

Industry

Sound & Vibration



Innovation by experience





The demand for better sound quality and low vibrations has never been greater. Traffic and industry are required to generate as little noise and vibration as possible. We understand that quiet living and working conditions are decisive in achieving comfort and efficiency. Products with low vibrations are more durable, while low vibrations in machines are often required to obtain higher production quality.

Silence is golden



Today, ever-greater environmental demands are placed on industrial facilities. Initially, regulations were aimed at reducing pollution to air and water, but recently there has been growing demand for reduced noise levels. Machine operators and other employees need a good working environment to be productive. People living in the vicinity of these facilities do not wish to be disturbed. But most important, a silent-running operation is often smooth running, too.

External noise

The quality of a company can often be seen from the outside. Does it look clean and efficient? Is it noisy? By involving ÅF at an early stage, costly mistakes can be avoided – in both new and existing plants. We work closely with our customers to identify potential problem areas. Then we provide cost-efficient solutions, which help to create an environment free of sound and vibration immission.

The working environment – internal noise

Rationalization and automation in industry has led to fewer people having to produce more. Which in turn means that employees have to be focused and attentive in order to keep in pace with production. ÅF assists the industry by creating a working environment free of harmful or contra-productive sound and vibration. The benefits are clear. As operators are able to use their senses without restrictions, in addition to monitoring instruments, process control is more efficient and safe. Safety increases as trucks and workmates become audible. Moreover, a silent-running operation is more attractive, making it easier to keep and recruit personnel. In short, a good sound and vibration environment makes the work place better and is, ultimately, a key step in improving quality of life and production.

Machines and vibrations

Nowadays industrial investments are highly capital-intensive. That's why plants must be efficient right from the start. Foundations, machine fixtures, piping and other structures need to withstand a great deal of vibration strain risking production breakdown or production quality. What's more, machinery has to be correctly positioned on a low mobility foundation and balanced not to jeopardise productivity and quality. Working closely with customers and machine builders, ÅF designs solutions to minimise sound and vibrations.

Sound- and vibration quality in new and upgraded plants



The earlier ÅFs sound and vibration experts are brought into a project, the greater the chance of a successful outcome. This applies equally to the planning and building of new plants as to upgrading existing factories. In fact, it's a good idea to consult our experts also when new equipment and machinery shall be specified, designed and manufactured. As always, prediction of potential problems with sound and vibration levels and mitigate them at an early stage enables you to optimize your plant, boosting the quality of your products and increase competitiveness of your process.

Sound and vibration control for new projects as well as conversions:

Investigation

ÅF carries out tests and assesses the plant's impact on the environment. We also act as consultants in matters pertaining to licensing and production and environment approval of local authorities.

Pre-design in the early phase

ÅF stipulates sound and vibration requirements for the project. We assess the cost of various solutions, support the design and construction work and help out with technical specifications.

Project start

We're happy to support the purchasing of equipment in accordance with the sound and vibration's specification.

Project work

We act as an integrator between the various parties involved with the project, including clients, machine suppliers, the building contractor as well as ventilation, piping and plumbing suppliers.

Simulating sound levels

Once projects are underway, we simulate internal and external sound levels.

Control

Once the plant is up and running, ÅF monitors sound and vibration levels. If necessary, additional measures are recommended. Measurements are also carried out for CE marking of production equipment.

Know-how at the heart of efficient solutions



Our sound and vibration experts base their solutions on solid theoretical grounds. By working closely with technical colleagues and following the trade science news, we always have access to the very latest findings within sound and vibration.

We use this knowledge to recommend efficient and safe measures within industry. What's more, the experience gained over the years serves to provide customers with better and better solutions. Add to that our seminars and courses, and it's easy to see why customers gain from working with ÅF.

Shop talk permitted

In a potato chip factory, there are numerous sources of noise, such as potatoes falling into a sheet-metal container or blowing noises from pneumatic components and cylinders. The Nordic snack producers Estrella and Maarud work actively to reduce noise levels in their plants. A special team was set up to solve the problem, with representatives from management, personnel and ÅF.

The employees were asked to fill in questionnaires

to identify the most irritating sources of noise. Selected employees also wore monitoring equipment in order to measure and evaluate the daily doses of sound. This process allowed us to identify key sources of noise before

deciding on measures.

A few examples of remedies: Pneumatic knives replaced noisy nozzles, and new, adjustable, sound-dampened cylinders eliminated the beating sound of the older ones. The aim is to achieve a maximum sound level of 75 dB(A) in the packaging plant, compared to today's 80 dB(A). That should get everybody talking.

Low noise levels in the surroundings

Many industries are situated close to offices and residences. That's why paper and steel mills, chemical plants and manufacturing industries are working hard to lower noise emissions to their surroundings. Not surprisingly, our services are in growing demand. We identify and measure all sources of noise and compile the results in a simulation program. This allows us to predict the level of sound emitted to the surrounding area. Measurements at selected points around the plant verify the results. A sound model is then used to suggest remedial measures as well as helping to assess the consequences of factory extensions and other changes.

Thanks to ÅF's competence, experience and state-of-the-art measuring and calibration equipment, noise emission from fans, ventilation shafts, cooling towers, compressors and transports are minimised. Follow-up measurements verify that actions taken have had the desired effect. This is often a requirement stipulated by local authorities.

Solutions for plants in operation



Whatever the problem, ÅF makes a point of working intimately with industrial customers and machine suppliers. Often, an increase in production rate causes noise and vibration due to resonance in machines and buildings.

