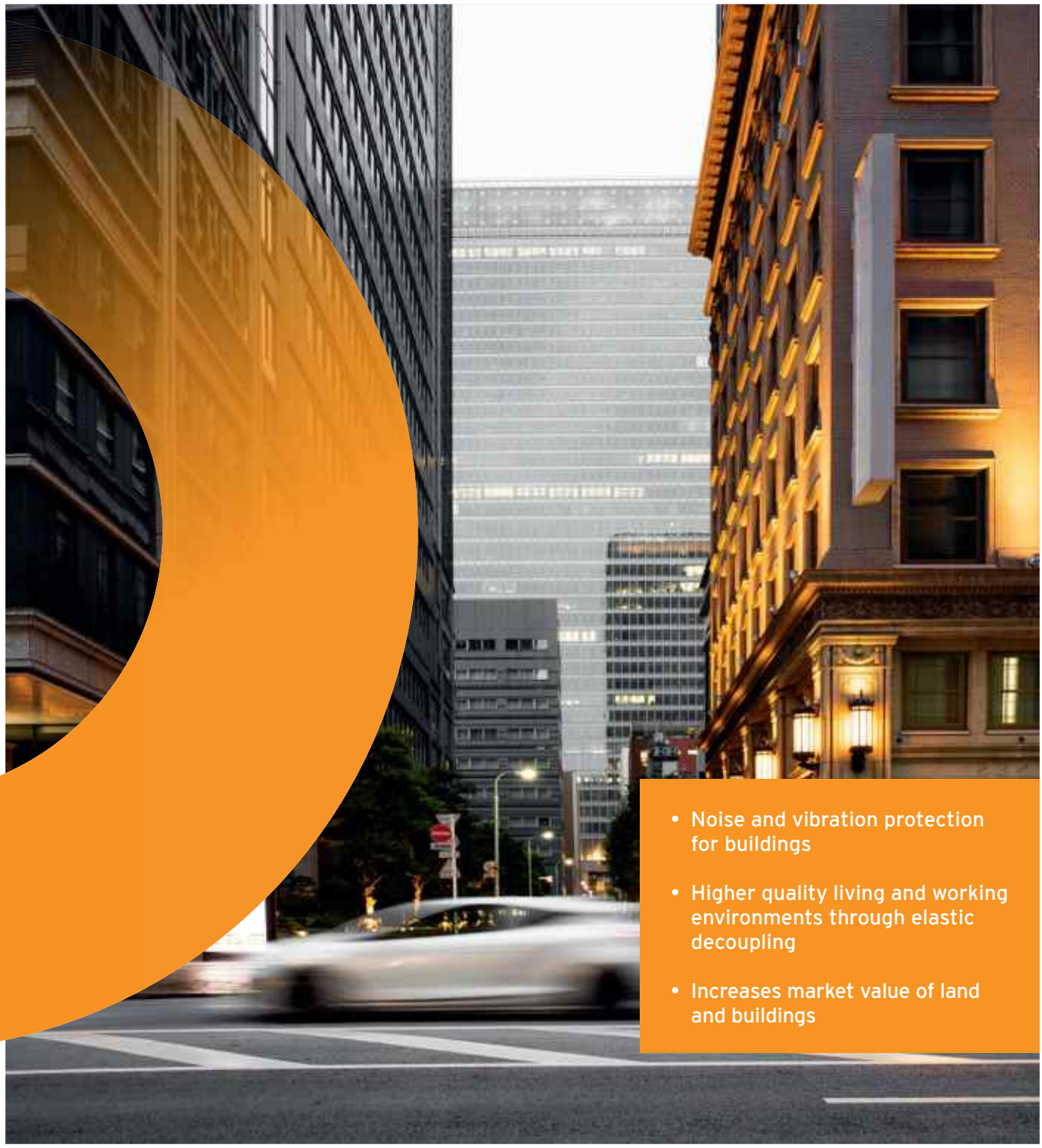
BUILDING ISOLATION



- Noise and vibration protection for buildings
- Higher quality living and working environments through elastic decoupling
- Increases market value of land and buildings

EFFECTIVE VIBRATION PROTECTION
for quiet living in urban areas

getzner

PROTECTING BUILDINGS FROM VIBRATIONS

RELIABLE PROTECTION AGAINST VIBRATIONS FROM EXTERNAL SOURCES.

