

Checking the ovality of complex tothing



Gear shafts with plug-in tothing, bevel gears with hypoid teeth and similar axial components can warp during manufacture. Therefore, an inspection/measurement of the run-out is necessary. The workpiece is adjusted if required. For this, the extent of the "ovality" and the direction in which it should be adjusted must be determined. Engineering company EHR has developed an optical measurement system for determining these parameters, which enables fast and extremely precise automated straightening of the workpiece.

For objective measurement of run-out characteristics, EHR uses the laser line scanner scanCONTROL 2800-25, which generates a digital 3D image of the tooth area.

The scanner is aligned with the component in such a way that the laser line is perpendicular to the teeth of the component. When rotating the clamped component, the complete tooth area is shown digitally in three dimensions. This then enables the 3D point cloud to be evaluated

according to customer requirements. In order to make a comparison with tactile dislocation, computer-generated digital balls are placed between the flanks of the teeth. A further benefit of using "digital dislocation" is that the diameter of the ball can be changed quickly and easily. All ball diameters that should pass between the gear teeth can be selected using simple configuration tools. Due to this increase in the number of evaluation results, measurement accuracy of better than $5\mu\text{m}$ is achieved, which is lower than the measurement resolution of the laser scanner.

Benefits for the customer:

- Up to 256,000 measuring points per second
- Standard resolution max. 0.01mm
- Distortion-free profiles due to Global Shutter
- Variable measuring field