



DEVELOPMENT & VALIDATION OF AN AUTOMATED NON-DESTRUCTIVE EVALUATION (NDE) APPROACH FOR TESTING WELDED JOINTS IN PLASTIC PIPES



The TestPEP Project addresses the global plastic pipeline distribution industry sector for gas and water and also the large potential market of civil nuclear power generation and reprocessing.

TestPep is a 36-month project involving several organisations from United Kingdom, Germany, Portugal, Lithuania, Spain, Italy and France.

The best method of alleviating the risk of leaks and maintaining the quality of welded joints in plastics pipes is to inspect them prior to service. However, there is no accepted NDE method for the examination of plastic pipes.

This has caused a risk to both the public and the plastic pipe industry. Furthermore, the environmental risks, with leaks of effluent, gas and water are severe.

There is a clear industrial need for a device to inspect all varieties of plastic pipes, fittings and sizes in order to detect defects and use this data to predict the life of welded pipe joints

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TYPICAL SITE CONDITIONS FOR INSTALLING PLASTIC PIPES.

OBJECTIVES

Development and validation of automated non-destructive(NDE) System for testing welded joints in plastic pipes

THE TECHNICAL PROBLEM

Being relatively new structural materials, NDE of plastics is challenging, due to high attenuation and low ultrasonic velocity of the material.

INDUSTRIAL NEED

The industrial need is clear for a device that can inspect all manner of plastic pipes, detecting defects and predict life of welded pipe joints.

THE PROPOSED SOLUTION

Development of phased array ultrasonic NDE procedures, techniques and equipment for volumetric examination of welded joints in plastic pipes of diameters up to 1m.

An automated inspection system able to inspect pipe-to-pipe and pipe-to-fitting butt and socket joints will also be developed. In parallel, the significance of flaw size and quantity will be established in relation to service requirements. This will be achieved by long-term mechanical testing of joints containing known flaws, and comparison with results for welds containing no flaws.

PARTNERS:



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