Vacuum Decay | MicroCurrent HVLD | Airborne Ultrasound | Force Decay

Integrator & OEM Solutions for Real-Time Package Quality, Container Quality, and Integrity Testing

The most sensitive and reliable sensors for in-line solutions

The Simplicity of PTI Technology Integration

Integrate PTI's sensory technology solutions, a proven 35+ year brand, for automated package, & container quality control.

- Inspection solutions built to fit the most challenging applications.
- Easy, scalable technologies for integration into your packaging line
- A variety of sensory technology platforms for CCI, package and seal quality inspection are available

Airborne Ultrasound Technology for Seal Quality Inspection

ASTM Test Method F3004 and FDA Recognized Standard

Seal-Scan® and Seal-Sensor utilize Airborne Ultrasonic Technology (ABUS) that inspects and analyzes pouch seals non-destructively. This technology can be integrated into production lines for fully automated seal quality inspection.

Seal-Scan Integrator Package for non-destructive in-depth seal quality analysis. Seal-Scan provides C-Scan imaging, detailed seal analysis, producing pixel by pixel evaluation of seal (Opto-Acoustic image). Seal-Scan characterizes overall quality and uniformity of the seal.

Good seal

Seal with 0.75 mm defect

Side seal inclusion

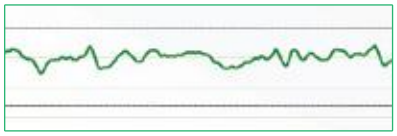
Side Seal with Pinhole

Seal-Sensor technology provides 100% online seal defect detection of the final pouch seal.

- Sensor easily mounts on conveyors and pouch handling systems
- Rapid linear scan (L-Scan) of pouch seal provides immediate seal check/verification of pouch seal quality inline at high outputs.
- Test result data produced in seconds.

