



SCHÖCK TRONSOLE®

Systematic impact sound insulation.



System solution for an effective
impact sound insulation in
staircases at the highest level.

SOUND INSULATION

A basic requirement and benchmark for added quality of life.

During hectic everyday life, it is all the more important not to overwhelm the senses. This includes taking the noise level down a notch or two. Outdoors this impact is somewhat limited, but in building interiors and especially in the staircase, effective impact sound insulation helps to ensure peace and quiet, increasing a feeling of well-being.

When it comes to impact sound, less is more.

Maintaining peace and quiet

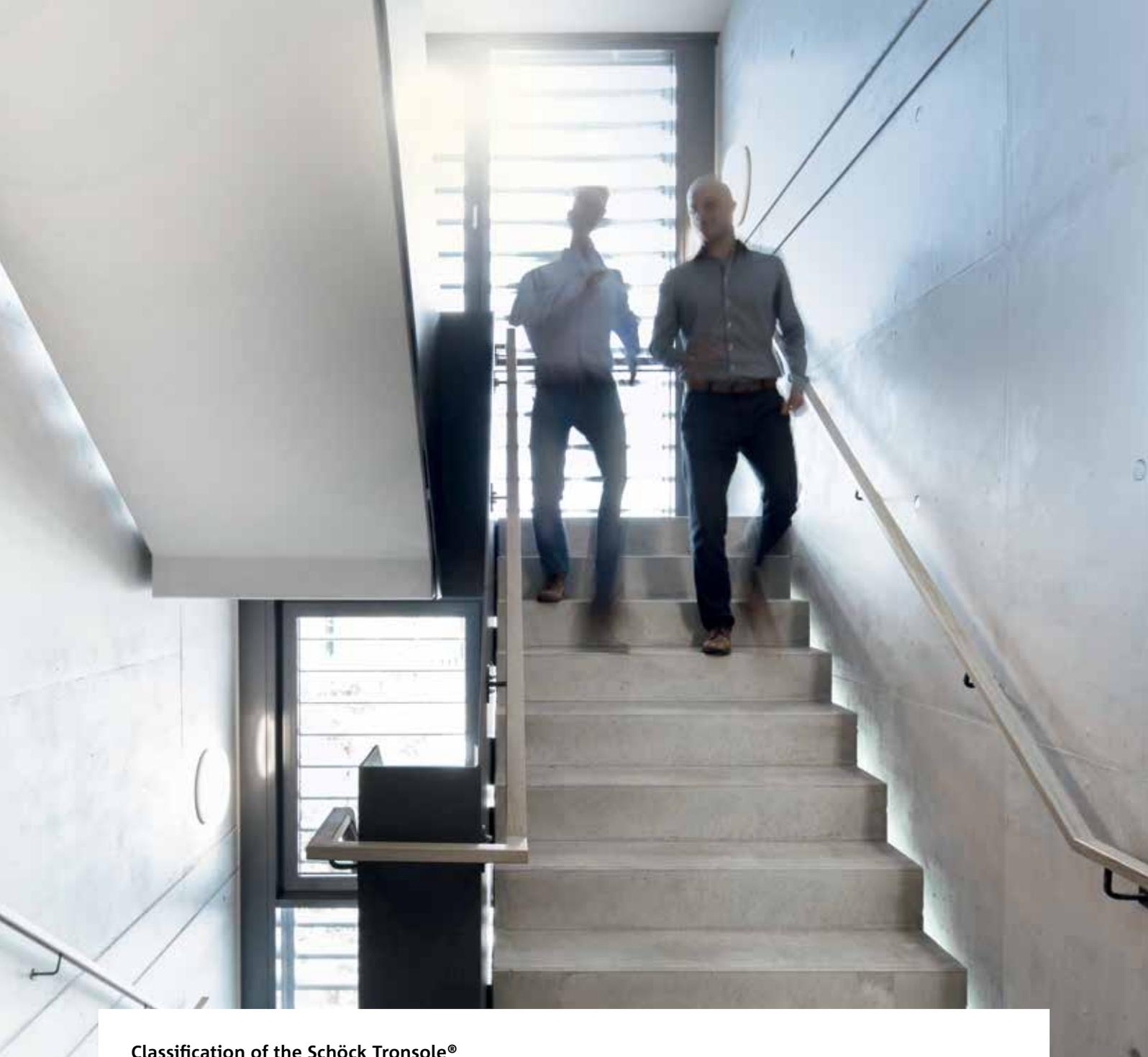
Effective sound impact insulation is an essential prerequisite for high living comfort and contributes significantly to the value of a property and the safeguarding of health. This is one of the reasons why building acoustics is becoming more and more important to both investors as well as residents. The interior sound level is being taken more seriously than ever before due to high-value constructions and the ever improving sound insulation against exterior noises. This raises the requirements for good impact sound insulation for stairs. In this case, less is more: the less noise pollution, the higher the living comfort.

