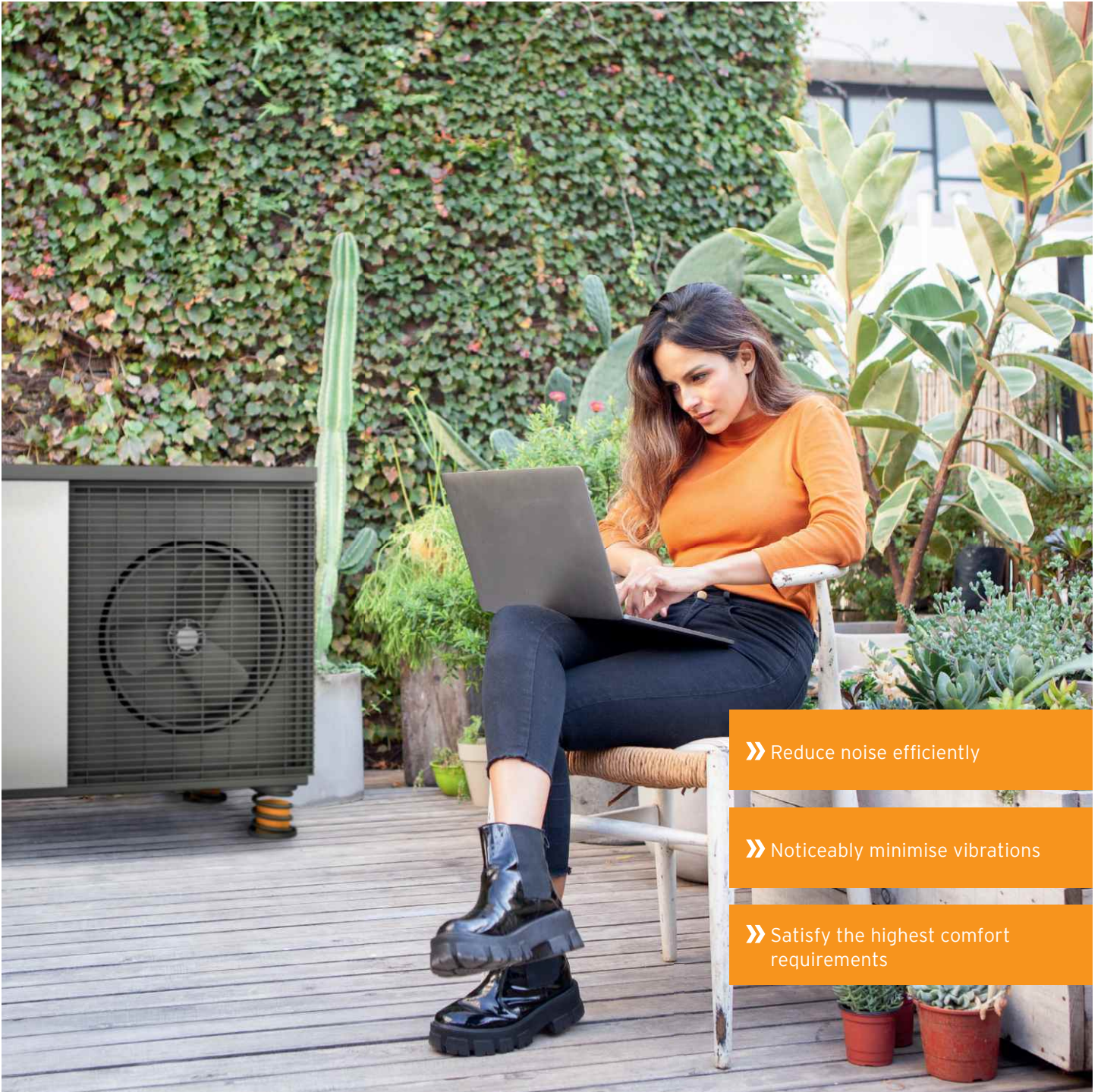


Vibration Solutions for Heating, Ventilation and Air Conditioning



» Reduce noise efficiently

» Noticeably minimise vibrations

» Satisfy the highest comfort requirements

Noise is a key issue now and will remain so in the future.

