



Fraunhofer

**TESTED[®]
DEVICE**

e.p.s GmbH
SE 20 E-2-50

Report No. HM 1204-596

DUPLICATE

Statement of
Qualification

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Customer: HMPtechnologie GmbH
Am Eichelgärtchen 36b
56283 Halsenbach
Germany

Test results / Classification:
(according to ISO 14644-1)

The rotary unit SE 20 E-2-50 is suitable for use in cleanrooms fulfilling the Air Cleanliness Class 5.

Component tested:

Category: Automation Components
Subcategory: Linear Units
Type: Rotary unit SE 20 E-2-50

Random check measurements of particle emission (airborne) at representative points

Test procedure: According to VDI 2083 Part 9.1

Measuring instruments being used: Optical Particle Counter:
Model LasAir II 110 manufactured by PMS with measuring channels of
 $\geq 0.1 \mu\text{m}$, $\geq 0.2 \mu\text{m}$, $\geq 0.3 \mu\text{m}$, $\geq 0.5 \mu\text{m}$, $\geq 1.0 \mu\text{m}$ and $\geq 5.0 \mu\text{m}$

Test parameters of the test environment:

- Cleanroom Air Cleanliness Class (according to ISO 14644-1):..... ISO 1
- Air flow velocity:.....0.45 m/s
- Air flow guidance:vertical unidirectional air flow
- Temperature: $22^\circ\text{C} \pm 0.5^\circ\text{C}$ ($71.6^\circ\text{F} \pm 0.9^\circ\text{F}$)
- Relative humidity: $45\% \pm 5\%$

Test parameters of the test execution:

- Cycle of movement: 1/s
- Angle of movement:..... 90°

The measuring equipment used for the qualification is regularly calibrated and is based on national and international standards. In the case where no national standards exist, the measuring procedure used corresponds with technical regulations and norms valid at the time of the measurement. The documents drawn up for this procedure are available for viewing.


The validity of this certificate applies only to the mentioned product in this particular condition for a duration of 5 years.
Further information: www.tested-device.com.

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Manufacturing Engineering and Automation IPA

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and Micromanufacturing

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Stuttgart, June 6, 2012
Place, Date


i. A.
Project manager