SERVICE
Precision

Quality inspection and assurance is enormously important particularly for tunnelling with segments. The special demands of mould and segment measurement require a mobile and exact measurement system.

Mould and Segment Measurement

Based on our long-time experience with hardware and software in this field we have developed our own system for these demands: the mobile measurement system LIS (Laser Tracker Industrial Measurement System). LIS is suitable for measurements on site for segment and mould production. LIS impresses with precise measurement results and robust hardware that is not sensitive to being transported. Amongst others it is also suitable for measuring steel constructions and for circularity measurements, checking calibration equipment and for measuring objects that are difficult to access.

The complete LIS includes measuring accessories such as stand and target holders as well as laptop and SpatialAnalyzer (SA) metrology software. SA is used to create the 3D nominal coordinates and the design of the 3D shape of each individual ring segment.

The results include

- Actual-nominal comparison of the specified test criteria
- Deviations to the 3D design shape
- Clear statements concerning compliance with the project-specific tolerances
- Tabular and graphical illustration of the results

Mould and Segment Measurement

Typical tasks for the use of industrial measurement systems in tunnelling are the measurement of segment moulds and their templates, the measurement of concrete and steel segments and the measurement of complete segment test rings.

Advantages

- Interactive guidance through the complete measuring sequence
- Easy to understand, intuitive operation
- Semi-automatic data collection
- Measurement, calculation and analysis of the results approx. within 30 minutes
- Better traceability using uniform, project-specific templates
- Customer-specific evaluations with standardised forms

Test criteria

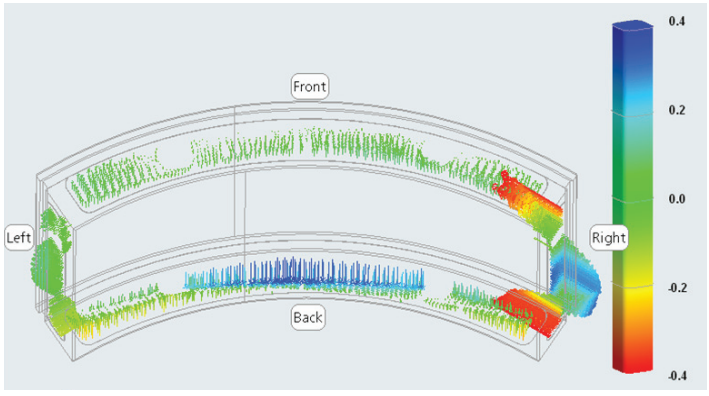
Basic geometry

- Segment width, thickness and arc length
- Radii
- Best fit of the contact and cylinder surfaces
- Torsion
- All relevant angles

Inserts

- Gasket groove width, depth and radius
- Position of the bolt holes and centring cones
- Contact surface boundary and position

Segment measurement



Graphical illustration of the measurement results

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