An integrated system

Good sound insulation can only be achieved via an integrated system of impact sound insulating elements. Elastomer bearings which do not completely fill the joints come with particular risks. Even the smallest impurities can cause acoustic bridges. With the Schöck Tronsole®, you can rely on components that are optimally matched for each other.

Sound insulation classification

The German Acoustical Society (Deutsche Gesellschaft für Akustik, DEGA) has defined various soundproofing classes for impact sound requirements for stairs. They are easy to understand and can be used as orientation when planning sound proofing. Staircases insulated with Schöck Tronsole® are classified under the DEGA class B or even A.



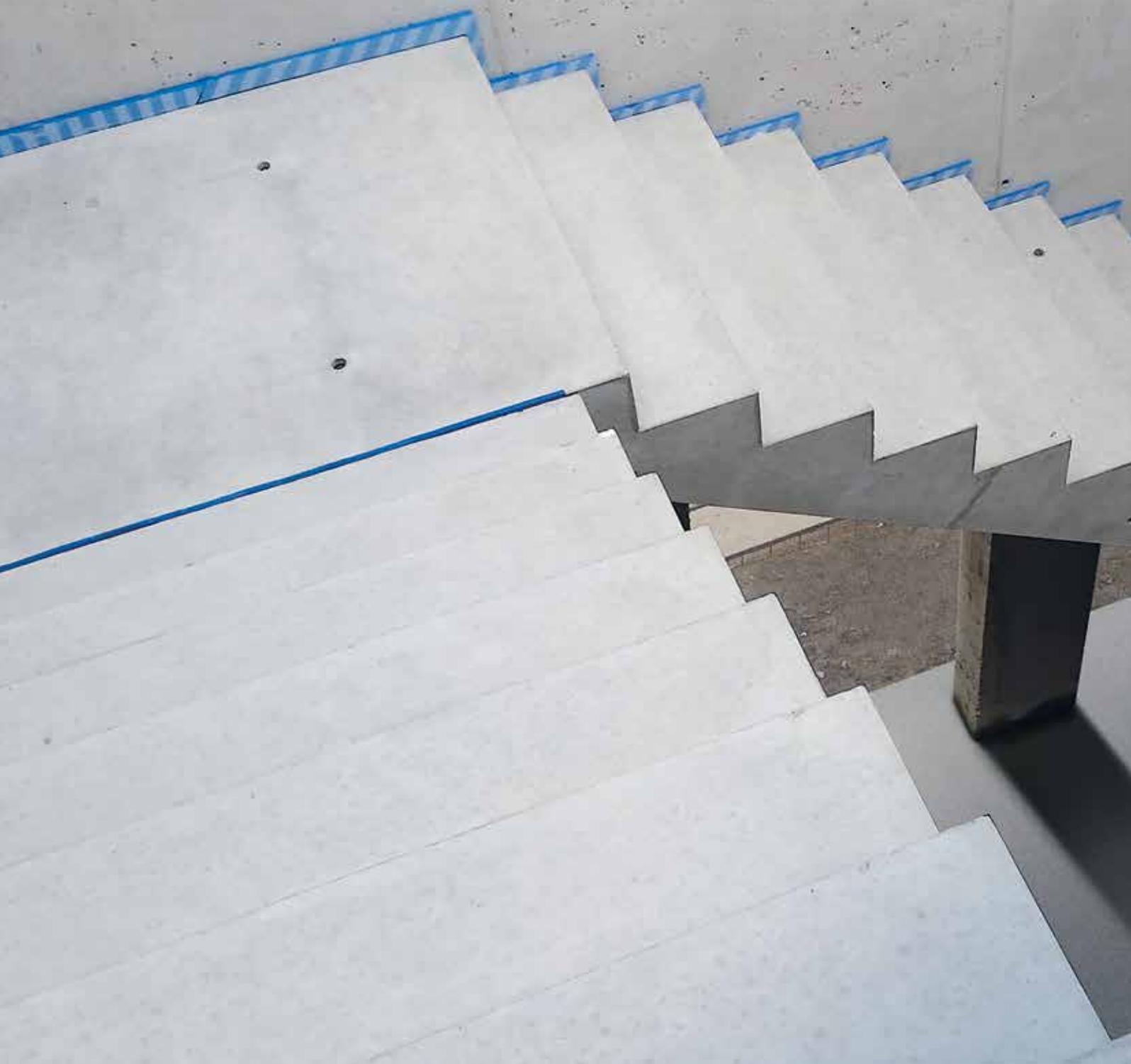
Classification of the Schöck Tronsole®

| $L'_{n,w}$ | Noises from walking are | DEGA |
|--------------|-------------------------|-------------------|
| ≤ 33 dB | inaudible | A* |
| ≤ 39 dB | inaudible | A (≤ 38 dB) |
| ≤ 43 dB | slightly inaudible | B |
| ≤ 48 dB | audible | C |
