



**A fully automated, Ball-on-Cylinder wear test system which provides a fast, repeatable assessment of the lubricity of aviation fuels.**

automatic

# ABS

## Overview

The ABS is an automated jet fuel lubricity tester which performs the ASTM D5001 standard test (Measurement of Lubricity of Aviation Turbine Fuels by the Ball-on-Cylinder Lubricity Evaluator). This test is used to assess the lubricating properties of aviation fuels. Whilst the main job of the fuel is to provide thrust in a jet engine, it is important that the engine's internal components are kept well lubricated during use, protecting against wear and potential catastrophic failure.

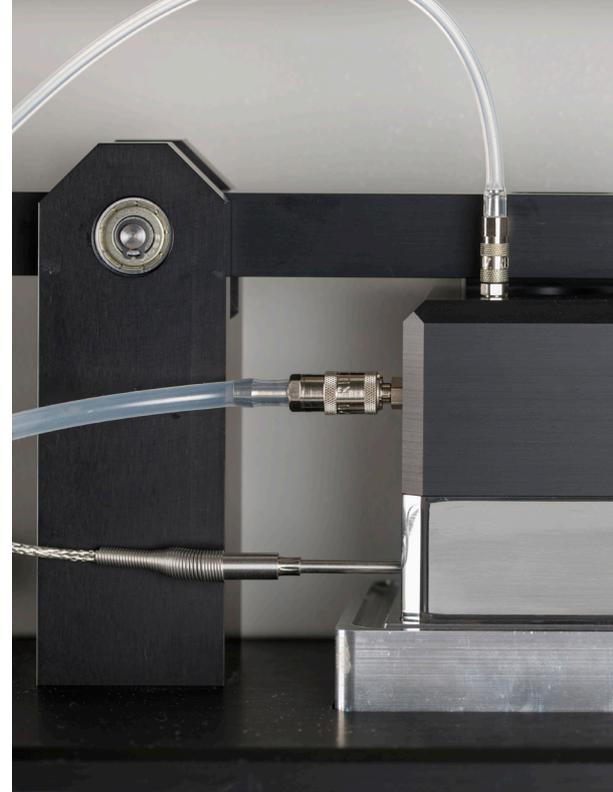
Being a named instrument in the ASTM D5001 standard test, the ABS represents the industry leading rig in repeatable, reliable fuel lubrication testing.

With a fully automated test sequence and minimal maintenance, the ABS requires little user intervention. The simple test setup and tight quality control on the PCS supplied test specimens ensures good accuracy, reliability and repeatability, giving you full confidence in your results.

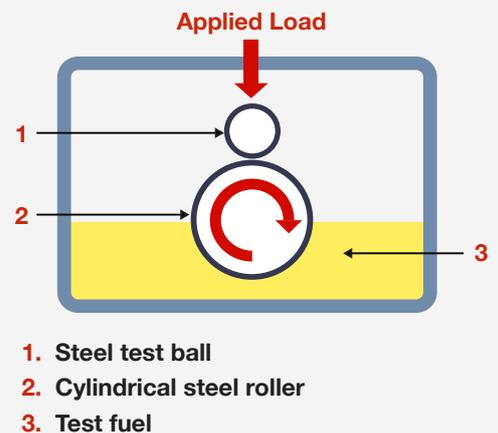
### Principle

A half inch diameter steel ball is loaded against a rotating steel cylinder which is partially immersed in a fuel reservoir. 50 ml of test fuel is placed in the reservoir and maintained at 25 °C under a controlled airflow at 10 % relative humidity. The stationary steel ball is loaded against the rotating disc with an applied load of 1 kg, and the test cylinder is then rotated at 240 rpm.

After conditioning then the 30-minute test, the wear scar generated on the test ball is measured, reporting the mean wear scar diameter (WSD). Lubricating properties of a fuel sample are then assessed by the magnitude of its WSD. All the test parameters are preprogrammed, and the test is fully automated.