Noise as a challenge

We are moving ever closer together in urban areas - living, working, sports and leisure facilities are being built in close proximity and are increasingly coming together under one roof. At the same time, we enjoy the comfort afforded by modern building technology, delivered by devices that do not operate silently. All this leads to a growing potential for conflict because people are becoming increasingly aware of noise as a disruptive factor.



Comfort

Awareness of noise

Urbanisation

The route to quieter devices

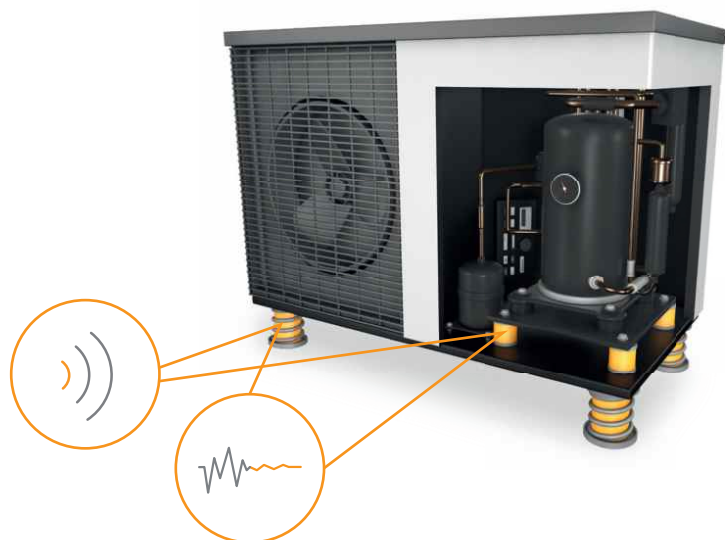
Airborne noise and structure-borne noise: a holistic view of noise

"The heat pump is noisy. It hums. I can't sleep." Acoustic hoods are frequently used as solutions in such cases, whereby direct noise (airborne noise) is rarely the trigger of the problem, and such measures are not target-oriented.¹

»» *A very large number of the noise events that reach our ears are generated or propagated by vibrating solid objects [...]. Protection against the generation and transmission of structure-borne noise is therefore of central importance.²*

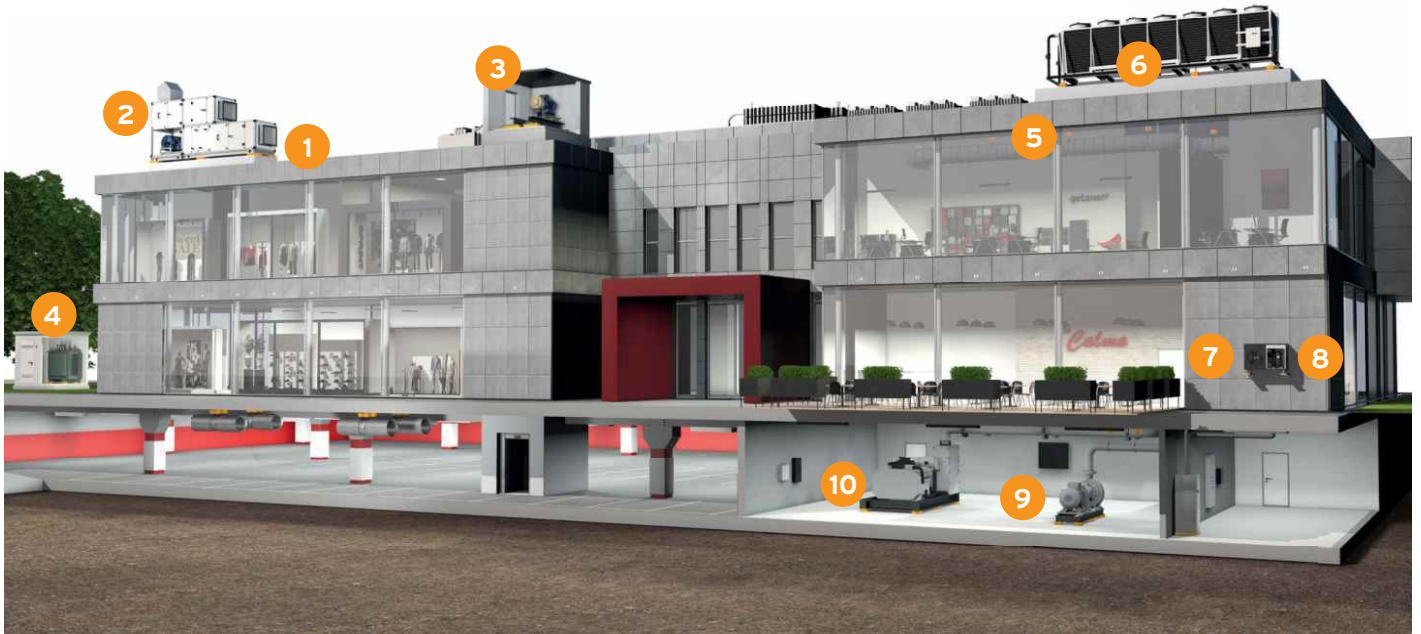
Efficient vibration isolation reduces airborne and structure-borne noise