Central & Park Panorama Towers, Munich

From opera houses in the midst of rumbling traffic to homes and offices alongside underground and tram lines, individual vibration solutions from Getzner provide buildings with a highly efficient form of decoupling and protect against disruptive shocks and vibrations. Solutions based on polyurethane materials developed by our own experts ensure peace reigns inside buildings, thereby improving the quality of life and providing a more civilised working environment.

PASILAN KESKITORNI Helsinki
© JKMM Architects

Growing rates of urbanisation are resulting in ever more new buildings springing up on plots of land that are susceptible to vibration. The vibrations frequently emanate from nearby railway lines, roads or adjacent industrial complexes. Unless appropriate action is taken, these buildings are defenceless against the structure-borne noise generated in their immediate environments: unwanted and occasionally even unacceptably severe vibrations are the result. Secondary airborne noise levels also rise, as the vibrations excite elements such as the walls or ceilings. External factors such as these have an unfailingly adverse effect on the living and working environment inside the building.

Getzner Werkstoffe offers highly effective protection against shocks and vibrations. Our solutions boost the value of buildings and land. Successful projects, including the Central & Park Panorama Towers in Munich's Arnulfpark (page 2), serve to demonstrate that even buildings constructed immediately next to busy railway lines can meet the most stringent requirements.

BENEFITS OF A GETZNER VIBRATION SOLUTION

- Proven protection against vibrations from external sources of interference (railway traffic, industrial plants, roads)
- Higher quality of living and working environments through elastic decoupling
- Increase in market value of land and buildings
- Pioneering and lasting solution for maximum comfort

THE CHALLENGE IN PROTECTING AGAINST SHOCKS AND VIBRATIONS

A planner's task is not only to construct a building that complies with the relevant regulatory standards, but also to meet the particular requirements of the customer. The diverse range of parameters with a vibration isolation dimension have to be collated and implemented according to the defined goals and objectives. This is where Getzner comes in.

Recipient and source isolation

In the vibration engineering industry, a distinction is made between recipient isolation and source isolation.

- Source isolation describes measures taken at the source of the vibration (i.e. railway lines, roads, industrial facilities). Examples include elastic measures implemented on the rail superstructure or decoupled machine foundations.

- Recipient isolation is a solution that decouples a structure from surrounding vibrations directly at the point where the impact is felt. This is where the elastic bedding of buildings is used.

Source isolation is generally the more efficient approach. However, as many projects involve sources that cannot be isolated retrospectively, Getzner offers effective yet affordable solutions for isolating the recipient against vibrations.

Anti-vibration measures for recipient

1. Full-surface bearings for buildings using side mats
2. Strip bearing of buildings or structures
3. Discrete bearing of buildings or structures
4. Slot wall between existing source and recipient

