



valid until: March 6, 2031

# Fraunhofer

## TESTED<sup>®</sup> DEVICE

igus SE & Co. KG  
BB-6000-C161-A160-GL  
**Report No. IG 2602-1731**

DUPLICATE

Statement of  
Qualification

Single product  
Particle Emission  
in Cleanroom  
(atmospheric)

# Statement of Qualification · Single product

**Customer**  
 igus SE & Co. KG  
 Spicher Strasse 1a  
 51147 Cologne  
 Germany

**Tested product**

Category: Automation Components  
 Subcategory: Transfer Systems and Bearing  
 Product name: xiros ball bearing BB-6000-C161-A160-GL  
 (manufacturing date: quarter 2/2025; color: white; bearing size: 6000; motor unit: MOT-EC-86-C-I-A; gearing: GEA-60-3-90-ST-140; article number: BB-6000-C161-A160-G)

## 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  $\geq 0.1 \mu\text{m}$ ,  $\geq 0.2 \mu\text{m}$ ,  $\geq 0.3 \mu\text{m}$ ,  $\geq 0.5 \mu\text{m}$ ,  $\geq 1.0 \mu\text{m}$  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
- Room temperature: .....22 °C  $\pm$  0.5 °C
- Relative humidity: ..... 45 %  $\pm$  5 %

Test procedure parameters:

- Installation type: .....vertical
- Parameter Set 1:
  - Control unit supplied by customer
  - Rotational speed: .....  $n_1 = 100 \text{rpm}$
  - Test load: .....  $m = 2 \times 25 \text{N} = 50 \text{N}$
- Parameter Set 2:
  - Control unit supplied by customer
  - Rotational speed: .....  $n_2 = 150 \text{rpm}$
  - Test load: .....  $m = 2 \times 25 \text{N} = 50 \text{N}$

## Test result / Classification

The xiros ball bearing BB-6000-C161-A160-GL is suitable for use under the specified test parameters (room temperature: 22 °C  $\pm$  0.5 °C; relative humidity: 45 %  $\pm$  5 %) in cleanrooms of the following Air Cleanliness Classes according to ISO 14644-1:

Test parameter(s)	Air Cleanliness Class
vertical, Measuring area: front side $n_1 = 100 \text{rpm}$ ; $m = 2 \times 25 \text{N} = 50 \text{N}$	1
vertical, Measuring area: reverse side $n_1 = 100 \text{rpm}$ ; $m = 2 \times 25 \text{N} = 50 \text{N}$	3
vertical, Measuring area: front side $n_2 = 150 \text{rpm}$ , $m = 2 \times 25 \text{N} = 50 \text{N}$	1
vertical, Measuring area: reverse side $n_2 = 150 \text{rpm}$ , $m = 2 \times 25 \text{N} = 50 \text{N}$	3
<b>Overall result</b>	<b>3</b>

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.