Compressed Air Filtration

AG / SG / HD
Pre-filter PE

MAIN FEATURES & BENEFITS:

- Pre-filter / particle filter for the retention of oil and water aerosols as well as particles from compressed air or gases in industrial applications
- Innovative filtration technology; highly porous polyethylene filter medium with high dirt-holding capacity; achievement of high retention rates with low differential pressure
- Validated performance data; 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)

Pre-filter PE

INDUSTRIES

- Chemical and pharmaceutical industry

- PCB assembly and CD manufacturing

- Surface finishing

- Machine building industry and plant engineering / construction

- Energy and power generation

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PRODUCT DESCRIPTION

The PE prefilter contains the high porous, sintered polyethylene filter medium.
It ensures the separation of raw solid and liquid particles.

By a flow-optimised design as well as by the assigned filter medium the differential pressure is minimized and achieves continuously high retention rates.

By utilising various filtration mechanisms – such as direct impact and sieve effect – liquid aerosols and solid particles down to the size of 25 µm are being retained in the filter.

Cross section of the pre-filter

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

- **Central compressed air processing:**
  Particle filter downstream cyclone separators
  Removal of large condensate amount
  Prefilter for the protection of fridge dryers
  Prefilter upstream “M” and “S” filter stages
- **Cold regenerating adsorption dryers/ Activated carbon adsorbers**
  Particle filter for the retention of adsorbent abrasion
- **Automotive industry:**
  Purification of paint and lacqering finishing air

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PRODUCT SPECIFICATIONS

Features	Benefits
Intelligent overall concept	Flow range, filtration grades, efficiencies and available options perfectly meet requirements of air purification
Flow-optimised Design	Minimum pressure losses, thereby savings of energy costs
Void volume: porosity grade 45%	High dirt holding capacity: lower differential pressure
Removal of contaminants up to 25 µm	Guaranteed retention grade

Materials	
Filter medium	Pure, high molecular Polyethylene
End caps	Aluminium
O-rings	NBR: silicone free and free of compound (Standard)
Bonding	Polyurethane

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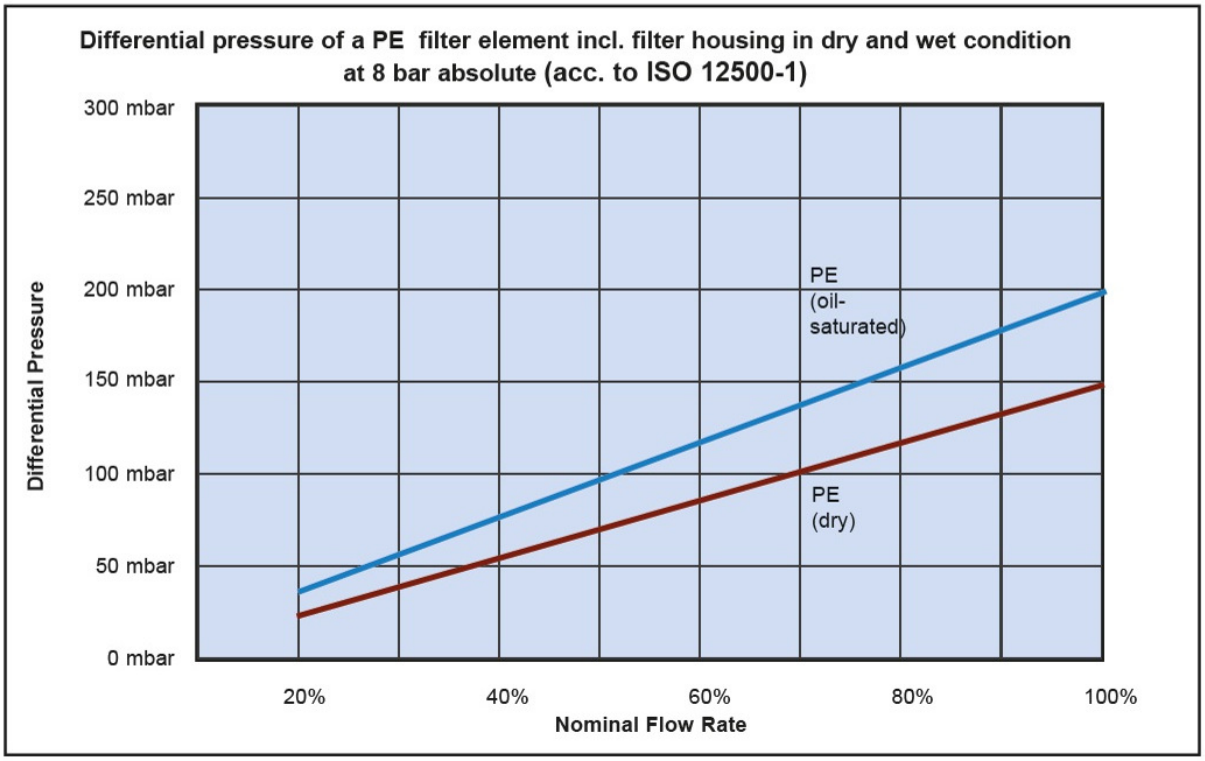
PERFORMANCE DATA



