

SINTON®

For sound absorption in reinforced concrete stairs and landings





OUR MISSION: FORWARD CONSTRUCTING.

Not just to reflect the current state of building technology, but always to be a decisive step ahead – this is our promise. This is why we constantly achieve pioneering work in all product areas. Our employees consistently use their extensive practical experience and creativity to benefit our customers. Through regular collaborative dialogue with our target groups, we develop today the products which are needed tomorrow. With our dynamics we set consistently milestones in building technology – yesterday, today and tomorrow. This is what we mean by Forward Constructing.

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concrete stairs and landings

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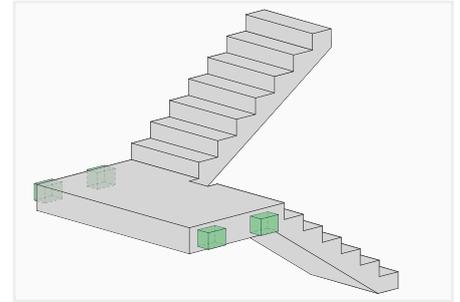
We are at your service.
Wherever you are,
you can count on us.

TYPE OVERVIEW



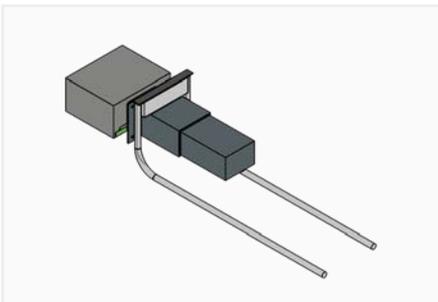
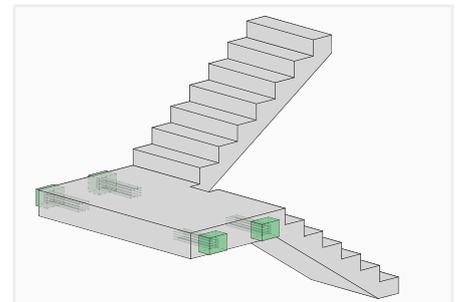
SINTON® X
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Impact sound insulation element for stair landings.
Stair landing – wall connection



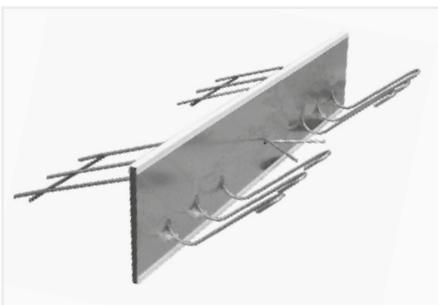
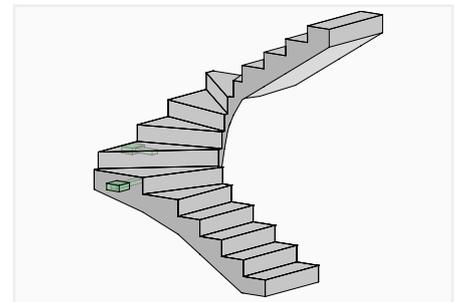
SINTON® X T1
PAGE 6

Impact sound insulation element with reinforcement cage for stair landings.
Stair landing – wall connection



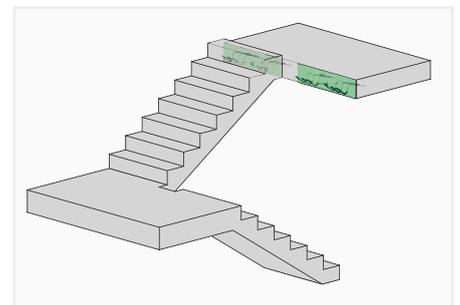
SINTON® HQW
PAGE 16

Impact sound insulation element for sound absorption in straight and spiral flights of stairs.
Flight of stairs – wall connection and stair landing – wall connection



SINTON® HT-V
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Impact sound insulation element for sound absorption in flights of stairs.
Flight of stairs – stair landing connection



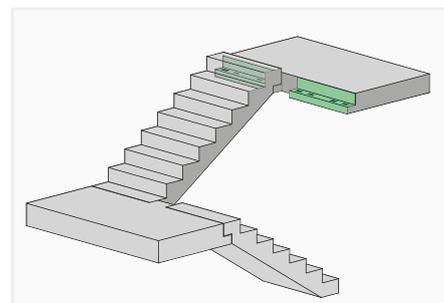
TYPE OVERVIEW



SINTON® Z

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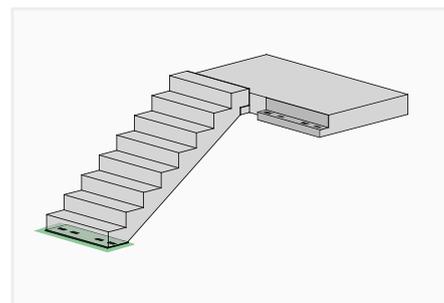
Impact sound insulation element
for sound absorption in prefabricated
flights of stairs.
Flight of stairs – stair landing connection



SINTON® ZB

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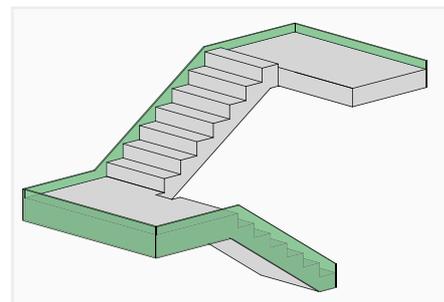
Impact sound insulation element
for sound absorption in prefabricated
flights of stairs.
Flight of stairs – base plate connection

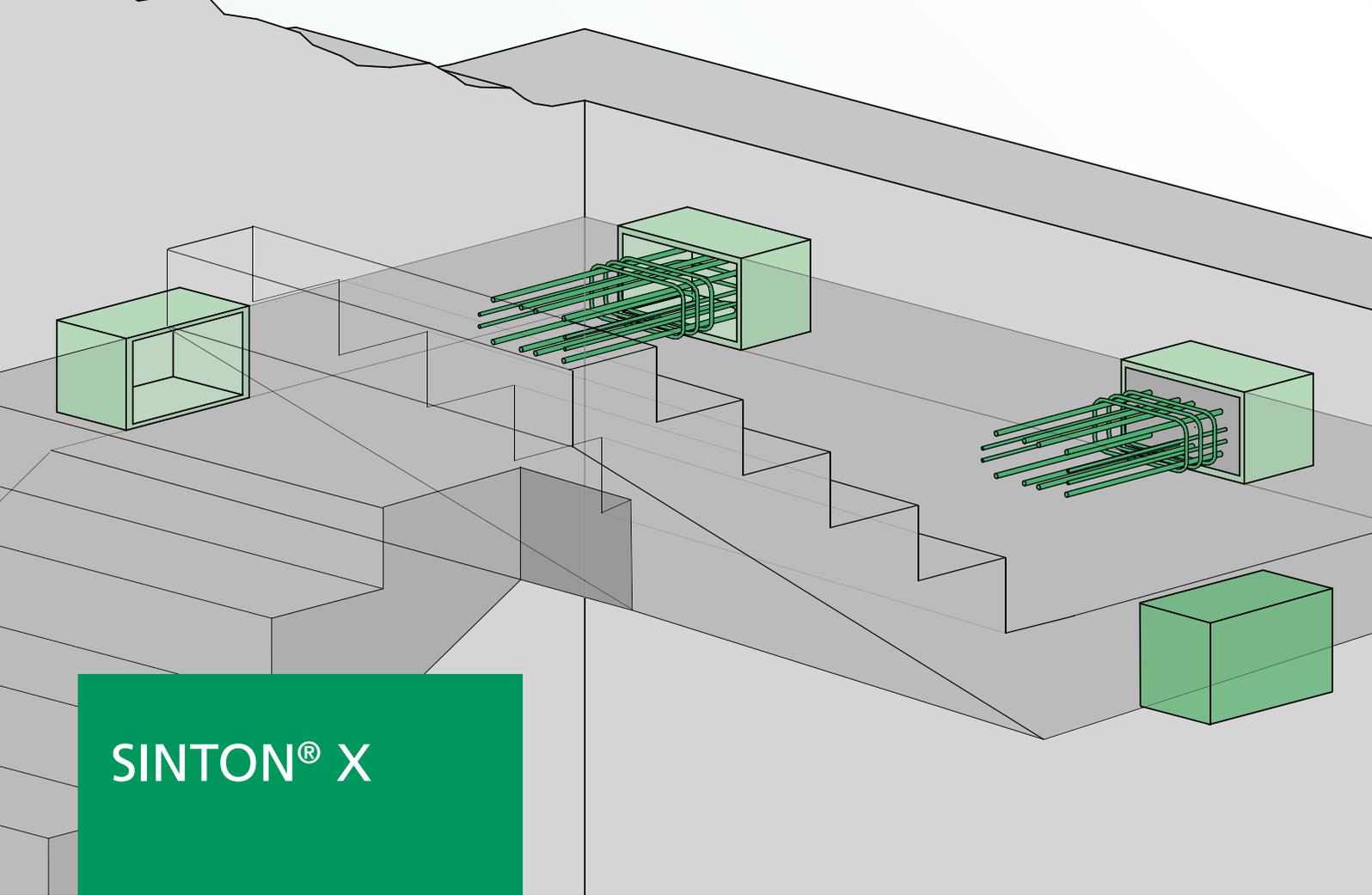


SINTON® TSP

PAGE 42

Impact sound plate for stair stringers
and stair landings.
Inserted between the staircase and
the wall





SINTON® X

IMPACT SOUND BOX FOR STAIR LANDINGS

THE PRODUCT

The impact sound element SINTON® X is used to isolate the impact sound generated in staircases between stair landings and staircase walls so that it is not transferred into living or working areas.

SINTON® X is made of polyurethane with integrated elastomer bearings to transfer the load and filling material.

Depending on the design, positive and negative shearing forces as well as horizontal forces can be transferred.

The impact sound element is optionally available with a prefabricated reinforcement cage.

The sound absorption elements satisfy the requirements for increased sound insulation.

BENEFITS

- Type-tested
- Considerable impact sound reduction
- R90 fire safety inspection report
- Simple reinforcement layout
- For in-situ concrete and prefabricated landings
- Elastomer bearings with approval

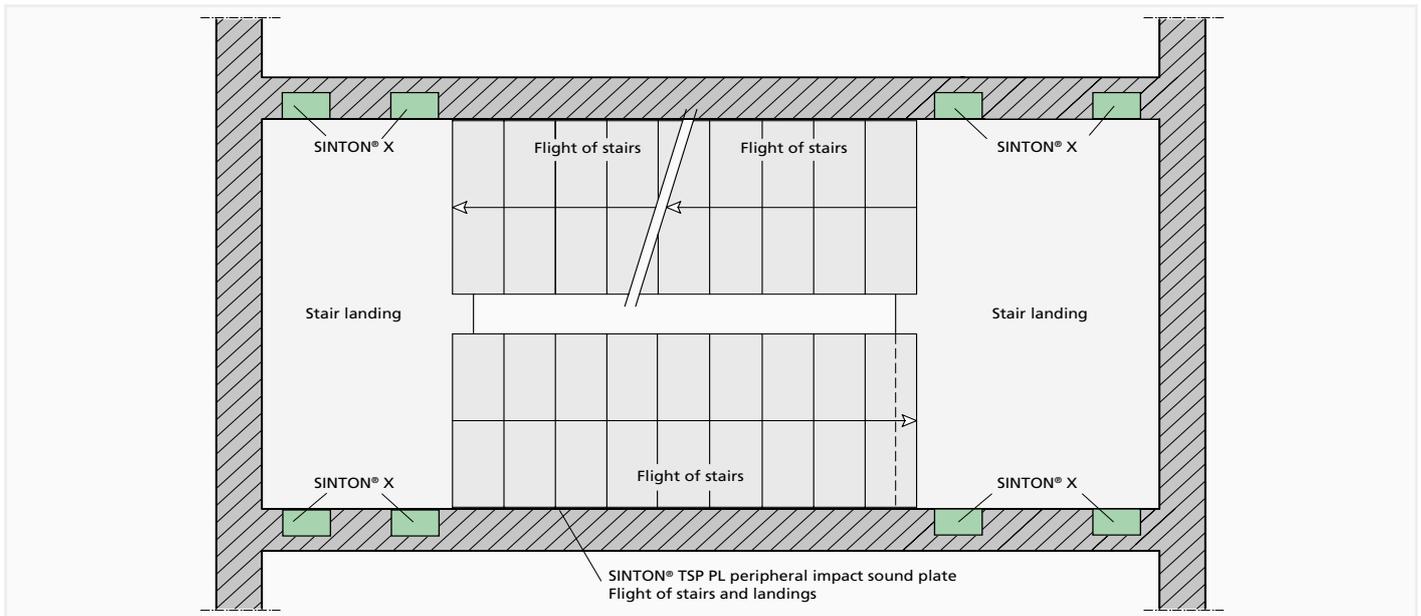
APPLICATION AREA

SINTON® X is suitable for use in both brick and concrete walls. The stair landings can be made using in-situ concrete or provided as a prefabricated part.

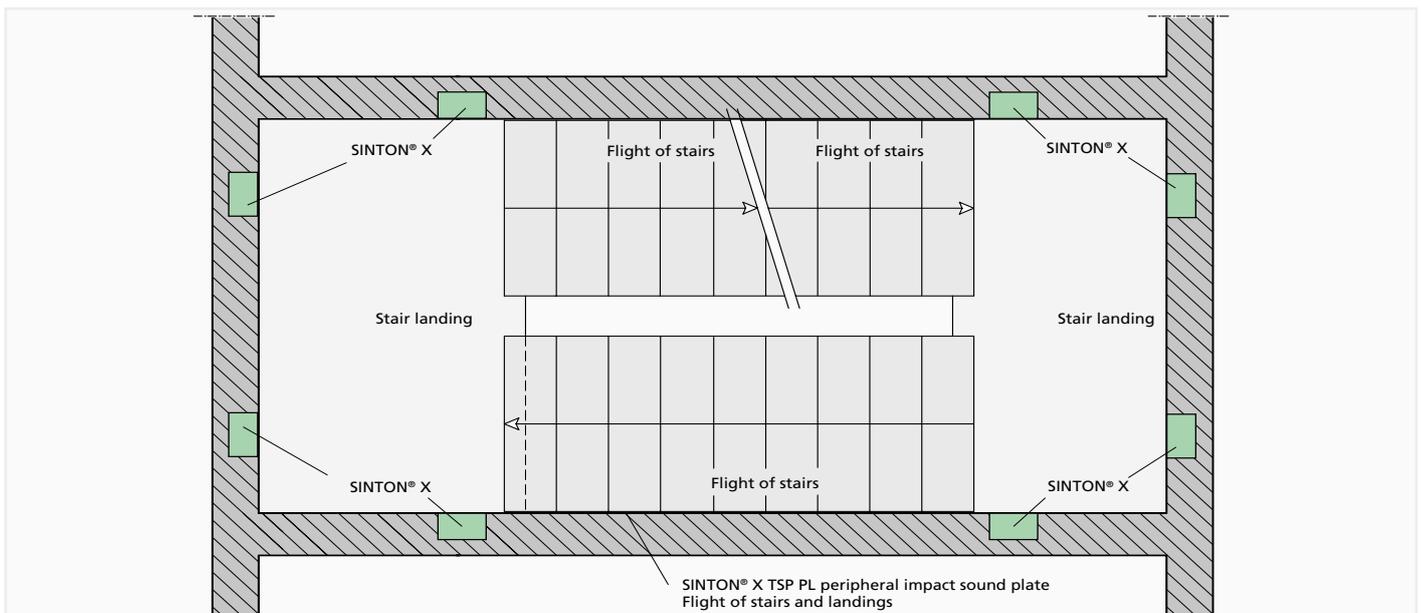
APPLICATION

Landings can be supported at four points using SINTON® X elements. SINTON® X may, of course, be arranged differently for specific staircase or landing types.

