

# Atmos Tightness Monitor



## Statistical tightness monitoring system for airport hydrant systems

### The challenge

Hydrant leaks can have serious consequences such as fuel contamination, damage to people, property, and the environment, and lost revenue. A sensitive leak detection system is needed to rigorously test these hydrants in accordance with best engineering practices in the shortest time possible, to minimize disruption of flight operations in both commercial and military airports.

### Benefits

- Compliant with 0.04 l/hr/m<sup>3</sup> minimum detectable leak size standards set in EI1540, EI1560, and JIG 2
- Ability to handle passing valves
- Tightness test complete in 45 minutes
- Utilizes existing pressure sensors
- Pressure Step Method negates the effects of temperature change for increased reliability
- Optional use of Pressure Decay method

### What is Atmos Tightness Monitor?

This statistical tightness monitoring system tests for leaks in airport hydrants. It uses the powerful sequential probability ratio test (SPRT) to confirm the tightness of a hydrant segment in the shortest time possible.

It can test segments with:

- Monitored block valves bounding the segment
- A pressure transmitter

SPRT analyzes the pressure variation over two different pressure settings. When the valves close at high pressure, Atmos Tightness Monitor analyses the pressure data collected by the control system from the segment under test. The pressure in the test segment is reduced, and the pressure data is sampled and analyzed again. Temperature sensors are not required. The test is fast, minimizing the impact on operations. All segments can be simultaneously tested.

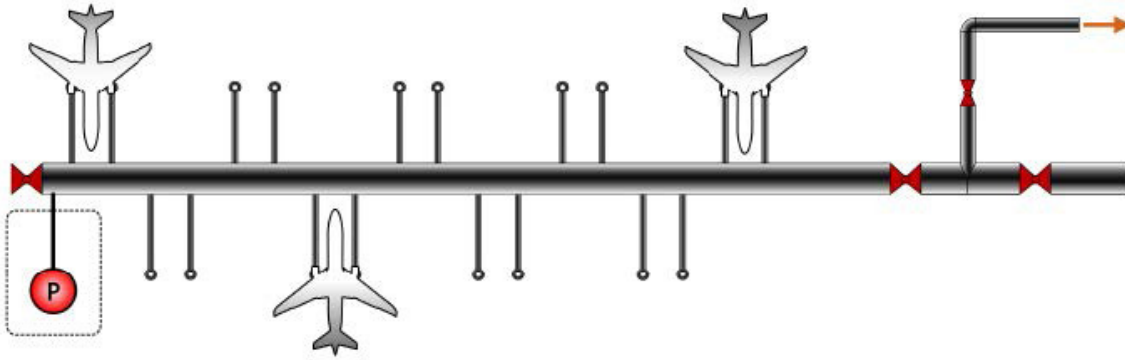


Figure 1 -The test section is closed and analyzed at a high pressure and low pressure

### Real life examples

Atmos Tightness Monitor has operated successfully for years at airports such as New Bangkok International Suvarnabhumi Airport, and Sydney International Airport. It has been extensively tested using real leak trials. Other installations include Kuala Lumpur International Airport 2 in Malaysia, Noi Bai International Airport in Vietnam, and Kualanamu International Airport in Indonesia.

Atmos Tightness Monitor was independently tested at Kansas City International airport (KCI) hydrant system by Ken Wilcox Associates successfully, and proven to meet the requirements of the USA Environmental Protection Agency (EPA).

### System outputs

- Leak alarm
- Leak rate
- Tightness test report

### Sensors used

- Single pressure transmitter per segment
- Valve position data
- Temperature data required only if pressure decay method used

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