DUCOM
MATERIAL CHARACTERIZATION SYSTEMS

Product Information Sheet:

Abrasion Tester (ABT-3)

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BASIC INSTRUMENT

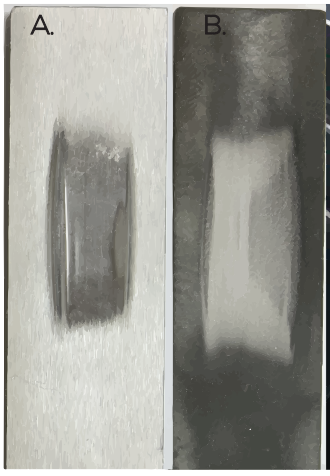
Abrasion Tester (ABT-3) is widely used in friction and wear testing of materials in a controlled abrasive atmosphere. The abrasive atmosphere can be dry or slurry. Currently, the Ducom abrasion tester (see Figure 1) is the only automated and table top instrument in the market, that qualifies it as a state-of-the-art instrument.

Operating parameters in the tester complies to multiple test standards like ASTM G65, G105 and B611. Few additional features in this instrument can help test materials closer to the field conditions.

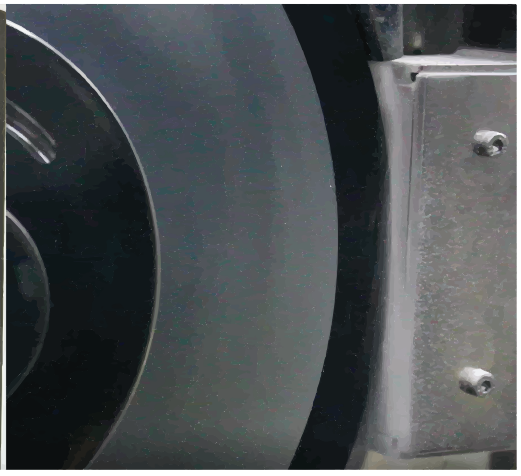
70 cm x 60 cm x 100 cm
(L x W x H)
80 kg

Figure 1. Ducom Abrasion Tester (ABT-3).

Rotating wheel made of rubber



Tested samples: (A) reference and (B) coated samples.



Test area in Ducom Abrasion Tester

APPLICATIONS

- Ranking of materials with respect to its abrasive resistance (dry and slurry).
- Quality analysis and product development of moulding tools used in sand-lime bricks.
- Research in the area of refractory ceramics.
- Abrasive wear resistance of hard face coatings.

PRINCIPLE OF OPERATION

A computer controlled Ducom abrasion tester is equipped with smart sensors and systems to control or monitor the load, abrasive flow rate, speed and temperature (see Figure 2). A test block is loaded against the rotating wheel made of rubber /ceramic / metal using pneumatics with a feedback from normal load sensor. Rotation of the wheel is controlled by a motor equipped with a speed sensor. The slurry environment can be heated to the boiling point of water using a unique heating method developed in-house. Abrasive particles from the hopper is fed to the motor that controls the flow of particles to the contact between a wheel and block. During the test, the friction force sensor acquires the friction between the wheel, block and the abrasive particles.

