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DEVICE

ASM AS GmbH & Co.KG
SIPLACE TX2i
Report No. AS 1712-981

Statement of
Qualification

Particle Emission

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Statement of Qualification

Customer

ASM AS GmbH & Co.KG
Rupert-Mayer-Strasse 44
81379 München
Germany

Component tested

Category: Automation Components

Subcategory: Positioning Systems

Product name: Circuit board mounter SIPLACE TX2i
(manufacturing date: 2016; serial number: TA006)

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:

Circuit board movement definition "cyclic":

- Cyclic travel length circuit board: s = 1230 mm
- Cyclic max. acceleration circuit board: a = 3 m/s²
- Cyclic max. velocity circuit board: v = 1 m/s
- CP20-Head cyclic time per circuit board: t = 58 s
- CPP-Head cyclic time per circuit board: t = 91 s

	Used head	Operation mode	Belt	Circuit board movement
Parameter Set 1	CP20	vacuum pump	no	cyclic
Parameter Set 2	CP20	vacuum pump	no	clamped
Parameter Set 3	CP20	vacuum pump	yes	cyclic
Parameter Set 4	CP20	venturi	no	cyclic
Parameter Set 5	CP20	venturi	no	clamped
Parameter Set 6	CPP	venturi	no	clamped
Parameter Set 7	CPP	venturi	no	cyclic

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Test result / Classification

When operated under the specified test conditions, the circuit board mounter SIPLACE TX2i is suitable for use in cleanrooms fulfilling the specifications of the following Air Cleanliness Classes according to ISO 14644-1:

	Used head	Operation mode	Belt	Circuit board movement	Air Cleanliness Class
Parameter Set 1	CP20	vacuum pump	no	cyclic	7
Parameter Set 2	CP20	vacuum pump	no	clamped	7
Parameter Set 3	CP20	vacuum pump	yes	cyclic	7
Parameter Set 4	CP20	venturi	no	cyclic	7
Parameter Set 5	CP20	venturi	no	clamped	7
Parameter Set 6	CPP	venturi	no	clamped	7
Parameter Set 7	CPP	venturi	no	cyclic	7
Overall result	--	--	--	--	**7**

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
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