SUGGESTED ARRANGEMENT FOR SINTON® X – FLOOR PLAN



Support on opposite sides of the landings



Support on opposite sides and adjacent sides of the landings

PRODUCT OVERVIEW



SINTON® X

- Isolation of in-situ concrete or prefabricated landing and staircase wall
- Type-tested impact sound element
- Basis for all SINTON® X variants

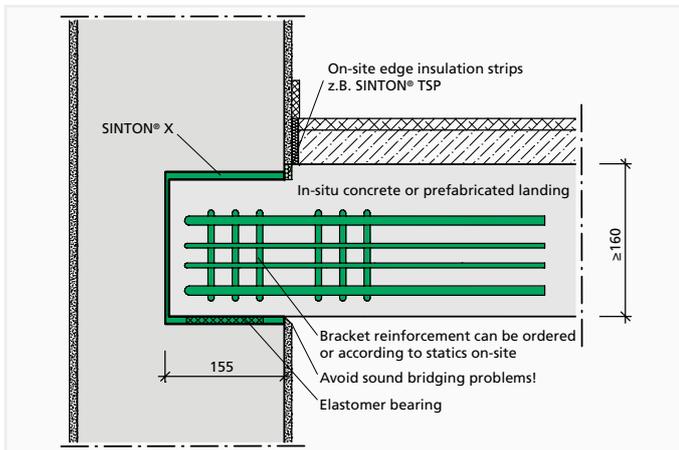


SINTON® X-T

- Impact sound element SINTON® X with prefabricated reinforcement cage T1 for the bracket
- Load-bearing capacity of the bracket when using the reinforcement cage is type-tested

APPLICATION – ELEMENT CONSTRUCTION

SYSTEM CROSS SECTION

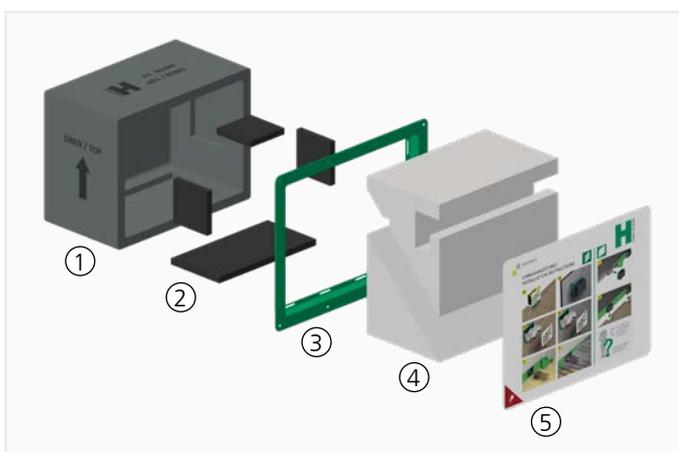


Installation cross section SINTON® X

PRODUCT INFORMATION:

- Reduction in impact sound $\Delta L^*_{n,w} \geq 23$ dB
- Flexible use in the prefabricated structure and on the building site
- Type-tested
- High-quality elastomer bearing in accordance with approval Z-16.32-426
- Fire-resistance rating of R90 provided the minimum centre distances for the on-site reinforcement are observed

ELEMENT CONSTRUCTION



PRODUCT COMPONENTS

- ① Sound absorption element for impact sound insulation
- ② Elastomer bearing with approval; number depending on variant
- ③ Frame for quick and easy mounting
- ④ Filling material for stabilisation in the concreting state or by the load from the brickwork
- ⑤ Sticker with installation instructions

PRODUCT DEFINITION

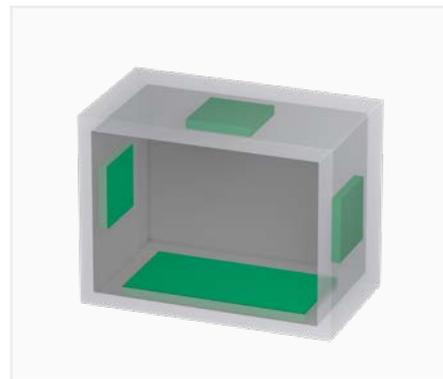
SINTON® X1



SINTON® X2



SINTON® X3



Depending on the configuration of the bearings, following forces can be transferred:

- SINTON® X1: positive shearing forces
- SINTON® X2: positive and negative shearing forces
- SINTON® X3: positive and negative shearing forces as well as horizontal forces

DIMENSIONS h x w x d [mm]

	Standard	
	Internal	External
SINTON® X	180 x 245 x 150	210 x 275 x 155

PLATE HEIGHTS

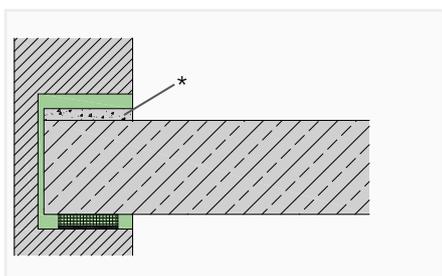


Plate height $h < 180$ mm

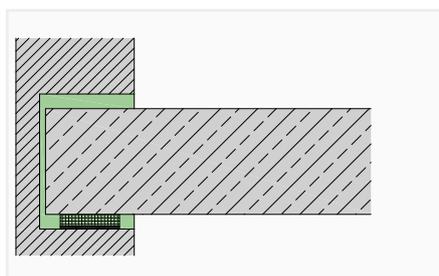


Plate height $h = 180$ mm

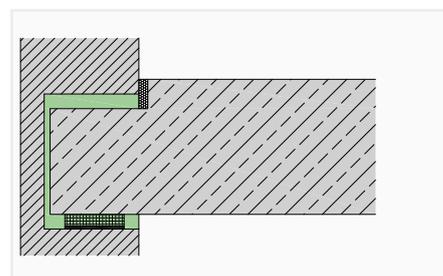
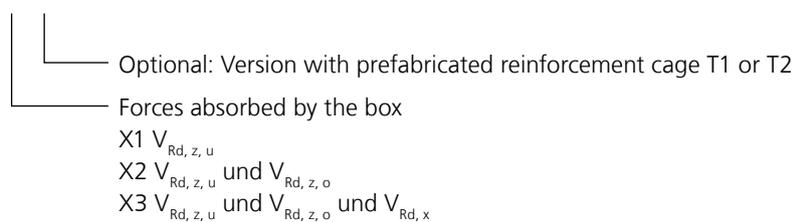


Plate height $h > 180$ mm

* For plate heights smaller than 180 mm, the remaining gap in the box for the SINTON® X2 or X3 version must be filled with mortar (min. MG IIa).

TYPE DESIGNATION

SINTON® X1-T1

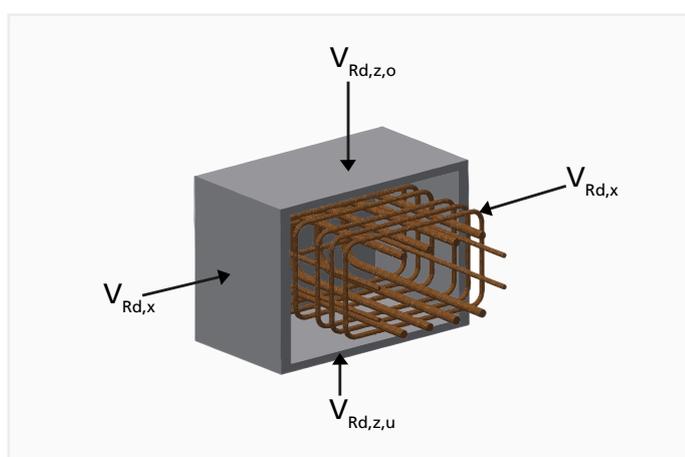


DIMENSIONING

DIMENSIONING TABLE SINTON® X – CONCRETE \geq C20/25 ACCORDING TO TYPE TEST

	Plate h [mm]	$V_{Rd,z,u}$ [kN]	$V_{Rd,z,o}$ [kN]	$V_{Rd,x}$ [kN]
SINTON® X1 SINTON® X1-T1	≥ 160	73,8	-	-
SINTON® X1-T2	≥ 180	100,0	-	-
SINTON® X2 SINTON® X2-T1	≥ 160	73,8	24,5*	-
SINTON® X2-T2	≥ 180	100,0	24,5*	-
SINTON® X3 SINTON® X3-T1	≥ 160	73,8	24,5*	$\pm 24,5$
SINTON® X3-T2	≥ 180	100,0	24,5*	$\pm 24,5$

* For plate height < 180 mm, the finished bracket in the box must be filled with mortar (min. MG IIa).



NOTES

- In individual cases, evidence of the transfer of forces into the neighbouring component must be provided by the responsible structural engineer.
- The verification of the the load-bearing capacity of the bracket for SINTON® X without prefabricated reinforcement cage T1 or T2 is carried out by the responsible structural engineer.
- **The load-bearing capacity of the bracket for the reinforcement cage T1 and T2 is verified after the type test.**
- With SINTON® X, higher forces can also be transmitted in individual cases. Please contact our technical department.

DIMENSIONING THE CONNECTING LANDING SLAB

- Use of flush beams as bar-like connections to the brackets
- Verification of the shearing-force resistance of the landing slab

You can download
the **TYPE TEST** from
www.h-bau.com

FIRE PROTECTION – SOUND INSULATION

FIRE PROTECTION

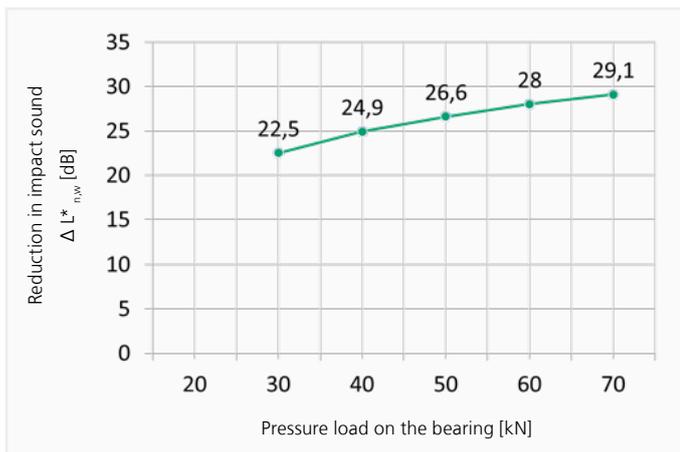
SINTON® X with prefabricated reinforcement cage (product variant SINTON® X-T1) corresponds to fire resistance class R90 (F90), see expert opinion of MFPA Leipzig. The fire resistance class R90 (F90) is achieved with reinforcement cages manufactured on-site if the minimum centre distances according to variant T1 are adhered to.

To meet the requirements for the integrity of the staircase walls, the impact sound insulation elements must be installed in solid walls with a minimum thickness of 175 mm and these must also correspond to fire resistance class R90 (F90).

SOUND INSULATION

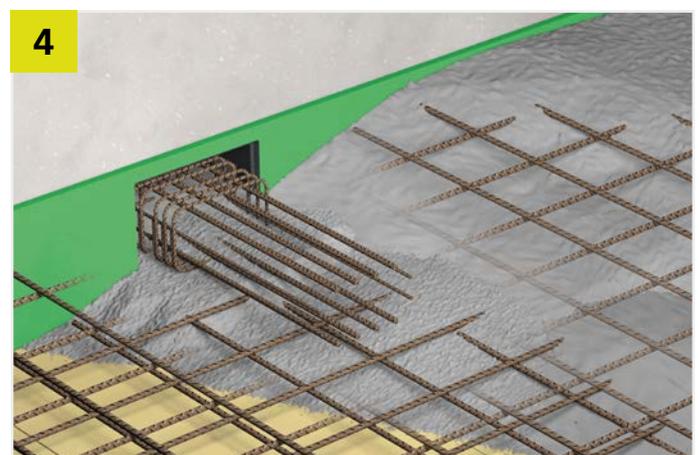
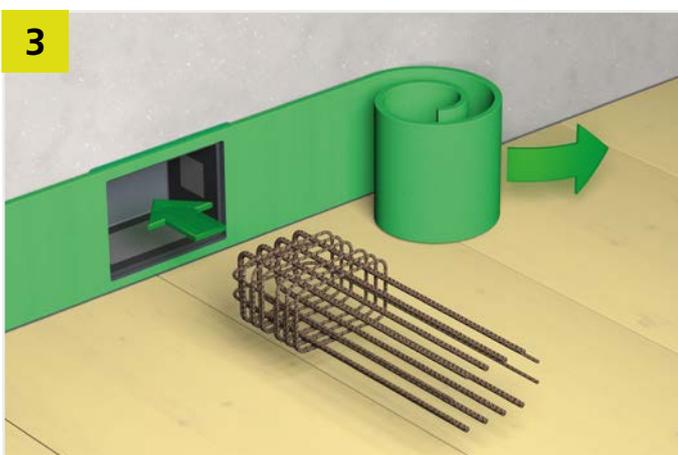
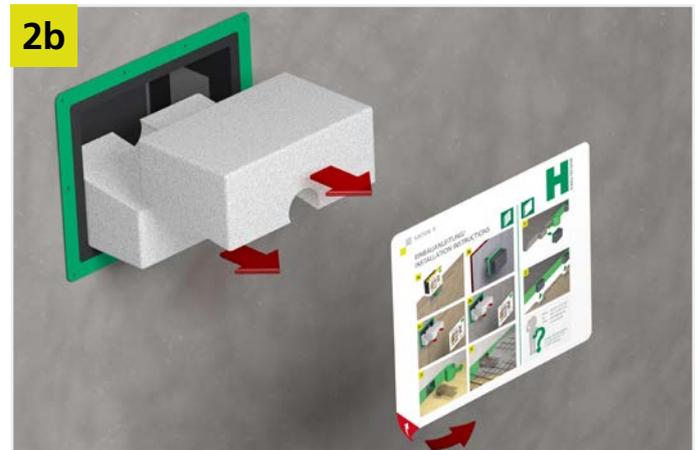
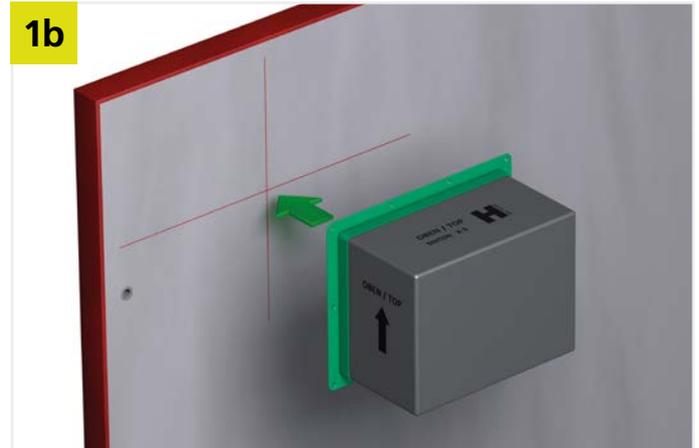
- Reduction in impact sound $\Delta L^*_{n,w} \geq 23$ dB

SINTON® X



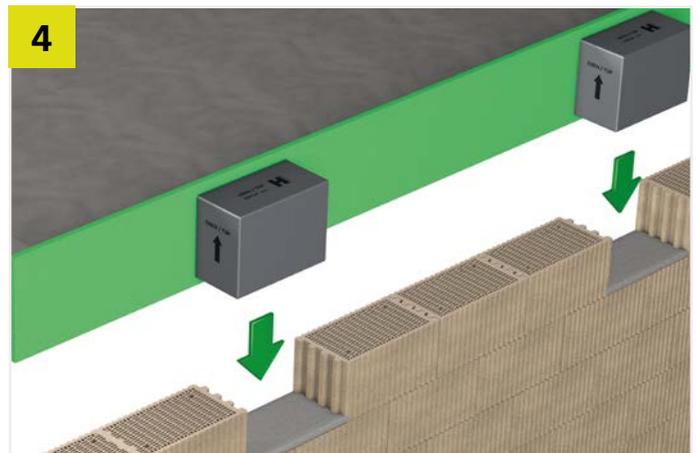
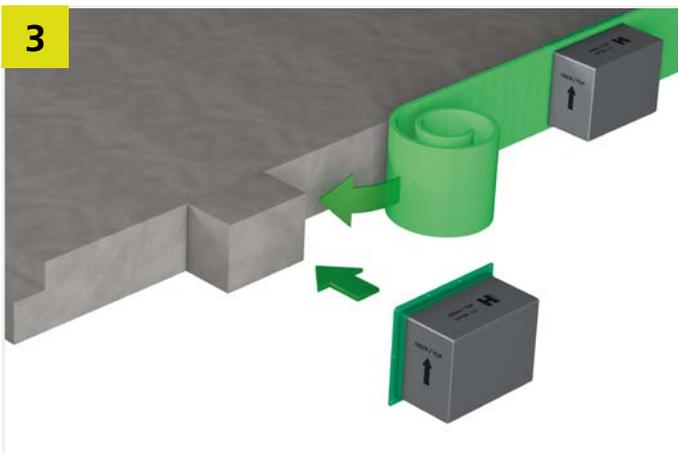
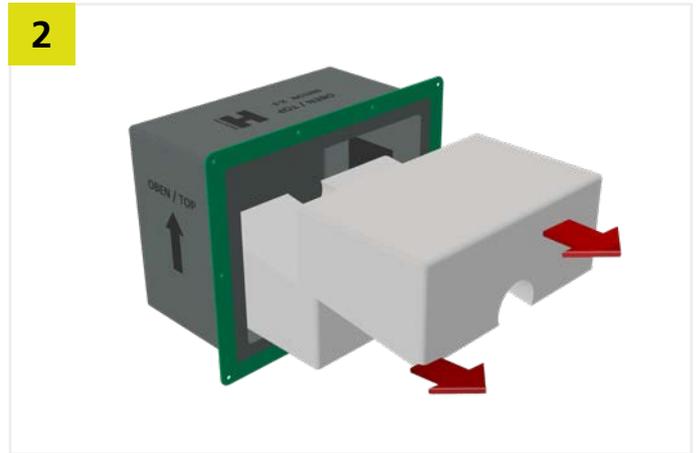
INSTALLATION INSTRUCTIONS

