Friction Testing

Friction testing is a service offered by Fulton Hogan. It is a versatile, accurate, yet cost effective means of determining the level of surface friction on a variety of airport pavements

Overview

Aircraft overruns are always damaging and sometimes disastrous. Skidding on rubber laden or otherwise contaminated surfaces is the most common cause of such incidents.

CASA Part 139 Manual of Standards (MOS) requires the operator of a certified aerodrome to provide and maintain paved runway surfaces in a condition that meets required surface friction characteristics. In order to avoid falling below the minimum friction or texture levels required, runway surface friction or texture characteristics should be measured periodically.

The purpose of conducting a runway surface friction survey is to:

- Ascertain the current friction values on the runway surfaces
- Compare these values to relevant international standards
- Assist in determining the necessity for rubber removal and other appropriate surface treatment
- Conform with CASA MOS139 / DASR.139.

The most effective way of ensuring CASA MOS139 conformance is to undertake regular surveys with a recognised runway friction tester and act promptly on the results, if required.

Fulton Hogan utlises a Findlay-Irvine MK2 D-type GripTester that uses a Type-A measuring wheel, a Type-D axle, and an automatic watering system to deliver a consistent 1mm-thick water layer in front of the measuring wheel. Machine load-cells were calibrated prior to commencing friction testing. The tests were conducted in accordance with MOS 139 (2019).

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"Measurements of the friction characteristics of a new or resurfaced runway should be made with a continuous friction measuring device using self-wetting features in order to assure that the design objectives with respect to its friction characteristics have been achieved." Recommendation 3.1.24 ICAO Annex 14

Features of the MK2 GripTester

- ICAO and CASA approved for the assessment of runway surface friction for airports
- Captures continuous wet friction data
- Logs GPS location
- Suitable for all classes of sealed surfaces
- Excellent repeatability and reproducibility
- Graphical and numerical presentation of friction testing results compatible with your pavement management system
- Rugged, compact, and lightweight, the GripTester is easy to transport and set up, and can be towed by a wide variety of vehicles.

Why use the GripTester?

- To reduce risk and liability by demonstrating and documenting the level of friction provided for aircraft operations.
- To improve runway safety by:
  - Identifying high-risk, low friction locations
  - Optimising rubber removal
  - Reducing overrun accidents
  - Confirming that new surfaces are safe
  - Monitoring long term performance of sealed surfaces
- To evaluate new paving materials, practices and technologies
- To improve runway maintenance
- To obtain information vital to the determination of maintenance priorities
- Complies with ICAO regulations for use in airport operations.

How does the GripTester work?

- The measuring wheel has a continuous braked force applied of 15%; this principal is known as braked wheel, fixed slip
- Tests are done in wet conditions; applying a 1mm film thickness
- Tests are performed at a test speed of 65km/h and 95km/h
- The Drag and Load forces are measured by a strain gauge inside the axle; the signals are processed by the GripTester's on board computer
- Grip data is simultaneously transferred to an onboard notebook computer, where the results are analysed and the reports are produced.

Applications

- GripTesters are in operation in all regions of the world: arctic, equatorial and temperate
- The GripTester's light towbar pull and low centre of gravity ensure safe, stable operation on winter and summer surfaces
- The GripTester's low water usage saves time and resources when carrying out maintenance surveys
- The GripTester's automatic water control system safeguards accuracy of results
- Fulton Hogan's friction testing service has been used by a number of major civil and military airports throughout Australia to verify friction compliance of their runways.
- Our highly trained technical specialists and airport pavement engineers can also provide expert advice on suitable remedial treatments should they find surveyed areas to be deficient in friction.

For further information please email airports@fultonhogan.com
or contact your nearest Fulton Hogan office. www.fultonhogan.com/contact_us