



VA ISO 18436 Category II

Intermediate Vibration Analyst Training & Certification

CAT - II

Brüel & Kjær Vibro is an accredited Partner of the Mobius Institute[©]

The Intermediate Vibration Analysis CAT II course is intended for personnel who have at least twelve months vibration analysis experience and a thorough understanding of vibration theory and terminology. Eighteen months of vibration analysis experience is required for Category II or Level II certification. The course provides an in-depth study of machinery faults and their associated spectrum, time waveform and phase characteristics. A Category II analyst is expected to know how to test machines correctly, how to diagnose faults accurately, perform additional diagnostic tests for verification, how to set vibration alarm limits, and how to correct certain types of faults. You need to understand what your analyser settings mean so that you can take the best measurements. You also need to understand why the vibration patterns change the way they do and how to use time waveform analysis and phase analysis to verify the fault condition.

Course Information:

Course Format: 4-day Public classroom (and live stream) courses in Nærum (Denmark) or Darmstadt (Germany). Private and on-site courses for a single company (min. 5 students) are available.

Optional: Certification examination, 3 hours, 100 multiple-choice questions, 70% passing grade. Can be taken online or in the classroom.

Certification Prerequisite: Prior certification is not required for attending the training course, but 18 months of general experience in vibration measurement is required for certification.

The certification scheme is compliant with ISO 18436 and ISO/IEC 17024.

Detailed topic list:

Review of maintenance practices

- Reactive, preventive, condition-based, proactive

Review of condition monitoring technologies

- Ultrasound
- Infrared thermography
- Oil analysis
- Wear particle analysis
- Electric motor testing

Principles of vibration

- Complete review of basics
- Waveform, spectrum (FFT), phase and orbits
- Understanding signals: modulation, beating, sum/difference Waveforms

Data acquisition

- Transducer types:
 - proximity probes,
 - velocity sensors
 - accelerometers
- Transducer selection

- Transducer mounting and natural frequency
- Measurement point selection
- Following routes, and test planning
- Common measurement errors

Signal processing

- Filters: Low pass, band pass, high pass, band stop
- Sampling, aliasing, dynamic range
- Resolution, Fmax, data collection time
- Averaging: linear, overlap, peak hold, time
- synchronous
- Windowing and leakage?

Vibration analysis

- Spectrum analysis
- Time waveform analysis (introduction)
- Orbit analysis (introduction)
- Phase analysis: bubble diagrams and ODS
- Enveloping (demodulation), shock pulse, spike energy, PeakVue



VA ISO 18436 Category II

Intermediate Vibration Analyst Training & Certification



Fault analysis

- Natural frequencies and resonances
- Imbalance
- Eccentricity
- Bent shaft
- Misalignment, cocked bearing and soft foot
- Mechanical looseness
- Rolling element bearing analysis
- Analysis of induction motors
- Analysis of gears
- Analysis of belt driven machines
- Analysis of pumps, compressors and fans

Equipment testing and diagnostics

- Impact testing (bump tests)
- Phase analysis

Corrective action

- General maintenance repair activities
- Review of the balancing process
- Review of shaft alignment procedures

Running a successful condition monitoring program

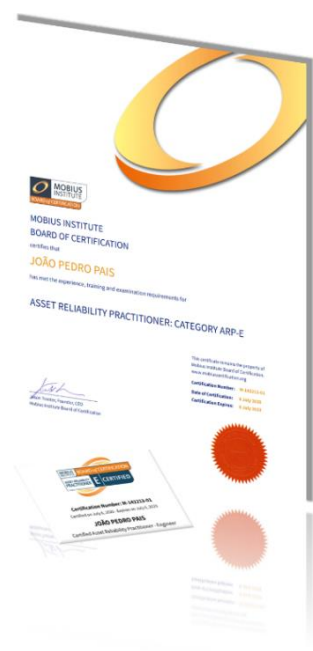
- Setting baselines
- Setting alarms: band, envelope/mask, statistical
- Setting goals and expectations (avoiding common problems)
- Report generation
- Reporting success stories

Acceptance testing

- Commissioning/Acceptance of machines

Review of ISO standards

- References



Brüel & Kjær Vibro GmbH
64293 Darmstadt
Germany
Phone: +49 (0) 6151 428 0
info@bvkibro.com
<https://www.bvkibro.com/service-and-support/training/iso-vibration-training/>

Brüel & Kjær Vibro A/S
2850 Nærum
Dänemark
Phone: +45 7741 2500

