

HALFEN IMPACT SOUND INSULATION

TECHNICAL PRODUCT INFORMATION



HALFEN SOUND INSULATION PRODUCTS

ISI 18-E

CONCRETE



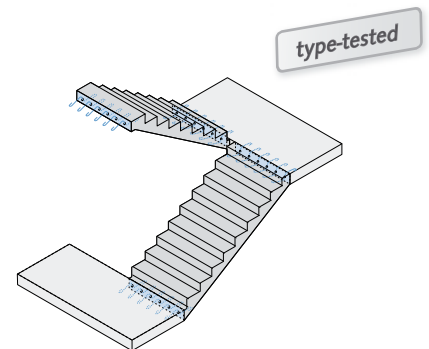
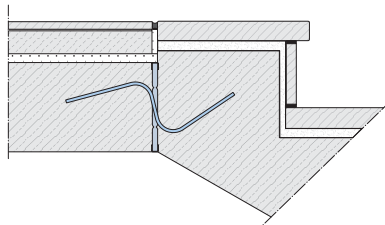
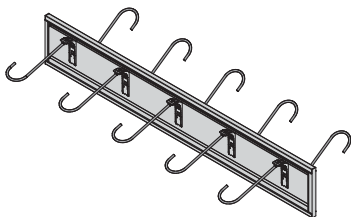
HALFEN
YOUR BEST CONNECTIONS

HALFEN Sound Insulation Products – Overview

HTT

Impact sound insulation unit for installation between on-site cast or precast stair elements and on-site cast concrete stair landing slabs

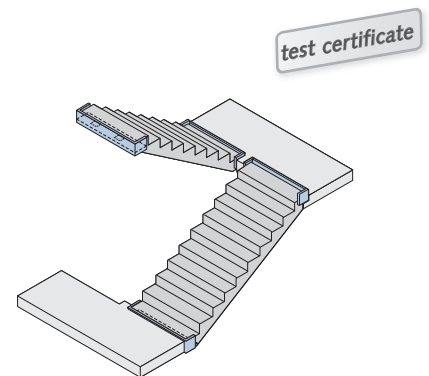
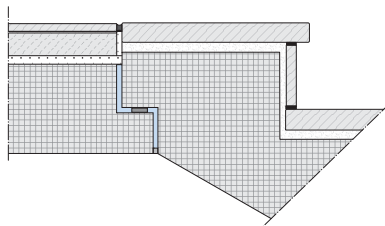
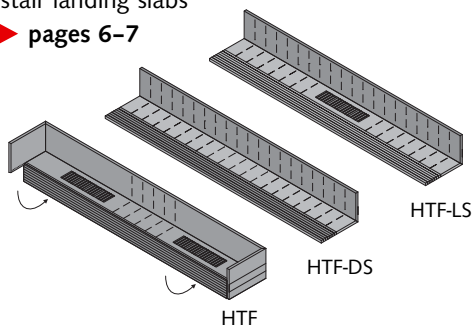
► pages 4-5



HTF

Impact sound insulation for installation between precast stair elements and stair landing slabs

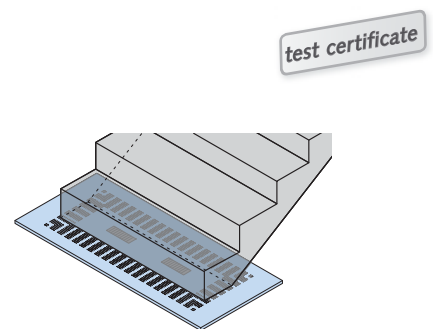
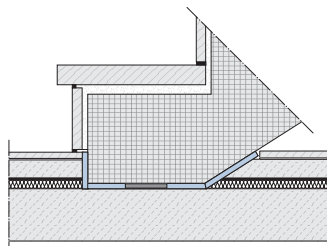
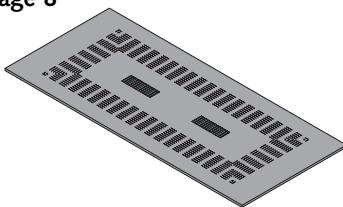
► pages 6-7



HTF-B

Impact sound insulation element for installation between precast stair element and floor slab

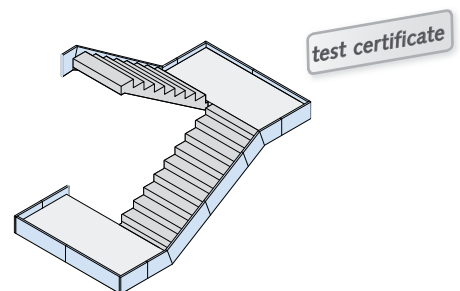
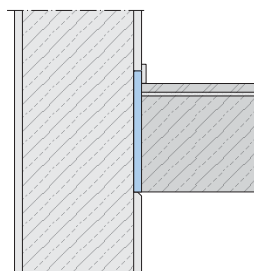
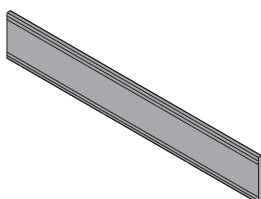
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HTPL

Perimeter insulation

► page 9



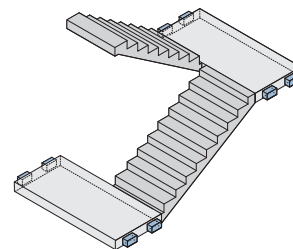
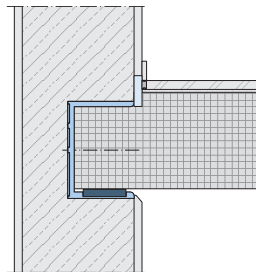
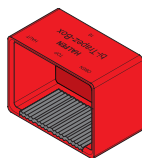
HALFEN IMPACT SOUND INSULATION

