valid until: April 30, 2030

Fraunhofer

TESTED®
DEVICE

Kolver Srl
KDS-PL6
Report No. KO 2504-1615

DUPLICATE

Statement of
Qualification

Single product
Particle Emission
in Cleanroom
(atmospheric)

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IPA

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IPA

Statement of Qualification · Single product

Customer

Kolver Srl
via Dell'Elettronica, 14/16
36016 Thiene (VI)
Italy

Tested product

Category: Working Place and Operator

Subcategory: Work Equipment

Product name: Kolver K-DUCER transducer screwdriver - KDS-PL6 screwdriver 6 Nm (manufacturing date: 1/24/2025; color: blue; article number: 135006/ESD; batch number: 2501396)
in combination with:
- KDU-1A torque controller (manufacturing date: 2/13/2025; article number: 035001/A ; batch number: 2502580)

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 ≥ 0.1 µm, ≥ 0.2 µm, ≥ 0.3 µm, ≥ 0.5 µm, ≥ 1.0 µm and ≥ 5.0 µm

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:
- Angle target: 8000 °
- Torque max. limit: 1.1 Nm
- Initial speed: 850 1/min
- Downshift at 6000 °
- Final Speed: 100 1/min
- Break time: 3 s

Test result / Classification

The Kolver K-DUCER transducer screwdriver - KDS-PL6 screwdriver 6 Nm in combination with KDU-1A torque controller 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:

Test parameter(s)	Air Cleanlines Class
Screwdriver KDS-PL6: • Speed = 850 1/min • Angle target = 8000 ° • Breaktime = 3 s	5
Controller KDU-1A	3
Overall result	**5**

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

Business unit
Testing and Certification

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Germany

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-- — Place, current date

on behalf of
Dr.-Ing. Frank Bürger, head of business unit Testing and Certification

This document only applies to the named product in its original state and is valid for a period of 5 years from the date the first document was issued. The document can be verified under **www.tested-device.com**.