



Fraunhofer

TESTED[®]
DEVICE

RENA Technologies
El. 1-fold endeffector 300 mm
Report No. RE 2605-1776

DUPLICATE

Statement of
Qualification

Single product
Particle Emission
in Cleanroom
(atmospheric)

Customer	RENA Technologies GmbH Höhenweg 1 78148 Gütenbach Germany
Tested product	
Category:	Automation Components
Subcategory:	Positioning Systems
Product name:	Electrical 1-fold endeffector 300 mm (manufacturing date: 5/8/2026; color: aluminum, gray; weight: 1.1 kg; serial number: 42600268)

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 $\geq 0.1\text{ }\mu\text{m}$, $\geq 0.2\text{ }\mu\text{m}$, $\geq 0.3\text{ }\mu\text{m}$, $\geq 0.5\text{ }\mu\text{m}$, $\geq 1.0\text{ }\mu\text{m}$ and $\geq 5.0\text{ }\mu\text{m}$
Test environment parameters:	- 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:	- Cycle time:t = 20 s - Cycles per minute:n = 3 - Drive type:electric - Wafer holder:.....4 black plastic clips (to prevent the wafer from falling during the test)

Test result / Classification

The Electrical 1-fold endeffector 300 mm 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
Cycle time: t = 20s	1
Overall result	

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.