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TESTED®
DEVICE

KUKA Robotics Guangdong Co., Ltd.
robot series KR SCARA_KR 12
Report No. KU 2204-1316

Statement of
Qualification

Product series
Particle Emission

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IPA

Statement of Qualification · Product series

Customer

KUKA Robotics Guangdong Co., Ltd.
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528311, Guangdong Province
China

Component tested

Category: Automation Components

Subcategory: Robotics

Product name: robot series KR SCARA_KR 12
(manufacturing date: 2/2022; batch number: 8630236; max. payload: 12 kg)
tested products:
- KR SCARA_KR 12 R850 Z340 CR
  (serial number: 10037906; weight: 56 kg; max. reach: 850 mm)
- KR SCARA_KR 12 R650 Z340 CR
  (serial number: 10037902; weight: 54 kg; max. reach: 650 mm)

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 ≥ 0.1 µm, ≥ 0.2 µm,
≥ 0.3 µm, ≥ 0.5 µm, ≥ 1.0 µm and ≥ 5.0 µm

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
- Temperature: ..... 22 °C ± 0.5 °C
- Relative humidity: ..... 45 % ± 5 %

Test procedure parameters:
- Velocity of parameter set 1: ..... v_1 = 50 % of maximum velocity
- Velocity of parameter set 2: ..... v_2 = 100 % of maximum velocity
- Accelaration: ..... a = 100 % of maximum value
- Attached payload: ..... m = 6 kg
- Suction: ..... none
- Operation of each axis: ..... separately
- Break after each end position: ..... 1 s
- Movement of each axis:
  – Axis 1: ..... -100 ° to 100 °
  – Axis 2: ..... -100 ° to 100 °
  – Axis 3: ..... -335 mm to 0 mm
  – Axis 4: ..... -350 ° to 350 °

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Test result / Classification

When operated under the specified test conditions, the robot series KR SCARA_KR 12 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
50 % of maximum velocity	5
100 % of maximum velocity	6
Overall result	**6**

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.

Fraunhofer Institute for Manufacturing
Engineering and Automation IPA

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on behalf of
Dr.-Ing. Frank Bürger, Project Manager Fraunhofer IPA

This document only applies to the named product in its original state and is valid for a period of 5 years from the date the first document was issued. The document can be verified under **www.tested-device.com**.