CRA Inspection

Corrosion-resistant alloy (CRA) inspections involve the application of ultrasonic inspection (UT) techniques to inspect welds that are austenitic in nature. The UT inspection of austenitic welds differs greatly from inspection of low-alloy carbon steel welds. The main difference is that welds associated with CRA materials are generally found to have a grain structure that is coarser in nature than that of mild steel. The combination of a coarse grain structure and the anisotropic nature of CRA weld-filler materials tends to affect ultrasonic-wave propagation by way of sound attenuation. This can potentially result in weld defects going undetected. In order to minimise this issue, the probes employed make use of angled longitudinal waves/creep waves rather than the conventional shear-wave approach that is generally used for mild-steel weld inspection. These probes are referred to as transmit and receive longitudinal (TRL) probes and are used widely in the inspection of coarse-grained materials as they give a better signal-to-noise ratio than conventional probes.

THE Applus+ SOLUTION

Applus+ provides a range of TRL inspection concepts covering both conventional PE and phased array applications and has worked with many of the major oil and gas players in the market.

Working closely with international bodies such as DNV, Applus+ is fully certified to apply TRL techniques on CRA/austenitic fabrication materials.

With our own product designers and in-house probe-design department, Applus+ has the ability to provide clients with a customised inspection solution.

In addition, we ensure that our inspectors in the field are professionally trained and fully conversant in this technique.
Target customers

The TRL inspection concept is used widely in ultrasonic-inspection techniques related to construction activities, particularly in the mining, oil and gas and power industries. The technique is employed to inspect welded components that incorporate a CRA layer on the ID pipe surface and have then been welded with an austenitic filler material such as inconel.