



# VOKES AIR

Taking small steps together, always ahead, towards a better world

## AFP-AA Process

Removal of trace air constituents in process applications



# AFP-AA Process

Removal of trace air constituents in process applications

## APPLICATIONS



Clean Air



Power Generation



Clean Room



Industrial

## KEY FACTS

- ▶ **Standard air flow 2500 m<sup>3</sup>/h**  
Suitable for even the most demanding of applications
- ▶ **Low pressure drop**  
Reduces energy consumption and lowers operating costs
- ▶ **Optimised flow design**  
For low, stable pressure drop and homogenous air flow
- ▶ **Composite media**  
No particle generation
- ▶ **Lightweight**  
For simple filter change
- ▶ **Spherical cation exchange resin**  
Designed specifically for process air applications
- ▶ **Large filter surface 10 m<sup>2</sup>**  
For high efficiency and long service life
- ▶ **Both incinerable or non-flammable frame systems available**  
For simple disposal and demanding applications
- ▶ **Fits standard air handling units**  
For simple, low cost installation and switchover

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

AFP-AA Process filters are made up of a composite filter material containing fine spheres of cation exchange resin. By the acid groups of the resin structure, alkaline substances, such as ammonia, are efficiently tied up in the material by chemisorption.

### ▼ AFP-AA Process



## 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-AA Process filters are particularly effective in the removal of:**

- ▶ Ammonia  $\text{NH}_3$  in trace concentrations from air streams in recirculated air or fresh air for production processes under clean room conditions
- ▶ Amines and further nitrogen-containing bases from air streams in production processes
- ▶ Odourous compounds from fouling processes

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

- ▶ Micro-electronic industry and display manufacturing
- ▶ Optical industry and laser application
- ▶ Imaging and photography processes
- ▶ Museums and archives
- ▶ Waste-water treatment installations

---

### ▼ AFP-AA Process product detail



## Installation

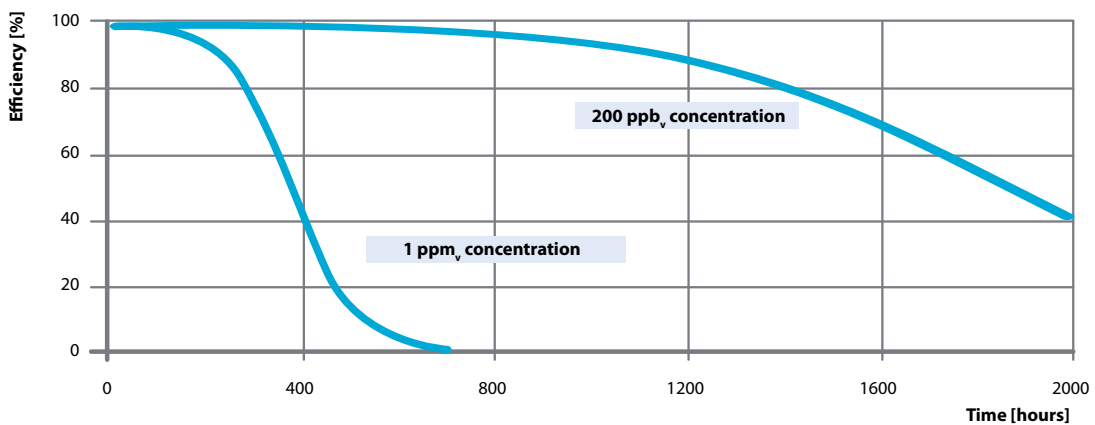
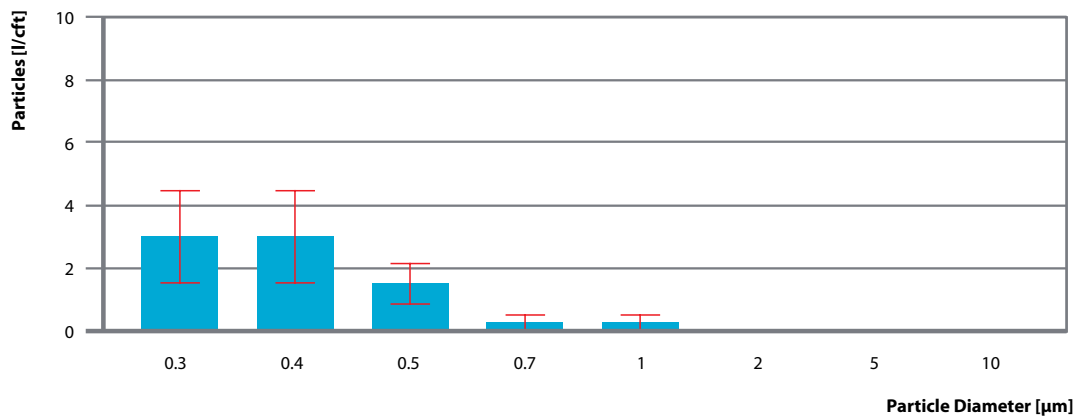
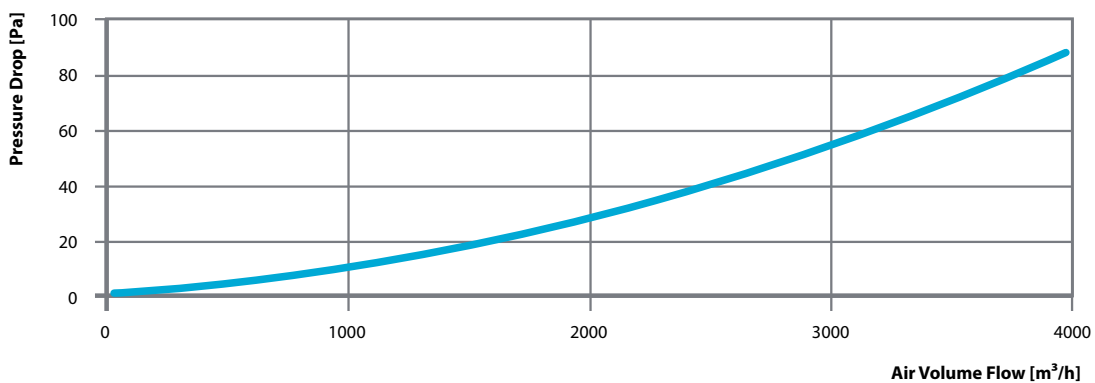
AFP Process filters can be easily installed in standard fine dust filter frames. F-frames can be combined with filter barriers and installed into ducts, air conditioning units and wall openings.

