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expected normal operating temperature does not exceed 400 °F. Carbon steel bolts must have heavy hexagon heads in accordance with ASME B18.2.1 (incorporated by reference, see 46 CFR 56.01–2) and must have heavy semi-finished hexagonal nuts in accordance with ASME/ANSI B18.2.2 (incorporated by reference, see 46 CFR 56.01–2), unless the bolts are tightly fitted to the holes and flange stress calculations taking the bolt bending stresses into account are submitted. When class 250 cast iron flanges are used or when class 125 cast iron flanges are used with ring gaskets, the bolting material must be carbon steel conforming to ASTM A 307 (incorporated by reference, see 46 CFR 56.01–2), Grade B.

(c) Alloy steel stud bolts must be threaded full length or, if desired, may have reduced shanks of a diameter not less than that at the root of the threads. They must have heavy semi-finished hexagonal nuts in accordance with ANSI B18.2.2.

(d) All alloy bolts or studs and accompanying nuts are to be threaded in accordance with ANSI/ASME B1.1 (incorporated by reference; see 46 CFR 56.01–2), Class 2A external threads, and Class 2B internal threads (8-thread series 8UN for one inch and larger).

(e) (*Reproduces 108.5.1*) Washers, when used under nuts, shall be of forged or rolled material with steel washers being used under steel nuts and bronze washers under bronze nuts.

[CGFR 68–82, 33 FR 18843, Dec.18, 1968, as amended by CGD 77–140, 54 FR 40605, Oct. 2, 1989; USCG–2000–7790, 65 FR 58460, Sept. 29, 2000; USCG–2003–16630, 73 FR 65176, Oct. 31, 2008]

Subpart 56.30—Selection and Limitations of Piping Joints

§ 56.30–1 Scope (replaces 110 through 118).

The selection and limitation of piping joints must be as required by this subpart rather than as required by 110 through 118 of ASME B31.1 (incorporated by reference; see 46 CFR 56.01–2); however, certain requirements are marked ''reproduced'' in this subpart.

[USCG–2003–16630, 73 FR 65177, Oct. 31, 2008]

§ 56.30–3 Piping joints (reproduces 110).

The type of piping joint used shall be suitable for the design conditions and shall be selected with consideration of joint tightness, mechanical strength and the nature of the fluid handled.

§ 56.30–5 Welded joints.

(a) *General.* Welded joints may be used for materials for which welding procedures, welders, and welding machine operators have been qualified in accordance with part 57 of this subchapter.

(b) *Butt welds—general.* Butt welds may be made with or without backing or insert rings within the limitations established in § 56.70–15. When the use of backing rings will result in undesirable conditions such as severe stress concentrations, corrosion or erosion, then:

(1) The backing rings shall be removed and the inside of the joint ground smooth, or

(2) The joint shall be welded without backing rings, or

(3) Consumable insert rings must be used. Commonly used types of butt welding end preparations are shown in ASME B16.25 (incorporated by reference; see 46 CFR 56.01–2).

(4) Restrictions as to the use of backing rings appear for the low temperature piping systems and should be checked when designing for these systems.

(c) *Socket welds* (*Modifies 127.3.3A.*).

(1) Each socket weld must conform to ASME B16.11 (incorporated by reference; see 46 CFR 56.01–2), to applicable standards listed in 46 CFR 56.60–1, table 56.60–1(b), and to Figure 127.4.4C in ASME B31.1 (incorporated by reference; see 46 CFR 56.01–2) as modified by § 56.30–10(b)(4) of this part. A gap of approximately one-sixteenth inch between the end of the pipe and the bottom of the socket must be provided before welding. This may best be provided by bottoming the pipe and backing off slightly before tacking.

(2) Socket welds must not be used where severe erosion or crevice corrosion is expected to occur. Restrictions on the use of socket welds appear in § 56.70–15(d)(3) of this part for Class I service and in § 56.50–105 of this part for