

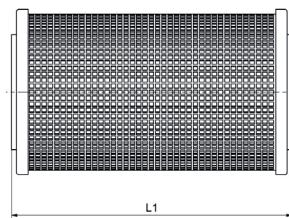
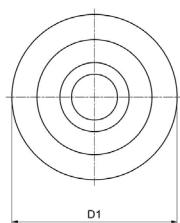
# Filter Elements for Adsorption Traps

EN

Filter systems for MULTI-TRAP, POSI-TRAP und VISI-TRAP



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## Technische Daten

Filter elements	Filter code	Application
■ Copper gauze	KG	large surface, absorbs condensate, particles and oil vapor
■ Stainless steel gauze	SS	same as copper gauze, added corrosion protection
■ Molecular sieve	MS	reduces oil back-streaming and water vapor
■ Sodasorb®	SO	traps corrosion particles, chemicals and neutralizes acid vapors
■ Activated charcoal	AK	traps organic vapors
■ Aluminium oxide	AA	traps acids, polar compounds, water and particles
■ PolyPro 2 µm	P2	traps particles to Ø 2 µm
■ PolyPro 5 µm	P5	traps particles to Ø 5 µm
■ PolyPro 20 µm	P20	traps particles to Ø 20 µm

## Application

Several materials are available for use in filtering the effluent gas stream and vacuum pump lubricating fluid in processes such as low-pressure chemical vapor deposition, plasma etching, freeze drying, gel drying and many others that generate corrosive or abrasive products. The choice of which combination of elements to use will depend on the nature of the process being run and the materials to be removed.

### Aluminium oxide

Gamma A1203 is the "activated" form of aluminum oxide. This form of aluminum oxide is very effective in removing water vapor from exhaust streams or vacuum pump fluids. In the presence of water vapour, it also neutralizes acids by reacting with them to form solid salts that remain trapped in the filter.

### Activated charcoal

Is a porous, fine-grained carbon with a very large internal surface area. Due to this property, charcoal, which consists of microcrystalline graphite, can trap gases, oils and vapors.

### Copper gauze

Gauze filters are made up of a woven net, similar to metal "wool" pads. They provide a large, fairly dense path through which the effluent stream must pass. Metal gauze filters are ideal for removing coarse particulate matter which is physically entrapped within the woven structure. The large surface area is effective in trapping condensable vapors. Aluminum chloride from the plasma etching of aluminum, ammonium chloride from the LP-CVD of silicon nitride and elemental sulfur from the plasma etching of polysilicon with sulfur hexafluoride are condensable vapors commonly encountered in semiconductor wafer processing.

### Stainless steel gauze

This filter medium woven from fine 304 stainless steel wire has essentially the same properties as the copper mesh, but has better corrosion protection.

### Molecular sieve

Many zeolites are widely used as ion exchangers and "molecular sieves" or selective absorbers. The reason for the selectivity in absorbing materials is related to the open cage-type structures and resulting cavities of fixed size. The open structure allows easy flow of molecules of specific sizes, those size that can fit through the apertures connecting the various cavities. Once inside a cavity, a molecule is held in place by weak bonding forces. The structure thus will not absorb molecules too large to enter or those too small to be effectively bound in place. Molecular sieves are useful in absorbing gases and vapor in specific molecular size ranges as well as hydrocarbons from vacuum pump oils and serve well to reduce oil back-streaming.

### Sodasorb®

Sodasorb® is a product of W.R. Grace & Co. and consists of hydrated lime and small amounts of sodium and potassium hydroxide, whose moisture content and porosity are carefully controlled to maximize absorbency. These materials bind acids salts and are therefore particularly effective as acid neutralizers. This filter medium is ideal for curing or drying processes where large quantities of acids such as acetic, hydrochloric or nitric acid are released together with water vapor.

### PolyPro

These are particle filters that are designed to retain particles within specific defined size ranges. In combination, the filters are used in order of decreasing pore size. Each of these filters can be used after the metal mesh filter, with the 2 µm and 5 µm filters always being used after the 20 µm filter and the 2 µm filter after the 5 µm filter. These filters offer no chemical activity.

### Regeneration procedures (for 401255 MV-300920 & 401256 MV-300925 molecular sieve filter elements)

Aluminum silicate material (Zeolite) used in these filters is type 13X.

Type 13X molecular sieve can be regenerated for reuse by purging or evacuating at elevated temperature. The degree of regeneration (water removal) is dependent on the temperature and humidity of the purge gas.

We recommend using dry nitrogen as the purge gas and it should flow from the system side of the trap to the vacuum pump. Adjust the nitrogen flow to maintain approximately 300 mTorr to 500 mTorr. A valve should be installed on the system side and closed while purging the trap. This procedure should take approximately 1 to 2 hours.

If a heating mantle or heating tape is available to wrap the trap then regeneration will occur in a shorter period of time. Temperature of 50 °C to 60 °C should be maintained.