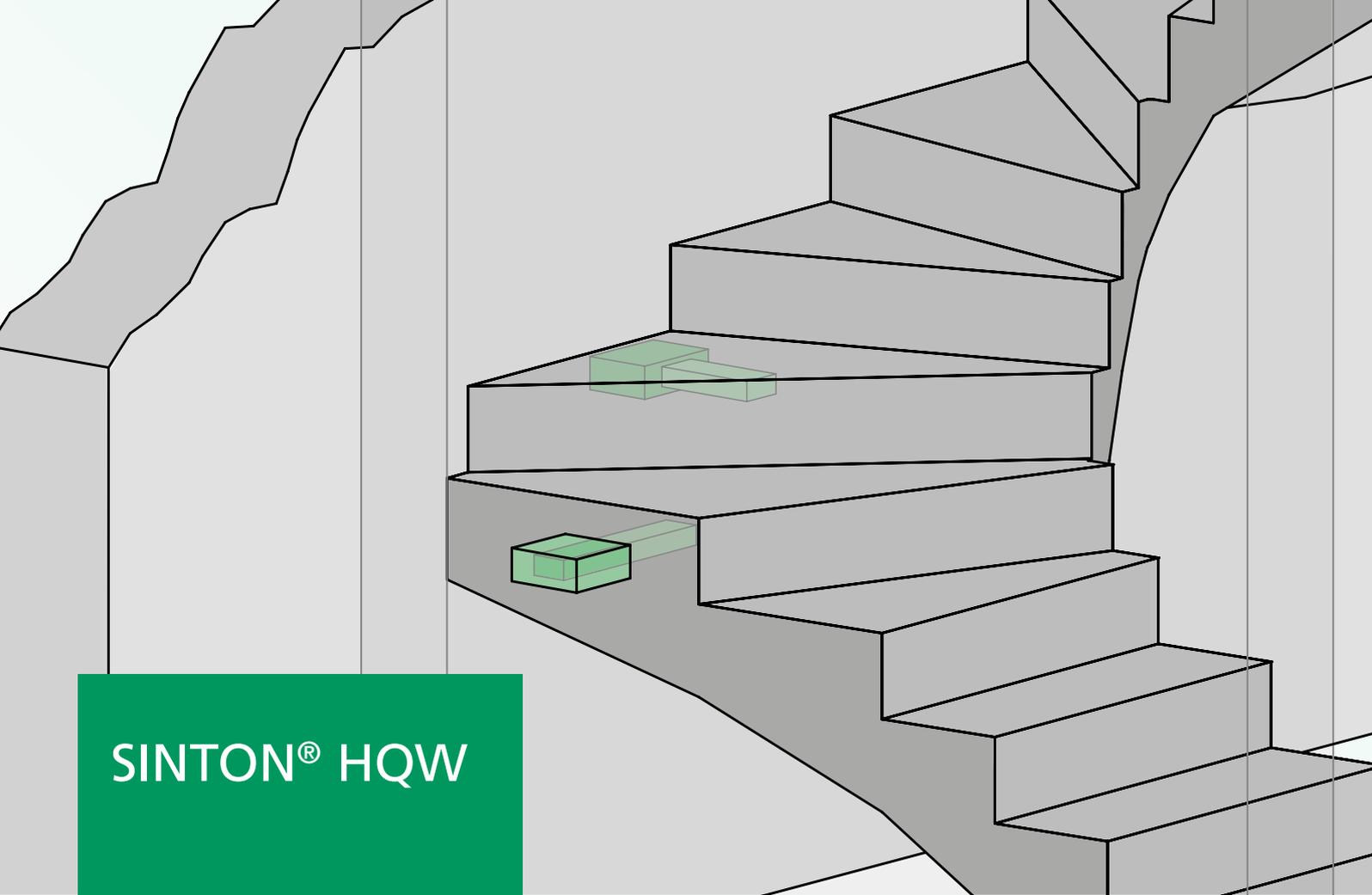
INSTALLATION INSTRUCTIONS FOR SINTON® X IN BRICKWORK WALLS AND FOR IN-SITU CONCRETE CONSTRUCTION



INSTALLATION INSTRUCTIONS

INSTALLATION INSTRUCTIONS SINTON® X FOR PREFABRICATED LANDINGS





SINTON® HQW

IMPACT SOUND INSULATION FOR STAIRS AND LANDINGS

THE PRODUCT

SINTON® HQW consists of a load-overlapping dowel, a vibration-damping wall bearing and a stair-side bearing sleeve with portal reinforcement.

BENEFITS

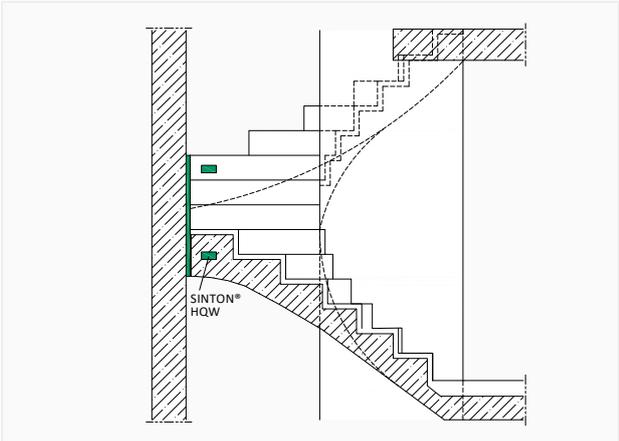
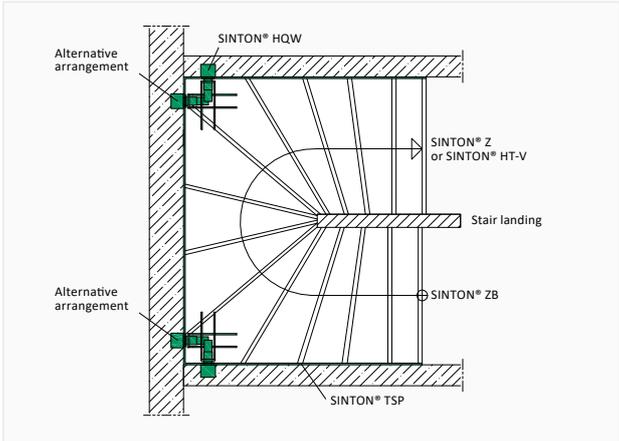
- General technical approval Z-15.7-321
- For internal and external components
- Joint widths of up to 120 mm

APPLICATION AREA

SINTON® HQW can be used in in-situ concrete and prefabricated construction. Areas of application are spiral staircases, stair landings as well as supported pergolas. The load transfer can take place evenly in brickwork or concrete walls.

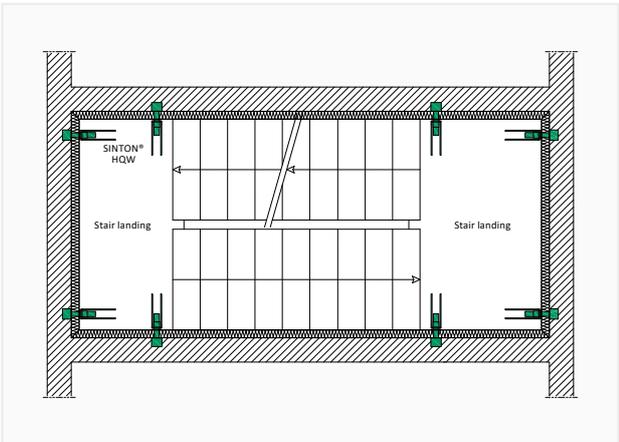
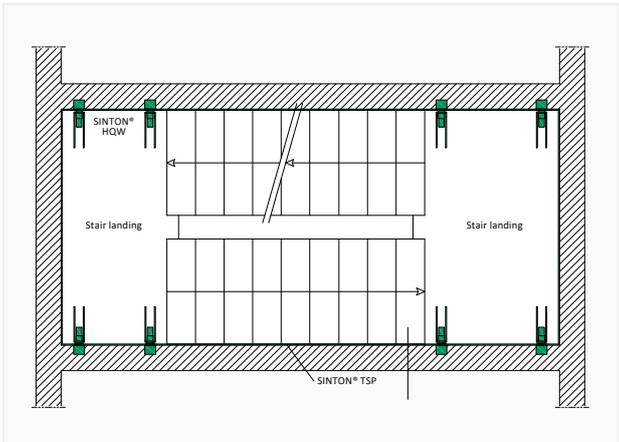
APPLICATION

IN STAIRCASES



Use of SINTON® HQW in a half-spiral staircase, joint insulation with SINTON® TSP

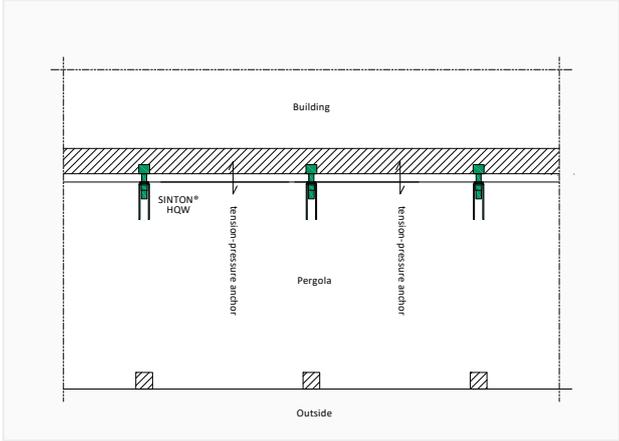
IN STAIR LANDINGS



SINTON® HQW in a landing, joint insulation with SINTON® TSP

SINTON® HQW in a landing at thermally insulated joints.

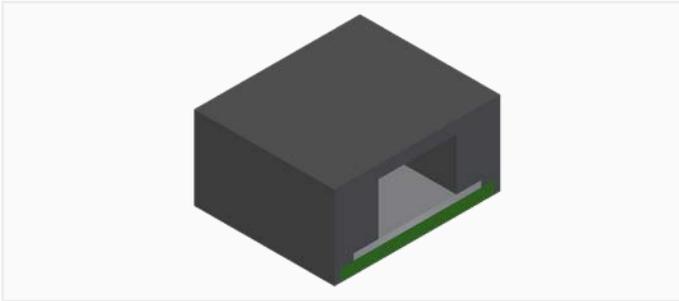
IN SUPPORTED PERGOLAS



SINTON® HQW in a landing, joint insulation with SINTON® TSP

PRODUCT OVERVIEW

PRODUCT COMPONENTS

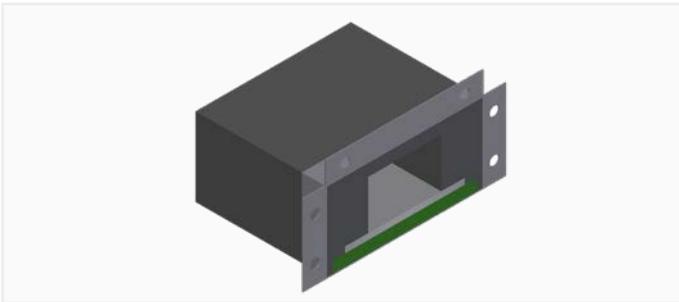


IMPACT SOUND BOX

- HQW 60x40: 10 mm EPDM bearing
- HQW 60x40 Maxi: 20 mm EPDM bearing

- HQW 60x60: 10 mm EPDM bearing
- HQW 60x60 Maxi: 20 mm EPDM bearing

Impact sound box made of polyurethane with EPDM bearing and steel load distribution plate

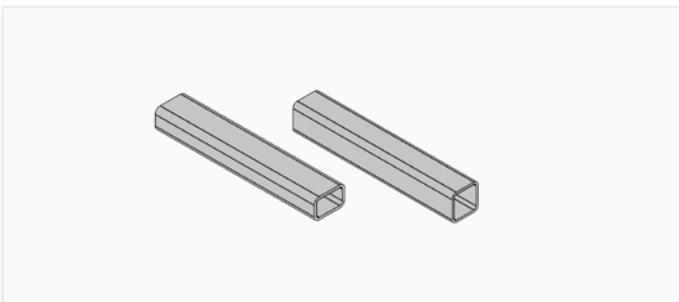


IMPACT SOUND BOX MOUNTING FRAME

- HQW 60x40: 10 mm EPDM bearing
- HQW 60x40 Maxi: 20 mm EPDM bearing

- HQW 60x60: 10 mm EPDM bearing
- HQW 60x60 Maxi: 20 mm EPDM bearing

Impact sound box made of polyurethane with EPDM bearing and steel load distribution plate

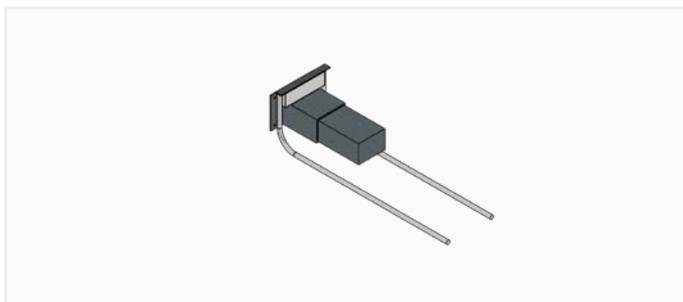


SUPPORTING ELEMENT

- HQW 60x40x5 mm in S355, galvanised
- HQW 60x40x4 mm in S275, V2A (1.4301) / V4A (1.4571)
- Length 300 - 410 mm

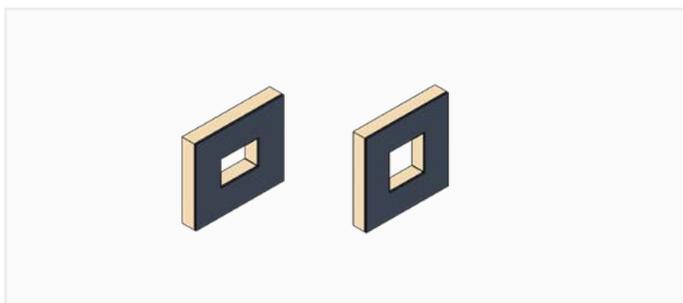
- HQW 60x60x5 mm in S355, galvanised
- HQW 60x60x5 mm in S275, V2A (1.4301) / V4A (1.4571)
- Length 350 - 460 mm

PRODUCT OVERVIEW



BEARING SLEEVE WITH PORTAL

- HQW 60x40: Plastic sleeve with reinforcement stirrup, B500B material
- HQW 60x60: Galvanised sleeve with reinforcement stirrup, B500B material

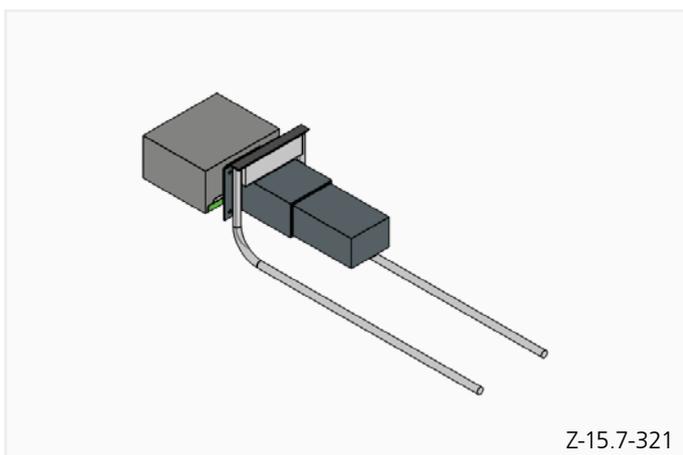


FIRE PROTECTION SLEEVE

- HQW 60x40
- HQW 60x60

Available for joint widths of up to 50 mm, mineral wool material with intumescent coating applied on one side

