

Consistent results,
stellar performance

Fully
Compliant

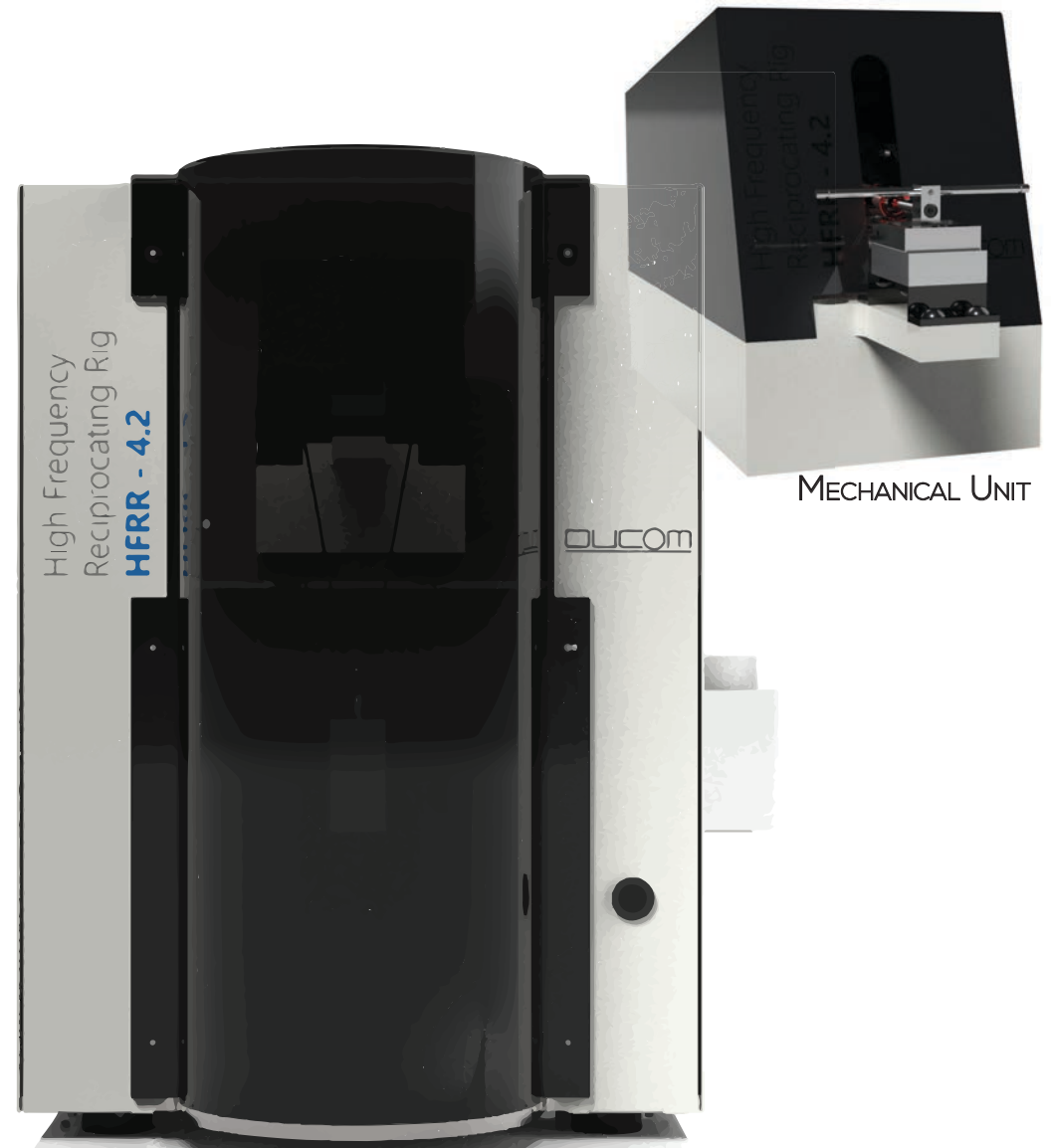
Test Standards:
ASTM, ISO, IP

Ducom High Frequency Reciprocating Rig (HFRR-4.2)

The Ducom HFRR 4.2 is a compact and integrated test system designed for quick and accurate wear and friction measurements of test fluids like fuels, engine oils, additives and bio-fluids.

