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TESTED[®] DEVICE

ABB Robotics (Shanghai) Limited

IRB 1300-7/1.4

Report No. AB 2601-1721

Statement of
Qualification

Single product
Particle Emission
in Cleanroom
(atmospheric)

Statement of Qualification · Single product

Customer

ABB Robotics (Shanghai) Limited
Room 201, 2F, Building 1, No. 39,
99 Miaoqiao Road, Pudong New Area
201319 Shanghai
China

Tested product

Category: Automation Components
Subcategory: Robotics
Product name: IRB 1300-7/1.4
(manufacturing date: 11/20/2025; color: white; serial number:
1300-505520; weight: 79kg; payload: 7kg; reach: 1.4m)

Test result / Classification

The robot IRB 1300-7/1.4 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 Cleanliness Class
50 % of maximum velocity	4
100 % of maximum velocity	4
Overall result	4

Please note: Transport damages, incorrect installation, oil leakage, aging behavior, corrosion etc. can influence the test result.

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 ± 0.5 °C
- Relative humidity: 45 % ± 5 %

Test procedure parameters:

- Parameter Set 1
 - Velocity:..... 50 % of maximum velocity
 - Acceleration: 100% of maximum acceleration
- Parameter Set 2
 - Velocity:..... 100 % of maximum velocity
 - Acceleration: 100% of maximum acceleration
- Suction: none
- Operation of each axis: separately
- Break between cycles: 1 s to 3 s
- Movement of each axis:
 - Axis J1: - 175° to 175°
 - Axis J2: -90° to 55°
 - Axis J3: -200° to 65°
 - Axis J4: -220° to 220°
 - Axis J5: - 125° to 110°
 - Axis J6: -390° to 390°

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.

Fraunhofer Institute for Manufacturing
Engineering and Automation IPA

Business unit
Testing and Certification

Nobelstrasse 12
70569 Stuttgart
Germany

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