PosiTest® *LPD* ***Low voltage Pinhole Detector*** **Q & A**

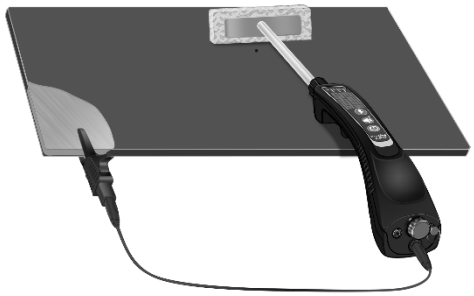
Q. – What is a pinhole detector?

A. – A pinhole detector is a non-destructive instrument for detecting discontinuities in a coating system including pinholes, cracks and thin spots. Other names include porosity detector, continuity tester, sponge tester and holiday detector.

There are two types of pinhole detectors, low voltage (wet sponge) and high voltage (spark tester). Low voltage detectors, like the PosiTest *LPD*, are typically used on coating systems less than 500 µm (20 mils) thick. High voltage spark testers operate at voltages up to 35,000V which can seriously harm the operator and damage the coating if the test is not correctly conducted. They tend to be more expensive and more complex than low-voltage pinhole detectors.

Q. – What is measured?

A. – A low-voltage pinhole test is performed by moving a moistened, electrified sponge over a non-conductive coating applied to a conductive substrate. The instrument is 'grounded' or 'earthed' to the conductive substrate, typically by clamping onto an uncoated area. When the coating is continuous and no defects are present, electricity is unable to pass from the sponge to the substrate through the non-conductive coating. But when the electrified sponge encounters a flaw in the coating, electricity is able to flow into the substrate and travel back to the instrument through the ground wire, completing the circuit and setting off the audible and visible alarms.



Q. – Why is porosity measurement important?

A. – After a protective coating has been applied, it is important to ensure there are no defects or discontinuities present that expose the substrate beneath. Small areas of thin or missing coating, called 'pinholes' or 'holidays', can become foci for corrosion and drastically reduce the life of a protective coating system. They can be invisible to the naked eye. Porosity detectors are often used in applications where corrosion is difficult to monitor, or in aggressive service environments where performance of the protective coating is critical.

Q. – How does it measure coatings on concrete?

A. – When measuring coating thickness, concrete is not considered a 'conductive' substrate, as it is much less conductive than metal. However, concrete is still slightly conductive, and can carry enough current to allow low-voltage pinhole detectors to function. Therefore, for the purposes of low-voltage pinhole detection, concrete is considered a 'conductive' substrate.

The challenge when conducting low-voltage pinhole testing on concrete is to ensure the instrument is properly grounded. If there is exposed rebar or metal protruding from the concrete, this is the easiest solution. An alternative is to drive a metal rod (or piece of rebar) into the ground nearby the concrete to at least the depth of the slab, relying on the earth to conduct the electric current between the rod and the slab.

Q. – What are my available options?

A. – DeFelsko offers a Basic Kit, a Complete Kit and an Accessory Pack.

Basic Kit – Includes everything required to conduct a porosity test, in a hard-shell inspection case.

Complete Kit –Includes the contents of the Basic Kit, in addition to accessories to extend the reach and versatility of the PosiTest LPD.

Accessory Pack – Includes everything required to upgrade a Basic Kit to a Complete Kit.

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Q. – How is the PosiTest *LPD* different than other pinhole detectors?

A. – The PosiTest *LPD* has been designed as a fully customizable unit and offers a number of features not typically found in other competitive instruments.

- Lightweight – weighs less than most competitive products, reducing muscle strain and fatigue
- Ergonomic design --while most other devices are box-shaped, the PosiTest LPD was specifically designed to fit comfortably in the hand with a balanced weight distribution
- Easy-to-use – bright LEDs and simple 3-button operation with graphic icons
- Calibrated (well-regulated) voltage outputs that will not drop under load. The PosiTest LPD is more likely to find small pinholes than other devices.
- GroundSense™ visibly reassures the user that the instrument is properly grounded. Users of most competitive devices would not alert if the connection to ground is lost, resulting in undetected pinholes.
- Common threads and connectors that allow for unprecedented compatibility and customization. Customers can extend the reach of the PosiTest LPD with their own poles and extension rods.
- All models include a hard shell case to conveniently carry the instrument and all accessories.
- Includes Long Form Certificate of Calibration traceable to NIST
- Two year warranty
- IP65 ingress protection- dust and splash resistant. No other device is rated this highly.

Q. – What is the purpose of the wetting agent?

A. – Sometimes pinholes are so miniscule that water has difficulty reaching the conductive substrate underneath, especially on thicker coatings when the water must penetrate further into a pinhole to reach the substrate. In these instances, inspectors will use a surfactant (wetting agent) to lower the surface tension of the water, allowing the solution to better penetrate the pinhole.

Q. – Is the new PosiTest *LPD* compatible with PosiSoft solutions?

A. – No. The PosiTest LPD does not record any data.

Q. – How is the PosiTest *LPD* calibrated at DeFelsko?

A. – Each PosiTest *LPD* is calibrated at all test voltages with a load of known electrical resistance and a voltmeter, each traceable to a National Metrology Lab. A Long Form Certificate of Calibration containing actual measured values is included with every instrument. No other device provides this level of Certification.

Q. – Am I able to recertify the PosiTest *LPD* for my customers?

A. – Yes. The PosiTest *LPD* is able to be recertified using the optional PosiTest *LPD Verifier* and a Certified Voltmeter. Calibration procedures are posted online at www.defelsko.com/quality/calibration_procedures.

Q. – What is the recertification cost for the PosiTest *LPD*?

A. – The cost to recertify is $95 and includes a Long Form Certificate of Calibration. Recertification usually takes one day.