



Fraunhofer

TESTED[®]
DEVICE

KUKA Deutschland GmbH
KR AGILUS-2 series

Report No. KU 2507-1650

DUPLICATE

Statement of
Qualification

Product series
Particle Emission
in Cleanroom
(atmospheric)

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| Customer | KUKA Deutschland GmbH Zugspitzstrasse 140 86165 Augsburg Germany |
| Tested product | |
| Category: | Automation Components |
| Subcategory: | Robotics |
| Product name: | KR AGILUS-2 series Tested products: <ul style="list-style-type: none">• KR 6 R700-2 (manufacturing date: 3/2025; color: white; article number: 0010027948; serial number: 4613800; weight: 56 kg; max. payload: 6 kg; range: 726 mm)• KR 10 R1100-2 (manufacturing date: 3/2025; color: white; article number: 0010028057; serial number: 4613772; weight: 59 kg; max. payload: 10 kg; range: 1101 mm) |

Random sampling of particle emissions (airborne) at representative sites in cleanroom under atmospheric conditions

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|------------------------------|---|
| 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: | <ul style="list-style-type: none">• 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: | <ul style="list-style-type: none">• Velocity:40 % and 80 % of maximum velocity• Attached payload:6 kg and 10 kg• Range:.....726 mm and 1101 mm• Operation of each axis:..... separately• Break between cycles:1 s• Movement of each axis:<ul style="list-style-type: none">– Axis 1:150° to -150°– Axis 2: -40° to -160°– Axis 3: 120° to -90°– Axis 4:150° to -150°– Axis 5:80° to -110°– Axis 6:200° to -200° |

Test result / Classification

The KR AGILUS-2 series 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 Cleanlines Class |
|--------------------------|----------------------|
| 40 % of maximum velocity | 4 |
| 80 % of maximum velocity | 5 |
| Overall result | 5 |

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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| Fraunhofer Institute for Manufacturing Engineering and Automation IPA | KU 1707-926 Report No. first document | Stuttgart, December 15, 2017 Place, date of first document issued |
| Business unit Testing and Certification | KU 2507-1650 Report No. current document | Stuttgart, November 10, 2025 Place, current date |
| Nobelstrasse 12 70569 Stuttgart Germany | on behalf of Dr.-Ing. Frank Bürger, head of business unit Testing and Certification | |