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 m^3/h*
02/05	20
03/05	40
03/10	60
04/10	90
04/20	120
05/20	180
05/25	270
07/25	360
07/30	480
10/30	720
15/30	1080
20/30	1440
30/30	1920
30/50	2880

Sizing example for pressure which deviates from nominal pressure

V_{nom} = 192 m^3/h, operating pressure = 9 bar (g)

$$V_{korr} = \frac{V_{nom}}{fp}$$

$$V_{korr} = \frac{192\ m^3/h}{1,25} = 153,6\ m^3/h$$

Calculated size: Type 05/20

* m^3 related to 1 bar abs. and 20°C

Technical Data Sheet

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	PE	Filter size		02/05 - 30/50
Retention of oil aerosols acc. to ISO 12500-1				
Oil retention rate at 8 bar absolute and 10 mg/m³ inlet concentration				90%
Residual oil concentration at inlet concentration of			10 mg/m³	1 mg/m³
			3 mg/m³	≤ 0,3 mg/m³
Retention of particles				
Particle diameter [µm]		25		
Particle retention rate at 8 bar absolute [%]		100		

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GB **Technical Data Sheet**

Ultrapoly PEP

The silicone free prefilter for the removal of solid contaminants in gases.

Cross section of the Ultrapoly prefilter

Product description:

The silicone free Ultrapoly prefilter contains the high porous, sintered polyethylene filter medium. Even finest dust particles and other contaminants in compressed air and gases are being removed effectively on the surface and in the depth of the filter medium.

Characteristics:

By utilising various filtration mechanisms – such as direct impact and sieve effect – contaminants down to the size of 25 µm particles, are being retained in the filter.

Applications:

The Ultrapoly prefilter is for example being utilised in the following industries

- Automobile industry (applications of lacqer finishes)
- Chemical industry
- Petrochemical industry
- Pharmaceutical industry
- Plastic industry
- General machine fabrication
- Food industry
- Beverage industry
- Process industry for instrumentation and control air

GB Technical Data Sheet

Ultrapoly PEP

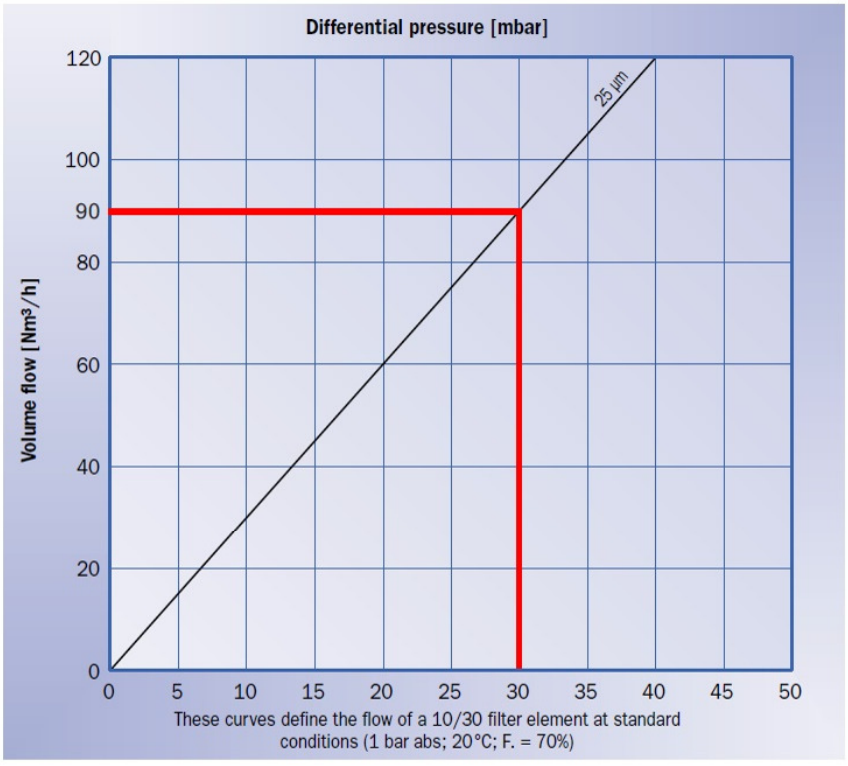
Features:	Benefits:
Permanent temperature range: -20°C up to +80°C	Broad application spectrum
Void volume: porosity grade 45%	High dirt holding capacity: lower differential pressure
Filter surface: 35 cm^2 (02/05) up to 3100 cm^2 (30/50)	Appropriate for any application and flow
Removal of contaminants down to 25 µm	Guaranteed retention grade
Regenerative	Economical, longer service life time

