



Brüel & Kjær Vibro



Training in Machine Condition Monitoring

Customized Courses for All Levels of Expertise



**MOBIUS
INSTITUTE**

Certified Partner for Vibration
Analysis Trainings Cat I-III

About Brüel & Kjær Vibro Training



Our service engineer instructors are ISO 18436-2 certified, and provide a world-class training for systems and monitoring techniques. Workshops are designed for maximum online 'live' interaction with rotor kit.

An effective condition monitoring strategy can significantly reduce the life cycle costs of your production machinery, but this requires an investment in monitoring technology and expertise. Brüel & Kjær Vibro provides a complete monitoring solution that includes all of this. As specialists can be difficult and expensive to find, training plays an important role in this solution.

For more information or a condition monitoring training proposal tailored to your needs, please give us a call at **+49 6151 428-1424** or write to **service@bkvibro.com**.

We provide training for all levels and purposes in machine monitoring, from beginner to expert. Our aim is to build up the competence of each participant so they can confidently and successfully perform their expected monitoring tasks. There are two categories of training that we offer; Monitoring and Diagnostics, and System Operation and Maintenance.

Did you know? We are a certified partner of the Mobius Institute and offer vibration analysis trainings Cat. I-III according to ISO 18436-2. Contact us for more information or to schedule a training!



Monitoring and Diagnostics

Machine uptime is achieved by early fault detection and diagnosis, which in return are based on monitoring principles, physics, vibration analysis, rotor dynamics and thermodynamics. Customer expertise in these areas varies widely, so we offer a number of courses that cover all these areas, which can then be customized to the customer's specific requirements. The courses offered can be tailored to different levels ranging from beginners to advanced.

System Operation and Maintenance

The monitoring system should be optimally utilized in order to increase the reliability of the system and to maximize the actual benefits achieved by it. We provide training in all aspects of installation, configuration, operation, upgrading and maintenance of the system. This includes courses on sensors, wiring, data acquisition and monitoring hardware and software, external interfacing, user interface, alarming, database optimization, back-ups, upgrades and administration functions.

Our Training Portfolio

Ref.	Title and description	Duration of course	Max. no. of participants	Prerequisites to the training
Monitoring and Diagnostics Courses				
GV1	Basic safety and condition monitoring <ul style="list-style-type: none"> • Techniques and tools • Compact, offline and online monitoring systems • Fundamentals of machine behaviour • Best practise for taking measurements 	1 day	8	None
GV2	General vibration measurement <ul style="list-style-type: none"> • Why use vibration measurements? • Definition, setup and execution of measurements for safety and fault detection • Basic diagnosis; causes, effects and indicators for typical machine malfunctions 	2 days	8	None
GV3	Advanced vibration monitoring: Diagnosis and special techniques <ul style="list-style-type: none"> • Specialized analysis techniques • Reliable fault detection • Interpretation of spectra • Definition and setup of measurements • Complex machinery faults • Root cause analysis and service recommendations 	3 days	8	GV2
GV4	Basic rotor dynamics <ul style="list-style-type: none"> • Definitions and theory • Modification of machines for mitigating problems • Rotor diagnostics by vibration analysis 	2 days	6	GV3
GV5	Basic thermodynamics and performance monitoring <ul style="list-style-type: none"> • Maximizing the profitability, environmental compliance and efficiency of a machine • Reporting, control and feedback theory, performance models, combined cycle thermodynamics • Economic payback on managing performance • Evaluating the condition of steam turbines, gas turbines and centrifugal compressors using thermodynamic calculations and plots • Interpretation of PV plots 	2 days	4	Sound mathematical understanding
System Operation and Maintenance Courses				
Vibration Sensors (Displacement, Velocity, Acceleration)				
SE1	Sensor installation, wiring, setup and operation (displacement/velocity/acceleration sensors) <ul style="list-style-type: none"> • Principles and use of different sensors • Operation, applications, installation, and troubleshooting of vibration and phase-reference sensors • Installation, positioning, field wiring, and servicing • How to choose and mount a sensor for a safe SAT 	1 day	8	None

Ref.	Title and description	Duration of course	Max. no. of participants	Prerequisites to the training
System Operation and Maintenance Courses				
Compact Monitors (1, 2, or 3 channels) VIBROCONTROL 800, VIBROCONTROL 920, VIBROCONTROL 1000 , VIBROCONTROL 1100, VIBROCONTROL 1500 and VIBROCONTROL 6000® Compact monitor				
CM1	<ul style="list-style-type: none"> • Functionality, installation and setup • Commissioning, measurement chain test, operation and service • Tips for a safe and relevant SAT 	1 day	8	None
Safety Monitoring: VIBROCONTROL 6000® (VC-6000®)				
VC1	<ul style="list-style-type: none"> • Rack and module functionality • Installation and commissioning • Wiring and connection to the plant (Modbus, DCS, IPS etc.) • Rules and tips for a safe SAT 	1 day	8	None
VC2	Monitoring Workstation, Type 7126 and 7126 plus <ul style="list-style-type: none"> • Settings, functionality and operation • Commissioning, test, operation and service • Advice and tips for settings 	1 day	8	GV1
Portable Measurement and Diagnosis				
HD1	VIBROTEST 60 or VIBROPORT 80: Basic operation for monitoring	1 day	8	None
HD2	VIBROTEST 60 or VIBROPORT 80: Balancing	1 day	8	None
HD3	VIBROTEST 60 / VR or VIBROPORT 80 / Report & Examiner Software: Analysis <ul style="list-style-type: none"> • How to interpret alarm measurements and analyse the machine status 	1 day	6	GV2
HD4	VIBROTEST 60 / xms or VIBROPORT 80 / Report & Route Manager Software: Data collection and first analysis <ul style="list-style-type: none"> • Configuration of measurement points, setting up and loading routes, displaying alarms and data • Displaying various plot types for machine condition analysis 	2 days	6	GV1
HD5	VIBROPORT 80 / Report & Examiner Software: Advanced analysis <ul style="list-style-type: none"> • Time waveform, dual channel, cross channel, use of advanced plots like Orbit plots, Bode plots • Manage real-time signals • Post-processing and analysis of typical faults (e.g. misalignment, unbalance, gear, shaft instability) 	1 day	6	GV3
VDAU-6000				
VD1	Operation and management <ul style="list-style-type: none"> • Diagnostic Workstation and EventMaster • System configuration, importing scalar indicators into a Compass database (OPC import) 	2 days	4	None