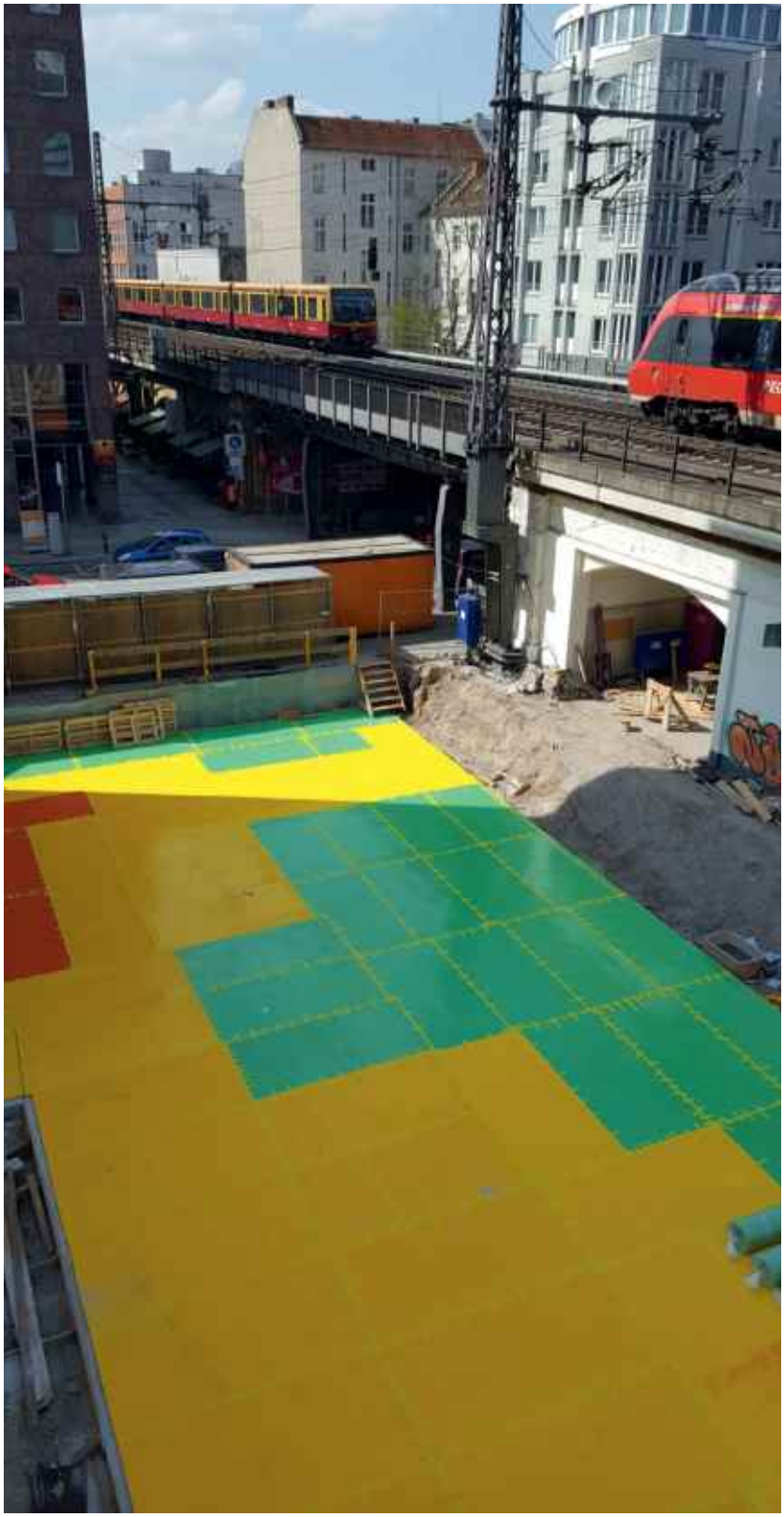
Sources

- A Rail traffic, light railways, trams, etc.
- B Underground rail traffic
- C Industrial complexes, machinery, etc.
- D Building service installations

RESULT

- Greater usage potential
- Greater comfort in the building
- Increases market value of buildings and land

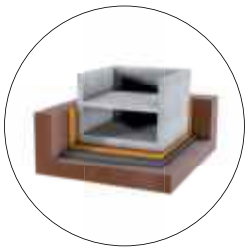
MEASURES



Appropriate measures for reducing vibrations

Getzner materials combine all the properties needed to provide effective elastic shielding of buildings.

With Sylomer® and Sylodyn®, planners have at their disposal technical elastic bearing materials that permit a variety of different designs.



Full-surface building isolation

- Easy to shape and install
- Achieves lower natural frequencies
- Relatively little subsoil preparation
- No changes to the building design needed

Example: Central & Park Panorama Towers, Arnulfpark, Munich (DE):

Requirement:

Protect a building constructed on a plot with pressurised groundwater from the vibrations caused by a busy light rail line

Solution:

- Anti-vibration layer between the binding layer and the building foundation
- Architectural measures to transfer loads to bearing strips or individual bearing points are not required

Result:

- Proven effectiveness, even in pressurised groundwater
- Limited structural vibrations in the foundation slabs due to the continuous support surface

getzner.com/
full-surface-building-isolation

Linear building isolation

- Bearing on strip foundations
- Lower material costs
- Achieve very low natural frequencies

Example – Keskitorni, Pasila (FI):

Requirement:
Vibration protection of a office tower complex against vibrations from a busy railway line

Solution:
- High-resilient point and strip bearings for elastic decoupling of the building
- Full-surface bearings between the strip foundations for vibration isolation of the floor slab

Result:
- Low material consumption with high effectiveness
- Optimum load transfer via bracing walls directly into the the foundations
- 43,000 m^2 floor area safely decoupled

getzner.com/
linear-building-isolation

Point-support building isolation

- Vibration isolation of buildings on single and pile foundations
- For heavy load zones
- Filling material ensures optimal performance

Example – Optineo München (DE):

Requirement:
Elastic isolation of an area with pile foundations

Solution:
- High-resilient, circular elastomer bearings made of Sylodyn® HRB HS placed on the pile heads
- Filling material made of Sylomer® in the gaps

