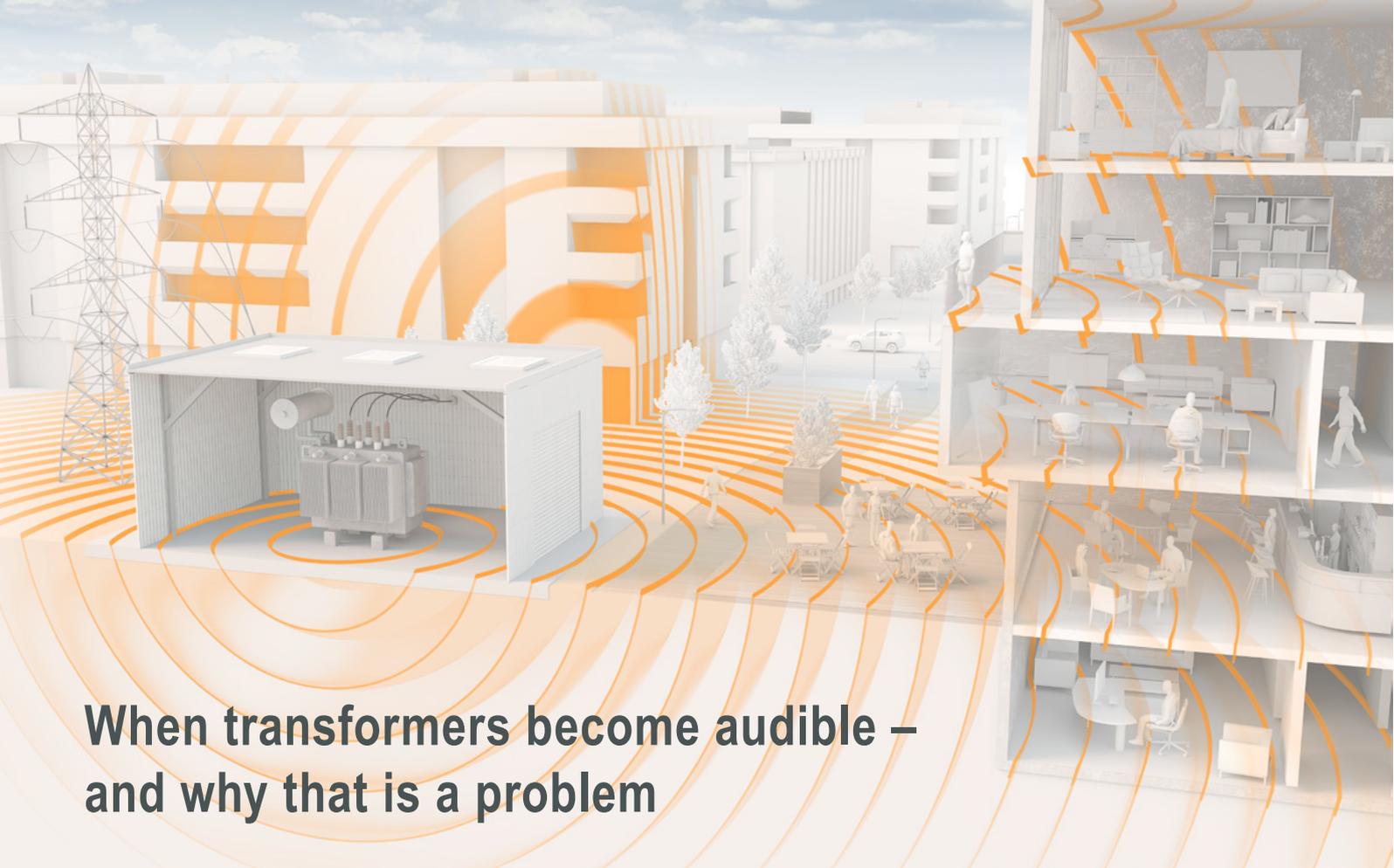


Vibration Isolation of Transformers





When transformers become audible – and why that is a problem

Transformers are the core of any power distribution system. What is often underestimated in operation: Every transformer generates mechanical vibrations. These result from electromagnetic forces inside the unit - particularly magnetostriction in the laminated core (especially at 100 Hz), load changes, short-circuit forces, and switching operations.

