

Weld Qualification

and Mix and Match alloy selection

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Corrosion Solutions

Weld Procedure Pre-qualification

- Data base program to pre-evaluate weld procedures for Duplex SS.
- The program can be used to predict structural, corrosion resistance and mechanical characteristics of the weld zone (HAZ and weld deposit).

Weld Procedure Qualification

- ASME Section IX
- ASTM A923 for Duplex and Super Duplex Materials
- Lean Duplex testing underdevelopment by ASTM A01.14

ASTM A923

- Tests used to verify acceptable thermal history of Duplex SS (no sigma phase).
- Normally used to qualify plate mill product.
- May be used to qualify weld procedures.
- Requires modified G48 CPT corrosion test.
- Requires -40°F Charpy test
- Pass/Fail requirements are given for 2205 weld material only. Requirements for other materials must be agreed upon.

Welder Qualification

- **Welder must qualify to each WPS to be performed**
- ASTM A923 for Duplex and Super Duplex Materials
- ASME Section IX

MIX and Match

- Question of product form availability for each alloy
- Duplex and other duplex materials
- Duplex and austenitic materials

MIX and Match

- Consider mechanical requirements
- Consider corrosion requirements
- Determine availability
- Determine effect on project cost

References

- IMO A – DSS Fabrication Brochure
- NI – Specialty Stainless Steels Brochure
- API – Technical Report 938C
- TAPPI – Technical Information documents:
Duplex Welding, Qualification of duplex
welds, Post fabrication cleaning of stainless
steels