SCHENCK

QUALITY ASSURANCE

in balancing and
spin testing technology

PFA
PRÜFLABOR FÜR AUSWUCHTTECHNIK

RA1049-4 e

Passion for Balancing

Balancing machines are sophisticated measuring devices

Highprecision measuring equipment that can withstand the harsh environment of production? For many unthinkable, but in the case of balancing and spin testing systems still an everyday requirement. But balancing machines in particular are measuring equipment of the highest order. According to a demand of ISO 9001 (Section 7.1.5.2) »*When measurement traceability is required [...]*« or when valid measurement results are an essential part of a process, these must be »*[...] calibrated or verified, or both, at specified intervals, or prior to use, against measurement standards traceable to international or national measurement standards; [...]*«.

Only machines tested in this way provide verifiable measurement results which confirm their product quality and competitiveness.

This implies and is another requirement of ISO 9001 (Section 7.1.5.1), that an organization conforming to standards *»[...] shall determine and provide the resources needed to ensure valid and reliable results when monitoring or measuring is used to verify the conformity of products and services to requirements.«*

Our experts will gladly develop an individual service package for you that is tailored to meet your demand.

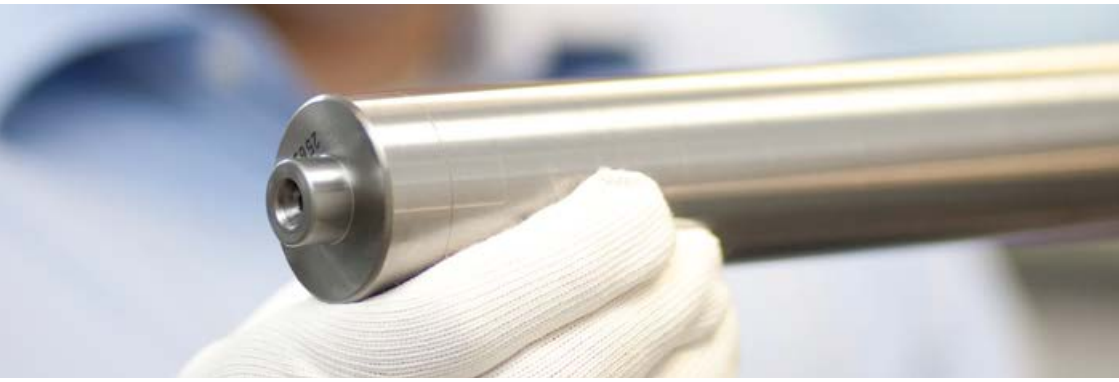
Testing laboratory for balancing technique with unique worldwide expertise

The Test Laboratory for Balancing Technology is the technology leader for the metrological qualification of balancing and spin-testing systems, as well as the corresponding working standards. Since 2009 the laboratory of Schenck RoTec GmbH has fully implemented the stricter requirements for testing and calibration laboratories and holds the accreditation in accordance with DIN EN ISO/IEC 17025 - for all relevant measured quantities in balancing technology and also for the traceability of the measurand unbalance itself, which is unique in the world.

It is therefore the most reliable body at which users and service providers can have their measurement and testing devices validated - confidentially, manufacturer independently and with effective protection of information received from customers.

