

# Product Data Sheet

## Filter Elements ERUF..V-A


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### Field of application

Type ERUF 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 ultrafilter series AG and SG (standard and (super)plus) filter housings (so called 80 and 90 series). We recommend the following filtration grade assignment:

		ultrafilter
Coarse	V	PE
General purpose	ZN	FF
Fine	XN	MF, SMF
Super fine	XXN	---
Activated carbon	A	AK

### 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 m<sup>2</sup> 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) <sup>*1</sup>	Max. operating pressure	Min./Max. operating temperature
<b>80 series</b>			
ERUF03/1	90 m <sup>3</sup> /h (1.61)		
ERUF03/1,5	150 m <sup>3</sup> /h (2.29)		
ERUF04/1,5	210 m <sup>3</sup> /h (1.97)		
ERUF04/2,5	270 m <sup>3</sup> /h (2.17)		
ERUF05/2,5	330 m <sup>3</sup> /h (2.05)		
ERUF05/3	480 m <sup>3</sup> /h (2.23)		
ERUF10/3	1,080 m <sup>3</sup> /h (2.27)		
ERUF15/3	1,440 m <sup>3</sup> /h (1.96)		
ERUF20/3	1,920 m <sup>3</sup> /h (1.93)		
ERUF30/3	2,880 m <sup>3</sup> /h (1.91)		
ERUF30/5	4,320 m <sup>3</sup> /h (1.61)		
<b>90 series</b>			
ERUF02/05	40 m <sup>3</sup> /h (1.01)	---	+2°C - +65°C
ERUF03/05	60 m <sup>3</sup> /h (1.19)		
ERUF03/10	90 m <sup>3</sup> /h (1.57)		
ERUF04/10	120 m <sup>3</sup> /h (1.45)		
ERUF04/20	180 m <sup>3</sup> /h (1.78)		
ERUF05/20	270 m <sup>3</sup> /h (2.14)		
ERUF05/25	360 m <sup>3</sup> /h (2.23)		
ERUF07/25	480 m <sup>3</sup> /h (2.02)		
ERUF07/30	720 m <sup>3</sup> /h (2.23)		
ERUF10/30	1,080 m <sup>3</sup> /h (2.27)		
ERUF15/30	1,440 m <sup>3</sup> /h (1.96)		
ERUF20/30	1,920 m <sup>3</sup> /h (1.93)		
ERUF30/30	2,880 m <sup>3</sup> /h (1.91)		
ERUF30/50	4,320 m <sup>3</sup> /h (1.61)		

\*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 cm<sup>2</sup> of surface compared to the EFST30 reference element.



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### Purity classes according to ISO 8573-1

Contamination	V	ZN	XN	XXN	A
Solid particles* <sup>2</sup>	Class 6	Class 2	Class 1	Class 0-1	(Class 2)
Water content	---	---	---	---	---
Residual oil content* <sup>2</sup>	Class 4* <sup>3</sup>	Class 2* <sup>3</sup>	Class 1* <sup>3</sup>	Class 0-1* <sup>3</sup>	Class 0-1* <sup>4</sup>

\*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

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

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

### 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	

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### Product specific data

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

\*<sup>5</sup> - measured at 7 bar and at nominal volume flow, model EFST30

\*<sup>6</sup> - measured referring to ISO 12500-3 at 1 bar(a) and equivalent volume flow, model EFST30, new condition

\*<sup>7</sup> - after initial occurring of a filter cake in the surface filtration phase

\*<sup>8</sup> - measured referring to ISO 12500-3 at 7 bar and nominal volume flow, model EFST30, MPPS - Most Penetrating Particle Size

\*<sup>9</sup> - measured according to ISO 12500-1 model EFST30, oil test aerosol with viscosity 32 mm<sup>2</sup>/s, inlet concentration 10 mg/m<sup>3</sup>

\*<sup>10</sup> - at an inlet concentration of ≤ 0,01 mg/m<sup>3</sup>, residual oil content is not taken into account (should be separated in advance by means of fine filtration)

\*<sup>11</sup> - 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	80 series: aluminium - 90 series: PA6 (polyamide), 30% glass fibres
Sealing materials	NBR

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### Dimensions

Model	Height (total height)	Ø	Ø Inlet (inside)
<b>80 series</b>			
ERUF03/1	76 mm (86 mm)	42 mm	22 mm
ERUF03/1,5	75 mm (88 mm)	50 mm	29 mm
ERUF04/1,5	111 mm (124 mm)	50 mm	29 mm
ERUF04/2,5	103 mm (127 mm)	62 mm	25 mm
ERUF05/2,5	128 mm (152 mm)	62 mm	25 mm
ERUF05/3	127 mm (151 mm)	86 mm	25 mm
ERUF10/3	254 mm (278 mm)	86 mm	25 mm
ERUF15/3	381 mm (389 mm)	86 mm	52 mm
ERUF20/3	508 mm (516 mm)	86 mm	52 mm
ERUF30/3	760 mm (768 mm)	86 mm	52 mm
ERUF30/5	760 mm (770 mm)	140 mm	75 mm
<b>90 series</b>			
ERUF02/05	62 mm (78 mm)	35 mm	17 mm
ERUF03/05	76 mm (92 mm)	35 mm	17 mm
ERUF03/10	76 mm (94 mm)	42 mm	20 mm
ERUF04/10	104 mm (122 mm)	42 mm	20 mm
ERUF04/20	104 mm (128 mm)	52 mm	25 mm
ERUF05/20	125 mm (149 mm)	52 mm	25 mm
ERUF05/25	128 mm (152 mm)	62 mm	25 mm
ERUF07/25	180 mm (204 mm)	62 mm	25 mm
ERUF07/30	180 mm (206 mm)	86 mm	53 mm
ERUF10/30	254 mm (280 mm)	86 mm	53 mm
ERUF15/30	381 mm (397 mm)	86 mm	53 mm
ERUF20/30	508 mm (524 mm)	86 mm	53 mm
ERUF30/30	760 mm (776 mm)	86 mm	53 mm
ERUF30/50	760 mm (776 mm)	140 mm	77 mm

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Specifications subject to change without notice

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### 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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