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

BOCLE[ADV]

Ball on Cylinder Lubricity Evaluator

Paltro's next generation Ball on Cylinder Lubricity Evaluator (**BOCLE**[ADV]) is a compact, fully automated desktop instrument for **ASTM D5001** to assess wear aspects of the boundary lubrication properties of aviation turbine fuels on rubbing steel surfaces.

BOCLE[ADV] innovative unified system revolutionizes fuel lubricity evaluation by seamlessly integrating mechanical testing, conditioning of air, optical imaging, auto-wear scar analysis and single-click reporting offering unmatched user convenience. Advanced automation, smart sensing and data logging ensure high precision, complete traceability and uninterrupted operation.

Features

- Hybrid loading automatically applies calibrated weights using a motorized, impact-free system, ensuring consistent, repeatable results without manual intervention
- Fully automated workflow manages the entire sequence, from testing and imaging to measurement and report generation for effortless operation.
- Inbuilt conditioned air unit controls valves, flow rates, humidity and automatic phase switching, simplifying testing and minimizing operator dependency.
- Temperature control module maintains precise adherence to ASTM D5001 requirements, unaffected by ambient lab conditions
- Smart sensors and data acquisition continuously monitors and logs test conditions with unique IDs for complete traceability.
- Integrated imaging features an digital microscope that is built-in to the test unit for wear scar analysis, thereby eliminating requirement of separate microscope.
- Auto-detect function powered by AI and ML algorithms precisely measures wear scar diameter without user dependency.
- Slide-n-fit spacers enable lateral offset of the ring, allowing users to conduct 10 tests per ring to maximize usage.
- Inbuilt diagnostics proactively alerts users to maintenance needs such as water level and air pressure for uninterrupted operation.
- Integrated PC with touchscreen allows test execution with a few clicks

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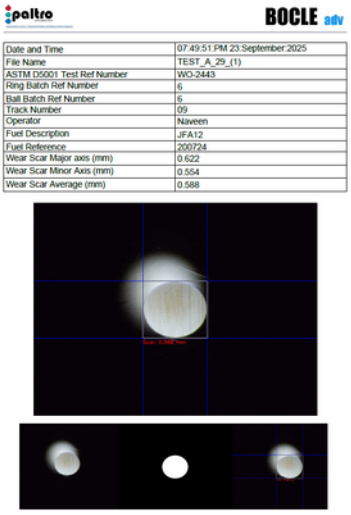
BOCLE ADV

Technical Specifications

Fully automated workflow with instrument diagnostics



Auto-detect wear scar measurement and report generation

- Standard: ASTM D5001
- Load: 1000 ± 1 gm
- Speed: 240 ± 1 rpm
- Temperature: 25 ± 1 °C
- Sample Volume: 50 ± 1 ml
- Conditioned Air: 10 ± 0.2 % RH at 25 ± 1 °C
- Fluid pretreatment: 0.5 L/min flowing through & 3.3 L/min over the fluid for 15 min
- Fluid test conditions: 3.8 L/min flowing over the fluid
- Test duration: 30 ± 0.1 min

Options

- Zero air generator
- Compressor and dryer

Consumables & Reference Fluids

- Test balls (chrome alloy steel made from AISI E52100, with a diameter 12.7 mm, Grade 5 to 10, HRC between 64 to 66)
- Test rings (SAE 8720 Steel, Hardness HRC 58 to 62, surface finish 0.56 to 0.71 µm root mean square)
- CRM, JFA ASTM D5001, ½ US Gallon
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Power

- 110 to 230 V, 50/60Hz CE

Weight & Dimensions

- Net Dimensions: 650 x 620 x 780 mm
- Net Weight: 80 Kg

Continuing R&D may result in specifications, appearance changes