UNIVERSITY OF TWENTE. | Surface Technology and Tribology

Huisman
Equipped for impact

MSc Assignment

Development of Cylindrical Roller Thrust Bearing (CRTB) test rig

Huisman designs and develops one of the biggest slewing bearings in the world i.e., up to 30 m in diameter, to allow a crane rotation for the heavy lifting offshore industry. Typically, such bearing operates under heavy load and low-speed conditions. The bearing consists of both rolling (vertical) and sliding (radial) bearing configuration. Therefore, a grease should perform good for rolling and sliding contacts. In order to optimize the current slewing bearing design, e.g. grease type, cage design and material, bearing material, seals etc., a dedicated small-scale laboratory testing device capable of simulating real operational conditions is required. The newly develop test rig should be capable of studying sliding and rolling bearing performance.

Approach Design and develop a Cylindrical Roller Thrust Bearing (CRTB) test rig at University of Twente capable of simulating real slewing bearing conditions. Work should include list of requirements and specifications, conceptual and detailed design with technical and assembly drawings and of course a complete physical test setup at tribology group at UT. Student will be using CAD modeling and perform some basic FEM analyses. In addition, initial test will be carried out to demonstrate the capability of the rig.

Research group & Company
The ***Surface Technology and Tribology*** (STT) group will organize the research with a focus on surfaces and interfaces in an engineering context, as well as degradation mechanisms occurring at these surfaces and interfaces. The researcher will closely collaborate with **Huisman Equipment BV**, Enschede and Schiedam, the Netherlands. Huisman will provide required support, knowledge, and materials for successful completion of this investigation as well as provide support for researcher's future career. In addition, company visits and work at Huisman is possible.

Tasks:

- Perform literature review.
- Requirements and specifications.
- FEM structural analyses.
- Conceptual and detailed 2D and 3D design.
- Assembly and calibrate test rig.
- Perform initial testing.
- Discussing the results and writing a scientific report.

Contact:
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