

SAND/RUBBER WHEEL ABRASION TESTER (DUAL-MODE)



Sand/Rubber Wheel Abrasion Tester (Dual-Mode) - ToronTribo™ SRW

Dual-Mode Sand/Rubber Wheel Abrasion Tester runs both dry sand and wet sand abrasion testing on a single platform, serving materials laboratories, hardfacing manufacturers, and component developers who need to evaluate abrasion resistance across both test conditions without maintaining two separate instruments. The ToronTribo™ SRW automates load application and offers variable frequency speed regulation, letting operators switch between dry and wet abrasive test protocols to characterize material performance under multiple working conditions.

The tester applies a load range of 3 to 300 N through automatic loading, with spindle speed up to 500 rpm and maximum friction force of 300 N. Test duration is controlled by revolution count up to 999,999 revolutions, supporting both short screening tests and extended abrasion studies. At 85 kg and a 700 x 600 x 1450 mm footprint, the instrument fits standard laboratory space, and operates on a 220V, 16A, 50Hz power supply.

Hardfacing and wear-plate manufacturers, materials research laboratories, and component developers use the ToronTribo™ SRW to compare how the same material performs under both dry and wet abrasive conditions on one instrument, avoiding the setup and calibration differences that can arise when using two separate dry-only and wet-only testers. This dual capability supports more consistent, directly comparable data across a material's full range of expected service environments.

APPLICATIONS

Sand/Rubber Wheel Abrasion Tester (Dual-Mode) - ToronTribo™ SRW

Applications

The ToronTribo™ SRW supports abrasion resistance evaluation for materials and coatings that may encounter both dry and wet abrasive conditions in service.

- Multi-Environment Material Qualification: evaluates a single material or coating under both dry sand and wet sand abrasion to characterize performance across different service environments
- Mining and Mineral Processing Equipment Testing: assesses wear resistance of components exposed to both dry dust and wet slurry conditions within the same processing circuit
- Hardfacing and Weld Overlay Evaluation: compares hardfacing alloy performance under both dry and wet abrasive conditions from a single test program
- Construction and Earthmoving Equipment Materials: evaluates ground-engaging tool materials that encounter both dry soil and wet, muddy abrasive conditions
- Comparative Dry vs. Wet Abrasion Research: studies how the same material's wear mechanism changes between dry and wet abrasive contact
- Laboratory Consolidation and Efficiency: supports laboratories seeking to replace separate dry-only and wet-only abrasion testers with a single dual-mode platform
- Quality Control Across Multiple Specifications: verifies material batches against both dry sand and wet sand abrasion resistance requirements using one instrument



Torontech™ SRW Sand/Rubber Wheel Abrasion Tester (Dual-Mode)



Standards

The ToronTribo™ SRW supports test procedures aligned with internationally recognized ASTM standards for both dry sand and wet sand rubber wheel abrasion testing.

- ASTM B611-13 - Standard Test Method for Determining the High Stress Abrasion Resistance of Hard Materials
- ASTM G65-16(2021) - Standard Test Method for Measuring Abrasion Using the Dry Sand/Rubber Wheel Apparatus
- ASTM G105-20 - Standard Test Method for Conducting Wet Sand/Rubber Wheel Abrasion Tests

FEATURES

Sand/Rubber Wheel Abrasion Tester (Dual-Mode) - ToronTribo™ SRW Key Features

The ToronTribo™ SRW combines dry and wet abrasion testing capability with automated load and speed control on a single platform.

- Dual-Mode Testing Capability: runs both dry sand and wet sand rubber wheel abrasion tests on the same instrument
- Automatic Load Application: applies test load automatically across a 3 to 300 N range for consistent, repeatable loading
- Variable Frequency Speed Regulation: adjusts spindle speed up to 500 rpm to match different dry and wet test protocol requirements
- Extended Revolution-Based Duration Control: programs test duration by revolution count up to 999,999 revolutions for both short and extended abrasion studies
- Compact Laboratory Footprint: fits standard laboratory space at 700 x 600 x 1450 mm and 85 kg
- Standard Power Requirements: operates on a 220V, 16A, 50Hz power supply for straightforward laboratory installation

THEORY & METHOD

Theory and Method

Dry sand and wet sand rubber wheel abrasion tests both reproduce three-body abrasive wear, in which loose abrasive particles roll and slide between a rotating rubber wheel and a stationary test specimen, but the presence or absence of water changes the wear mechanism in each case. Dry sand testing lets sand particles fall freely through the contact zone and interact with the specimen surface without a liquid medium, while wet sand testing suspends the abrasive in a water-based mortar, changing how particles roll, slide, and embed at the interface and introducing possible corrosive effects for some metals.

The ToronTribo™ SRW accommodates both test conditions through automated load control and variable frequency speed regulation, letting the same platform switch between dry and wet abrasive delivery without requiring a different instrument for each test type. Running the same material or coating through both test protocols in sequence produces directly comparable data, since load, wheel condition, and instrument calibration remain consistent between the two tests rather than varying with a change of equipment.

Because materials often perform differently under dry versus wet abrasive conditions, testing under only one condition can miss important performance differences relevant to a material's actual service environment. A hardfacing alloy or coating that performs well in dry abrasion testing may behave differently once water and possible electrochemical effects enter the picture, and vice versa. Running both tests on the ToronTribo™ SRW gives engineers a more complete picture of a material's abrasion resistance across the range of conditions it may encounter, from dry dust to wet slurry, within a single test program.

TECHNICAL SPECIFICATIONS

Sand/Rubber Wheel Abrasion Tester (Dual-Mode) - ToronTribo™ SRW

Technical Specifications

Parameter	Specification
Load Range	3 to 300 N
Loading Method	Automatic loading
Maximum Speed	500 rpm
Maximum Friction Force	300 N
Maximum Duration	999,999 revolutions
Equipment Size	L700 mm x W600 mm x H1450 mm
Equipment Weight	85 kg
Equipment Voltage	220V, 16A, 50Hz (110V is also available)



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