HF-207 AUSTENITIC STAINLESS STEEL

Austenitic alloys are subject to stress corrosion cracking, intergranular attack, pitting, and crevice corrosion. Factors that affect the susceptibility of these materials are applied or residual stress, water chemistry and deposition of solids, and material condition. Susceptibility to attack is enhanced when the material is used in a sensitized condition or with residual cold work. Concentration of corrosive agents (e.g., chlorides, caustic or reduced sulfur species) can occur under deposits formed on the surface of these materials and can result in severe under deposit wasting or cracking.

The following preventive measures should be considered in designs utilizing these materials, along with Section II - D, Nonmandatory Appendix A:

(a) Careful selection of materials for the specific application. For welded applications, low carbon grades or titanium - stabilized grades should be considered.

(b) Proper consideration of fabrication methods and techniques to reduce residual stresses and sites for crevice corrosion. Cold working, grinding, bending, and highheat input welding should be minimized. In the design of the boiler, stagnant fluid regions should be avoided, as should crevices. Weld joints should be designed to avoid integral back - up rings or back - up bars that are left in place and create a crevice.

(c) Control of boiler water chemistry and avoidance of other environmental sources of chlorides, such as chloride containing insulation or swimming pool environments.

Refer to Section II, Part D, Appendix A, A-300, for detailed guidance and recommendations.

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