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International Research Group on Wear of Engineering Materials



Development of abrasive wear testing facilities at Tallinn University of Technology

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For abrasive wear study different types of experimental devices are developed for testing of materials under the extreme conditions of wear: solid particle erosion (room and high temperature), slurry erosion-corrosion, and abrasive impact wear.

For erosion, the centrifugal-type several abrasive erosion wear testers (AEW) are developed for comparative testing of materials at velocities up to 80 m/s, impact angles $30 \div 90$, temperature $20 \div 700^\circ\text{C}$ and abrasive particle size up to 1 mm.

In stage of development is new high temperature centrifugal-type erosion tester designed to evaluate effect of oxidation on erosion wear rate at high temperatures. It is possible to test materials at different impact velocities, impact angles and temperatures with presence of various gases provoking or excluding oxidation. 20 samples are tested simultaneously enabling convenient and precise evaluation of relative wear resistance.

For erosion-corrosion study slurry abrasive wear and slurry erosion devices are developed. The available velocities are up to 10 m/s, number of specimens tested simultaneously is up to 30 pcs.

To study the wear resistance of materials for grinding media as well as grindability and abrasivity of mineral materials, disintegrator-based abrasive impact wear (AIW) tester is developed. Available velocities of abrasive are up to 200 m/s, their particle size – up to 10 mm, number of specimen holders are 14 + 14 pcs.