

TABLE 56.04-2—PRESSURE PIPING CLASSIFICATION—Continued

Service	Class ¹	Pressure (p.s.i.g.)		Temp. (°F)
Water	I	above 225	or	above 350.
	II	225 and below	and	350 and below.
Fuels (Bunker, diesel, gasoline, etc.)	I	above 150	or	above 150.
	II	150 and below	and	150 and below.
Lubricating oil	I	above 225	or	above 400.
	II	225 and below	and	400 and below.
Asphalt	I	above 225	or	above 400.
	II	225 and below	and	400 and below.
Heat transfer oil	I	above 225	or	above 400.
	II	225 and below	and	400 and below.
Hydraulic fluid	I	above 225	or	above 400.
	II	225 and below	and	400 and below.
Flammable or combustible dangerous cargoes.				Refer to specific requirements of part 40 of this chapter.
Other dangerous cargoes.				Refer to specific requirements of part 98 of this chapter.

¹ Where doubt exists as to proper classification, refer to the Commandant for resolution.
² For definitions, see 46 CFR parts 30, 151, and 154. Note that the category "B and C" poisons is not used in the rules applying to self-propelled vessels (46 CFR part 153).
³ Not permitted except inside cargo tanks approved for Class B and C poisons.

[CGFR 68-82, 33 FR 18843, Dec. 18, 1968, as amended by CGD 73-254, 40 FR 40164, Sept. 2, 1975; CGD 73-96, 42 FR 49024, Sept. 26, 1977]

§ 56.04-10 Other systems.

Piping systems and appurtenances not requiring plan approval may be accepted by the marine inspector if:

- (a) The system is suitable for the service intended,
- (b) There are guards, shields, insulation and similar devices where needed for protection of personnel,
- (c) Failure of the systems would not hazard the vessel, personnel or vital systems, and
- (d) The system is not manifestly unsafe.

[CGD 77-140, 54 FR 40602, Oct. 2, 1989]

Subpart 56.07—Design

§ 56.07-5 Definitions (modifies 100.2).

(a) *Piping*. The definitions contained in 100.2 of ANSI-B31.1 apply, as well as the following:

(1) The word *piping* within the meaning of the regulations in this subchapter refers to fabricated pipes or tubes with flanges and fittings attached, for use in the conveyance of vapors, gases or liquids, regardless of whether the diameter is measured on the inside or the outside.

(b) *Nominal diameter*. The term *nominal diameter* or *diameter* as used in this part, means the commercial diameter of the piping, i.e., pipe size.

(c) *Schedule*. The word *Schedule* when used in this part refers to specific values as given in American National Standards B36.10 and B36.19.

(d) *Fittings and appurtenances*. The word *fitting* and the phrase *fittings and appurtenances* within the meaning of the regulations in this subchapter refer to pressure containing piping system components other than valves and pipe. This includes piping system components whose function is to join branches of the system (such as tees, wyes, elbows, unions, bushings, etc.) which are referred to as pipe joining fittings, as well as components which operate on the fluid contained in the system (such as traps, drains, strainers, separators, filters, meters, etc.), which are referred to as "fluid conditioner" fittings. Thermometer wells and other similar fittings which form part of the pressure barrier of any system are included under this heading. Expansion joints, slip joints, rotary joints, quick disconnect couplings, etc., are referred to as special purpose fittings, and may be subject to such special design and testing requirements as prescribed by the Commandant. Refer to subpart 56.15 for design requirements for fittings.

(e) *Nonstandard fittings*. "Non-standard fitting" means a component

of a piping system which is not fabricated under an adopted industry standard.

(f) *Vital system.* A *vital system* is one which is essential to the safety of the vessel, its passengers and crew.

(g) *Plate flange.* The term *plate flange*, as used in this subchapter, means a flange made from plate material, and may have a raised face and/or a raised hub.

[CGFR 68-82, 33 FR 18843, Dec. 18, 1968, as amended by CGFR 69-127, 35 FR 9978, June 17, 1970; CGD 77-140, 54 FR 40602, Oct. 2, 1989]

§ 56.07-10 Design conditions and criteria (modifies 101-104.7).

(a) *Maximum allowable working pressure (modifies 101.2).* (1) The maximum allowable working pressure of a piping system shall not be greater than the internal design pressure defined in 104.1.2 of ANSI-B31.1.

(2) Where the maximum allowable working pressure of a system component, such as a valve or a fitting, is less than that computed for the pipe or tubing, the system pressure shall be limited to the lowest of the component maximum allowable working pressures.

(b) *Relief valves (modifies 101.2).* (1) Every system which may be exposed to pressures higher than the system's maximum allowable working pressure shall be safeguarded by appropriate relief devices. (See § 52.01-3 of this subchapter for definitions.) Relief valves are required at pump discharges except for centrifugal pumps so designed and applied that a pressure in excess of the maximum allowable working pressure for the system cannot be developed.

(2) The relief valve setting shall not exceed the maximum allowable working pressure of the system. Its relieving capacity shall be sufficient to prevent the pressure from rising more than 20 percent above the system maximum allowable working pressure. The rated relieving capacity of safety and relief valves used in the protection of piping systems only shall be based on actual flow test data and the capacity shall be certified by the manufacturer at 120 percent of the set pressure of the valve.

(3) Relief valves shall be certified as required in part 50 of this subchapter for valves, and shall also meet the re-

quirements of § 54.15-10 of this subchapter.

(c) *Ship motion dynamic effects (replaces 101.5.3).* Piping system designs shall account for the effects of ship motion and flexure, including weight, yaw, sway, roll, pitch, heave, and vibration.

(d) *Pressure temperature ratings (modifies 102.2).* The material in 102.2 of ANSI-B31.1 is applicable with the following exceptions:

(1) The details of components not having specific ratings as described in 102.2.2 of ANSI B31.1 must be furnished to the Marine Safety Center for approval.

(2) Boiler blowoff piping must be designed in accordance with § 56.50-40 of this part.

(e) *Pressure design (modifies 102.3, 104.1.2 and 104.4).* (1) Materials for use in piping must be selected as described in § 56.60-1(a) of this part. Tabulated allowable stress values for these materials shall be measured as indicated in 102.3.1 of ANSI-B31.1, Tables 56.60-1 and 56.60-2(a).

(2) Allowable stress values, as found in the ASME Code, which are restricted in application by footnote or are italicized shall not be used. Where multiple stresses are listed for a material, the lowest value of the listing shall be used unless otherwise approved by the Commandant. In all cases the temperature is understood to be the actual temperature of the component.

(3) Where the operator desires to use a material not listed, permission must be obtained from the Commandant. Requirements for testing found in § 56.97-40(a)(2) and § 56.97-40(a)(4) may affect design and should be considered. Special design limitations may be found for specific systems. Refer to subpart 56.50 for specific requirements.

(f) *Intersections (modifies 104.3).* The material of ANSI-B31.1 in 104.3 is applicable with the following additions:

(1) Reinforcement calculations where applicable shall be submitted.