

Ausschreibung Bachelor-/ Studien-/ Masterarbeit

At the Institute of Machine Design and Tribology, a novel self-regenerative Molybdenum Trioxide (MoO_3) coating technology is being studied.

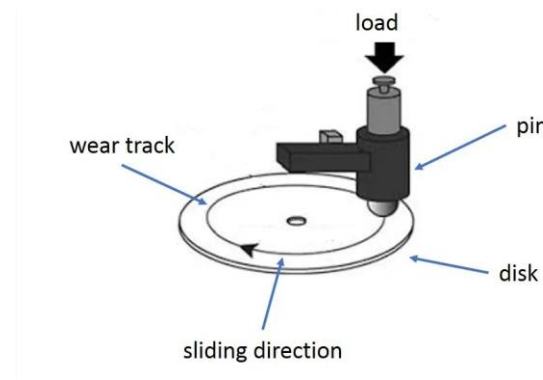
The aim of this bachelor's thesis project is to create and develop a new pin-on-disc tribometer – a mechatronic device used to evaluate the friction, wear, and lubrication properties of materials under continuous sliding by pressing a pin against a rotating disc. For this purpose, an open hardware apparatus will be used as a basis and mechatronic improvements will be studied. The work also includes both validation of the system against literature and tests with a MoO_3 coating to compare it with bearing steel. These last tests will open the door to discovering the tribological mechanisms behind the good wear and friction behaviour of MoO_3 coatings applied on bearing steel.

The project includes the following work stages:

- Literature research on contact mechanics and tribology;
- 3D printing and mounting of the pin-on-disc apparatus;
- Verification of the test results against literature;
- Creation of a test plan and methodology to evaluate the behaviour of MoO_3 ;
- Characterization and analysis of the wear mechanisms;
- Documentation of the procedures and apparatus, and report, assessment and discussion of the results.



Schematic of the pin-on-disc tribometer.



Requirements:

- Good knowledge of technical mechanics
- Methodical and independent working style
- CAD and Arduino experience
- Good English or German

3D printed Tribometer



Are you interested?

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