



Technical Support Bulletin

EM-Storr vacuum sample storage container

[Products #13-001050-P, #13-001050-H, #13-001050-T, #13-001050-F, #13-001052-L](#)



Description

The EM-Tec EM-Storr vacuum sample storage container has been specifically developed to store and protect SEM / FIB / TEM-samples and calibration standards under vacuum. It protects valuable samples from air, moisture and dust. The superior EM-Storr vacuum container is constructed using high vacuum design guidelines and high vacuum compatible materials:

- Vacuum grade aluminium, protective anodised coating only outside the vacuum chamber
- Hardened safety glass lid $\varnothing 100\text{mm} \times 10\text{mm}$; specified to withstand 7 bar
- NBR O-ring with size: $\varnothing 85\text{mm} \times \varnothing 5\text{mm}$ cross section
- All metal high vacuum valve with PTFE shaft seal and 6mm (1/4") barbed hose connection
- Silicon O-ring to hold the pin stubs or Hitachi stub adapters with size: $\varnothing 3\text{mm}$ ID x $\varnothing 1.5\text{mm}$ cross section

The outside of the aluminium container is hard anodised for protection. To reduce outgassing and to hold vacuum for extended periods, the inside surface is machined vacuum grade aluminium with a glass lid. The EM-Storr vacuum desiccator is capable of reaching vacuum in the 10-4 mbar range. The vacuum connection for pump-down is a 6mm (1/4") barbed hose fitting – compatible with 6mm thick wall silicon vacuum hose. The EM-Storr vacuum containers are stackable; the octagonal design is optimised for handling, strength and weight.

Storage Capacity

The EM-Storr model 81 vacuum sample storage container comprise storage capacity for SEM pin stubs, Hitachi M4 cylinder stubs, TEM grids and FIB grids (the latter two in appropriate grid boxes). The pin stubs are securely held with small O-rings; stub adapters with M4 thread hold the Hitachi M4 threaded sample stubs. EM-Storr model 83 comprises a vacuum chamber of 26x $\varnothing 80\text{mm}$ for large or bulk samples.



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Storage capacity of the EM-Storr vacuum sample storage containers is:

| Model | Sample type | Product # | Capacity |
|--------------|--------------------|-------------|---|
| EM-Storr 81P | Pin stubs | 13-001050-P | 19x \varnothing 12.7mm or 7x \varnothing 25.4mm or 2x \varnothing 32mm or 1x \varnothing 38/50/63mm pin stubs |
| EM-Storr 81H | Hitachi M4 stubs | 13-001050-H | 19x \varnothing 15mm or 7x \varnothing 25mm or 2x \varnothing 32mm or 1 x \varnothing 50/ \varnothing 63mm cylinder stubs |
| EM-Storr 81T | TEM grids | 13-001050-T | 2x30 TEM grids in EM-Tec #28-0010130 GB-30 TEM storage box |
| EM-Storr 81F | FIB lift-out grids | 13-001050-F | 100 FIB lift-out grids in EM-Tec #28-002100 FSB100S FIB grid storage box |
| EM-Storr 83L | Large / Bulk | 13-001052-L | Maximum size 26mm x \varnothing 80mm |

Operation

Storing samples under vacuum

- Place the EM-Storr vacuum sample container on a stable and flat surface
- Make sure that the EM-Storr vacuum container is horizontal and level
- Place the samples in the storage area: for SEM stubs use SEM stub gripper tweezers and push the pin in the holes. Select appropriate holes to maximise storage capacity. Maximum sample height including SEM stub is 15mm.
- Check if O-ring surface is clean; if not, wipe clean with a lint-free cloth
- Check if glass lid is clean; if not, wipe clean with a lint-free cloth
- Place glass lid on the O-ring; center the lid so it doesn't touch the protective posts
- Connect vacuum pump to the barbed hose connection on the vacuum valve using a 6mm vacuum hose
- Make sure the vacuum valve is opened (turn counter clock-wise)
- Switch the vacuum pump on and pump down (push down on the glass lid to provide an initial seal if needed)
- When the required vacuum level has been reached, close the vacuum valve (turn clock-wise)
- Switch the vacuum pump off and remove the 6mm vacuum hose.
- The samples are now stored under vacuum

Retrieving samples from vacuum

- Place the EM-Storr vacuum sample storage container on a stable and flat surface
- Make sure that the EM-Storr vacuum container is horizontal and level
- Open vacuum valve (turn counter clock-wise) to vent; you might hear a hissing sound
- Remove the glass lid; it might be needed to pull the glass lid to break the seal on the O-ring
- Place the glass lid on a soft clean surface
- The samples can be removed from the vacuum container

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Maintenance

The EM-Storr vacuum sample storage container requires little maintenance:

- Keep the sealing O-ring clean and dust free.
- When the O-ring gets damaged; replace with an NBR O-ring size: $\varnothing 85\text{mm}$ ID x $\varnothing 5\text{mm}$ cross section O-ring.
- When the O-ring dries out, remove, clean and use high vacuum grease to grease the O-ring; fully remove excess grease before replacing.
- Over time, the PTFE seal on the vacuum valve may require some tightening; do not over-tighten.
- The pin stubs and the Hitachi adapters are held by small O-rings underneath the sample plate; if they get damaged replace with a silicon O-ring size: $\varnothing 3\text{mm}$ ID x $\varnothing 1.5\text{mm}$ cross section.
- If the glass lid gets damaged, do not use it again and replace it with a new glass lid: #13-001050-G

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