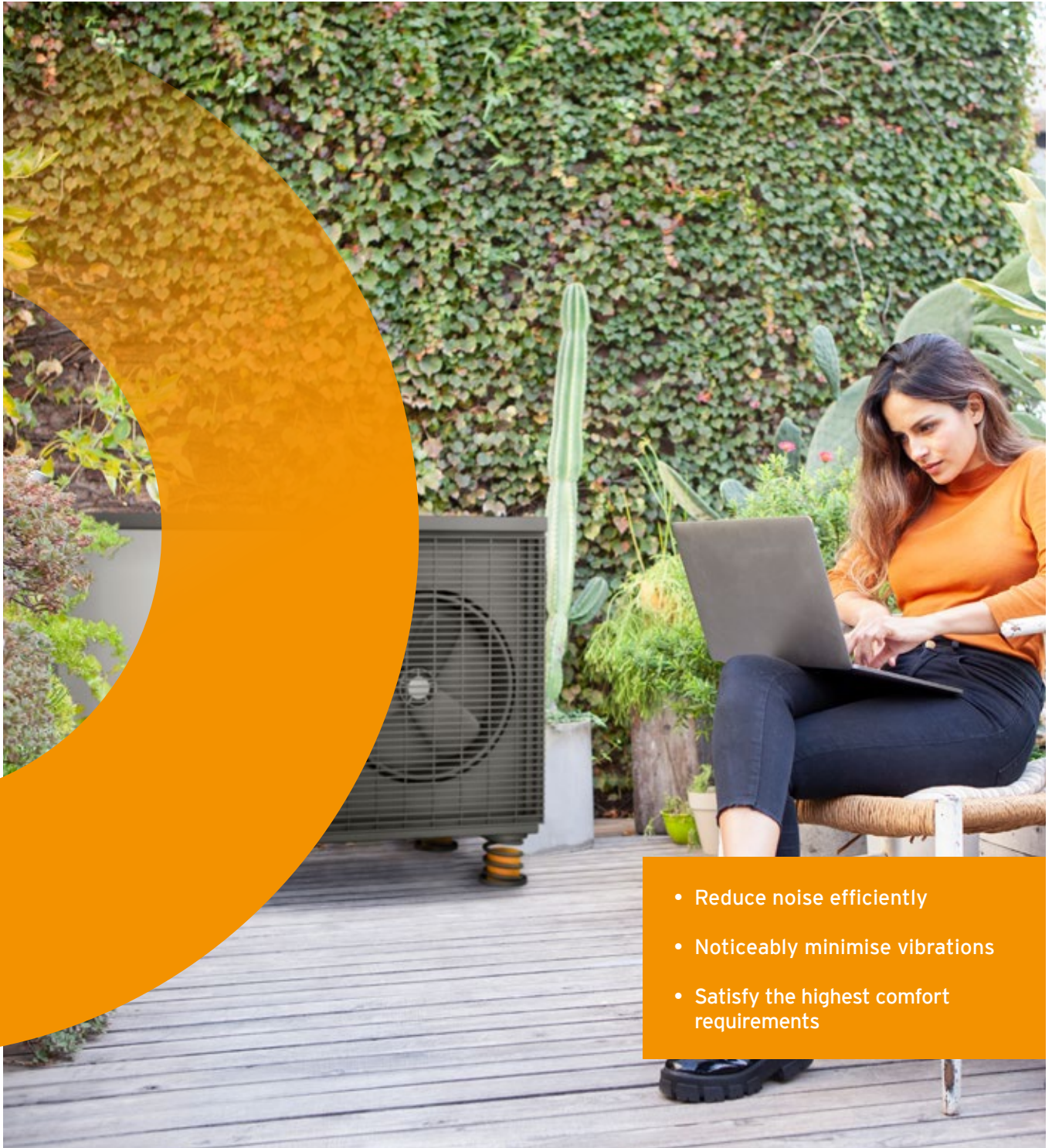


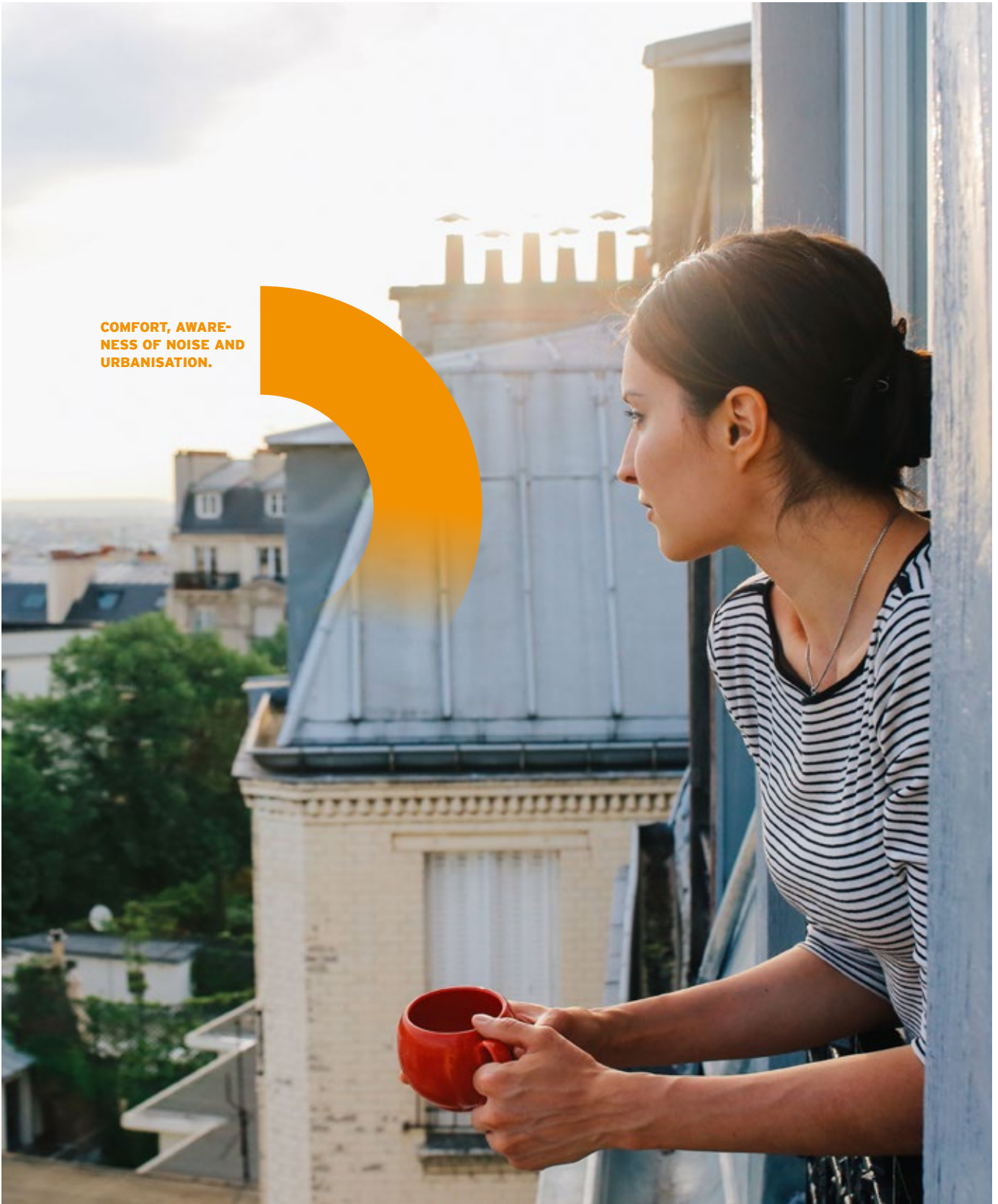
ELASTIC BEARING OF HVAC EQUIPMENT



- Reduce noise efficiently
- Noticeably minimise vibrations
- Satisfy the highest comfort requirements

**VIBRATION SOLUTIONS FOR HEATING,
VENTILATION AND AIR CONDITIONING**

getzner



COMFORT, AWARE-
NESS OF NOISE AND
URBANISATION.



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.

