Depth Filter M, S

The depth filter for the removal of water, oil aerosols and solid particles from compressed air and gases with validated retention rate acc. to ISO 12500-1.

Product description:

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

Validated performance data acc. to ISO 12500-1 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 M and S are based on the three-dimensional micro fibre fleece made of coated borosilicate glass fibers, 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 down to the size of 0.01µm are being retained in the filter.

Applications:

The depth filter is for example being utilised in the following industries:

- Final filtration for control and process air
- Pre-filter to protect adsorption dryers (M)
- Dust filter downstream adsorption dryers (M)
- General applications in food and beverage industries
- Filtration (S) upstream of activated carbon filters

<table>
<thead>
<tr>
<th>Flowrate at 7 bar g</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>0.35 m³/h</td>
<td>0.035</td>
<td>0.70 m³/h</td>
</tr>
<tr>
<td>0.070 m³/h</td>
<td>0.070</td>
<td>1.20 m³/h</td>
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<tr>
<td>0.210 m³/h</td>
<td>0.210</td>
<td>0.320 m³/h</td>
</tr>
<tr>
<td>0.450 m³/h</td>
<td>0.450</td>
<td>0.600 m³/h</td>
</tr>
<tr>
<td>0.750 m³/h</td>
<td>0.750</td>
<td>1.100 m³/h</td>
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</table>

For deviations from nominal pressure, use the following calculation:

\[
\dot{V}_{\text{corr}} = \frac{\dot{V}_{\text{nom}}}{f_p}
\]

\[
\dot{V}_{\text{corr}} = \left( \frac{350 \text{ m}^3/\text{h}}{1.25} \right) = 280 \text{ m}^3/\text{h}
\]

Calculated Size: Type 0320

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

Cross section of the depth filter

* m³/h related to 1 bar abs. and 20°C
### Depth Filter Type M, S

<table>
<thead>
<tr>
<th>Features:</th>
<th>Benefits:</th>
<th>Materials:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Validated performance data acc. to ISO 12500-1</td>
<td>Reliable reaching of the compressed air quality according to ISO 8573-1</td>
<td>Filter media: Borosilicate glass fibre fleece</td>
</tr>
<tr>
<td>Intelligent overall concept</td>
<td>Flow range, filtration grades, efficiencies and available options perfectly meet requirements of air purification</td>
<td>Coalescence sleeve: Polyester fleece</td>
</tr>
<tr>
<td>Flow-optimised Design</td>
<td>Minimum pressure losses, thereby savings of energy costs</td>
<td>Inner and outer support sleeves: Stainless steel 1.4301 / 304</td>
</tr>
<tr>
<td>Pleated filter media</td>
<td>High dirt retention capacity by enlarged filter surface with smallest pressure loss</td>
<td>End caps: Glass fibre reinforced polymer</td>
</tr>
<tr>
<td>Coalescence sleeve fixed by outside support sleeve</td>
<td>Flow area between element and housing guaranteed at any time; optimised drainage function by constant stable structure of the coalescence sleeve</td>
<td>O-Rings: Perbunan: silicone free and free of compound (Standard)</td>
</tr>
<tr>
<td>Support sleeve made of stainless steel meshed grid</td>
<td>Protection of the filter media against pressure shocks</td>
<td>Bonding: Polyurethane</td>
</tr>
<tr>
<td>Use of stainless steel material with glass fiber reinforced polyamide</td>
<td>Optimal corrosion protection</td>
<td></td>
</tr>
</tbody>
</table>

### Validation:
Validation of high-efficiency filters acc. to ISO 12500-1

<table>
<thead>
<tr>
<th>Particle retention rate related to 0.01 µm</th>
<th>Oil retention rate acc. to ISO 12500-1</th>
<th>Residual oil content at an inlet concentration of</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>10 mg/Nm³</td>
</tr>
<tr>
<td>η (M) = 99.99999%</td>
<td>η (M) = 99.7%</td>
<td>m(_{Oil}) (M) [mg/Nm³]</td>
</tr>
<tr>
<td>η (S) = 99.99999%</td>
<td>η (S) = 99.8%</td>
<td>m(_{Oil}) (S) [mg/Nm³]</td>
</tr>
</tbody>
</table>

### Differential pressure of a M/ S filter element incl. filter housing in dry and wet condition at 8 bar absolute

- **S (wet)**
- **M (wet)**
- **S (dry)**
- **M (dry)**

- **Nominal Flow Rate**
- **Differential Pressure**

- **Differential pressure values:**
  - 0 mbar
  - 50 mbar
  - 100 mbar
  - 150 mbar
  - 200 mbar
  - 250 mbar
  - 300 mbar
  - 350 mbar
  - 400 mbar

- **Flow rate percentage:**
  - 20%
  - 40%
  - 60%
  - 80%
  - 100%