GOOD SEAL

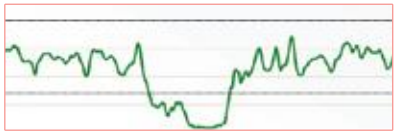
L-Scan



Stats	Avg	Min	Max	StD
	28.8	16.0	36.0	5.79

SEAL WITH 0.75 MM DEFECT

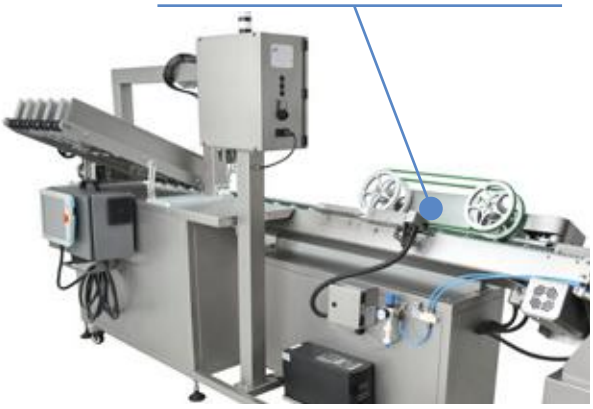
L-Scan



Stats	Avg	Min	Max	StD
	25.1	1.1	36.8	18.87

Seal-Sensor controls and HMI

Seal-Sensor mounted on conveyor



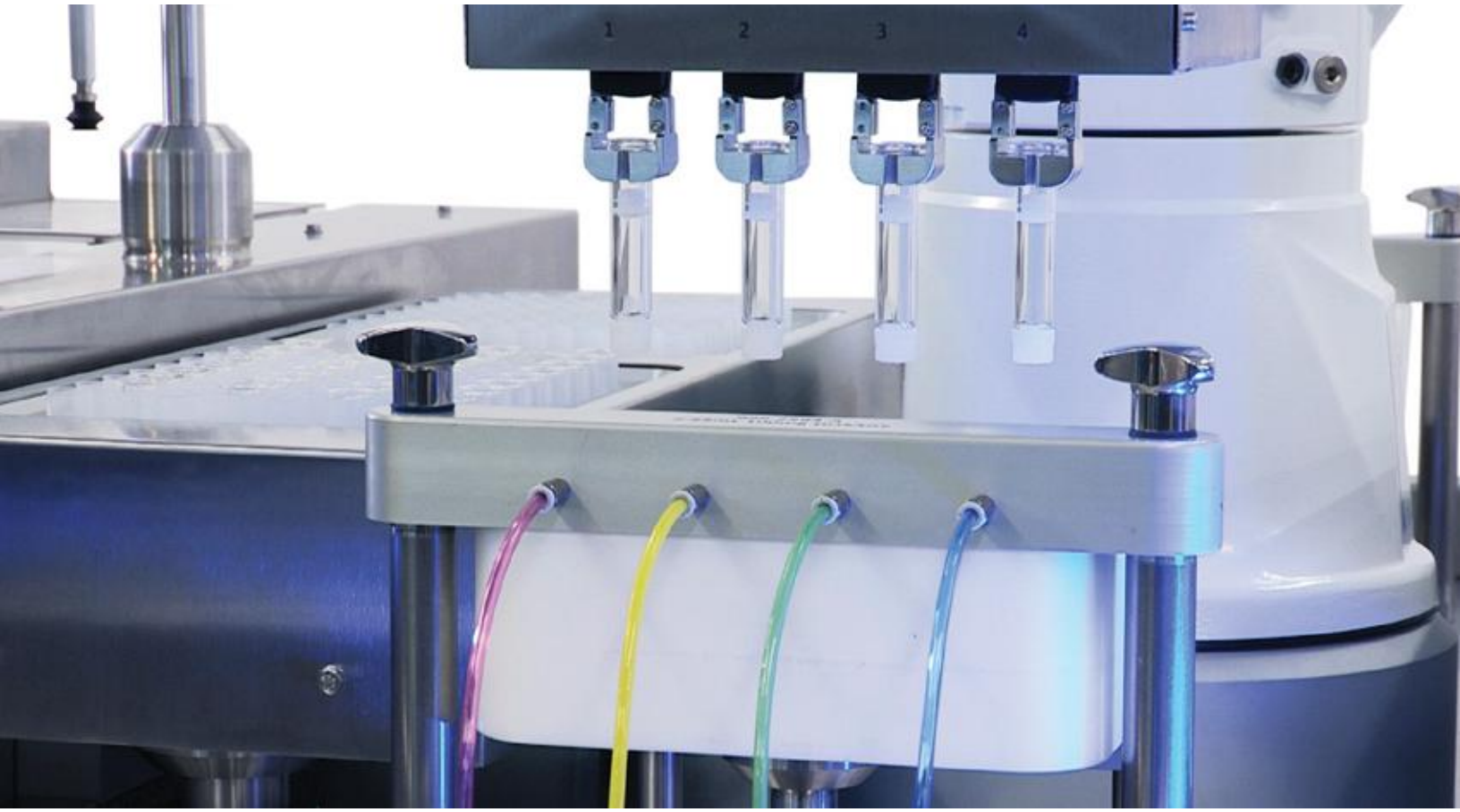
Vacuum Decay Technology for Package and Container Integrity Leak Testing

ASTM Test Method F2338 and FDA Standard

VeriPac vacuum decay technology has been proven to be the most sensitive, most reliable vacuum-based leak test method on the market, backed by decades of dependable performance in the pharmaceutical, biologics, medical device, food and nutrition industries.

VeriPac vacuum decay technology solutions for integration are adaptable and scalable to reliably test a variety of package formats, ranging from flexible packaging to rigid containers and parenteral products.

Vacuum decay is a deterministic method to provide reproducible and reliable results for leak testing of high-risk package applications. Testing involves placing a package in a test chamber, applying vacuum, and monitoring the vacuum level for any change which would indicate the presence of a leak.



Vacuum Decay for CCI of pre-filled syringes

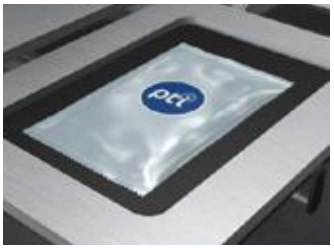
Veripac LPX 430.8S

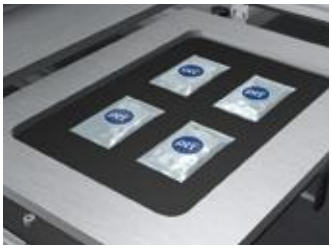
PTI's vacuum decay technology is an ASTM Test Method F2338, developed using the VeriPac platform.