Ref.	Title and description	Duration of course	Max. no. of participants	Prerequisites to the training
VDAU-6000				
VD2	Advanced setup and analysis <ul style="list-style-type: none"> Advanced diagnosis techniques Advanced post-processing (FFT, envelope, cepstrum, rotor dynamics, transients, etc.) Advanced machine condition analysis 	2 days	4	GV3
COMPASS Classic or Compass 6000™				
CP1	Compass user <ul style="list-style-type: none"> System fundamentals and overview Navigation in the Monitoring Workstation Retrieve and display data in various plot formats, view and change limits, acknowledge alarms and events in the logbook 	2 days	8	None
CP2	Compass advanced user and setup <ul style="list-style-type: none"> Basic and advanced setup of the Compass user-interface Operation of software Types 7126 and 7123 in setup mode 	2 days	8	CP1
CP3	Compass system administration <ul style="list-style-type: none"> Administration of the Compass online and offline system and database How to change a module, manage a server, work with the LAN, Modbus, OPC, CMM, NTP Time synch. User management, system upgrades and troubleshooting, optimum performance and data reduction 	3 days	8	CP2 Basic knowledge of Unix and networking will be an advantage
CP4	Advisor™ user and customization <ul style="list-style-type: none"> Operation and basic setup How to perform, review and report a diagnosis 	2 days	4	GV3 + CP2
CP5	Advisor™ start-up workshop (COMPASS Classic or Compass 6000™) <ul style="list-style-type: none"> Advanced Advisory Monitoring Module Full setup of Advisor™ including exercises with customer database How to perform, review and report the diagnosis Administration and customisation 	3 days	4	CP3 Participants must have attended advanced vibration and be experienced with Compass and computers.
CP6	Compass basic performance monitoring <ul style="list-style-type: none"> Theory behind performance monitoring, key performance indicators and how performance monitoring is implemented in Compass How to navigate through the system, interpret the calculations and perform an analysis 	3 days	8	GV5 + CP1
CP7	Compass performance monitoring hands-on <ul style="list-style-type: none"> Data acquisition, calculation logics, analysis displays and plots Participants will gain an understanding and confidence in making modifications and add-ons to the performance monitoring system through hands-on exercises 	3 days	4	GV5, CP1+ CP6 This course is intended for the person(s) responsible for the maintenance of the performance monitoring system.

Training Details and Conditions



Course location

Darmstadt (Germany). Alternatively, at our local representative's premises or at the customer's site.



Enrolment

Courses are arranged upon request with agreement on scope, fixed dates and price.

Please contact service@bkvibro.com no later than 6 weeks prior to the planned course date.

Please indicate the no. and name of course (i.e. CP1 Compass user).



Price

Will be quoted based on the standard description above.

Changes in scope must be agreed prior to planning the course.



Prices include (standard)

Course documentation, refreshments and lunch



Not included (standard)

Travel, transportation to/from hotel, accommodation, breakfast and dinner, sightseeing, entertainment, etc.



Payment

Payment in advance upon receipt of invoice.



Cancellation

For cancellations, the following terms apply:

- Up to 6 weeks prior to the course – free of charge
- 4 weeks prior to the course – 25% of course fee will be charged.
- 2 weeks prior to the course – 50% of course fee will be charged.
- Cancellation later than 2 weeks prior to the course – 100% of course fee will be charged.

Brüel & Kjær Vibro reserves the cancellation right due to insufficient enrolment.



Hotel

Reservations at the participant's cost can be arranged upon request.

In addition to the above, our [Standard Terms and Conditions](#) as specified on www.bkvibro.com apply.

Brüel & Kjær Vibro has a service and support network around the globe



For more information and enrolment, please refer to our website

www.bkvbros.com

Contact

Services

- For information on all services for adding value to your business, on-site or remote; diagnostics, consultancy, settings, monitoring strategy, commissioning, maintenance, training, balancing

Phone: +49 6151 428-1424

E-Mail: service@bkvibro.com

Hotline

- For technical questions concerning your equipment

Phone: +49 6151 428-1400

E-Mail: support@bkvibro.com

Repairs and Calibration

- Inquiries regarding repairs, calibrations, rental equipment

Phone: +49 6151 428-1327/-1328

E-Mail: repaircenter@bkvibro.com

Brüel & Kjær Vibro GmbH

Leydheckerstrasse 10

64293 Darmstadt

Germany

Phone: +49 6151 428 0

Fax: +49 6151 428 1000

info@bkvibro.com

Brüel & Kjær Vibro A/S

Skodsborgvej 307 B

2850 Nærum

Denmark

Phone: +45 77 41 25 00

Fax: +45 45 80 29 37

www.bkvibro.com