



Consulting – Engineering – Measurements – Simulations – Testing – Troubleshooting

Noise and Vibration Control in Industry

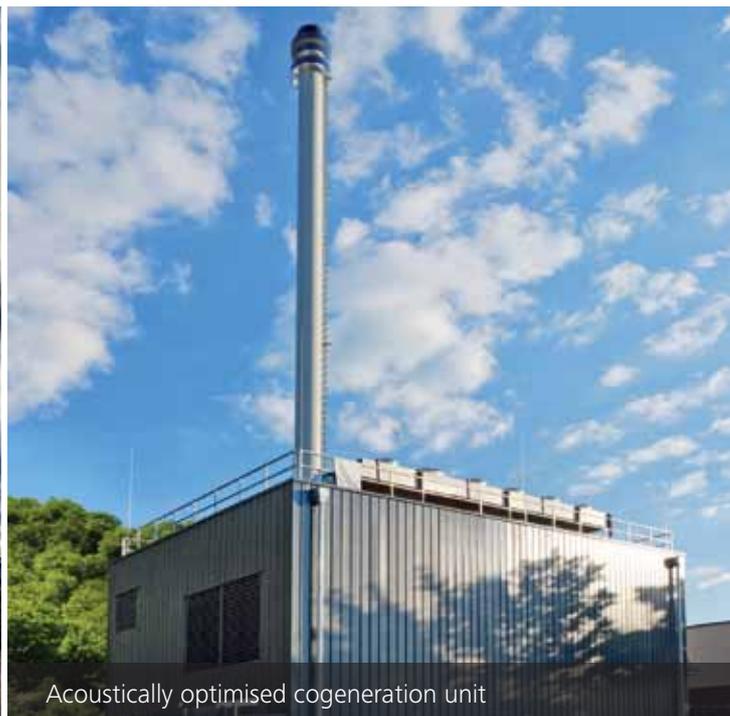
Acoustic optimisation for an efficient, safe and environmentally
compliant operation of industrial plants

Competence

For more than 50 years, Müller-BBM has been working in the fields of noise and vibration control in industry with an interdisciplinary approach. Based on specific know-how and comprehensive experience, Müller-BBM engineers are familiar with operating procedures and process engineering. Thus, we know what matters and will find economic solutions in close cooperation with the plant operator for a convenient practical implementation.



Sound level measurement at industrial flares



Acoustically optimised cogeneration unit

A consistent overall concept in sound and vibration control provides various advantages for investors and operators of industrial plants:

- Higher quality and better acceptance of the products
- Competitive advantage
- Positive image, good public reputation
- Planning safety (no complaints or problems during and after commissioning)

Planners and operators of industrial plants should therefore contact us in an early planning phase of their projects and rely on our competence for acoustic optimisation in industrial acoustics.

We work in numerous industries for you:

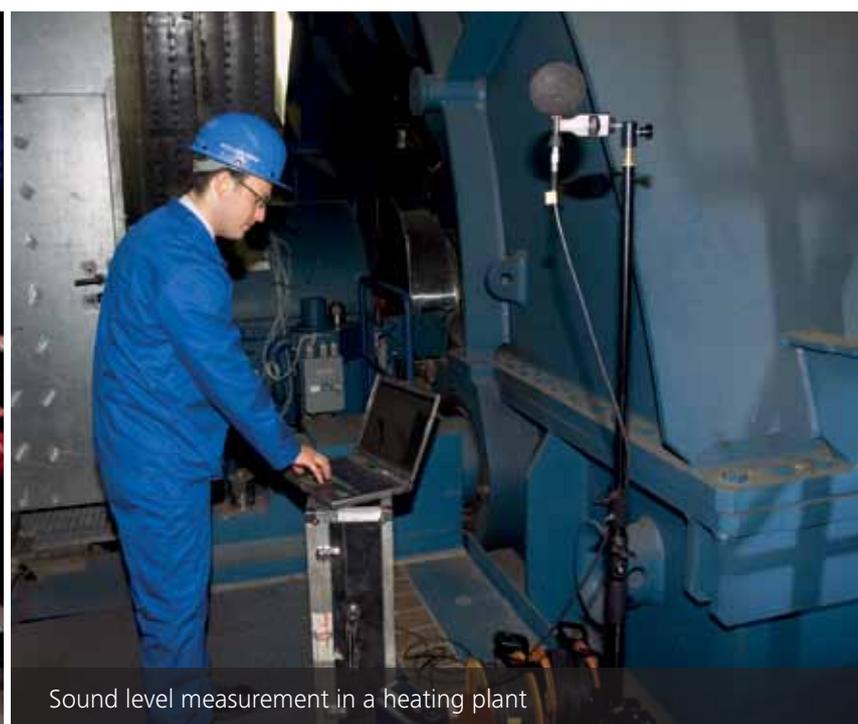
- Refineries, chemical and petrochemical industry
- Power plants and energy distribution
- Wind turbines
- Off-shore wind turbines
- Iron, steel and aluminium industry
- Mining industry
- Waste industry
- Forestry industry
- Glass production and processing
- Paper manufacturing
- Production of building materials
- Road and railway vehicle manufacturing
- Machine and appliance industry

