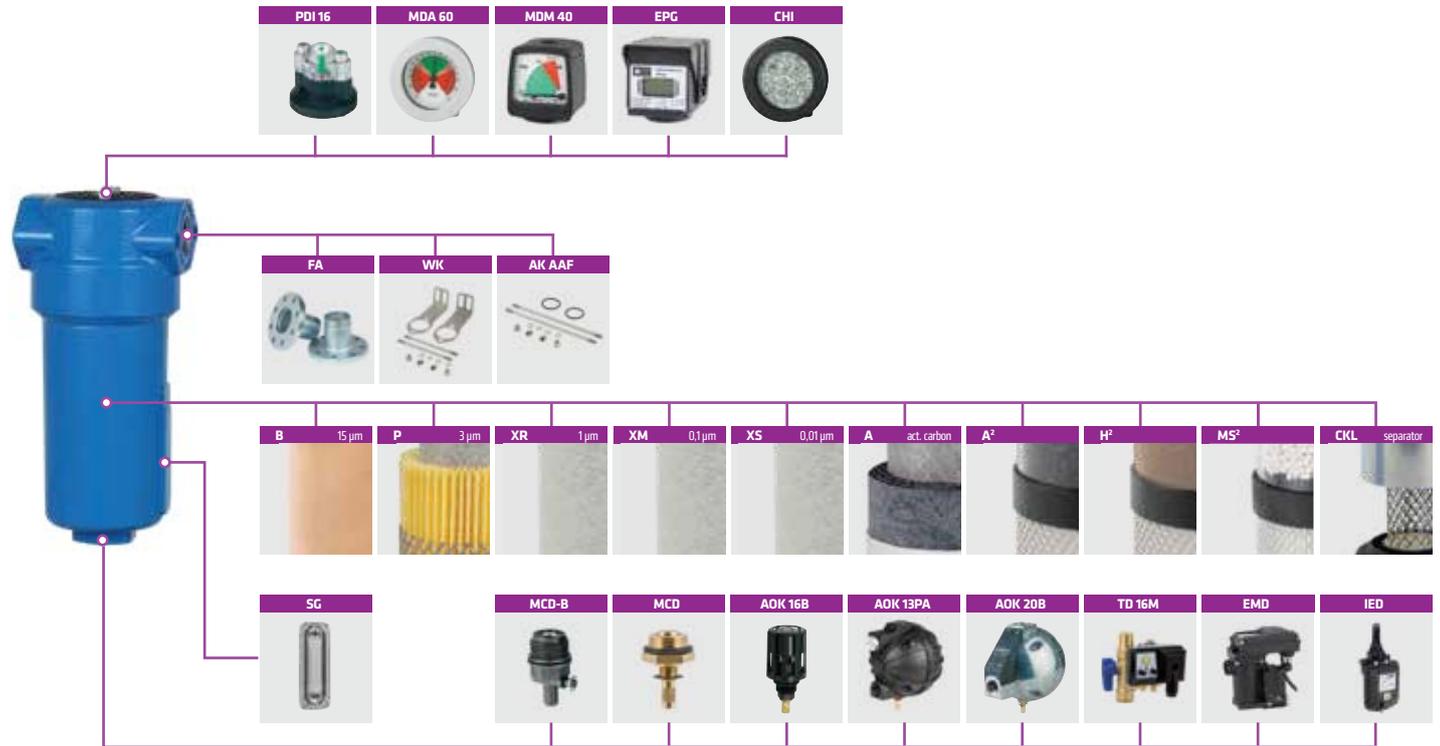


AAF

ALUMINIUM COMPRESSED AIR FILTERS

operating pressure

16 bar



TECHNICAL DATA

PG/1



Filter housing size	Pipe size	Max. oper. pressure	Flow rate at 7 bar(g), 20 °C		Dimensions				Mass	Filter element type	
					A	B	C	D			
	inch	bar/psi	Nm ³ /h	scfm	mm	mm	mm	mm	kg		
AAF 0006 ³⁾	1/8	16/232	10	6	105	55	14	50	0,23	3528	
AAF 0016 ³⁾	1/4	16/232	18	11	125	55	14	70	0,24	5528	
AAF 0026	1/4	16/232	25	15	145	73	18	50	0,42	3844	
AAF 0036	3/8	16/232	30	18	145	73	18	50	0,42	3844	
AAF 0046	1/4	16/232	35	22	189	88	21	60	0,72	6050	
AAF 0056	3/8	16/232	60	35	189	88	21	60	0,6	6050	
AAF 0076	1/2	16/232	78	46	189	88	21	80	0,6	7050	
AAF 0106	3/4	16/232	120	70	257	88	21	150	0,7	14050	
AAF 0186	1	16/232	198	116	261	125	37	160	1,2	12075	
AAF 0306	1	16/232	335	197	361	125	37	250	1,6	22075	
AAF 0476	1 1/2	16/232	510	300	461	125	37	350	1,9	32075	
AAF 0706	1 1/2	16/232	780	459	641	125	37	530	2,6	50075	
AAF 0946	2	16/232	1.000	588	696	164	50	520	5,7	51090	
AAF 1506	2	16/232	1.500	882	943	164	50	770	7,6	76090	
AAF 1756	2 1/2	16/232	1.680	990	943	164	50	770	7,3	76090	
AAF 2006	3	16/232	2.160	1.270	801	242	60	630	16,7	51140	
AAF 2406	3	16/232	2.760	1.620	998	242	60	780	21,3	75140	

