Product Data Sheet
Filter Elements EFST..A (Activated Carbon)

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Field of application

Type EFST filter elements of filtration grade A are mainly designed for separating oil vapours from compressed air flows (dry-type filtration). The properties of the activated carbon are especially suitable to separate gaseous contaminants. Filtration grade A is therefore used, if there are no liquid contaminants in the compressed air flow.

Features

The special filter media of the EFST..A filter elements consists of a loose activated carbon granulate, which is 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. All the functional layers are compactly located between the two stainless steel cylinders and therefore completely integrated in the filter element.

Using loose activated carbon granulate results in, for each filter element, an averagely large amount of activated carbon in relation to the filter surface (1.2 kg 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 contact time between compressed air and activated carbon, which is long, compared to filter elements. Thanks to this layer design the differential pressure achieved by the EFST..A filter elements is amazingly low. The general purpose filter layer downstream of the activated carbon usually eliminates the need for additional downstream filtration. All media are securely located in the two stainless steel cylinders. In this way, a breakthrough, completely or in parts of the filter layers used for filtration is impossible.

All the features mentioned above contribute to a filter element which has a long service life (high adsorption capacity) combined with economic efficiency (low differential pressure) and maximum operating safety (integrated design). This guarantees an extremely low residual oil content.

Tested according to **ISO 12500-2**[*0]

*0 – measured related to ISO 12500-2 with n-hexane, model EFST30, test concentration 100 mg/kg, result at 80% saturation

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Specifications subject to change without notice Date 13.07.2018 Latest version see www.fstweb.de

Basic data

Model	Nominal volume flow (VN)*1	Max. operating pressure	Min./Max. operating temperature
EFST 25	35 m³/h (1.00)	---	+2°C - +45°C
EFST 30	50 m³/h (1.00)		
EFST 50	70 m³/h (1.02)		
EFST 70	100 m³/h (0.67)		
EFST 90	160 m³/h (0.87)		
EFST 110	330 m³/h (0.91)		
EFST 120	500 m³/h (0.92)		
EFST 130	800 m³/h (0.91)		
EFST 140	1,000 m³/h (0.93)		
EFST 170	1,500 m³/h (0.92)		
EFST 180	2,000 m³/h (0.95)		
EFST 190	2,500 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	A
Solid particles*2	(Class 2)
Water content	---
Total oil content*2 *3	Class 0-1

*2 - typical result, on the assumption of suitable inlet concentrations as well as operating and marginal conditions.
*3 - 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
1.07	1.05	1.04	1.02	1.00	0.98	0.97	0.95	0.94	0.92

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	
0-4 bar	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	
17-50 bar	
> 50 bar	

Product specific data

Specification	
Differential pressure, dry*4	60 mbar
Differential pressure, wet	---
Separation efficiency, dry(nominal)	---
Separ. efficiency, dry (ISO 12500-3)	---
Oil vapour content (nominal) *5	≤ 0.003 mg/m³
Capacity (ISO 12500-2)*6	19.3 minutes

*4 - measured at 7 bar and at nominal volume flow, model EFST30
*5 - at an inlet concentration ≤ 0.01 mg/m³, the liquid residual oil content is not taken into account (should be separated in advance by means of fine filtration)
*6 - measured referring to ISO 12500-2 with n-hexane, model EFST30, test concentration100 mg/kg, result at 80% saturation

Model	Amount of activated carbon
EFST 25	5.5 g
EFST 30	7.9 g
EFST 50	10 g
EFST 70	21 g
EFST 90	27 g
EFST 110	51 g
EFST 120	75 g
EFST 130	121 g
EFST 140	152 g
EFST 170	228 g
EFST 180	288 g
EFST 190	360 g

Materials

Component	
Filter media, activated carbon	Activated carbon granulate, PES (polyester) fibre layer
Filter media, gerneral purpose filtration	Glass fibres
Bonded joint	PU (polyurethane)
Cylinders	Stainless Steel 1.4301
End caps	EFST25-170: PA6 (polyamide), 30% Glass fibres ; EFST180-190: aluminium anodised
Sealing materials	NBR

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Dimensions

Model	Height (total height)	∅	∅ Inlet (inside)
EFST 25	53 mm (53 mm)	42 mm	17 mm
EFST 30	57 mm (57 mm)	51 mm	24 mm
EFST 50	73 mm (73 mm)	51 mm	24 mm
EFST 70	142 mm (142 mm)	51 mm	24 mm
EFST 90	118 mm (124 mm)	75 mm	44 mm
EFST 110	218 mm (224 mm)	75 mm	44 mm
EFST 120	318 mm (324 mm)	75 mm	44 mm
EFST 130	508 mm (514 mm)	75 mm	44 mm
EFST 140	510 mm (510 mm)	92 mm	55 mm
EFST 170	760 mm (760 mm)	92 mm	55 mm
EFST 180	612 mm (612 mm)	140 mm	96 mm
EFST 190	762 mm (762 mm)	140 mm	96 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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