

Leak test of flexible packaging during the production process

Quality control of flow packs, doy packs, and spouts

Best of both worlds - Combination of image processing and leak testing

Optical inspection of gross leak parts | Leak testing and leakage measurement

Food products (e.g., salami snacks, bags of chips) packaged in flow packs or stand-up pouches (doy-packs, spouts) are tested for leaks. Packaging with significant leaks (gross leaks) or unacceptable leakage must be detected and rejected.



The combination of intelligent optical measurement technology and leak test with compressed air enables the reliable detection of leaky products.

The product is placed in a holder and enclosed by a flexible membrane cover. When the chamber is evacuated, the membrane attaches itself to the product; depend-

ing on their size, multiple products can be tested simultaneously.

In the case of a gross leak, the packaging is immediately evacuated and the membrane lies tightly against the product contents. Image processing combined with artificial intelligence is used to detect products with gross leaks. This evaluation takes only about 300 ms and does not require precise product positioning. For non gross leak products, the pressure change caused by the leak is quantitatively measured and evaluated. Holes as small as 10 µm can be detected. This also allows for the identification of typical defects in the seal seam, such as those caused by incorrect sealing parameters or contaminated sealing plates.

Image: Drink pouch (doy-pack)

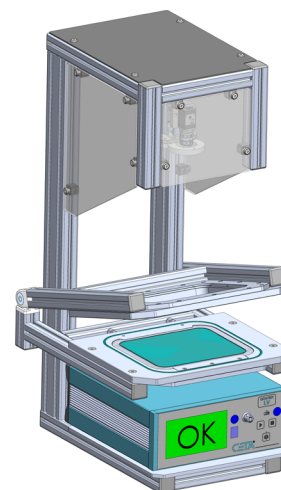
Laboratory test station for leak testing flexible blister packaging

A compact benchtop unit was developed in collaboration with LPK Maschinenbau GmbH for use in laboratories or for testing samples.

It consists of a test chamber with a flexible membrane, the vacuum version of the leak tester CETATEST LV with integrated vacuum generation, and a camera module.

The product is loaded manually, and the chamber is closed. Once the testing process begins, the visual inspection and leak test run fully automatically, and the test results are displayed.

Image: Bench-top device for leak testing flexible packaging



In-line test module for end-of-line leak testing flexible blister packaging during the production process

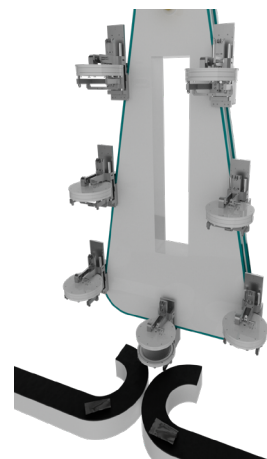
An inline testing system was developed to integrate leak testing into the production process. The system combines QLOOP® technology developed by POL-MAN AIMES GmbH, testing equipment from CETA, and a camera system with an evaluation unit from SYWIT GmbH. Leak testing is performed using negative pressure in a space-saving, testing system equip-

ped with multiple test heads.

The product is automatically placed into a half-shell. The top shell, equipped with a flexible membrane, closes, and the sealed test head continues to move. Test pressures ranging from -150 mbar to -800 mbar are generated within the CETA test units themselves. The visual inspection takes place at a fixed position.

The inline CETA test devices developed for this application move along with the test heads, carrying out the leak test in the process. At the end of the test cycle, the test head is unloaded and reloaded in a fully automated, cyclical process. Depending on the system design, test head, and cycle rate, hole sizes as small as approximately 10 µm can be detected, and several hundred parts per minute can be tested.

Images: Test heads of a system for leak testing of flexible packages
Tube | Coffee capsules



Testing technology CETATEST LV leak tester | Inline CETA leak tester

The leak tester CETATEST LV (Large Volume) and the compact inline leak tester were developed specifically to meet the requirements of the packaging industry. Standard features include digital I/O interfaces, RS-232, USB (host), Ethernet, and Profinet. The main valve system is FDA-compliant, and an UL-certified

power supply is available as an option for the CETATEST LV. The testers are supplied with an internationally recognized calibration certificate (DIN EN ISO/IEC 17025) and a warranty of up to three years (optionally extendable to five years).



Images: Leak tester CETATEST LV



CETA Testsysteme GmbH

CETA Testsysteme GmbH has been active for more than 35 years as a solution partner and quality manufacturer of "Made in Germany" leak and flow testers for 100% end-of-line testing. Compressed air is used as the test medium. With a comprehensive range

of testers and suitable accessories, the right testing technology can be found for nearly any testing task. Several thousand CETA testing devices are in use worldwide for quality assurance in production lines www.cetatest.com.

Images: Drink pouch: istock.com/Coprid | Table-top unit: LPK Maschinenbau GmbH | Test heads: POLMAN AIMES GmbH | Coffee capsules: istock.com/Bestgreenscreen, Tube: istock.com/Jana Klimenko | CETATEST LV Leak tester: CETA Testsysteme GmbH

CETA Testsysteme GmbH - Solution partner for industrial leak and flow testing

CETA Testsysteme GmbH

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