Remarks:

- ¹⁾ Filter elements "A" must be changed periodically to suit application, but at least every 6 months. Activated carbon filters must not operate in oil saturated conditions.
- ²⁾ Valid if "S" filter cartridge is installed upstream.
- ³⁾ For size AAF 0006 and 0016 no differential pressure indicator and no internal condensate drain is available, IED not available.

CORRECTION FACTORS

Operating pressure [bar]	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Operating pressure [psi]	29	44	58	72	87	100	115	130	145	160	174	189	203	218	232
Correction factor	0,38	0,50	0,63	0,75	0,88	1	1,13	1,25	1,38	1,50	1,63	1,75	1,88	2,00	2,13



FILTER ELEMENTS

B prefilter	P prefilter	XR prefilter	XM microfilter	XS finefilter	A activated carbon	A² adsorption	H² catalyst	MS² adsorption	CKL separator
sintered brass	acrylic fibers, cellulose	borosilicate micro fibres			borosilicate micro fibres				stainless steel, PA
					activated carbon		hopcalite	molecular sieve	

Filter element type	Flow rate Nm ³ /h	Corresponding housing
3528	10	AAF 0006
5528	18	AAF 0016
3844	25	AAF 0026
3844	30	AAF 0036
6050	35	AAF 0046
6050	60	AAF 0056
7050	78	AAF 0076
14050	120	AAF 0106
12075	198	AAF 0186
22075	335	AAF 0306
32075	510	AAF 0476
50075	780	AAF 0706
51090	1.000	AAF 0946
76090	1.500	AAF 1506
76090	1.680	AAF 1756
51140	2.160	AAF 2006
75140	2.760	AAF 2406

CONDENSATE DRAINS

MCD-B	MCD	AOK 16B	AOK 13PA	AOK 20B	TD 16M	EMD 12	EMD 25	IED

* You can find other variations of condensate drains

DIFFERENTIAL PRESSURE INDICATORS

PDI 16	MDA 60	MDM 40	EPG 60	CHI

ACCESSORIES

AK AAF 25	AK AAF 35	AK AAF 2M	AK AAF 3M	AK AAF 2L	AK AAF 3L	AK AAF 2XL	AK AAF 3XL	WK AAF 1S	WK AAF 2S
WK AAF 3S	WK AAF 1M	WK AAF 2M	WK AAF 3M	WK AAF 1L	WK AAF 2L	WK AAF 3L	WK AAF 1XL	WK AAF 2XL	WK AAF 3XL
Nipple	Nipple PA	SG							
18,76	13,90	17,57							

STAINLESS STEEL STERILE FILTER HOUSING – SPF

DESCRIPTION

SPF stainless steel sterile filter housings have been specifically developed for applications in process industry, where the risk for corrosion of compressed air ⁽¹⁾ system components is very high. To meet the required compressed air quality ⁽³⁾ appropriate filter element (Sterile filter cartridge) must be installed into filter housing.

APPLICATIONS ⁽²⁾

- Packing industry
- Biotechnology
- Breweries
- Chemical industry
- Diaries
- Fermentation processes
- Food & beverage industry
- Pharmaceutical industry
- Hospitals

⁽¹⁾ For a specific technical gas please contact us or your local dealer

⁽²⁾ SPF process filter housing can be used in variety of applications. For applications not listed please contact us or your local dealer.

⁽³⁾ For oil removal, coalescing filter element must be installed and flow direction inside-out must be provided. General arrangement is filter head on top and filter bowl on bottom.



TECHNICAL SPECIFICATION

Operating temperature ⁽⁴⁾	-20 - 150 °C	-4 - 302 °F
Short duration (15min) temp limit	Up to 200 °C	Up to 392 °F
Operating pressure	0 – 14 bar(g)	0 – 203 psi

⁽⁴⁾ Actual operating temperature depends on sealing material and type of filter element.