Well-designed insulation prevents the transmission of vibrations to adjacent parts of the building and, as such, the formation of structure-borne noise (secondary airborne noise). Furthermore, the correct bearing of components, such as the compressor or the fan, reduces the excitation of housing parts and therefore has a direct influence on the primary airborne noise.



¹ [Determination and evaluation of low-frequency noise in the vicinity of residential buildings], Federal Environment Agency, 2020
² Cremer, Heckel (2009): [Structure-borne noise - physical fundamentals and technical applications], newly edited by M. Möser and W. Kropp, 3rd updated edition, ISBN 978-3-540-40336-4, Springer Verlag

Our solutions for your HVAC equipment

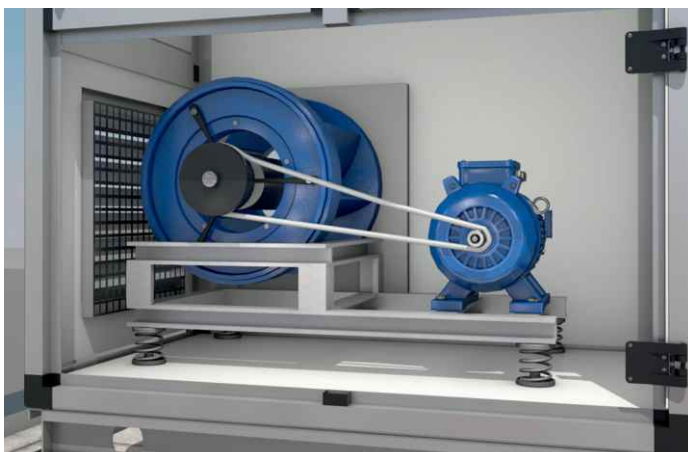


1



Air handling units

Modern air handling units (AC) or air conditioning units are usually installed on mezzanine floors or on the roof. The fans, in particular, but also the air flows themselves, generate vibrations that can be heard in adjacent rooms as structure-borne noise.

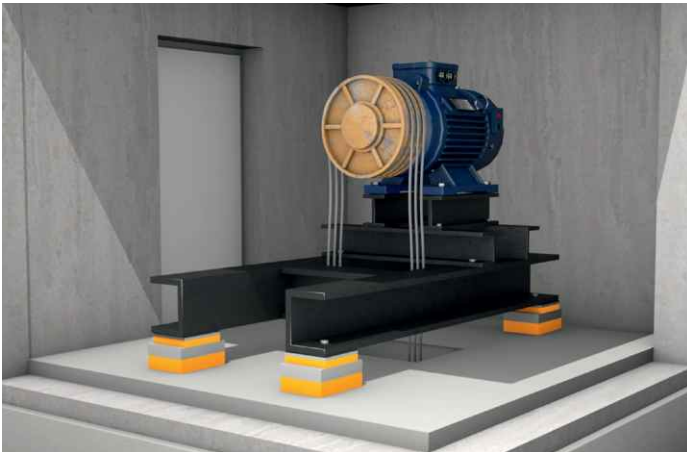


2



Fans

Fans generate noise and vibrations due to rapid rotations, imbalances of the impeller or the drive motor.



