IPA

Cleanroom (atmospheric)

valid until: May 20, 2031

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TESTED®
DEVICE

Mecademic Inc.
MCS500 Scara Robot
Report No. ME 2604-1764

DUPLICATE

Statement of
Qualification

Single product
Particle Emission in Cleanroom (atmospheric)

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Statement of Qualification · Single product

Customer

Mecademic Inc.
1300 Saint-Patrick St.
H3K 1A4 Montreal
Canada

Tested product

Category: Automation Components

Subcategory: Robotics

Product name: MCS500 Scara Robot
(manufacturing date: 3/2025; color: black, anodized aluminum; weight: 4 kg; type: MCS500-R1-HS; serial number: S502503008)

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 ≥ 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
- Room temperature: ..... 22 °C ± 0.5 °C
- Relative humidity: ..... 45 % ± 5 %

Test procedure parameters:

- Velocity: ..... 100 % of maximum velocity
- Acceleration: ..... 50% and 100 % of maximum acceleration
- Attached payload: ..... 500 g
- Pause between cycles: ..... 0.1 s/0.2 s
- Operation of each axis: ..... separately
- Movement of each axis:
  – Axis 1: ..... 130° to -130°
  – Axis 2: ..... 130° to -130°
  – Axis 3: ..... -24° to -65°
  – Axis 4: ..... 180° to -180°

Test result / Classification

The MCS500 Scara Robot 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 Cleanlines Class
100 % of maximum velocity 50 % of maximum acceleration	6
100 % of maximum velocity 100 % of maximum acceleration	7
Overall result	**7**

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.

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

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**.

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