## 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.

**Pressure Drop versus Air Flow (for AA-610)**



Technical Data	AFP-	AA-610-P	AA-508-P	AA-420-P	AA-305-P
Nominal air flow $V_n$ (normal service life)	m <sup>3</sup> /h	2500	2000	1650	1250
Pressure drop at $V_n$	Pa	45	45	50	50
Rated air flow $V_r$ (long service life)	m <sup>3</sup> /h	1800	1450	1200	900
Pressure drop at $V_r$	Pa	25	25	30	30
Total weight of filter	kg	10.1	8.5	6.7	5.1
Sorbent net weight	kg	5.7	4.6	4.2	2.6
Filter medium area	m <sup>2</sup>	10.2	8.3	7.1	4.7
Initial efficiency at rated air flow	%	98	98	98	98
Adsorption capacity at rated air flow $V_r$ <sup>1)</sup>	ppb.h x 1000	129 (150)	129 (150)	129 (150)	129 (150)

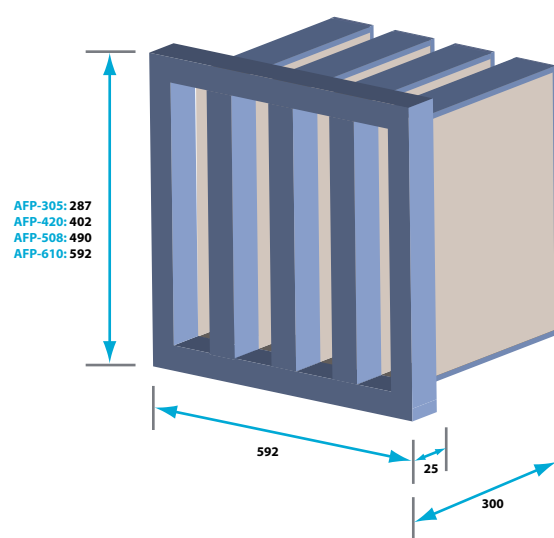
1) for ammonia, 23°C, 50% r.h. to 80% (70%) efficiency

#### 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, spherical cation exchange resin
Sealant	Polyurethane



▲ Dimensions (mm)



## 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

### SVERIGE

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

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.  
© Vokes Air • 02/2011 • EN • 0029

[www.vokesair.com](http://www.vokesair.com)



Taking small steps together, always ahead, towards a better world