ARTICLE HGB-2000
MATERIAL

HGB-2100  GENERAL REQUIREMENTS FOR MATERIAL

All core support structure material and material welded thereto shall meet the requirements of Division 1, Article NG-2000, except as modified herein.

HGB-2120  Permitted Material Specifications

(a) Core support structural material, and material welded thereto, and threaded structural fasteners, with the exception of welding material (Division 1, NG-2430), hard surfacing material (Section IX, QW-251.4), cladding that is 10% or less of the thickness of the base material (Division 1, NG-3122), or the material excluded by Division 1, NG-4430, shall conform to the requirements of the specifications for material given in Section II, Part D, Subpart 1, Tables 2A, 2B, and 4, including all applicable notes in the table, and to all of the special requirements of this Article (including material limitations) that apply to the product form in which the material is used. Materials used for zones of elevated temperature service of core support structures shall also conform to the material specifications identified in Table HBB-I-14.1(a) for base materials, and in Table HBB-I-14.11 for threaded structural fasteners, and in Table HBB-I-14.1(b) for weld materials. Nonmandatory Appendix HBB-U provides guidelines for restricted material specifications to improve performance in certain elevated temperature applications where creep effects are significant.

(b) The requirements of this Article apply to the internal structures (Division 1, NG-1122) only as specifically stipulated by the Certificate Holder; however, the Certificate Holder shall certify that the material used for the internal structures shall not adversely affect the integrity of the core support structure.

(c) Welding material used in the manufacture of items shall comply with an SFA Specification in Section II, Part C, except as otherwise permitted in Section IX, and shall also comply with the applicable requirements of this Article. The requirements of this Article do not apply to materials used as backing rings or backing strips in welded joints.

HGB-2160  DETERIORATION OF MATERIAL IN SERVICE

(a) Consideration of deterioration of material caused by service is generally outside the scope of this Subpart. It is the responsibility of the Owner to select material suitable for the conditions stated in the Design Specifications (Divisions 1 and 2, NCA-3211.19), with specific attention being given to the effects of service conditions upon the properties of the material. Long-time, elevated temperature service may result in the reduction of the subsequent yield and ultimate tensile strengths. Refer to the rules of HBB-2160(d).

(b) The combination of fabrication-induced cold working and subsequent elevated temperature service may affect time-dependent material properties.

HGB-2400
HGB-2430
HGB-2433

HGB-2433.2  Acceptance Standards. For design temperatures up to and including 800°F (425°C), the minimum acceptable delta ferrite shall be 5 FN (Ferrite Number). For design temperatures exceeding 800°F (425°C), the delta ferrite shall be limited to the range 3 FN to 10 FN. The results of the delta ferrite determination shall be included in the Certified Material Test Report of Division 1, NG-2130 or NG-4120.

Replace with "2A and 2B"
ARTICLE HGB-II-2000 MATERIALS

HGB-II-2100

The rules of Division 1, Article NG-2000 apply except as modified below.

HGB-II-2120

HGB-II-2121 Permitted Material Specifications

(a) Core support structural material, and material welded thereto, and threaded structural fasteners, with the exception of welding material (Division 1, NG-2430), hard surfacing material (Section IX, QW-251.4), cladding that is 10% or less of the thickness of the base material (Division 1, NG-3122), or the material excluded by Division 1, NG-4430, shall conform to the requirements of the specifications for material given in Section II, Part D, Subpart 1, Tables 2A, 2B, and 4, including all applicable notes in the table, and to all of the special requirements of this Article that apply to the product form in which the material is used. Materials used for zones of elevated temperature service of core support structures shall also conform to the material specifications identified in Tables HGB-II-2121-1 and HGB-II-2121-2 or Tables HGB-II-2121-3 and HGB-II-2121-4 of this Appendix.

(b) The requirements of this Article apply to the internal structures (Division 1, NG-1122) only as specifically stipulated by the Certificate Holder; however, the Certificate Holder shall certify that the material used for the internal structures shall not adversely affect the integrity of the core support structure.

(c) Welding material used in the manufacture of items shall comply with an SFA Specification in Section II, Part C, except as otherwise permitted in Section IX, and shall also comply with the applicable requirements of this Article. The requirements of this Article do not apply to materials used as backing rings or backing strips in welded joints.

HGB-II-2400

HGB-II-2430

HGB-II-2433

HGB-II-2433.2 Acceptance Standards. For Design Temperatures up to and including 800°F (425°C), the minimum acceptable delta ferrite shall be 5 FN (Ferrite Number). For design temperatures exceeding 800°F (425°C), the delta ferrite shall be limited to the range 3 FN to 10 FN. The results of the delta ferrite determination shall be included in the Certified Material Report of Division 1, NG-2130 or NG-4120.