Materials :	
Filter medium	Pure, high molecular Polyethylene
Bonding	Polyurethane
End caps	Aluminium
2 O-Rings	Viton, labs-free

Retention rate:
100% in gases

Maximum differential pressure:
2 bar at 20°C, irrespective of system pressure

Performance of PEP elements- compressed air



Initial differential pressure at nominal flow:
0.03 bar

Element-Type	Correction Factor Filter surface KF
02/05	0.08
03/05	0.10
03/10	0.12
04/10	0.17
04/20	0.19
05/20	0.25
05/25	0.32
07/25	0.47
07/30	0.68
10/30	1.0
15/30	1.55
20/30	2.10
30/30	3.20
30/50	5.65

P-PE

PARTICLE FILTER ELEMENTS

Process Filtration

Removes solid contaminants in gases as a prefilter or post filter.

Donaldson® P-PE elements contain highly porous sintered polyethylene filter media. Even the finest dust particles and other contaminants in compressed air and gases are being removed effectively on the surface and in the depth of the filter medium. Surface loading allows users to regenerate the element and reduce opeating cost through fewer element change-outs.

By utilizing various filtration mechanisms such as direct impaction and mechanical sieving, particles are retained with an absolute retention rate in gases.

P-PE

APPLICATIONS

P-PE filter elements are ideal in the following industries and applications:

- Chemical
- Petrochemical
- Pharmaceutical
- Plastic
- Food
- Beverage
- General machine fabrication
- Instrumentation and control air

FEATURES	BENEFITS
Void volume – porosity grade +45%	High dirt holding capacity; lower differential pressure
Permanent temperature range -4°F up to +176°F	Broad application range
Removal of contaminants down to 25 µm	Absolute retention grade
Regenerative	Economical, longer service lifetime

SPECIFICATIONS

MATERIALS

Filter Media	Sintered Polyethylene
Bonding	Polyurethane
End Caps	304 SS
Two O-Rings	Buna

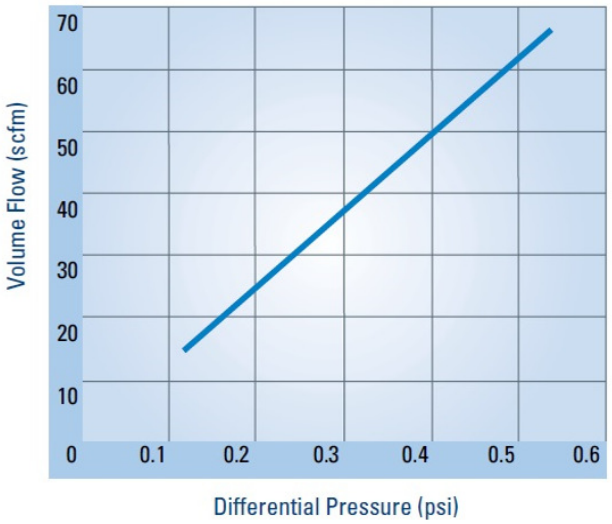
RETENTION RATE

Retention Rate	> 99.98% @ 25 um in gases

DIFFERENTIAL PRESSURE

Maximum Differential Pressure	30 psi at 68°F regardless of system pressure
Initial Differential Pressure at Nominal Flow	0.44 psi

PE Element Performance — Compressed Air



These curves define the flow of a 1030 filter element at standard conditions (14.7 psia; 68°F. R.H.= 70%)