Filtrations-Separations-Technik

Product Data Sheet
Filter Elements ERDHE.. (for domnick-hunter filter housings)
Filter Elements ERZAE.. (for Parker-Zander filter housings)

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Field of application

Filter elements of type ERDHE | ERZAE with 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 domnick-hunter series Oil-X Evolution filter housings (ERDHE) or Parker-Zander GL series filter housings (ERZAE). We recommend the following filtration grade assignment:

	FST GmbH	domnick-hunter	Parker-Zander
Coarse	V	---	VL
General purpose	ZN	AO, AR	ZL
Fine	XN	AA, AAR	XL
Super fine	XXN	---	---
Activated carbon	A	ACS	A

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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Basic data

Model	Nominal volume flow (VN)*1	Max. operating pressure	Min./Max. operating temperature
ERDHE005	22 m³/h (1.32)	---	+2°C - +65°C
ERDHE010 | CP1008	36 m³/h (0.97)		
ERDHE015 | CP2010	72 m³/h (0.92)		
ERDHE020 | CP2020	108 m³/h (1.08)		
ERDHE025 | CP3025	216 m³/h (1.23)		
ERDHE030 | CP3040	396 m³/h (1.22)		
ERDHE035 | CP4040	576 m³/h (1.05)		
ERDHE040 | CP4050	792 m³/h (1.26)		
ERDHE045 | CP4065	1,188 m³/h (1.58)		
ERDHE050 | CP5065	1,548 m³/h (1.27)		
ERDHE055 | CP5080	2,232 m³/h (1.27)		
ERDHE100	792 m³/h (1.02)		
ERDHE150	1,548 m³/h (1.44)		
ERDHE200 | CP4060	2,232 m³/h (1.29)		
ERDHE060	1,200 m³/h (0.95)		

*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	---	---	---	---	---
Residual 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

«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 x F1 x 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	

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, 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	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	PA6 (polyamide), 30% glass fibres
Sealing materials	NBR

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Dimensions

Model	Height (total height)	∅	∅ Inlet (inside)
ERDHE005	43 mm (50 mm)	37 mm	11 mm
ERDHE010 | CP1008	70 mm (77 mm)	37 mm	11 mm
ERDHE015 | CP2010	91 mm (130 mm)	48 mm	23 mm
ERDHE020 | CP2020	111 mm (150 mm)	48 mm	23 mm
ERDHE025 | CP3025	131 mm (187 mm)	68 mm	28 mm
ERDHE030 | CP3040	220 mm (276 mm)	68 mm	28 mm
ERDHE035 | CP4040	268 mm (353 mm)	90 mm	50 mm
ERDHE040 | CP4050	305 mm (390 mm)	90 mm	50 mm
ERDHE045 | CP4065	358 mm (443 mm)	90 mm	50 mm
ERDHE050 | CP5065	458 mm (564 mm)	108 mm	68 mm
ERDHE055 | CP5080	648 mm (754 mm)	108 mm	68 mm
ERDHE100	412 mm (448 mm)	86 mm	51 mm
ERDHE150	415 mm (458 mm)	114 mm	68 mm
ERDHE200 | CP4060	635 mm (678 mm)	114 mm	68 mm
ERDHE060	635 mm (671 mm)	86 mm	51 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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