Result:
- Building load is concentrated and safely transferred
- Undisturbed workplaces in the offices thanks to efficient vibration insulation
- Simple installation and safe effect

getzner.com/
point-support-building-isolation

Isolation within the building

- Vibration isolation between two floors of a building
- Achieving very low tuning frequencies
- Low material consumption

Example – Residential building, Sannois (FR):

Requirement:
Creating a peaceful environment for the building's residents

Solution:
- Point and linear bearings below the basement ceilings
- High-resilient elastic bearings out of Sylodyn® and Sylodyn® HRB HS

Result:
- Efficient solution combined with the best protection against vibrations
- Easy to install due to manageable dimensions
- High level of safety thanks to visual control

getzner.com/
isolation-within-the-building

Side wall isolation

- Side wall decoupling from the ground combined with full-surface, strip or discrete bearing
- Also suitable for shielding in groundwater
- Retrospective installation on existing buildings possible

Example: The Touraine, New York (US):

Requirement:
Vibration protection for a residential building in the immediate vicinity of three underground railway lines

Solution:
- Elastic shielding of the building's foundation
- Full-surface bearing for the foundation slabs and side walls right up to ground level

Result:
- Total decoupling from the vibration source
- Maximum living quality in the immediate vicinity of underground rail tunnels

getzner.com/
side-wall-isolation

SOLUTIONS AND MATERIALS FROM THE EXPERTS

Sylomer® and Sylodyn®: Getzner materials are an everyday necessity in the rail, construction and industrial sectors. By drawing on this wealth of experience and never resting on our laurels, we constantly refine our materials to create ongoing improved solutions.

Sylodyn® HRB HS for the elastic bearing of high loads exemplifies the innovative zeal embodied by Getzner. Sylomer® and Sylodyn® combine all the properties needed to provide effective elastic shielding of buildings.

Constant and lasting isolating effect

You do not need to just take our word for it that these materials provide exceptional long-term elastic properties: this has been proven in real-life case studies and through independent investigations carried out by external testing institutes. For example, from its work on the material Sylomer® with railway applications, the TU München has concluded that a product lifetime of 100 years can be expacted in the field of bedding of buildings – without any deterioration in performance.

Water-resistance

Structures below groundwater level present a particular challenge to elastic materials. Polyurethane materials from Getzner are the perfect elastic decoupling solution, even for buildings in pressurised groundwater, something that has been demonstrated on reference projects.

Flammability

The flammability of Sylomer® and Sylodyn® is classified according to EN 13501-1 as Class E.

Standards, approvals

The elastomers Sylomer® and Sylodyn® are universal products that deliver maximum isolating values and have proven themselves time and time again under a range of conditions in various applications. The following institutes have verified the effectiveness and suitability of Getzner materials:

- Arsenal Research, Vienna
- Fraunhofer Institute for Building Physics, Stuttgart
- Testing and Research Institute of Magistrate District 39 of the City of Vienna
- TÜV Rheinland, Institute for Environmental Protection, Cologne
- TU München, Prüfamt für Bau von Landverkehrswegen [Department of Inland Transport]
- Chinese Academy of RailwaySciences (CARS)

Getzner's manufacturing processes comply with certified quality management (ISO9001) and environmental management (ISO14001) systems. All physical and chemical properties of each product are presented in detailed data sheets.

Sylodyn® Construction Series

ECONOMICAL PRODUCT BENEFITS

- Improved efficiency of vibration isolation
- Future-proof solution for the highest demands
- Optimised design thanks to new thickness types
- Improved sustainability through reduced material consumption

Sylodyn® Construction Series

The product series optimised for full-surface building isolation is based on our verified and proven Sylodyn® material, which has been used successfully around the world for decades and whose long-term capability has been confirmed in various measurements.

A new thickness gradation enables a targeted design for the required tuning frequency.

