

ultimate tensile strength of the material for Class II systems and for all Class I, I-L, and II-L systems receiving ship motion dynamic analysis and non-destructive examination. For Class I, I-L, or II-L systems not receiving ship motion dynamic analysis and non-destructive examination under § 56.07-10(c) of this part, the maximum allowable working pressure must not exceed one-fifth of the burst pressure or produce a primary stress greater than one-fifth of the ultimate tensile strength of the material. The maximum allowable working pressure may be determined by—

(i) Calculations comparable to those of ANSI B31.1 or Section VIII of the ASME Code;

(ii) Subjecting a representative model to a proof test or experimental stress analysis described in paragraph A-22 of Section I of the ASME Code; or

(iii) Other means specifically accepted by the Marine Safety Center.

(3) Fittings must be tested in accordance with § 56.97-5 of this part.

(4) If welded, fittings must be welded in accordance with subpart 56.70 of this part and part 57 of this chapter or by other processes specifically approved by the Marine Safety Center. In addition, for fittings to be accepted for use in piping systems in accordance with this paragraph, the following requirements must be met:

(i) For fittings sized three inches and below—

(A) The longitudinal joints must be fabricated by either gas or arc welding;

(B) One fitting of each size from each lot of 100 or fraction thereof must be flattened cold until the opposite walls meet without the weld developing any cracks;

(C) One fitting of each size from each lot of 100 or fraction thereof must be hydrostatically tested to the pressure required for a seamless drawn pipe of the same size and thickness produced from equivalent strength material, as determined by the applicable pipe material specification; and

(D) If a fitting fails to meet the test in paragraph (c)(4)(i)(B) or (c)(4)(i)(C) of this section, no fitting in the lot from which the test fitting was chosen is acceptable.

(ii) For fittings sized above three inches—

(A) The longitudinal joints must be fabricated by arc welding;

(B) For pressures exceeding 150 pounds per square inch, each fitting must be radiographically examined as specified in Section VIII of the ASME Code;

(C) For pressures not exceeding 150 pounds per square inch, the first fitting from each size in each lot of 20 or fraction thereof must be examined by radiography to ensure that the welds are of acceptable quality;

(D) One fitting of each size from each lot of 100 or fraction thereof must be hydrostatically tested to the pressure required for a seamless drawn pipe of the same size and thickness produced from equivalent strength material, as determined by the applicable pipe material specification; and

(E) If a fitting fails to meet the test in paragraph (c)(4)(ii)(C) or (c)(4)(ii)(D) of this section, no fitting in the lot from which the test fitting was chosen is acceptable.

(d) Single welded butt joints without the use of backing strips may be employed in the fabrication of pipe joining fittings of welded construction provided radiographic examination indicates that complete penetration is obtained.

(e) Each pipe joining fitting must be marked in accordance with MSS Standard SP-25.

#### § 56.15-5 Fluid-conditioner fittings.

(a) Fluid conditioner fittings certified in accordance with subpart 50.25 of this subchapter are acceptable for use in piping systems.

(b) Fluid conditioner fittings, not containing hazardous materials as defined in § 150.115 of this chapter, which are made in accordance with the applicable standards listed in Table 56.60-1(b) of this part and of materials complying with subpart 56.60 of this part, may be used within the material, size, pressure, and temperature limitations of those standards and within any further limitations specified in this subchapter.

(c) The following requirements apply to nonstandard fluid conditioner fittings which do not contain hazardous

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materials as defined in § 150.115 of this chapter:

(1) The following nonstandard fluid conditioner fittings must meet the applicable requirements in § 54.01–5 (c)(3), (c)(4), and (d) of this chapter or the remaining provisions in part 54 of this chapter, except that Coast Guard shop inspection is not required:

(i) Nonstandard fluid conditioner fittings that have a net internal volume greater than 0.04 cubic meters (1.5 cubic feet) and that are rated for temperatures and pressures exceeding those specified as minimums for Class I piping systems.

(ii) Nonstandard fluid-conditioner fittings that have an internal diameter exceeding 15 centimeters (6 inches) and that are rated for temperatures and pressures exceeding those specified as minimums for Class I piping systems.

(2) All other nonstandard fluid conditioner fittings must meet the following:

(i) All pressure-containing materials must be accepted in accordance with § 56.60–1 of this part.

(ii) Nonstandard fluid conditioner fittings must be designed so that the maximum allowable working pressure does not exceed one-fourth of the burst pressure or produce a primary stress greater than one-fourth of the ultimate tensile strength of the material for Class II systems and for all Class I, I-L, and II-L systems receiving ship motion dynamic analysis and non-destructive examination. For Class I, I-L, or II-L systems not receiving ship motion dynamic analysis and non-destructive examination under § 56.07–10(c) of this part, the maximum allowable working pressure must not exceed one-fifth of the burst pressure or produce a primary stress greater than one-fifth of the ultimate tensile strength of the material. The maximum allowable working pressure may be determined by—

(A) Calculations comparable to those of ANSI B31.1 or Section VIII of the ASME Code;

(B) Subjecting a representative model to a proof test or experimental stress analysis described in paragraph A–22 of Section I of the ASME Code; or

(C) Other means specifically accepted by the Marine Safety Center.

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(iii) Nonstandard fluid conditioner fittings must be tested in accordance with § 56.97–5 of this part.

(iv) If welded, nonstandard fluid conditioner fittings must be welded in accordance with subpart 56.70 of this part and part 57 of this chapter or by other processes specifically approved by the Marine Safety Center.

(d) All fluid conditioner fittings that contain hazardous materials as defined in § 150.115 of this chapter must meet the applicable requirements of part 54 of this chapter, except subpart 54.10.

(e) Heat exchangers having headers and tubes and brazed boiler steam air heaters are not considered fluid conditioner fittings and must meet the requirements in part 54 of this chapter regardless of size. For brazed boiler steam air heaters, see also § 56.30–30(b)(1) of this part.

[CGD 77–140, 54 FR 40602, Oct. 2, 1989, as amended by CGD 83–043, 60 FR 24772, May 10, 1995]

### § 56.15–10 Special purpose fittings.

(a) Special purpose fittings certified in accordance with subpart 50.25 of this subchapter are acceptable for use in piping systems.

(b) Special purpose fittings made in accordance with the applicable standards listed in Table 56.60–1(b) of this part and of materials complying with subpart 56.60 of this part, may be used within the material, size, pressure, and temperature limitations of those standards and within any further limitations specified in this subchapter.

(c) Nonstandard special purpose fittings must meet the requirements of §§ 56.30–25, 56.30–40, 56.35–10, 56.35–15, or 56.35–35 of this part, as applicable.

### Subpart 56.20—Valves

#### § 56.20–1 General.

(a) Valves certified in accordance with subpart 50.25 of this subchapter are acceptable for use in piping systems.

(b) Non-welded valves complying with the standards listed in § 56.60–1 of this part may be used within the specified pressure and temperature ratings