Case 2655
Elevated Temperature Design of Bolting
Section VIII, Division 2

Inquiry: Under what rules may Section VIII, Division 2 (2007 edition and later) bolting be used for temperatures exceeding the limiting temperatures in Section II, Part D, Table 3 for Division 2?

Reply: It is the opinion of the Committee that pending development of complete rules for the evaluation of cyclic operation, bolting otherwise complying with the rules of Section VIII, Division 2, may be used for temperatures exceeding those in Section II, Part D, Table 3 for Division 2 under the following provisions.

(a) The allowable stress values for Division 2 may be extended to higher temperatures by using the values contained within Section II, Part D, Table 3 for Division 1.
(b) For a material approved for Division 2 application by a Case, the stress values may be extended to higher temperatures by using the values contained within Section II, Part D, Table 3 for Division 1 or of a Case applicable to Division 1.
(c) The vessel or part is exempted from a fatigue analysis by the provisions of 5.5.2.2 of Division 2, and such exemption is made a part of the User’s Design Specification.

NOTE: For metal temperatures exceeding those permitted in Section II, Part D, Table 3 for Division 2 applications, when both high membrane stress and high bending stress exist in the section, some inelastic straining due to creep in excess of the limits given in Appendix 1 of Section II, Part D, and Table P-1 of Appendix P of Section VIII, Division 1 may occur.

(d) As an alternative to (c) for SB-637 N07718 bolting, the vessel or part may be evaluated per Section III, Division 5, Subsection HB, Subpart B. The temperature limitation in Table HBB-I-14.12 of 1050°F or 550°C applies.
(e) When using SB-637 N07718 bolting, consideration shall be given to a reduction in toughness caused by long-term exposure at a temperature of 1,000°F (540°C) or greater.