

Product Data Sheet

Sterile Filter Elements EFSTP..ST

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Field of application

Type EFSTP filter elements of filtration grade ST are sterile filter elements, suitable for filter housings of type FWP. They are mainly designed for separating micro-biological contaminants from compressed air flows, i.e. viruses, bacteria, etc. (sterile filtration). The filter elements can be sterilised (steaming and autoclaving) and are therefore used for generating sterile compressed air flows (sterile air). Filtration grade ST filter elements, of course, also separate finest solid contaminants and are therefore used for fine dust separation and to generate ultra clean compressed air flows (ultra clean air).

Features

Filter elements of filtration grade ST consist of a wrapped glass fibre depth filter media, supported by an additional NOMEX layer inside and outside. The media pack is compactly located between the two stainless steel cylinders and end caps and therefore completely integrated in the filter element.

To avoid a breakthrough at an early stage and to achieve a high number of sterilisation cycles, the media pack is provided with several layers.

Filter elements of filtration grade ST are manufactured using a high temperature resin bonded joint. This feature allows high operating and sterilising temperatures.

All the features mentioned above are a contribution to a filter element which has a high performance (high separation efficiency) and maximum operating safety (integrated, multi-layer design).



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Basic data

Model	Nominal volume flow (VN) ^{*1}	Max. operating pressure	Min./Max. operating temperature
EFSTP90	160 m ³ /h	---	+2°C - +150°C Sterilisation ^{*2} (100 cycles) 121°C for 30 minutes 131°C for 20 minutes 141°C for 10 minutes
EFSTP120	500 m ³ /h		
EFSTP140	1,000 m ³ /h		
EFSTP180	2,000 m ³ /h		
EFSTP190	2,500 m ³ /h		

*1 - refers to 1 bar(a) and 20°C at 7 bar operating pressure

*2 - steaming and autoclaving

Purity classes according to ISO 8573-1

Contamination	
Solid particles ^{*3}	Class 0-1
Water content	---
Total oil content	---

*3 - typical result, on the assumption of suitable inlet concentrations as well as operating and marginal conditions.

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
17	18	19	20	25	30	35	40	45	50							
2.24	2.35	2.45	2.6	3.1	3.6	4.0	4.4	4.7	5.1							

«F2» - Temperature (in °C)

2	10	20	25	30	35	40	50	60	70	80	90	100	110	120	130	140	150
1.07	1.04	1.00	0.98	0.97	0.95	0.94	0.91	0.88	0.85	0.83	0.81	0.79	0.77	0.75	0.73	0.71	0.69

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		
0-4 bar	Replacement of filter element once a year the latest on a differential pressure of 50 mbar	Replacement of filter element latest after 100 sterilisation cycles, depending on the type of sterilisation (hard/soft) 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	

Product specific data

Specification	
Differential pressure, dry	30 mbar
Micron rating (nominal) for air	0.01 µ
Efficiency	100%

Materials

Component	
Depth filter media	Borosilicate micro glass fibres
Supporting fabric of depth filter media	NOMEX
Bonded joint	Silicon
Cylinders	Stainless steel 1.4301
End caps	Stainless steel 1.4301
Sealing materials	Silicon

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Dimensions

Model	Height (total height)	Ø	Connection	Ø Inlet (inside)
EFSTP90	69 mm (88 mm)	55.5 mm	T-Code	25 mm
EFSTP120	127 mm (146 mm)	55.5 mm	T-Code	25 mm
EFSTP140	253 mm (307 mm)	68.5 mm	Code 7	43 mm
EFSTP180	492 mm (556 mm)	68.5 mm	Code 7	43 mm
EFSTP190	737 mm (801 mm)	68.5 mm	Code 7	43 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	---