

Full-automatic testsystems for armatures and stators



GDBG
testsystems

Full-automatic test systems

for armatures and stators



AVA / SVA - with round table

- compact and fast with cycle time ≥ 3 sec.
- 4 simultaneous processes
- flexible set-up concept
- PLC and test program in one user interface
- horizontal or vertical placement
- wire cutting on stators

General

The compact test systems of the types AVA/SVA are designed for fully automated testing of electromagnetic properties of armatures and stators. The universal and modular design allows an attachment to all common transport systems. The integration in existing production lines is possible within a working day.

Process safety and traceability according to industry 4.0 can be ensured by integrating a marking system.

Applications so far range from truck starters to smallest armatures and stators in dentistry as well as in industry. The testable production range is constantly adapted and expanded to meet customer requirements.

Setup

The heart of all test systems is the measurement board developed by GDG. It is used for data acquisition and analysis and is designed for extremely high measurement precision at fast measuring times.

Test probes are specially designed to adapt the measurement electronic to the test sample. This ensures reliable mechanical fixation and electrical contacting. Alternatively, an adapter plug can be used for the electrical connection.

The adaption to the handling system (PLC) is realized by Profibus/Profinet.

Software and sequence

Station with round table:

The test sample (armature/stator) is moved by a transfer belt into the lifting position, mechanically, magnetically or optically indexed and lifted into the maintenance-free round table.

In this position the test sample is simultaneously turned in, tested, marked, optionally verified and on request lifted to a reject magazine.

Single station:

The test sample is moved to the desired position by a transfer belt and lifted to the test probe. The turning in takes place via a rotatable test probe which is turned up to the commutator slot with the help of a laser sensor. The contact pins are then moved towards the commutator bars which starts the measurement.

Depending on the test result (PASS/FAIL) the test sample is either returned to the transfer belt or moved to a reject magazine. The measurement results are recorded in a central data storage.

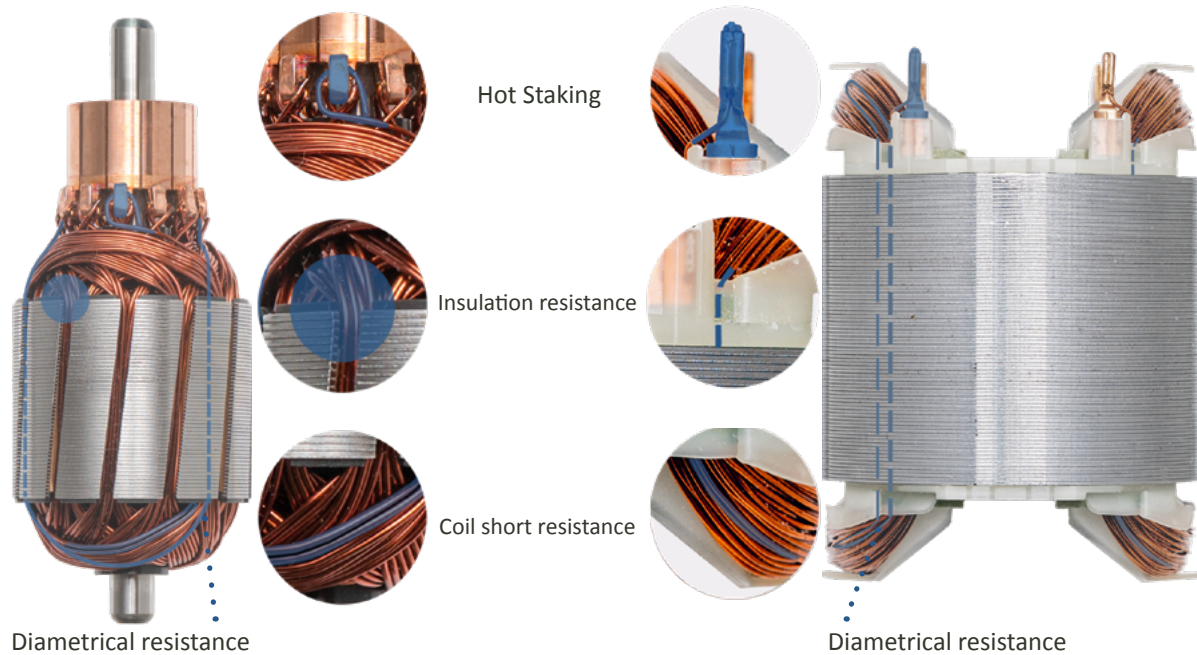
On demand the following measurements can be executed:

- trial run
- diagnostical tests of specific measurements
- reference run for measurement precision



AVA / SVA - single station

- compact and fast with cycle times ≥ 6 sec.
- passive cooling (filterless cooling management)
- pneumaticless drive concept
- flexible set-up concept
- PLC and test program in one user interface
- horizontal or vertical placement
- wire cutting on stators



Insulation resistance

Test voltage DC:	100 - 1000 V
Test voltage AC:	500 - 5000 V; max. 2 channels synchronized
Current limit:	8 mA

Diametrical resistance / Coil resistance / Bar to bar

Measurement range:	50 $\mu\Omega$ - 500 Ω , extended ranges on request
Measurement precision:	$\pm 0,5\%$ or $\pm 5 \mu\Omega$ from measured value

Welding resistance / Hot Staking

Welding resistance:	wire to collector / terminal
Test current range:	0,1 - 2,3 A
Resolution:	1 $\mu\Omega$
Measurement range:	1 $\mu\Omega$ - 100 m Ω
Measurement precision:	$\pm 0,5\%$ or $\pm 7 \mu\Omega$ from measured value

Coil short circuit

Test voltage:	100 - 900 V bar / bar
Sensitivity:	one shorted winding

Optional measurement

Span width CR	HT unsymmetry
Span width HT	circuit test / rotating field test
Coil short circuit extended to > 1 coil	bridge resistance

AVA overview

General information

Operating system: Windows

Cycle times from 3 seconds

Temperature compensation with room- or infrared temperature sensor

Contact monitoring

4-wire measuring technology

Automatic teach-in by performing trial run

Monitoring of measurement precision with reference samples

Storage of measurement data

Typical test samples parameter

Diameter of lamination stack: 10 - 160 mm

Height of lamination stack: > 8 mm

Number of bars: 3 - 36

Diameter of axis: 2 - 16 mm

Length of axis: < 230 mm

Diameter of commutator: 5 - 46 mm

Technical data

Power consumption: max. 150 W

Supply frequency: 50 / 60 Hz

Power supply: 100 - 120 V / 200 - 240 V \pm 10 %

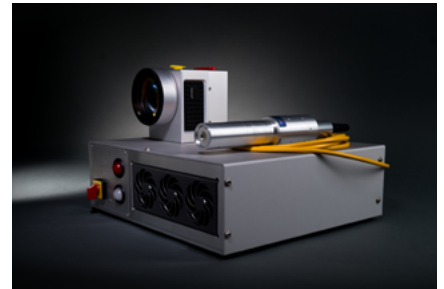
Air pressure: max. 6 bar oilfree

Additional options

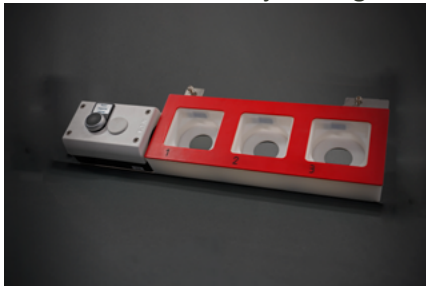
needle marker



fiber laser



reject magazine



traceability

