



Flue-gas silencers

for gas turbines, bypass systems, HRSG ducts, main stacks





BBM Akustik Technologie
Flue-gas silencers for power plants



Flue-gas silencers

Noise control for power plants

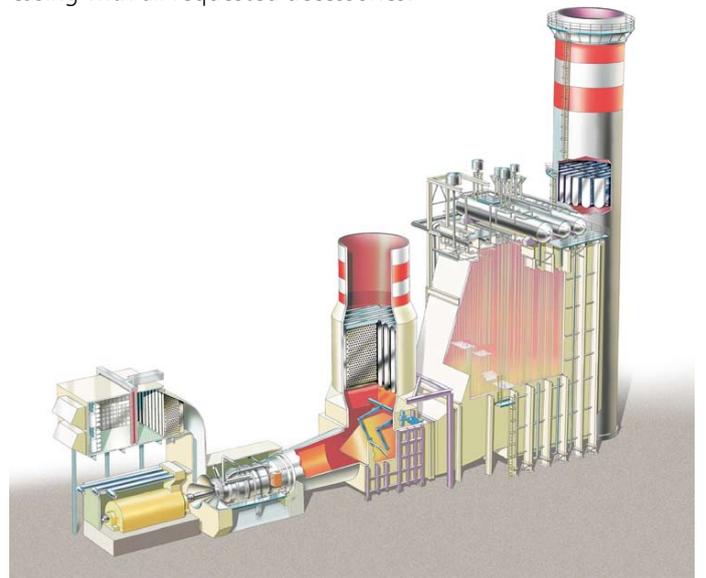


BBM flue-gas silencers

BBM Akustik Technologie, Germany is the world's leading supplier for flue-gas silencers. We supply the whole range of silencers behind the gas turbine and for all kind of boilers. BBM Akustik Technologie has executed several hundred projects worldwide with the most stringent requirements.

BBM scope of supply

For the gas turbine side, we offer all 'hot' silencers, either in the horizontal duct downstream the gas turbine diffuser, in HRSG inlet duct, or in the bypass system for every GT size and temperatures up to 700 °C. For the cold side behind the HRSG, we design silencers in the outlet duct and in the main stack. Dimensions and materials are selected as per specification. We can supply the absorptive splitters, or both the splitters and the casing with all requested accessories.

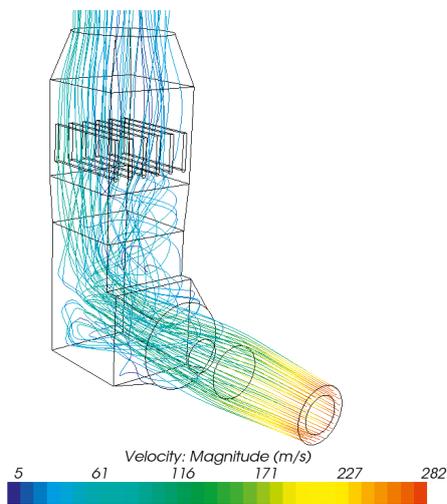


Acoustic design and calculation

Gas turbines are being used more and more in power plants today. At the same time the acoustic requirements have become more and more stringent. This means silencers are required for almost all installations that include gas turbines and heat recovery steam generators. Our acoustic design covers optimised solutions for the whole system, starting from gas turbine exhaust flange up to stack outlet. BBM Akustik Technologie is one of the first companies that gave guarantees for the whole system, based on our R&D and site measurements.

CFD calculations

Gas turbine silencers are exposed to high temperatures and to high velocity turbulent flow. Inhouse CFD studies verify the silencer design, while considering flow noise, pressure drop and mechanic stability. Gas turbine development requires an on-going improvement of the silencer design.



