



Fraunhofer

**TESTED[®]
DEVICE**

VAT Vakuumventile AG
ATM-Door 3D-746253_2D-756860
Report No. VA 1411-739

DUPLICATE

Statement of
Qualification

Particle Emission

Statement of Qualification

Customer: VAT Vakuumventile AG
Seelistrasse 1
9469 Haag
Switzerland

Test result / Classification:
(in acc. with ISO 14644-1)

When operated under the specified test conditions, the ATM-Door 3D-746253_2D-756860 (prototype) is suitable for use in cleanrooms fulfilling the specifications of the following Air Cleanliness Class:

Parameter	Air Cleanliness Class
p = 5.5 bar; cycles / minute = 10	5

Component tested

Category: Process Equipment
Subcategory: Vacuum Component
Product name: ATM-Door 3D-746253_2D-756860 (prototype)
(manufacturing date: 7/2014)

Random sampling of particle emissions (airborne) at representative sites

Standards/Guidelines: VDI 2083-9.1; ISO 14644-1
The norms stated refer to the relevant editions applicable at the time of the tests.

Test devices: Optical particle counter:
LasAir II 110 and LasAir III 110 with measuring ranges $\geq 0.1 \mu\text{m}$, $\geq 0.2 \mu\text{m}$, $\geq 0.3 \mu\text{m}$, $\geq 0.5 \mu\text{m}$, $\geq 1.0 \mu\text{m}$ and $\geq 5.0 \mu\text{m}$

Test environment parameters:

- Cleanroom Air Cleanliness Class (according to ISO 14644-1):..... ISO 1
- Airflow velocity:..... 0.45 m/s
- Airflow pattern:.....vertical laminar flow
- Temperature:..... 22 °C \pm 0.5 °C
- Relative humidity: 45 % \pm 5 %

Test procedure parameters:

- Operating pressure: p = 5.5 bar (ultra-pure compressed air)
- Cycle time: t = 6 s
- Cycles per minute:..... 10

The measuring devices used for the qualification tests are calibrated at regular intervals; their results can be traced back to national and international standards. In cases where no national standards exist, the test procedure implemented complies with the technical regulations and norms applicable at the time of the test. The relevant documentation can be viewed on request at any time.

For further information about the test environment and parameters, please refer to the Fraunhofer IPA test report.

Fraunhofer Institute for
Manufacturing Engineering and Automation IPA

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Place, date of first document issued

Department of Ultraclean Technology
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Place, current date

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