| ≤ 53 dB | clearly audible | D |



Reliability provided by the blue line.

The blue line serves as visible quality feature for a sound-bridge-free installation and as a prerequisite for effective impact sound insulation. This provides additional safety for the planning and implementation of the sound insulation system.





Benefits

A complete system

Perfectly matching solutions for every reinforced concrete staircase. Suitable for spiral or straight staircases and for landings.

High reliability for planning

Mature, proven products with necessary static verifications, such as the approval for Tronsole® type Q, type T and type P.

Freedom of design

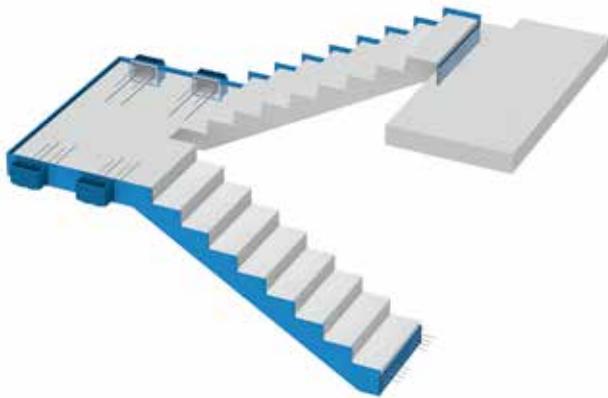
Connections with Schöck Tronsole® do not require corbel support, allow the design of air joints and filigree exposed concrete landings.

Simple and safe installation

Thanks to optimized products and the safety of the blue line.

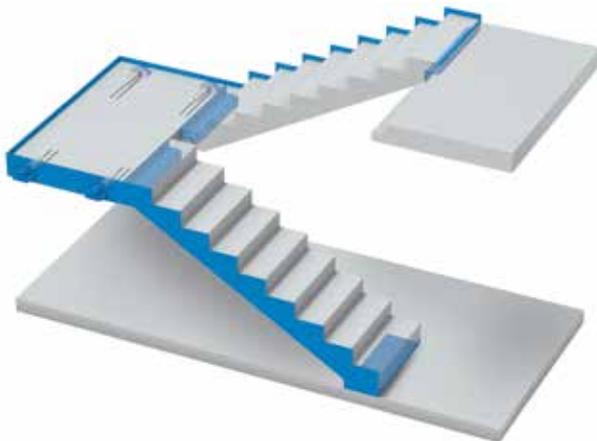
APPLICATIONS

A unique system due to the versatility of combinations.