PRODUCT COMPONENTS



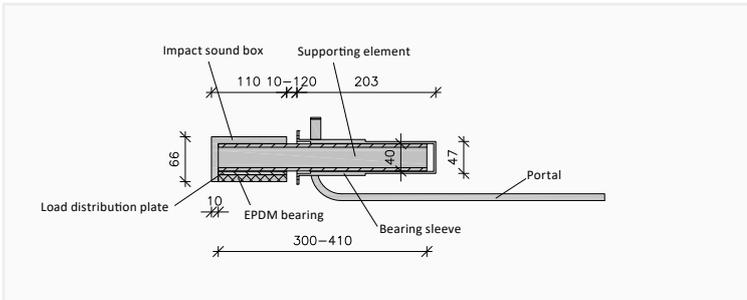
SINTON® HQW

PRODUKTINFORMATION

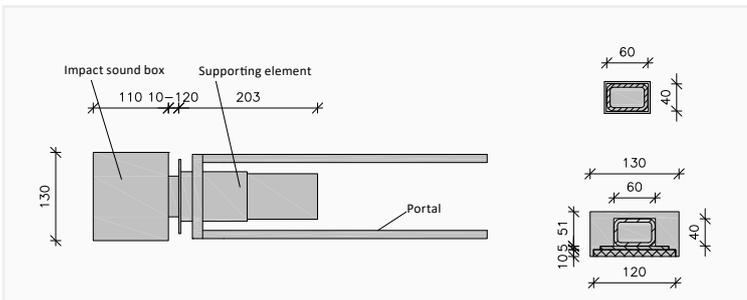
- Reduction in impact sound $\Delta L_{n,w}^* = 41$ dB for SINTON® HQW Maxi for the sound insulation class A* in accordance with DEGA 103
- Reduction in impact sound $\Delta L_{n,w}^* = 30$ dB for SINTON® HQW
- Joint widths of up to 120 mm
- With general technical approval no. Z-15.7-321
- Elastomer bearing in accordance with approval Z-16.32-426
- Fire resistance class F90 for joint widths of up to 40 mm when using the fire protection sleeve

DIMENSIONS

SINTON® HQW 60x40



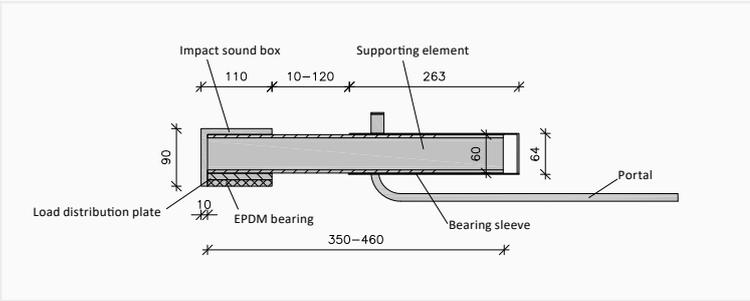
Product cross section of SINTON® HQW 60x40 – example with joint width of 15 mm with TSP



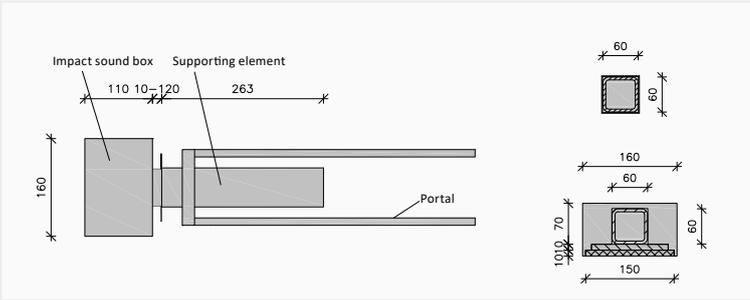
View from above SINTON® HQW 60x40

DIMENSIONS

SINTON® HQW 60X60



Product cross section SINTON® HQW 60x60 – example with joint width of 120 mm



View from above SINTON® HQW 60x60

DIMENSIONING

DIMENSIONING TABLE FOR THE ABSORBABLE SHEARING FORCE V_{Rd} [kN] – CONCRETE C20/25

SINTON®	HQW 60x40			HQW 60x60			
	Joint width f [mm]	Dowel length l [mm]	HQW 60x40x5 S 355 VZ	HQW 60x40x4 S 275 V2A / V4A	Dowel length l [mm]	HQW 60x60x5 S 355 VZ	HQW 60x60x5 S 275 V2A / V4A
10	300	300	37.6	34.2	350	51.7	51.7
15	305	305	36.8	33.0	355	50.8	50.8
20	310	310	36.0	31.8	360	49.9	49.9
40	330	330	33.1	26.7	380	46.6	46.6
50	340	340	31.8	24.5	390	45.1	45.1
60	350	350	30.6	22.5	400	43.7	42.2
80	370	370	28.5	19.3	420	41.2	36.8
100	390	390	25.9	16.9	440	38.9	32.6
120	410	410	23.0	14.5	460	36.9	29.2

DIMENSIONING TABLE FOR THE ABSORBABLE SHEARING FORCE V_{Rd} [kN] – CONCRETE C25/30

SINTON®	HQW 60x40			HQW 60x60			
	Joint width f [mm]	Dowel length l [mm]	HQW 60x40x5 S 355 VZ	HQW 60x40x4 S 275 V2A / V4A	Dowel length l [mm]	HQW 60x60x5 S 355 VZ	HQW 60x60x5 S 275 V2A / V4A
10	300	300	42.6	34.2	350	58.4	58.4
15	305	305	41.7	33.0	355	57.4	57.3
20	310	310	40.7	31.8	360	56.4	56.2
40	330	330	37.4	26.7	380	52.6	48.6
50	340	340	36.0	24.5	390	51.0	45.3
60	350	350	34.6	22.5	400	49.4	42.2
80	370	370	29.7	19.3	420	46.5	36.8
100	390	390	25.9	16.9	440	42.1	32.6
120	410	410	23.0	14.5	460	37.7	29.2

DIMENSIONING

DIMENSIONING TABLE FOR THE ABSORBABLE SHEARING FORCE V_{Rd} [kN] – CONCRETE \geq C30/37

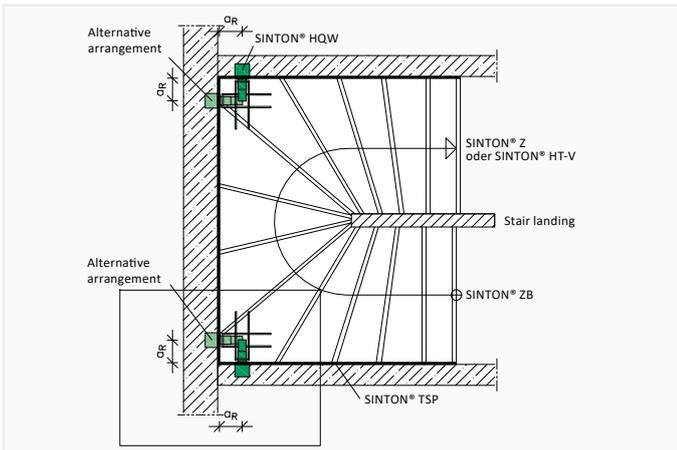
SINTON®	HQW 60x40			HQW 60x60		
Joint width f [mm]	Dowel length l [mm]	HQW 60x40x5 S 355 VZ	HQW 60x40x4 S 275 V2A / V4A	Dowel length l [mm]	HQW 60x60x5 S 355 VZ	HQW 60x60x5 S 275 V2A / V4A
10	300	46.8	34.2	350	64.2	60.4
15	305	45.8	33.0	355	63.1	58.3
20	310	44.7	31.8	360	61.9	56.2
40	330	41.1	26.7	380	57.8	48.6
50	340	37.7	24.5	390	56.0	45.3
60	350	34.7	22.5	400	54.3	42.2
80	370	29.7	19.3	420	47.5	36.8
100	390	25.9	16.9	440	42.1	32.6
120	410	23.0	14.5	460	37.7	29.2

NOTES:

- Additional V_{Rd} values can be found in the approval Z-15.7-321. Intermediate values may also be interpolated linearly.
- SINTON® X can be used as a connection element between reinforced concrete components or between brickwork and reinforced concrete components under the action of static or quasi-static loads.
- A structural verification of the connecting components must be performed by the structural engineer.
- Permitted joint widths: $0 \leq f \leq 120$ mm
- Minimum slab thickness / concrete covering:
 - SINTON® HQW 60x40: $h \geq 160$ mm $c_{nom} \geq 20$ mm
 - SINTON® HQW 60x60: $h \geq 200$ mm $c_{nom} \geq 35$ mm
- SINTON® HQW can be used in reinforced concrete or brick walls.
- The concrete strengths indicated are the respective minimum requirements.
- For brickwork, brick compressive strength class 20 is required in conjunction with mortar group III. For lower brick compressive strength classes, the maximum permitted compression can be achieved using load-distributing concrete padding or a steel plate.
- For long external components, expansion joints in accordance with approval Z-15.7-321 must be taken into account.

ARRANGEMENT OF THE ELEMENTS

CENTRE AND EDGE CLEARANCES

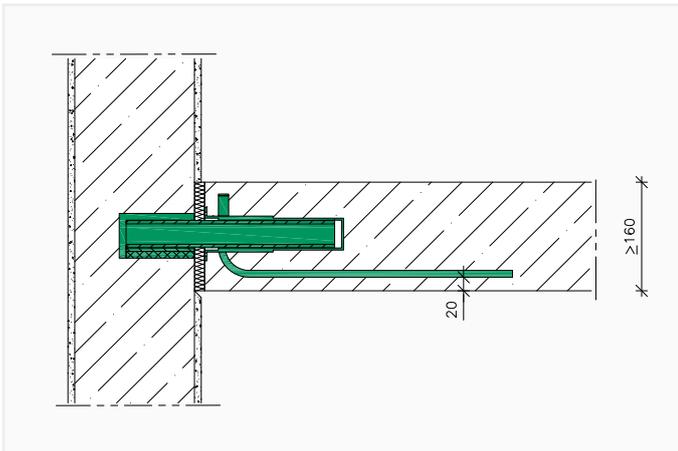


Arrangement of the elements in stair cases – use of HQW with SINTON® TSP

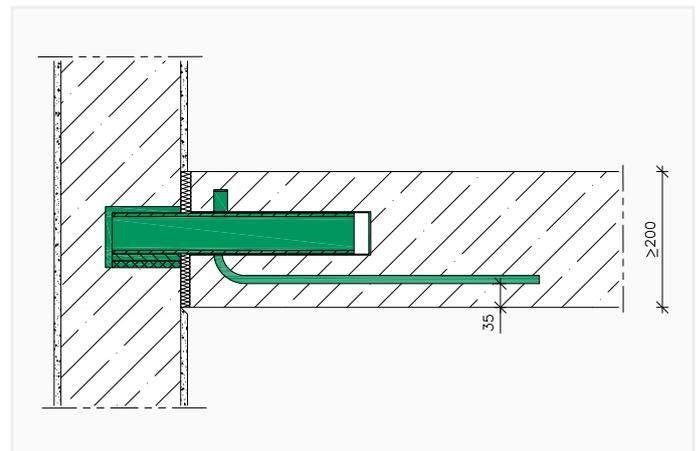
SINTON®	Slab thickness h [mm]	Edge clearance a_R [mm]	Dowel clearance a_D [mm]
HQW 60x40	≥ 160	≥ 200	≥ 400
HQW 60x60	≥ 200	≥ 300	≥ 600

ARRANGEMENT OF THE ELEMENTS

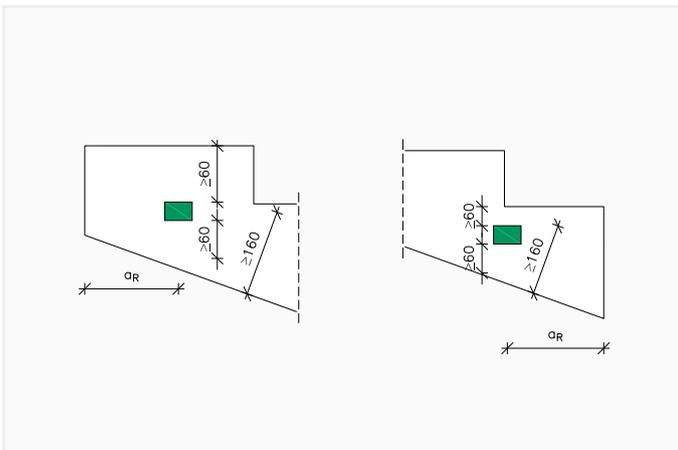
COMPONENT DIMENSION



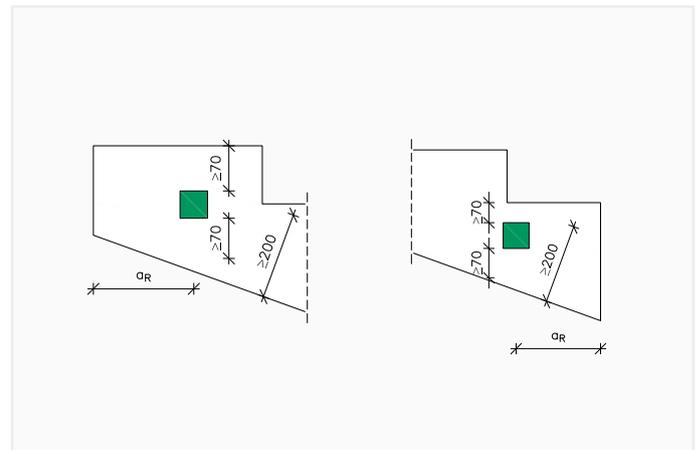
SINTON® HQW 60x40 – Installation for a slab thickness of 160 mm



SINTON® HQW 60x60 – Installation for a slab thickness of 200 mm



SINTON® HQW 60x40 – Installation in spiral staircases



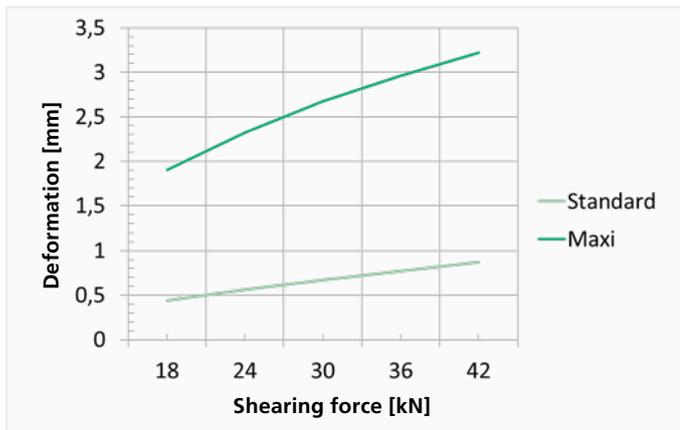
SINTON® HQW 60x60 – Installation in spiral staircases

DEFORMATION

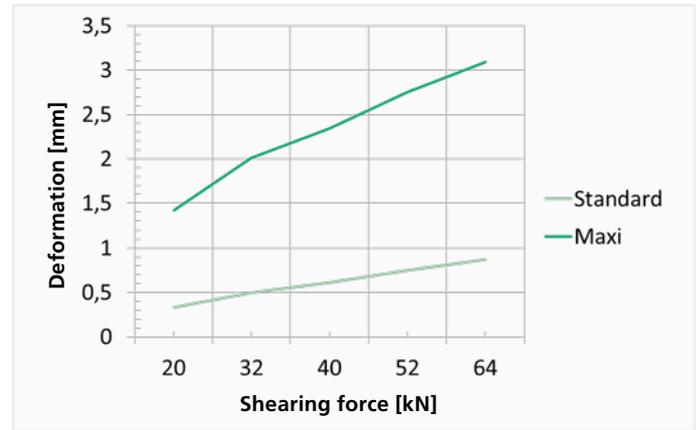
In the event of deformation of the SINTON® HQW, deformations due to EPDM bearing deflection as well as deformations resulting from the tolerance between the bearing sleeve and the supporting element must be taken into consideration. Here, we recommend applying the shearing force in the limit state of suitability for use.

