

Reliable environmentally-friendly high-throughput magnetic-particle and liquid-penetrant inspection for automotive industry.

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The suppliers of safety - relevant automotive parts with typical production volumes of several millions parts annually face a serious challenge to adequately reflect the requirements of high testing standards and guarantee the quality of their products. In addition, the critical mechanical components with optimized design leading to material and energy savings during production must, nevertheless, withstand an increasing mechanical stress during the operation. Therefore, it is essential to implement adequate high - throughput testing equipment guaranteeing an uncompromised reliable defect detection, regardless the complexity of the shape or size of the workpieces. In this talk, several concepts of semi- and fully automated testing systems for the detection of omnidirectional surface cracks using magnetic - particle and liquid - penetrant inspection methods are introduced. Specifically, penetrant testing becomes more and more important as many automotive suppliers utilize non - magnetic metals for the series production of safety - relevant parts. The unique features of the testing machines and the technological state of the art are discussed. Finally, the potential and benefit of using the cost - saving and environmentally - friendly water - based inspection liquids for both testing techniques alongside with oil - based inspection media is briefly addressed.