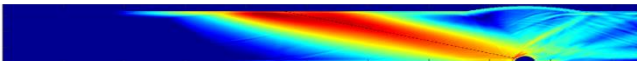


AWESIM- Advanced Welding Equipment System Inspection and Monitoring

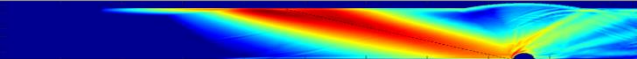
Traditionally, welding and inspection of the welds are distinctly separate manufacturing processes. This ultimately limits productivity and throughput along with increased re-work if defects are detected post-build. The ultimate aim of the AWESIM programme is to embed inspection, closed-loop control and automation directly at the point of welding to deliver high-quality welds right, first time.

AWESIM assessments will reduce costs by optimising and streamlining welding processes through introducing ultrasonic monitoring and inspection directly at the point of welding. It will also allow detection of imperfections and flaws as they occur, thus reducing rework, repair and removing redundant mid-stage inspections of flaw-free components.

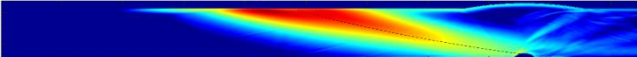
(a) Shear wave propagation through homogeneous plate at 25 °C



(b) Shear wave propagation through homogeneous plate at 150 °C



(c) Shear wave propagation with thermal distribution considered



Non-uniform thermal gradients present during in-process fusion weld inspection result in complex wave beam refraction, energy reduction and time shifts from weldment defects/reflectors present.

For more information please contact nuclear.enquiry@trade.gov.uk



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