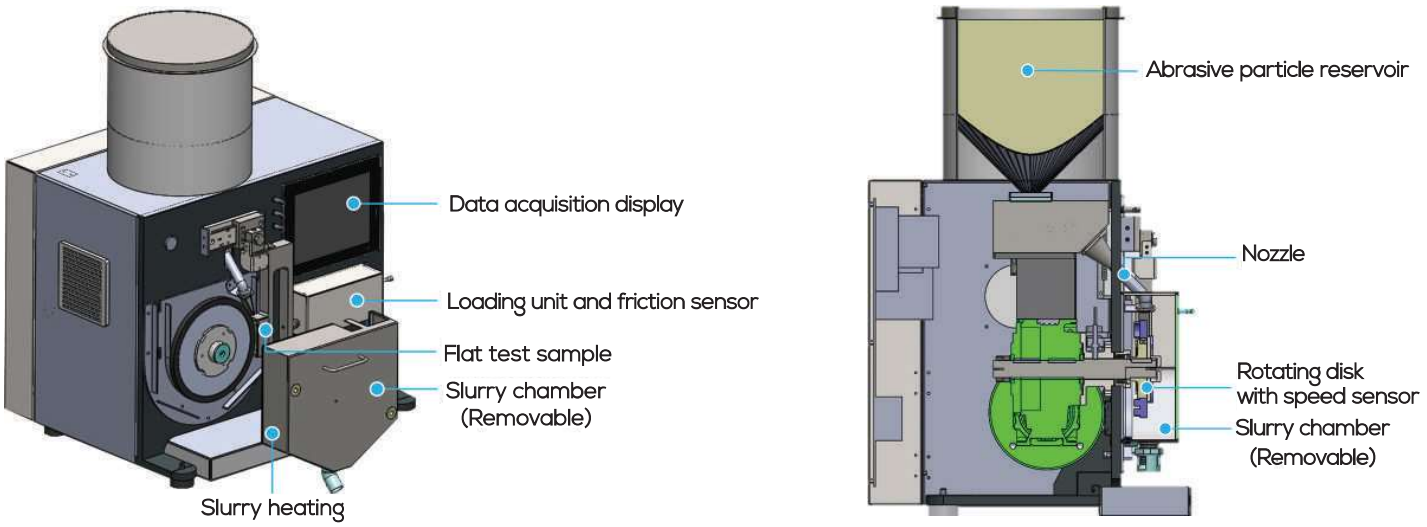
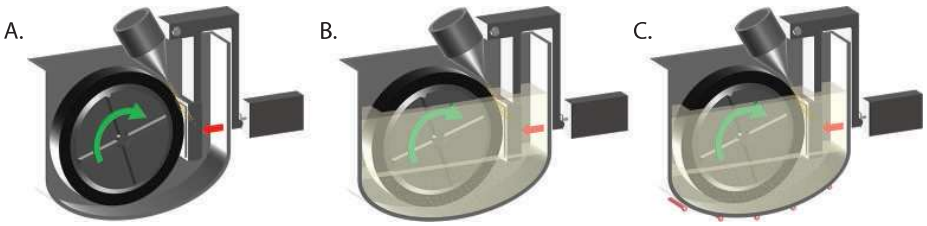


Figure 2. Schematic and cut section of Ducom abrasion tester.

OPTIONAL

- Dry abrasion kit (A)
- Slurry abrasion kit (B)
- Slurry heating module (C)
- Wear sensor
- MOOHA digital lab assistant



Please contact us for the technical specifications sheet.

INSTRUMENT CONTROL AND DATA ACQUISITION

Labview based WinDucom software is used for controlling the load, speed and temperature in ABT-3. The architecture of the software is fool proof. As shown in the picture gallery, the interface allows the user to select any standards by a click. It will automatically reproduce the test parameters relevant to the selected standard. User will take ONLY 5 clicks to start a test according to any test standards. The data acquisition screen shows a live data for friction force, load and speed (see Fig. 3). The post test analysis is possible using compare data feature in the software. It allows the user to compare test results. The test results can be exported in .CSV, .XLS or .TXT format.

