In order to provide our customers with OEM quality and high levels of reliability and safety, MAN PrimeServ has access to various 3D measurement procedures in specially equipped workshops.

The most important areas of application are reverse engineering and quality control of repairs, but important findings are also gained for other measures. For example, detailed documentation of the characteristics of individual components can be prepared. In most cases all visible surfaces and geometries are scannable.

In a typical procedure the first stage is photogrammetry. Here the exact component geometry is captured by coordinate measurements and reference point coordinates are defined.

In the second stage, the actual measurement process is performed with an optical 3D scanner using camera sensors, projections and measurements. Here the complete component is visualized as a high-resolution point cloud. Each calculated point on the surface of the component is portrayed in the point cloud with an exact 3D coordinate being assigned to each pixel. The reference points determined in the photogrammetry process are also used here.
Application possibilities

- Reverse engineering: creation of drawings or documents by means of optical measurement of the original component. This enables replacement or spare parts to be created for machines lacking documentation.
- Inspection: detailed documentation of the current wear of stressed components, e.g. blades or screw compressor rotors, in the assessment process.
- Checking of sealing faces and surface finish / deformations.
- Documentation of component characteristics: documentation of important components at specified periods, e.g. every 10 years in operation.
- Quality control: with particularly sensitive components a comparison of desired and actual data can be made after a repair. Here the data from the 3D scan is compared with the CAD geometries.
- Basis for FEM (Finite Element Method) and CFD (Computational Flow Dynamics) calculations.
- Checking and aligning components for further processing: increase in component quality.