



Fraunhofer

TESTED[®]
DEVICE

hawo GmbH
hm 4000 DC-VI
Report No. HA 2605-1775

DUPLICATE

Statement of
Qualification

Single product
Particle Emission
in Cleanroom
(atmospheric)

Customer	hawo GmbH Obere Au 2-4 74847 Obrigheim Germany
Tested product	
Category:	Working Place and Operator
Subcategory:	Working Equipment
Product name:	Sealing machine hm 4000 DC-VI (manufacturing date: 1/2026; material: V2A stainless steel; weight: 19 kg; article number: 0.617.344; serial number: 565104)

Random sampling of particle emissions (airborne) at representative sites in cleanroom under atmospheric conditions

Standards/guidelines:	ISO 14644-1, -14 The norms stated generally refer to the version valid at the time of the tests.
Test equipment:	Optical particle counter: LasAir II 110 and LasAir III 110 with measuring ranges $\geq 0.1\text{ }\mu\text{m}$, $\geq 0.2\text{ }\mu\text{m}$, $\geq 0.3\text{ }\mu\text{m}$, $\geq 0.5\text{ }\mu\text{m}$, $\geq 1.0\text{ }\mu\text{m}$ and $\geq 5.0\text{ }\mu\text{m}$
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 - Room temperature:22 °C ± 0.5 °C - Relative humidity: 45 % ± 5 %
Test procedure parameters:	- Sealing temperature:..... T = ~ 180 °C - Throughput speed:..... v = ~ 10 m/min - Contact pressure: F = ~ 100 N

Test result / Classification	The sealing machine hm 4000 DC-VI is suitable for use under the specified test parameters (room temperature: 22 °C ± 0.5 °C; relative humidity: 45 % ± 5 %) in cleanrooms of the following Air Cleanliness Class according to ISO 14644-1:
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Test parameter(s)	Air Cleanlines Class
Sealing temperature = ~ 180 °C Throughput speed = ~ 10 m/min Contact pressure = ~ 100 N	7
Overall result	

Please note: Transport damages, incorrect installation, oil leakage, aging behavior, corrosion etc. can influence the test result.

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.

Fraunhofer Institute for Manufacturing Engineering and Automation IPA	HA 2104-1228 Report No. first document	Stuttgart, May 27, 2021 Place, date of first document issued
Business unit Testing and Certification	HA 2605-1775 Report No. current document	Stuttgart, August 5, 2026 Place, current date
Nobelstrasse 12 70569 Stuttgart Germany	on behalf of  Dr.-Ing. Frank Bürger, head of business unit Testing and Certification	