

PRODUCT DATA

Brüel & Kjær Calibration Services

Brüel & Kjær offers a comprehensive range of calibration services.

All Brüel & Kjær calibrations are documented and traceable as well as being performed in accordance with the relevant national and international standards. Our calibration services are accredited in many regions and through the DPLA we are able to offer primary calibrations for transducers.

USES AND FEATURES

USES

- Maintain traceable measurements
- Fulfil ISO 9000 requirements
- Compliance with standards

FEATURES

- Sound level meters
- Filters
- Conditioning amplifiers
- Analyzers
- Calibrators
- Transducers

Introduction

What is Calibration?

“The set of operations which establish, under specified conditions, the relationship between values indicated by a measuring instrument or measurement system, and the corresponding values of a quantity realised by a reference standard” – Extract from ISO 10012-1 (VIM, 6.13).

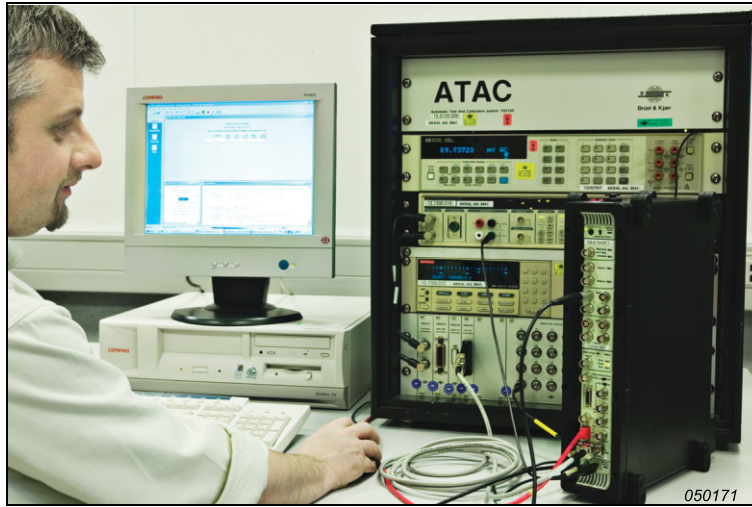
Calibration

All measuring instruments can be calibrated, but complex instruments measuring to high levels of accuracy or working under special conditions are likely to need calibrating more often than simple, less accurate measuring devices such as a ruler.



Fig. 1
PULSE calibration

Why Calibrate?



Regular calibration is not just an investment in quality, but also a source of real cost saving by minimising the cost of errors due to faulty or inaccurate measurement – in fact we highly recommend that you calibrate your products regularly, for most instruments annually. We offer a comprehensive range of calibration services, all documented, traceable and performed in accordance with the relevant standards.

Our calibration laboratories are accredited in many regions, fulfilling the requirements of ISO 17025 and other standards. We also offer primary calibrations for transducers through the Danish Primary Laboratory of Acoustics (DPLA).

ISO 9000 standards (paragraph 4.11.1) state:

“The supplier shall establish and maintain documented procedures to control, calibrate and maintain inspection measuring and test equipment (including test software) used by the supplier to demonstrate the conformance of the product to the specified requirements”

and also (paragraph 4.11.2) that:

“The supplier shall identify all inspection, measuring and test equipment that can affect production quality and calibrate and adjust them at prescribed intervals or prior to use”.

In other words, to comply with ISO 9000, all conformance tests and qualifying measurements must be made by calibrated instruments.

For ISO 9000 and MIL certification, all your calibrations must be documented and traceable.

Local or national legislation may have strict requirements concerning the use of properly calibrated instruments. It could for instance be:

- Noise pollution
- Environmental health-related noise levels
- Passenger vehicle drive-by noise levels

Accredited Calibration

To ensure that calibrations are internationally recognised, the international community has agreed upon the principle of accreditation and rules for its implementation. These rules are laid down in the European standard EN ISO IEC 17025 (based on EN 45001 and ISO guide 25). The calibration laboratory at Brüel & Kjær headquarters is accredited by DANAK (the Danish accreditation body). Through mutual agreement, DANAK accredited calibrations are recognised in a large number of countries worldwide. Many of our regional service centres also run accredited calibration laboratories.

Traceability

For a calibration to be valuable, it must be traceable. This means that there must be a documented unbroken chain between the calibration in question and the relevant standards. All Brüel & Kjær calibrations are fully documented and traceable.

Calibration Uncertainty

For every instrument model, a detailed calibration uncertainty budget is set up in order to estimate the actual calibration accuracy. All calibrations within the Brüel & Kjær organisation will normally have a calibration uncertainty 4 to 10 times less than the acceptance band of the parameter being calibrated.

Reliability

Reliable measurements can only be taken with properly calibrated instruments in good working order. We know our products better than anyone else, and if an instrument requires repair or adjustment at the time of calibration, our skilled engineers are on hand to do the necessary work.

