



Fraunhofer

TESTED[®] DEVICE

igus GmbH
PRT-04-100-CR

Report No. IG 2302-1390

DUPLICATE

Statement of
Qualification

Single product
Particle Emission

Customer	Igus GmbH Spicherstrasse 1a 51147 Cologne Germany
Component tested	
Category:	Automation Components
Subcategory:	Transfer Systems and Bearing
Product name:	PRT-04-100 Clean Room (manufacturing date: 2022; material: anodized aluminum; total weight: 578g; serial number: PRT-04-100-CR)

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 \pm 0.5 °CRelative humidity: 45 % \pm 5 %
Test procedure parameters:	<ul style="list-style-type: none">Installation position: horizontalPayload: m = 10 kgParameter Set 1:.....$v_1 = 0.5\text{ m/s}$Parameter Set 2:.....$v_2 = 0.1\text{ m/s}$; Swing angle = 180°

Test result / Classification

When operated under the specified test conditions, the PRT-04-100 Clean Room is suitable for use in cleanrooms fulfilling the specifications of the following Air Cleanliness Classes according to ISO 14644-1:

Test parameter(s)	Air Cleanlines Class
Installation position: horizontal Payload: m = 10 kg Velocity: $v_1 = 0.5\text{ m/s}$	3
Installation position: horizontal Payload: m = 10 kg Swing angle = 180° Average velocity: $v_2 = 0.1\text{ m/s}$	4
Overall result	4

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.

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Department of Ultraclean Technology and Micromanufacturing	-- Report No. current document	-- Place, current date
Nobelstrasse 12 70569 Stuttgart Germany	on behalf of Dr.-Ing. Frank Bürger, Project Manager Fraunhofer IPA	