Ducom's High Frequency Reciprocating Rig is widely used for wear and friction studies on fuels. It comes equipped with pre-loaded test procedures for quick and easy operation. The HFRR-4.2 also offers a wide range of testing capabilities for those requiring solutions beyond standards.

The HFRR-4.2 provides highly-repeatable testing at the touch of a button. Its small footprint and low maintenance costs makes it a suitable option for a variety of laboratory environments.



FUNCTIONAL FEATURES

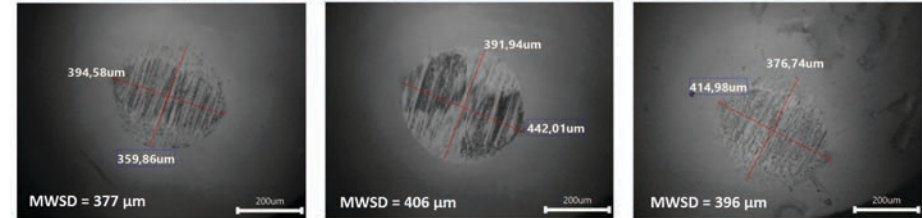
- Compact, benchtop instrument.
- Scar imaging and WSI.4 calculations.
- Optional: Electrical Contact Resistance Module (ECR) and Gasoline Test Module.
- Pre-loaded test protocols and methods.
- Integrated and software controlled humidity system. The humidity system uses deionized water to humidify or dehumidify the test chamber. Air temperature and humidity are acquired by a sensor placed in the test chamber and recorded for all the test duration.
- 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.
- Machine learning algorithm for automated wear scar prediction.

Frequency	10 to 200 Hz
Stroke Length	20 µm to 2.0 mm
Normal Load	0 to 1.0 kg (dead weights)
Friction Force (max)	10.0 N
Temperature	Ambient to 150 °C (high temperature module)
Fluid Volume	2 ml
Upper Specimen (ball)	6 mm in diameter
Bottom Specimen (disk)	10 mm in diameter x 3 mm thick

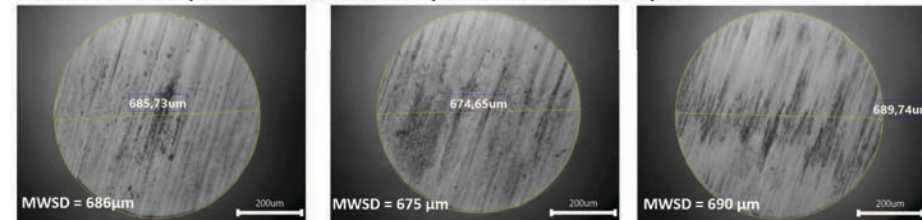
Test Standards:

ASTM D6079, ASTM D7688, ISO 12156-1, GOST R ISO 12156-1-2006, JPI-5S-50-98, BS EN 590, IP 450/2000, CEC F-06-A-96, SH/T 0765

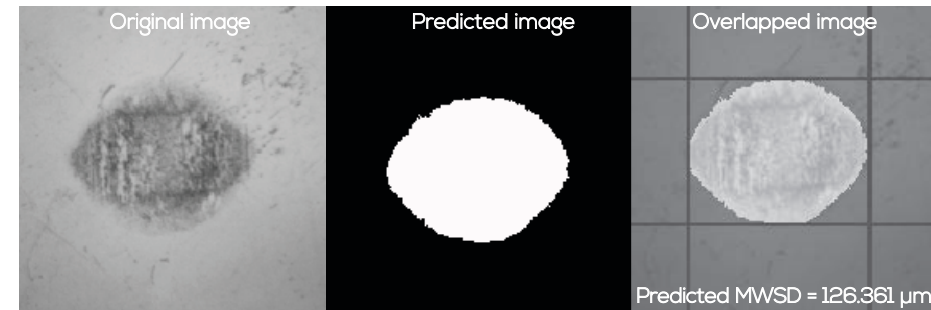
Reference fluid A | MWSD is within acceptance limits: 284 - 438 µm



Reference fluid B | MWSD is within the acceptance limits: 632 - 738 µm



Compliance with ASTM D6079



Mean wear scar prediction using machine learning algorithm