

εDust+

ELECTROSTATIC DUST PRINT LIFTER

User Manual

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Research and Development



Dust is more than dirt, mostly a mixture of different things like pollen, textile fibers, dead skin cells, plant parts, air pollutants, small particles from concrete, plaster, asphalt and more. Even each dust particle is often a mixture of these things. Dry dust on a shoe sole gives high quality prints on floors and papers. These prints can be lifted with Electrostatic Technique. The electrostatic dust print lifter εDust+ is designed to give a good result of lifting dust print from most types of surfaces.

εDust+ has dual functions. You can either use the built-in grounding and high voltage connectors for lifting from floor (normal using) or the loose grounding cable and the high voltage probe if the ground is poor such as on a plasterboard, you can ground with the help of a piece of lifting film under the object to enhance ground.



With fixed high voltage and ground connectors for lifting from floor (normal using).



With high voltage and ground cables for lifting from cardboard papers, wooden boards, cell plastic boards.



Safety and hazard information: Danger high voltage, only to be used by trained personnel. The unit produces up to 12000 volts with a low current stress, but can potentially cause an electrical shock. Do not touch the lifting film, high voltage probe or ground plate while voltage is being applied.

Content:

1. Main unit
2. High voltage probe
3. Ground cable
4. Ground plate
5. Plastic flattener
6. Carrying case
7. Lifting film 0,40 x 30 m



Unit overview



Lifting prints from smaller areas using sheets from the lifting film

- Search the floor for prints with low angle oblique light, here with a Versa Light Max (pic 1).
- Cut a sheet with suitable size from the roll of lifting film and put it on found print with the silver side up. (pic 2)
- Place the ground plate 1 – 2 cm from the sheet (pic 3).
- The eDust+ is placed with both ground connectors to the ground plate and the high voltage connector to the lifting film (pic 4).
- Switch on the high voltage and adjust to suitable level, lower level for stone floor and higher for wooden and plastic floor. If the red diode is not lighting, check that both ground connectors have contact with the ground plate. If only one ground connector has contact with the ground plate, no high voltage is produced. This function is for minimizing the risk for electrical shocks by touching the high voltage connector (pic 5).
- Air bubbles between the film and floor can easily be reduced with the “Plastic Flattener” (pic 6).



Pic 1



Pic 2



Pic 3



Pic 4



Pic 5



Pic 6

To avoid electrical shock, when lifting the film, switch off the eDust+ and make sure not hold or touch ground- or high voltage connections.

Lifting prints from larger areas

- Search for prints with low-angle oblique light, here with a Versa Light Max (Pic 1).
- Place the roll in suitable position on the floor for rolling out on the interesting area and rollout, at this moment, only 10 - 15 cm of the film with the silverside up. Place the ground plate 1–2 cm from the sheet. The εDust+ is placed with both ground connectors to the ground plate and the high voltage connector to the lifting film (pic 2).
- Switch on the high voltage and adjust to suitable level, lower for stone floor and higher for wooden and plastic floor (pic 3). If the red diode is not lighting, check that both ground connectors have contact with the ground plate. (If only one ground connector has contact with the ground plate, no high voltage is produced. This function is for minimizing the risk for electrical shocks by touching the high voltage connector).
- Roll out the film with high voltage on (pic 4).
- Air bubbles between film and floor can easily be reduced with the “Plastic Flattener” (pic 5).
- Cut the used film of the roll and roll up this part on a paper tube (pic 6 & 7). Lifted prints can be stored on this roll for a long time.

To avoid electrical shock, when lifting the film, switch off the εDust+ and make sure not hold or touch ground- or high voltage connections.



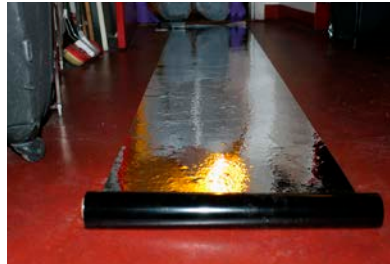
Pic 1



Pic 2



Pic 3



Pic 4



Pic 5



Pic 6



Pic 7

Lifting prints from card board paper and similar items that have inadequate ground lead

- Occasionally on a crime scene you will find loose items that are hard to get good enough grounding for example a piece of cardboard (pic 1).
- Adhere a piece of the lifting film on the underside of the of the cardboard, this will function as a ground connection (pic 2).
- Connect the yellow ground cable to the yellow socket on the unit and the alligator clip to the ground film (pic 3 & 4).
- Connect the red high voltage probe cable to the red socket on the unit (pic 3).
- Cut a sheet with suitable size from the roll of the lifting film and put it on the print with the silverside up or use “the rolling technique” with the whole roll. To get high voltage on the red probe, the εDust+ unit must be placed on the ground plate in contact with the two ground connectors (pic 3).
- Switch on the high voltage and apply the electrostatic energy to the film by pointing the probe to the film (pic 4). Air bubbles between the film and the object can easily be reduced with the “Plastic Flattener”.



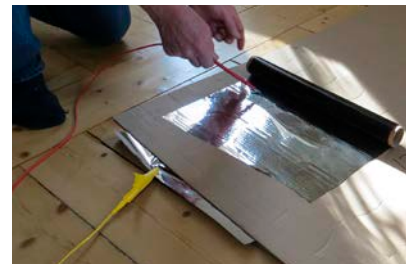
Pic 1



Pic 2



Pic 3



Pic 4

To avoid electric shock, when lifting the film, switch off the εDust+ and make sure not hold or touch the high voltage connector or the probe.

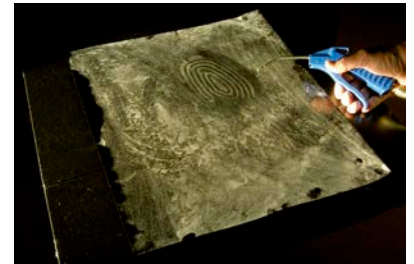
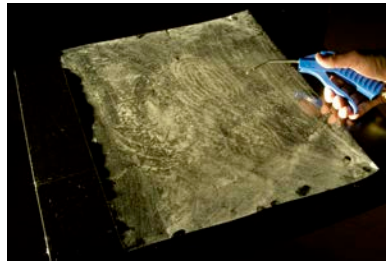
Photographing lifted prints

To get the best result when photographing the lifted print is to use low-angle oblique light from a light source giving some type of projected light. The picture is showing one idea by one light source on one side of the prints and on the opposite side one mirror, which gives a reflection back on the print. This will provide more even light and a better contrast.



Enhance the lifted impressions – removing background dust

Sometimes the quality and contrast of lifted print is not as good because of disturbing lifted background dust. Solving that can be very easy, try and “rinse” the lifted print by blowing with compressed air like pictures to the right showing. Make sure that no dust from the print is removed when blowing.



Transport and store lifted prints

Lifted dust print will not release from the film other than by physical touch. It means that you can store the film for a long time, waiting for the comparison with suspected shoes.



To increase the ground connection

Certain floor types like wood and plastic floors sometimes do not provide enough ground connection. To increase the ground voltage and maximize the dust lifting, make the area of ground connection larger by using a piece of lifting film, approximately 30 x 40 cm like the picture is showing. Place that film with the silver side facing the floor, 3-4 cm from the lifting film and overlapping a small part of the ground plate. Then use the εDust+ unit in the normal way.



Specification:

Input Voltage: Battery 9 volt
Output Voltage: 0 to 12 kV (negative)
Output Current: 0 to 150 μ A

This product is designed by Kjell Carlsson Innovation AB.
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