



Donaldson  
FILTRATION SOLUTIONS

# Compressed Air Filtration

## DFX

Depth Filter / Coalescence Filter / Particle Filter  
for special applications

# SX

### PRODUCT DESCRIPTION

- Coalescence / particle filter for the retention of oil and water aerosols as well as particles from compressed air and non-corrosive gases of fluid group 2 (non-dangerous gases) and selected non-corrosive gases of fluid group 1 (dangerous gases) acc. to Pressure Equipment Directive 97/23/EC.
- Innovative filtration technology; pleated high performance filter media for reliable achievement of high retention rates with low differential pressure
- Validated performance data acc. to ISO 12500; reliable achievement of compressed air quality acc. to ISO 8573-1
- Flow-optimised design, minimum pressure loss for economic compressed air purification (saving of energy costs)



Depth Filter SX

### INDUSTRIES



- Chemical and pharmaceutical industry



- Gas industry



- Surface finishing



- Machine building industry and plant engineering / construction



- Energy and power generation

Donaldson®  
Ultrafilter

## PRODUCT DESCRIPTION

The filter elements type SX are designed for the purification of compressed air or gases in industrial applications.

Validated performance data acc. to ISO 12500-1 (oil aerosol retention) and ISO 12500-3 (particulate retention) for reliable achievement of compressed air quality suitable to achieve ISO 8573-1 quality classes.

Due to a flow-optimised design of the filter element as well as by the assigned filter media and the advanced production technology, the differential pressure is minimized and a continuously high separation efficiency is ensured.

The filter elements type SX are based on the three-dimensional micro fibre fleece made of coated borosilicate glass fibers, which works oil and water-repellent.

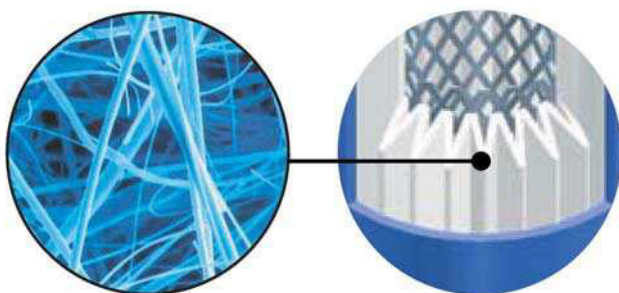
By utilising various filtration mechanisms such as retention by direct impact, sieve effect and diffusion effect, liquid aerosols and solid particles down to the size of 0.01µm are being retained in the filter.



**Cross section of the depth filter**

### The SX filter element is designed and developed for the following applications:

- **Special applications:**  
High temperatures, low temperatures  
Heavy duty / Outdoor
- **Technical gases:**  
Gas manufacturing, gas processing  
gas storage, gas transportation  
Laboratory
- **Special gases:**  
Selected, non-corrosive gases  
of fluid group 1 + 2  
Natural gas / Biogas



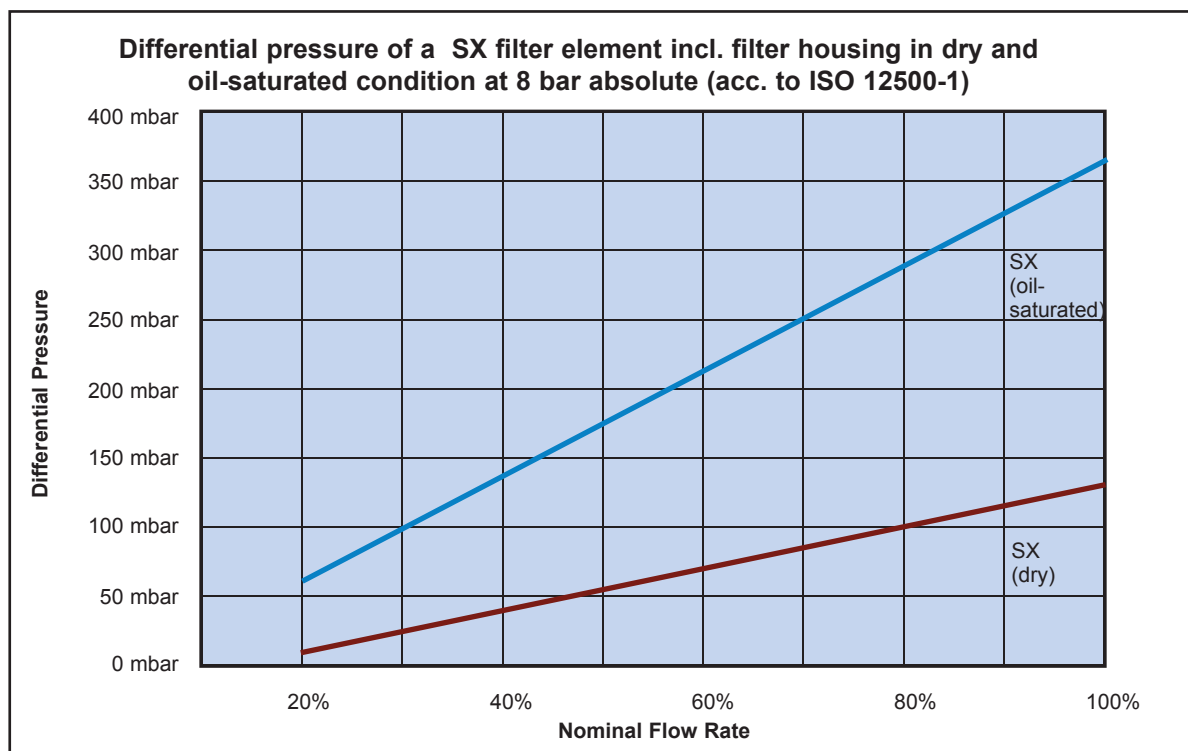
**Cross section of the depth filter  
with SEM micrograph of the filter media**

