CASE STUDY

ROV-DEPLOYED PHASED ARRAY INSPECTION FOR SUBSEA ASSET INTEGRITY

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INTRODUCTION

Sonomatic was contracted to perform repeat inspections of critical subsea girth welds on offshore I-tube components. The objective was to assess the condition of the welds and adjacent Heat-Affected Zones (HAZ), identify any signs of fatigue cracking or in-service degradation, and compare the findings with data from a previous inspection campaign. The work was complicated by restricted access and complex component geometries.

PROCESS

Sonomatic deployed ROV-operated automated ultrasonic inspection I-Claw scanner and a customised ROV-deployed scanning tool. Using Phased Array Ultrasonic Testing (PAUT), the team carried out full-circumferential inspections of selected duplex stainless steel girth welds. Multiple phased array probe configurations were used to achieve comprehensive weld and HAZ coverage, improve defect characterisation, and enable direct comparison with historical inspection data.

OUTCOME

The campaign successfully completed automated inspections of the selected girth welds and relocated previously identified indications for reassessment. No crack-like indications associated with fatigue cracking or in-service degradation were detected within the inspected welds or HAZ regions. The project provided repeatable, high-quality inspection data to support long-term integrity monitoring and asset management, while demonstrating the effectiveness of Sonomatic's bespoke ROV-deployed inspection technology in complex subsea environments.