Product Data Sheet
Filter Elements ERHK.. (for Hankison filter housings)

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Field of application:

Type ERHK filter elements of filtration grades V, ZN, XN, XXN and A provide the opportunity to use our high performance, energy efficient and safe to operate filtration technology also in Hankison series HF filter housings. We recommend the following filtration grade assignment:

	FST	Hankison
Coarse	V	9
General purpose	ZN	7
Fine	XN	5
Super fine	XXN	3
Activated carbonate	A	1

Features

Filter elements of filtration grade V (coarse filter) consist of a pleated coarse filter media, filter elements of filtration grades ZN, XN, XXN (coalescing filter) of a pleated depth filter media and a separate drainage media. Thanks to the pleating technology the effective filter surface is increased many times, resulting in much higher dirt holding capacity and a longer service life. At the same time, flow resistance and therefore differential pressure are considerably reduced. To ensure the highest operational safety, the pleated depth filter cylinder has at least two or even more layers. In addition, it is provided with a pleated supporting fabric on the inside and outside.

Filter elements of filtration grade A (adsorption filter) comprise of activated carbon granulate, embedded between two coarse filter layers. In addition, a separate general purpose filter layer (Z) is located towards the outer side, in order to reliably prevent even the finest activated carbon dust from leaving the filter element. Using loose activated carbon granulate results in an averagely large amount of activated carbon (1.2 kg of activated carbon for each m² of filter surface). This considerably increases the separation capability and the service life. The 3-layer design contributes to an adequate thickness of the activated carbon bed and thus to a long contact time between compressed air and activated carbon. This results in extremely low residual oil contents. The general purpose filter layer downstream of the activated carbon usually eliminates the need for additional downstream filtration.

All media are securely located between the two stainless steel cylinders. In this way, breaking off completely or in parts is impossible.

All the features mentioned above contribute to a filter element which has a high performance (high separation efficiency) combined with economic efficiency (low differential pressure, long service life) and maximum operating safety (integrated design).

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Specifications subject to change without notice Date 25.03.2020 Latest version see www.fstweb.de

Basic data

Model	Nominal volume flow (VN)*1	Max. operating pressure	Min./Max. operating temperature
ERHK012	35 m³/h (1.24)	---	+2°C - +65°C
ERHK016	60 m³/h (0.87)		
ERHK020	105 m³/h (0.82)		
ERHK024	170 m³/h (0.78)		
ERHK028	290 m³/h (0.77)		
ERHK032	425 m³/h (0.79)		
ERHK036	640 m³/h (0.87)		
ERHK040	825 m³/h (0.81)		
ERHK044	1,060 m³/h (0.81)		
ERHK048	1,325 m³/h (0.81)		
ERHK052	1,060 m³/h (0.81)		
ERHK054	850 m³/h (0.84)		

*1 - refers to 1 bar(a) and 20°C at 7 bar operating pressure
The factor in brackets specifies the relation of the flow of the filter element for each cm² of surface compared to the EFST30 reference element.

Purity classes according to ISO 8573-1

Contamination	V	ZN	XN	XXN	A
Solid particles*2	(Class 6)	Class 2	Class 1	Class 0-1	(Class 2)
Water content	---	---	---	---	---
Total oil content*2	Class 4*3	Class 2*3	Class 1*3	Class 0-1*3	Class 0-1*4

*2 - typical result, on the assumption of suitable inlet concentrations as well as operating and marginal conditions
*3 - the oil vapour content is not taken into account, it may reduce the purity class
*4 - the liquid residual oil content is not taken into account and may reduce the purity class (should be separated in advance by means of fine filtration)

Volume flow conversion factors

«F1» - Pressure (in bar)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
0.125	0.25	0.38	0.50	0.63	0.75	0.88	1.00	1.13	1.25	1.38	1.50	1.63	1.75	1.88	2.00	2.13

25	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400	>400
3.1	5.1	6.5	7.6	8.5	9.3	9.9	10.5	11.0	11.5	11.9	12.3	12.7	13.0	13.0	13.0	13.0

«F2» - Temperature (in °C)

2	5	10	15	20	25	30	35	40	45	50	55	60	65
1.07	1.05	1.04	1.02	1.00	0.98	0.97	0.95	0.94	0.92	0.91	0.89	0.88	0.87

