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Building industry leading test platforms to automate sensing and improve measurements by reducing human errors.

HFRR^{ADV}

High Frequency Reciprocating Rig

Paltro's next generation High Frequency Reciprocating Rig (**HFRR^{ADV}**) is a compact, fully automated desktop instrument for **ASTM D6079, ISO 12156** and **ASTM D7688** to assess lubricity of diesel fuels and biodiesel blends.

HFRR^{ADV} offers an ultra compact, state of the art fuel lubricity tester that is designed for full compliance with global test standards. Its compact and easy to use design, automated workflow simplifies testing and the high precision automated humidity control system eliminates manual activities by the operator.

Features

- Ultra-compact, fully integrated design with HFRR vibrator, electronics controller, automatic humidity control module in a single unit offering the smallest footprint and lab space requirement.
- Integrated PC with touchscreen allows test execution with a few clicks
- Fully automated workflow manages the entire sequence, from testing and imaging to measurement and report generation for effortless operation.
- Auto-detect function powered by AI and ML algorithms precisely measures wear scar diameter without user dependency.
- Clean, salt-free humidity that is electronically controlled requires only distilled water. Air temperature and humidity are measured and recorded for the entire test duration.
- Real-time stroke length acquisition during the test with inline sensor makes electronic calibration effortless.

Standards

ASTM D6079, ASTM D7688, ISO 12156, GOST R-ISO 12156-1-2006, JPI-5S-50-98, BS EN 590, IP450/2000, CEC F-06-A-96, IP 450/2000, SH/T 0765

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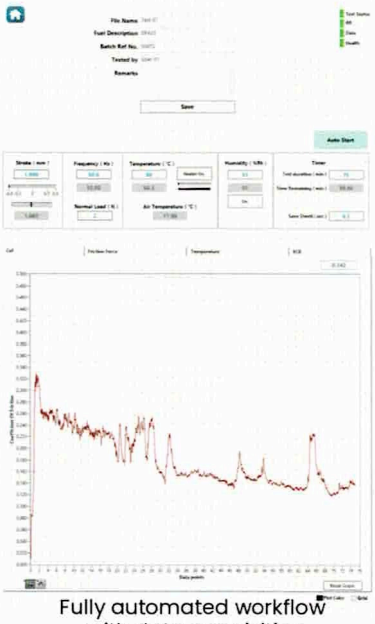
HFRR[ADV]

Technical Specifications

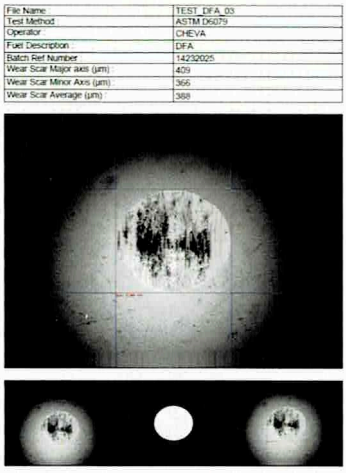


Fully automated workflow with data acquisition

- Load: 0 to 1.0 kg (dead weight)
- Stroke: 20 µm to 2 mm
- Frequency: 10 to 200 Hz
- Temperature: ambient to 150 °C, (high temperature to 200 °C optional)
- Fluid volume: 2 ml
- Friction force: 10 N
- Upper specimen (ball): 6 mm
- Lower specimen (disk): 10 mm dia, 3 mm thick

Options

- Microscope with digital camera and accessories



File Name:	TEST_DFA_03
Test Method:	ASTM D6079
Operator:	CHEVA
Fuel Description:	DFA
Batch Ref Number:	14232025
Wear Scar Major axis (µm):	409
Wear Scar Minor Axis (µm):	366
Wear Scar Average (µm):	388

Auto-detect wear scar measurement and report generation

Consumables & Reference Fluids

- Test balls (SAE AMS 6440 steel, with a diameter 6 mm, grade 28, HRC between 58 to 66)
- Test disks (SAE AMS 6440 steel, with a diameter 10 mm, Vickers hardness HV 30, surface finish < 0.02 µm Ra)
- CRM, DFA ASTM D6079
- CRM, DFB ASTM D6079

Power

- 110 to 230 V, 50/60Hz CE

Weight & Dimensions

- Net Dimensions: 440 x 240 x 400 mm
- Net Weight: 30 Kg

Continuing R&D may result in specifications, appearance changes

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