

Binder *Labortechnik*

**Plasmacleaner
TPS 316**



Plasmacleaner TPS 316

by *Binder Labortechnik*

The TPS 316 is a plasma cleaner optimized for gentle cleaning of your TEM-specimen and TEM-holders.

The base unit uses a state-of-the-art turbo-molecular pump (Pfeiffer High Cube). The easy to use and intuitive touchscreen interface provides the user with instant access to all relevant parameters. The TPS 316 is equipped with a main chamber for cleaning one specimen or TEM-holder. Up to two sub-chambers are available to dry and store holders.

The main chamber is directly connected to the turbo-molecular pump. The sub-chambers can be evacuated and ventilated independently. An optional SEM-Kit allows the additional capability of cleaning samples with a maximum diameter of 30mm and a height of up to 15mm.

- Touchscreen interface with intuitive menu navigation
- Visual display for monitoring process status
- Solid housing with modern design
- State-of-the-art, air-cooled, oil-free turbo-molecular pumping unit
- External plasma source for minimal sputter effects on specimen and holders
- Top-Entry-Kit for through holder cleaning (optional)
- Up to two sub-chambers for drying and storing TEM-holders (optional)
- SEM-Kit for sample cleaning of samples with max. 30mm diameter and 15mm height (optional)
- Adapter for FEI, Zeiss, Jeol, and Hitachi specimen holder compatibility (additional adapter types on request)

The combination of a turbo-molecular pump and a membrane pump combined with the integrated pumping control generates an oil-free vacuum with short cycle times. The ultimate vacuum pressure achievable is in the range of 8×10^{-6} mbar.

The small volume of the main chamber guarantees quick pump-down cycles and ensures that the specimen can be cleaned rapidly.

The sub-chamber (for storing and drying of an additional TEM-holder) can be evacuated and ventilated quickly and independently of the main vacuum chamber. In order to maintain the vacuum and cleanliness of the sub-chamber, it is isolated from the main-chamber by a control valve during a plasma process. After completion of a process, the isolated chamber is reset to its former status.



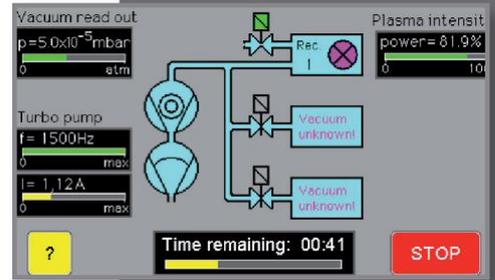
Additionally a Side-Entry-Adapter can be installed at the main-chamber. It will be pumped and vented with it

The status display informs the user of the running process in real-time. It displays relevant parameters such as frequency, power consumption of the turbo-molecular pump, plasma intensity and pressure, which are displayed additionally by bar graphs. Important states are color-coded.

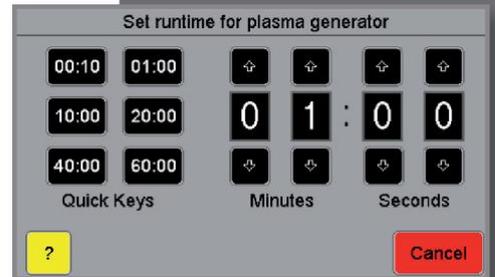
The intuitive touchscreen menu enables users to operate the plasmacleaner TPS 316 without additional training. Its safety feedback loops prevent system damage.

The duration of a plasma process can be stored in 'quick keys'. These settings can be easily accessed for future runs.

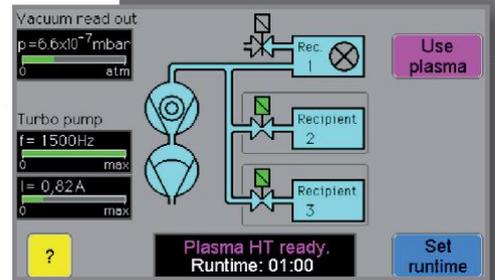
An integrated help menu provides further information about the control elements.



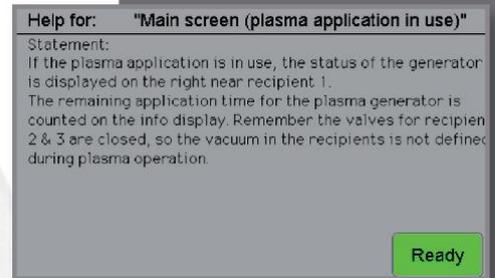
Status monitor during plasma operation



Time setting plasma operation



Status Monitor



User help menu

The plasma source operates at a frequency of 30kHz, a voltage of 4kV and a power of 10W. The source is mechanically fixed to the main chamber. The main chamber has a diameter of 42,5mm and a depth of 25,5mm.

Specimen cleaning is carried out below the plasma generator to minimize sputter effects and the impact of unregulated temperature fluctuations on the specimen. Delicate specimens can be oriented perpendicular to the plasma flow for a more sensitive clean. This way it is even possible to clean samples which are supported by carbon film coated grids.

For a thorough, but still sensitive clean the specimen holder can be brought directly into contact with the reactive plasma via a Top-Entry-Port.

In its basic configuration the TPS 316 comes with one main-chamber, one sub-chamber, plasma source and pumping station.

Optional accessories for the TPS 316:

▪ **Second Sub-Chamber**

Optional for FEI, Zeiss, Jeol and Hitachi specimen holders. Additional holder types on request.

▪ **SEM-Kit**

The SEM-Kit allows the cleaning of a specimen with a maximum diameter of 30mm and height of up to 15mm. The SEM KIT consists of a height-adjustable specimen holder and a gauge to adjust the height of the specimen in the plasma chamber. Adjusting the height of the specimen is required to avoid damage to the specimen or the plasma source when positioning them in the chamber.

▪ **Top-Entry-Kit**

For more intensive clean, the sample holder can be inserted using a Top-Entry-Adapter that can be attached to the plasma source.

▪ **Side-Entry-Adapter**

The Side-Entry-Adapter is installed at the main-chamber and will be pumped and vented with it.

The systems are of a modular design and can be adjusted to your requirements.

Please contact us if you need any further information.



SEM-Kit

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