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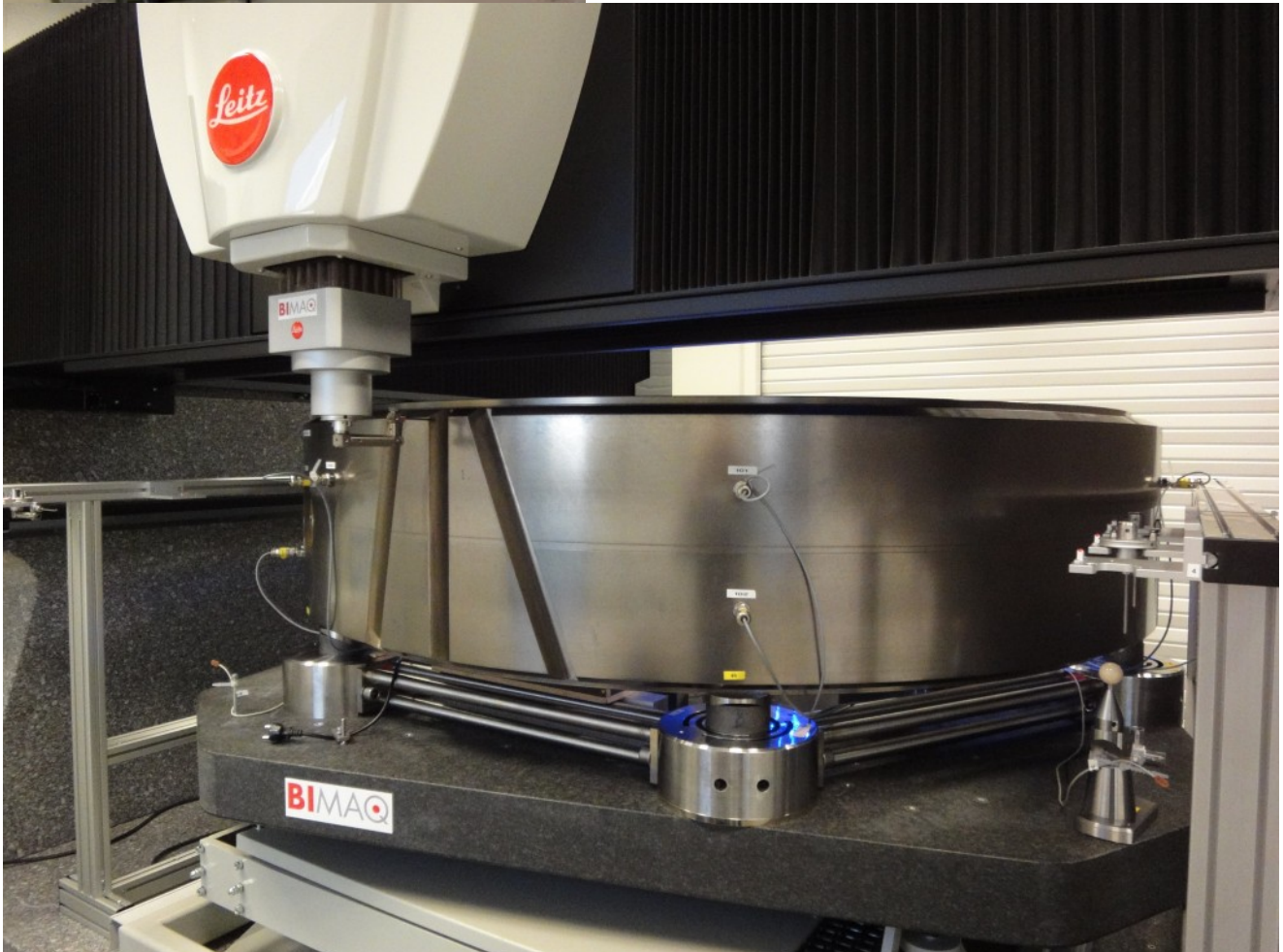


