AeroFid°-200, Automatic Micro Leak Detector for Filled Aerosol Cans

Officially certified since October 2008 to be fully compliant to the ADR 2007 and FEA directive. (Hot Waterbath Alternative)

Bautz Engineering's AeroFid° family of Micro Leak Detection Systems for filled aerosol cans offers a time proven, very reliable, economical and practical solution to achieve immediate production savings and improved safety and quality by eliminating bubble detectors and water bath operators. In addition, the complementary water bath test method with partially submersed cans generates accurate data to be easily and consistently gathered as an integral part of a quality management system like ISO 9000 or similar to force improvements in quality and the supply chain.

The AeroFid°200 Micro Leak Detector fully complies with the recent European EN 60079 Aerosol Directive and with current United Nations Standards to detect micro leaks in filled aerosol cans as low as, and/or lower than 2X10^{-3} mbar.l.s.-1.s. When combined with the use of tested, certified cans, or a test system for empty cans, the AeroFid* leak detector is an alterative to the traditional hot water bath immersion test.

The AeroFid°200 has the smallest footprint in the industry for high speed aerosol can micro leak detectors. This compact, „over the conveyor“ machine houses the high speed leak sensor, the control panel with touch screen display and the purifying air generator. Our long standing, fast responding Model 22B hydrocarbon propellant sensor automatically extracts one sample at a time from the head and valve area of each individual aerosol can. Jam controlled by a star wheel or feed worm, the cans freely scroll through sensing area. Immediately after a leak was detected, the faulty can is rejected from the conveyor. For speeds below 200 CPM, per minute our AeroFid°60 or our AeroFid°100 should be considered, above 200 CPM our AeroFid°500 should be considered.

The AeroFid°500's space requirement is only slightly more than for all other machines.

Features

- ⇨ Complies with recent European EN 60079 Aerosol Directive and United Nations Standard UN/SCETDG/INF.93
- ⇨ Since October 2008 officially certified to be fully compliant to the ADR 2007 directive. (Water bath Alternative)
- ⇨ Standard capacity up to 250 cans per minute, up to 500 cans per minute with 2nd sensor.
- ⇨ Based on our time proven high speed detector technology which is used for over 27 years in micro leak detection for filled aerosol can
- ⇨ Free scrolling cans pass the touch less probe section. No problems with faulty multi head chamber seals or contaminated sensor heads
- ⇨ Small foot print; Fits into virtually any conveyor line
- ⇨ Combined burst testing and leak testing when placed right behind a water bath which only needs partially submersed cans to keep the water clean
- ⇨ Low cost of ownership, easy to operate, low maintenance
- ⇨ Detect micro leaks at room temperature
- ⇨ Ideally suited to be used as a certified water bath alternative

Statement

In response to customer requests for faster, easier and more economical leak testing of filled aerosol cans, 27 years ago, Bautz Engineering and J.U.M. Engineering have teamed up and jointly developed a very fast and reliable leak detecting system.

Our very first automatic online aerosol can leak detectors for filled aerosol cans were designed for testing 150 cans per minute.

Today, these very same leak detectors are still in full time use and nowadays operate at speeds of up to 200 plus cans per minute in a typical 3-shift operation. The only changes ever made to these early machines was the replacement of discrete old fashion TTL based controllers against more modern PLC technology.

With 16 machines installed during 2010 and after 27 years of usage we herewith would like to state, that our aerosol can leak detectors should be considered to be proven technology.

Brochure, Aerosol Can Leak Detector 200, english.

