

OptoInspect3D

Flexible Model-Based Assembly Inspection

Contact

Industrial Metrology and Digital Assistance Systems

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OPTOINSPECT
Measuring Technology

TECHNOLOGY

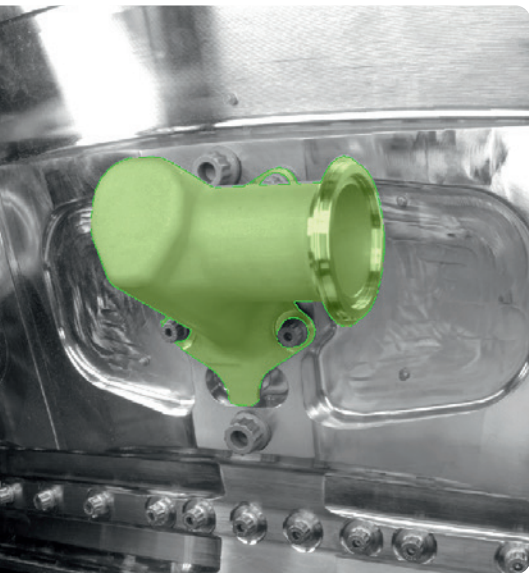
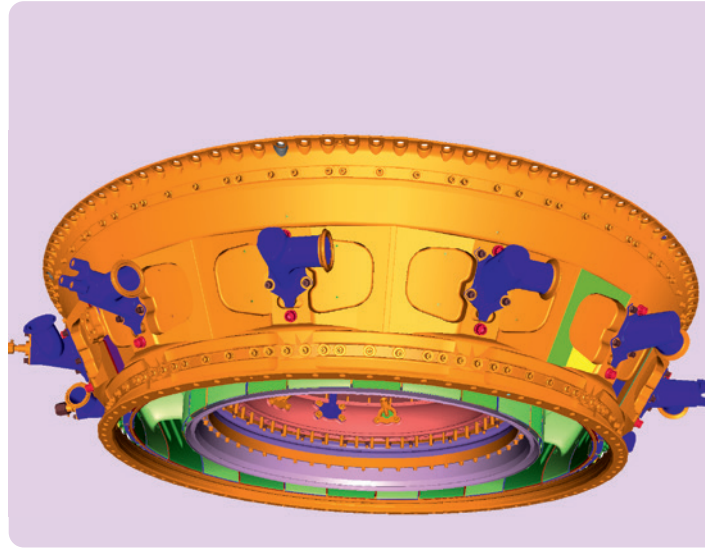
OptoInspect3D

FLEXIBLE MODEL-BASED ASSEMBLY INSPECTION



Product

High product individuality, small batch sizes and short product life cycles are challenges when designing industrial assembly processes. A sufficient degree of flexibility is frequently only attainable through manual or semi-automated assembly. Flexible optical inspection systems ensure that parts are assembled completely and correctly. The technology for model-based assembly inspection developed at Fraunhofer IFF enables highly flexible and adaptable system solutions. We develop customized solutions for companies based on this technology, from ideation through integration into the process.



Technology

Comparative testing with synthetic measurement data - The technology is based on a model-based approach in which 3D CAD models of the assembly and physical models are used to specify the function of sensors and optical test configuration. The key element is the simulation of the scan. The optical imaging process of a digital camera is simulated and synthetic camera images are generated at the test positions. Three-dimensional sensors are added to this process when tests are complex so that simulated 3D measurement data are available as target values. The assembly of components or assemblies is actually inspected by comparing the features of the synthetic and the real measurement data.



Benefits

- Flexible and adaptable inspection of the assembly of products with numerous variants and in small quantities down to batch sizes of one
- Objective, automated and cost-effective design of inspection processes in manual assembly
- Automatable test planning replaces manual teaching of test positions and target data
- Scalable and universally usable technology
- Custom solutions from ideation through integration in manufacturing