3

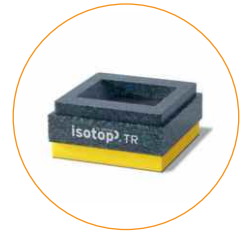


Lift systems

During lift system operation, the starting, stopping and general movement of the cabin generate vibrations that are transmitted to the structure of the building and perceived as structure-borne noise.



4



Transformers

Structure-borne noise is transmitted from the transformer core via the contact surfaces (e.g., the rollers) into the foundation. The operation of transformers within buildings or in the immediate vicinity of buildings is therefore often perceived as unpleasant and disturbing in residential areas and workplaces.



5



Pipes

Pipes in building services equipment leading from or to energy sources (AC, CHP, etc.) generate structure-borne noise and must be considered as a whole when decoupling the system from structure-borne noise.

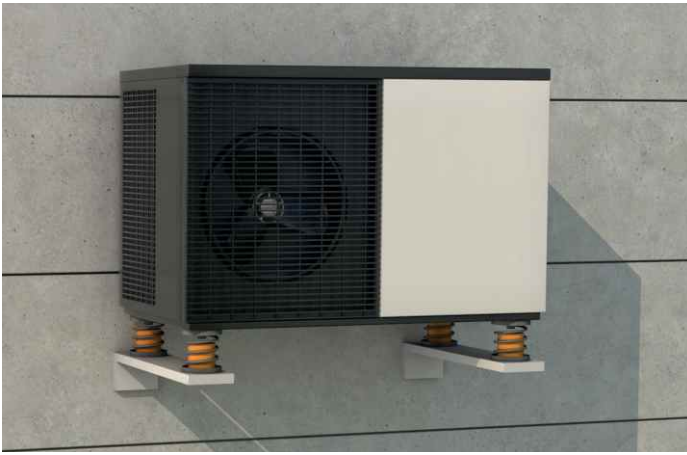


6



Chillers

Refrigeration systems and units are usually installed on the roof. The fans and/or compressor used generate strong vibrations, which are introduced into the building structure if there is no elastic bearing.



7



Heat pumps

Heat pumps develop vibrations and structure-borne noise, primarily due to the compressors used.



8



Compressors

Compressors are found as components in various systems, such as heat pumps or air conditioning units. The vibrations to be decoupled are caused by the compression process of the refrigerant.

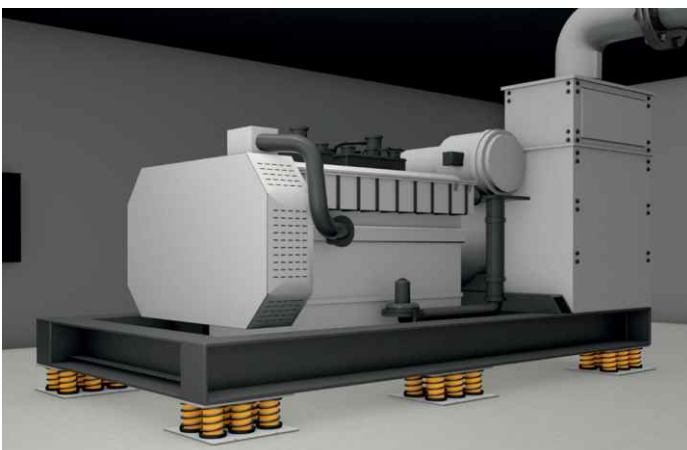


9



Pumps

Pumps usually convey liquid media with different viscosities. Depending on the medium, pressure and conveying distance, extensive structure-borne noise insulation must be considered.



10



Combined heat and power plants

In addition to the emergency power supply, e.g. in hospitals, power generators with combustion engines are also used as cogeneration plants for simultaneous heat recovery. These generate high levels of structure-borne noise and strong vibrations due to their large, moving masses and accelerations.

How you benefit from our solutions

The Isotop series combines the polyurethane materials Sylomer®, Sylodyn® and Sylodamp® from Getzner with metal elements and screw connections.

Installing the products is therefore convenient and time-efficient, making them ideally suited for use in building technology. Isotop® provides you with unique advantages when used as a machine bearing under your HVAC equipment.



Quieter equipment thanks to efficient vibration isolation



Reduced secondary airborne noise even in critical installation locations
(e.g. roof-top installation, mezzanine floors, etc.)