Scope

Müller-BBM elaborates, specifies and coordinates all necessary measures for the acoustic optimisation and the efficient, safe and environmentally friendly operation of industrial plants and workplaces. In doing so, we always have an eye for the legal requirements that are relevant for the planning, approval, construction, acceptance and operation of technical installations.



Measurement on a raw gas pipe in an electro-steel plant



Sound level measurement in a heating plant

In the planning stages (such as feasibility study, basic and detailed engineering) we carry out reliable predictions of the noise emitted by machines, equipment, buildings and plant units and of its impact in the neighbourhood. Based on these predictions and taking into account the applicable limits for the sound emitted and the noise received at sensitive receiver points, we prepare packages of technical noise and vibration control measures.

Furthermore, we support you with a target-oriented implementation of noise and vibration control measures by elaboration of technical specifications, on-site construction supervision and measurements during operation.

Our services for you:

- Acoustic consulting and engineering
- Measurement of sound and vibration
- Noise control concepts and design of noise control measures
- Elaboration of technical specifications
- Machinery acoustics and component engineering
- Analysis of acoustically weak points and acoustic fatigue
- Site supervision and acceptance testing
- Acoustic restructuring
- Prediction of noise and vibration at sensitive receiver points
- Measurement of noise and vibration at workplaces and definition of adapted protective measures

Services

Müller-BBM carries out measurements and calculations impartially and independently. For this purpose, state-of-the-art measuring instruments and software tools are at our disposal. The number and combination of our test stands for measuring and analysing noise and vibration and for testing of technical solutions is presumably unique.



Multichannel measurement system PAK®



Measurement in the hemi-anechoic room

Measurement and calculation methods:

- Sound power determination for plants, machines and equipment
- Sound intensity measurement
- Monitoring systems for noise and vibration
- Sound propagation calculation
- Sound and vibration analysis
- Laser vibrometry
- Multichannel measuring system PAK®
- Sound source localisation
- Strain gauge technique
- Acoustic dosimetry
- Acoustic material tests
- FEM, BEM, SEA and CFD calculations

Test stands:

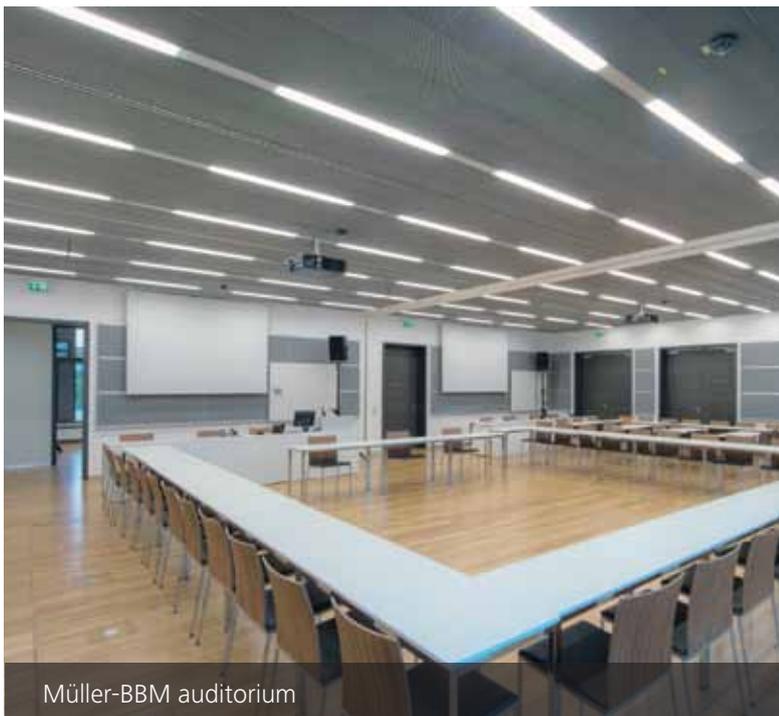
- Test rooms for the determination of the transmission loss of constructional components (walls, ceilings, windows etc.)
- Hemi-anechoic room
- Test room for machinery acoustics
- Reverberation room and reverberation chamber
- Test stand for acoustic pipe insulations
- Flow-acoustic test rig for silencers
- Measurement rig for the determination of the dynamic stiffness of resilient elements

