

SMV pleated PVDF membrane filters

Product description

Introduction

SMV filters provide safe, reliable and efficient bioburden control and sterilization of valuable liquids used in Food & Beverage, Pharmaceutical and Chemical industries.

The filters effectively retain particles and micro-organisms through a single hydrophilic PVDF membrane characterized by low extractable and protein binding. The filter media with support layers is integrated into a robust cage with reinforced core and end cup making it suitable for nearly all operation, service and cleaning conditions.

Devices

SMV filters are available in a wide range of scalable, cartridges, mini cartridges and capsules plus Zeta positive capsules that allow for fast and easy scale-up of your production. From laboratory-scale filters to production-scale assemblies, all filters incorporate the same media and identical materials of construction, eliminating the need to requalify filter units as processes are scaled up.

Compatibility

SMV filters are completely made from polypropylene utilizing thermal welding techniques to seal all the components thus optimizing device integrity, thus assuring a broad chemical compatibility with a large number of solvents, acids and bases. Polypropylene is a highly chemically resistant material, enabling the filters to be chemically regenerated. The all polypropylene construction guarantees a small extractable footprint.

Documentation

SMV filters are designed, developed and manufactured in accordance with a ISO 9001 certified Quality Management System. A Validation Guide is available for compliance with regulatory requirements.

All the materials used comply with the European Union Regulation (EC) No. 1935/2004 as well as the Regulation (EU) No. 10/2011. concerning plastic materials and articles intended to come into contact with foodstuffs. These guidelines for plastics allow the use in food and beverage applications. All materials used meet the requirements of the CFR Title 21.

Protecting process, products and people

Atlas Copco's process filters optimize your productivity while protecting your process, product and consumers. Our portfolio of cartridges and housings covers all your filtration needs. The products are made from proven, high quality materials from reputable suppliers and manufactured in a controlled environment subjected to strict QA/QC procedures.



Key features

- Wide range of ratings and devices
- Low extractable and protein binding.
- Thermally bonded: no surfactants or binders
- 100% integrity tested

Applications

Thanks to its chemical compatibility SMV filters are widely used in Food & Beverage, Pharmaceutical, Cosmetics and Chemical Industries.

- Retention of particles and micro-organisms in liquids
- Bioburden control and sterilization
- Edible liquids: bottled water, beer, wine, spirits, juices, soft drinks, non-carbonated drinks, etc.
- Non-edible liquids: water, serums, formulations, WFI, aggressive solvents, chemicals, etc.



Technical data

Micron ratings (µm)

0,1/0,22/0,45/0,65/1 µm

Cartridge length

5"/10"/20"/30"/40"

Cartridge diameter

69 mm

Effective filtration area (typical)

0,58 m² (10")

Material of construction

Filter media	Polyvinylidene fluoride (PVDF)
Core	Polypropylene
Cage	Polypropylene
Housing	Polypropylene
End caps	Polypropylene + reinforcement
Seal	Silicone, Viton, EPDM

Maximum operating temperature

80°C (cartridges), 60°C (capsules)

Maximum differential pressure forward (cartridges)

6,9 bar @25°C, 2,4 bar @80°C

Maximum differential pressure reverse (cartridges)

3,0 bar @25°C, 1,0 bar @80°C

Maximum differential pressure forward (capsules)

5,2 bar @38°C, 3,1 bar @60°C

Sterilization SIP (cartridges)

100 cycles for 30 minutes @135°C, 0,3 bar dP (0,22 & 0,45µm only - other ratings 55 cycles)

Sterilization Autoclave

400 cycles for 30 minutes @130°C (0,22 & 0,45µm only - other ratings 200 cycles)

Hot water sanitization (cartridges)

50 cycles for 30 minutes @85°C

Regulatory compliance

TOC/Conductivity @25°C

Autoclaved filter effluent meets USP<643> for Total Organic Carbon and USP<645> for Water Conductivity per WFI requirements after UPW flush of specified volume.

Non-fiber releasing

Non-fiber releasing component materials meet the criteria for a "non-fiber releasing filter" as per 21 CFR 210,3(b)(6).

