

## **3D scanning techniques in power engineering**

**Jaroslav Brom<sup>1</sup>, Pavel Zahrádka<sup>2</sup>**

<sup>1</sup>Diagnostics and Qualification, Research Centre Řez, Czech Republic, <sup>1</sup>Diagnostics and Qualification,  
Research Centre Řež, Czech Republic

Information about component geometry is a key parameter for assessing residual life and monitoring degradation processes during the life cycle of a technology. High-precision optical measurement systems are complex metrology devices that enable the collection of complex data on the physical properties of components and their rapid evaluation in CAD-based programs. These solutions offer an analysis of changes in component characteristics over time and comparing them with as-built documentation. The quality of production can be evaluated by comparing the condition of the equipment with the product documentation or monitoring the influence of service conditions on the degradation of the equipment and the trend of future development of defects. All this in digital form of data, which enables new progressive approaches to repair and maintenance programs of monitored equipment. The use of advanced metrology and diagnostic systems and the procedures they offer can reduce the time required for measurement by conventional methods and multiply the data yield from metrology, which in conjunction with modern IT technologies can detect new degradation mechanisms and increase safety service and extend projected lifetime. Up-to-date technology data can significantly save on maintenance costs or even eliminate maintenance procedures. It also provides important data for the setup of LTO.