



Fraunhofer

**TESTED[®]
DEVICE**

Brecon Group
Brecon Cassette Panel System
Report No. BR 1804-1024

DUPLICATE

Statement of
Qualification

Particle Emission

Statement of Qualification

Customer
 Brecon Cleanroom Systems B.V.
 Droogdokkeneiland 7
 5026 SP Tilburg
 The Netherlands

Component tested

Category: Cleanroom Facilities

Subcategory: Wall / Ceiling / Floor / Door

Product name: Brecon Cassette Panel System (manufacturing date: 4/2018; color panels: RAL 9010); Includes the following objects:

- BM-W-SHC-101/Wall Panel Steel Standard Coated HC
- BM-W-SRW-102/Wall Panel Steel Standard Coated RW
- BM-W-HRW-101/Wall Panel HPL Standard RW
- BM-W-H-air-101/Wall Panel HPL Airduct 500 m³
- BM-D-131/Steel Door with Window and Dropseal
- BM-D-117 + BM-D-118/Built-in Doorcloser
- BM-K-101/Aluminum doorframe
- BM-G-101/Window Standard 120 x 100 x 70 Safety glass
- BM-P-104/Ceiling Panel Steel Standard Coated RW
- BM-W-SH-108/PRO 3 Sealant
- BM-W-SH-106/Aluminum Corner Profile
- BM-W-SH-102/Aluminum Floor Profile
- BM-W-SH-109/Round Corner Profile 65 mm (massiv)
- BM-D-139/Inter Lock Control Panel

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 $\geq 0.1 \mu\text{m}$, $\geq 0.2 \mu\text{m}$, $\geq 0.3 \mu\text{m}$, $\geq 0.5 \mu\text{m}$, $\geq 1.0 \mu\text{m}$ 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 °C \pm 0.5 °C
- Relative humidity:..... 45 % \pm 5 %

Test procedure parameters:

- structure-borne noise: approx. 5 to 50 Hz
- Ceiling:..... $v_1 = 992.4 \mu\text{m/s}$; $a_1 = 243 \text{ mm/s}^2$; $s_1 = 169 \mu\text{m}$
- Door end:..... $v_2 = 5762.0 \mu\text{m/s}$; $a_2 = 85 \text{ mm/s}^2$; $s_2 = 1277 \mu\text{m}$
- Wall HPL:..... $v_3 = 2248.0 \mu\text{m/s}$; $a_3 = 233 \text{ mm/s}^2$; $s_3 = 538 \mu\text{m}$
- Wall powder-coated steel panel:
 $v_4 = 2278.3 \mu\text{m/s}$; $a_4 = 65 \text{ mm/s}^2$; $s_4 = 567 \mu\text{m}$

Test result / Classification

When operated under the specified test conditions, the Brecon Cassette Panel System is suitable for use in cleanrooms fulfilling the specifications of the following Air Cleanliness Class according to ISO 14644-1:

Test parameter(s)	Air Cleanliness Class
structure-borne noise: approx. 5 to 50 Hz	3
Overall result	3

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 
 Dr.-Ing. Frank Bürger, Project Manager Fraunhofer IPA