Atomizer Aerosol Generators
ATM 241 and ATM 242

Aerosol Generators series ATM 241 and ATM 242

Aerosol generators of series ATM 241 and ATM 242 are droplet generators and especially developed for generating high aerosol concentrations with exceptional constancy (VDI-guidline 3491).

Their main applications are generation of tracer particles or verifying measurements in very large clean rooms according to the guidelines VDI 2083 and DIN EN ISO 14644. The innovative design of these aerosol generators enables a flexible use.

Both devices enclose a few patented slot nozzles in a nearly closed vessel of stainless steel. The nozzles are connected to an external compressed air supply. A block with 4 of those slot nozzles is mounted in the ATM 241, and the ATM 242 contains 3 nozzle blocks with 4 such nozzles each. During the operation mode all nozzles must be immersed in the aerosol liquid (Laskin principle). The nozzles are connected to an external compressed air supply with a standard quick-fit coupling.

Next to the aerosol outlets in the lid of the generators a relief valve is installed opening at certain over pressure.

The ATM 242 includes the option of controlled heating of the aerosol. This device provides maximum aerosol temperatures up to 120°C.

Advantages

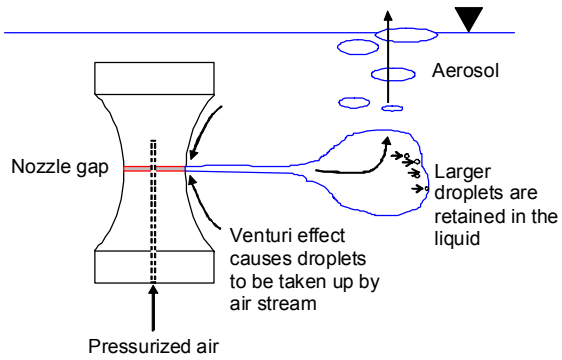
- Generation of polydisperse aerosols, mainly <1 µm
- High consistency of the generated particle size distributions
- Defined and highly constant particle number concentrations
- Suitable for salt aerosol generation

Applications

- Generation of tracer particles
- Verifying measurements in very large clean rooms
- Test of HEPA and ULPA filter media

Principle

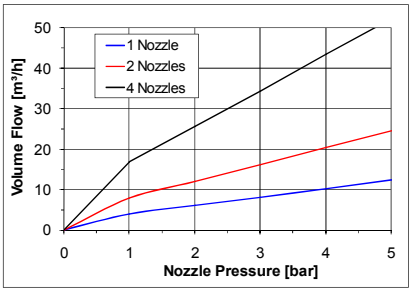
Main component of the series ATM 241/242 is a novel nozzle (patented), which allows by its design to generate a very fine aerosol. The figure below shows a schematic of this nozzle. The discharged air stream from the nozzle creates a negative pressure where it enters the liquid thereby carrying along small droplets. While the air travels through the liquid, the liquid works like a baffle plate in order to separate larger particles. They are retained in the liquid and remain in the reservoir.



Functionional principle of nozzles of ATM 241 und ATM /242

Specifications

Aerosol Generator ATM 241



Atomizer Aerosol Generator ATM 241

Dependency of aerosol volume flow from nozzle pressure and nozzle number

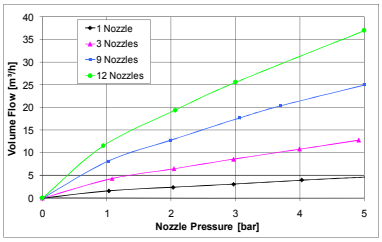
The vessel of the aerosol generator contains 4 vertically cascaded slot nozzles featuring the same gap. The nozzles are connected to an external compressed air supply.

The ATM 241 is designed so that nozzle 1 is continuously in operation and nozzles 2 and/or 3 and 4 can be added independently.

Due to this feature and a varying air pressure a wide range of aerosol mass flow can be realised. The ATM 241 includes a safety valve releasing at a pressure of approx. 0.012 bar.

Particle size DEHS	0.1 ... 1 µm (Modal value: 0.2 … 0.3 µm)
Particle number concentration	> 10^8 Particles/cm^3
Mass flow	20…240 g/h (DEHS)
Aerosol substances	DEHS, PAO (Emery 3004), PSL-Suspensions, Salt Solutions
Number of nozzles	4, separately switchable
Filling amount	4.7 l (min.) ... 8 l (max.)
Atomizer pressure	1…5 x 10^5Pa (1…5 bar)
Dimensions	480 x 250 x 220 mm
Weight	6.2 kg

Aerosol Generator ATM 242



Atomizer Aerosol Generator ATM 242

Dependency of aerosol volume flow from nozzle pressure and and number of nozzles switched on

By varying air pressure as well as varying the number of nozzles switched on it is possible to adjust the aerosol volume flow and therefore the particle production rate. The safety valve of the ATM 242 releases at 0.6 bar.

Particle size DEHS	0.1 ... 1 µm (Modal value: 0.2 … 0.3 µm)
Particle number concentration	> 10^8 Particles/cm^3
Mass flow	20…720 g/h (DEHS)
Aerosol substances	DEHS, PAO (Emery 3004), PSL-Suspensions, Salt Solutions
Aerosol temperature	max. 120°C
Number of nozzles	12, separately switchable
Filling amount	1.5 l (min.)...3.5 l (max.)
Atomizer pressure	1…5 x 10^5 Pa (1…5 bar)
Power supply	240 V AC / 50 Hz / 6.3 A
Dimensions	400 x 500 x 570 mm
Weight	50.2 kg

QMS certified to DIN EN ISO 9001.

12 100 11908 TMS

For more information please visit our website at www.topas-gmbh.de

Specifications are subject to change without notice.

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