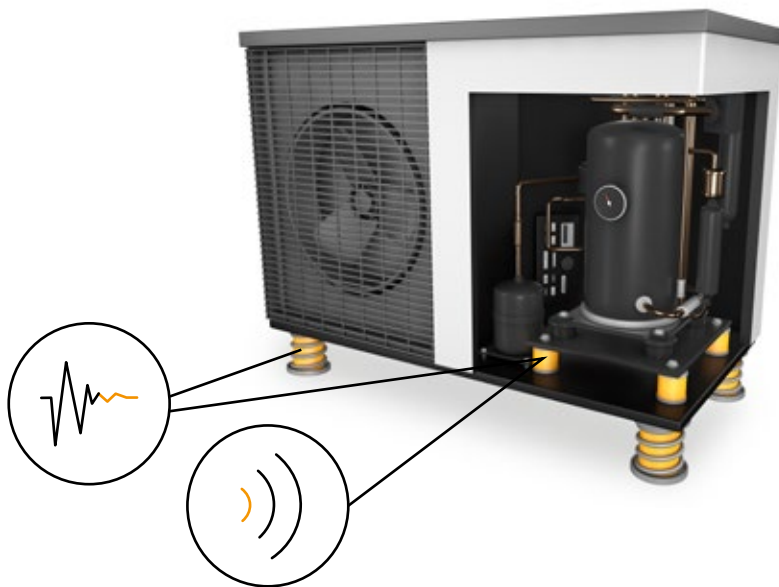
Cremer, Heckel (2009): [Structure-borne noise – physical fundamentals and technical applications], newly edited by M. Möser and W. Kropp, 3rd updated edition, ISBN 978-3-540-40336-4, Springer Verlag

NOISE AS A CHALLENGE

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

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.

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

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



Heat pumps

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



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.



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.



Fans

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



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.



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.



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.



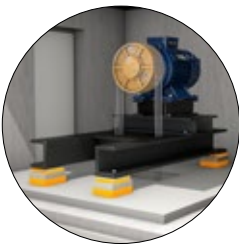
Pipes



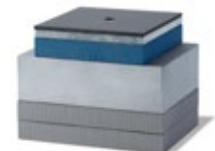
Pipes in building services equipment leading from or to energy sources (AC, CHP, etc.) generate structure-borne noise and must be considered as a whole when decoupling the system from structure-borne noise.



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.



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.



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catalogue-hvac

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



Time and cost savings during design, procurement and installation



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



Reduced maintenance costs

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.



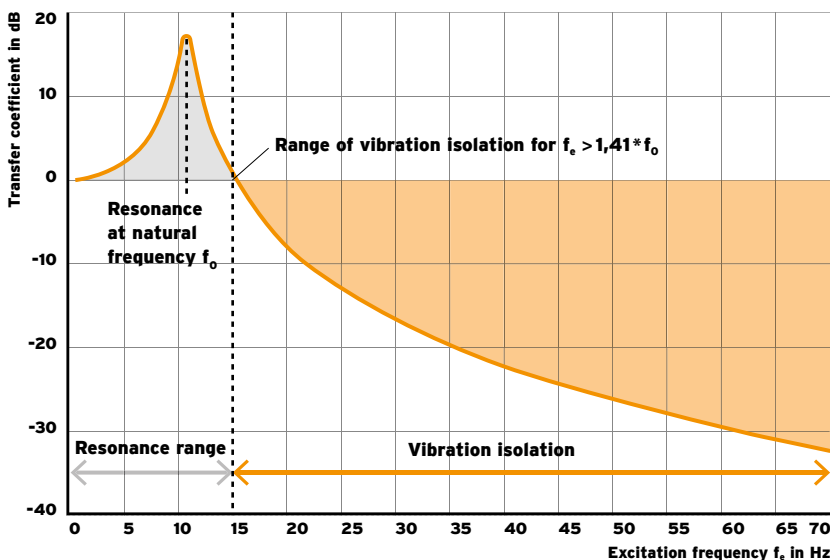
www.getzner.com/calculation-tools

Material with unique properties



Efficient vibration isolation - thanks to Getzner polyurethane

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



Getzner Werkstoffe, Bürs

ENGINEERING A QUIET FUTURE

We are proud to be the leading global expert in vibration isolation and protection for the railway, construction and industry sectors.

Our innovative products are based on our proprietary materials, such as Sylomer®, Sylodyn® and Sylodamp®, and are complemented by spring elements like Isotop.

Our applications effectively reduce vibrations and noise. They also reduce wear, extend the service life of the bedded components and help to improve usability, quality and comfort.

We specialise in offering integrated solutions and targeted services for sustainable vibration isolation, based on intensive research, climate-friendly production and decades of experience.

getzner.com

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