

Instructions for: Stainless steel pressure filter holders

Standard

KS90, KS142, KS293

Sanitary (inlet and outlet connections disassemble completely for thorough cleaning)
KS90ST, KS142ST, KS293ST

Specifications

Materials: Type 304 or 316 stainless steel body
Silicone rubber O-ring (gasket for sanitary inlet and outlet)
PTFE (Teflon) gasket
PTFE coated photetched stainless support screen

Connections: Both standard and sanitary accommodate 3/8" ID tubing
Standard inlet: 3/4" NPTF to hose barb
Standard outlet: 3/4" NPTM to hose barb
Sanitary (in/out): 1 1/2" sanitary fitting to hose barb

Pressure: Maximum differential pressure: 100 psi

Supplied with 142 mm wrench (spanner) and 6 mm allen wrench (hex key).

Filter holder size	90	142	293
Membrane filter size (mm)	90	142	293
Prefilter size (mm) (if used with membrane)	75	124	257
Filtration area (cm ²)	45	113	530

Typical initial flow rates in LPM (liters per minute):

membrane pore size (um)	Standard			Sanitary		
	KS90	KS142	KS293	KS90ST	KS142ST	KS293ST
0.1	0.22	0.56	2.0	0.22	0.35	1.7
0.2	0.8	1.9	6.1	0.8	2.0	7.0
0.3	1.12	3.0	10.7	1.1	3.5	13.0
0.45	1.64	4.9	17.0	1.6	4.6	18.0
0.65	4.3	8.1	30.0	4.3	10.0	34.0
0.8	5.8	10.6	32.0	5.8	18.0	43.0
1.2	7.0	11.0	34.0	7.0	21.0	50.0
3.0	8.2	13.9	38.0	8.2	28.0	55.0
5.0	9.5	13.9	NA	9.5	33.0	NA

Conditions: 0.7 kg/cm² (10 psi) differential pressure, 20°C, nitrocellulose membrane

Cleaning and maintenance

1. Disassemble the entire unit:
 - Inspect screens for nicks or rough edges
 - Carefully remove O-rings with blunt-tipped forceps
 - Rotate (flip over) Teflon gasket (this minimizes flattening on the side in contact with the membrane)
2. Clean all components with a standard, non-abrasive laboratory detergent
 - Threaded connections may be cleaned with a stiff-bristled brush
 - | | | |
|--|---|--|
| Sanitary connections
Teflon coated support screens
Interior surfaces of the filter holders | } | clean with a sponge or
non-abrasive cloth |
|--|---|--|
3. Rinse with hot tap water followed by a final rinse with distilled or deionized water.

Sterilization

1. Assemble a completely dry filter holder with membrane as described in **Assembly**.
2. Attach hoses and clamps to holders. Tubing/hoses should be less than or equal to 3 feet long (1 meter) and must be completely dry.
3. Sealing clamps should only be fingertight during assembly
4. Wrap both inlet and outlet hoses with Kraft paper or similar steam permeable paper.
 - Note: For holders autoclaved while attached to a downstream reservoir (≤ 2 liters), make sure the reservoir vent is open. Steam must penetrate the reservoir to prevent implosion.*
5. Autoclave the holder at 121°C (250°F) for the time listed in the table below. **SLOW EXHAUST ONLY.**

filter holder size:	90	142	293
time in minutes:	35	45	55

6. After the holder has cooled to room temperature, securely tighten clamps as described in **Operation**.

Note: Periodically check the actual internal autoclave temperature using a maximum registering thermometer. Overheating or prolonged autoclaving times may cause membranes to embrittle and shrink.

Filtration tips:

- Prefilters can prolong a membrane filter's life by trapping particles which might otherwise clog the membrane's pores.
- Teflon o-rings and gaskets may become flattened with use under pressure. Boil them in water for a few minutes to restore shape and thickness.

Assembly

1. Attach legs to outlet plate (11).
2. Inlet/outlet assembly:

Standard

- a. Wrap all male threaded connections with a single overlapping wrap of Teflon tape.
- b. Attach threaded inlet and outlet connectors to the appropriate plates.
- c. Tighten securely with the supplied aluminum wrench.

Sanitary

- a. Align gasket with flange on inlet (outlet) plate.
- b. Place inlet (outlet) adapter on top of gasket.
- c. Seal with tri-clamp.

3. Filter support system:

- a. Center the underdrain support (10) on the outlet plate.
- b. Place Teflon gasket (9) outside the underdrain support on the outlet plate
- c. Place the Teflon coated support screen (8) on top of the Teflon gasket and underdrain support.
- d. Center a membrane filter disk on top of the support screen.

Note: Do not handle the membrane directly with your hands. Check to be sure the blue separator paper has been discarded.

- e. Center a prefilter (if used) on top of the membrane.
 - f. Optional back pressure support screen?
4. Place the sealing O-ring in the channel in the inlet plate. Check to be sure the flow detector is clipped in place and the vent relief valve has been tightened with Teflon tape.
 5. Lower inlet plate onto filter, centering holes over leg bolts.
 6. Slide on wing-type clamps, finger tighten.