Without proper vibration isolation, these vibrations are transmitted directly into the foundation, the building structure, and adjacent components. The result is structure-borne noise transmission. What originates inside the transformer quickly becomes noticeable outside: an audible hum, vibration or noise in neighboring rooms, or even interference with sensitive equipment.

Once introduced into the structure, vibration can propagate freely and may even be amplified by resonance effects. Predicting the transmission path is practically impossible. Therefore, the issue must be addressed directly at the source.

Application Areas:

- **Substations in residential or mixed-use areas**
- **Transformer stations in hospitals, schools, or office buildings**
- **Industrial facilities with sensitive equipment**
- **Integration into existing buildings sensitive to structure-borne noise**

The real risk often becomes apparent only after commissioning. Complaints from nearby residents, regulatory requirements imposed by environmental authorities, or costly retrofits can result in delays, additional expenses, and avoidable complications.

Past projects have shown that the use of GERB vibration isolation systems provides reliable protection against structure-borne noise.

Vibration Isolation of Transformers – properly supported from the beginning

Transformers are permanently decoupled from the building structure by means of GERB spring elements. Operational vibration is effectively reduced at the source, preventing transmission into foundations, the building, or adjacent components. Structure-borne noise and resonance excitation are minimized. The results are: a quiet, disturbance-free operation, protection of the structure, and significantly improved operational reliability over the transformer's entire service life.

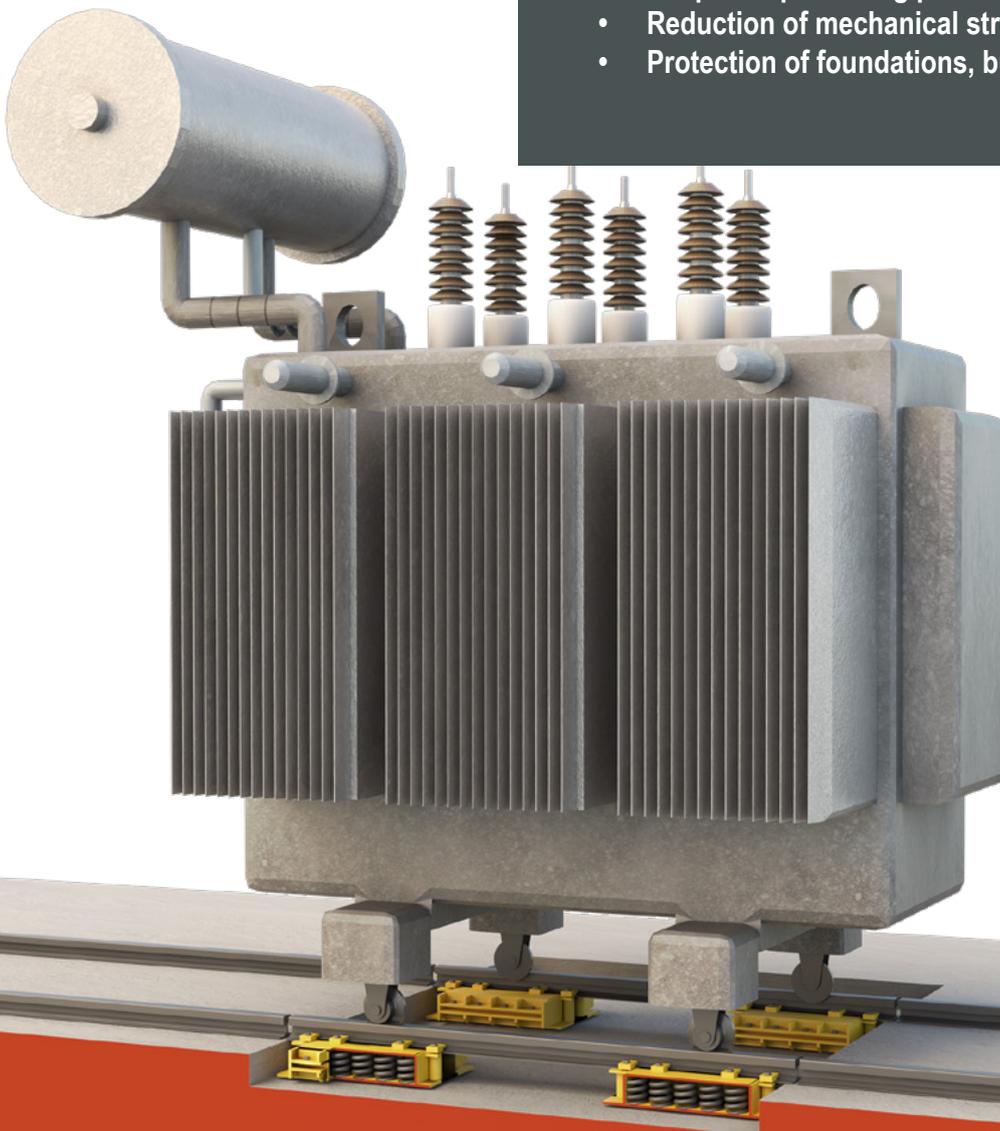
Our solutions are designed for practical, project-ready implementation. They can be integrated easily into new installations as well as existing transformer stations. Installation is straightforward and does not require significant planning or coordination effort for operators or project stakeholders - ensuring noise control and planning certainty from the outset.