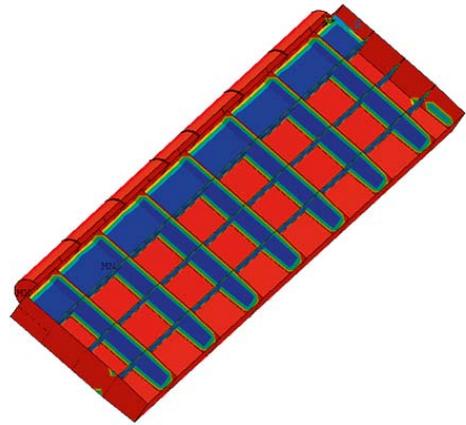
BBM materials

Our specific design reflects the choice of material according to aero-thermal requirements:

- Hot silencers: stainless steel
- Cold silencers: galvanized or stainless steel
- Extremely robust and thermal load resistant design of baffles by using FEM calculations
- Manufactured for all duct and stack dimensions required in practice

The baffle infill materials are a key issue. For hot silencers, the absorbing materials are used in pillows with protection layers between perforated sheets and pillows to guarantee a long lifetime.

Specially tuned splitter design for low frequency attenuation, where the splitter cavities are covered with solid (non-perforated) sheet metal.

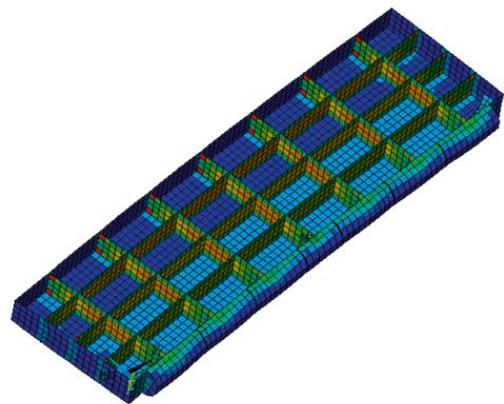


Planning, 3-D design, detailed engineering and project management

Today, nearly all projects are represented in a 3-D (CAD) model. The use of this software enables us to check all critical parts to allow a »tailor-made« detailed engineering.

BBM design and development of silencers

Our know-how is based on research conducted at our in-house test facilities and on extensive field measurements, which verify our calculations. All new materials are tested in our own test stands.



Overall concept and cost optimisation

Competent engineers, using powerful computer programs with multiple optimisation routines, design the gas turbine silencers.

The results of these programs and our long experience of designing industrial silencers allow us to meet the most rigorous acoustic requirements.

World wide supply and installation

Specialized teams consisting of BBM Akustik Technologie's own staff or as combined teams with our partners take care of installation or supervision works.



BBM Akustik Technologie's workshop in Germany



What's in it for you?

- Acoustic design of the silencer
- Guarantee for mechanical and acoustic design
- Optimisation of silencers' pressure loss and acoustic requirements under economic aspects
- Access to all the experience of the Müller-BBM Group
- Acoustic design of the entire system
- High standards for engineering
- Own workshop in Germany ensures high quality and in time delivery
- Fixed prices
- Structural design, CFD and FEM calculations on request
- Inspection and documentation of each silencer

**We will accompany you
throughout the entire project**

Solving industrial noise problems for more than 30 years.

**BBM Akustik Technologie – a leading supplier
of industrial silencers and enclosures.**

**EN ISO
9001:2008
certified**

Our products

Hot gas turbine silencers

- Bypass silencers
- Gas turbine silencers
- Single cycle silencers
- Optimised splitter design



Steam silencers

- Vent silencers
- Start-up silencers
- Blow-off silencers
- Flash tank silencers



Acoustic enclosures and claddings

- Facades and shrouds
- Partial HRSG enclosures
- Steam and gas turbine enclosures
- Supply and erection



Flue-gas silencers

- HRSG outlet duct silencers
- Main stack silencers
- Id and Fd fan silencers
- Minimized pressure drop



Engine exhaust silencers

- For diesel and gas engines
- Highest attenuation
- Most compact design
- DNV certified spark arrestor



Condensate systems

- Complete system design
- Static and dynamic calculation
- Condensate tanks and flash tanks
- Piping and blow-off silencers



Cooling tower silencers

- Natural draught cooling towers
- Forced air cooling towers
- Cell cooling towers
- Hybrid cooling towers



The range of services offered by BBM Akustik Technologie, headquartered in Germany, comprises acoustic engineering, product-specific advice, manufacture, delivery and mounting.

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