EPDM BEARING DEFLECTION

HQW 60x40



HQW 60x60



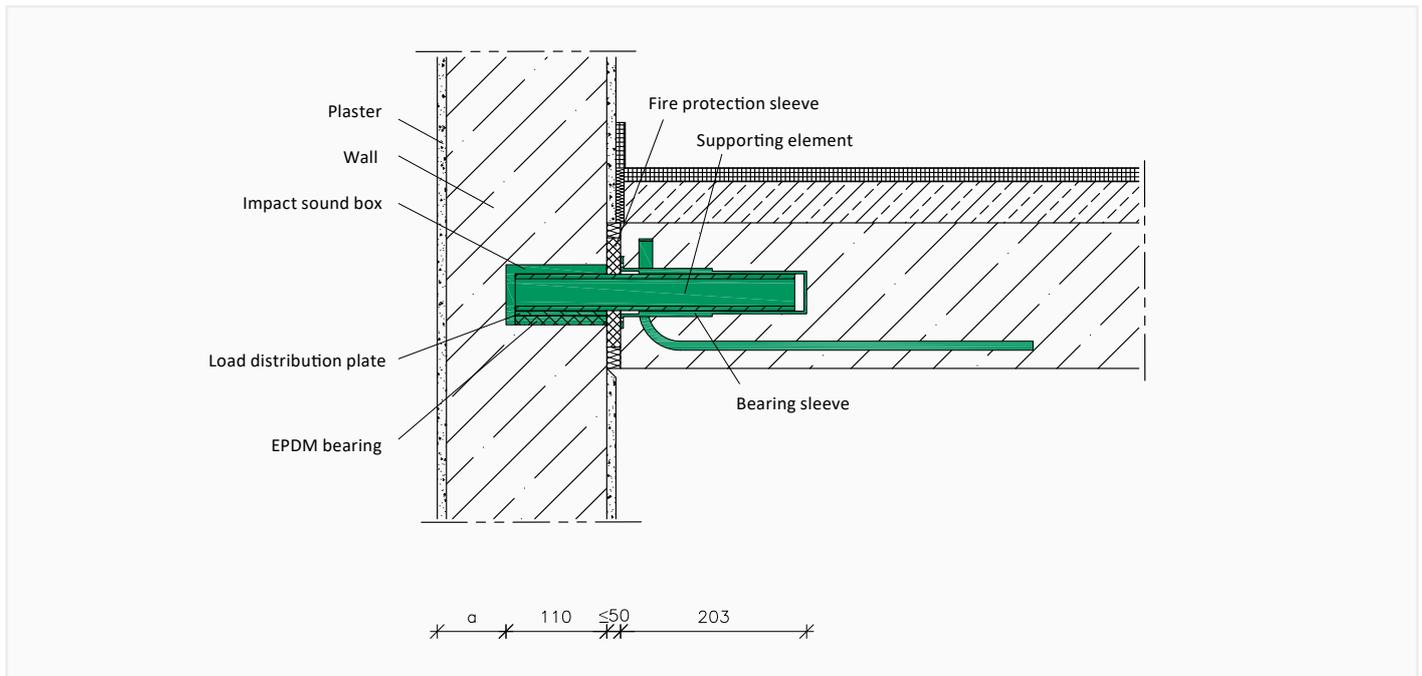
NOTES:

- The deformation of the EPDM bearing results from deflection caused by the vertical load.
- We recommend providing evidence of the deformation for the quasi-continuous load case.
- For deformation resulting from the tolerance between the bearing sleeve and the supporting element, a deformation of 2 mm must also be applied.

FIRE PROTECTION – SOUND INSULATION

FIRE PROTECTION

When an appropriate fire protection sleeve is used, SINTON® HQW can be assigned to fire resistance class of R90, provided it has joint openings up to a maximum of 50 mm.



SINTON® HQW fire protection – to meet the requirements for enclosing walls in terms of the fire protection, a clearance (a) of a ≥ 40 mm must be maintained.

SOUND INSULATION

SINTON® HQW

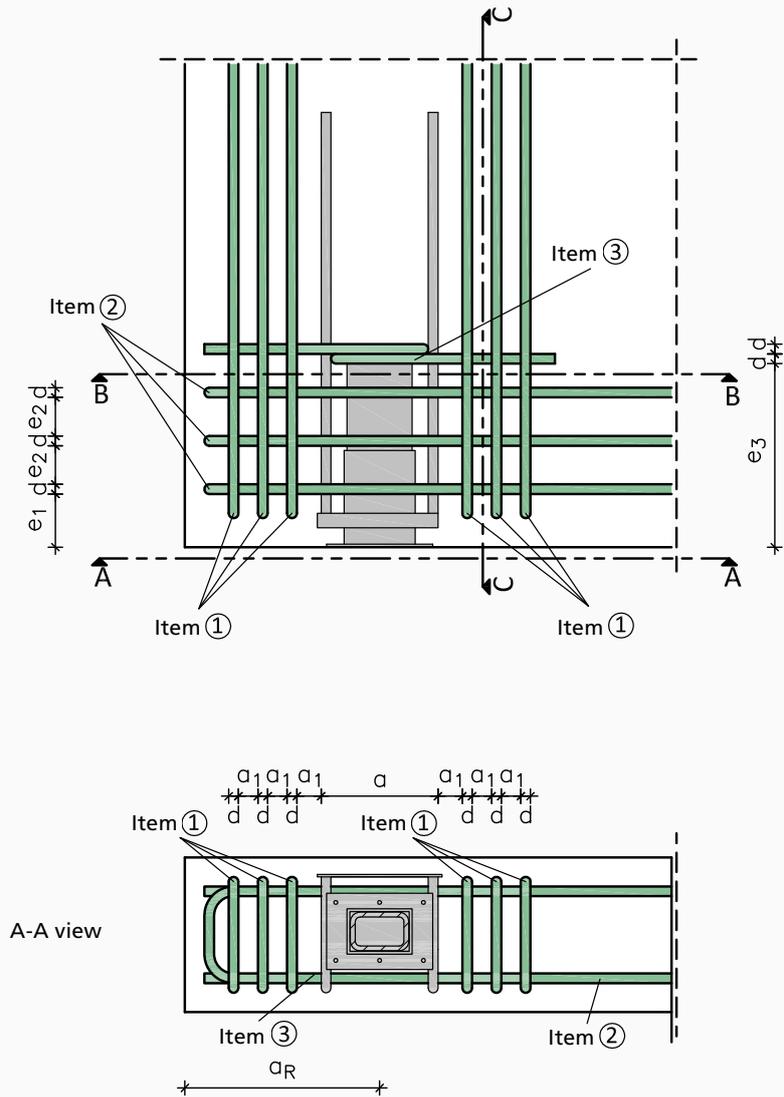
- Reduction in impact sound $\Delta L_{n,w}^* = 30.0$ dB for SINTON® HQW 60x40
- Reduction in impact sound $\Delta L_{n,w}^* = 30.6$ dB for SINTON® HQW 60x60

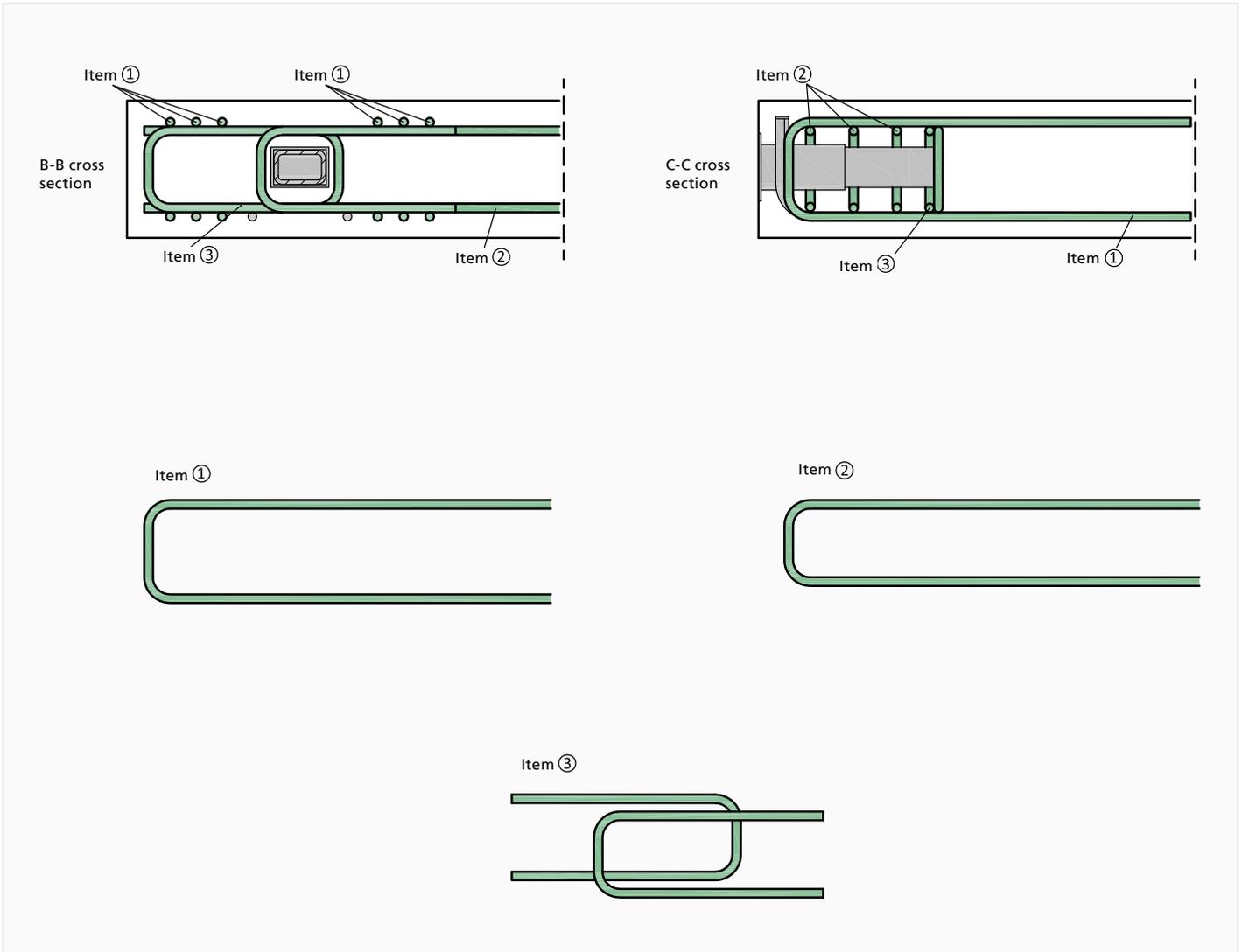
Component tests carried out by the Forschungs- und Entwicklungsgemeinschaft für Bauphysik e.V. at the Hochschule für Technik Stuttgart (Research and Development Community for Building Physics at the University of Applied Sciences, Stuttgart), report no. FEB/FS 57/09 dated 15.06.2009

SINTON® HQW MAXI

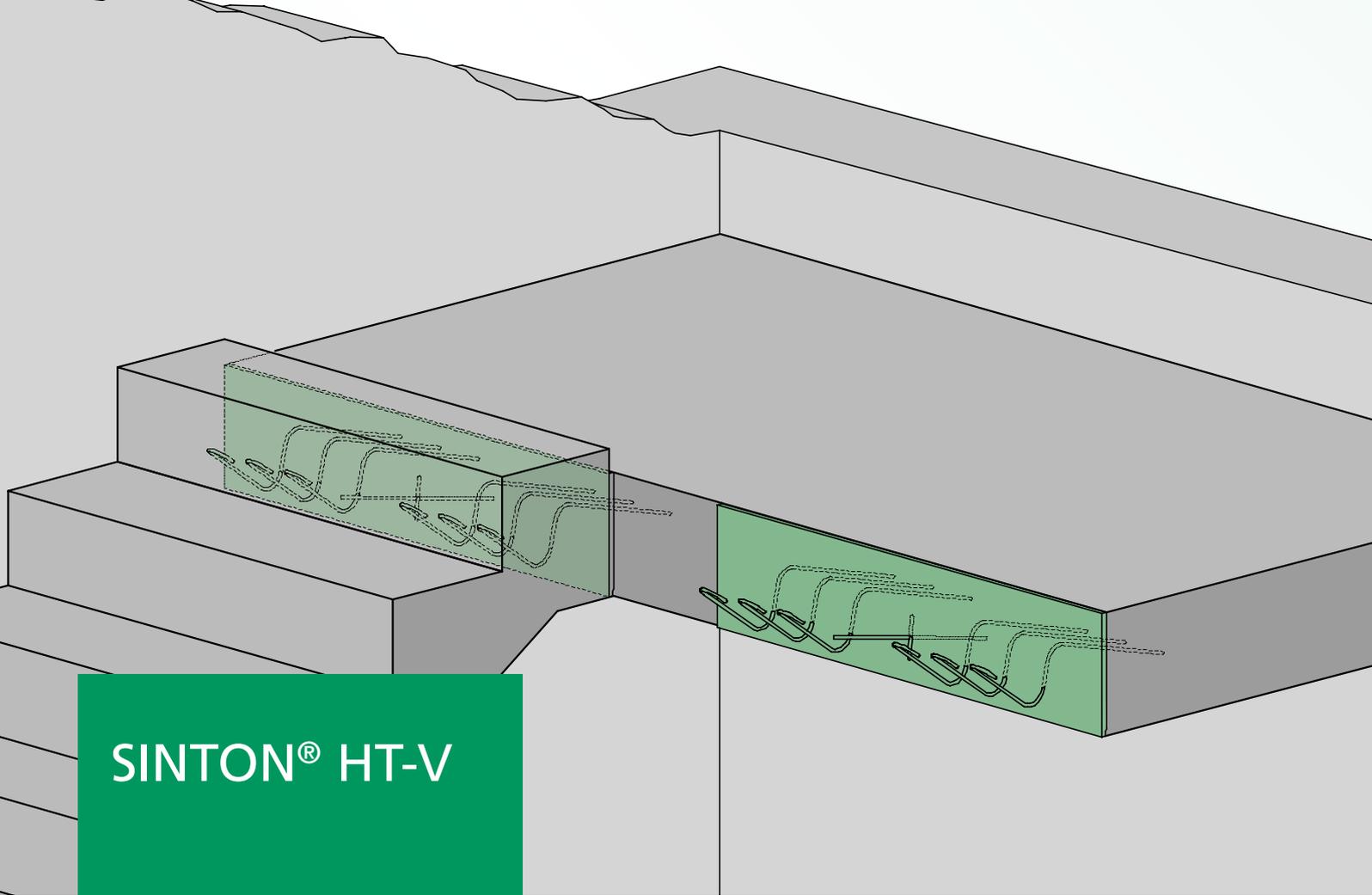
- Reduction in impact sound $\Delta L_{n,w}^* = 41.9$ dB for SINTON® HQW Maxi 60x40
- Reduction in impact sound $\Delta L_{n,w}^* = 42.3$ dB for SINTON® HQW Maxi 60x60

ON-SITE REINFORCEMENT





SINTON® HQW	Dimensions and clearances						Reinforcement		
	a [mm]	a ₁ [mm]	e ₁ [mm]	e ₂ [mm]	e ₃ [mm]	d [mm]	Item 1	Item 2	Item 3
HQW 60x40	120	20	50	30	165	10	2 x 3 Ø 10	3 Ø 10	2 Ø 10
HQW 60x60	124	20	71	30	218	12	2 x 3 Ø 12	3 Ø 12	2 Ø 12



SINTON® HT-V

IMPACT SOUND INSULATION ELEMENT FOR FLIGHTS OF STAIRS

THE PRODUCT

SINTON® HT-V is used to isolate the impact sound generated between flights of stairs and stair landings using a 12-mm-thick insulation element. The insulation element meets the R90 fire protection requirements. The load is transferred by shear rods running through the insulation. Positive shearing forces can be transferred.

The sound absorption elements satisfy the minimum requirements for sound insulation.

BENEFITS

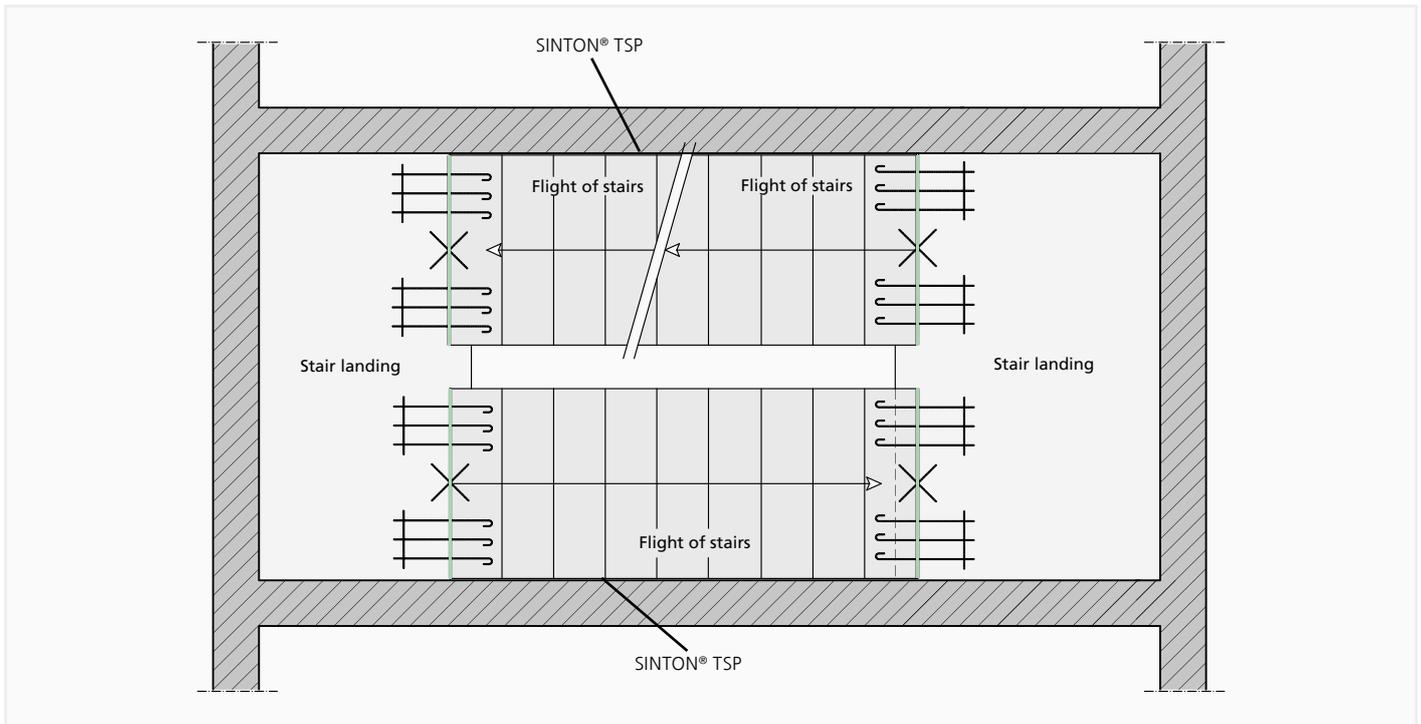
- Type-tested
- Fire resistance class R90
- High load-bearing capacity
- Installation on the building site or in the prefabricated structure
- Quick and easy installation
- Acoustically tested

APPLICATION AREA

SINTON® HT-V is suitable for use in both prefabricated stairs and in-situ concrete stairs. The landing can be made from in-situ concrete or supplied as a semi-finished prefabricated part.

