

deformation of the fitting about the tubing by crimping or swaging, at least one component of each plastic air brake tubing end fitting shall be etched, embossed, or stamped in block capital letters and numerals at least one-sixteenth of an inch high with the following information:

(a) The symbol DOT, constituting a certification by the manufacturer of that component that the component conforms to all applicable motor vehicle safety standards.

(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. S.W., Washington, DC 20590. The designation may consist of block capital letters, numerals, or a symbol.

(c) The letter "A" shall indicate intended use in air brake systems.

(d) The nominal outside diameter of the plastic tubing to which the fitting is properly attached expressed in inches or fractions of inches or in millimeters followed by the letters OD. The abbreviation "mm" shall follow tubing sizes that are expressed in millimeters. (See examples in S11.2.1(d).)

S11.2.3. *Assemblies.* Each plastic air brake tubing assembly made with end fittings that are attached by crimping or swaging, except those sold as part of a motor vehicle, shall be labeled by means of a band around the brake tubing assembly as specified in this paragraph or, at the option of the manufacturer, by

means of labeling as specified in S11.2.3.1. The band may at the manufacturer's option be attached so as to move freely along the length of the assembly, as long as it is retained by the end fittings. The band shall be etched, embossed, or stamped in block capital letters, numerals or symbols at least one-eighth of an inch high, with the following information:

(a) The symbol DOT, constituting certification by the tubing assembler that the tubing assembly conforms to all applicable motor vehicle safety standards.

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

S11.2.3.1 At least one end fitting of a plastic air brake tubing assembly made with end fittings that are attached by crimping or swaging shall be etched, stamped, or embossed with a designation at least one-sixteenth of an inch high that identifies the manufacturer of the tubing assembly and is filed in accordance with S11.2.3(b).

S11.3 *Test requirements.* Each plastic air brake tubing 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 S12. However, a particular tubing assembly or appropriate part thereof need not meet further requirements after having met the constriction requirement (S11.3.1) and then having been subjected to any one of the requirements specified in S11.3.2 through S11.3.24.

S11.3.1 *Constriction.* Every inside diameter of any section of a plastic air brake tubing assembly shall not be less than 66 percent of the nominal inside diameter of the brake tubing. (S12.2)

S11.3.2 *High temperature conditioning and dimensional stability.* Plastic air brake tubing shall conform to the dimensions in Table VII after conditioning in air at 230 °F for four hours. (S12.3)

S11.3.3 *Boiling water conditioning and dimensional stability.* Plastic air brake tubing shall conform to the dimensions in Table VII after conditioning in boiling water for two hours. (S12.4)

S11.3.4 *Moisture absorption.* Plastic air brake tubing shall not absorb moisture in a quantity of more than 2 percent by weight after conditioning in air at 230 °F for 24 hours and then conditioning in a 100 percent relative humidity atmosphere at 75 °F for 100 hours. (S12.5)

S11.3.5 *Burst strength.* Plastic air brake tubing shall not rupture or burst when subjected to the burst strength pressure in Table VIII for the size of tubing being tested, when tested at an ambient temperature of 75 °F. (S12.6)

TABLE VIII.—PLASTIC AIR BRAKE TUBING MECHANICAL PROPERTIES

Type	Nominal tubing OD	Burst strength pressure		Stiffness force		Bend radius		Tensile load	
		kPa	psi	N	lbf	mm	inches	N	lbf
A	1/8 inch	6900	1000	4.4	1.0	9.4	0.37	67	15
A	5/32 inch	8300	1200	4.4	1.0	12.7	0.50	178	40
A	3/16 inch	8300	1200	4.4	1.0	19.1	0.75	178	40
A	1/4 inch	8300	1200	8.9	2.0	25.4	1.00	222	50
A	5/16 inch	6900	1000	27.0	6.0	31.8	1.25	334	75
B	3/8 inch	9700	1400	36.0	8.0	38.1	1.50	6671	50
B	1/2 inch	6600	950	89.0	20.0	50.8	2.00	890	200
B	5/8 inch	6200	900	222.0	50.0	63.5	2.50	1446	325
B	3/4 inch	5500	800	356.0	80.0	76.2	3.00	1557	350
A	6 mm	7600	1100	9.0	2.0	20.0	0.75	222	50
A	8 mm	6200	900	27.0	6.0	32.0	1.25	334	75
B	10 mm	8200	1200	36.0	8.0	38.0	1.50	667	150
B	12 mm	6900	1000	90.0	20.0	45.0	1.75	890	200
B	16 mm	6000	875	225.0	50.0	70.0	2.75	1446	325

S11.3.6 *Ultraviolet light resistance.* Plastic air brake tubing shall not rupture or burst when subjected to 80 percent of the burst strength pressure in Table VIII for the size of tubing being tested, after being exposed to ultraviolet light for 300

hours and then impacted with a one pound weight dropped from a height of 12 inches. (S12.7)

S11.3.7 *Low temperature flexibility.* The outer surface of plastic air brake tubing shall not show cracks visible

without magnification as a result of conditioning in air at 230 °F for 24 hours, and then conditioning in air at minus 40 °F for four hours, and then bending the tubing 180 degrees around a test cylinder having a radius equal to