Principle of Operation

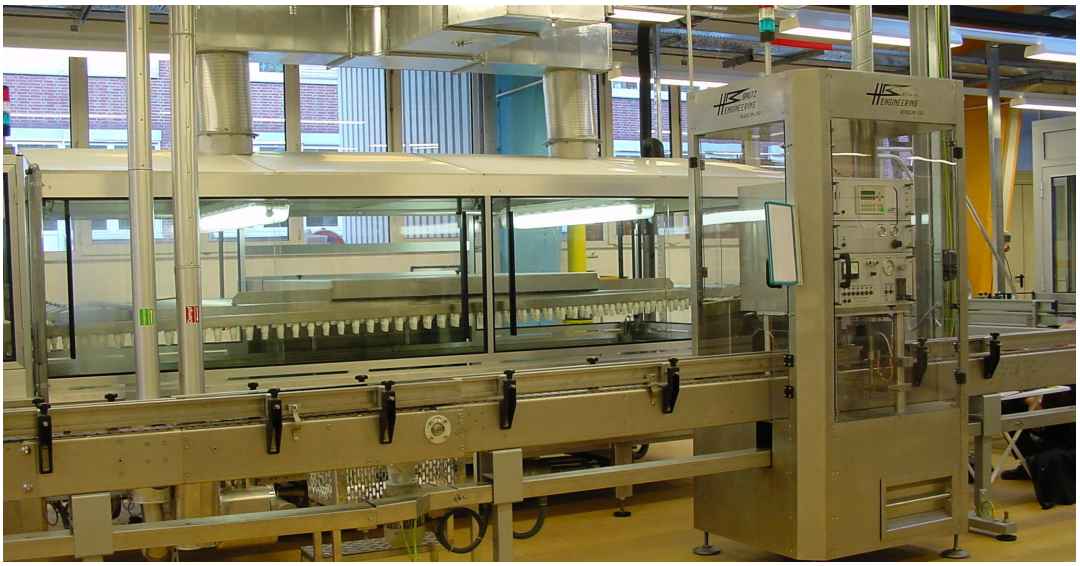
The AeroFid°200 is a fast responding automatic leak detector for filled aerosol cans using our decade long, time proven, standard ionization technology in a compact rack mount sensing module. The very fast responding leak analyzer extracts a sample from the head and valve area of an aerosol can with a regulated gas flow of a few liters per minute. The extracted gas from the leak is finely filtered and directed to the detector via a high precision toggling device and a metering module. The sample conditioner is designed to rinse the entire system after a leak occurred at every half step between detecting the aerosol cans to rinse the entire system including the probe tip with zero gas. Aerosol spray cans with propellants like propane/butane, or other hydrocarbons and/or hydrocarbon mixtures or HFA may have micro leaks as low as, or lower than $2X10^{-3}$ mbar.l.s-1.. Looking for such small leaks as specified in recent *UN / FEA regulations* is very difficult or impossible when the bubble detection method in a conventional water bath is used.

Once a leaking can reaches the sensing area, leaking gas is extracted into the detector. As soon as the leak concentration is measured, the stored data are used to reject the leaking can from the conveyor into a safe container. The various AeroFid° leak testers are capable to detect from over 80 to up to 500 cans per minute.

Our leak testers for filled aerosol cans with hydrocarbon propellants are successfully used daily 24/7 for over 27 years

Technical Data of Sensing Module

Capacity	Max. 250 cans per minute
Sensitivity	Less than $2X10^{-3}$ mbar.l.s-1.. Leakage rate in compliance with current UN and EU regulations
Detection method	Heated FID analyzer
Zero drift	<2.5% full scale / 24h
Span drift	<2.5% full scale / 24h
Linearity	Up to 10.000 units within 1% FSD
Measuring ranges	0-10,100, 1.000, 10.000, 100.000, units, others on request
Analog outputs	0-10 VDC, RS232 optional
Display	Analog meter, additional 3 1/2 digit display optional
Sample	Automatic extraction, max. 4 lpm capacity @ operating temp.
Zero and span adjust	Manual on front panel
Fuel consumption	approx. 60 ml/min of 100% H_2 @ 1.5 bar (22 psig)
Comb. air consumption	Non, built in burner air supply
Sensor oven temperature	190°C (374°F)
Temperature control	µ-processor PID controller
Ambient temperature	5-43°C (41-110°F)
Dimensions of sensing module (W x D x H)	19" (483 mm) x 460 mm x 132 mm
All over all footprint , leak tester and sensing module (W x D x H)	900 mm x 900 mm x 1900 mm



Shown above is our Model AeroCan° 700 leak tester integrated downstream of the water bath. Cans are partially submersed in the hot water bath for burst testing and cleaning.

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