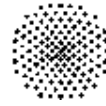


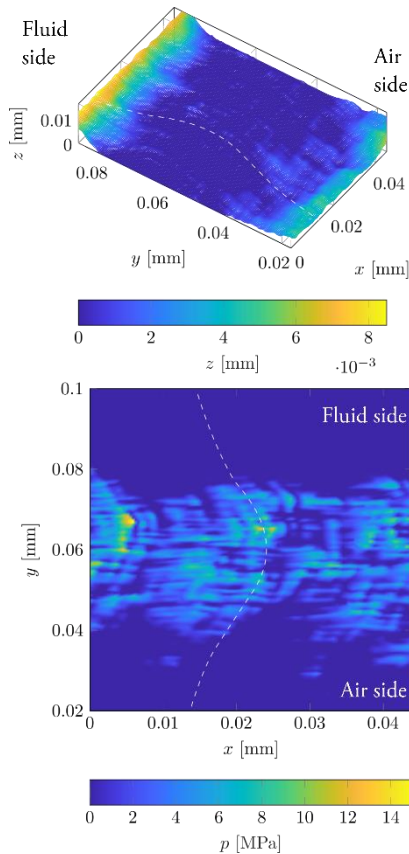
Research Project: Reference rotary shaft seal

Development of an FVA reference RWDR

Editor: Jeremias Grün, M.Sc.



University of Stuttgart
Institute of Machine Components



Simulation of rotary shaft seals under operation



Experimental validation and verification in test rig studies



The FVA-Project 924 I of "Forschungsvereinigung Antriebstechnik e.V." is funded through the association's own resources.

Motivation

In numerous research projects and practical application problems in the field of sealing technology, it was found that damaging influences on the function of the rotary shaft seal system could not be detected by the occurrence of leakage. Many rotary shaft seals currently available on the market have a high fluid pumping capacity, which can compensate damaging influences in many cases. An evaluation of damaging influences or even the determination of limits is currently not possible.

Initial situation

First prototypes of pumping-neutral rotary shaft seals for the evaluation of damaging influences on the sealing function could only achieve insufficient results so far. Within the scope of this research project, the influence of the rotary shaft seal on the system pumping rate of the rotary shaft seal is therefore minimized by developing a pumping-neutral reference rotary shaft seal. This enables a targeted evaluation of other damaging influences on the sealing system.

Intended research results

- Development of a reference rotary shaft seal by geometric adaptation of a commercially available rotary shaft seal.
- Low but steady pumping rate with a negligible influence on the system pumping rate.
- Proof of concept on selected problems.

Solution

- Design of the rotary shaft seal geometry and simulative validation.
- Measurement and investigation of the developed rotary shaft seals.
- Experimental verification and validation of the function of the developed rotary shaft seal.