IPA

Cleanroom (atmospheric)

valid until: November 13, 2030

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TESTED® DEVICE

U.I. Lapp GmbH
ÖLFLEX CLASSIC FD 810
Report No. LA 2509-1671

Statement of Qualification

Single product
Particle Emission in Cleanroom (atmospheric)

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Statement of Qualification · Single product

Customer

U.I. Lapp GmbH
Schulze-Delitzsch Strasse 25
70565 Stuttgart
Germany

Tested product

Category: Energy Supply

Subcategory: Cable Systems

Product name: ÖLFLEX CLASSIC FD 810 5G1,5
(manufacturing date: week 33/2025; color: gray; article number: 0026152)

Random sampling of particle emissions (airborne) at representative sites in cleanroom under atmospheric conditions

Standards/guidelines: ISO 14644-1, -14
The norms stated generally refer to the version valid at the time of the tests.

Test equipment: Optical particle counter:
LasAir II 110 and LasAir III 110 with measuring ranges ≥ 0.1 µm, ≥ 0.2 µm, ≥ 0.3 µm, ≥ 0.5 µm, ≥ 1.0 µm and ≥ 5.0 µm

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
- Room temperature: ..... 22 °C ± 0.5 °C
- Relative humidity: ..... 45 % ± 5 %

Test procedure parameters:

- Energy chain: ..... igus E61.29.02.075
- Bending radius: ..... r = 75 mm
- Stroke length: ..... s = 820 mm
- Parameter Set 1: ..... v_1 = 0.5 m/s; a_1 = 1.0 m/s²
- Parameter Set 2: ..... v_2 = 1.0 m/s; a_2 = 2.0 m/s²
- Parameter Set 3: ..... v_3 = 2.0 m/s; a_3 = 4.0 m/s²

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Test result / Classification

The cable system ÖLFLEX CLASSIC FD 810 5G1,5 is suitable for use under the specified test parameters (room temperature: 22 °C ± 0.5 °C; relative humidity: 45 % ± 5 %) in cleanrooms of the following Air Cleanliness Classes according to ISO 14644-1:

Test parameter(s)	Air Cleanlines Class
v_1 = 0.5 m/s; a_1 = 1.0 m/s²	1
v_2 = 1.0 m/s; a_2 = 2.0 m/s²	1
v_3 = 2.0 m/s; a_3 = 4.0 m/s²	1
Overall result	**1**

Please note: Transport damages, incorrect installation, aging behavior 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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-- — Place, current date

on behalf of
Dr.-Ing. Frank Bürger, head of business unit Testing and Certification

This document only applies to the named product in its original state and is valid for a period of 5 years from the date the first document was issued. The document can be verified under **www.tested-device.com**.