Our know-how for your business

Our long-term experienced experts impart their knowledge and train engineers, technicians and health and safety officers on everything they need to know about acoustics, industrial acoustics and noise control in order to prepare offers and operate industrial plants safely and legally compliant.



Active in committee work



Müller-BBM auditorium

Committees and associations

Müller-BBM is an active member of national and international committees and associations dealing with noise and vibration issues, e.g.:

- DIN/VDI German Standards Committee on Acoustics, Noise Control and Vibration Engineering
- German Acoustical Society (DEGA)
- German Association of Consulting Engineers (VBI – Verband Beratender Ingenieure)
- International technical association for generation and storage of power and heat – VGB Power Tech e.V.
- German Society for Petroleum and Coal Science and Technology (DGMK)
- Expert network for chemical engineering and biotechnology in Germany (DECHEMA)

Seminars

In our seminars and workshops, we are pleased to pass our knowledge on to you. Our basic courses include the following topics:

- Fundamentals of in acoustics and vibration technology
- Basic course in measuring noise and vibration
- Noise control in industry

In addition, we will be happy to prepare advanced and special courses for you – customized according to your specific needs and requirements.

Buildings

Building acoustics
Room acoustics
Media and communications technology
Thermal building physics
Building climatology
Sustainability
Fire protection
Structural dynamics
Building pollutants

Environment

Noise control
Air pollution control
Vibration control
Light and electromagnetic fields
Environmental compatibility
Plant safety
Legally compliant business organization
Risk assessment
Chemical analysis

Technology

Automotive acoustics
Ship acoustics
Rail acoustics
Industrial acoustics
Machine acoustics and machine dynamics
Psychoacoustics
Mobile communication

Comprehensive solutions from a single source

Consulting · Planning · Measuring Expert Opinion · Research

Müller-BBM GmbH is a subsidiary of Müller-BBM Holding AG, with headquarters in Planegg near Munich. Since 1962 Müller-BBM has been advising clients nationally and internationally and is now one of the world's leading engineering firms. More than 400 highly qualified employees form an interdisciplinary team of architects, scientists and engineers in the most diverse specialist fields. The company currently has twelve offices in Germany as well as a branch office in Austria.

Notifications

Müller-BBM is notified as an expert authority in accordance with § 29 b of the German Federal Pollution Control Act (BImSchG). The notification comprises

- determining emissions and immissions of air pollutants, noise and vibration
- verifying the correct installation and function in addition to the calibration of continuous emission measurement systems (CEMS)
- checking combustion conditions

As a test laboratory, Müller-BBM is authorized to render the services of an independent third-party provider for assessing and examining performance reliability in accordance with EU regulation no. 305/2011 (Construction Products Regulation).

Accreditations

Our testing and calibration laboratories are accredited according to ISO/IEC 17025:

- Test laboratory for sound and vibration, electromagnetic fields and light, air pollution control, measurement of hazardous substances
- Acoustic testing laboratory
- Calibration laboratory for acceleration and acoustical quantities

Müller-BBM has a significant number of employees with competency certificates that were awarded to them on an individual basis. They include publicly appointed and sworn experts, state-recognised experts and otherwise appointed and notified experts.

Detailed information on the scope of our accreditation, its international validity and the corresponding certificates can be found on <http://www.muellerbbm.com/quality/>.

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