



valid until: March 30, 2028

Fraunhofer

TESTED[®] DEVICE

igus GmbH
GLO.CR.56 with E6.52
Report No. IG 2303-1406

DUPLICATE

Statement of
Qualification

Single product
Particle Emission

Statement of Qualification · Single product

Customer
 igus GmbH
 Spicher Strasse 1a
 41147 Cologne
 Germany

Component tested

Category: Energy Supply
 Subcategory: Cable Guiding System
 Product name: cleanroom guidelok horizontal, GLO.CR.56 with E6.52.175.075.0
 (manufacturing date: 11/25/2022; color: black; article number: E6.52.175.075.0 + GLO.CR.56; serial number: GLO.CR + E6.52)

Random sampling of particle emissions (airborne) at representative sites

Standards/Guidelines: ISO 14644-1, -14
 The norms stated generally refer to the version valid 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:

- Installation height of the energy chain: h = 300 mm
- Stroke length:..... s = 1250 mm
- Parameter Set 1:..... $v_1 = 0.5 \text{ m/s}$; $a_1 = 1.0 \text{ m/s}^2$
- Parameter Set 2:..... $v_2 = 1.0 \text{ m/s}$; $a_2 = 2.0 \text{ m/s}^2$
- Parameter Set 3:..... $v_3 = 2.0 \text{ m/s}$; $a_3 = 4.0 \text{ m/s}^2$

Test result / Classification

When operated under the specified test conditions, the cleanroom guidelok horizontal, GLO.CR.56 with E6.52.175.075.0 is suitable for use in clean-rooms fulfilling the specifications of the following Air Cleanliness Classes according to ISO 14644-1:

Test parameter(s)	Air Cleanliness Class
$v_1 = 0.5 \text{ m/s}$; $a_1 = 1.0 \text{ m/s}^2$	4
$v_2 = 1.0 \text{ m/s}$; $a_2 = 2.0 \text{ m/s}^2$	5
$v_3 = 2.0 \text{ m/s}$; $a_3 = 4.0 \text{ m/s}^2$	5
Overall result	5

Please note: Transport damages, incorrect installation, aging behavior, corrosion etc. can influence the test result.

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.

Detailed information and parameters of the test environment can be found in the Fraunhofer IPA test report.

Fraunhofer Institute for Manufacturing Engineering and Automation IPA

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 Report No. first document

Stuttgart, March 30, 2023
 Place, date of first document issued

Department of Ultraclean Technology and Micromanufacturing

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 Report No. current document

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 Place, current date

Nobelstrasse 12
 70569 Stuttgart
 Germany

on behalf of 
 Dr.-Ing. Frank Bürger, Project Manager Fraunhofer IPA