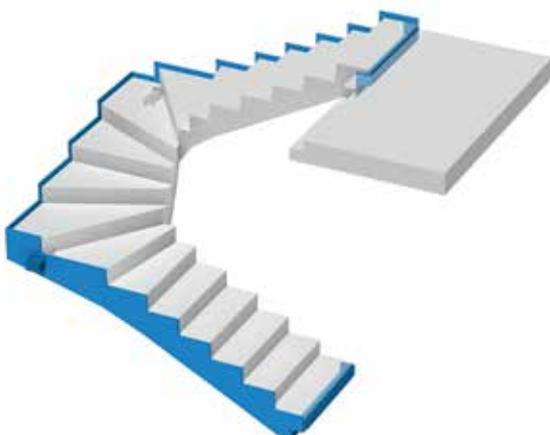
Straight staircase, landing decoupled.
Schöck Tronsole® type Z, T and L

$$L'_{n,w} \leq 42 \text{ dB}$$



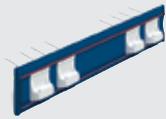
Straight staircase, landing decoupled.
Schöck Tronsole® type P, F, B and L

$$L'_{n,w} \leq 39 \text{ dB}$$



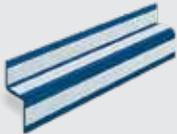
Spiral staircase.
Schöck Tronsole® type F, Q and L

$$L'_{n,w} \leq 38 \text{ dB}$$



Tronsole® type T

Impact sound insulation element for connecting staircases to landings or slabs.



Tronsole® type F

Impact sound insulation element for connecting staircases to landings or slabs.



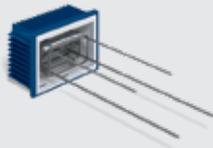
Tronsole® type Q

Impact sound insulation element for connecting spiral staircases to walls.



Tronsole® type P

Impact sound insulation element for connecting landings to staircase walls.



Tronsole® type Z

Impact sound insulation element for connecting landings to staircase walls.



Tronsole® type B and type D

Impact sound insulation element for connecting staircases to floor slabs.



Tronsole® type L

For insulating impact sound at the joint between staircases/landings and walls.

THE SMART ONE

Tronsole® type T



For the connection of staircases (in-situ concrete or precast) to landings or slabs (in-situ concrete or semi-precast).

Schöck Tronsole® type T combines high architectural standards with easy handling on the construction site or in the prefabricating plant. All common landing thicknesses and staircase widths are possible. The straight joint profile enables connections with even, all-round joints. A corbel support in the landing and staircase is no longer required.

Characteristics

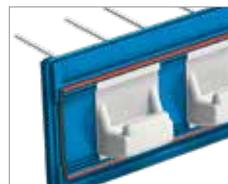
- Technical approval by the German Institute for Structural Engineering (DIBt)
- With fire resistance class R 90 as standard



Acoustic separation using Elodur® elastomer bearing for superior impact sound insulation.



Simple installation: supplied complete with grippers that are fastened straight onto the formwork.



Straight joint profile facilitates the installation of formwork in the precast plant and on the construction site.



Can be ordered to the desired length or cut to length on site.

THE RELIABLE ONE

Tronsole® type F



For the connection of staircases (precast) to landings or slabs (semi-precast or full precast).

Absolute reliability during installation: Schöck Tronsole® type F is fixed to the precast staircase with the integrated adhesive tapes. This way, the Tronsole® remains in the correct position even when the stairs are moved. A full-surface separation between the staircase and the floor slab ensures that no dirt can get into the joint, thus minimising the risk of acoustic bridges during execution.

Characteristics

- Variable for support depths of 130 mm - 160 mm
- Available in 5 different lengths
- Available as standard with 2 load capacities. Higher load capacities on request



Acoustic separation using Elodur® elastomer bearing for superior impact sound insulation.



With integrated adhesive strips: can be stuck onto precast element without any additional measures required.



Clip hinge for excellent shape stability and easy handling.



