Product Data Sheet
Filter Elements ERAC.. (for Atlas-Copco filter housings)

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Field of application

Type ERAC 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 Atlas-Copco series DD/DDp/PD/QD filter housings. We recommend the following filtration grade assignment:

	FST	Atlas-Copco
Coarse	V	---
General purpose	ZN	DD(p)
Fine	XN	PD
Superfine	XXN	---
Activated carbon	A	QD

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
ERAC009	32 m³/h (0.72)	---	+2°C - +65°C
ERAC017	61 m³/h (0.74)		
ERAC032	115 m³/h (0.81)		
ERAC044	158 m³/h (0.76)		
ERAC060	216 m³/h (0.81)		
ERAC120	432 m³/h (0.75)		
ERAC150	540 m³/h (0.83)		
ERAC175	630 m³/h (0.84)		
ERAC260	1,008 m³/h (1.01)		
ERAC390	1,404 m³/h (0.94)		
ERAC520	1,872 m³/h (0.94)		
ERACF520	1,872 m³/h (0.93)		
ERACF780	1,008 m³/h (0.86)		

*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 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	
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

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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	ERAC009-175, 390-520: PA6 (polyamide), 30% glass fibres ERAC 260, ERACF: aluminium anodised
Sealing materials	NBR

Dimensions

Model	Height (total height)	∅	∅ Inlet (inside)
ERAC009	56 mm (67 mm)	46 mm	17 mm
ERAC017	91 mm (102 mm)	46 mm	17 mm
ERAC032	146 mm (158 mm)	46 mm	17 mm
ERAC044	155 mm (167 mm)	61 mm	27 mm
ERAC060	195 mm (207 mm)	61 mm	27 mm
ERAC120	288 mm (301 mm)	86 mm	39 mm
ERAC150	323 mm (336 mm)	86 mm	39 mm
ERAC175	368 mm (381 mm)	86 mm	39 mm
ERAC260	420 mm (435 mm)	102 mm	58 mm
ERAC390	508 mm (523 mm)	120 mm	71 mm
ERAC520	679 mm (694 mm)	120 mm	71 mm
ERACF520	683 mm (693 mm)	120 mm	66 mm
ERACF780	584 mm (605 mm)	88 mm	11 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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