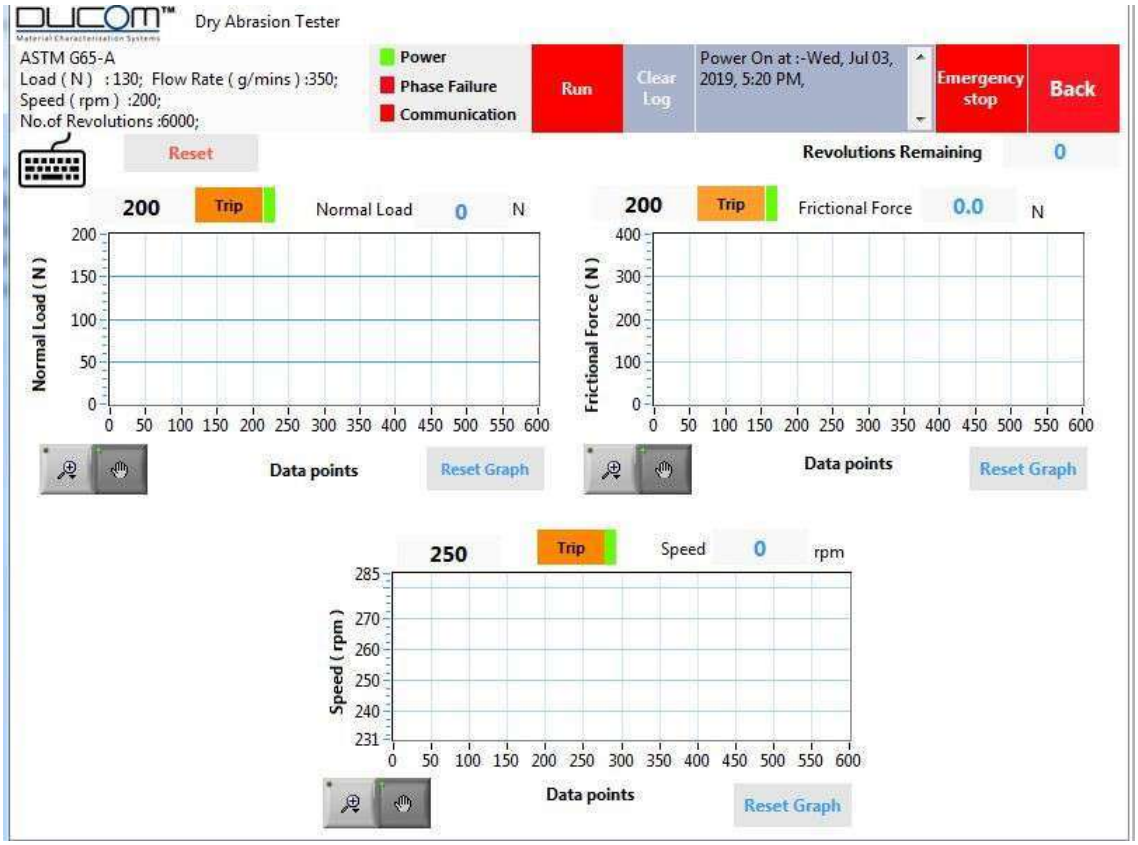


Figure 3. Real time data for normal load, friction force and speed displayed in the labVIEW based WinDucom software.

DIGITAL MODULE

MOOHA is a digital lab assistant with powerful features that can help with keeping your tester in excellent health and your test data secure and easily accessible. Its automatic logging and reporting functions keep data tamper proof and reliable. Learn more at www.ducom.com/digital

