

# NOVOTEST

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NONDESTRUCTIVE TESTING



## PINHOLE DETECTOR NOVOTEST ED-3D

MANUAL

2013

**CONTENTS**

1. Introduction	2
2. Appointment	2
3. Technical characteristics of the device	2
4. Packing list	3
5. Device, action principle, bodies of indication and control	4
6. Marking, container and packing	6
7. Preparation for work	6
8. Control process	7
9. Precautionary measures	8
10. Storages and transportations	8
11. Maintenance	9
12. Warranty	9

## **1. Introduction**

This manual contains important information about safety, use and service of the pinhole detector. The manual is intended for acquaintance with the device, a principle of action and service regulations of the pinhole detector NOVOTEST ED-3D.

**Attentively read this manual before using the device.**

## **2. Appointment**

2.1. The device is intended for control of porosity and violation of a continuity of dielectric coverings on products from electro-carrying out materials.

2.2. Operating conditions of operation of the device:

- air temperature from 0 to +40 C°,
- relative humidity of air to 95 % at 30 C°.

## **3. Technical characteristics**

3.1. Revealed defects – the porosity, cracks, not painted areas.

3.2. Operation of the pinhole detector occurs during penetration of solution of electrolit through sites of violation of a continuity of a covering to a surface of an electro-carrying-out material (product) owing to what there is a decrease in resistance of a controllable site of a surface.

3.3. Operating modes (control tension) – 9V, 67,5V and 90V.  
(Standard ASTM G62-A)

3.4. A tolerance control tension in the absence of indication  $\pm 5$  %.

3.5. Limits of fixing of resistance of a defective site with the put electrolyte at the established control tension (Standard ASTM G62-A):

- 90 kOhm at 9V;
- 125 kOhm 67,5V;
- 400 kOhm of 90V.

Testing the device on the resistors is possible only after 5 minutes of operation instrument!

3.6. Tolerance of thresholds of operation:  $\pm 10\%$ .

3.7. The size of a contact surface of the sponge: 50x200 mm.

3.8. The power of the device is carried out from three NiMH of storage batteries or elements of a power of AA type with rated voltage of 1,5V.

3.9. Time of continuous work at the established tension, not less:

- 150hours 9V;
- 100 hours at 67,5V;
- 80 hours at 90V.

3.10. Weight of the device, with batteries – 200 grams.

3.11. Dimensions:

- the electronic unit – 70x140x28 mm;
- electrode holder – 25x400mm.

#### **4. Packing list**

- 4.1. The electronic unit – 1 piece.
- 4.2. The electrode holder – 1 piece.
- 4.3. Set of connecting cables:

- connecting cable No. 1: el.unit - electrode-holder  
plug to plug – 1 piece.
- connecting cable No. 2: el.unit - product  
plug to clip -1 piece.

4.4. The operation manual – 1 piece.

4.5. A set of resistors (82 kOhm, 100 kOhm, 115 kOhm, 135 kOhm, 360 kOhm, 430 kOhm) – 1 set.

## **5. Device, action principle, bodies of indication and device control**

5.1. The principle is put in a basis of operation of the device the annex of control tension to a metal product and a covering with the put electrolit and fixings of course of a current at electrolit penetration to metal in places of violation of a continuity of a covering.

5.2. Bodies of indication and control are shown on fig.1.

5.3. On/off the device occurs in long pressing of the button.

5.4. Mode change (9V; 67,5V; 90V) occurs in short pressing of the button. The active mode (control tension) is displayed by the light-emitting diode.

Indication of the chosen mode (at the left on the right):

- a green light-emitting diode – 9V;
- a yellow light-emitting diode – 67,5V;
- a red light-emitting diode – 90V.

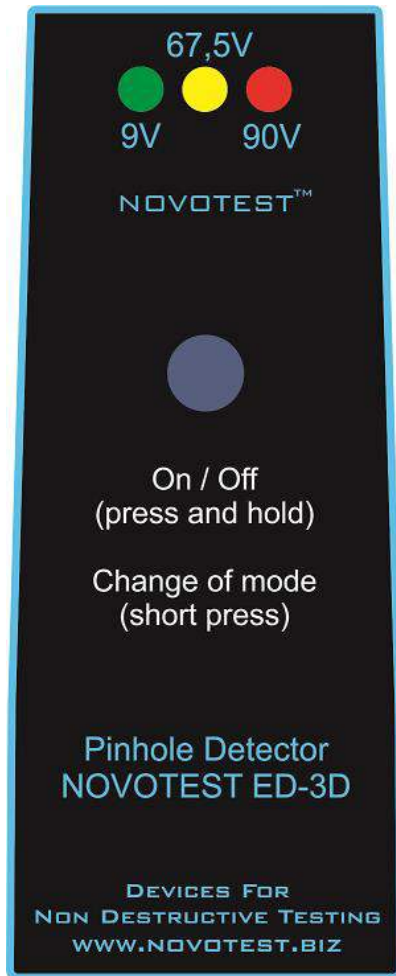


Figure 1. Bodies of indication and control

## **6. Marking and packing**

- 6.1. The device symbol is put on the front panel of the device with a manufacturer trademark;
- 6.2. Serial number is in the battery compartment.