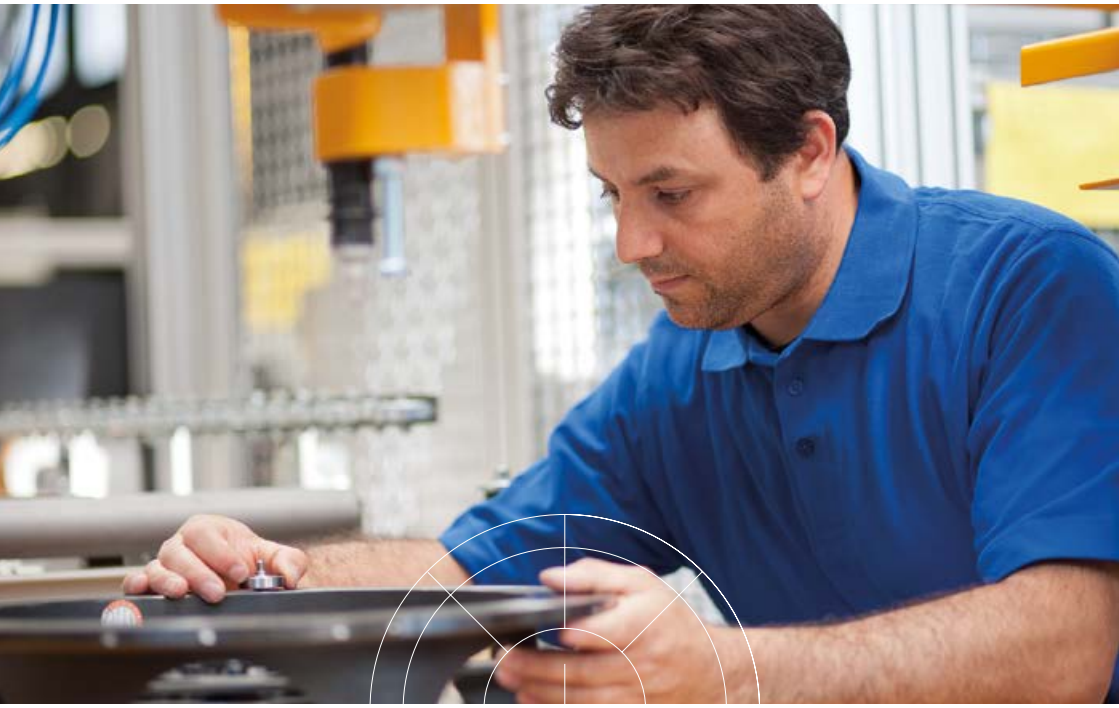
APPLICABLE STANDARDS FOR QUALITY ASSURANCE:

- DIN EN ISO 9001
- DIN EN 9100
- SAE AS 9100
- IATF 16949
- VDA 6.1, 6.2 and 6.4
- DIN EN ISO 10012



[1] = Prüflabor für Auswuchttechnik

Testing and maintenance of machines



Balancing machines and spin testing systems are precision measurement devices and have accuracies that are comparable to a coordinate measuring machine. If testing of their metrological function is neglected, measuring errors will not be detected and the product quality compromised.
This can lead to higher reject rates, or even to recalls in the worst case if faulty products are delivered undetected. We therefore recommend, in addition to the maintenance of your machines, to have a verification carried out by our testing laboratory.

The PFA procedures are accredited (Level A), validated and specifically tailored to individual machine types (Level B):

- Testing of universal balancing machines to ISO 21940-21 or AS8617: 2020-08 (includes SAE ARP 4048, 4050, 5323, 6217)
- Testing of balancing machines in individual or series production
- Testing of high speed balancing machines for tasks according to ISO 21940-12 *
- Testing of spin testing systems

*outside accredited test procedures

Matched quality levels for every requirement

TESTING OF MACHINES

Conformity verification by accredited testing laboratory on the basis of standards or validated laboratory procedures. Compliance with QM standards by periodic monitoring with metrologically traceable test equipment.

A QUALITY LEVEL

LABORATORY TEST CERTIFICATE

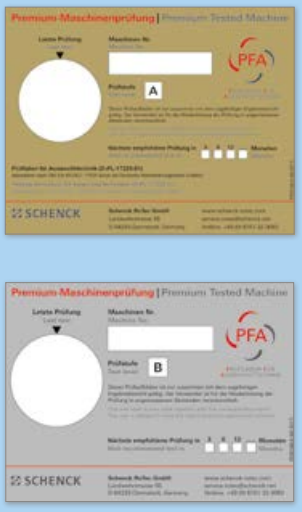
- Evaluation by laboratory management
- Complete test report in accordance with DIN EN ISO/IEC 17025

B QUALITY LEVEL

WORKS TEST REPORT

- Evaluation by laboratory management
- Abbreviated report comparable with works calibration certificate

PREMIUM TESTED MACHINE



MAINTENANCE

Check of the machine function and reliability, basic testing of the measurement system according to specific machine checklist by qualified service staff.