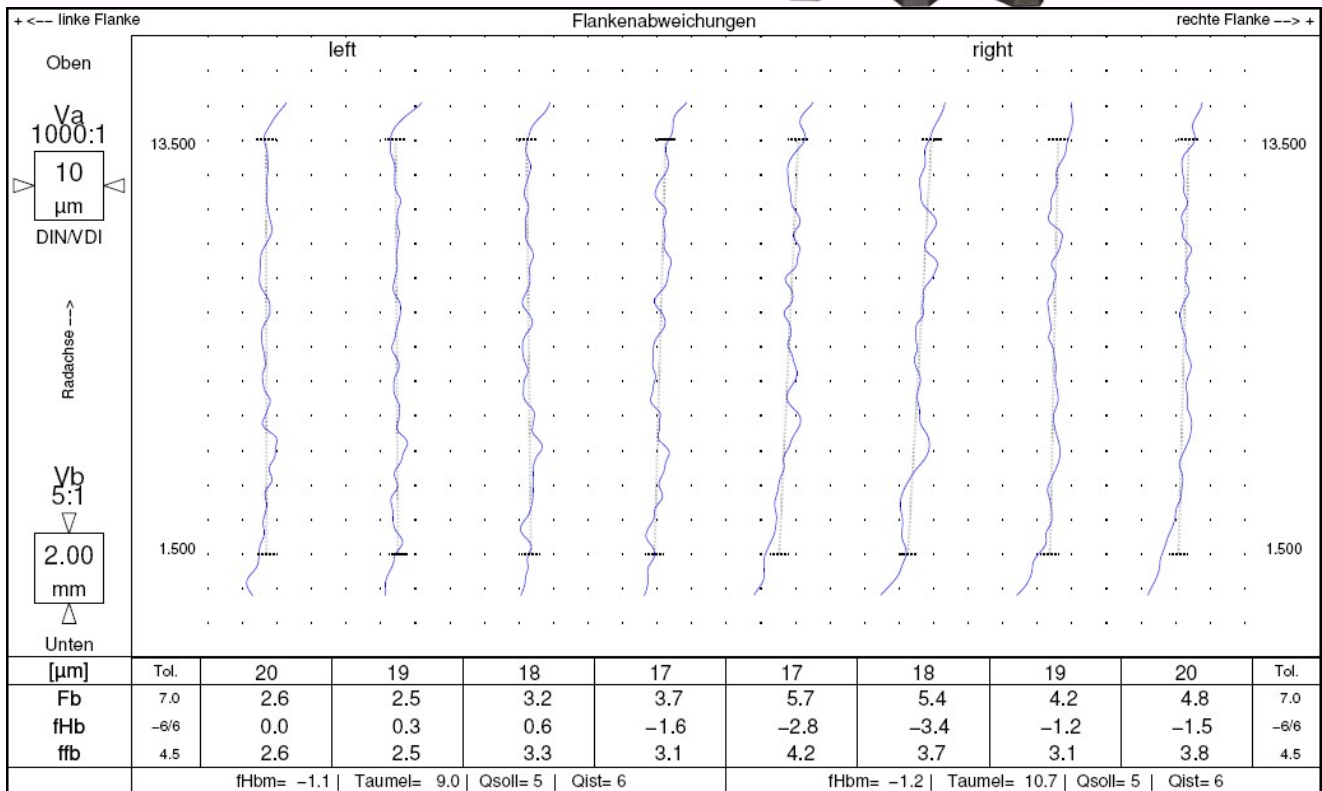
BIMAQ
(/en/)

Bremen Institute for
Metrology, Automation
and Quality Science

 **Universität Bremen**
(<http://www.uni-bremen.de>)

Laboratory for large gears (BIMAQ-Technikum)





There are currently no suitable standards for large gears which allow the traceability of the inspection processes to the SI unit "meter" with sufficient accuracy. In cooperation with PTB, BIMAQ is therefore involved in the development of large gear standards with diameters of 2000 mm and more. In addition, the BIMAQ analyzes the cause-effect relationships between gear wheel production, geometric deviations and gear damage. In the field of quality inspection of gears, optical sensor systems and the evaluation of surface measurement data are also the subject of current research.

Research areas

- traceability of large gear measurements
- optical sensor systems for geometric gearing parameters
- evaluation of area-wise gear measurements
- determination of unknown toothing parameters

Measurement service

- gear inspection: Order/reference measurements
- calibration of reference standards
- analysis and evaluation of geometric deviations
- development of measurement and evaluation strategies
- software development

Equipment

portal coordinate measuring machine Leitz PMM-F 30.20.7

- measuring volume: 3.0 x 2.0 x 0.7 m³
- measuring uncertainty: MPEE = (1.3 + (L in mm)/400) µm
- workpiece mass: max. 6,000 kg
- rotary table: For rotation-symmetric components up to 3.0 m diameter

air conditioning (maximum temperature gradients)

- 0.4 K/h
- 0.8 K/d
- 0.2 K/m

measurement objects

- cylindrical internal and external gears up to 3 m diameter
- turbine stages
- compressor shafts from (turbo) compressors

Literature

M. Auerswald, A. von Freyberg, A. Fischer: Optical Sensor system for 3D measurements on large gears. AMA Conferences - SENSOR 2017, Nürnberg, 31.5.-1.6.2017, No. B4.3, pp. 227-232.

A. von Freyberg, A. Fischer: Automatic geometry segmentation of involute flank regions. International Conference on Gears, München, 13.-15.9.2017, pp. 1015-1024.

F. Balzer, M. Schäfer, I. Lindner, A. Günther, D. Stöbener, J. Westerkamp: Recent advances in optical gear measurements - A new approach for fast measurements of large gears. International Conference on Gears, Garching, 5.-7.10.2015, pp. 655-666.

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» Description as PDF (/site/assets/files/1260/flyer_grossverzahnungs-labor_wickelfalz_v6.pdf)

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