GERB Vibration Isolation Delivers:

- Decoupling of structure-borne noise
- Prevention of secondary airborne noise
- Facilitates compliance with noise ordinances
- Simplified permitting procedures
- Reduction of mechanical stresses
- Protection of foundations, buildings, and adjacent equipment

Example:
Vibration Isolation of a transformer on rails.

Installation can also be carried out with the unit mounted directly on the supporting substructure (without rails)



Vibration Isolation of Transformers - Step by Step

1. Your information

Provide us with the design data:

- Transformer weight
- Dimensions of the installation area
- Installation and environmental conditions
- If mounted on rails: type of rail profile

2. Our design

We select the optimal GERB spring elements for you - tailored to load, frequency range, and safety standards. We determine the most efficient solution for your application - with or without preloaded isolators.

3. On-site Preparations

Before installing the transformer, the spring elements are put in place. Depending on the installation type, the rail profiles can then be mounted. The final height is adjusted using shims.

4. Transformer Installation

The transformer can now be installed and filled as usual.

For installations on preloaded elements, we release the preload in the final step for immediate vibration isolation.

Retrofit of vibration isolation is possible under the following conditions:

- Transformer can be lifted or moved out
- Connections and insulators can be disconnected and repositioned
- Overall height changes must be accounted for
- Check door and enclosure clearances

We generally recommend incorporating vibration isolation already during the planning phase.

Did you know?

Height differences or future settling can be compensated afterward using adjustable GERB spring elements - without any complex modifications.



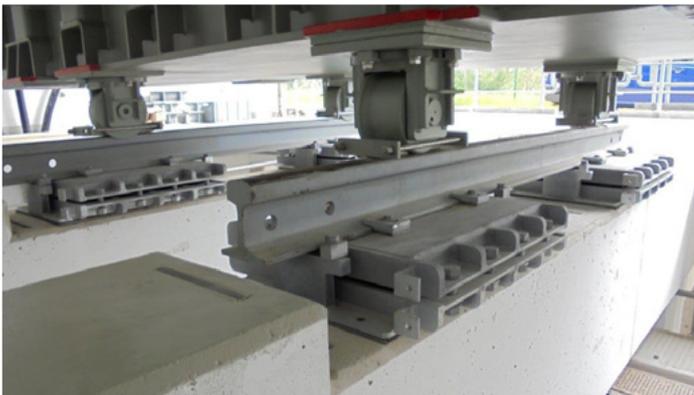
Why vibration isolation adds real value

Effective vibration isolation significantly reduces disruptive noise and vibration that could otherwise be transmitted to adjacent rooms or buildings. It also helps ensure compliance with regulatory requirements for noise emissions and contributes to extending the transformer's lifespan.

At the same time, both the transformer and the building are reliably protected from harmful mechanical stresses.

Key benefits at a glance:

- Effective decoupling of structure-borne noise
- Reduction of secondary airborne noise in the building and surroundings
- Easy implementation
- Planning certainty: straightforward interface for design and installation
- Adjustable height for future modifications
- Long-term protection throughout the transformer's service life
- Greater acceptance by nearby residents





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**VIBRATIONS CAN BE CONTROLLED
– WHEREVER THEY OCCUR**