Product Overview

HBB-F

bi-Trapez box for precast landing slabs

► page 10

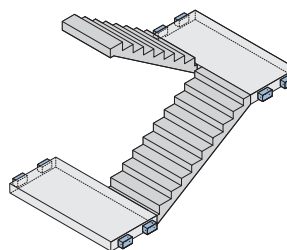
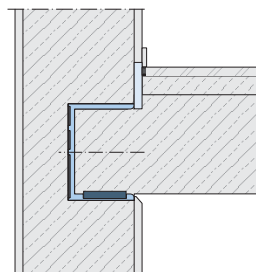
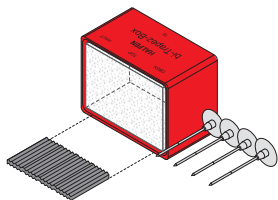


test certificate

HBB-O

bi-Trapez box for in-situ cast concrete landing slabs

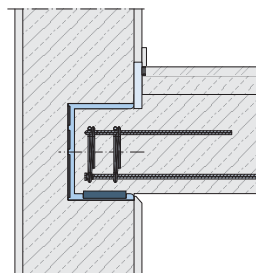
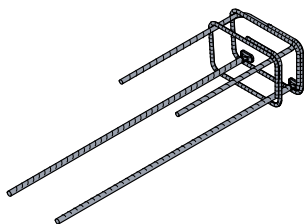
► page 11



test certificate

HBB Rebar cage

► page 12



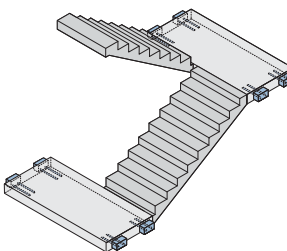
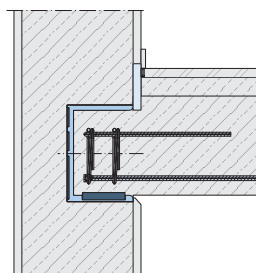
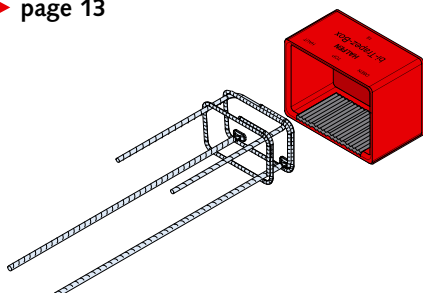
Using a HBB Rebar cage reduces the complex, filigree and time-consuming on-site installation of reinforcement for consoles. A type test is available for this application.

type tested

HBB-SET

bi-Trapez box HBB-F, with pre-assembled reinforcement cage

► page 13



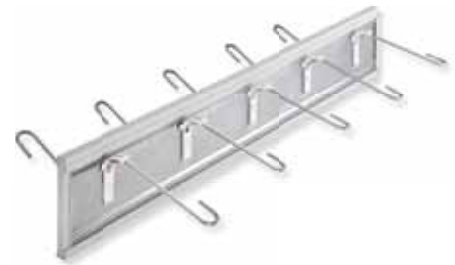
type tested

HALFEN IMPACT SOUND INSULATION

HALFEN HTT Sound Insulation Element – Installation Between In-Situ Cast / Precast Concrete Stair Elements, And In-Situ Cast Concrete Stair Landings

Product description

- Stair landing slab** in-situ cast concrete or semi-precast element
- Stair elements** in-situ cast concrete or precast element
- Sound insulation** impact sound reduction: $\Delta L = 12$ dB
Certified acoustic properties: test report 2027/7205-1-Re, IBMB Braunschweig
- Fire protection** **Fire protection verification:** F90/F120 and R90/R120 according to report GA-2017/128, IBB GmbH
- Type tested** S-WUE 040519, LGA Würzburg
- Product range** Available in three load sizes for stair widths of 90 cm up to 200 cm, and landing slab thickness from 16 cm to 25 cm.
- Materials** Galvanised steel sheet, mineral fibre insulation material and non-reinforced elastomer bearings with general building authority approval, B500NR reinforcement steel.



HALFEN HTT-6 Impact sound insulation

HALFEN HTT Impact sound insulation units are suitable for supporting in-situ and precast concrete stair elements in in-situ cast landing slabs subjected to predominantly static loads. HTT Units are only suitable for lateral and horizontal forces, which may result from short-term loads, or from restraint loads or impact loads or from planned external loads. Static verification must be provided for the stair element and the landing slab.

Verification of lateral load capacity is provided if additional stirrups reinforcement as specified in the drawing on page 5 is installed.

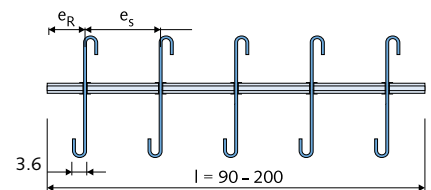
Depending on the concrete cover of the stair elements using HTT Units provide a particularly high level of safety in the event of fire. This allows classification in fire resistance class R90/R120 (F90 / F120).

HALFEN HTT Impact sound insulation – dimensions and load bearing capacities

Article no.	Element height h [cm]	Element length l [cm]	Reinforcement	Spacings (approx.)		Values for structural design	
				Edge distance e_R	Bar spacing e_s	Lateral force V_{Rd} [kN/element]	Horizontal force H_{Rd} ① [kN/element]
HTT-4	16-25	90-200	3 ϕ 6	l/6	l/3	35.9	± 3.1
HTT-6			5 ϕ 6	l/10	l/5	59.9	± 4.2
HTT-8			6 ϕ 6	l/12	l/6	71.8	± 4.3

① max. possible horizontal load in longitudinal direction of the stairs (applies for maximum shear load) see type test

Dimensioning diagram



Standard lengths $l = 100 / 120$ cm
 Custom lengths $l = 90 - 200$ cm

Ordering example

HTT - 6 - 18 - 100



- ① product designation
- ② load group
- ③ landing slab height [cm]
- ④ element length l / stair width [cm]

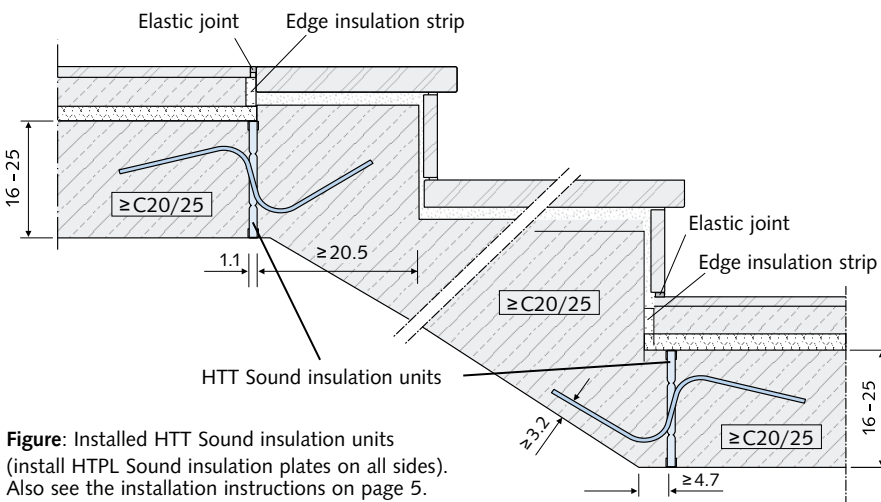


Figure: Installed HTT Sound insulation units (install HTPL Sound insulation plates on all sides). Also see the installation instructions on page 5.

