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Ferrite Testing

Ferrite test is a fast, inexpensive, and accurate way to measure delta ferrite content in austenitic and duplex stainless steel. Ferrite testing can establish the ideal ferrite content balance between ductility, toughness, corrosion resistance, and crack prevention.

THE Applus+ SOLUTION

Applus+ delivers bespoke ferrite content tests to any industry, at any stage of manufacture, anywhere in the world. Clients can expect the highest degree of quality control, through strict internal competency testing and technical procedures.

The technicians at Applus+ can deliver results by placing a single probe on the surface of the sample, whereby the reading is displayed automatically and stored in the instrument. For easy ferrite content measurements along a weld seam, our testing instruments offer continuous measurement-capture functions. When scanning the weld seam, the continuous readings are captured and stored. This provides a ferrite content profile along the weld seam. Ferrite testing measurements can be taken regardless of the properties of the substrate material, starting at a plating thickness of 3mm. Corrective calibrations to customer-specific calibration standards or correction factors can be used to take into account influences of the sample shape, plating and substrate thicknesses.

Results are generally available instantly, and, depending on the client's requirements, can be provided as spot or profile readings and as percentages or as ferrite numbers.

Target customers

Ferrite testing can be deployed at chemical, energy and processing plants, where the fabricated steel is subject to heat, aggressive media and high pressure. Steel destined for these plants must therefore be highly corrosion- and acid–resistant, maintaining resilience even at high temperatures. Ferrite content tests can measure when the

content is low and the welded material is susceptible to hot-cracking. Conversely, if the ferrite content is too high, a reduction in the toughness, ductility and corrosion-resistance of the steel can be tested. For duplex steel, a ferrite deficit in the area of the weld seam results in stress-corrosion cracking and a subsequent reduction in strength.

Ferrite testing can be carried out on-site at any stage of steel manufacturing. Only testing throughout the course of the manufacturing process can provide the assurance that the ferrite content has not been adversely affected during processing at the expense of the steel's mechanical or corrosion-resistance properties.

Key customer benefits

Choosing Applus+ as ferrite testing partner will provide clients with:

- Fast, reliable ferrite measurements and instant results
- Verification of adherence to welding procedures for heat control
- Verification that corrosion-resistant properties remain after welding
- Increased reliability, safety and longevity of process equipment, leading to cost savings and a reduction in risk to operators