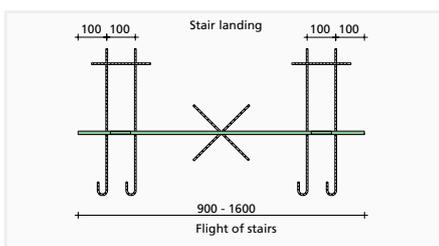
APPLICATION – PRODUCT OVERVIEW

APPLICATION

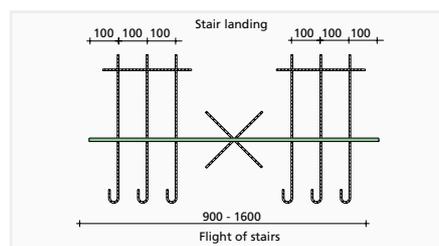


Use of SINTON® HT-V in a landing in combination with SINTON® TSP

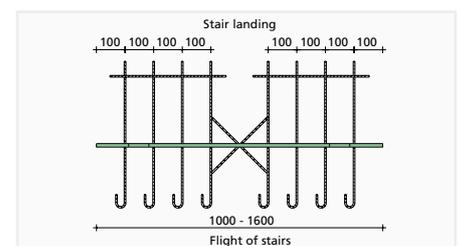
PRODUCT OVERVIEW



SINTON® HT-V 4



SINTON® HT-V 6



SINTON® HT-V 8

FIRE PROTECTION

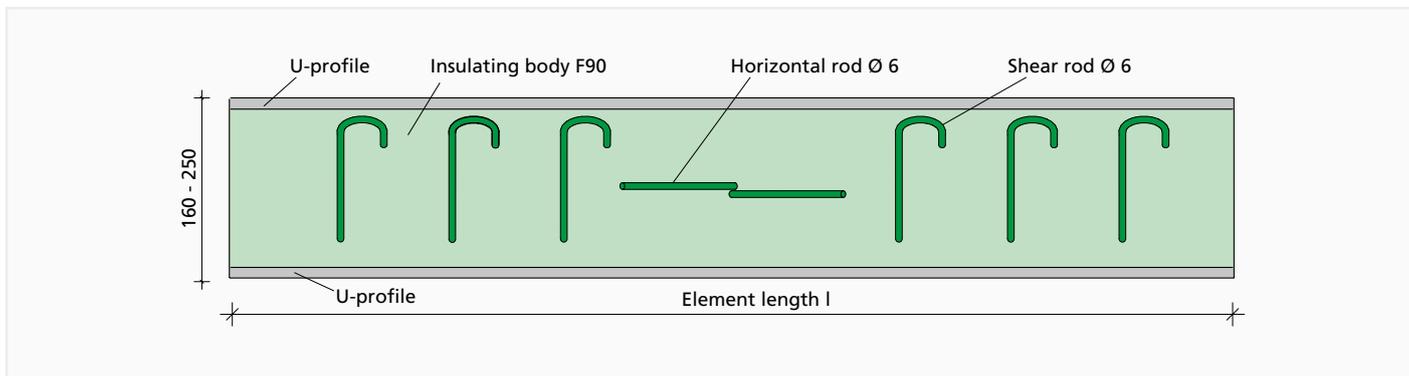
SINTON® HT-V corresponds to fire resistance class R90.

SOUND INSULATION

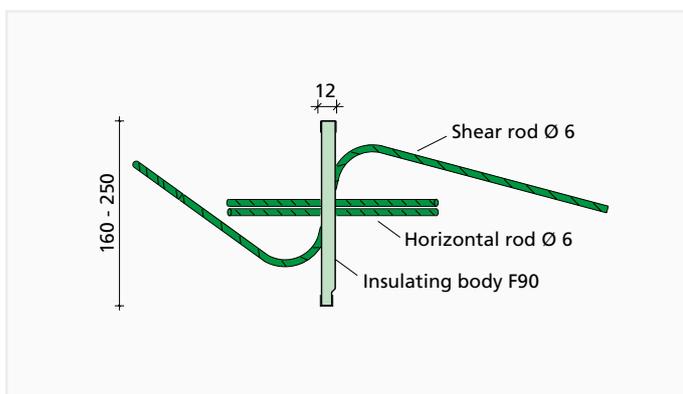
Impact sound absorption $\Delta L^*_w = 16$ dB

DIMENSIONS – DIMENSIONING

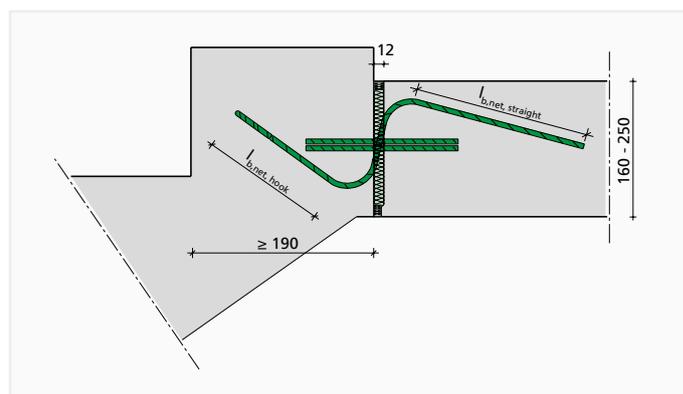
DIMENSIONS



View of SINTON® HT-V - example illustration



Side view of SINTON® HT-V



Installation cross section of SINTON® HT-V

DIMENSIONING TABLE FOR CONCRETE \geq C20/25 – CONFIGURATION – DIMENSIONS

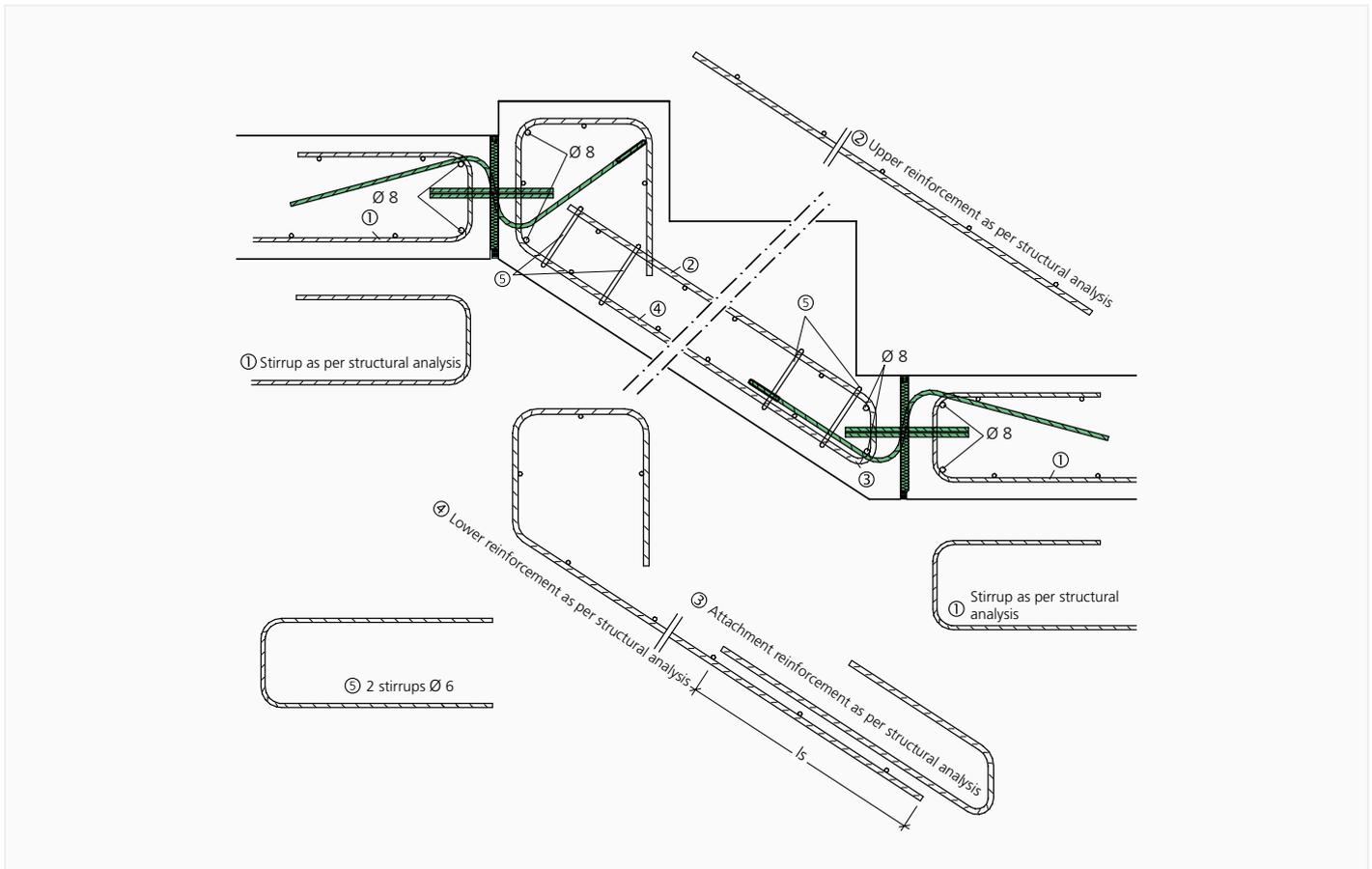
SINTON®	V_{Rd} [kN]	H_{Rd} * [kN]	Number of rods	$l_{b,net, straight}$	$l_{b,net, hook}$
HT-V 4	34.5	± 8.6	4 $\varnothing 6$	200	145
HT-V 6	51.7	± 8.6	6 $\varnothing 6$	200	145
HT-V 8	69.0	± 8.6	8 $\varnothing 6$	200	145

* H_{Rd} parallel to joint

NOTES:

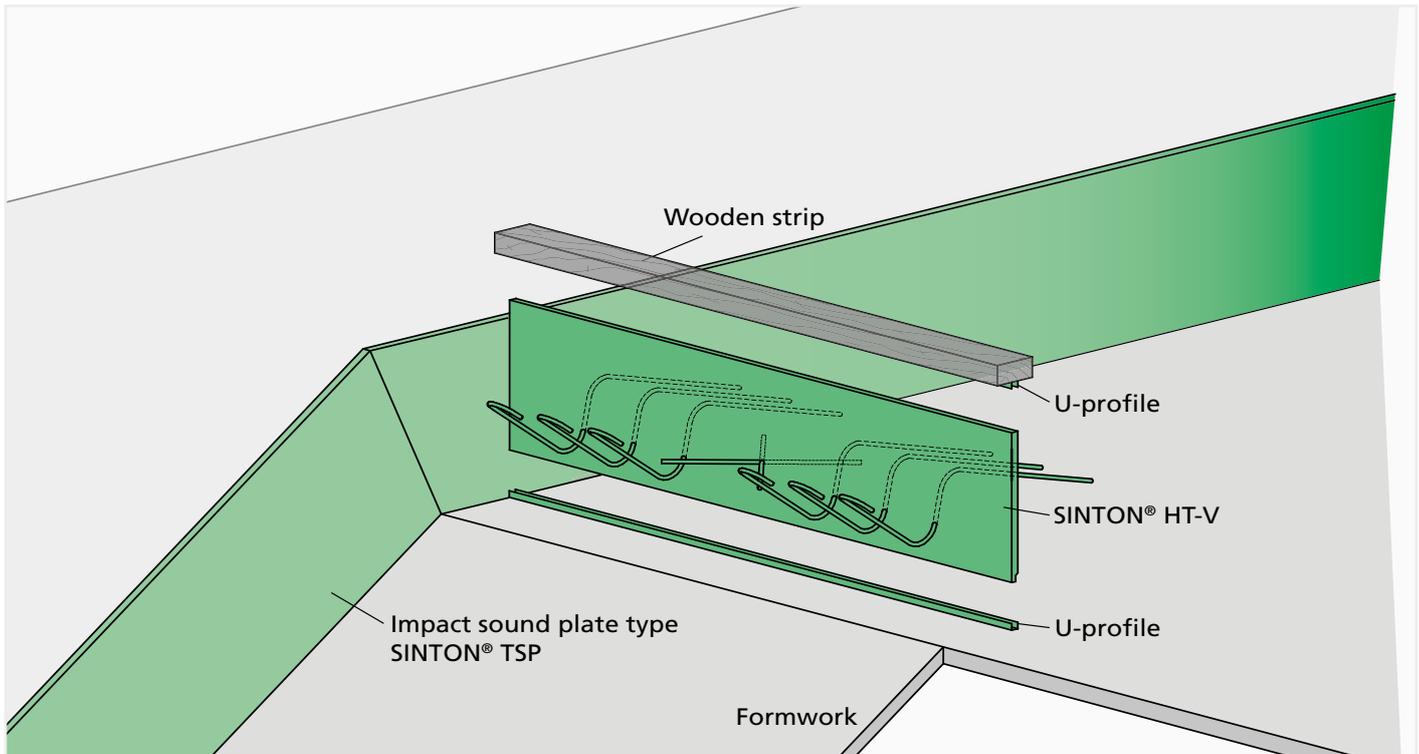
- SINTON® HT-V elements are only suitable for use under predominantly dead loads and evenly distributed traffic loads.
- The maximum shearing forces occurring in the neighbouring components must be limited in accordance with DIN EN 1992-1-1.
- The structural verification of the connected components is performed by the responsible structural engineer. As such, the stairs can be classed as articulated on the SINTON® HT-V.
- The torques of the eccentric connection must be taken into account and superimposed with the torques of the planned load.