HALFEN IMPACT SOUND INSULATION

HALFEN HTT Sound Insulation Element – Installation Between In-Situ Cast / Precast Concrete Stair Elements, And In-Situ Cast Concrete Stair Landings

Regulations for reinforcing and installation notes



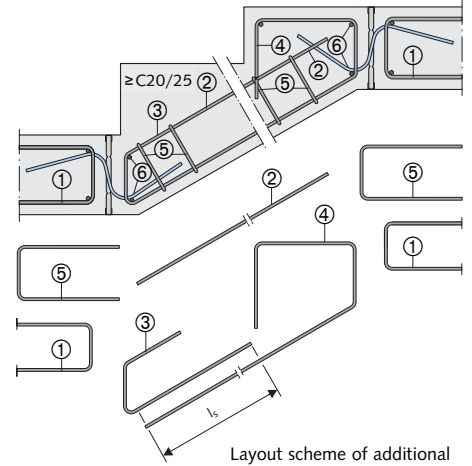
Additional on-site reinforcement

(static verification required in accordance with the type test by a structural engineer):

- ① End stirrups or mesh reinforcement
- ② Top reinforcement layer
- ③ End stirrup, bent as hanger reinforcement
- ④ Bottom reinforcement layer, bent as hanger reinforcement
- ⑤ End stirrups, 2 × Ø6
- ⑥ Reinforcement bar Ø8 (HTT-4, -6) or Ø10 (HTT-8)

Note

Positions ① – ④ are calculated according to static requirements.
Moments resulting from excentric connections have to be considered in the design calculation for the stair elements.



Layout scheme of additional on-site reinforcement



Application with in-situ cast concrete stairs and landing

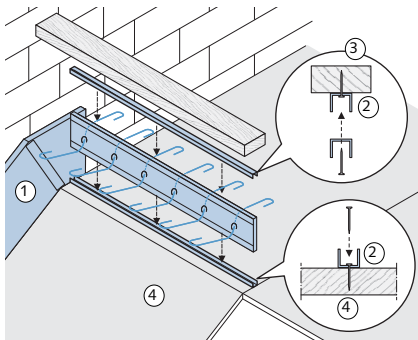


Figure 1: Assembly scheme for in-situ cast elements

Installation procedure for on-site cast stairs

- ▶ **HTPL Sound insulation plate ①** are fixed to the wall, following the contours of the stairs. The clearance to the wall must be completely clean ensuring there are no gaps between the plates
- ▶ the bottom **HTT Nailing bar ②** is fixed to the formwork at the specified position
- ▶ insert the **HTT Unit** in the nailing bar
- ▶ the top **HTT Nailing bar ②** is fixed using an auxiliary aid (e.g. timber batten ③) and slotted to the top of the **HTT impact sound insulation element**



Correctly align and fix the HTT Unit at the required vertical position.



Application with precast stairs and an in-situ cast, or semi-precast concrete landing slab

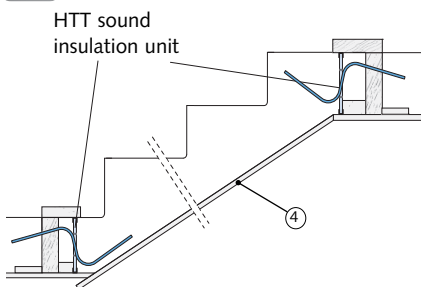


Figure 2: Formwork in the precast plant

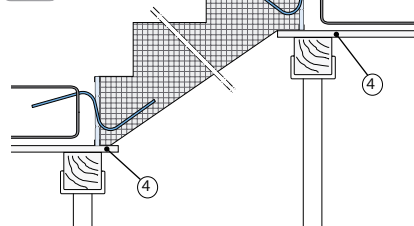


Figure 3: On-site installation of the precast stair element

Installation in the precast plant:

- ▶ formwork according to figure 2
- ▶ fix the **HTT Impact sound insulation unit** with the nailing bars (included) as shown in figure 1
- ▶ The **HTT Unit** must be aligned and fixed vertically at the appropriate position

Installation of precast element on-site:

- ▶ installation according to figure 3
- ▶ both in-situ cast concrete and semi-precast concrete landing slabs are possible
- ▶ place the **HALFEN HTPL Sound insulation plates** in the **gap** between the stairs and the adjoining staircase wall

Installation note

- ① HALFEN HTPL Impact sound insulation plate
- ② Nailing bar (supplied)
- ③ Auxiliary aid
- ④ On-site formwork



On-site



Precast plant

HALFEN IMPACT SOUND INSULATION

HTF Impact Sound Insulation Element for Precast Concrete Stairs

Product description

- Stair landing** in-situ cast, or precast concrete element
- Stairs** precast element
- Available sizes** widths 100 cm and 120 cm (stair width)
- Accessories** HTF Unit or insulation strip for adapting the width on-site
- Maximum load** $V_{Ed} = 200 \text{ kN}$ (+100 kN for each additional bearing)
- Recommended load for optimal sound insulation:**
 $V_{Ed} = 10 \text{ kN}$ (+5 kN for each additional bearing)
- Bearing** bi-Trapez bearing® 200×50×10 mm (see page 14 for details)
- Material** plastic foam building material class B2 according to DIN 4102



HALFEN HTF Impact sound insulation unit

HALFEN HTF Impact sound insulation units were developed for elastic support of precast staircases in in-situ cast, concrete stair landings slabs. They are only suitable for lateral loads.

The statics proof must be provided in the design calculation of the building. The bi-Trapez bearings® are certified as building material class B2 according to DIN 4102.