You may autoclave the holder at this point. See Sterilization instructions.

7. Tighten clamps by one quarter turns, working around the perimeter of the holder until the clamps are securely tightened. Use the wrench supplied for tightening when Teflon O-rings are used.

Operation:

1. Attach tubing between holder and pressure dispensing reservoir.
2. Open the relief valve.
3. Slowly pressurize reservoir; if reservoir is already pressurized slowly open valves to begin flow of liquid.
4. When liquid starts to come out of the relief valve, close the valve.
5. Filtrations generally should begin at 5-10 psi. When pressures exceed 20 psi across the membrane holder, stop filtration and change filters.

REPLACEMENT PARTS

Inlet Assembly

STANDARD

#	description	304 SS	316 SS
1	Inlet adapter (90, 142 mm)	300813	300913
1	Inlet adapter (293 mm)	302513	302613
4	Vent relief valve	301825	
5	Inlet plate (90 mm)	300809	300909
5	Inlet plate (142 mm)	301909	302009
5	Inlet plate (293 mm)	302509	302609

SANITARY

#	description	304 SS	316 SS
1	Inlet/outlet adapter	306203	306204
2	Gasket (silicone)	306108	
3	Clamp, 1.5 tri clamp	306000	
4	Vent relief valve	301825	
5	Inlet plate (90 mm)	-	351809
5	Inlet plate (142 mm)	302109	302209
5	Inlet plate (293 mm)	302709	302809

Filter Support System

#	description	90	142	293
6	Flow deflector 316 SS (standard model)	301808		
6	Flow deflector 316 SS (sanitary model)	302208		302808
7	O ring, silicone	301705	301905	302505
8	Support screen, PTFE coated SS	301804	302004	302604
9	Gasket, PTFE	301703	301903	302503
10	Underdrain support, 316SS	301802	302002	302602

Outlet Assembly

STANDARD:

#	description	304 SS	316 SS
11	Outlet plate (90 mm)	300801	300901
11	Outlet plate (142 mm)	301901	302001
11	Outlet plate (293 mm)	302501	302601
19	Outlet adapter (90, 142 mm)	300817	300917
19	Outlet adapter (293 mm)	302517	302617

SANITARY:

#	description	304 SS	316 SS
11	Outlet plate (90 mm)	-	351801
11	Outlet plate (142 mm)	302101	302201
11	Outlet plate (293 mm)	302701	302801
1	Inlet/outlet adapter	306203	306204
2	Gasket (silicone)	306108	
3	Clamp, 1.5 tri clamp	306000	

Sealing and support assemblies

#	description	90	142	293
12	Leg (Standard model)	301719	301919	302519
12	Leg (Sanitary model)	301919		302519
13	Leg bolt	301718		-
14	Leg washer (locking?)	301720		302518
15	Sealing wing nut	301914		302514
16	Sealing washer	301916		302516
17	Sealing bolt	301915		302515
18	Handle	-	-	302520

Accessories

		90	142	293
O rings	FEP-encapsulated silicone	301706	301906	302506
	Viton	301707	301907	302507
Support Screen (316SS)		301835	302035	302635
Back pressure support screen (304 SS)		301726	301926	302530
Back pressure support screen (316 SS)		301728	301928	302532
Back pressure support screen (PTFE coated 304SS)		301727	301927	302531
Back pressure support screen (PTFE coated 316SS)		301729	301929	302533
Gasket (sanitary inlet/outlet) PTFE			306109	
Gasket (sanitary inlet/outlet) Viton			306110	
Allen wrench (hex key), 6mm		301721		-
Spanner (wrench) 142 mm			301922	

Parts and assemblies are available with PTFE coating by special order

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RELATED PRODUCTS

- Pressure vessels
- Vacuum/pressure pumps
- Fittings
- In-line filters (gas and liquid)

MEMBRANES AND PREFILTERS

Advantec MFS carries cellulose, nylon, and PTFE (Teflon) membranes in a wide range of pore sizes and diameters in plain, lined or gridded styles. Prefilters are available in cellulose, PTFE, and glass fiber. See our catalog or call Technical Support for more information.

Sales and Technical Support

Telephone: 1-800-334-7132
 1-925-225-0349
 FAX: 1-925-225-0353
 E-mail: support@advantecmfs.com
 Write: Advantec MFS, Inc.
 6691 Owens Drive
 Pleasanton, CA 94588-3335

Contact us for pricing and ordering information on the items above and for assistance with custom orders.

Qualified technical personnel are available to discuss unique filtration problems, application development, and system design.

Warranty

Advantec MFS warrants its products against defects in material or workmanship for a period of one year from the date of delivery when used in accordance with these instructions. The liability of Advantec MFS is limited to replacement, or repair, at its option of any product.

Advantec MFS makes no other warranty, expressed or implied.

Specifications listed in these instructions represent values in effect at the time of printing and are subject to change without notice.

Catalog #:

Serial #:

Date received: