



Fraunhofer

**TESTED[®]
DEVICE**

KoneCranes OY Finland
Belt Hoist BH203L4N
Report No. KO 2508-1658

DUPLICATE

Statement of
Qualification

Single product
Particle Emission
in Cleanroom
(atmospheric)

Customer	KoneCranes OY Finland Ruununmyllyntie 13 13210 Hämeenlinna Finland
Tested product	
Category:	Automation Components
Subcategory:	Transfer Systems and Bearing
Product name:	Belt Hoist BH203L4N (manufacturing date: 6/19/2025; color: RAL 7021; article number: BH203L4N; serial number: 10001762933)

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

Standards/guidelines:	ISO 14644-1, -14 (with 48-hour running-in period) 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:	<ul style="list-style-type: none">• 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:	<ul style="list-style-type: none">• Parameter Set 1:<ul style="list-style-type: none">– Installation type:vertical– Cycle time:$t_{C1} = 407\text{ s}$– Cycles per hour: n = 8.8– Test load: none• Parameter Set 2:<ul style="list-style-type: none">– Installation type:vertical– Cycle time:$t_{C1} = 407\text{ s}$– Cycles per hour: n = 8.8– Test load:$m_1 = 250\text{ kg}$• Parameter Set 3:<ul style="list-style-type: none">– Installation type:vertical– Cycle time:$t_{C1} = 407\text{ s}$– Cycles per hour: n = 8.8– Test load:$m_2 = 500\text{ kg}$• Parameter Set 4:<ul style="list-style-type: none">– Installation type: horizontal– Cycle time:$t_{C2} = 2\text{ s}$– Cycles per hour: n = 30– Test load:$m_2 = 500\text{ kg}$


Test result / Classification	The Belt Hoist BH203L4N 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 Classes according to ISO 14644-1:
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Test parameter(s)	Air Cleanlines Class
Installation type: vertical Test load: none	7
Installation type: vertical Test load: 250 kg; cycle time: 407 s	7
Installation type: vertical Test load: 500 kg; cycle time: 407 s	7
Installation type: horizontal Test load: 500 kg; cycle time: 2 s	6
Overall result	7

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.

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	KO 2508-1658 Report No. first document	Stuttgart, August 29, 2025 Place, date of first document issued
Business unit Testing and Certification	-- Report No. current document	-- Place, current date
Nobelstrasse 12 70569 Stuttgart Germany	on behalf of Dr.-Ing. Frank Bürger, head of business unit Testing and Certification	

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