Designation	Article no.	Stair width [cm]	Thickness $t = 10 \text{ mm}$ for all elements HTF, -DS, -LS	Dimensions [mm]
HTF - 100	0972.010-00001	70-100	 Impact sound insulation unit	
HTF - 120	0972.010-00002	101-120		
HTF - DS - 100	0972.020-00001	≥ 120	 Insulating strip	
HTF - LS - 100	0972.020-00002	≥ 120	 Bedding strip	

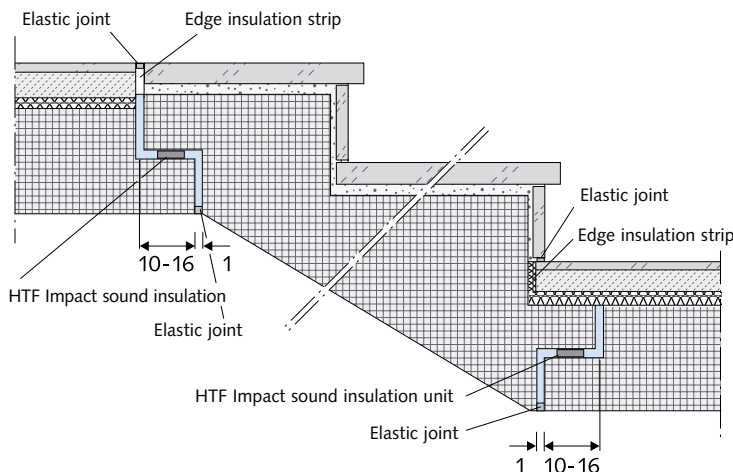


Figure: Installation of the HTT Impact sound insulation units (install HTPL Sound insulating plates at all edges, see installation instructions on page 7)

HALFEN IMPACT SOUND INSULATION

HTF Impact Sound Insulation Element for Precast Concrete Stairs

Installation notes

Support design (figures 1–4)

► Landing supports can be designed as shown in figure 1 or figure 2

► Figure 3 shows the installed HTF Impact sound insulation unit. Adhesive tape on the back of the unit fixes and secures the insulation element to the landing slab on assembly.

► Landing support design as shown in figure 2 also requires the installation of HTPL Impact sound insulation plates towards the staircase walls (page 9).

Adjusting to the support depth (fig. 5–7)

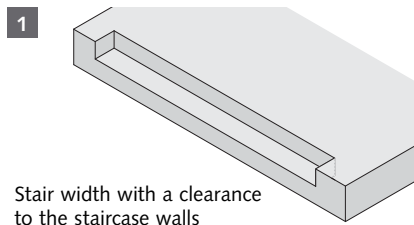
► Adjusting to the support depth is simple, fold the element at the factory pre-marked lines. Any excess length is cut off on site.

Adjusting to the support width (fig. 8–10)

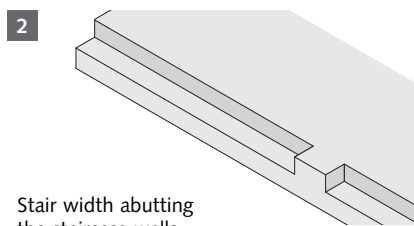
► The HTF-DS Insulation strip 6 can be used for small required increases in the length of the HTF elements 5 (order the HTF-DS Insulation strip separately). The insulation strip is cut to the required length on site and inserted between the standard elements. Adhesive tape on the back of the element fixes the strip securely to the support 9.

► The HTF-LS Insulation strip 7 (order separately) is used if static requirements require larger support area and therefore considerably lengthened elements. The strip is cut to the necessary length and then placed between the standard HTF Unit 10.

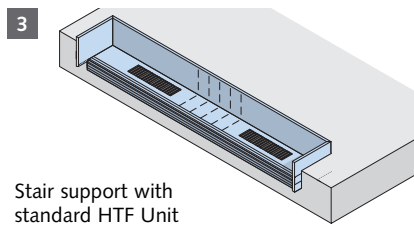
► Seal all gaps between the insulation elements with HALFEN Adhesive tape to avoid sound bridges.



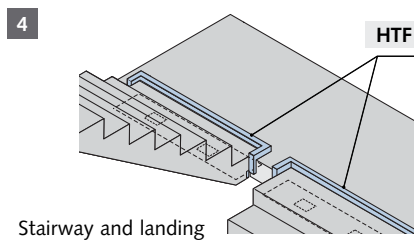
1 Stair width with a clearance to the staircase walls



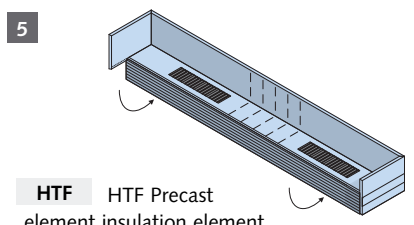
2 Stair width abutting the staircase walls



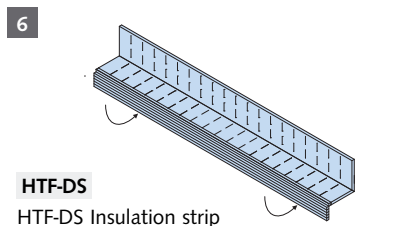
3 Stair support with standard HTF Unit



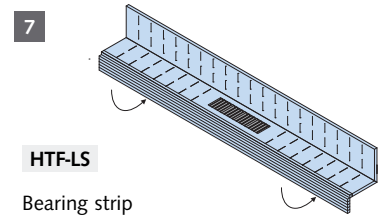
4 Stairway and landing



5 HTF HTF Precast element insulation element

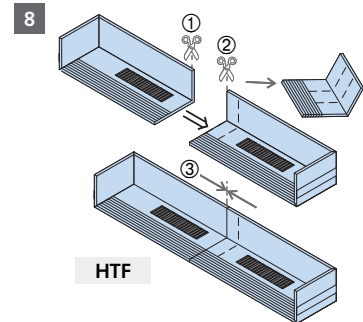


6 HTF-DS HTF-DS Insulation strip



7 HTF-LS

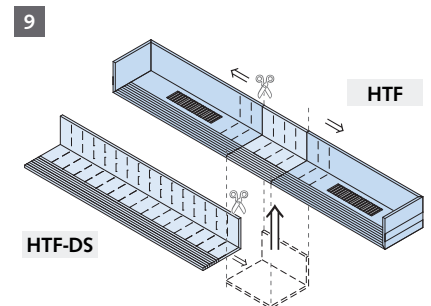
Bearing strip



8 HTF

Shorten elements:

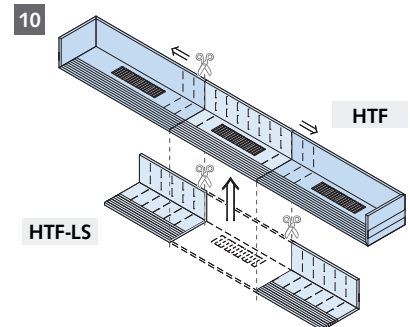
Use the perforations ① as required to shorten ② the element and rejoin the two outer sections ③ to install.



