



Fraunhofer

**TESTED[®]
DEVICE**

SAMICK PRECISION IND.
LME25uu-RESIN
Report No. SA 2308-1446

DUPLICATE

Statement of
Qualification

Single product
Particle Emission

Customer	SAMICK PRECISION IND. CO., Ltd 39, Seongseogongdannam-ro 32-gil Dalseo-gu 42721 Daegu South Korea
Component tested	
Category:	Automation Components
Subcategory:	Transfer Systems and Bearing
Product name:	LME25uu-RESIN (manufacturing date: 1/10/2024; color: white; serial number: XLA10129-031)

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 $\geq 0.1\text{ }\mu\text{m}$, $\geq 0.2\text{ }\mu\text{m}$, $\geq 0.3\text{ }\mu\text{m}$, $\geq 0.5\text{ }\mu\text{m}$, $\geq 1.0\text{ }\mu\text{m}$ and $\geq 5.0\text{ }\mu\text{m}$
Test environment parameters:	<ul style="list-style-type: none">Cleanroom Air Cleanliness Class (according to ISO 14644-1):..... ISO 1Airflow velocity:.....0.45 m/sAirflow pattern:..... vertical laminar flowTemperature:22 °C ± 0.5 °CRelative humidity: 45 % ± 5 %
Test procedure parameters:	<ul style="list-style-type: none">Installation position:..... verticalVelocity:..... v = 0.5 m/sAcceleration: a = 1.0 m/s²Travel length:s = 820 mm

Test result / Classification	When operated under the specified test conditions, the linear bushing LME25uu-RESIN is suitable for use in cleanrooms fulfilling the specifications of the following Air Cleanliness Class according to ISO 14644-1:
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Test parameter(s)	Air Cleanlines Class
v = 0.5 m/s; a = 1.0 m/s ²	5
Overall result	

In the course of the particle emission measurements, lubricant leakage was detected on the moving parts of the test piece. In addition to the released airborne particles, this represents a major contamination potential in clean-rooms and the production areas located therein. Therefore, use of the linear bushing in clean/hygienic areas is considered to be critical.

Please note: Transport damages, incorrect installation, oil leakage; 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	SA 1709-944 Report No. first document	Stuttgart, February 23, 2018 Place, date of first document issued
Department of Ultraclean Technology and Micromanufacturing	SA 2308-1446 Report No. current document	Stuttgart, April 26, 2024 Place, current date
Nobelstrasse 12 70569 Stuttgart Germany	on behalf of Dr.-Ing. Frank Bürger, Project Manager Fraunhofer IPA	