MATERIALS

Housing material	Stainless steel (quality 1.4404; on request 1.4301)
Sealing	EPDM (Optional FKM or SILICONE)
Housing finishes	Polished down to grade Ra0,8 (externally)
Lubricant	(Optional Shell Cassida Grease RLS 2)

SIZES

FILTER HOUSING	PIPE SIZE-D [inch]	FILTER ELEMENT	OPERATING PRESSURE	FLOW CAPACITY		DIMENSIONS [mm]				VOLUME [l]	WEIGHT [kg]
				[Nm ³ /h]	[scfm]	A	B	C	E		
SPF 005	1/4"	0310	14	75	44	225	120	76,1	1/8"	0,71	1,9
SPF 007	3/8"	0410	14	105	62	251	120	76,1	1/8"	0,8	2,0
SPF 010	1/2"	0420	14	150	88	258	121	76,1	1/8"	0,84	2,1
SPF 018	3/4"	0520	14	225	132	282	121	76,1	1/8"	0,93	2,3
SPF 030	1"	0525	14	315	185	299	136	88,9	1/8"	1,4	3,1
SPF 047	1 1/4"	0725	14	420	247	368	155	88,9	1/8"	1,74	3,4
SPF 070	1 1/2"	0730	14	600	353	395	180	114,3	1/4"	3,4	4,7
SPF 094	2"	1030	14	900	530	464	180	114,3	1/4"	4,1	5,3
SPF 150	2"	1530	14	1260	742	592	180	114,3	1/4"	5,3	6,0
SPF 175	2 1/2"	2030	14	1680	989	743	226	139,7	1/4"	10,2	11,4
SPF 200	3"	3030	14	2400	1.413	995	226	139,7	1/4"	14	12
SPF 240	3"	3050	14	3600	2.119	1029	256	168,3	1/4"	21	18

Flow capacity at 7 bar(g), 20°C

Standard is BSP pipe connection, other pipe connection on request.

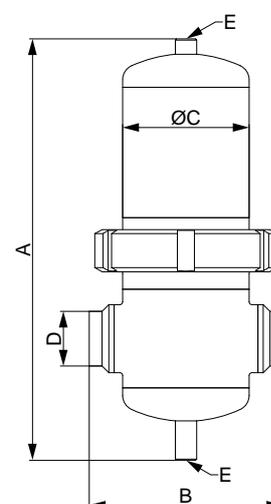
PRESSURE EQUIPMENT DIRECTIVE PED 2014/68/EU (Fluid group 2)

SPF 005 - SPF 094	Article 4.3
SPF 150 - SPF 200	Category 1, Module H
SPF 240	Category 2, Module H

PRESSURE EQUIPMENT DIRECTIVE PED 2014/68/EU (Fluid group 1)⁽⁵⁾

SPF 005 - SPF 047	Article 4.3
SPF 070 - SPF 094	Category 1, Module H
SPF 150 - SPF 200	Category 2, Module H
SPF 240	Category 3, Module H

⁽⁵⁾ Fluid group must be specified in the order, if not standard fluid group 2 is selected.



CORRECTION FACTORS

To calculate the correct capacity of a given filter based on actual operating conditions, multiply the nominal flow capacity by the appropriate correction factor(s).

CORRECTED CAPACITY = NOMINAL FLOW CAPACITY x C_{OP}

OPERATING PRESSURE

[bar]	2	3	4	5	6	7	8	9	10
[psi]	29	44	58	72	87	100	115	130	145
C _{OP}	0,38	0,5	0,63	0,75	0,88	1	1,13	1,25	1,38

MAINTENANCE

Replace filter element at least every 12 months or follow the instructions for specific filter element. Once per year make a visual check of filter housing and make sure there is no visual damage.

INFORMATION IN THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE

	Our quality management system is certified by BUREAU VERITAS in conformity with ISO 9001:2015 Reg. number: 200285
---	--

FILTER ELEMENT – VSF

Series: SPF & SF Series

(Particulate + Bacteria removal + Sterile)



DESCRIPTION

VSF filter elements have been developed for high-efficient sterile filtration of compressed air, process air and technical gasses. Depth filter media made of borosilicate glass microfibers assures high-efficient removal of sub-micron particles down to 0,01µm including microorganisms (bacteria). Filter media supported with NOMEX* is rigidly held between two stainless steel cylinders and encapsulated between stainless steel end-caps. The result is filter element with exceptional strength assuring high-efficient filtration and allowing large number of sterilization cycles.