9 HTF

Lengthen elements:

To lengthen a HTF Element insert a cut to size HTF-DS Insulation segment between the cut HTF Element.



10 HTF

bi-Trapez bearing® extension element:

insert the cut to size HTF-LS Insulation segment between the cut ends of the HTF Unit.

HALFEN IMPACT SOUND INSULATION

HTF-B Impact Sound Insulation Element for Installation Between Precast Concrete Stairs and Floor Slabs

Product description

- Stair element** precast element
- Maximum load** $V_{Ed} = 105 \text{ kN}$ (+52.5 kN per additional bearing)
- Recommended load for optimum sound insulation:**
 $V_{Ed} = 7.6 \text{ kN}$ (+3.8 kN for each additional support)
- Bearing** bi-Trapez bearing®, 150 × 50 × 15 mm
 (details on page 14)
- Material** foam; building material class B2
 according to DIN 4102

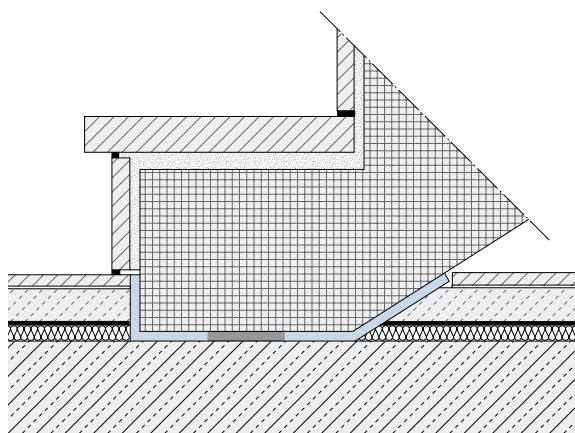
HALFEN HTF-B Impact sound insulation is used for elastic support of precast stair elements onto floor slabs at ground level.



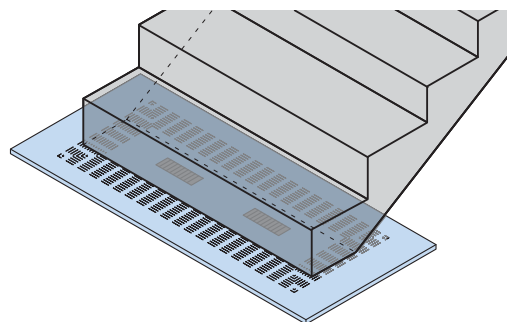
HALFEN HTF-B Impact sound insulation element

Designation	Article no.	Thickness a / b [cm]	Thickness t = 15 mm for all elements HTF-B	Dimensions [mm]
HTF-B - 125 × 55	0973.010-00001	125 / 55	<p>Ground level support element</p>	
HTF-B - 125 × 80	0973.010-00002	125 / 80		
HTF-B - 145 × 55	0973.010-00003	145 / 55		
HTF-B - 145 × 80	0973.010-00004	145 / 80		

Installation notes



Section of a typical HTF-B application



Isometric view: HTPL Impact sound insulation plates also need to be installed for stair elements with no clearance to the staircase walls (see page 9).

HALFEN IMPACT SOUND INSULATION

HTPL-100 Impact Sound Insulation Plate

Product description

Stairs in-situ cast concrete or precast element

Material plastic foam building material class B2 according to DIN 4102

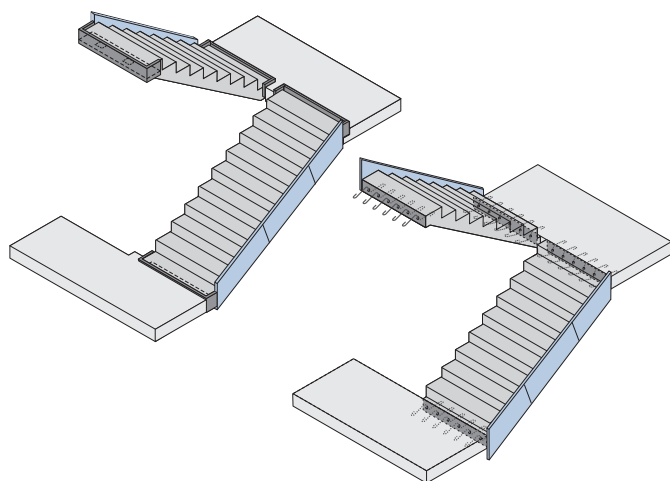


HALFEN HTFPL-100 Impact sound insulation plate

The HALFEN HTPL-100 Impact sound installation plate reliably prevents the transmission of impact sound. Acoustic decoupling of stairs and wall is very simple: Install the insulation strips between the components and the walls and fix using HALFEN Adhesive tape.

Designation	Article no.	Element dimensions a / b [cm]	Thickness t = 10 mm for elements HTPL	Dimensions [mm]
HTPL - 100	0974.010-00001	100 / 35	<p>Joint panel</p>	<p>Double-sided adhesive tape</p>
Adhesive tape	9602.040-00054	Roll of adhesive tape, 50 mm wide	<p>Adhesive tape</p>	

Installation notes



Installation of the HTPL Impact sound installation plates



HTPL 100 Impact sound insulation plates are part of the HALFEN Sound insulation system and can be combined with all HALFEN Sound insulation products to avoid sound transmission resulting from direct connection of stair elements and the staircase wall.



Meticulous installation is required as gaps left between the elements may cause sound bridging. This can have a negative effect on the quality of the adjoining rooms and building.

