



Fraunhofer

TESTED[®] DEVICE

Desoutter GmbH
Screwdriver ERS2
Report No. DE 1506-771

DUPLICATE

Statement of
Qualification

Particle Emission

Statement of Qualification

Customer	Desoutter GmbH Edmund-Seng-Straße 3-5 63477 Maintal Germany
Component tested	
Category:	Working Place and Operator
Subcategory:	Work Equipment
Product name:	Screwdriver ERS2 (manufacturing date: 1/2013; color: red/black; serial number: 13 B 70062)

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 $\geq 0.1\text{ }\mu\text{m}$, $\geq 0.2\text{ }\mu\text{m}$, $\geq 0.3\text{ }\mu\text{m}$, $\geq 0.5\text{ }\mu\text{m}$, $\geq 1.0\text{ }\mu\text{m}$ 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 1Airflow velocity:.....0.45 m/sAirflow pattern:.....vertical laminar flowTemperature:.....22 °C \pm 0.5 °CRelative humidity:45 % \pm 5 %
Test procedure parameters:	<ul style="list-style-type: none">Tightenings/min:.....14Run down angle:.....3600°Final angle:.....720°Run down speed:.....600 rpmFinal speed:.....110 rpm
	Controller system <ul style="list-style-type: none">Description:.....Controller CVIR IIManufacturer:Desoutter GmbHSerial number:.....12011100444Manufacturing date:.....26/3/11Color:.....red/black

Test result / Classification

When operated under the specified test conditions, the Screwdriver ERS2 is suitable for use in cleanrooms fulfilling the specifications of the following Air Cleanliness Classes according to ISO 14644-1:

Parameter	Air Cleanliness Class
Tightenings/min = 14; Run down Speed = 600rpm	5
Overall result	5

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.

Fraunhofer Institute for
Manufacturing Engineering and Automation IPA

Department of Ultraclean Technology
and Micromanufacturing

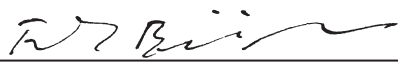
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Place, date of first document issued

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Place, current date

i. A. 
Frank Bürger, Project Manager Fraunhofer IPA