Time and cost savings during design, procurement and installation



Reduced maintenance costs

↓ All products at a glance

Find out more in our product catalogue or use our EquipCalc online selection program.

Product catalogue:

Machine bearings for building services equipment
www.getzner.com/catalogue-hvac

Further documents such as brochures, measurement reports and application descriptions can be found in our download area under

www.getzner.com/downloads

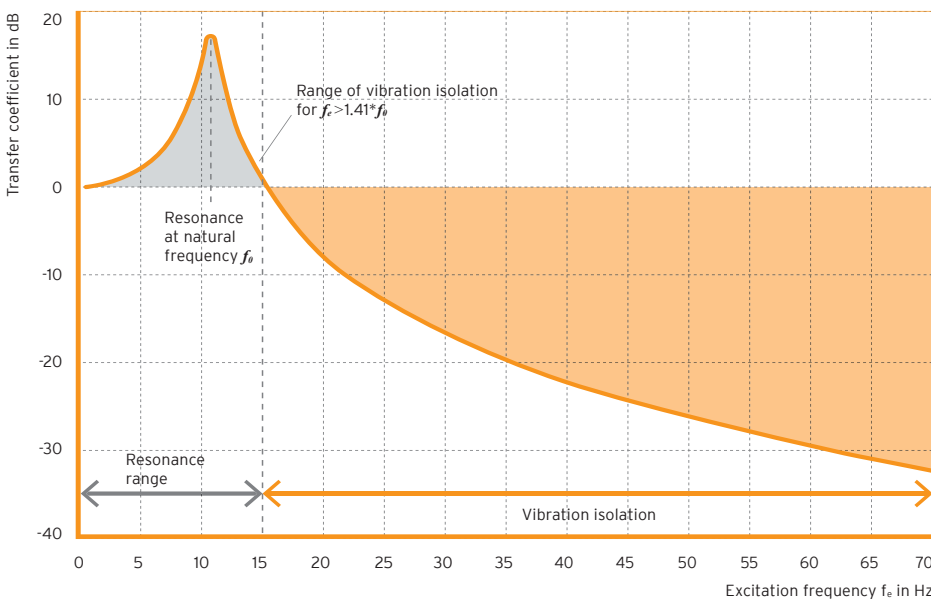


Efficient vibration isolation - thanks to Getzner polyurethane



Material with unique properties

Polyurethane (PU) brings with it the major advantage that it softens under dynamic stress. Compared to other materials (in particular rubber), it achieves a higher insulating effect during the operation of classic HVAC equipment.



Vibration isolation simply explained

The decisive factor for efficient vibration isolation is the ratio of the excitation frequency (f_e) and the natural frequency of the vibration isolation (f_0)

$$\eta = \frac{f_e}{f_0}$$

If the ratio is 1, the device is in resonance and swings back and forth. The vibration isolation becomes effective at a ratio of 2.

An efficient vibration damper:

- Offers a low natural frequency
- Is durable and long-lasting
- Ensures constant, efficient vibration isolation

Find your solution

With our EquipCalc online selection tool, you can find the right Isotop machine bearing for your application - it's quick, easy and always up-to-date.



Find more information on this topic at www.getzner.com/calculation-tools





Developed
and produced
at the heart
of Europe

Put your trust in the innovative solutions from Getzner

We are the world's leading expert in vibration isolation, thanks to many years of experience in the development, production and application of our materials. This expertise allows us to design the materials in a wide variety of shapes and gradations. With our Sylomer®, Sylodyn®, Sylodamp® and Sylocraft® materials, we cover a wide range of properties - from springy to damping. When connected with metal springs and elements, they become Isotop machine bearings that are easy to install.

No softeners are used in the production of polyurethane, meaning it does not become brittle and the chemical composition and material properties remain constant for decades, regardless of the ambient conditions.

We have been making use of these properties for over 50 years. Our customers benefit from our customised services, while our calculation programs facilitate independent layout and design. Our experts will be happy to support you if required.


We look forward to hearing from you.

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We are the leading specialist in vibration protection and ...



... reducing vibrations



... lowering noise levels



... reducing maintenance and service requirements



... extending the service life of bedded components