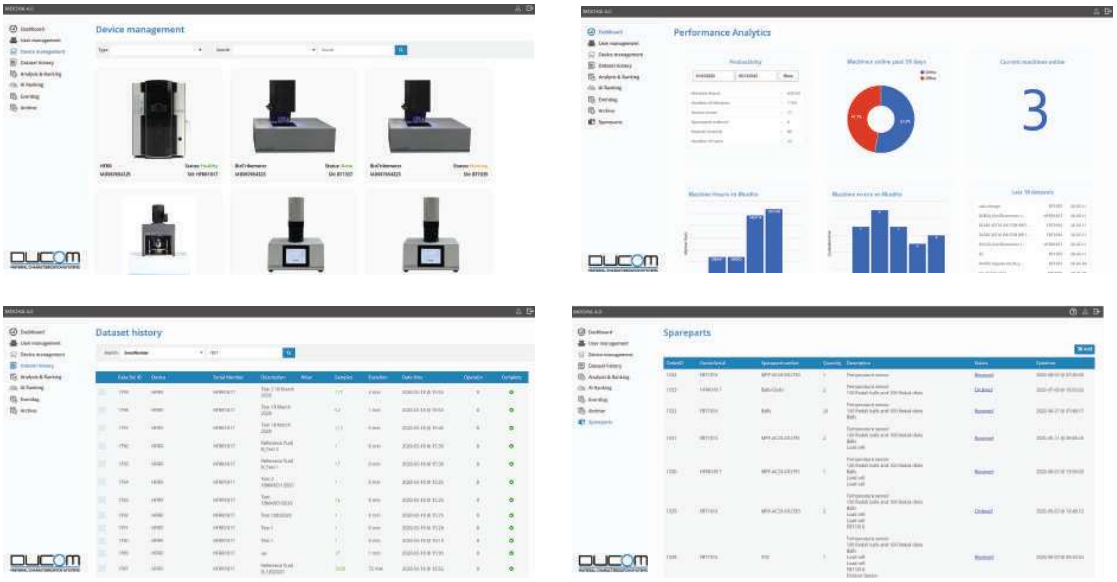
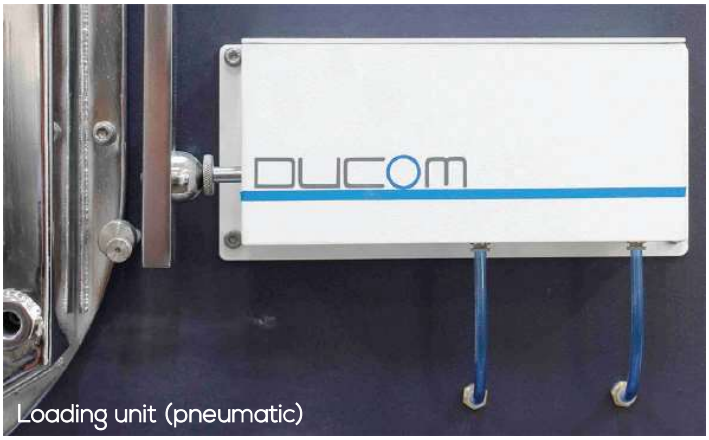
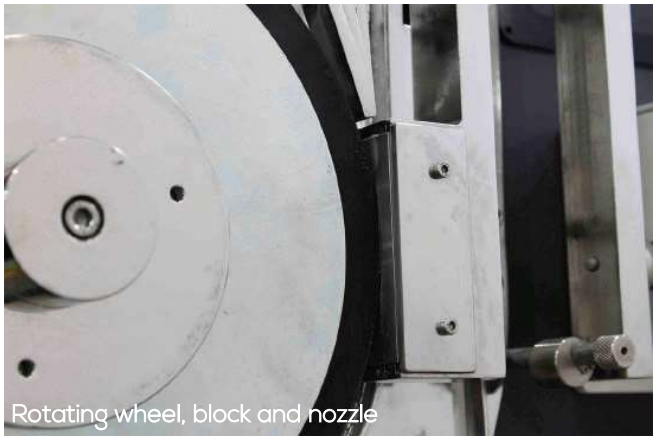


Figure 4. Few features availabe on the MOOHA web-based software: performance analytics, device management, dataset history (digital log book), spare parts and a lot more.

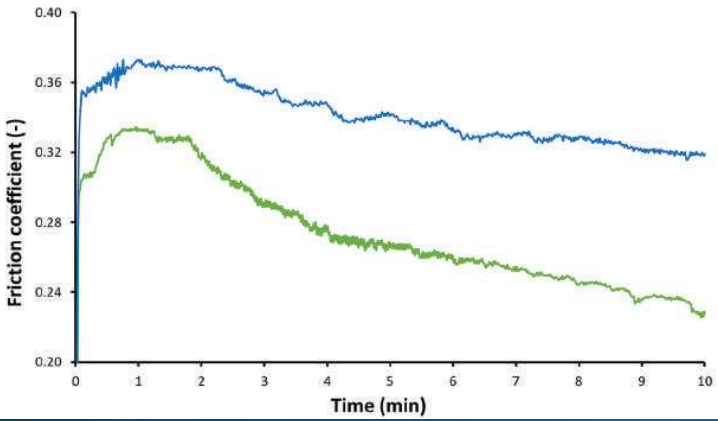
PICTURE GALLERY



Loading unit (pneumatic)



Rotating wheel, block and nozzle



Sample A (Volume loss: 26.11 mm³)
Sample B (Volume loss: 76.26 mm³)

Friction coefficient of Sample A and B tested in Ducom Abrasion tester (dry).
Test was conducted according to ASTM G65 test standard.