Quick fix

If there's a problem with sound and vibration, we'll be on site to fix it – fast. Our experienced consultants use sophisticated measuring equipment to identify the cause of the problem – often within 24 hours. We then propose action plans, inspect the implementation of the solution and carry out new measurements to ensure our designs are glitch free.

Ongoing supervision

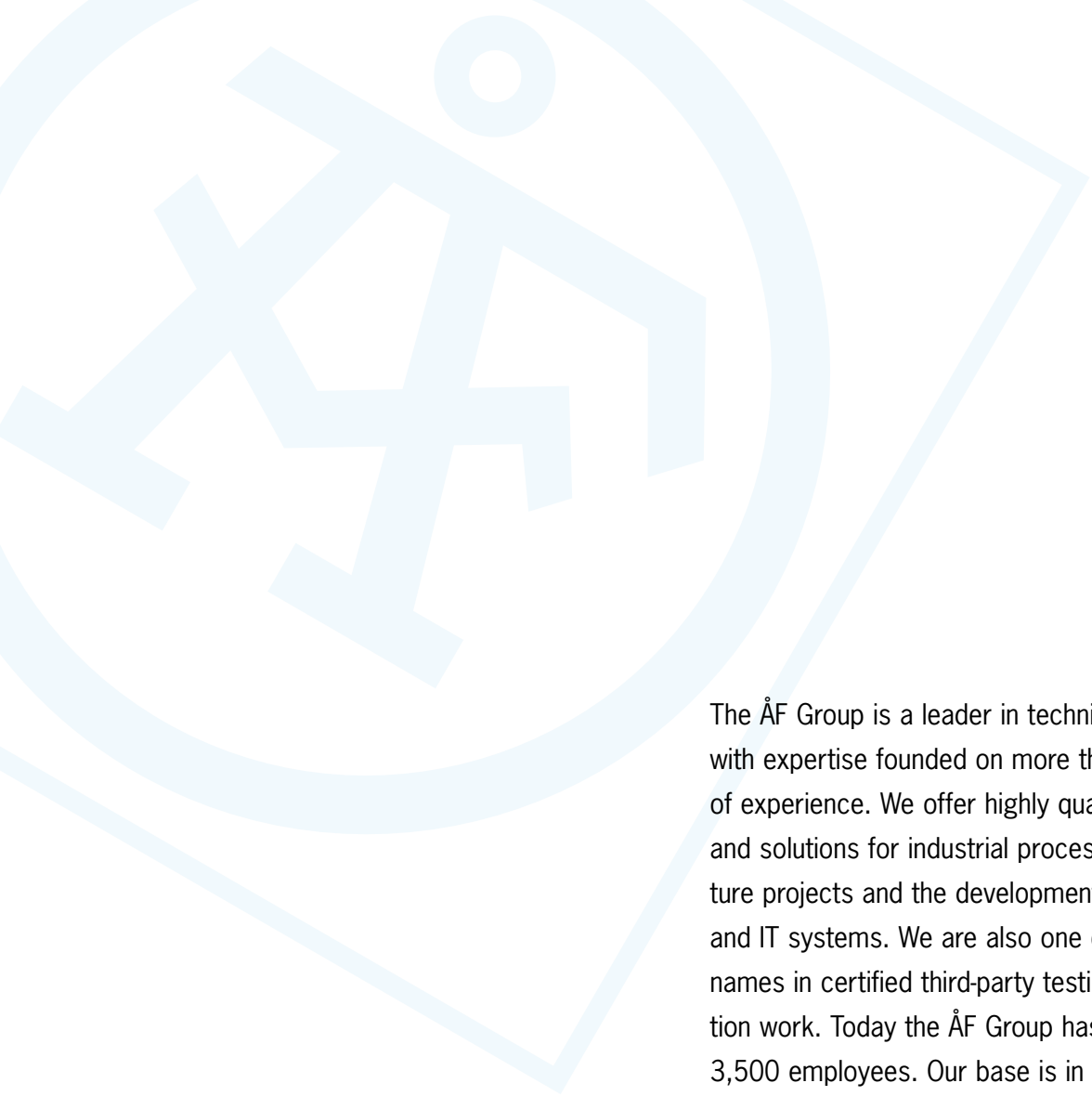
An alternative to our emergency service is to contract us for frequent sound and vibration checks. At regular intervals we carry out measurements – in effect your plant is subjected to a diagnostic process. This way, we're able to prevent excessive wear and tear as well as breakdowns. The result? All the necessary service and maintenance can be carried out during planned production stoppages, significantly cutting costs.



There are in principle three kinds of mitigation measures for sound radiation and structural vibration reduction: mass, stiffness and damping. We know what is the optimal choice. By introducing damping to the structure of the building, minimising the drop height of the logs and optimising the design of the hoods, sound levels in a timber handling operation could be lowered from 95-110 dBA to approx. 85 dBA.



By employing regular sound and vibration checks, ÅF is able to ensure that the necessary service and maintenance is carried out at the right time.



The ÅF Group is a leader in technical consulting, with expertise founded on more than a century of experience. We offer highly qualified services and solutions for industrial processes, infrastructure projects and the development of products and IT systems. We are also one of the leading names in certified third-party testing and inspection work. Today the ÅF Group has more than 3,500 employees. Our base is in Europe, but our business and our clients are found all over the world.