## PRODUCT SPECIFICATIONS

Features	Benefits
Validated performance data acc. to ISO 12500-1 and ISO 12500-3	Reliable reaching of the compressed air quality according to ISO 8573-1
Intelligent overall concept	Flow range, filtration grades, efficiencies and available options perfectly meet requirements of purification of compressed air and technical gases
Flow-optimised Design	Minimum pressure losses, thereby savings of energy costs
Pleated filter media	High dirt retention capacity by enlarged filter surface with lowest pressure loss
Coalescence sleeve fixed by outside support liner	Flow area between element and housing guaranteed at any time; optimised drainage function by constant stable structure of the coalescence sleeve
Support liner made of stainless steel stretch metal	Protection of the filter media against pressure shocks. Low pressure loss by a large free cross-sectional area
Used materials resistant up to 120°C	Applications with high gas temperature possible (on request)

Materials	
Filter media	Borosilicate glass fibre fleece
Coalescence sleeve	Polyester fleece
Inner and outer support liner	Stainless steel 1.4301 / 304
End caps	Aluminium
O-rings	Viton: silicone free and free of compound (Standard)
Bonding	Polyurethane
Validation	
Validation of high-efficiency filters acc. to ISO 12500-1 and ISO 12500-3	

PERFORMANCE DATA



Operating pressure bar g	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Conversion factor fp	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

Element Type	Nominal Flow Rate at 7 bar g m³/h*	Sizing example for pressure which deviates from nominal pressure
0035	35	$V_{nom} = 350 \text{ m}^3/\text{h}$ , operating pressure = 9 bar (ü) $V_{korr} = \frac{V_{nom}}{fp}$ $V_{korr} = \frac{350 \text{ m}^3/\text{h}}{1,25} = 280 \text{ m}^3/\text{h}$ <b>Calculated size: Type 0320</b>
0070	70	
0120	120	
0210	210	
0320	320	
0450	450	
0600	600	

\* m³ related to 1 bar abs. and 20°C for air. Flow rates for other gases on request

## CERTIFICATE

## Certificate of compliance with the order

according to  
DIN EN 10204 2.2

Confirmation of Design and Performance Data with Test Report.  
Results of the type test (validation) are listed below.

Filter type	SX	Filter size								0035 - 1100	
<b>Retention of oil aerosols acc. to ISO 12500-1</b>											
Oil retention rate at 8 bar absolute and 10 mg/m <sup>3</sup> inlet concentration								99,8%			
Residual oil concentration at inlet concentration of								10 mg/m <sup>3</sup>		0,02 mg/m <sup>3</sup>	
								3 mg/m <sup>3</sup>		< 0,01 mg/m <sup>3</sup>	
<b>Retention of particles acc. to ISO 12500-3</b>											
Particle diameter [µm]	lower	0,19	0,24	0,36	0,52	0,81	1,16	1,78	2,74	3,92	
	upper	0,24	0,36	0,52	0,81	1,16	1,78	2,74	3,92	6,00	
Particle retention rate at 8 bar absolute [%]		99,9997	99,9996	99,9997	100	100	100	100	100	100	
Particle retention rate related to particle diameter <b>0,01 µm</b> at 1 bar absolute						99,99999%					


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