



SUMMARY OF COMMERCIALY AVAILABLE PNEUMOPERITONEUM SMOKE EVACUATION SYSTEMS

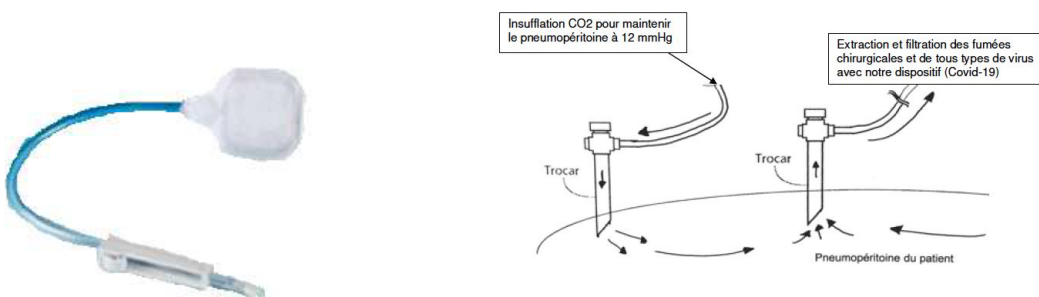
1. KARL STORZ Single-Use Smoke Evacuation Filters



Smoke Evacuation Filter Set, with 50 cm tube with male LUER-Lock, sterile, for single use for use with trocars with LUER-Lock connectors and Smoke Evacuation Filter, for single use, unsterile.

For testing the filter efficiency of Karl Storz's ULPA filters an aerosol with a mean particle size of 2.9 μm and a virus of 0.027 μm was used. Test results confirmed a filter efficiency of more than 99.999%. The size of Sars-CoV-2 is around 0,06 - 0,14 μm . Surgeons need to be aware of the fact that filter efficiency is not automatically higher for larger particles. This is due to the Most Penetrating Particle Size: Particles of around 3 μm are most difficult to trap by the filter (therefore we have chosen this size for our tests). Larger and smaller particles are trapped more likely due to physical effects.

2. SMICES SAS





3. Polyethersulfone syringe filter (0.05 microns) with Luer-Lok (Sterile)

This ultrafilter can be connected via Luer-Lok to a standard insufflation tubing with the flow going away from the patient and the outlet end of the PES Syringe filter connected to your suction system/canister. *The relatively low cost and availability of this product may make it an option when other options are not feasible.



4. PLUMEAWAY, Cooper Surgical, Inc.

Hooks onto a standard laparoscopic port, smoke evacuates passively

Plume-Away Surgical Smoke Evacuation





5. Buffalo Filters, ConMed

This is a line of surgical smoke evacuators that have to contain four stages of filtration in a single housing with a built-in pre-filter, special blend of activated carbon, ULPA filter and post-filter ensuring 99.999% efficiency, down to 0.1–0.2 micron. (Please see Conmed’s official statement below)



6. Smoke filters, Valleylab Medtronic

A filter contains four stages of filtering to capture tissue surgical fumes:

- Phase 1 - A prefilter that traps and removes large particulate matter and accidental fluids.
- Phase 2 - A patented ULPA (Ultra Low Penetration Air) filter captures particulate matter and microorganisms up to 0.1 μm with an efficiency of 99.9995%.
- Phase 3 - The highest quality virgin active carbon, designed specifically for Valleylab for the removal and absorption of odors and toxic gases produced by the burning fabric. These harmful gases can pose a health hazard to healthcare professionals subject to prolonged exposure. The active carbon used in the fume evacuation device preferentially removes the toxic organic gases (instead of water vapor) and guarantees optimal odor removal.
- Phase 4 - An expanded foam used to trap carbon particles preventing them from migrating away from the filter

