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DEVICE

Mobile Industrial Robots ApS
MIR200
Report No. MI 1703-901

DUPLICATE

Statement of
Qualification

Electrical
Resistance

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Statement of Qualification

Customer

Mobile Industrial Robots ApS
Emil Neckelmanns Vej 15F
5220 Odense SØ
Denmark

Component tested

Category: Automation Components

Subcategory: Robotics

Product name: MIR200
(manufacturing date: 11/2017; color: gray; serial number: 170200011000140)

Electrical resistance measurements at representative points (resistance to groundable point (R_{gp}) and point-to-point resistance (R_{p-p}))

Standards/Guidelines: DIN EN 61340-2-3; DIN EN 61340-5-1
The norms stated generally refer to the version valid at the time of the tests.

Test devices:

- Data capture:
  - Type: ..... Tera Ohm meter Metriso 2000
  - Company: ..... Gossen Metrawatt (Nürnberg, Germany)
- Measuring probe:
  - Type: ..... ets type 850 (2.5 kg)
  - Company: ..... Electro-Tech Systems Inc. (Glenside, USA)
- Counter electrode:
  - Material: ..... stainless steel plate
  - Dimensions: ..... 500 mm x 500 mm (± 2 mm)
  - Thickness: ..... 1.2 mm (± 0.1 mm)

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:

- Assembly state: ..... insulating base
  - Type: ..... planar PTFE-sheet with R > 10^{14} Ω
  - Dimensions: ..... 1210 mm x 1200 mm (± 5 mm)
  - Thickness: ..... 5 mm (± 1 mm)

Test result / Classification

The robot MIR200 was examined for its electrical resistance at representative points in accordance with DIN EN 61340-2-3.
The resistance to groundable point (R_{gp}) values obtained from the test piece lies within the limits of the limiting value of 1 x 10^9 Ω required by DIN EN 61340-5-1 for ESD control elements.
The point-to-point resistance (R_{p-p}) values obtained from the test piece lies within the limits of the limiting value of 1 x 10^9 Ω required by DIN EN 61340-5-1 for ESD control elements.

	Operating voltage [V]	Max. value [Ω]	Compliance with limit value as per DIN EN 61340-5-1
Resistance to groundable point (R_{gp})	100	8.0 x 10^8	**fulfilled**
Point-to-point resistance (R_{p-p})	100	6.4 x 10^7	**fulfilled**

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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MI 1703-901 — Report No. first document
Stuttgart, January 18, 2018 — Place, date of first document issued

-- — Report No. current document
-- — Place, current date

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**.

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