## **7. Preparation for work**

- 7.1. Place in a battery compartment, previously having taken it from the case, 3 batteries of AA type.
- 7.2. To prepare water solution of electrolit, in following a proportion: 70 grams of dry electrolyte to the one water liter.
- 7.3. To execute cleaning of oxide films on a sponge installation site on an electrode the holder and clamping platinum.
- 7.4. Fix a sponge on an electrode holder.
- 7.5. With the connecting cable No. 1 (plug to plug) connect an electrode holder to "lamb" of red color on the device.
- 7.6 With the connect the cable No. 2 (plug to clip) to "lamb" of black color on the device.
- 7.7. To turn on the device, long pressing the button. The indicator corresponding to the chosen mode (control tension) will light. The device will keep the last operating mode, before switching off.
- 7.8. To choose, short pressing of the button an operating mode (control tension) 9V or 67,5V or 90V.

7.9. In case of a small charge of batteries the device will be switched off.

7.10. After choosing of control tension the device come to a measurement mode.

7.11. To check device functioning.

7.11.1. To moisten a sponge with electrolyte solution that it completely became impregnated.

7.11.2. To short-circuit a contact surface of a sponge of an electrode holder and a clip of the crocodile type of a connecting cable No. 2. In case of normal functioning of the device the indicator of the chosen control tension "will begin to blink" and there is a faltering sound signal.

7.12. For monitoring procedure a clip of the crocodile type of a connecting cable No. 2 to fix on a product, having provided its electric contact to basis metal.

## **8. Control process**

8.1. The surface of a controllable covering should be dry.

8.2. Moisten an electrode holder sponge in electrolyte solution.

8.3. Start scanning of a surface of a covering by a sponge. Speed of scanning should provide constant wettability of a surface with electrolyte solution.

8.4. When passing the moistened sponge over a place of violation of continuity the indicator of control tension of the chosen mode lights up and the faltering sound signal will be heard.



8.5. For further control provide absence of contact of a sponge through electrolyte solution with a defective site (it is necessary to wipe dry a defective site or to recede from it).

8.6. At monitoring procedure it is necessary to watch visually quality of wetting of a surface a sponge, at emergence of characteristic "dry" traces it is necessary to moisten.

8.7. After the completion of control to switch off the device, remove and wash out a sponge, wipe dry a contact surface of an electrode holder and clamping plates, disconnect cables.

## **9. Precautionary measures**

9.1. The persons after instructing and certified on the II qualifying group for safety measures at work with electro- radio-measuring devices are allowed to work with the device.

9.2. Elimination of malfunctions and repair of the device is carried out only by manufacturer.

## **10. Storages and transportations**

10.1. The device should be stored at air temperature from +5 to +40°C and relative humidity to 80 % at temperature 25°C.

10.2. Indoors for storage there must not be a dust, acids, alkalis and aggressive gases.

10.3. Device transportation in a case can be made by any kind of transport according to requirements and the rules of transportation operating on these means of transport.

10.4. At transportation, loading and storage in a warehouse the device should be preserved against blows, pushes and moisture influence.

10.5. For an exception of condensation of moisture in the device at its carrying from a frost in a warm room, it is necessary to sustain before use the device within 6 hours at room temperature.

## **11. Maintenance**

Maintenance of the device is made by the manufacturer in case of detection of malfunctions in operation of the device.

## **12. Warranty**

13.1. The manufacturer guarantees normal operation of the device for 12 months, from the moment of sale, and undertakes to make its repair during this term at emergence of breakages and refusals.

12.2. Warranty don't extend in case of violation of seals, service conditions, transportation and device storage, and also in the presence of mechanical damages of the electronic unit and/or an electrode holder.

12.3. The guarantee doesn't extend on cables and batteries.

**MANUAL**

013.001.0812

Pinhole detector: NOVOTEST ED  
Type: NOVOTEST -3D  
Serial number: \_\_\_\_\_  
Manufacturing date: «\_\_\_\_»\_\_\_\_\_20\_\_\_\_.  
Manufacturer: Scientific and Technical Centre "Industrial  
devices and technologies", Ltd  
Address 5, Spasskaya str., Novomoskovsk,  
Dnipropetrovsk reg., Ukraine, 51200

**Special marks**

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