The material is closed-cell and can therefore also be used in groundwater without any loss of performance.

getzner.com/sylodyn-construction-series

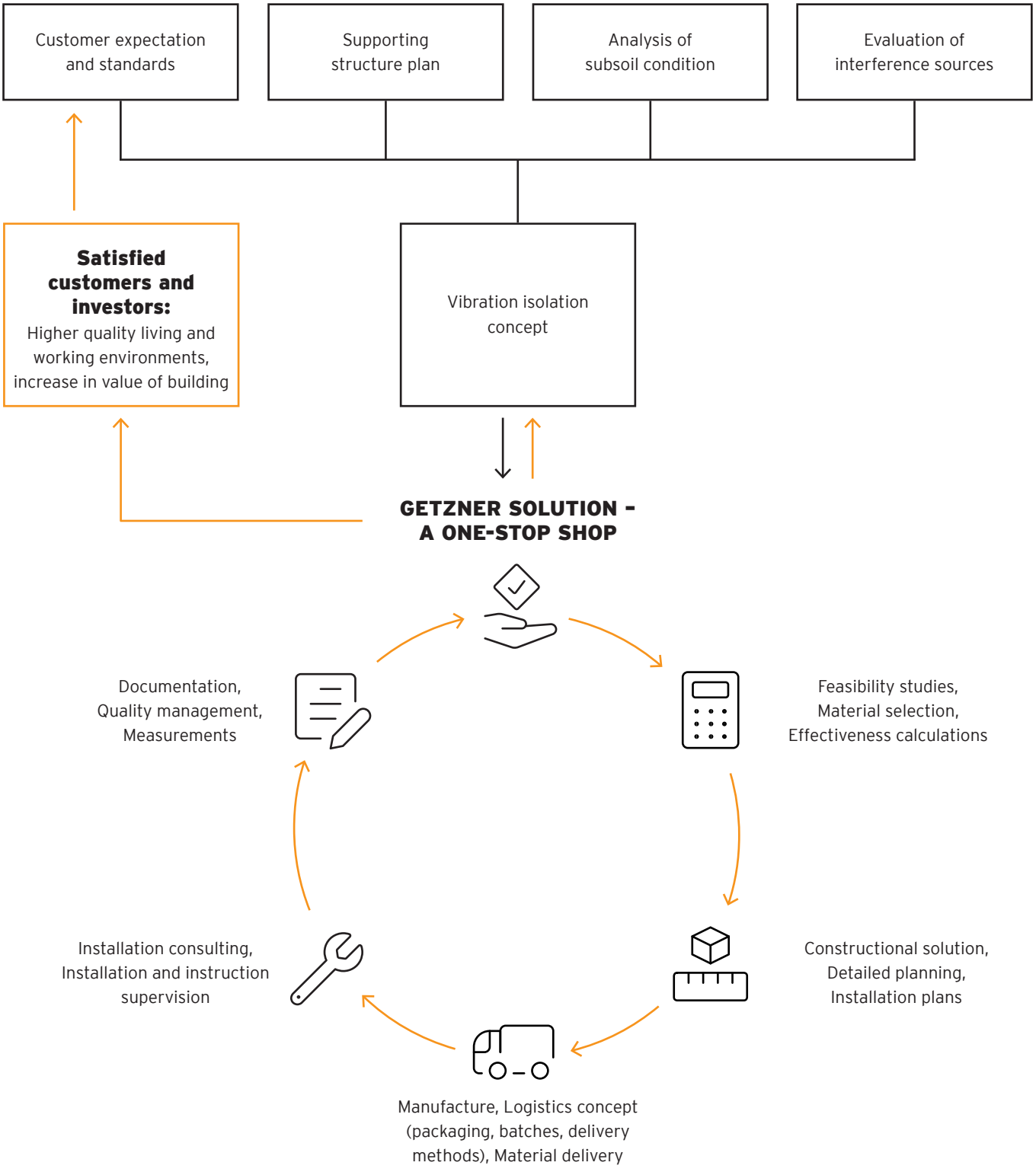
SPECIALIST SERVICES IN THE FIELD OF VIBRATION ENGINEERING

Getzner is happy to advise on all application matters. This includes testing and honing materials for special applications. Getzner's Bürs site is home to a range of specialist testing equipment and laboratories, which are constantly updated with the latest technology. Even universities take advantage of our high-tech infrastructure for their research needs.

„Early consideration of the challenges posed by vibrations cuts costs. Additional expenditure on retrospective work is avoided.“

Getzner vibration isolation solutions: a simple and cost-effective process

Customer/planner



Getzner Werkstoffe, Bürs

ENGINEERING A QUIET FUTURE

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

Our innovative products are based on our own in-house developed materials such as Sylomer®, Sylodyn® and Sylodamp®, and are complemented by spring elements such as Isotop®.

Our applications effectively reduce noise and vibrations. They reduce wear, extend the service life of bedded components and improve application suitability, quality and comfort.

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

getzner.com

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