STANDARD PLUS

SERVICE APPROVAL
with respect to DIN EN 10204 - Acceptance Test Certificate 3.1

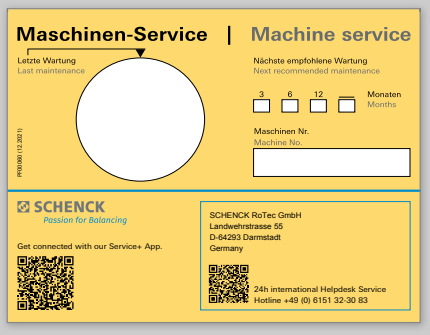
- Provided together with checklist after plausibility evaluation by acceptance officer

STANDARD

SERVICE CONFIRMATION
with respect to DIN EN 10204 - Works Certificate 2.1

- Together with checklist on customer request

MACHINE SERVICE



Testing of working standards

For calibration and adjustment of balancing machines, setup rotors or master rotors and calibrated test weights are indispensable. These working standards must be treated like other measuring or testing equipment. This means: They have to be inspected periodically in order to ensure reliable measurements. Failure to do so could have an impact on product quality and potentially have serious economic consequences.

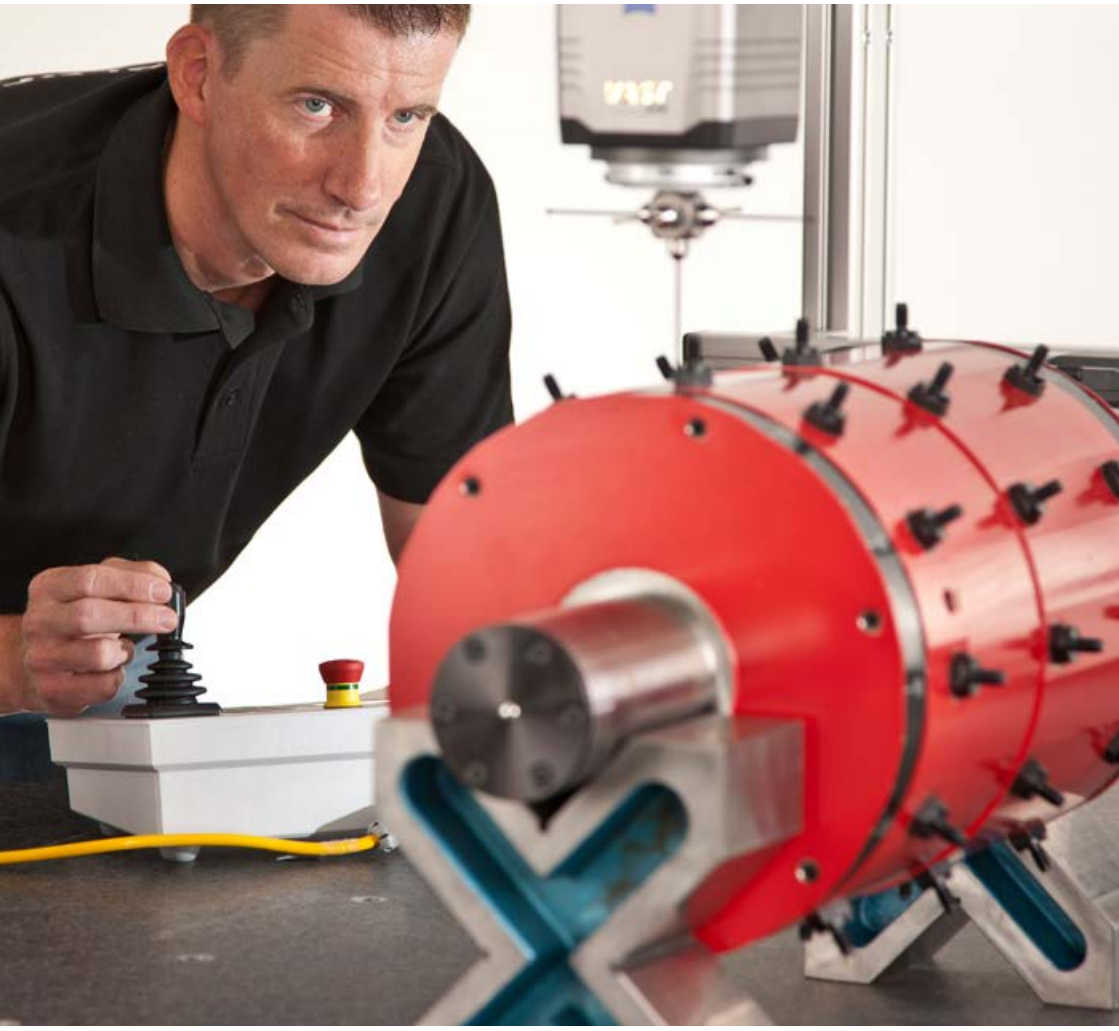
Our test laboratory covers all relevant measurands - geometry, mass and, in particular, unbalance.
Only this enables the complete testing of:

