is properly attached expressed in inches or

fractions of inches or in millimeters. (See examples in S7.2.1(d).) The abbreviation "mm" shall follow hose sizes that are expressed in millimeters.

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S7.3 *Test requirements.* Each air brake hose assembly or appropriate part thereof shall be capable of meeting any of the requirements set forth under this heading, when tested under the conditions of S13 and the applicable procedures of S8. However, a particular hose assembly or appropriate part thereof need not meet further requirements after having met the constriction requirement (S7.3.1) and

then having been subjected to any one of the requirements specified in S7.3.2 through S7.3.14.

S7.3.1 *Constriction.* Every inside diameter of any section of an air brake hose assembly shall not be less than 66 percent of the nominal inside diameter of the brake hose. (S8.15)

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S7.3.3 *Low temperature resistance.* The inside and outside surfaces of an air brake hose shall not show cracks as a result of conditioning at minus 40 °F for 70 hours when bent around a cylinder having the radius specified in Table IV for the size of hose tested (S8.2).

TABLE IV.—AIR BRAKE HOSE DIAMETERS AND TEST CYLINDER RADII

Nominal hose diameter, inches ¹	1/8	3/16	1/4	5/16	3/8	13/32	7/16, 1/2	5/8
Nominal hose diameter, millimeters ¹	3	4, 5	6	8	10	12	16
Test cylinder radius for high temperature resistance test and adhesion test for wire reinforced hose, inches (mm)	1 (25)	1 (25)	1 1/2 (38)	1 3/4 (44)	1 3/4 (44)	1 7/8 (48)	2 (51)	2 1/2 (64)
Test cylinder radius for low temperature resistance test and ozone test, inches (mm)	1 1/2 (38)	2 (51)	2 1/2 (64)	3 (76)	3 (89)	3 1/2 (89)	4 (102)	4 1/2 (114)

¹ These sizes are listed to provide test values for brake hose manufactured in these sizes. They do not represent conversions.

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S7.3.6 *Length Change.* An air brake hose shall not contract in length more than 7 percent nor elongate more than 5 percent when subjected to air pressure of 200 psi (S8.5).

S7.3.7 *Adhesion.* (a) Except for hose reinforced by wire, an air brake hose shall withstand a tensile force of 8 pounds per inch of length before separation of adjacent layers (S8.6).

(b) An air brake hose reinforced by wire shall permit a steel ball to roll freely along the entire length of the inside of the hose when the hose is subjected to a vacuum of 25 inches of Hg and bent around a test cylinder (S8.13).

S7.3.8 *Flex strength and air pressure leakage.* An air brake hose assembly of the length specified in Table 5, when subjected to a flex test and internal pressure cycling, shall be capable of having its internal pressure increased from zero to 140 psi within 2 minutes with pressurized air supplied through an orifice (S8.7).

S7.3.9 *Corrosion resistance and burst strength.* An air brake hose assembly exposed to salt spray shall not rupture when exposed to hydrostatic pressure of 900 psi (S8.8).

S7.3.10 *Tensile strength.* An air brake hose assembly shall withstand, without separation of the hose from its end fittings, a pull of 250 pounds if it is 1/4 inch or less or 6 mm or less in nominal inside diameter, or a pull of 325 pounds if it is larger than 1/4 inch

or 6 mm in nominal inside diameter (S8.9).

S7.3.11 *Water absorption and tensile strength.* After immersion in distilled water for 70 hours (S8.10), an air brake hose assembly shall withstand, without separation of the hose from its end fittings, a pull of 250 pounds if it is 1/4 inch or less or 6 mm or less in nominal inside diameter, or a pull of 325 pounds if it is larger than 1/4 inch or 6 mm in nominal inside diameter (S8.9).

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S7.3.14 *Ozone resistance.* An air brake hose assembly shall not show cracks visible under 7-power magnification after exposure to ozone for 70 hours at 104 °F when bent around a test cylinder of the radius specified in Table IV for the size of hose tested (S8.14).

S8. *Test procedures—Air brake hose, brake hose assemblies, and brake hose end fittings.*

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S8.2 *Low temperature resistance test.*

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(c) With the hose and cylinder at minus 40 °F, bend the hose 180 degrees around the cylinder at a steady rate in a period of 3 to 5 seconds. Remove the hose from the test cylinder and visibly examine the exterior of the hose for cracks without magnification.

(d) Allow the hose to warm at room temperature for 2 hours. All reusable end fittings are removed from the hose.

All permanently-attached end fittings are cut away from the hose. Cut through one wall of the hose longitudinally along its entire length. Unfold the hose to permit examination of the interior surface. Visibly examine the interior of the hose for cracks without magnification.

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S8.3.2 *Measurement.*

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(b) Immerse each specimen in ASTM IRM 903 oil for 70 hours at 212 °F. and then cool in ASTM IRM 903 oil at room temperature for 30 to 60 minutes.

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S8.6 *Adhesion test for air brake hose not reinforced by wire.*

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S8.7 *Flex strength and air pressure test.*

S8.7.1 *Apparatus.* A flex testing machine with a fixed hose assembly attachment point and a movable hose assembly attachment point, which meets the dimensional requirements of Figure 5 for the size of hose being tested. The attachment points connect to the end fittings on the hose assembly without leakage and, after the hose assembly has been installed for the flex test, are restrained from rotation. The movable end has a linear travel of 6 inches and a cycle rate of 100 cycles per minute. The machine is capable of increasing the air pressure in the hose assembly from zero to 150 psi within 2 seconds, and decreasing the air pressure