

Robust ultrasonic transducers for pipeline inspection

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The inspection of pipelines is important to detect damages such as corrosion and cracks that can lead to accidents. Ultrasonic testing is an inspection method that allows for precise assessment. Ultrasonic inspection of pipelines for cracks and corrosion using intelligent inline inspection tools is an established procedure. In order to keep the resulting costs low, the target is to reach a first run success rate of 100 percent. This places very high demands on the ultrasonic transducers in particular, some of which are exposed to extreme environmental influences in the pipeline. Their stability and perfect functioning is a prerequisite. Achieving very high stability is already taken into account in the development process through the selection of suitable materials and extensive testing. Nevertheless, not every application can be taken into account. Based on individual tests – taking into account medium, pressure and temperature – the feasibility of an inspection should be checked in advance. In the lecture, the procedure for such tests will be presented. The conditions to which the ultrasonic probes are subjected, which are as close to reality as possible, will be explained. The criteria used to evaluate the stability and integrity of the probes will then be described. The presentation is rounded off by practical examples.