



# Fraunhofer

## TESTED<sup>®</sup> DEVICE

Mennens Dongen B.V.  
CRH 1 CleanRoom Hoist  
**Report No. ME 1401-689**

DUPLICATE

Statement of  
Qualification

Particle Emission

# Statement of Qualification

**Customer:** Mennens Dongen B.V.  
Metaalstraat 5  
5107 Dongen  
The Netherlands

**Component tested**

Category: Automation Components

Subcategory: Transfer Systems and Bearing

Product name: CRH 1 CleanRoom Hoist  
(article number: EWB-80-VE; serial number: W14673; manufacturing date: 1/2014)

## 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 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:

- Measuring time: ..... 5 x 100 min
- Periodic running time: ..... 1 min
- Periodic resting time: ..... 3 min
- Moving velocity: ..... 6.5 m/min
- Hook way: ..... 1.5 m
- Test weight: ..... 40 kg

## Test result / Classification:

The CRH 1 CleanRoom Hoist is suitable for use in cleanrooms fulfilling the specifications of the following air cleanliness classes according to ISO 14644-1:

Measuring time	Air Cleanliness Class
0 - 100 min	5
100 - 200 min	5
200 - 300 min	5
300 - 400 min	5
400 - 500 min	5
<b>Overall result</b>	<b>5</b>

The standard measuring time was extended from 100min to 5 x 100min.

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.

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