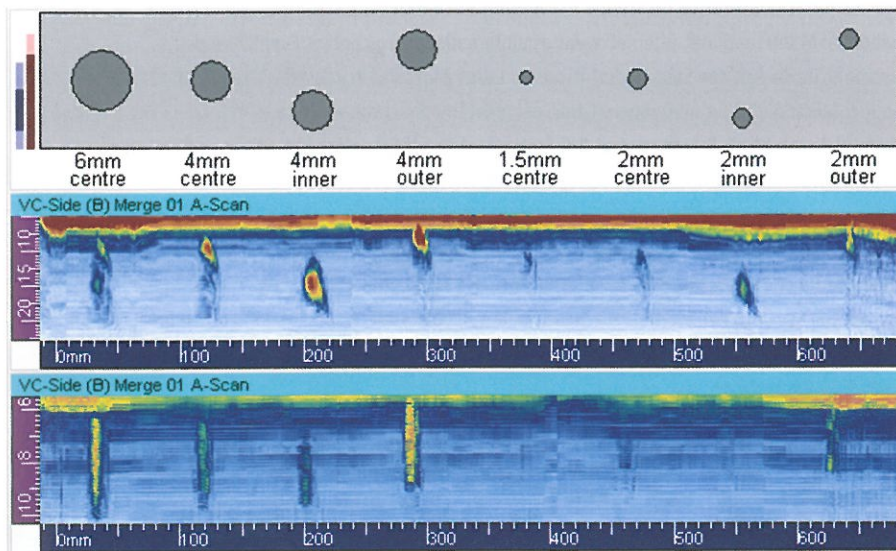


TestPEP project enters final year of tests for NDE of plastics pipes



Phased array scan results on a pipe containing flat bottomed holes.

Plastic pipes have many advantages over pipes made from metals or concrete, such as good chemical resistance, low weight, low cost, and longer predicted service life, and are already used extensively for the transport of gas, water and chemicals. However, their use in more safety critical applications is limited by the fact that there is currently no validated inspection system available to evaluate the joints.

The TestPEP project is now in its third and final year of operations to identify and test an automated non-destructive evaluation (NDE) approach for testing welded joints in plastics pipes. The project team, involving 17 organisations from seven countries, is currently developing and validating inspection equipment and techniques for both butt fusion (BF) and electrofusion (EF) joints in polyethylene (PE) pipes.

For BF joints, the team has designed and manufactured angled water wedges, choosing water as the coupling medium due to its good acoustic properties in relation to

the plastic material. The angle of the wedge is optimised to reduce the electronic steering with the probe elements while still covering the weld fusion zone.

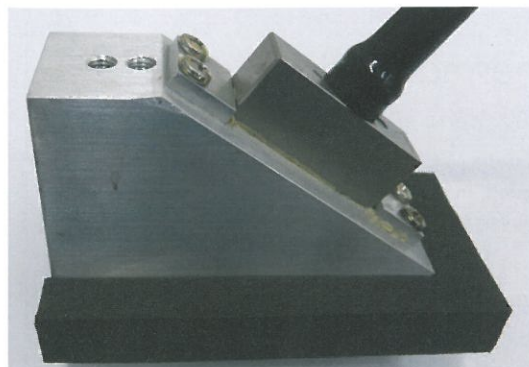
The approach for inspecting BF joints covers four different techniques: sector pulse-echo, tandem, creeping wave and time-of-flight diffraction (TOFD). The techniques are complimentary both in terms of coverage area and types of defect that can be detected. The capabilities of the techniques were evaluated initially using pipe test samples containing holes and notches of known size and location.

For inspecting EF joints, the TestPEP project team is using 0° water wedges, with bespoke phased array probes and, as with BF joints, carrying out validation procedures in PE pipe joints containing known flaws with diameters up to 710 mm. These joints are also being mechanically tested to determine critical flaw sizes.

TestPEP will complete early in 2013, when the team will specify a complete approach to the automated non-destructive evaluation of welded joints in plastics pipes. For further information please contact Mike Troughton:

mike.troughton@twi.co.uk (According to press information from TWI)

Phased array probe with an angled water wedge for inspection of butt fusion (BF) joints.



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