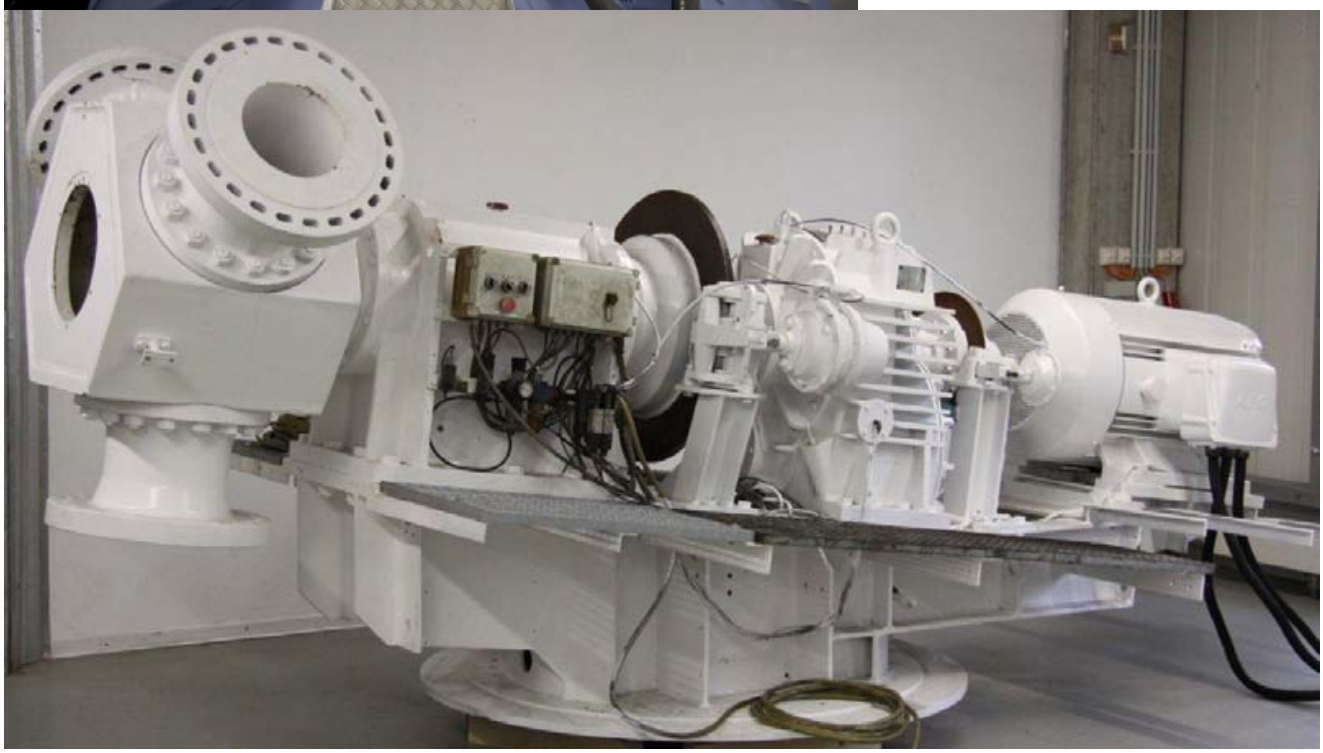
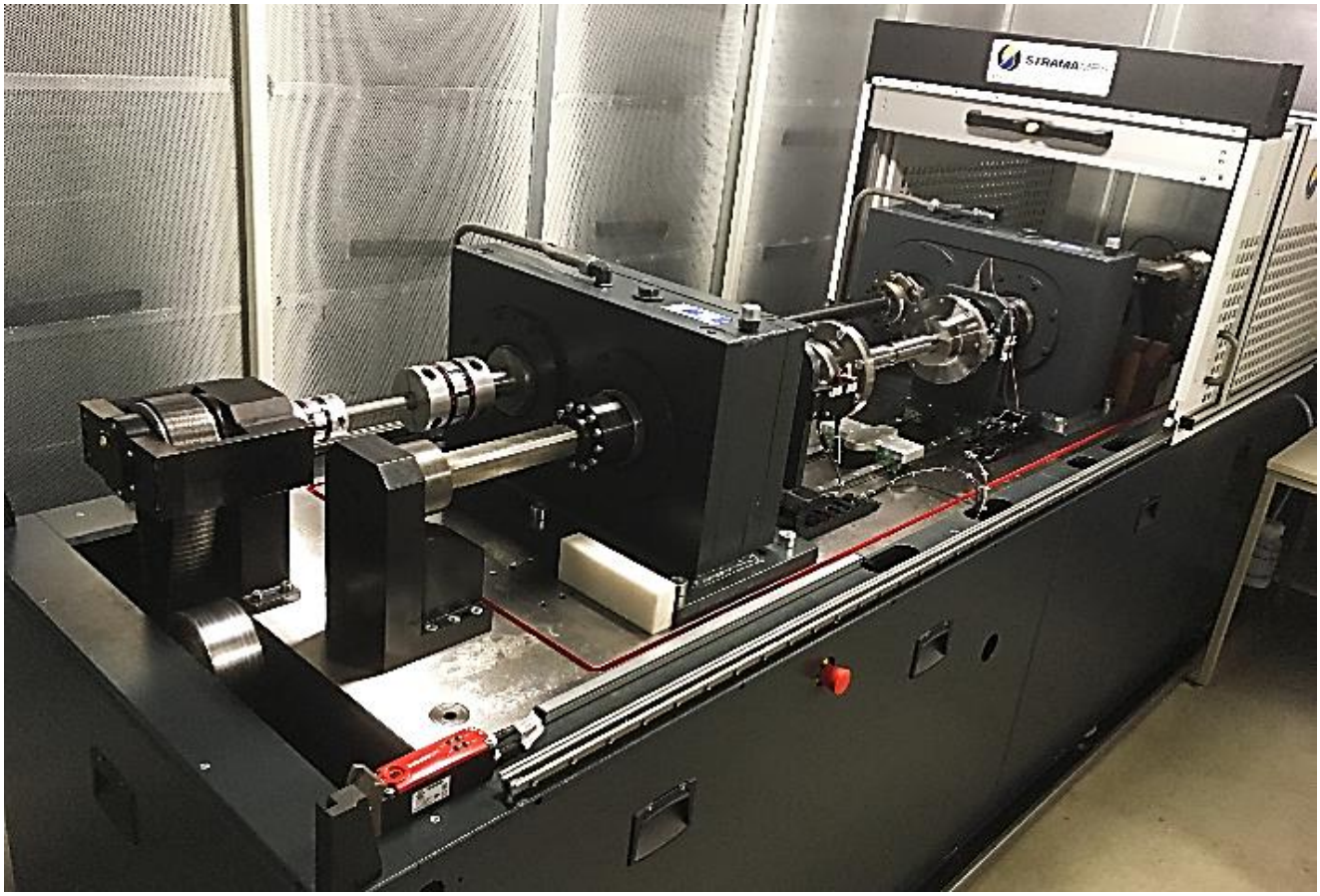
Laboratory for wind turbinesensors





Wind turbine generators (WTG) are dynamically highly stressed, which can lead to bearing and gear damages. For targeted improvements in design, production and choice of material meaningful metrics are missing. The individual trans-mission components (gears, bearings, shafts) are metrologically not accessible during operation, so far. A few states can be observed from the outside, e. g., temperature changes on the housing or noises or vibrations. But, the causes of problems are mostly inside the gear housing. These include mechanical stresses which may lead to undue distortion of the individual teeth and subsequently to wear of the tooth flanks.

For testing new sensor concepts for WTG drivelines, the dynamic behaviour of WTG drivelines can be simulated experimentally in the BIMAQ-Technikum using a torque test rig. In addition, a WTG drive train and a 3.4 MW research WTG are available for sensor tests.

Technical test rig specifications

- Torque: ± 1 000 Nm
- Speed: ± 3 000 min-1
- Axial force: 0 - 10 000 N

Services

- Development of sensing prototypes
- Order and reference measurement

- Development of new measurement and evaluation strategies
- Software development

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