without continuous center sills, the breakage groove or its equivalent may not be more than 15 inches below the outer shell. On cars with continuous center sills, the breakage groove or its equivalent must be above the bottom of the center sill construction.

(4) The closure plug and seat must be readily accessible or removable for repairs, including grinding.

(5) The closure of the washout nozzle must be equipped with a ¾-inch solid screw plug. Plug must be attached by at least a ¼-inch chain.

(6) Joints between closures and their seats may be gasketed with suitable material.

[29 FR 18995, Dec. 29, 1964. Redesignated at 32 FR 5606, Apr. 5, 1967, and amended by Amdt. 179–10, 36 FR 21351, Nov. 6, 1971; Amdt. 179–40, 52 FR 13047, Apr. 20, 1987]

§ 179.200–19 Reinforcements, when used, and appurtenances not otherwise specified.

(a) All attachments to tank and dome shall be applied by approved means. Rivets if used shall be caulked inside and outside.

(b) Reinforcing pads must be used between external brackets and shells if the attachment welds exceed 6 lineal inches of ¼-inch fillet or equivalent weld per bracket or bracket leg. When reinforcing pads are used, they must not be less than one-fourth inch in thickness, have each corner rounded to a 1 inch minimum radius, and be attached to the tank by continuous fillet welds except for venting provisions. The ultimate shear strength of the bracket to reinforcing pad weld must not exceed 85 percent of the ultimate shear strength of the reinforcing pad to tank weld.

[29 FR 18995, Dec. 29, 1964. Redesignated at 32 FR 5606, Apr. 5, 1967, and amended by Amdt. 179–10, 36 FR 21351, Nov. 6, 1971]

§ 179.200–21 Closures for openings.

(a) All plugs shall be solid, with NPT threads, and shall be of a length which will screw at least 6 threads inside the face of fitting or tank. Plugs, when inserted from the outside of tank heads, shall have the letter ''S'' at least ⅜ inch in size stamped with steel stamp or cast on the outside surface to indicate the plug is solid.

(b) [Reserved]

§ 179.200–22 Test of tanks.

(a) Each tank shall be tested by completely filling the tank and dome or nozzles with water, or other liquid having similar viscosity, of a temperature which shall not exceed 100 °F. during the test; and applying the pressure prescribed in § 179.201–1. Tank shall hold the prescribed pressure for at least 10 minutes without leakage or evidence of distress. All rivets and closures, except safety relief valves or safety vents, shall be in place when test is made.

(b) Insulated tanks shall be tested before insulation is applied.

(c) Rubber-lined tanks shall be tested before rubber lining is applied.

(d) Caulking of welded joints to stop leaks developed during the foregoing tests is prohibited. Repairs in welded joints shall be made as prescribed in AAR Specifications for Tank Cars, appendix W.

§ 179.200–23 Tests of safety relief valves.

(a) Each valve shall be tested by air or gas for compliance with § 179.15 before being put into service.

(b) [Reserved]

[29 FR 18995, Dec. 29, 1964. Redesignated at 32 FR 5606, Apr. 5, 1967, as amended at 62 FR 51561, Oct. 1, 1997]

§ 179.200–24 Stamping.

(a) To certify that the tank complies with all specification requirements, each tank shall be plainly and permanently stamped in letters and figures at least ⅜ inch high into the metal near the center of both outside heads as follows:

	Example of required stamping
Specification	DOT–103–W
Material	ASTM A 516–GR 70
Cladding material (if any)	ASTM A240–304 Clad
Tank builder's initials	ABC
Date of original test	00–0000
Car assembler (if other than tank builder).	DEF

(b) On Class DOT–111 tank cars, the last numeral of the specification number may be omitted from the stamping; for example, DOT–111A100W.

[29 FR 18995, Dec. 29, 1964. Redesignated at 32 FR 5606, Apr. 5, 1967, and amended by Amdt. 179–10, 36 FR 21351, Nov. 6, 1971; Amdt. 179–52, 61 FR 28680, June 5, 1996]

§ 179.201 Individual specification requirements applicable to non-pressure tank car tanks.

