

§ 179.103-4 Safety relief devices and pressure regulators.

(a) Safety relief devices and pressure regulators must be located on top of the tank near the center of the car on a nozzle, mounting plate or recess in the shell. Through or stud bolts, if used, must not enter the tank.

(b) Metal guard of approved design must be provided to protect safety relief devices and pressure regulators from damage.

[Amdt. 179-10, 36 FR 21348, Nov. 6, 1971]

§ 179.103-5 Bottom outlets.

(a) In addition to or in place of the venting, loading and unloading valves, measuring and sampling devices as prescribed in §179.103-3, tanks may be equipped with approved bottom outlet valves. If applied, bottom outlet valves must meet the following requirements:

(1) On cars with center sills, a ball valve may be welded to the outside bottom of the tank or mounted on a pad or nozzle with a tongue and groove or male and female flange attachment, but in no case shall the breakage groove or equivalent extend below the bottom flange of the center sill. On cars without continuous center sills, a ball valve may be welded to the outside bottom of the tank or mounted with a tongue and groove or male and female flange attachment on a pad attached to the outside bottom of the tank. The mounting pad must have a maximum thickness of 2½ inches measured on the longitudinal centerline of the tank. The valve operating mechanism must be provided with a suitable locking arrangement to insure positive closure during transit.

(2) When internal bottom outlet valve is used in liquefied flammable gas service, the outlet of the valve must be equipped with an excess flow valve of approved design, except when a quick-closing internal valve of approved design is used. Protective housing is not required.

(3) Bottom outlet must be equipped with a liquid tight closure at its lower end.

(b) Bottom outlet equipment must be of approved design and must meet the following requirements:

(1) The extreme projection of the bottom outlet equipment may not be more than allowed by appendix E of the AAR Specifications for Tank Cars. All bottom outlet reducers and closures and their attachments shall be secured to car by at least ⅜-inch chain, or its equivalent, except that bottom outlet closure plugs may be attached by ¼-inch chain. When the bottom outlet closure is of the combination cap and valve type, the pipe connection to the valve shall be closed by a plug, cap, or approved quick coupling device. The bottom outlet equipment should include only the valve, reducers and closures that are necessary for the attachment of unloading fixtures. The permanent attachment of supplementary exterior fittings must be approved by the AAR Committee on Tank Cars.

(2) To provide for the attachment of unloading connections, the discharge end of the bottom outlet nozzle or reducer, the valve body of the exterior valve, or some fixed attachment thereto, shall be provided with one of the following arrangements or an approved modification thereof. (See appendix E, Fig. E17 of the AAR Specifications for Tank Cars for illustrations of some of the possible arrangements.)

(i) A bolted flange closure arrangement including a minimum 1-inch NPT pipe plug (see Fig. E17.1) or including an auxiliary valve with a threaded closure.

(ii) A threaded cap closure arrangement including a minimum 1-inch NPT pipe plug (see Fig. E17.2) or including an auxiliary valve with a threaded closure.

(iii) A quick-coupling device using a threaded plug closure of at least 1-inch NPT or having a threaded cap closure with a minimum 1-inch NPT pipe plug (see Fig. E17.3 through E17.5). A minimum 1-inch auxiliary test valve with a threaded closure may be substituted for the 1-inch pipe plug (see Fig. E17.6). If the threaded cap closure does not have a pipe plug or integral auxiliary test valve, a minimum 1-inch NPT pipe plug shall be installed in the outlet nozzle above the closure (see Fig. E17.7).

(iv) A two-piece quick-coupling device using a clamped dust cap must include an in-line auxiliary valve, either