### ▼ Contact Area Schematic



### Optional Accessories:

Microscope – with certified micrometer and holder for upper specimen

Software – An optional PC based data logging application allows all test data to be recorded during the test, and a summary printed out confirming that all parameters are within the specified limits

Wear Scar Camera package

Compressor and Dryer

Zero Air Generator - supplies clean, dry, hydrocarbon free air



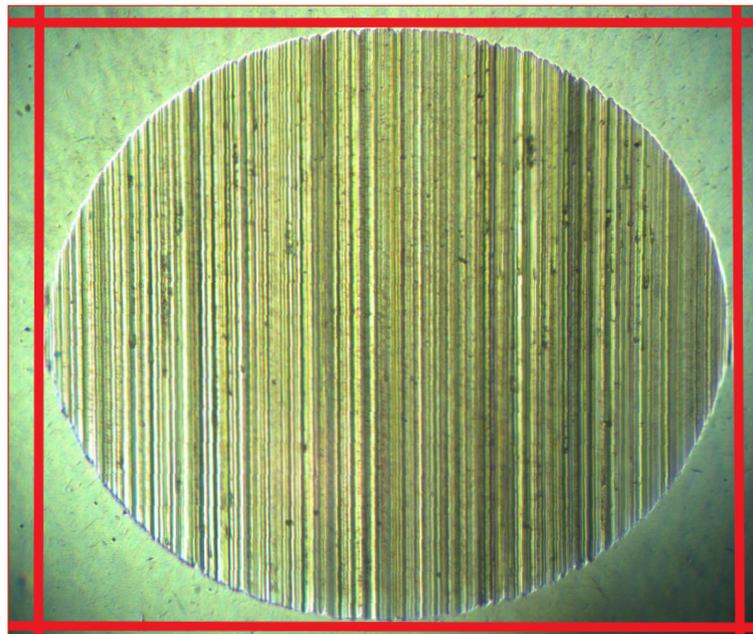
## Features and Benefits:

- ▬ Simple to use interface - microprocessor control of all instrument functions
- ▬ Standard ASTM D5001 test sequence pre-loaded into ABS microprocessor controller
- ▬ Automatic flow controllers for moist and dry air - no operator-induced variability in test results
- ▬ Optional PC-based data logging software allows test data to be recorded as a permanent record
- ▬ Interchangeable humidity and temperature probes - humidity and temperature measurement does not need to be re-calibrated - Simply exchange the combined relative humidity and temperature probe for a pre-calibrated unit
- ▬ PCS manufactures the test rig and the specimens, leading to higher quality control

## Software Option:

An optional PC based data logging application allows all pre-programmed test data (motor speed, test duration, fuel temperature, air temperature and humidity) to be recorded during the test and a summary printed out confirming that all parameters were within the specified limits.

▼ Wear scar after ABS test (wear scar limits shown in red bands)



▲ ABS Test Cylinder and Ball Specimen

## Microscope and Wear Scar Package:

An optional x100 microscope is available with an adaptor to accept the ABS ball holder. The microscope camera and associated software is an optional accessory for the ABS microscope, allowing the user to capture and measure calibrated images of a wear scar, all from the PC screen. Both the wear scar image and measurements are saved with the test data file and can be printed on the test report.

The camera functionality is an integral part of the ABS software, allowing test data files to be exchanged between labs and the measurements to be viewed and re-measured with full traceability. The package includes the camera and adaptor, all cables, an upgrade to the ABS software and a certified calibration target.

## Technical Specification

The ABS system comprises an integrated mechanical and electronic unit and a PC with optional data logging software.

### TEST PARAMETERS

Load	1 Kg
Temperature	25 °C
Sample Volume (ml)	50 ml

### CONTROL SYSTEM

PC	Custom software running on Windows 10
Standalone Controller	Custom software
Safety Checks	Power on self-test checks all system functions, safety pressure sensor
Power Supply	100-230 V, 50/60 Hz, 750 VA

### DIMENSIONS & WEIGHT

Weight	34 kg - 75 lb
Size ( h x w x d )	350mm/14in x 520mm/20in x 520mm/20in

### Industries



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