



**Fraunhofer**

**TESTED<sup>®</sup>  
DEVICE**

Atlas Copco IT AB

QMT21-10-HM4

**Report No. AT 2104-1224**

DUPLICATE

Statement of  
Qualification

Single product  
Particle Emission

Customer	Atlas Copco Industrial Technique AB Sickla industriväg 19, Nacka 131 54 Stockholm Sweden
Component tested	
Category:	Working Place and Operator
Subcategory:	Work Equipment
Product name:	Transducerized Screwdriver QMT21-10-HM4 (manufacturing date: week 45/2020; article number: 8432 0843 10; serial number: B2730422) in combination with: <ul style="list-style-type: none"><li>Control and drive unit MT FOCUS 6000 (TP09; manufacturing date: week 14/2017; article number: 8432 0851 00; serial number: B9480028)</li><li>MT Power Supply (MT PS 180W-36V) (TP10; manufacturing date: week 30/2017; article number: 8432 0840 02; serial number: B9640581)</li></ul>

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 $\geq 0.1\text{ }\mu\text{m}$ , $\geq 0.2\text{ }\mu\text{m}$ , $\geq 0.3\text{ }\mu\text{m}$ , $\geq 0.5\text{ }\mu\text{m}$ , $\geq 1.0\text{ }\mu\text{m}$ and $\geq 5.0\text{ }\mu\text{m}$
Test environment parameters:	<ul style="list-style-type: none"><li>Cleanroom Air Cleanliness Class (according to ISO 14644-1):..... ISO 1</li><li>Airflow velocity:.....0.45 m/s</li><li>Airflow pattern:..... vertical laminar flow</li><li>Temperature: .....22 °C <math>\pm</math> 0.5 °C</li><li>Relative humidity: ..... 45 % <math>\pm</math> 5 %</li></ul>
Test procedure parameters:	<ul style="list-style-type: none"><li>Installation position: ..... horizontal</li><li>Velocity: ..... 1000 rpm</li><li>Interval: .....movement: 15 s; break: 5 s</li></ul>

Test result / Classification	When operated under the specified test conditions, the Transducerized screwdriver QMT21-10-HM4 in combination with MT FOCUS 6000 and a MT PS 180W-36V is suitable for use in cleanrooms fulfilling the specifications of the following Air Cleanliness Classes according to ISO 14644-1:
------------------------------	--

Test parameter(s)	Air Cleanlines Class
Screwdriver: <ul style="list-style-type: none"><li>Installation position: horizontal</li><li>Velocity: 1000 rpm</li><li>Movement: 15 s; Break: 5 s</li></ul>	4
Controller	1
Power Supply	1
Overall result	4

Please note: Transport damages, incorrect installation, oil leakage, aging behavior, 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	AT 2104-1224 Report No. first document	Stuttgart, April 30, 2021 Place, date of first document issued
Department of Ultraclean Technology and Micromanufacturing	-- Report No. current document	-- Place, current date
Nobelstrasse 12 70569 Stuttgart Germany	on behalf of Dr.-Ing. Frank Bürger, Project Manager Fraunhofer IPA	