Elastomer bearing and clip hinge recessed by 5 cm for easy cutting on site.

THE SPECIAL ONE

Tronsole® type Q



For the connection of spiral staircases to staircase walls.

Schöck Tronsole® type Q is a shear force dowel developed for impact sound insulation. It consists of three separate elements: wall element, load-bearing element and sliding sleeves with integrated suspension stirrup. Technical approval, which ensures easy planning and smooth inspection, is mandatory for shear force dowels. Type Q allows joints of up to 100 mm thus offering a great freedom of design. This also enables constructions with air joints.

Characteristics

- Technical approval by the German Institute for Structural Engineering (DIBt)
- Can already be used from a tread thickness of 140 mm
- Load bearing element in stainless steel (A2) or galvanised
- Fire protection set for a fire resistance class R 90 for joints of up to 65 mm



Acoustic separation using Elodur® elastomer bearing for superior impact sound insulation.



The rotatable load-bearing element with tongue and groove ensures correct sitting, is adapted to inclination and makes the installation easier.



Suspension stirrup on sliding sleeve for load-bearing integration and correct positioning – increases execution reliability.



Fire protection R 90 up to joint width 65 mm possible with fire protection set.

THE SLIM ONE

Tronsole® type P

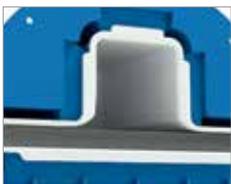


For the connection of landings (precast or in-situ concrete) to staircase walls.

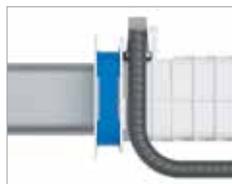
The Schöck Tronsole® type P enables the realization of filigree landings from a landing thickness of 180 mm, even in exposed concrete. The prefabricated landings can be designed without concrete corbels, which optimizes the construction process. In addition, no floating screed is needed. It consists of three separate elements: Wall element, load-bearing element and sliding sleeve with integrated suspension stirrup. The Tronsole® Type P is approved by the building authorities, which is mandatory for shear force dowels.

Characteristics

- Technical approval by the German Institute for Structural Engineering (DIBt)
- Load bearing capacity up to 65 kN
- Uplifting forces (standard) and horizontal forces (optional) up to 15 kN
- Up to R 90 in combination with fire protection set (depending on landing thickness)



Acoustic separation using Elodur® elastomer bearing for superior impact sound insulation.



The damper made of Elodur® prevents even the smallest fissures in the concrete and ensures a high-quality exposed concrete finish.



Suspension stirrup on sliding sleeve for load-bearing integration and correct positioning - increases execution reliability.



Fire resistance up to R 90 in combination with fire protection set (depending on landing thickness).

THE STRONG ONE

Tronsole® type Z



For the connection of landings (precast or in-situ concrete) to staircase walls.

The Schöck Tronsole® type Z eliminates the need for floating screed on intermediate landings. When using the Schöck Tronsole® type Z sound bridges can be avoided both in masonry, in case of cast-in-place landings, and in particular in in-situ concrete. The Schöck Tronsole® type Z consists of a wall element and a load-bearing element - type Z Part T - which is available as an option.

Characteristics

- The wall element has a surrounding frame for the connection to the type L without acoustic bridges
- Tronsole® type Z (wall element + load-bearing element) complies with the requirements for fire resistance class R 90
- Reliable planning thanks to type approval



Acoustic separation using Elodur® elastomer bearing for superior impact sound insulation.



Surrounding connection frame for a connection without acoustic bridges.



Type-approved load-bearing element with spacers for safe and simple installation.

THE GROUNDED ONE

Tronsole® type B

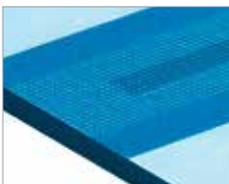


For the connection of staircases (in-situ concrete or precast) to floor slabs.