⁽¹⁾For any other technical gas please contact us or your local dealer

FILTER ELEMENT RATING ACCORDING TO ISO 8573-1

Solid particles class	Water class	Oil class
1	/	/

Validated according to and ISO12500-3

MICROBIOLOGICAL EFFICIENCY

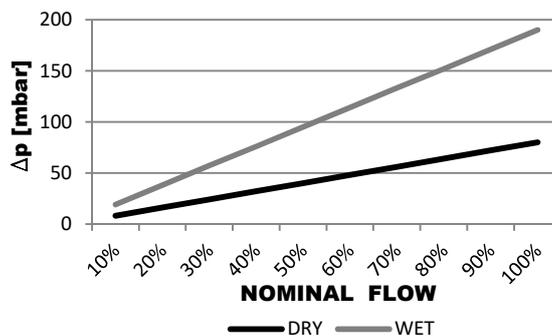
Test organism	% Efficiency	Titer reduction
<i>Brevundimonas diminuta</i>	>99.999999991	>1.16 x 10 ¹⁰
MS-2 Coliphage	>99.9999999901	>1.02 x 10 ¹¹

The microbiological efficacy was independently evaluated by Public Health England (PHE). The challenge test was conducted on 0730- VSF filter element using aerosolised microorganisms, at 1050 L/min, under negative pressure, at 22 °C ± 3 °C and 42% ± 5% relative humidity.

TECHNICAL SPECIFICATION

Operating temperature	-20 - +150 °C / -4 - +302 °F
Operating pressure	0 - 14 barg / 0 - 232 psi
Differential pressure (dry)	80 mbar / 1,160 psi
Differential pressure (wet)	190 mbar / 2,756 psi
Particle retention (nominal)	99,9999% (0,01 µm)
Particle retention rate ISO ⁽³⁾	99,998 %
Residual oil content ⁽⁴⁾	/
Flow Direction	INSIDE to OUTSIDE
Capacity (ISO12500-2) ⁽⁵⁾	/

- Manufactured without use of binders or other chemical additives
- 100% integrity tested
- All components meet the FDA requirements for contact with food in accordance with the Code of Federal Regulations (CFR), title 21



MATERIALS

Filter media	Borosilicate micro fibers
Protection media	Polyester fleece
Support media	NOMEX
Adsorption media	/
Support (inner-outer)	Stainless steel 1.4301
Bonding	Silicone
Endcaps	Stainless steel 1.4301
Sealing	Silicone

SIZES

Model	Diameter [mm]	Height [mm]	Flow Capacity [Nm ³ /h]	Flow Capacity [scfm]
0310 VSF	42	76	75	44
0410 VSF	42	104	105	62
0420 VSF	52	104	150	88
0520 VSF	52	128	225	132
0525 VSF	62	128	315	185
0725 VSF	62	180	420	247
0730 VSF	86	180	600	353
1030 VSF	86	254	900	530
1530 VSF	86	381	1260	742
2030 VSF	86	508	1680	989
3030 VSF	86	760	2400	1.413
3050 VSF	140	760	3600	2.119

CORRECTION FACTORS

To calculate the correct capacity of a given filter based on actual operating conditions, multiply the nominal flow capacity by the appropriate correction factor(s). CORRECTED CAPACITY = NOMINAL FLOW CAPACITY x C_{OP}

OPERATING PRESSURE

[bar]	2	3	4	5	6	7	8	9	10	11	12	13	14
[psi]	29	44	58	72	87	100	115	130	145	160	174	189	203
C _{OP}	0,38	0,5	0,63	0,75	0,88	1	1,13	1,25	1,38	1,50	1,63	1,75	1,88

STERILIZATION (saturated steam)

Cumulative steaming time:

- 121°C/250°F, Sterilization 30min, Heating and cooling 30min (100 cycles)
- 132°C/270°F, Sterilization 20min, Heating and cooling 40min (100 cycles)
- 143°C/290°F, Sterilization 10min, Heating and cooling 50min (100 cycles)

Please note that all SPFs (sterile) filter elements are delivered unsterile in unsterile packaging! Please sterilize the filter elements before first use if needed for the application.

MAINTENANCE

Replace filter element when first of following criteria is reached: twelve months in operation, pressure drop reaches 600 [mbar], as required by application, prescribed number of sterilization cycles.

