

# Universal Multi-Function Wear Test System – UFW200

## ◆ General Information

The **UFW200** system evaluates four types of friction and wear – rotation, reciprocating, Block-on-Ring, and scratch. It identifies wear situations incurred by rotating, reciprocating, abrasiveness, fretting, galling, and seizure. The UFW200 system is able to carry out tests in multiple environments by controlling areas such as temperature, humidity, pressure, etc.

The system reveals friction and wear characteristics for various materials including metal, ceramic, compound materials, coatings, as well as nano and bio material.

The pressure load can be configured to adjust to load applications ranging from a light to heavy load by the use of a static load device.

Temperature and humidity can be adjusted during testing using hot air convection heat. The system is configured to measure wear loss and friction coefficient in real time during wear testing and results are simultaneously stored in a computer.

The UFW200 series performs both the module test and the friction and wear test on one machine resulting in more reliable data.

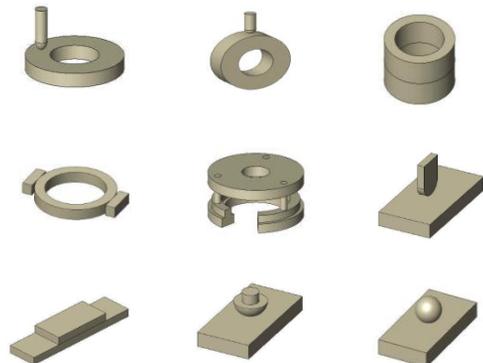


## ◆ Multi-Function Tests

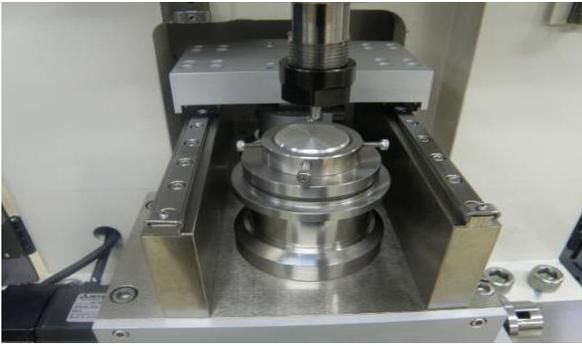
- Static and dynamic friction test
- Adhesive, abrasive and scratch wear test
- Multi-cycle, multi-axis fatigue wear test
- Pull-off adhesion wear test

## ◆ Test Modes

- Pin-on-Disc (One Pin) (ISO 7148, ASTM G99)
- Ball-on-Disc (One Ball) (ISO 7148)
- Sliding Contact Wear
- Bearing Life
- Block-on-Ring
- Scuffing Wear
- Reciprocating Motion Test
- Scratch



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## ◆ Rotation Module

- Pin-on-Disc (One Pin) (ISO 7148, ASTM G99)
- Ball-on-Disc (One Ball) (ISO 7148)
- Four-Ball

## Pin/Ball-on-Disc Test

- **Upper Pin or Ball Specimen**
  - Stationary or automatic positioning on disc radius
  - RPM 0 – 1,000rpm
- **Automatic Radius Positioning**
  - Range: 70mm
  - Resolution: 0.1mm



## ◆ Linear Reciprocation Module

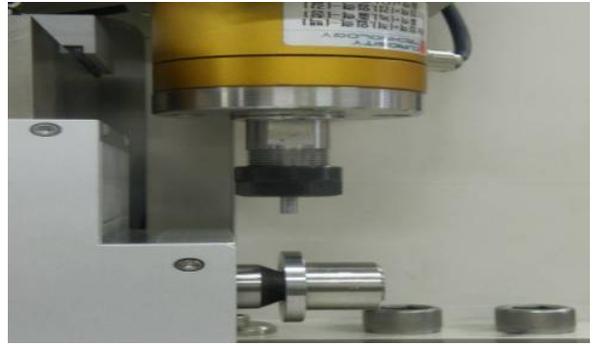
- Upper Pin/Ball/Block
- Distance: 0 – 50mm
- Reciprocating Frequency: 0.1 – 50 Hz
- Reciprocating Stroke: 0.1 – 25mm

## Wear and Fretting Tests

- **Upper Pin/Ball/Block Specimen**
  - Stationary or automatic positioning on disc radius
- **Automatic Radius Positioning**
  - Range: 50mm
  - Resolution: 1 $\mu$ m

## Engine Tests

- **Upper piston ring:** stationary
- **Lower cylinder liner:** reciprocating



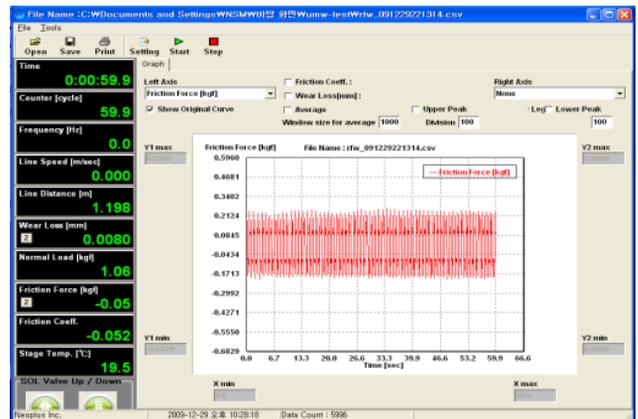
## ◆ Block-on-Ring Test Module

- Upper Block: 5mm x 15mm x 10mm
- Lower Ring: dia. 20-70 mm
- Rotation Speed: 1 – 1,000 rpm

## Block/Pin/Ball-on-Ring Test

- **Upper Pin:** dia. 3 – 10 mm
- Flat, spherical or conical end

## ◆ System Software



## ◆ Sample Fixture