Schöck Tronsole® type B can be used to provide acoustically insulated support where the base of an in-situ concrete or precast staircase rests on the floor slab. It separates stairs and floor slab across the entire surface, thus minimising the risk of acoustic bridges. It is fixed to the precast staircase with the integrated adhesive tapes. This way, the Tronsole® remains in the correct position even when the stairs are moved. A full-surface separation between the staircase and the floor slab ensures that no dirt can get into the joint, thus minimising the risk of acoustic bridges during execution. Tronsole® type D can be used for non-structural and safe positioning.

Characteristics

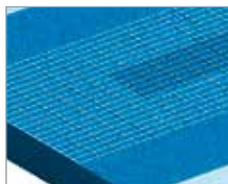
- Tronsole® type B is available in 5 different lengths and 2 different widths



Acoustic separation using Elodur® elastomer bearing for superior impact sound insulation.



With integrated adhesive strips: can be stuck onto precast element without any additional measures.



Elastomer bearing and recessed by 5 cm for easy cutting on site.



Tronsole® type D: Non-structural and safe positioning made of high-quality stainless steel with elastomer cap.

THE ESSENTIAL ONE

Tronsole® type L



For insulating impact sound at the joint between staircases/landings and walls.

Schöck Tronsole® type L fills the joint completely, thus preventing the penetration of dirt and therefore ensuring that no acoustic bridges can occur. Sound insulation measures can only be effective if all joints between staircase wall and staircase (treads and landing) remain free from dirt. The Tronsole® type L thus completes the sound insulation system and, in conjunction with the other product types, forms the blue line for planning and execution without acoustic bridges.

Characteristics

- In all acoustic measurements, the transmission of sound through the joint panel was also tested



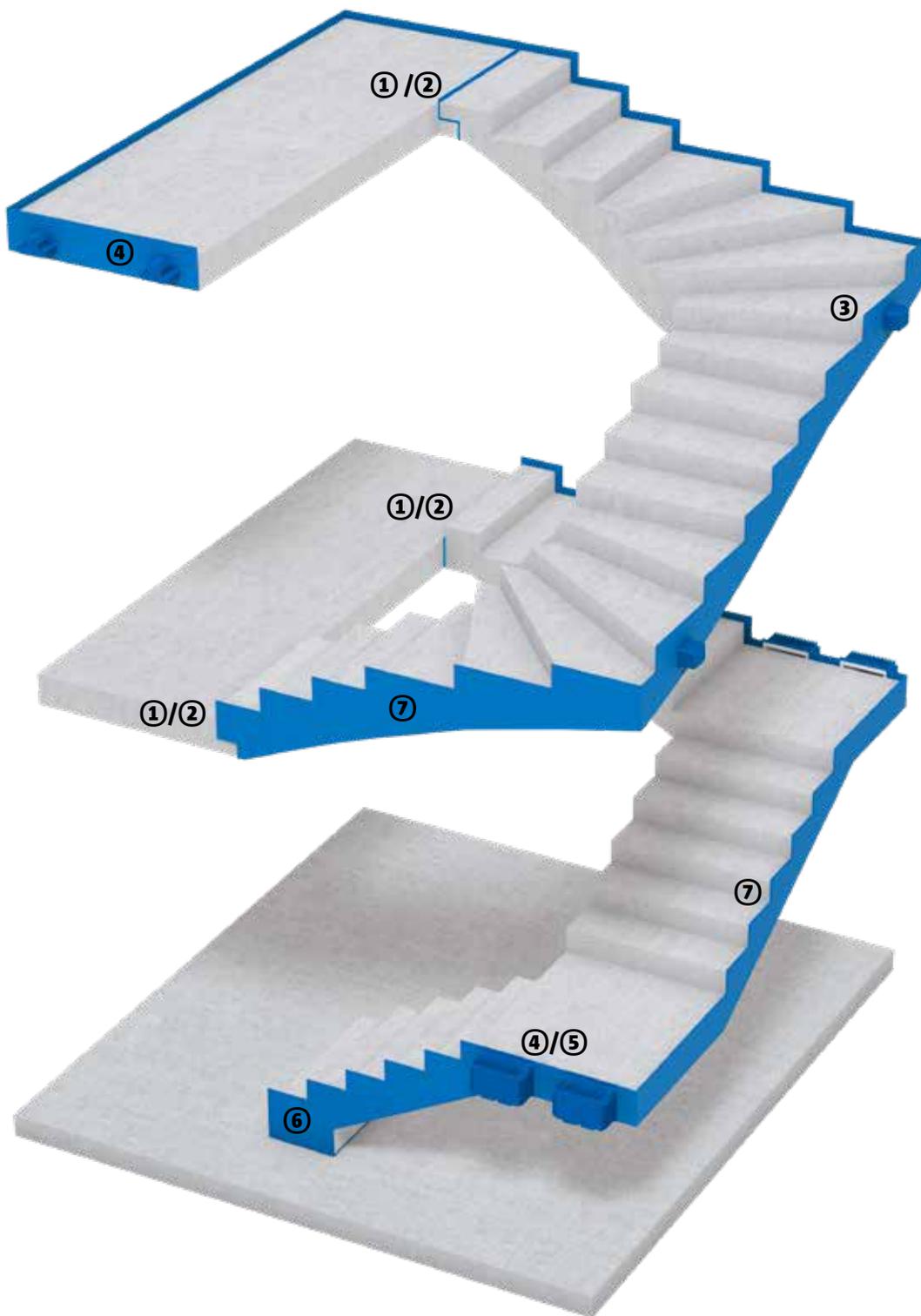
Also available as sound insulation kit, consisting of 15 pieces of Schöck Tronsole® type L, adhesive tape, cutter and a carpenter's pencil for easy installation.