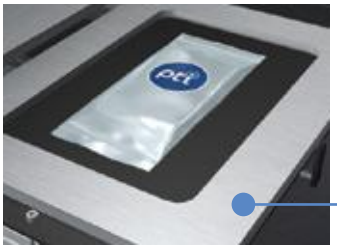
- Test method is recognized by the FDA as a consensus standard for package integrity testing.
- Listed in ISO 11607 and USP Chapter <1207> guidance.

PTI's Vacuum Decay Difference

Achieves highly sensitive testing with leak detection of critical defects down to the 1 micron range. Parenteral applications require this level of sensitivity, with the maximum allowable leakage limit (MALL) at the single digit micron level to eliminate any risk to the patient.



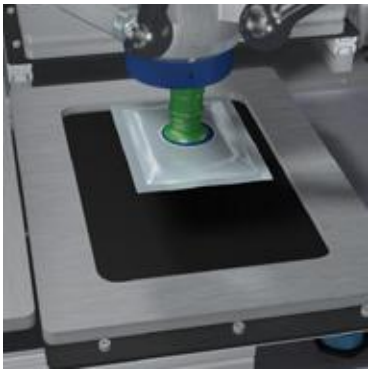




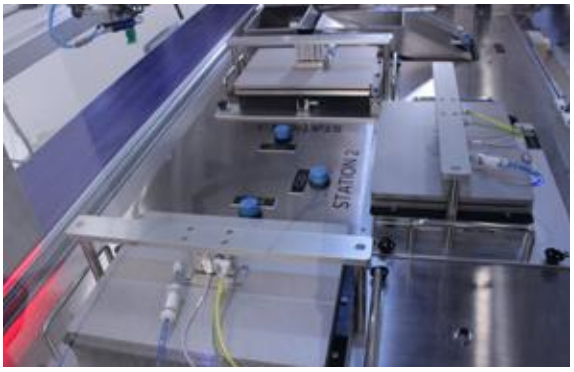
VeriPac LPX FLEX chambers can accommodate various size pouches and test multiple pouches in a single cycle.

Veripac LPX 430.3D

Vacuum Decay Test Chambers can be easily customized for different package formats and testing requirements.



FLEX test chamber conforms to the flexible package during test cycle



Multiple test stations depending on throughput and testing needs

Force Decay Technology for Package Integrity Leak Testing

Non-destructive seal and leak detection for blister packs, sachets, and pouches with low headspace.

Force Decay Leak Test

The VeriPac Force Decay inspection technology platform combines the sensitivity and reliability of PTI's vacuum decay technology (ASTM F2338) while introducing a force-based measurement to enhance results for leak testing packages with minimal headspace.

Force decay technology is capable of measuring force from the surface deflection of a package during a normal vacuum-based test cycle. Certain types of packages can be tested in multiple during a single test cycle. Vacuum levels are monitored during the test cycle to evaluate the package using the ASTM F2338 vacuum decay leak test method. The location of the defective package or blister cavity is identified.

MicroCurrent HVLD Technology Module for Automated Parenteral CCI

PTI's HVLD technology platform has evolved to provide full integration of MicroCurrent HVLD for container closure integrity into parenteral fill-finish applications

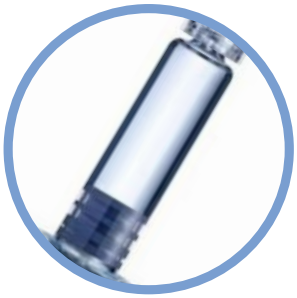
Container closure integrity (CCI) for parenterals and biologics continues to be one of pharmaceutical's most critical applications. Biologics are generally sensitive to small leaks, are costly to manufacture and effective leak detection can be challenging using traditional test methods. CCI ranks among the more critical pharmaceutical quality attributes.

PTI's MicroCurrent HVLD changed the landscape for capacitance-based leak detection, providing safe and more dynamic testing capability for liquid parenterals, both small and large molecule products.

The E-Scan MicroCurrent conductivity test method, is completely non-destructive to the container and product; exposing the package and product to lower voltage than other conductivity based solutions. The technology uses a non-contact and non-invasive test method that requires no sample preparation. E-Scan MicroCurrent technology can be used with a wide range of liquid based products including **low conductivity sterile water for injection (WFI)** and proteinaceous products with suspensions.

NATURALLY OCCURING DEFECTS

Crimp & neck defects



Barrel & body defects

Heel defect

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pti® Inspection Systems

The most sensitive
The most reliable

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