Bacterial endotoxin

Aqueous extraction of autoclaved filter contains <0,25 EU/ml as determined by Limulus Amebicide Lysate (LAL), USP <85>.

Bacterial Retention to ASTM F838-05 (0,22 µm)

LRV >10⁷ CFU/cm² of Brevundimonas diminuta (ATCC 19146)

Biosafety

Meets criteria of USP <88> Biological Reactivity Test for class VI-121°C plastics.

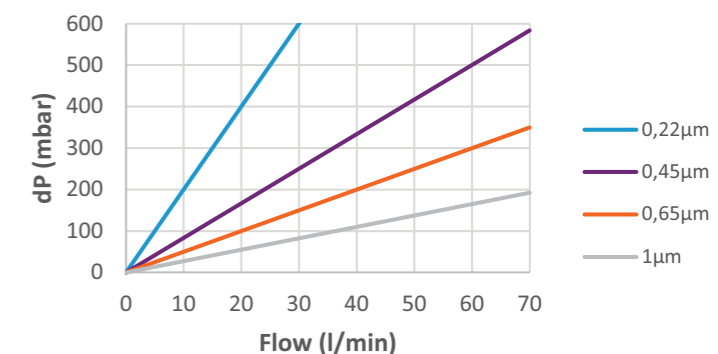
Indirect food additive

The product complies with food contact regulation 21 CFR §177 - 182 and (EC) No 1935/2004 and subsequent amendments.

Quality assurance

For each filter cartridge an electronic Certificate of Conformity is available, detailing relevant test data, biological safety information and product approvals against the specific batch number and part number for the filter. The filter cartridges are manufactured in a controlled clean room environment that generally meets the requirements for ISO 14644-1 Class 8 Cleanrooms.

Flow rate



Note: 10" cartridge tested with water @20°C, 1,005 cP (typical flow rate)

Integrity test data

Cartridge	Capsule	0,22 µm	0,45 µm	0,65 µm	1 µm
Diffusion flow		2,8 bar	1,0 bar	0,62 bar	n/a
J2,5"	C2	< 5 ml/min	< 2,5 ml/min	< 2,5 ml/min	n/a
J5"	C3	< 6,5 ml/min	< 3,25 ml/min	< 3,25 ml/min	n/a
5"	C4-5 5"	< 10 ml/min	< 5 ml/min	< 5 ml/min	< 2,5 ml/min
10"	C4-5 10"	< 20 ml/min	< 10 ml/min	< 10 ml/min	< 5 ml/min
Bubblepoint		> 3,2 bar	> 1,2 bar	> 1,0 bar	> 0,4 bar

Product configuration

Cartridges

Series	Rating (µm)	Length	End cap	Seal
SMV	0,22	5"	C2 (2x226 O-ring + 2 tabs/flat)	S (Silicone)
	0,45	10"	C3 (2x222 O-ring/flat)	E (EPDM)
	0,65	20"	C7 (2x226 O-ring + 2 tabs/fin)	V (Viton)
	1	30"	C8 (2x222 O-ring/fin)	
		40"	C28 (2x222 O-ring + 3 tabs/fin)	
			DOE (flat + gasket/flat + gasket)	



Example: SMV 0,2µm 10" C7 S

Mini cartridges

Series	Rating (µm)	Style	Seal
SMV	0,1	J2,5T/J5T	S (Silicone)
	0,22	J2,5B1	E (EPDM)
	0,45	J2,5I/J3I/J5I	V (Viton)
	0,65	J1,5F/J5F	
		J2,5S/J5S	
		J1,5E/J2,5E/J5E	



Example: SMV 0,2µm J5T S

Capsules

Series	Rating (µm)	Style	Length ¹	Std
SMV	0,1	C1	5"	P
SMV-Z	0,22	C2/C3	10"	
	0,45	C4/C5	20"	
	0,65	C6/C7	30"	
		C8		
		C9/C10		

SMV-Z available as Zeta positive capsule 0,22 & 0,45 only

¹ = for C4/C5

Example: SMV 0,2µm C4 10"

