



 **SCHENCK**

QUALITY ASSURANCE

in balancing and
spin testing technology



PRÜFLABOR FÜR
AUSWUCHTTECHNIK

Testing laboratory for balancing technique with unique worldwide expertise

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.

The "Testing Laboratory for Balancing Technique (PFA¹)" is the top address for the qualification of balancing and spin testing systems and corresponding working standards. The laboratory of Schenck RoTec GmbH is the only one in the world which has implemented the more stringent requirements on testing and calibration laboratories, and holds official accreditation to DIN EN ISO/IEC 17025. It is therefore the first centre of expertise at which users and service providers can have their measurement and testing equipment certified irrespective of the manufacturer – confidentially, reliable and independently.

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 equipment and have measurement accuracies which are comparable to a high quality coordinate measuring machine. If the verification of its capabilities is neglected, errors are not detected and the product quality suffers. This can lead to higher reject rates, or in the worst case even recalls. 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 SAE ARP 4048, SAE ARP 4050, SAE ARP 5323
- ▶ 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

Individual performance levels for all requirements

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

In the calibration and adjustment of balancing machines, setup or master rotors as well as matching test weights are indispensable. These working standards must be treated as other measurement or testing equipment, and be subjected to periodic verification, in order to ensure reliable measurements. Failure to do so can result in adverse effects on the product quality, and possibly serious economic consequences.

The PFA covers all relevant measurement factors, such as geometry, mass and unbalance, and allows the testing of:

- ▶ Proving rotors and weights in accordance with ISO 21940-21 or SAE ARP 4162
- ▶ Setup and master rotors for balancing machines in series production
- ▶ Other disc or cylindric type masters or complete assemblies
- ▶ Standardised etalons or self-made measurement standards

We recommend to purchase own working standards which shall be tested regularly. These can be used not only for the regular premium test of your machines, but also for your own checks between the test intervals. Alternatively, a validated working standard can also be rented from us.



Quality levels conforming to your QM system

In principle, the following applies: every rotor can be tested to every level. 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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