Full-surface adhesive band: for simple, quick and safe installation.



Available in heights of 420 mm and 250 mm for optimised adjustment to standard tread and landing slab thicknesses.



- 1** Schöck Tronsole® type T
- 2** Schöck Tronsole® type F
- 3** Schöck Tronsole® type Q
- 4** Schöck Tronsole® type P

- 5** Schöck Tronsole® type Z
- 6** Schöck Tronsole® type B with type D
- 7** Schöck Tronsole® type L

PLANNING AND INSTALLATION

Find the right solution with a strong partner at your side.

A consistent sound insulation system also comes with complete consulting services. This includes all questions regarding planning and calculation as well as detailed information about product installation.

Working hand-in-hand from the very start

The planning for acoustic bridge-free sound impact insulation must begin at an early stage. That's why Schöck offers comprehensive consulting services as well as documentation. Our skilled employees will be there to support architects, engineers and building physicists, especially with their technical questions, in order to ensure the development of optimal sound insulation solutions for any application. In addition, we also provide current, detailed and helpful planning information online, such as technical information as well as CAD and BIM objects.

Checking the blue line

The quality of the planning really comes out later with the implementation. If the acoustic decoupling of components is not done correctly, this will lead to errors with serious consequences. Using the Schöck Tronsole® sound insulation system, you can check the acoustic bridge-free installation at any time: If the blue line around the entire staircase is visible, then everything was done correctly for the installation - and this means that the impact sound insulation is optimal and reliable.





Installation step by step

Detailed information is to be found in the installation videos. The films show the individual steps of the installation in a comprehensive way - for landings, straight and spiral staircases.