INFORMATION IN THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE

	Our quality management system is certified by BUREAU VERITAS in conformity with ISO 9001:2015	
---	---	--

ELECTRONIC CONDENSATE DRAIN - EMD

DESCRIPTION

EMD drain is fully automatic electronic level sensing condensate discharging unit used for operation in compressed air⁽¹⁾ systems. Condensate from compressed air system accumulates in the drains reservoir. Level of condensate is detected with the capacitive sensor when there is enough condensate in the reservoir electronic opens the solenoid valve and discharges condensate out of the system without air losses. Special self-cleaning direct acting valve assures reliable operation.



APPLICATIONS ⁽²⁾

- Air Compressor (piston or screw)
- After-cooler
- Cyclone condensate separator
- Pressure vessel/Air tank
- Air dryer
- Air filter

⁽¹⁾ For any other technical gas please contact us or your local dealer

⁽²⁾ EMD can be used in variety of applications. For applications not listed please contact us or your local dealer.

TECHNICAL SPECIFICATION

	EMD 12	EMD 25	EMD 75	EMD 150
Voltage *	230V ac, 50 – 60 Hz 115V ac, 50 – 60 Hz			
Fuse	5x20 1A T			
Power **	10 VA	22 VA		
Operating pressure range ***	1 – 16 bar (14 – 232 psi)			
Drain capacity @7 bar (101 psi)	12 l/h (0.007 cfm)	25 l/h (0.014 cfm)	75 l/h (0.044 cfm)	150 l/h (0.088 cfm)
Operating temperature range	1,5°C – 65°C			
Protection class	IP54			
Inlet connection	G 1/2" (parallel thread)			
Outlet connection	Push connection for tube ø8			
Mass	0.55 kg	0.73 kg	1.2 kg	1.3 kg

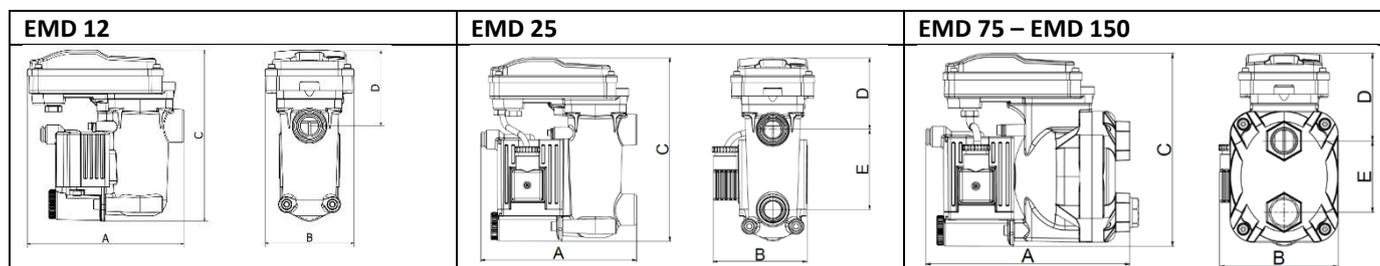
* EMD 12 also available in 24 ac & 24 dc version

** EMD 12 24 dc power = 8.5W

*** EMD 12 24 dc operating pressure range up to 8 bar(g) (116 psi)

DIEMNSIONS

	A	B	C	D	E
EMD 12	133 mm	76 mm	147 mm	65 mm	/
EMD 25	140 mm	85 mm	166 mm	65 mm	72,5 mm
EMD 75	170 mm	99 mm	162 mm	73,5 mm	60 mm
EMD 150	199 mm	99 mm	162 mm	69,5 mm	68 mm



VERSIONS

Type	Version
EMD	Standard
EMD A	Alarm output
EMD C	Service network connection

PRESSURE EQUIPMENT DIRECTIVE PED 2014/68/EU (Fluid group 2)

Product type	Category, module
EMD 12	Not required
EMD 25	Not required
EMD 75	Not required
EMD 150	Not required

MATERIALS

	EMD 12 – EMD 25	EMD 75 – EMD 150
Housing	PA 6	Aluminium
Valve, strainer	Stainless steel 1.4057	Stainless steel 1.4057
Strainer plug	Brass	Brass
Level sensor	PP (polypropylene)	PP (polypropylene)
Sealing	NBR	NBR

MAINTENANCE

Once per year make a visual check of the drain and make sure there is no visual damage or leakage. Clean strainer regularly. Interval of cleaning depends on contamination of the system. All wearing parts are available as service kit.

Condensate discharged from compressed air system contains significant amounts of lubricant oil. We strongly recommend connecting EMD to oil water separator. In most countries content of oil in waste water is regulated by law.

INFORMATION IN THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE

	Our quality management system is certified by BUREAU VERITAS in conformity with ISO 9001:2015 Reg. number: 200285
---	--