

Replacement Element VF / FF / MF / SMF / AK

Alternative filter elements for Hankison

Series: HF

Type: E9 / E7 / E5 / E3 / E1

Description

ultrafilter replacement filter elements have been developed for high efficient removal of solid particles, oil aerosols, water, hydrocarbons, vapours and odours from compressed air.



Filter Element Rating According ISO 8573-1:2010

HANKISON type / ultrafilter type	Solid particles class	Water class	Oil class
E9 / VF	6	/	/
E7 / FF	3	/	/
E5 / MF	2	/	2
E3 / SMF	1-2	/	1
E1 / AK	1*	/	0/1

Validated according to ISO12500-1, ISO12500-2 and ISO12500-3

* Valid if SMF type filter cartridge is installed upstream

Technical Specification

	E9 / VF ⁽⁶⁾	E7 / FF ⁽⁶⁾	E5 / MF ⁽⁶⁾	E3 / SMF ⁽⁶⁾	E1 / AK ⁽⁶⁾
Operating temperature	1,5 - 65 °C/ 35 - 149 °F	1,5 - 65 °C/ 35 - 149 °F	1,5 - 65 °C/ 35 - 149 °F	1,5 - 65 °C/ 35 - 149 °F	1,5 - 45 °C/ 35 - 113 °F
Operating pressure	0 - 16 barg/ 0 - 232 psi	0 - 16 barg/ 0 - 232 psi	0 - 16 barg/ 0 - 232 psi	0 - 16 barg/ 0 - 232 psi	0 - 16 barg/ 0 - 232 psi
Differential pressure (dry)	10 mbar/ 0,145 psi	20 mbar/ 0,290 psi	50 mbar/ 0,725 psi	80 mbar/ 1,160 psi	60 mbar/ 0,870 psi
Differential pressure (wet)	20 mbar/ 0,290 psi	40 mbar/ 0,580 psi	120 mbar/ 1,740 psi	190 mbar/ 2,756 psi	/
Particle retention (nominal)	99,99% (3 µm)	99,9999% (1 µm)	99,9999% (0,1 µm)	99,9999% (0,01 µm)	/
Particle retention rate ISO ⁽³⁾	95 %	99,8 %	99,98 %	99,9994 %	/
Residual oil content ⁽⁴⁾	/	< 0,3mg/m ³	< 0,1mg/m ³	< 0,01mg/m ³	< 0,005mg/m ³
Flow Direction	INSIDE to OUTSIDE	INSIDE to OUTSIDE	INSIDE to OUTSIDE	INSIDE to OUTSIDE	INSIDE to OUTSIDE
Capacity (ISO12500-2) ⁽⁵⁾	/	/	/	/	20 min

⁽³⁾Tested according to ISO12500-3, 1bar(a), nominal flow, VF 03/10 - MPPS-(5µm); FF 03/10, MF 03/10 & SMF 03/10 - MPPS-(0,3µm)

⁽⁴⁾Tested according to ISO12500-1, FF 03/10, MF 03/10 & SMF 03/10 - Oil aerosol viscosity 32mm²/s, inlet concentration 10mg/m³

⁽⁵⁾Tested according to ISO12500-2, AK 03/10 - tested with n-Hexane, test concentration 100mg/kg, 80% Saturation

⁽⁶⁾Cross reference **ultrafilter** type – Hankison type filtration grades: **VF** = E9, **FF** = E7, **MF** = E5, **SMF** = E3, **AK** = E1

Materials

	E9 / VF	E7 / FF	E5 / MF	E3 / SMF	E1 / AK
Filter media	Acrylic fibers, cellulose	Borosilicate micro fibers	Borosilicate micro fibers	Borosilicate micro fibers	Borosilicate micro fibers
Protection media	Polyester fleece	Polyester fleece	Polyester fleece	Polyester fleece	Polyester fleece
Drainage media	/	Polyester based polyurethane	Polyester based polyurethane	Polyester based polyurethane	/
Adsorption media	/	/	/	/	Activated carbon granulate
Support (inner-outer)	Stainless steel 1.4301	Stainless steel 1.4301	Stainless steel 1.4301	Stainless steel 1.4301	Stainless steel 1.4301
Bonding	Polyurethane	Polyurethane	Polyurethane	Polyurethane	Polyurethane
Endcaps	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Sealing	NBR	NBR	NBR	NBR	NBR

Sizes

ultrafilter type*	HANKISON type*	Diameter [mm]	Height [mm]	Flow Capacity [Nm ³ /h]	Flow Capacity [scfm]	Fits into filter housing
XX-12	-- 12	60	50	35	20	Grade-12
XX-16	-- 16	60	91	60	35	Grade-16
XX-20	-- 20	60	152	105	61	Grade-20
XX-24	-- 24	60,5	168	170	100	Grade-24
XX-28	-- 28	60,5	276	290	170	Grade-28
XX-32	-- 32	68	337	425	250	Grade-32
XX-36	-- 36	68	450	640	376	Grade-36
XX-40	-- 40	82,5	518	825	485	Grade-40
XX-44	-- 44	82,5	665	1060	623	Grade-44
XX-48	-- 48	82,5	820	1325	779	Grade-48
XX-52	-- 52	82,5	674	1110	653	Grade-52
XX-54	-- 54	82,5	527	1700	1000	Grade-54

*Filter cartridge type (names) consist of cartridge size and filtration grade.

XX = Filtration grade designation **ultrafilter** type **VF, FF, MF, SMF** or **AK** before filter size e.g. **SMF-40 (E3-40)**

-- = Filtration grade designation HANKISON type E9, E7, E5, E3, E1

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	15	16
[psi]	29	44	58	72	87	100	115	130	145	160	174	189	203	218	232
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	2,00	2,13

Maintenance

E9/VF, E7/FF, E5/MF, E3/SMF - Replace filter element at least once per year or when pressure drop reaches 350mbar.

E1/AK - Replace filter element at least every 6 months.