Calculation of the converted volume flow

Converted volume flow VK	Nominal required volume flow VN_{min}
$VK = VN \times F1 \times F2$	$VN_{min} = VK / F1 / F2$

VK : Converted volume flow calculated for the operating conditions
VN_{min}: Nominal required volume flow calculated for the operating conditions, based on the volume flow at operating conditions

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Maintenance rules

Pressure range	V, ZN, XN, XXN	A
0-4 bar	Replacement of filter element once a year, the latest on a differential pressure of 50 mbar	Replacement of filter elements every 3 months, depending on the operating temperature and therefore on the specified oil vapour amount earlier, if required
5-16 bar	Replacement of filter element once a year, the latest on a differential pressure of 350 mbar	
17-50 bar	Replacement of filter element once a year, the latest on a differential pressure of 500 mbar	
> 50 bar	Replacement of filter element once a year, the latest on a differential pressure of 750 mbar	

Product specific data

Specification	V	ZN	XN	XXN	A
Differential pressure, dry*5	10 mbar	30 mbar	40 mbar	80 mbar	60 mbar
Differential pressure, wet*5	20 mbar	125 mbar	140 mbar	190 mbar	---
Separation efficiency (nominal)	99.99% (3µ)*7	99.9999% (1µ)	99.9999% (0.01µ)	99.99999% (0.01µ)	---
Separation efficiency (ISO 12500-3)	95% (5µ)*6	99.98% (0.3µ)*8	99.995% (0.3µ)*8	> 99.9998% (0.3µ)*8	---
Residual oil content (nominal)	---	≤ 0.5 mg/m³	≤ 0.01 mg/m³	≤ 0.001 mg/m³	≤0.003 mg/m³ *10
Residual oil content (ISO 12500-1)*9	---	---	0.02 mg/m³	---	---
Capacity(ISO 12500-2) *11	---	---	---	---	19.3 minutes

*5 - measured at 7 bar and at nominal volume flow, model EFST30
*6 -measured referring to ISO 12500-3 at 1 bar(a) and equivalent volume flow, model EFST30, new condition
*7 - after initial occurring of a filter cake in the surface filtration phase
*8 - measured referring to ISO 12500-3 at 7 bar and nominal volume flow, model EFST30, MPPS - Most Penetrating Particle Size
*9 - measured according to ISO 12500-1 model EFST30, oil test aerosol with viscosity 32 mm²/s, inlet concentration 10 mg/m³
*10 - at an inlet concentration of ≤ 0,01 mg/m³, liquid residual oil content is not taken into account (should be separated in advance by means of fine filtration)
*11 - measured referring to ISO 12500-2 with n-hexane, model EFST30, test concentration 100 mg/kg, result at 80% saturation

Materials

Component	
Coarse filter media	Cellulosic fibres, impregnated (acrylic basis)
Depth filter media	Glass fibres
Drainage media	PES (polyester)
Supporting fabric of depth filter media	Nylon
Filter media activated carbon	Activated carbon granulate, PES (polyester) fibre layer
Filter media general purpose filtration	Glass fibres
Bonded joint	PU (polyurethane)
Cylinders	Stainless steel 1.4301
End caps	Aluminium
Sealing materials	NBR

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Dimensions

Model	Height (total height)	∅	∅ Inlet (inside)
ERHK012	48 mm (48 mm)	44 mm	19 mm
ERHK016	90 mm (90 mm)	44 mm	19 mm
ERHK020	150 mm (150 mm)	44 mm	19 mm
ERHK024	168 mm (168 mm)	61 mm	35 mm
ERHK028	276 mm (276 mm)	61 mm	35 mm
ERHK032	337 mm (344 mm)	68 mm	43 mm
ERHK036	450 mm (457 mm)	68 mm	43 mm
ERHK040	518 mm (525 mm)	83 mm	57 mm
ERHK044	665 mm (672 mm)	83 mm	57 mm
ERHK048	820 mm (827 mm)	83 mm	57 mm
ERHK052	674 mm (681 mm)	83 mm	64 mm
ERHK054	527 mm (534 mm)	83 mm	64 mm

Classification according to Pressure Equipment Directive 2014/68/EU for group 2 fluids

Model	Volume	Category
All models	Filter elements are not part of the Pressure Equipment Directive 2014/68/EU	

Other directives

Model	
All models	---

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