



**Fraunhofer**

**TESTED<sup>®</sup>  
DEVICE**

Gimatic S.r.l.  
Gripper MPPM1606-KIT-GMP  
**Report No. GI 1410-728**

DUPLICATE

Statement of  
Qualification

Particle Emission

# Statement of Qualification

**Customer:** Gimatic S.r.l.  
Via Enzo Ferrari, 2/4  
25030 Roncadelle - Brescia  
Italy

**Component tested**

Category: Automation Component

Subcategory: Positioning System

Product name: Parallel gripper MPPM1606-KIT-GMP  
(Lot-No.: ODL-S02845; manufacturing date: 7/8/2014; color: black/clear)

**Test result / Classification:**  
(in acc. with ISO 14644-1)

The parallel gripper MPPM1606-KIT-GMP is suitable for use in cleanrooms fulfilling the specifications of Air Cleanliness Class 4.

However, due to wear, it is to be noted that particles accumulate in the interior of the tested MPPM1606-KIT-GMP system. With time, as the gripper ages and the silicon cover suffers from material fatigue, these particles could be emitted in an uncontrolled manner (e.g. via cracks or gaps) into the production environment.

## Random sampling of particle emissions (airborne) at representative sites

Standards/Guidelines: VDI 2083-9.1; ISO 14644-1  
The norms stated refer to the relevant editions applicable at the time of the tests.

Test devices: Optical particle counter:  
LasAir II 110 and LasAir III 110 with measuring ranges  $\geq 0.1 \mu\text{m}$ ,  $\geq 0.2 \mu\text{m}$ ,  $\geq 0.3 \mu\text{m}$ ,  $\geq 0.5 \mu\text{m}$ ,  $\geq 1.0 \mu\text{m}$  and  $\geq 5.0 \mu\text{m}$

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:.....  $22^\circ\text{C} \pm 0.5^\circ\text{C}$
- Relative humidity: ..... 45 %  $\pm$  5 %

Test procedure parameters:

- Control unit:..... supplied by customer
- Cycle time: ..... 2 s
- Cycles per minute:.....30

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.

For further information about the test environment and parameters, please refer to the Fraunhofer IPA test report.

Fraunhofer Institute for  
Manufacturing Engineering and Automation IPA

Department of Ultraclean Technology  
and Micromanufacturing

Nobelstrasse 12  
70569 Stuttgart  
Germany

Stuttgart, May 22, 2015

Place, date of first document issued

--  
Place, current date

i. A.   
Frank Bürger, Project Manager Fraunhofer IPA

DUPLICATE

DUPLICATE