

# Vacushut

The shuttle for air-sensitive samples



- Hermetically tight
- The easiest way from the glove box to the SEM
- Suitable for every SEM and other UHV-devices
- No manipulator and feed-throughs etc. required
- Opening and closing actuated by vacuum
- Save lock-in: lid opens when vacuum reaches pressure inside
- Save lock-out: a lower pressure remains inside the vacushut
- Repeated reuse of the same sample possible
- Save for UHV: no outgassing or bursting risk
- For transport, shipping, load-locking or just storage

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**VacuShut will be available by the end of the year 2013 at Plano GmbH**



**Plano GmbH**

Zubehör für Elektronenmikroskopie

# Vacushut



**The self-opening /-closing shuttle for transferring air-sensitive samples e.g. into scanning electron microscopes**

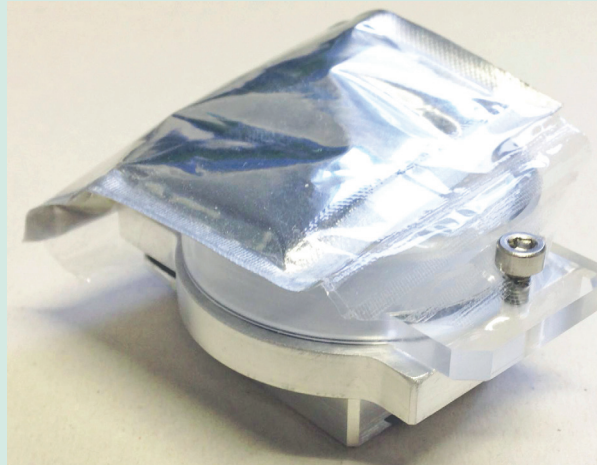
**PATENTED**

**Vacushut** is the first self-opening and -closing shuttle, which allows a hermetically closed transfer of air-sensitive samples into any vacuum-based investigation or preparation chamber, like from the glove box to the SEM and back. During the evacuation process within the SEM-chamber a gas-filled bag will expand, pulling the lid up and expose the sample towards the electron beam without any other manipulators or energy sources.

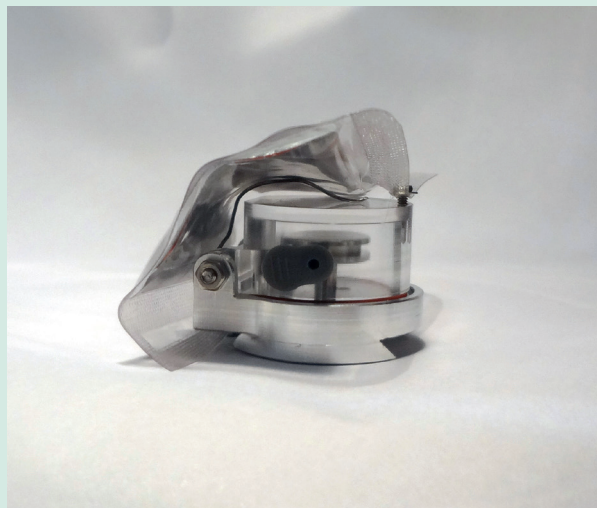
After the investigation, when the chamber is flooded with inert gas, the bag will relax and allow a spring to close the lid before the atmospheric pressure is reached. Hence, a lower pressure will remain within the Vacushut, which holds the lid tightly closed enabling a safe handling in air, e.g. for (back-) transport to the glove box or to the same or another investigation or preparation chamber, shipment to a collaborating institute, or just storage.

After filling the Vacushut with a sample in a glove box, one short evacuation cycle within the load lock of the glove box ensures, that the lid closes tightly and protects the sample from air. The lid stays hermetically closed until the surrounding pressure reaches the same level as within the Vacushut. In order to be able to open the lid manually at atmospheric pressure, e.g. within a glove box, the depression can be released over a plug at the side of the lid. The stubs are clamped within the aluminum base plate.

## Atmospheric Pressure



Large box, outer lid diameter: 44 mm



Small box with dovetail for Zeiss-SEMs, outer lid diameter: 24 mm

## Vacuum



Large box within vacuum, almost final design, capacity for 4 stubs



Small box within vacuum, capacity for one standard stub