AFP-AZ Process
Removal of trace air constituents in process applications
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**AFP-AZ Process adsorption filters are applied where even small concentrations of gases in the air have an impact on the quality of products.**

These processes can be in the electronic industry, such as micro-electronics and semi-conductor production, as well as in the manufacture of optics, MEMS (micro-electrical-mechanical systems) or high-precision mechanical devices.

Moreover, AFP-AZ Process filters are to protect precious objects and artefacts in museums and libraries from the deteriorating effects of trace gases in the air.

AFP-AZ Process filters contain a composite filter material including fine granules of specially designed activated carbon. The activated carbon is a non-impregnated version for maximum performance on a broad variety of Volatile Organic Compounds (VOC) as well as Condensable Organic Compounds (COC); condensables as per ISO/FDIS 1464 4-8:2005).

AFP-AZ Process filters are available in 4 standard sizes.
**Design**

AFP filters are designed as rigid cellular 4-V filters with mini-pleated media in a header frame, to fulfil the demands of industrial applications.

Due to the rigid cellular design the AFP filter series can be applied in any orientation without effects on the technical characteristics, such as pressure drop or adsorption performance. Using a mini-pleated composite media, there is no risk of settlement of sorbent material and leakage as in systems using sorbents in bulk form. The design of the composite filter material, the production parameters and the optimised flow design of the rigid cell, provide the best possible conditions for low and stable pressure drop in operation, as well as homogeneous filter flow.

The design of the composite material is comparable to a fixed bed of microgranular sorbent particles. Fixation of the granules by a three-dimensional connecting PU-fibre network prevents movement and settlement of sorbent in the air stream. Hence the dense packing guarantees of high filtration efficiencies for trace gas components and ideal pleat shape. No particles or dust are generated by AFP filter material as can be proven by particle measurements downstream of the filter during operation.

**Areas of Application**

**AFP-AZ Process filters are particularly effective in the removal of:**

- Hospital and antiseptic odours
- Volatile organic compounds (VOC) or hydrocarbons from air streams in recirculated air or fresh air for production under clean room conditions
- Condensables (COC) as per ISO/FDIS 14644-8: 2005 from air streams in recirculated air or fresh air for production under clean room conditions
- Dopants as organo-phosphorous compounds or organo-boron compounds from air streams in production processes
- Ozone from outside air supplies or air recirculation
- Odourous combustion products, kerosene and diesel
- Many other gaseous contaminants
- Organic solvent trace gases from recirculated air of production environments, such as PGMEA, PGME, acetic acid esters

**Occurrence of the target compounds to be removed and applications for AFP-AZ Process filters:**

- Micro-electronic industry and display manufacturing
- Optical industry and laser application
- Imaging and photography processes
- Museums and archives
- Airports, office buildings and hospitals
Installation

AFP Process filters can be easily installed in standard fine dust filter frames. F-frames can be combined with filter barriers and installed into ducts, air conditioning units and wall openings.

Disposal

AFP Process filters used under standard operation conditions to remove trace contaminations from process air environments can be disposed in the same way as normal industrial waste (e.g. incineration, landfill).

Filters soiled by toxic and/or radioactive constituents must be disposed as hazardous waste in accordance with local regulations.
### Technical Data

<table>
<thead>
<tr>
<th></th>
<th>AFP-610-P</th>
<th>AZ-508-P</th>
<th>AZ-420-P</th>
<th>AZ-305-P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal air flow $V_n$ (normal service life)</td>
<td>m³/h</td>
<td>2500</td>
<td>2000</td>
<td>1650</td>
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<tr>
<td>Pressure drop at $V_n$</td>
<td>Pa</td>
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<td>45</td>
<td>50</td>
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<tr>
<td>Rated air flow $V_r$ (long service life)</td>
<td>m³/h</td>
<td>1800</td>
<td>1450</td>
<td>1200</td>
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<tr>
<td>Pressure drop at $V_r$</td>
<td>Pa</td>
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<td>25</td>
<td>30</td>
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<tr>
<td>Total weight of filter</td>
<td>kg</td>
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<td>8.5</td>
<td>6.7</td>
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<tr>
<td>Sorbent net weight</td>
<td>kg</td>
<td>5.7</td>
<td>4.6</td>
<td>4.2</td>
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<tr>
<td>Filter medium area</td>
<td>m²</td>
<td>10.2</td>
<td>8.3</td>
<td>7.1</td>
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<tr>
<td>Initial efficiency at rated air flow</td>
<td>%</td>
<td>98</td>
<td>98</td>
<td>98</td>
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<tr>
<td>Adsorption capacity at rated air flow $V_r$ 1)</td>
<td>ppb.h</td>
<td>125,000</td>
<td>125,000</td>
<td>125,000</td>
</tr>
</tbody>
</table>

1) for sulfur dioxide, 23°C, 50% r.h. to 80% efficiency

### Operation Conditions

- **Maximum Operating Temperature**: < 50 °C
- **Recommended Operating Temperature**: < 30°C
- **Maximum Relative Humidity**: < 90%
- **Recommended Relative Humidity**: < 30% < x < 60%
- **Minimum Pre-Filtration**: F6
- **Recommended Pre-Filtration**: F9
- **Back-Up Filtration Required**: None – no particle shedding

### Materials

- **Frame Material**: Polystyrene, free from halogenated compounds, incinerable
- **Filter Material (HT-version)**: Polyamide, galvanized steel, non-flammable, UL 94 V0 frame version
- **Filter Material**: Synthetic fibre composite material, fine grain sorbents embedded in fibre matrix
- **Sealant**: Polyurethane

![Dimensions (mm)](image-url)
In view of continuous research and development, we reserve the right to modify specifications and dimensions without prior notice. For quoted standards, the issue valid at the print date of this leaflet is relevant.
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OUR LOCATIONS

ÖSTERREICH
Tel: +43 (0) 1 698 66 77 0

FRANCE
Tel: +33 (0) 1 64 07 61 25

ITALIA
Tel: +39 022 692 6321

SOUTH AFRICA
Tel: +27 (0) 114 250 470

SVENGE
Tel: +46 (0) 325 661 600

UNITED KINGDOM
Tel: +44 (0) 1282 413 131

DANMARK
Tel: +45 364 966 00

SCHWEIZ
Tel: +41 (0) 433 992 700

NEDERLAND
Tel: +31 888 653 724

DEUTSCHLAND
Tel: +49 (0) 2339 128 00
oder +49 (0) 6181 9082 01

ESPAÑA
Tel: +34 937 522 718