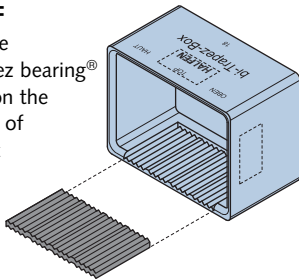
HALFEN IMPACT SOUND INSULATION

HBB-F bi-Trapez Box for Precast Landings Slabs

Product description

HBB-F

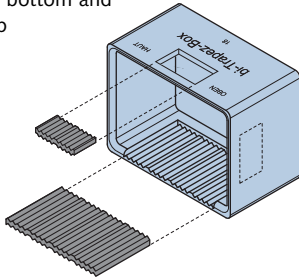
incl. one bi-Trapez bearing® inside on the bottom of the box



HBB-FQ

for additional loads in vertical upward direction:

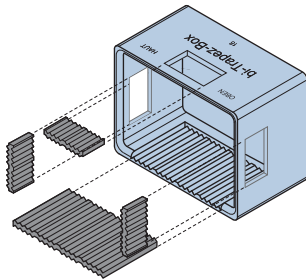
incl. two bi-Trapez bearings® inside the box, on the bottom and the top



HBB-FQS

for additional loads in vertical upward direction:

incl. four bi-Trapez bearings® one on each surface inside the box



Stair landing

precast element

bi-Trapez bearing® (t = 10 mm)

- building authority approval P-849.0554/1, MPA Hanover
- **Certified acoustic properties:** report no. 2729/1054, IBMB Braunschweig
- **Impact sound reduction:** max. 23 dB
- building material class B2 according to DIN 4102

Available sizes

three landing slab thicknesses (d = 16 / 18 / 20 cm)
number of included bi-Trapez bearing® depends on the load case (see illustrations)

Fire protection

Fire protection proof: fire resistance grade F90
no. 3799/7357-AR by IBMB Braunschweig

HALFEN bi-Trapez boxes HBB-F, FQ and FQS are easily slid over the corbel before installing the precast landing slab. The corbel is cast with the inner dimensions of the bi-Trapez box at the same time as the landing slab.

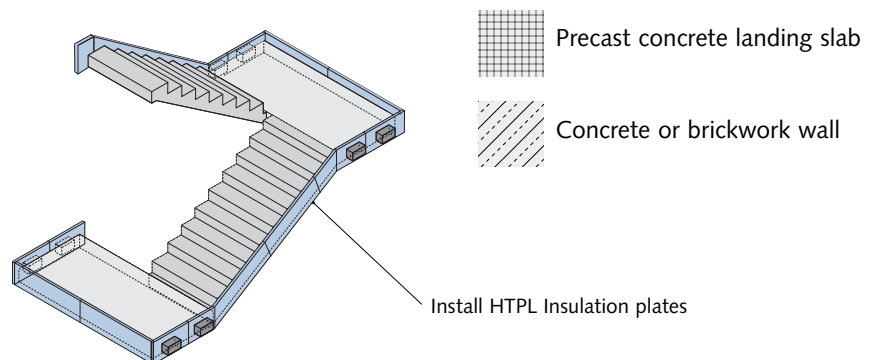
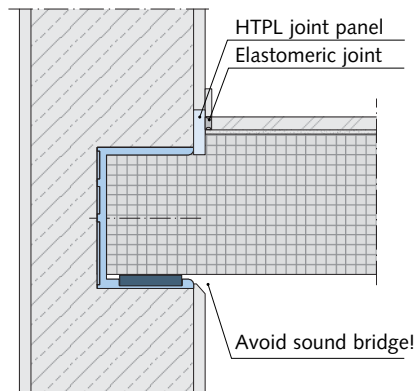
Designation	Order no. 0970.010-	Internal dimensions h × b × t [mm]	max. load /option load [kN] ①		
			+V _{Rd}	-V _{Rd}	+H _{Rd}
HBB 16-F	00001	160 × 250 × 140	+	-	-
HBB 18-F	00002	180 × 250 × 140	+	-	-
HBB 20-F	00003	200 × 250 × 140	+	-	-
HBB 16-FQ	00004	160 × 250 × 140	+	+	-
HBB 18-FQ	00005	180 × 250 × 140	+	+	-
HBB 20-FQ	00006	200 × 250 × 140	+	+	-
HBB 16-FQS	00007	160 × 250 × 140	+	+	+
HBB 18-FQS	00008	180 × 250 × 140	+	+	+
HBB 20-FQS	00009	200 × 250 × 140	+	+	+

① According to the test certificate the elastomeric supports can be used up to 10 N/mm². Support dimension of 100 × 200 mm are used for positive support loads, and 50 × 100 mm are used for upward vertical loads and lateral loads.

The values when assuming $\gamma_F = 1.5$ are: +V_{Rd} = 300 kN, -V_{Rd} = 75 kN, ±H_{Rd} = 75 kN.

The statics verification for the corbel and the load bearing wall are the responsibility of the building contractor. The optimal sound reduction is achieved with a compression stress of 0.5 N/mm² (see information and diagram on page 14).

Installation notes



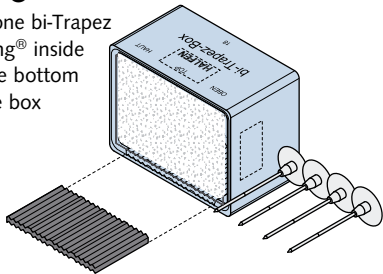
HALFEN IMPACT SOUND INSULATION

HBB-O bi-Trapez Box for In-situ Concrete Landings

Product description

HBB-O

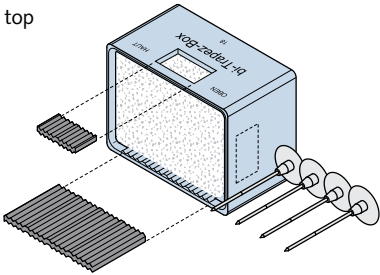
incl. one bi-Trapez bearing[®] inside on the bottom of the box



HBB-OQ

for additional loads in vertical upward direction:

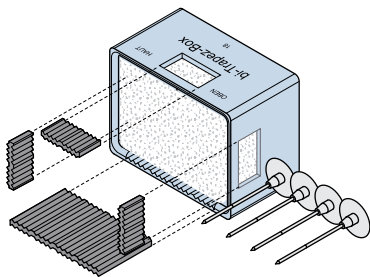
incl. two bi-Trapez bearings[®] inside the box, on the bottom and top



HBB-OQS

for additional lateral loads and vertical upward directed loads:

incl. four bi-Trapez bearings[®] one on each surface inside the box



Stair landing slab in-situ concrete

bi-Trapez bearing[®]

- building authority approval P-849.0554/1, MPA Hanover

• Certified acoustic properties:

report No. 2729/1054, IBMB Braunschweig

- **Impact sound reduction:** max. 23 dB

- building material class B2 according to DIN 4102

Availability sizes

three landing thicknesses (d = 16/18/20 cm) ; number of included bi-Trapez bearing[®] depends on the load case; four special nails, polystyrene filler, protective cardboard inlay

Fire protection

Fire protection certification: fire resistance grading F90 no. 3799/7357-AR by IBMB Braunschweig