ON-SITE REINFORCEMENT



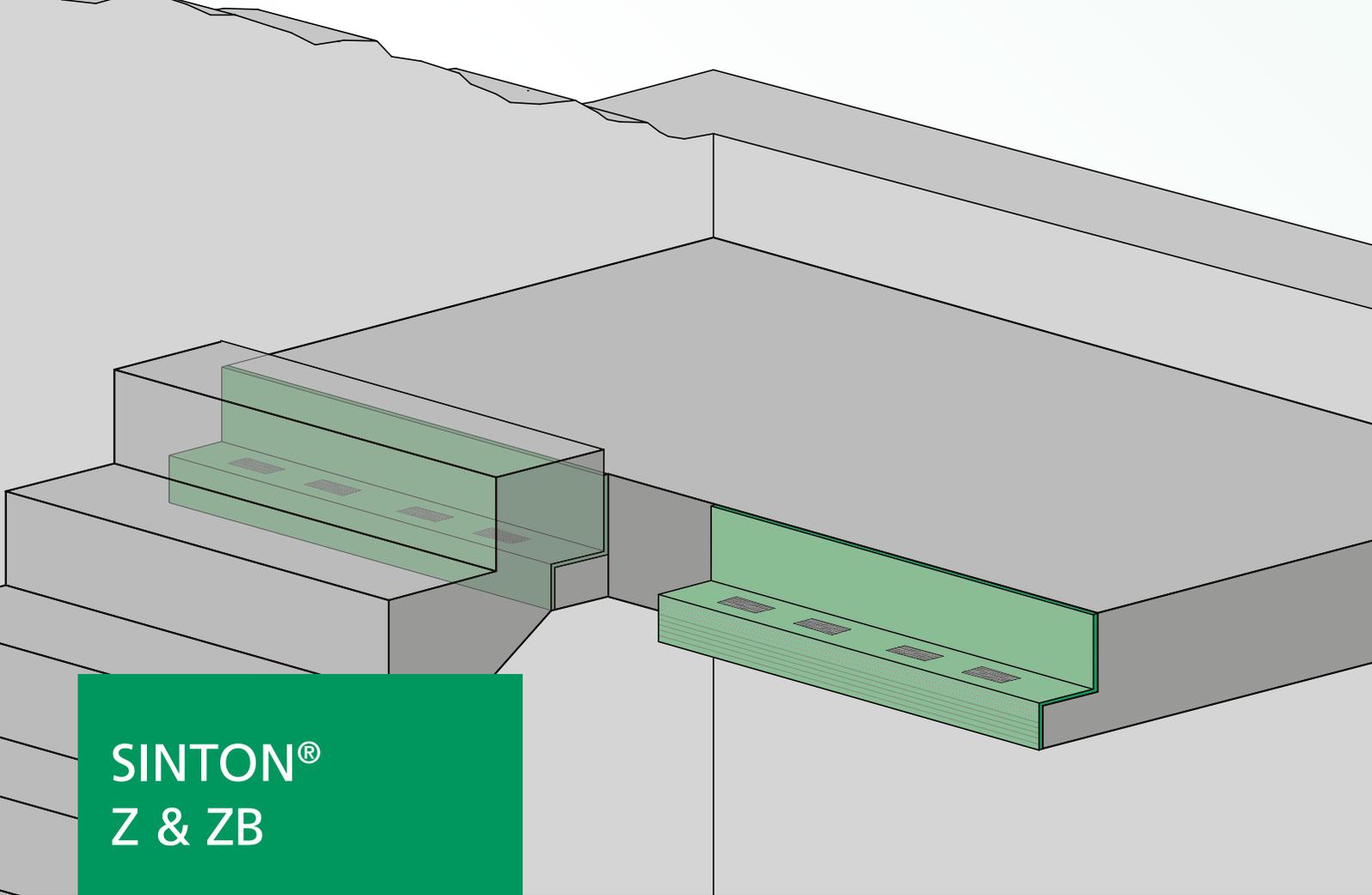
- Item 1 Edge banding as per DIN EN 1992-1-1 along the components to be connected
- Item 2 Stair reinforcement in accordance with details provided by the structural engineer
- Item 3 Attachment reinforcement for the maximum shearing force occurring in the flight of stairs
- Item 4 The lower longitudinal reinforcement of the flight of stairs must reach right up to the SINTON® HT-V element and be bent up and reliably anchored.
- Item 5 Transverse reinforcement as per DIN EN 1992-1-1, at least 2 Ø 6

INSTALLATION INSTRUCTIONS



- Form the flight of stairs and stair landing
- Bond the stair stringer on the staircase wall to the self-adhesive impact sound plate type SINTON® TSP
- Mark the position of the impact sound element on the formwork
- Nail down the lower U-profile of the element onto the landing formwork
- Insert SINTON® HT-V into the U-profile and slide it onto the impact sound plate
- Nail down the upper U-profile onto a wooden slat
- Fit the slat with U-profile onto SINTON® HT-V
- Align SINTON® HT-V vertically and attach with the wooden slat to the stringer formwork or the staircase wall
- Insert the on-site reinforcement
- Attach the stopend formwork for the steps
- Add concrete

Our applications department
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finding further solutions.
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Fax: +49 (0) 7742 9215-319
Email: technik@h-bau.de



SINTON® Z & ZB

IMPACT SOUND INSULATION ELEMENTS FOR PREFABRICATED FLIGHTS OF STAIRS

THE PRODUCT

SINTON® Z is used to isolate the impact sound generated between prefabricated stairs and stair landings. The SINTON® ZB element is used to isolate the impact sound generated between flights of stairs and the base plate.

The element consists of a 10-mm-thick insulation plate with integrated sound insulation bearings for transferring positive shearing forces.

The sound absorption elements satisfy the requirements for increased sound insulation.

BENEFITS

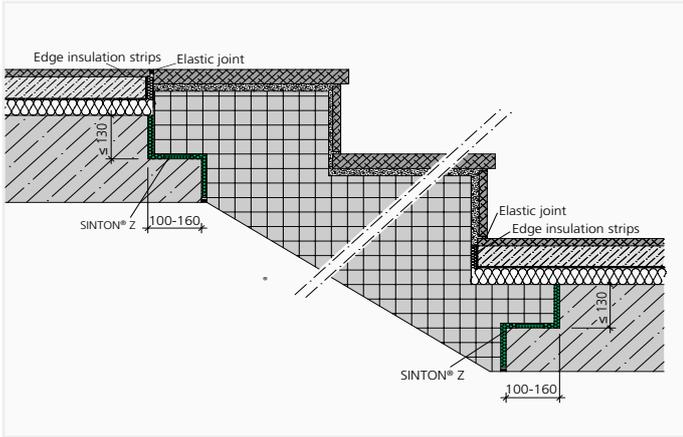
- Quick and easy assembly
- Simple adaptation to component dimensions
- High load-bearing capacity

APPLICATION AREA

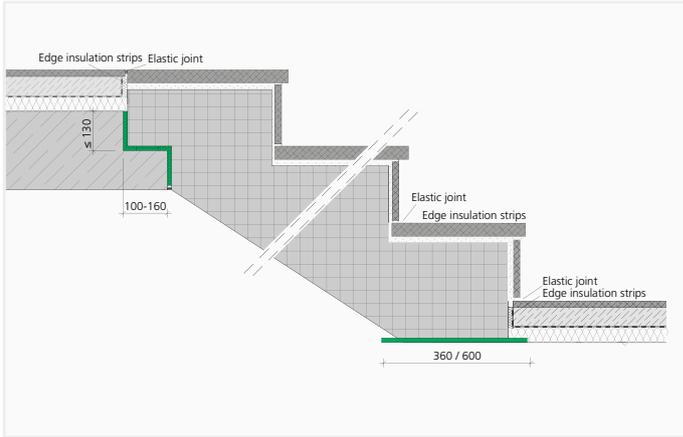
The SINTON® Z element is suitable for use between prefabricated flights of stairs and prefabricated or in-situ concrete landings. As such, a bracket is required in order to support the stairs on the landing.

APPLICATION

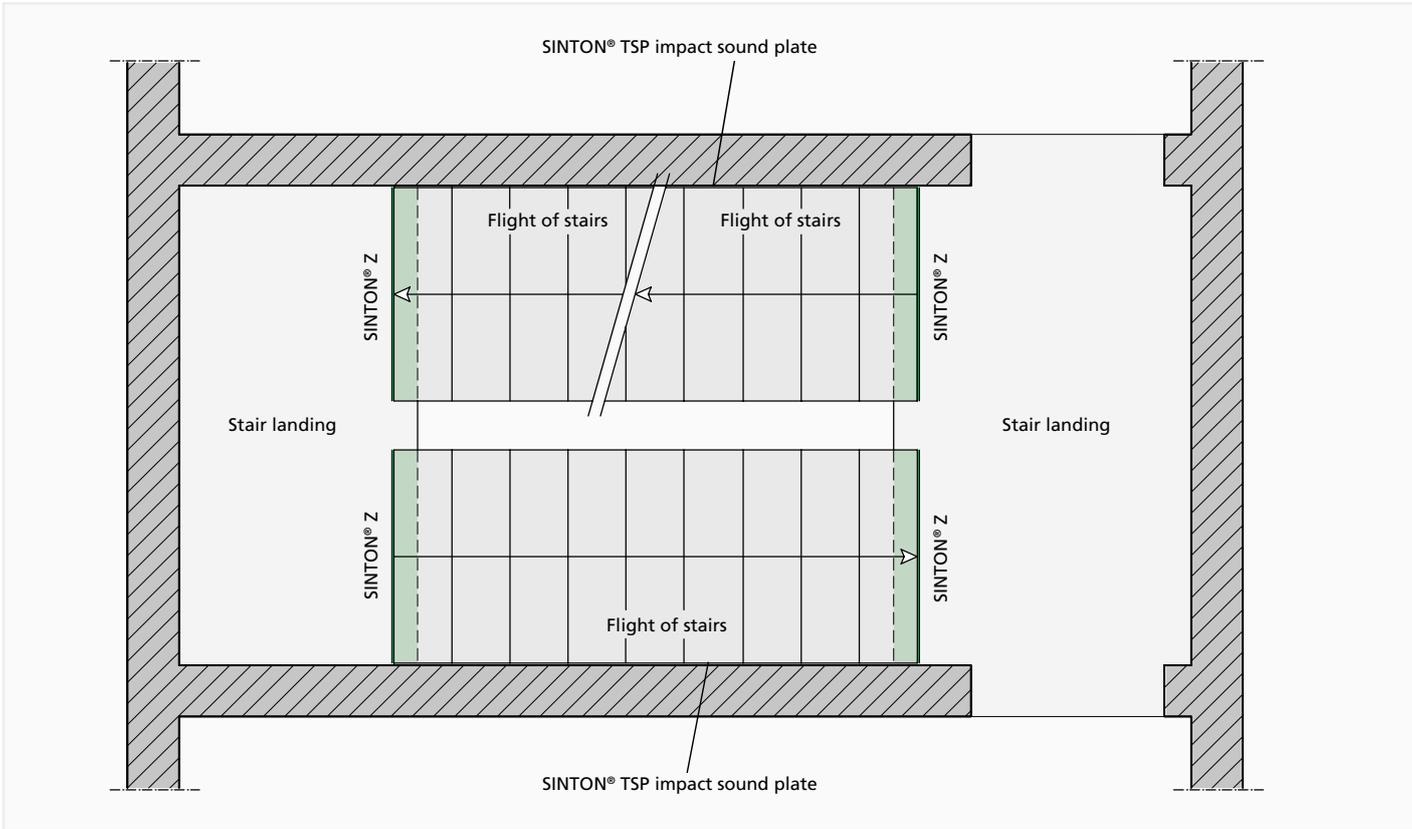
SYSTEM CROSS SECTION OF TYPE Z



SYSTEM CROSS SECTION OF TYPE ZB



SUGGESTED ARRANGEMENT FOR SINTON® TYPE Z – FLOOR PLAN



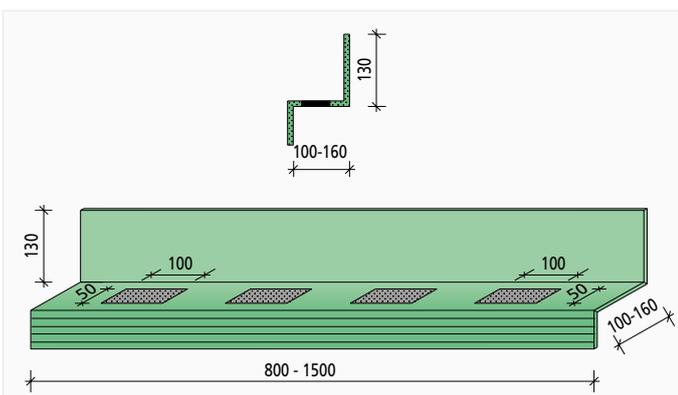
DIMENSIONING & DIMENSIONS

DIMENSIONING TABLE FOR SINTON® Z

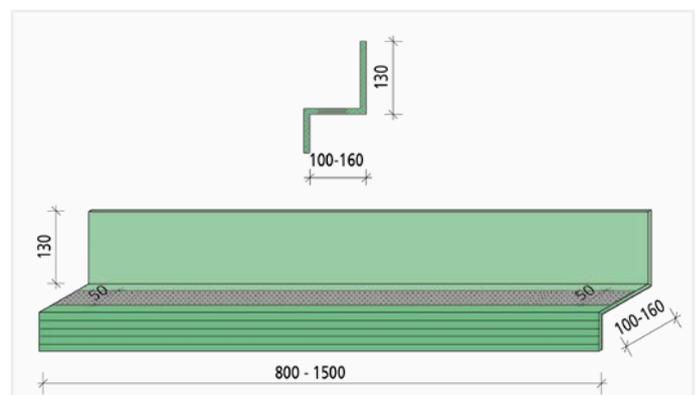
SINTON® type Z	Staircase width [mm]	V_{Rd}	Dimensions w x h x d [mm]	Number of bearings
Z 100/4	800 - 1000	35.0 kN	1000 x 10 x Z	4
Z 100/5	900 - 1000	43.8 kN	1000 x 10 x Z	5
Z 100/L	800 - 1000	87.5 kN/m	1000 x 10 x Z	Linear bearing
Z 110/5	1000 - 1100	43.8 kN	1100 x 10 x Z	5
Z 110/L	1000 - 1100	87.5 kN/m	1100 x 10 x Z	Linear bearing
Z 120/6	1100 - 1200	52.5 kN	1200 x 10 x Z	6
Z 120/L	1100 - 1200	87.5 kN/m	1200 x 10 x Z	Linear bearing
Z 150/6	1200 - 1500	52.5 kN	1500 x 10 x Z	6
Z 150/L	1200 - 1500	87.5 kN/m	1500 x 10 x Z	Linear bearing

The maximum load of the SINTON® Z elements increases by 8.75 kN with every additional bearing.

DIMENSIONS



SINTON® Z dimensions - configuration with single bearings



SINTON® Z dimensions - configuration with linear bearing

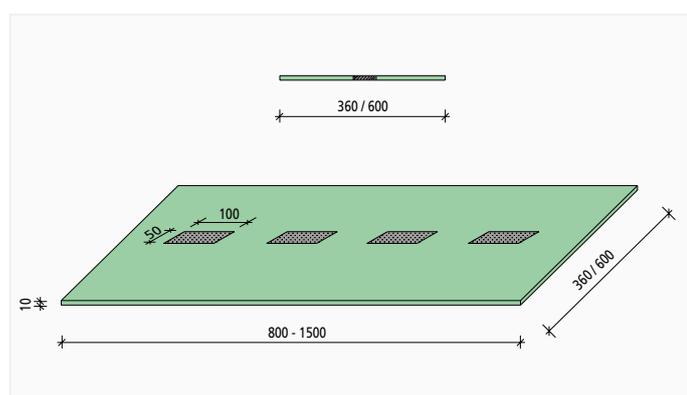
DIMENSIONING & DIMENSIONS

DIMENSIONING TABLE FOR SINTON® ZB

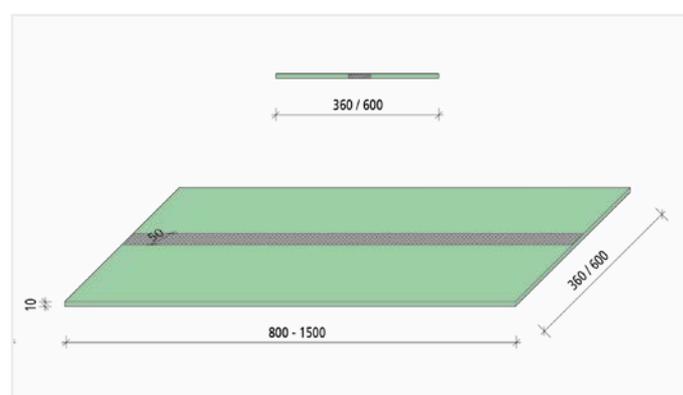
SINTON® type ZB	Staircase width [mm]	V_{Rd}	Dimensions w x h x d [mm]	Number of bearings
ZB 100 x 36/4	800 - 1000	35.0 kN	1000 x 10 x 360	4
ZB 100 x 60/4	800 - 1000	35.0 kN	1000 x 10 x 600	4
ZB 100 x 36/5	900 - 1000	43.8 kN	1000 x 10 x 360	5
ZB 100 x 60/5	900 - 1000	43.8 kN	1000 x 10 x 600	5
ZB 100 x 36/L / ZB 100 x 60/L	800 - 1000	87.5 kN/m	1000 x 10 x 360	Linear bearing
ZB 110 x 36/6	1000 - 1100	52.5 kN	1100 x 10 x 360	6
ZB 110 x 60/6	1000 - 1100	52.5 kN	1100 x 10 x 600	6
ZB 110 x 36/L / ZB 110 x 60/L	1000 - 1100	87.5 kN/m	1100 x 10 x 360	Linear bearing
ZB 120 x 36/6	1100 - 1200	52.5 kN	1200 x 10 x 360	6
ZB 120 x 60/6	1100 - 1200	52.5 kN	1200 x 10 x 600	6
ZB 120 x 36/L / ZB 120 x 60/L	1100 - 1200	87.5 kN/m	1200 x 10 x 360	Linear bearing
ZB 150 x 36/6	1200 - 1500	52.5 kN	1500 x 10 x 360	6
ZB 150 x 60/6	1200 - 1500	52.5 kN	1500 x 10 x 600	6
ZB 150 x 36/L / ZB 150 x 60/L	1200 - 1500	87.5 kN/m	1500 x 10 x 360	Linear bearing

The maximum load of the SINTON® ZB elements increases by 8,75 kN with every additional bearing.

