

gauging or measuring devices must have the excess flow, shut-off, or quick-closing shut-off valves under §154.530 or §154.532.

**§ 154.538 Cargo transfer connection.**

A cargo transfer connection must have a:

- (a) Remotely controlled quick-closing shut-off valve that meets §§154.540 and 154.544; or
- (b) Blank flange.

**§ 154.540 Quick-closing shut-off valves: Emergency shut-down system.**

The quick-closing shut-off valves under §§154.530, 154.532, and 154.538 must have an emergency shut-down system that:

- (a) Closes all the valves;
- (b) Is actuated by a single control in at least two locations remote from the quick-closing valves;
- (c) Is actuated by a single control in each cargo control station under §154.320; and
- (d) Has fusible elements at each tank dome and cargo loading and discharge manifold that melt between 98 °C (208 °F) and 104 °C (220 °F) and actuate the emergency shut-down system.

**§ 154.544 Quick-closing shut-off valves.**

The quick-closing shut-off valve under §§154.530, 154.532 and 154.538 must:

- (a) Be a shut-off valve;
- (b) Close from the time of actuation in 30 seconds or less;
- (c) Be the fail-closed type; and
- (d) Be capable of local manual closing.

[CGD 74-289, 44 FR 26009, May 3, 1979, as amended by CGD 77-069, 52 FR 31630, Aug. 21, 1987]

**§ 154.546 Excess flow valve: Closing flow.**

(a) The rated closing flow of vapor or liquid cargo for an excess flow valve must be specially approved by the Commandant (G-MSO).

(b) An excess flow valve allowed under §154.532(b) must close automatically at the rated closing flow.

[CGD 74-289, 44 FR 26009, May 3, 1979, as amended by CGD 82-063b, 48 FR 4782, Feb. 3, 1983]

**§ 154.548 Cargo piping: Flow capacity.**

Piping with an excess flow valve must have a vapor or liquid flow capacity that is greater than the rated closing flow under §154.546.

**§ 154.550 Excess flow valve: Bypass.**

If the excess flow valve allowed under §154.532(b) has a bypass, the bypass must be of 1.0 mm (0.0394 in.) or less in diameter.

CARGO HOSE

**§ 154.551 Cargo hose: General.**

Each of the vessel's liquid and vapor cargo hose for loading or discharging cargo must meet §§154.552 through 154.562.

**§ 154.552 Cargo hose: Compatibility.**

Liquid and vapor cargo hoses must:

- (a) Not chemically react with the cargo; and
- (b) Withstand design temperature.

**§ 154.554 Cargo hose: Bursting pressure.**

Cargo hose that may be exposed to the pressure in the cargo tank, the cargo pump discharge, or the vapor compressor discharge must have a bursting pressure of at least five times the maximum working pressure on the hose during cargo transfer.

**§ 154.556 Cargo hose: Maximum working pressure.**

A cargo hose must have a maximum working pressure not less than the maximum pressure to which it may be subjected and at least 1034 kPa gauge (150 psig).

**§ 154.558 Cargo hose: Marking.**

Each cargo hose must be marked with the:

- (a) Maximum working pressure; and
- (b) Minimum service temperature for service at other than ambient temperature.

**§ 154.560 Cargo hose: Prototype test.**

(a) Each cargo hose must be of a type that passes a prototype test at a pressure of at least five times its maximum working pressure at or below the minimum service temperature.