For more details please visit
www.schoeck.com/en/tronsole



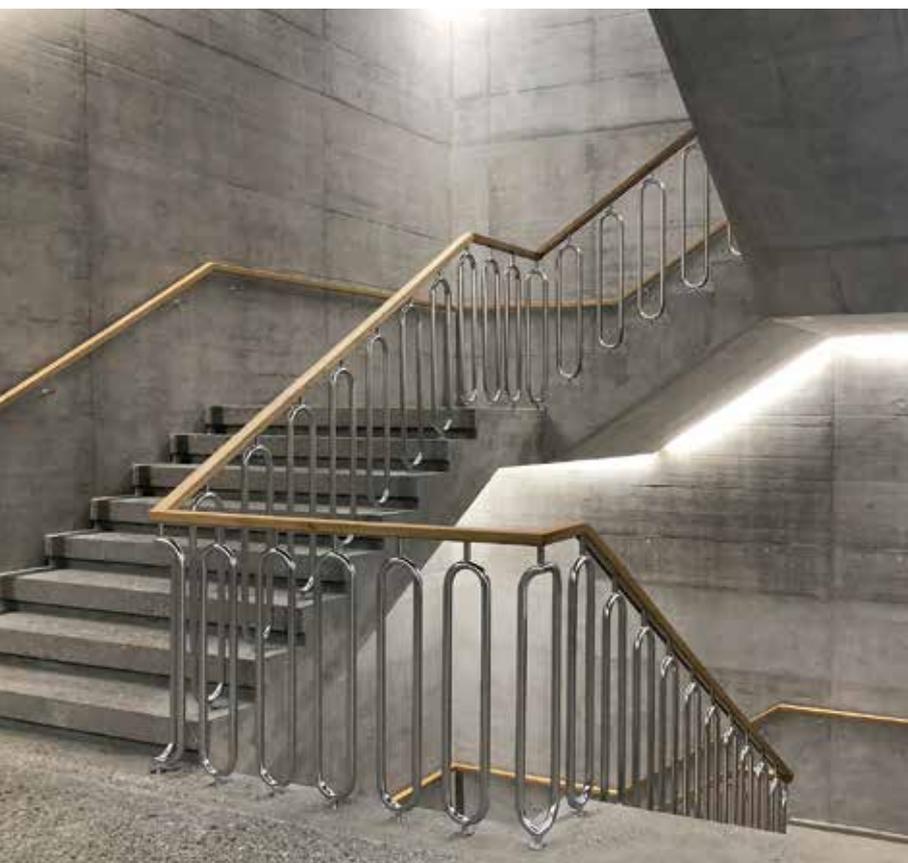
CASE STUDIES

An innovative system already proven in practice.

The product family for comprehensive impact sound insulation is unique. In particular, the versatility of the different types offers a freedom of design for staircases which virtually has no limit. That not only sounds good, but is already a fact in practice.

V-Cableway, Grindelwald (CH)

For the joint terminal of the new V-cableway, which connects two mountain cableways, it was particularly important to minimize the noise generated by ski boots. In various parts of the valley terminal, such as the station, bistro and parking garage, more than 230 Schöck Tronsole® products insulate the impact sound in the staircases and walkways.



University centre of dentistry, Basel (CH)

In the 5-story building, the focus was on the stairwells. All staircases and landings are made of exposed concrete. To ensure compliance with the special sound insulation requirements, the Tronsole® was used to keep the landings and flight of stairs free of sound bridges.

immergrün, Berlin

Six apartment buildings were built in Berlin Pankow. The special feature: the central, hanging, half-spiraled stair sculpture in the middle of the house-high atrium. In order to meet the requirements for sound insulation, a Tronsole® Type B was specially designed and manufactured for this project and used as impact sound insulation element.



Foto: Moritz Bernouilly



VR-Bank Ostalb, Aalen

With different types of the sound insulation system Tronsole® and installation support on site, it was possible to achieve the high level of sound insulation in the staircase in a short time. As a result the safe decoupling of the stair connections ensures a pleasant atmosphere in the adjoining offices.

Coblenz House, Montabaur Castle

For this four-star hotel with event center an effective sound insulation plays a decisive role. The sound insulation system Tronsole® was installed for an acoustic separation between the atrium and emergency staircases thus bringing the necessary peace and quiet to the guests.

COMPREHENSIVE EXPERTISE

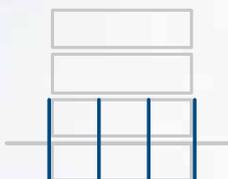
Dependably the right solution.

With forward-looking product solutions and systems, we fulfill the structural, static and design requirements for various building components and applications in new and existing buildings. Our focus lies in particular on the reduction of thermal bridges, impact sound insulation and reinforcement technology.

Balcony, access balcony
and canopy



Wall, support



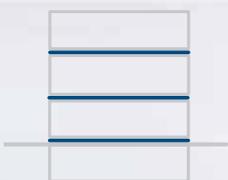
Roof superstructure



Façade



Slab



Stairs



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