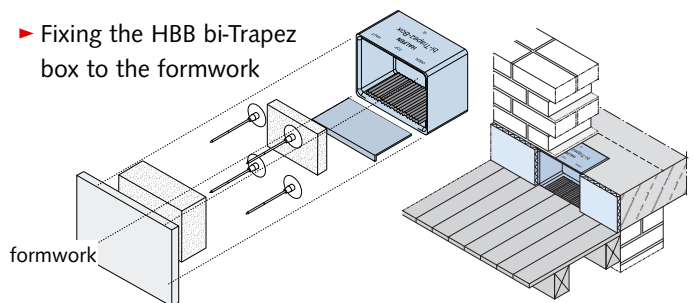
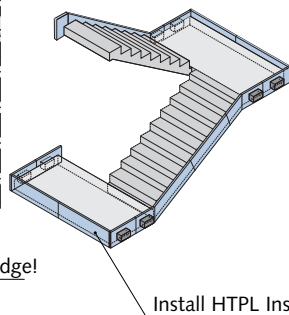
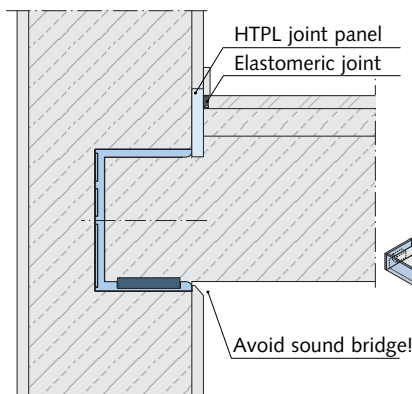
When installed in masonry, the polystyrene filler ensures the box keeps its shape while the surrounding brickwork is finished. When installing in reinforced concrete walls, the recess filler is fastened to the formwork using the special nails (supplied). The box is then installed flush with the formwork over the recess filler.

Designation	Order no. 0970.020-	Overall dimensions h × b × t [mm]	Max. load /opt. load [kN] ①		
			+V _{Rd}	-V _{Rd}	+H _{Rd}
HBB 16-O	00001	187 × 274 × 155	+	-	-
HBB 18-O	00002	207 × 274 × 155	+	-	-
HBB 20-O	00003	227 × 274 × 155	+	-	-
HBB 16-OQ	00004	187 × 274 × 155	+	+	-
HBB 18-OQ	00005	207 × 274 × 155	+	+	-
HBB 20-OQ	00006	227 × 274 × 155	+	+	-
HBB 18-OQS	00008	207 × 274 × 155	+	+	+
HBB 20-OQS	00009	227 × 274 × 155	+	+	+

① According to the test certificate the elastomeric supports can be used up to 10 N/mm². Support dimension of 100 × 200 mm are used for positive support loads, and 50 × 100 mm are used for upward vertical loads and lateral loads.

The values when assuming $\gamma_F = 1.5$ are: +V_{Rd} = 300 kN, -V_{Rd} = 75 kN, ±H_{Rd} = 75 kN. The statics verification for the corbel and the load bearing wall are the responsibility of the building contractor. The optimal sound reduction is achieved with a compression stress of 0.5 N/mm² (see information and diagram on page 14)

Installation notes



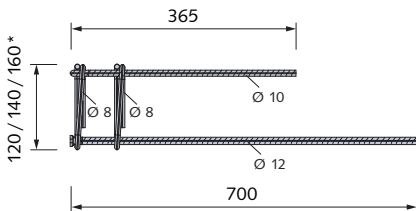
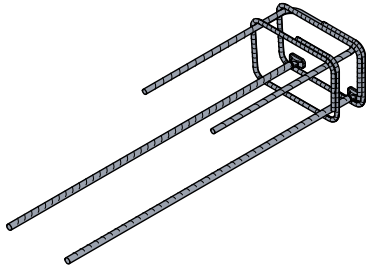
► Install the HBB-O bi-Trapez box before pouring the concrete for the landing

HALFEN IMPACT SOUND INSULATION

HBB-Rebar-Cage-Q-Unit

Product description

HBB-Rebar-cage-Q-unit
(bi-Trapez box not included)



* landing slab thickness of $d = 160 \text{ mm} / 180 \text{ mm} / 200 \text{ mm}$

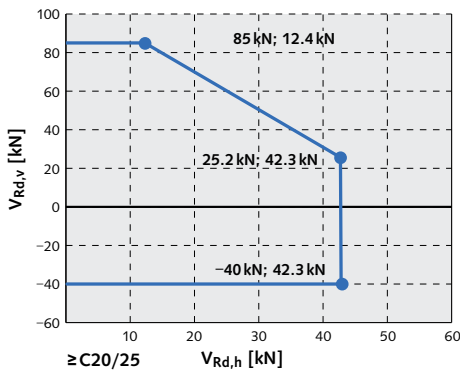
Vertical section: HBB-Rebar-cage-Q-unit

- Reinforcement cage** reinforcing steel B500
- Type tested** according to no. S-WUE 150270, LGA Würzburg
- Available sizes** HBB-Rebar-cage-Q-unit is available for three landing slab thicknesses ($d = 16 / 18 / 20 \text{ cm}$)
- Fire protection** **Fire resistance rating:** R90 acc. to DIN EN 1992-1-2, table 5.8

The pre-assembled HALFEN HBB-Rebar-cage-Q-unit is easy to install and can reduce construction time. The optimized reinforcement layout and the type tested load capacities are further benefits. Planning with consoles is no longer required.

