

# Aerosol generators series AGF

## For acceptance measurements of clean rooms, leak test and test of HEPA/ULPA filters



The test of high-efficiency aerosol filters of the quality H10–U17 is tested according to international conventions with an aerosol which exhibits the predominant number of particles in the so-called MMPS range (Most Penetration Particle Size).

A high-efficiency aerosol filter of the quality U17 is defined with  $E = 99,999995\%$ . The MMPS range lies approximately between 50 nm and 0.4  $\mu\text{m}$ . Big particles  $> 1 \mu\text{m}$  are separated by such filters by 100 %. In order to test a filter with U17 quality, e.g. 100,000,000 particles must be fed per minute in front of the filter to ensure that behind the filter still 10 particles per minute can be proven.

Big droplets generate high mass flows and contaminate such filters in such a way that during the tests the filters are tested better than they really are due to the droplet loading.

With the sampling of particles  $< 2 \mu\text{m}$  an exact isokinetic sampling is not necessary. For these reasons the AGF system has been used successfully for these applications all over the world for more than 25 years.

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### Particular advantages:

- exact adjustment of the operating parameters
- number concentration  $C_N$  can be varied by the factor 10
- particle size distribution remains virtually constant, if  $C_N$  is modified
- number concentration maximum lies in the MMPS range
- virtual no power losses
- optimal concentration, no coagulation losses
- long dosing duration
- resistant to numerous acids, bases and solvents
- robust design, stainless steel housing
- easy handling
- reliable function
- low maintenance
- reduces your operating expenses

### Application examples:

- HEPA/ULPA filter test
- acceptance measurements and leak test according to ISO 14644 and VDI 2083
- nebulization of latex suspension  $< 1 \mu\text{m}$
- calibrating of counting particle measurement methods
- test of smoke detectors
- test of vacuum cleaners and vacuum cleaner filters
- flow visualisation
- tracer particles

### Technical parameters:

- particle material to be used:
  - DEHS
  - DOP
  - Emery 3004
  - paraffin oil
  - other non-resinous oils
- dosing capacity  $> 24 \text{ h}$
- further technical data see table 1

### Accessories:

- transportation case
- particle material DEHS
- compressed air adapter

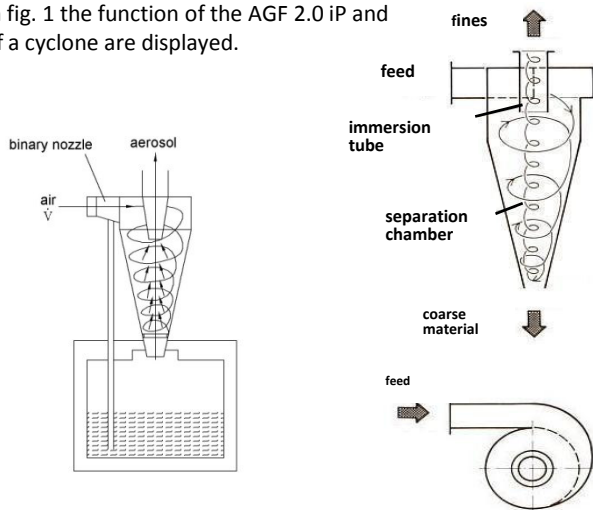
# AGF System

## Quality in detail

### Operation principle:

The AGF system consists of an adjustable binary nozzle for the adjustment of the desired mass flow as well as of a cyclone for the separation of particles, e. g.  $> 2 \mu\text{m}$  or  $> 10 \mu\text{m}$ .

In fig. 1 the function of the AGF 2.0 iP and of a cyclone are displayed.



**Fig. 1:** Operation principle of the AGF series incl. cyclone

The AGF 2.0 iP has an integrated volume flow pump with a constant flow rate. The desired mass flow is accurately adjusted in this device by a needle valve adjustable with micrometer screw.

The other AGF versions are operated with compressed air and the desired mass flow is adjusted with different volume flows.

All inertial separators, whether cyclone or deflectors, modify the particle size distribution of the aerosol subject to the volume flow. For this reason the modification of the particle size distribution by modification of the volume flow must be known.

All Palas® products are significantly characterized.

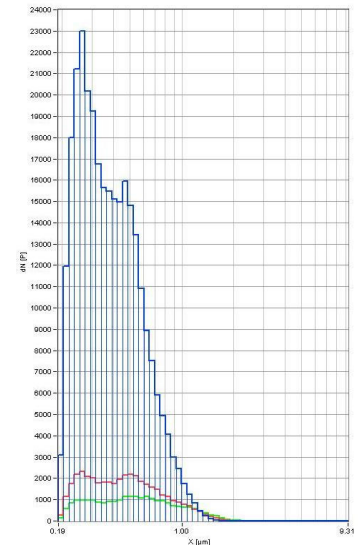
	Dimensions WxHxD mm	Weight kg	$\dot{V}$ l/min	$\dot{m}_{\text{max}}^*$ g/h	$\bar{D}^{***}$ $\mu\text{m}$	$D_{\text{max}}$ $\mu\text{m}$	115/230V 50/60 Hz	Pressure- tight up to 10 bar	Compressed air supply
AGF 2.0	300x330x240	ca. 9	6-17	4	0,25	2			x
AGF 2.0 iP	300x330x240	ca. 15	16-18	2	0,25	2	x		
AGF 10.0	$\varnothing 240 \times 385$	ca. 4	12-45	20	0,5	10			x
AGF 2.0 D	$\varnothing 200 \times 260$	ca. 8	12-45	4	0,25	2		x	x
AGF 10.0 D	$\varnothing 200 \times 300$	ca. 8	12-45	20	0,5	10		x	x
AGF 2.0 B**	$\varnothing 210 \times 300$	ca. 4	6-25	4	0,25	2			x
UGF 2000	270x200x175	ca. 4	ca. 1-13	1,5	0,2	1,5			x

**Table 1:** overview of the AGF systems

\*applied for DEHS    \*\*test rig version    \*\*\*average number diameter

### Measuring data AGF 2.0:

measuring device  
welas® digital 2000  
number distribution  $d_N[P]$   
at different volume flows



### Measuring data UGF 2000:

measuring device  
welas® digital 2000  
number distribution  $d_N[P]$   
at different volume flows



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