§ 179.201–1 Individual specification requirements.

In addition to § 179.200, the individual specification requirements are as follows:

DOT Specification [1]	Insulation	Bursting pressure (psig)	Minimum plate thickness (inches)	Test pressure (psig)	Bottom outlet	Bottom washout	References (179.201 - ***)
103A–ALW	Optional	240	1/2	60	No	Optional.	
103AW	Optional	240	179.201–2	60	No	Optional.	
103ALW	Optional	240	1/2	60	Optional	Optional	6(a).
103ANW	Optional	240	179.201–2	60	No	Optional	6(d).
103BW	Optional	240	179.201–2	60	No	No	6(b), 3.
103CW	Optional	240	179.201–2	60	No	No	6(c), 4,5.
103DW	Optional	240	179.201–2	60	Optional	Optional	6(a), 6(c), 4, 5.
103EW	Optional	240	179.201–2	60	No	Optional	6(c), 4, 5.
103W	Optional	240	179.201–2	60	Optional	Optional	6(a).
104W	Yes	240	179.201–2	60	Optional	Optional	6(a).
111A60ALW1	Optional	240	1/2	60	Optional	Optional	6(a).
111A60ALW2	Optional	240	1/2	60	No	Optional.	
111A60W1	Optional	240	7/16	60	Optional	Optional	6(a).
111A60W2	Optional	240	7/16	60	No	Optional.	
111A60W5	Optional	240	7/16	60	No	No	3, 6(b).
111A60W6	Optional	240	7/16	60	Optional	Optional	4, 5, 6(a), 6(c).
111A60W7	Optional	240	7/16	60	No	No	4, 5, 6(a).
111A100ALW1	Optional	500	5/8	100	Optional	Optional	6(a).
111A100ALW2	Optional	500	5/8	100	No	Optional.	
111A100W1	Optional	500	7/16	100	Optional	Optional	6(a).
111A100W2	Optional	500	7/16	100	No	Optional.	
111A100W3	Yes	500	7/16	100	Optional	Optional	6(a).
111A100W4	Yes (see 179.201–11).	500	7/16	100	No	No	6(a), 8, 10.
111A100W5	Optional	500	7/16	100	No	No	3.
111A100W6	Optional	500	7/16	100	Optional	Optional	4, 5, 6(a) and 6(c).
111A100W7	Optional	500	7/16	100	No	No	4, 5, 6(c).

[1] Tanks marked ''ALW'' are constructed from aluminum alloy plate; ''AN'' nickel plate; ''CW,'' ''DW,'' ''EW,'' ''W6,'' and ''W7'' high alloy steel or manganese-molybdenum steel plate; and those marked ''BW'' or ''W5'' must have an interior lining that conforms to § 179.201–3.

[Amdt. 179–52, 61 FR 28680, June 5, 1996, as amended by 66 FR 45390, Aug. 28, 2001]

§ 179.201–2 Minimum plate thickness.

(a) The minimum plate thickness, after forming, must be as follows:

Inside diameter of tanks	Bottom sheets	Shell sheets	Expansion dome sheets	2:1 ellipsoidal heads	3:1 ellipsoidal and dished tank heads	Expansion dome heads	Interior compartment heads
	Inches						
60 inches or under	7/16	1/4	5/16	7/16	1/2	5/16	5/16
Over 60 to 78 inches	7/16	5/16	5/16	7/16	1/2	5/16	5/16
Over 78 to 96 inches	1 1/2	3/8	5/16	7/16	1/2	5/16	3/8
Over 96 to 112 inches	1 1/2	7/16	5/16	7/16	9/16	5/16	7/16
Over 112 to 122 inches	1/2	1/2	5/16	1/2	5/8	5/16	1/2

[1] May be reduced to 7/16 inch when approved steels having tensile strength of 65,000 psi or higher are used.

(b) [Reserved]