

4.5.9. ON LINE ANALYSIS AND INTERPRETATION OF ULTRASONIC IMAGES TO IMPROVE THE SELECTIVITY OF THE CONTROL INSTALLATIONS FOR STEEL PIPES

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The ultrasound non-destructive testing methods are based on the comparison of the amplitude of the signal of response compared to the amplitude of calibration standard flaws. They therefore presuppose a high correlation between the depth of a detected flaw and the amplitude of the signal, which is generally false.

The idea described in this paper consists in the use of the capacities of acquisition in production lines of the ultrasonic raw data and the reconstruction of "ultrasonic images" of pipes. Thereafter, a system automatically analyzes these images using image-processing techniques and expert systems. The system described can then evaluate on line the gravity of the acquired ultrasonic indications much more reliably than with a single threshold.

Such a system is now being developed within the industrial environment of Vallourec's pipe mills.