



Donaldson
FILTRATION SOLUTIONS

Compressed Air Filtration

DFX

Depth filter / coalescence filter / particle filter
for special applications

VX

MAIN FEATURES & BENEFITS:

- 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; wrapped depth filter medium with high dirt-holding capacity; 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 VX

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 VX are designed for the processing 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.

By 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 VX possess the three-dimensional micro fibre fleece made of polyester, which works oil and water-rejecting.

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



Cross section of the depth filter

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

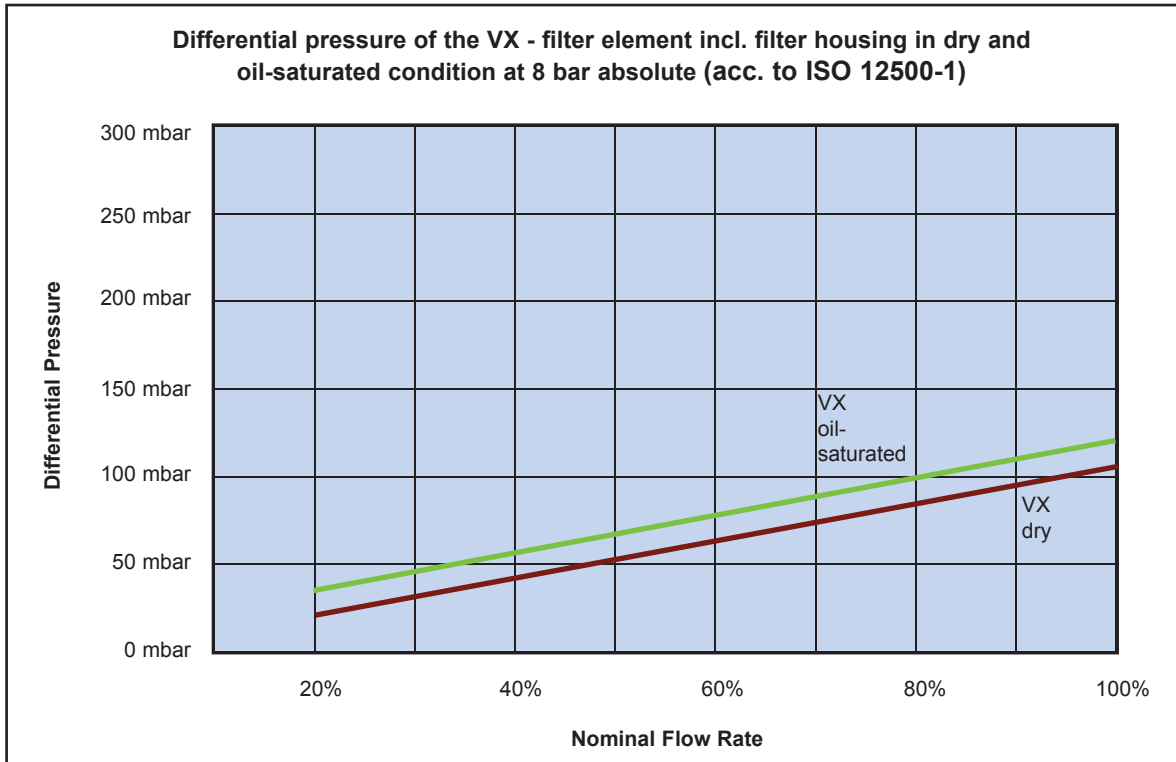
- **Special applications:**
High temperatures, low temperatures
Heavy duty / Outdoor
- **Technical gases:**
Gas manufacturing, gas processing
gas storage, gas transportation
Laboratory
- **Special gases:**
Selected, non-corrosive gases
of fluid group 1 + 2
Natural gas / Biogas

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 |
| 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 meshed grid | 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 | Micro fibre polyester 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 m ³ /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) $V_{korr} = \frac{V_{nom}}{fp}$ $V_{korr} = \frac{350 \text{ m}^3/\text{h}}{1,25} = 280 \text{ m}^3/\text{h}$ Calculated size: Type 0320 |
| 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 | VX | Filter size | | | | 0035 - 0600 | | | | |
|---|-------|-------------|------|------|------|----------------------|--------------------------|------|------|------|
| Retention of oil aerosols acc. to ISO 12500-1 | | | | | | | | | | |
| Oil retention rate at 8 bar absolute and 10 mg/m ³ inlet concentration | | | | | | 96% | | | | |
| Residual oil concentration at inlet concentration of | | | | | | 10 mg/m ³ | < 0,40 mg/m ³ | | | |
| | | | | | | 3 mg/m ³ | < 0,20 mg/m ³ | | | |
| Retention of particles acc. to ISO 12500-3 | | | | | | | | | | |
| 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 [%] | | 17,1 | 22,3 | 31,7 | 50,9 | 83,1 | 98,5 | 100 | 100 | 100 |


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