- Test rotors and masses in accordance with ISO 21940-21 or SAE ARP 4162
- Setup and master rotors for balancing machines in serial production
- Other disk- and cylindrical-shaped standards or entire assemblies
- Standardised or self-manufactured standards

We recommend that you use your own working standards and have them checked by our AUKOM* trained staff. Your tested working standards are then available not only for regular laboratory tests, but also for your own intermediate tests, thus increasing your product quality. If you do not have your own working standards, we would be pleased to offer them to you for rent. Further information can be found on our website under "Rental of working standards".

* AUKOM Training Coordinate Metrology e.V., Braunschweig: AUKOM seminars provide advanced, metrological knowledge and increase the reliability of measurement results.

Test levels to match your QM system
The test level is defined on the basis of the rotor characteristics. The test labo-ratory for balancing technology offers three performance levels, which differ in terms of the metrological depth and the scope of the documentation



Quality levels conforming to your QM system

The test level is defined on the basis of the rotor properties. The testing laboratory for balancing technique offers three performance levels, which differ from each other by their technical measurement depth of detail and the resulting documentation.

A QUALITY LEVEL

LABORATORY TEST CERTIFICATE

- Full traceability with all information incl. uncertainty of measurement
- Documentation that complies with the standards
- For auditable measurement equipment monitoring

REFERENCE

e.g. for ISO or SAE rotors, airlines industry or other users with a strictly standard compliant QM system

B QUALITY LEVEL

WORKS TEST REPORT

- Traceability by reference to measurement equipment numbers
- Largely standard compliant documentation
- Usually adequate for qualified measurement equipment monitoring
- No information on measurement uncertainties or the calibration status of the measurement equipment used

MASTER

e.g. for test or ISO rotors

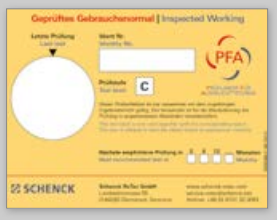
C QUALITY LEVEL

TEST PROTOCOL

- Documentation of the current condition
- No traceability

BASIC

e.g. for test or setup rotors which are not subject to measurement equipment monitoring



We are happy to pass on our knowledge: We advise you before an order with regard to the requirements for qualification of your measurement or testing equipment, and work out the most suitable and economical procedure for you.

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More information onquality assurance in balancing ans centrifugal technology:

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