

Ultrapoly™ PE

Particle Filter Element

Element for the removal of solid contaminants in gases as a prefilter or post filter.

Donaldson® Ultrapoly™ PE elements

contain highly porous sinter 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.

By utilizing various filtration mechanisms such as direct impaction and mechanical sieving, particles are retained 100% in gases related to the element pore size.



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Applications

The Donaldson Ultrapoly PE filter element is ideal in the following industries and applications:

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

Features

Benefits

Filter surface 5.5 in ² (0205) up to 480 in ² 3050)	Suitable for a wide range of applications and flow rates
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	Guaranteed retention grade
Regenerative	Economical, longer service lifetime

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Specifications

Retention Rate	100% in gases; defined rate of particles larger than the pore size
Maximum Differential Pressure:	30 psi at 68°F regardless of system pressure
Initial Differential Pressure at Nominal Flow	0.44 psi

Materials

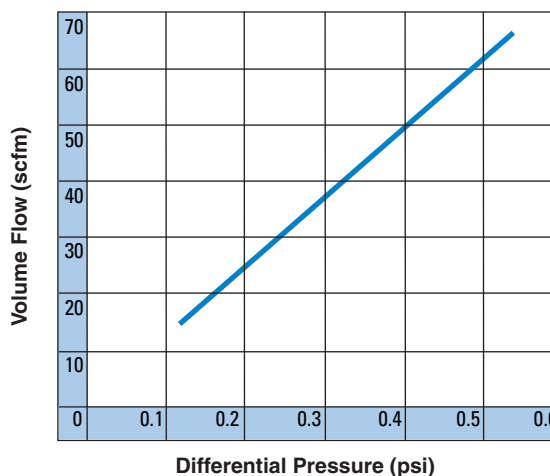
Filter Media	Pure high molecular polyethylene
Bonding	Epoxy resin
End Caps	Aluminum
Two O-Rings	Perbunan®*: silicone free and free of parting compound (standard)

Pressure Drop Calculations

Element Size	Correction Factor Filter Surface C_F
0205	0.08
0305	0.10
0310	0.12
0410	0.17
0420	0.19
0520	0.25
0525	0.32
0725	0.47
0730	0.68
1030	1.00
1530	1.55
2030	2.10
3030	3.20
3050	5.65

The performance curve is based on 1030 element, or one ten inch equivalent (TIE), and the correction factor for filter surface C_F for a 1030 = 1.00.

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



Example 1: Low Flow Single Element

Given:

- Flow rate = 12 scfm
- Pressure = 80 psig
- Using AG0002 (1–0205 PE Element)
 1. Convert flow given from standard cubic feet per minute to actual cubic feet per minute
 - $12 \text{ scfm} \times (14.7 \text{ psia} / 94.7 \text{ psia}) = 1.86 \text{ acfm}$ (through the housing and element)
 2. Divide by the correction factor
 - $1.86 / 0.08 = 23.25 \text{ acfm}$ (through each TIE)
 3. Pressure drop through this element = 0.29 psid

Example 2: High Flow Multiple Element

Given:

- Flow rate = 15,000 scfm
- Pressure = 150 psig
- Using SH2200 (27 - 3030 PE Element)
 1. Convert flow given from standard cubic feet per minute to actual cubic feet per minute
 - $15,500 \text{ scfm} \times (14.7 \text{ psia} / 164.7 \text{ psia}) = 1,383 \text{ acfm}$ (through the housing)
 2. Divide by number of elements
 - $1,383 / 27 = 51.2 \text{ acfm}$ (through each element)
 3. Divide by correction factor
 - $51.2 / 3.20 = 16 \text{ acfm}$ (through each TIE)
 4. Pressure drop through these elements = 0.125 psid

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