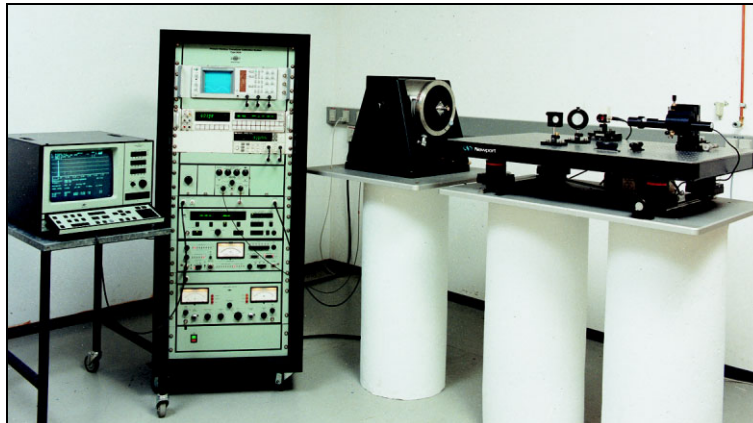
All Brüel & Kjær instrument calibrations¹⁾ cover the following points:

- Receipt and inspection of the product
- Registration in our service system
- Acclimatisation in accordance with procedures
- Calibration – standard or user-specified
- Certificate of calibration

Calibration Services

Fig. 2
*Primary Vibration
Transducer Calibration
System used to
perform primary
calibrations according
to ISO 16063–11*

Primary Calibration (for transducers only)



Brüel & Kjær runs the Danish Primary Laboratory of Acoustics (DPLA). This is the Danish primary reference laboratory for vibration and acoustical quantities. The DPLA performs primary calibration on accelerometers and microphones using laser interferometry and reciprocity respectively. These methods give state-of-the-art accuracy.

Basic Calibration

Basic calibration is the periodic re-calibration of an instrument to a schedule. The correct calibration schedule for an instrument, system or application depends on many factors including:

- Type
- Usage (R&D or production)
- Environment
- Age

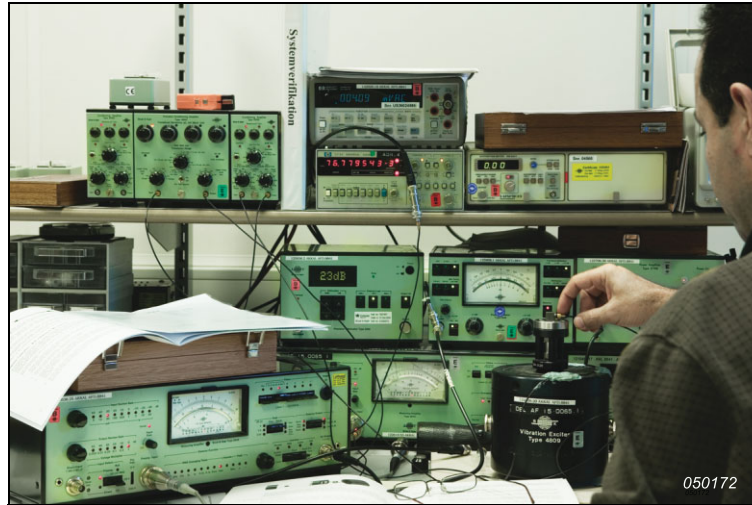
Brüel & Kjær has the knowledge and expertise to help you find a sensible calibration schedule for your instruments or systems.

Initial Calibration

This is for new items only. In applications, where a Manufacturers Certificate of Conformance (MCOC) is insufficient, we offer an initial calibration prior to delivery. This way you start the calibration history of your instrument or system from day one. This type of calibration is offered at a reduced price.

¹⁾Note: Should your instrument be out of specification or require repair, we will contact you before proceeding.

Fig. 3
Accelerometer calibration



Pre-calibration

Pre-calibration involves calibrating a system or instrument prior to adjustment or repair, and then performing another calibration subsequent to adjustment or repair. This is necessary in order to strictly comply with ISO 9000 or MIL QA systems. The first calibration allows the customer to backtrack and quantify the accuracy of the measurements made prior to adjustment and subsequent calibration.

Factory Standard Calibration (for transducers only)

All Brüel & Kjær transducers are delivered with an individual calibration chart. Factory standard calibration is a repetition of this calibration where a new calibration chart is issued.

On-site Calibration

Certain instruments and systems can be calibrated on-site. Please contact your local sales representative for further details.

Certificate of Conformance

The MCOC certifies that the system or instrument is within specification, and will provide readings or results to the accuracy stated within its specifications.

All Brüel & Kjær instruments and systems are tested prior to delivery, and given a Manufacturers Certificate of Conformance (MCOC). Brüel & Kjær also offers this service on an aftersales basis. The MCOC is not a calibration, but represents a cost-effective means of maintaining the integrity of your measurements for applications where calibration is not a legal or QA system requirement.

Calibration Contract

- Automatic recall
- Priority Service

Please contact your local service centre.

Additional Literature

For information relating to the calibration of specific instruments or systems, please see www.bksv.com/services/calibration.com.

Brüel & Kjær reserves the right to change specifications and accessories without notice

HEADQUARTERS: DK-2850 Nærum · Denmark · Telephone: +45 4580 0500 · Fax: +45 4580 1405
www.bksv.com · info@bksv.com

Australia (+61) 2 9889-8888 · Austria (+43) 1 865 74 00 · Brazil (+55) 11 5188-8166 · Canada (+1) 514 695-8225
China (+86) 10 680 29906 · Czech Republic (+420) 2 6702 1100 · Finland (+358) 9-521 300 · France (+33) 1 69 90 71 00
Germany (+49) 421 17 87 0 · Hong Kong (+852) 2548 7486 · Hungary (+36) 1 215 83 05 · Ireland (+353) 1 807 4083
Italy (+39) 0257 68061 · Japan (+81) 3 5715 1612 · Korea (+82) 2 3473 0605 · Netherlands (+31) 318 55 9290
Norway (+47) 66 77 11 55 · Poland (+48) 22 816 75 56 · Portugal (+351) 21 47 11 453 · Singapore (+65) 6377 4512
Slovak Republic (+421) 25 443 0701 · Spain (+34) 91 659 0820 · Sweden (+46) 8 449 8600
Switzerland (+41) 44 880 7035 · Taiwan (+886) 2 2502 7255 · United Kingdom (+44) 14 38 739 000
USA (+1) 800 332 2040

Local representatives and service organisations worldwide