

## **Abstract**

### **Advances in fundamental understanding of the dynamic sealing action in packing systems**

It is well-known that the achievable lifetime of a dry-running piston rod packing seal is significantly dependent on the temperature level the sealing elements are exposed to during operation. Thus, a deeper understanding of the various thermophysical processes governing the non-lube operation of a packing is crucial a) for assessing the major influencing factors that give rise to the current application limits of dry-running packings and b) for developing improved packings capable of coping with demanding applications.

The presented approach towards gaining that fundamental understanding consists in the creation of a novel theoretical model that accounts for all the complex mass and energy transport phenomena, the development of a test compressor (“multi-purpose test compressor”, MPTC) on which measurements previously regarded as impracticable to take can be performed during operation, and fundamental investigations into transfer film phenomena. In this paper the simulation model is presented and its predictions are compared to measurements taken at the MPTC.

**By:** Dr. Tino Lindner-Silwester, Hoerbiger-Ventilwerke GmbH, Vienna