DIMENSIONS



SINTON® ZB dimensions – configuration with single bearings



SINTON® ZB dimensions – configuration with linear bearings

FIRE PROTECTION – SOUND INSULATION

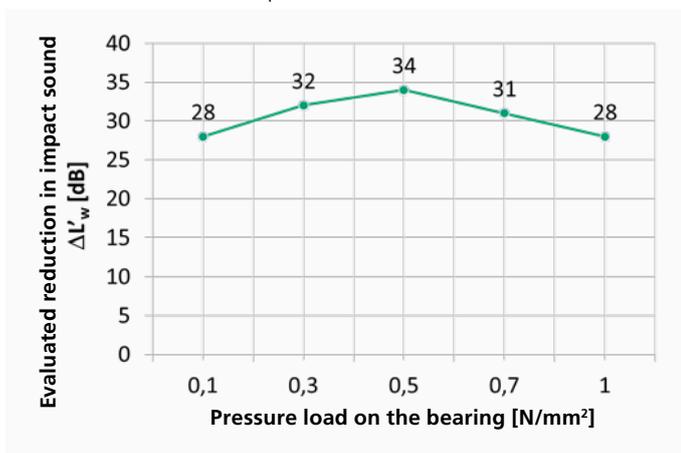
FIRE PROTECTION

The SINTON® Z & ZB sound absorption elements have a construction material class of B2 according to DIN 4102. In accordance with DIN 4102-4, stairs are connected monolithically to landings with joint widths of ≤ 30 mm. In order for the bracket support to correspond to resistance class R90, the conditions specified in DIN 4102-4 Section 3.2.5 for the dimensions of the bracket and minimum centre distances of the reinforcement must be observed.

SOUND INSULATION

By using the SINTON® Z & ZB sound absorption elements, reductions in impact sound of $\Delta L'_w \geq 28$ dB can be achieved.

Evaluated reduction in impact sound

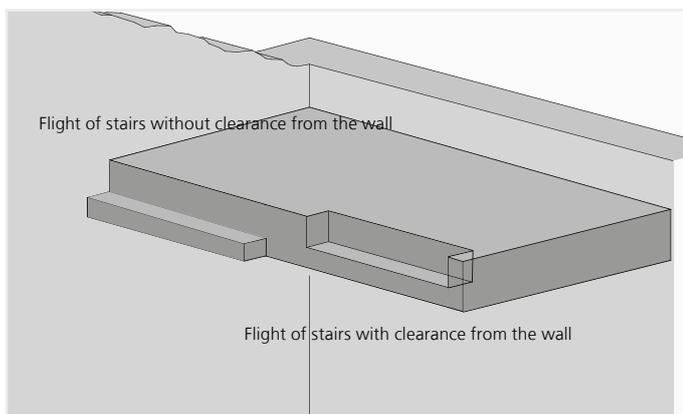


NOTES:

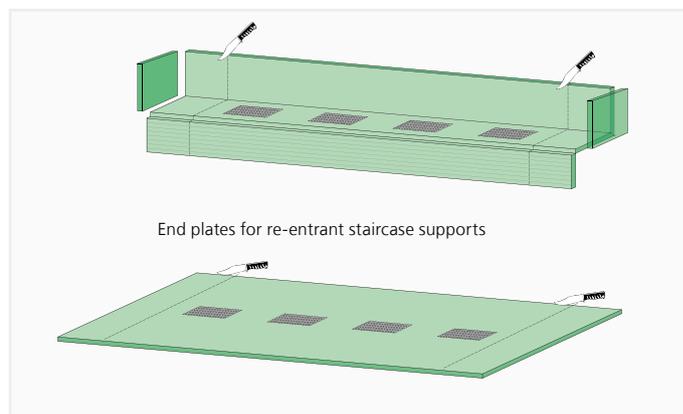
- When determining the reduction in impact sound $\Delta L'_w \geq 28$ dB, the quasi-continuous load case is required.
- The load based on the level of suitability for use is determined as follows: $V_{Ek} = V_{Rd,max} / 1.4 * (2/3 + 1/3 * 0.3)$
- This is based on the assumption that 2/3 of the load consists of dead loads and 1/3 of imposed loads.
- For differing loads, the reduction in impact sound can be found in the diagram above.
- The reductions in impact sound can be found in the expert report no. 11624/Pen/mü/2002 for the sound damping ribbed bearing.

INSTALLATION INSTRUCTIONS

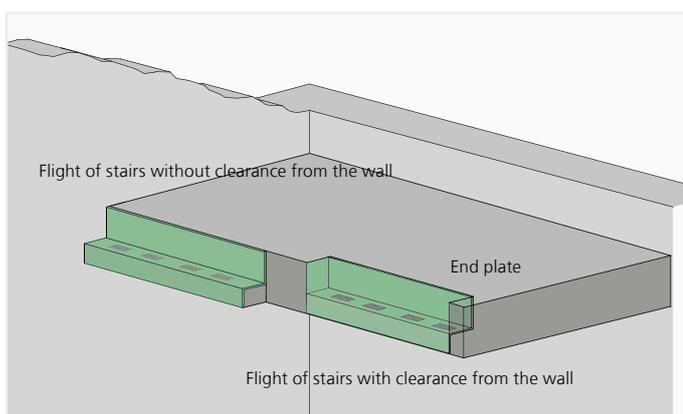
INSTALLATION SINTON® Z



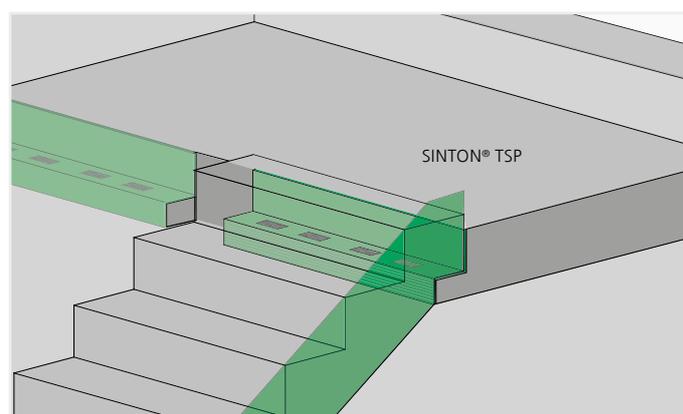
- Install the support on the stair landing



- If necessary, the elements can be cut to length with a knife to match the width of the staircase

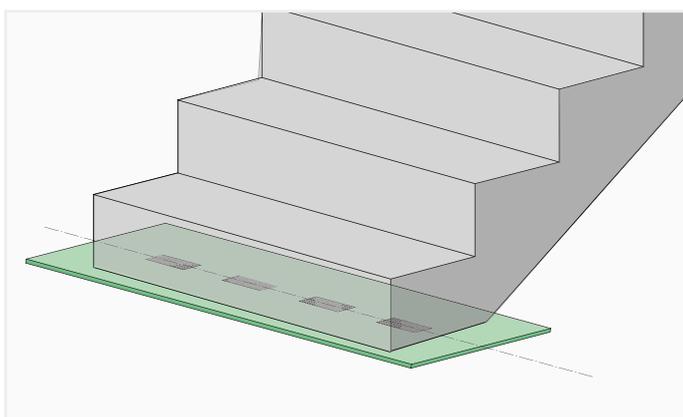


- Remove the protective film from the adhesive rear surface
- Position and press down SINTON® on the staircase support
- In the case of a re-entrant staircase support, use end plates

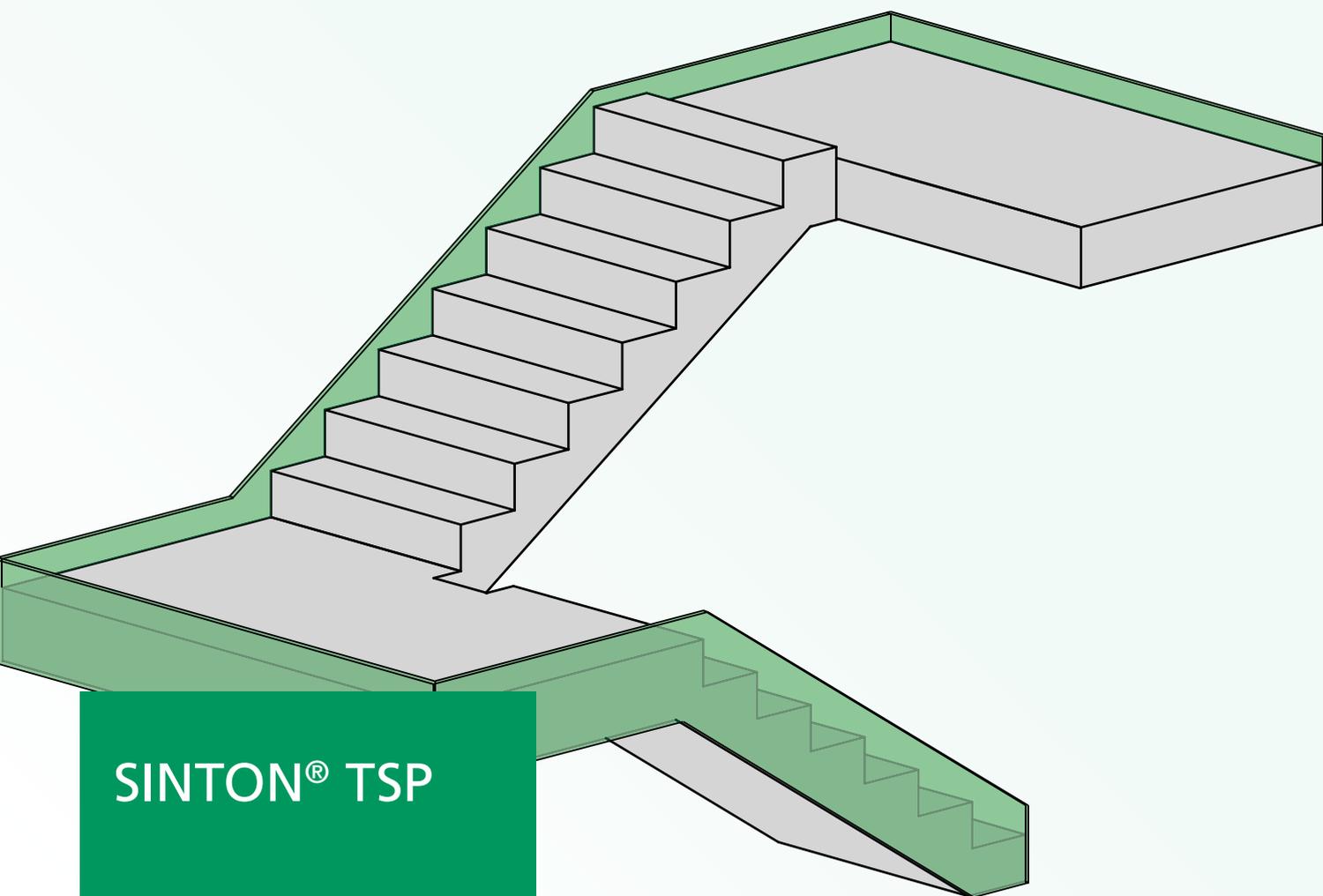


- Offsetting the flight of stairs
- In the case of flights of stairs without clearance from the wall, an impact sound plate type SINTON® TSP must be attached to the stair stringer

INSTALLATION SINTON® ZB



- Centre the SINTON® ZB sound absorption element on the supporting surface of the flight of stairs, then lay the flight of stairs
- In the case of flights of stairs without clearance from the wall, an impact sound plate type SINTON® TSP must be attached to the stair stringer.



SINTON® TSP

FOR STAIR STRINGERS AND STAIR LANDINGS

THE PRODUCT

The SINTON® TSP impact sound plate is a self-adhesive, flexible insulation plate for isolating the sound generated in concrete components that lie flush with the staircase wall.

BENEFITS

- Quick assembly thanks to self-adhesive rear surface
- 15 m by the roll, reduces impact
- Reliable sound attenuation

INSTALLATION

The SINTON® TSP impact sound plate is bonded to the front of the component in the case of prefabricated parts. In the case of in-situ concrete, the plate is attached to the staircase wall. Joints must be masked.

DIMENSIONS



Type	Width [mm]	Thickness [mm]	Roll length [m]
TSP 24	240	15	15.00
TSP 36	360	15	15.00
TSP 48	480	15	15.00

SOUND INSULATION

The SINTON® TSP impact sound plate reliably isolates the sound generated in flights of stairs and landings from the staircase walls.

FIRE PROTECTION

The SINTON® TSP impact sound plate has a construction material class of B2 according to DIN 4102.

NOTE:

- The impact sound plates must be connected to one another seamlessly. We recommend masking the joints with adhesive tape in order to prevent the ingress of foreign objects between the stairs and the staircase wall.

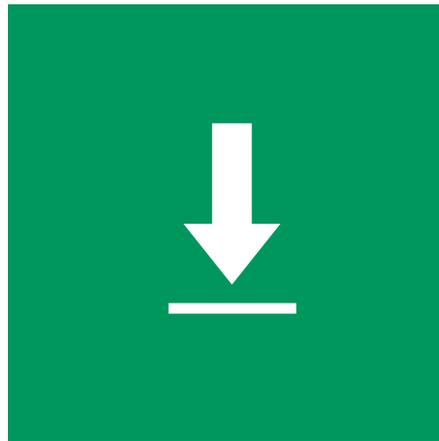
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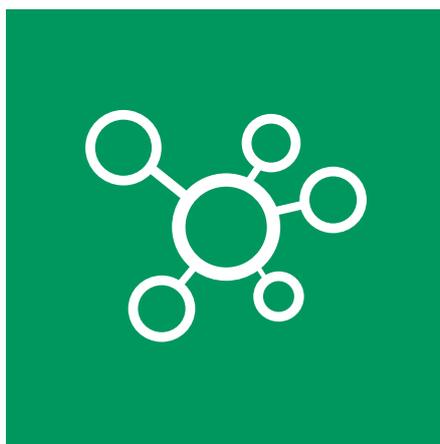
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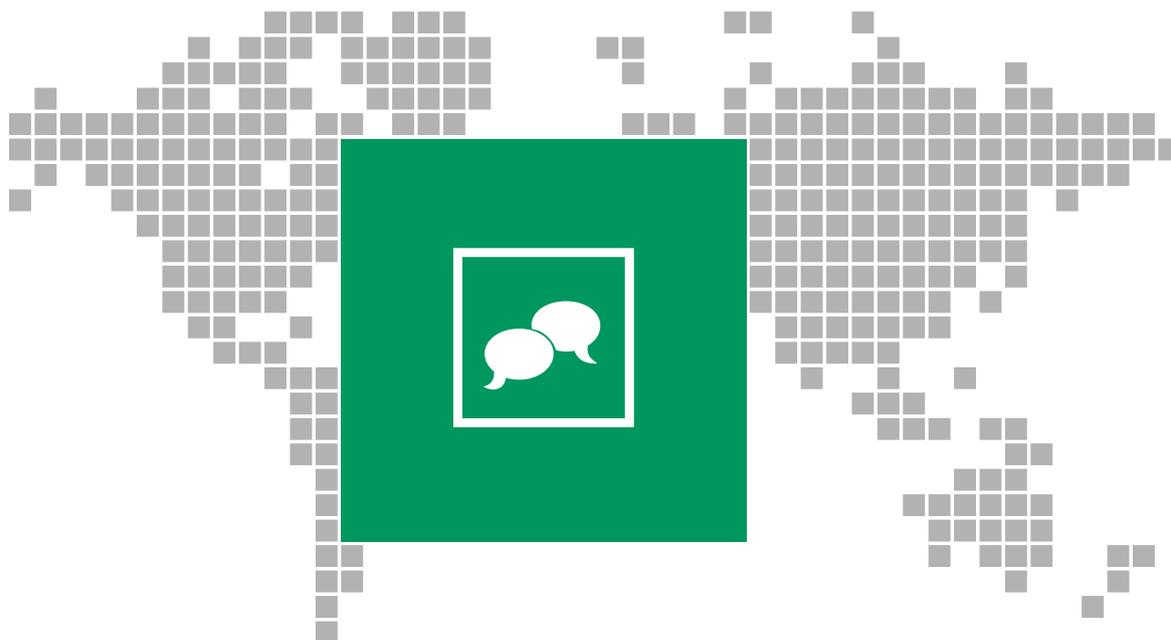
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Forward Constructing.

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