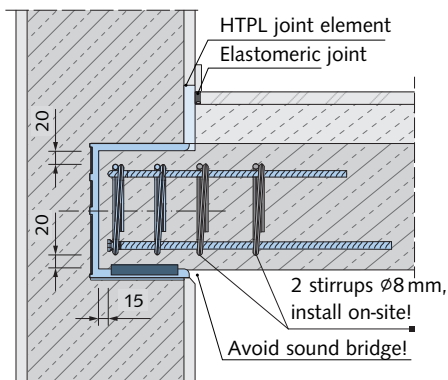
Designation	0970.050-	d [mm]	max. load [kN] for $\geq \text{C20/25}$		
			+ $V_{Rd,v}$	- $V_{Rd,v}$	$\pm V_{Rd,h}$
HBB-Rebar-cage 16-Q-unit	00101	≥ 160	85.0	40	42.3
HBB-Rebar-cage 18-Q-unit	00102	≥ 180			
HBB-Rebar-cage 20-Q-unit	00103	≥ 200			

Load Interaction

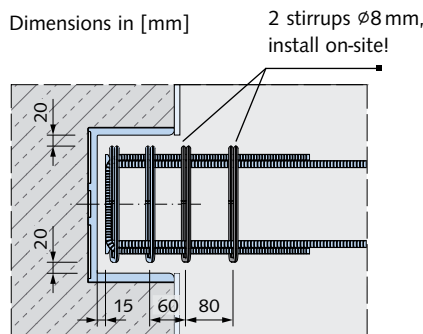


Designation	$V_{Rd,v}$ [kN]	$V_{Rd,h}$ [kN]
maximum positive vertical load	85.0	± 12.4
maximum horizontal load (for positive vertical load)	25.2	± 42.3
maximum negative vertical load	-40.0	± 42.3
maximum horizontal load (for negative vertical load)	-40.0	± 42.3

Installation notes



Vertical section: Concrete cover
HBB-Rebar-cage-Q-unit



Plan view: Concrete cover
HBB-Rebar-cage-Q-unit

i Use spacers to ensure minimal concrete cover. (Spacers are not illustrated) The specifications in the type test must be observed for design calculation and installation.

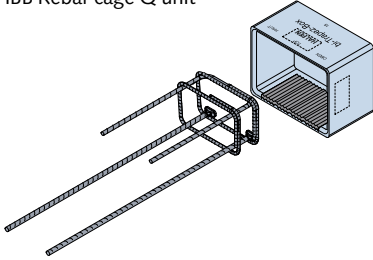
HALFEN IMPACT SOUND INSULATION

HBB-SET

Product description

HBB-SET

incl. bi-Trapez box HBB-F and HBB-Rebar-cage-Q-unit



Reinforcement cage reinforcing steel B500

bi-Trapez box incl. bi-Trapez bearing®

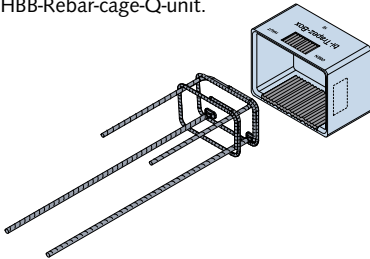
Type tested according to No. S-WUE 150270, LGA Würzburg

Available type HBB-SET/-Q/-QS bi-Trapez box incl. corresponding bi-Trapez bearing® and reinforcement cage for three platform thicknesses (d = 16/18/20 cm) available

Fire protection **Fire resistance rating of the HBB-Rebar-cage-Q-unit:** R90 according to DIN EN 1992-1-2, table 5.8

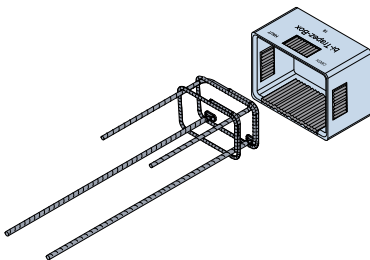
HBB-SET-Q

for additional upward loads including bi-Trapez box HBB-FQ and HBB-Rebar-cage-Q-unit.



HBB-SET-QS

for additional horizontal loads including bi-Trapez box HBB-FQS and HBB-Rebar-cage-Q-unit.

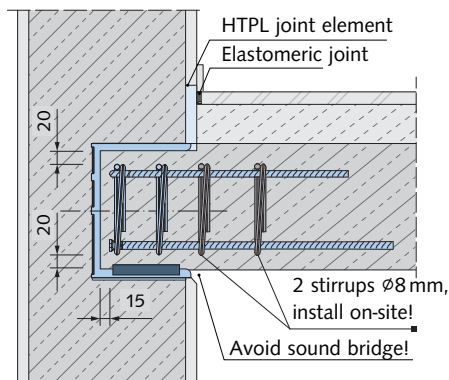


The HBB-SET /-Q/-QS can be used for in-situ cast concrete and precast slabs. The HBB-Box is regarded as lost formwork when used for in-situ cast concrete slabs. The HBB system set and its variants are suitable for use in both masonry and concrete walls.

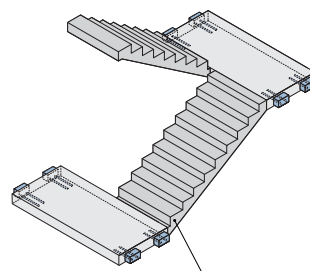
Designation	Order No. 0970.060-	For landing slab thickness d [mm]	max. load [kN] for $\geq C20/25^{\text{①}}$		
			+V _{Rd,v}	-V _{Rd,v}	±V _{Rd,h}
HBB 16-SET	00001	≥ 160	85.0	—	—
HBB 18-SET	00002	≥ 180			
HBB 20-SET	00003	≥ 200			
HBB 16-SET-Q	00004	≥ 160	85.0	40	—
HBB 18-SET-Q	00005	≥ 180			
HBB 20-SET-Q	00006	≥ 200			
HBB 16-SET-QS	00007	≥ 160	85.0	40	42.3
HBB 18-SET-QS	00008	≥ 180			
HBB 20-SET-QS	00009	≥ 200			

① The interaction of simultaneously acting loads must be taken into account (see page 12).

Installation notes



Vertical section: Concrete cover HBB-Rebar-cage-Q-unit



Install HTPL Joint panel

The HBB Rebar cage is fitted in the prepared HBB bi-Trapez box using spacers before pouring the concrete for the landing slab (spacers are not shown). The specification in the type test have to be observed at installation and for dimensioning.

HALFEN IMPACT SOUND INSULATION

HALFEN bi-Trapez Bearing® – a Component of the Impact Sound Insulation Element System

Product features

- Test certification:** building authority approval
P-849.0554/1, MPA Hanover
- Sound protection:** **Impact sound reduction:** max. 23 dB
Certified acoustic properties: report no. 2729/1045,
IBMB Braunschweig
- Fire protection:** building material class 2 acc. to DIN 4102



HALFEN bi-Trapez bearing®

When planning for sound insulation requirements, it should be noted that the sound-insulating properties depend to a large extent on the compressive stress in the support.

This dependency is why HALFEN includes the HTF Impact sound insulation units in its product range. These products are high-quality bi-trapezoidal bearings® made of elastic ethylene propylene diene M-class rubber (EPDM).

These supports are characterized by good sound insulation properties over a wide range of compressive stresses. The diagram below shows the insulation characteristics of the support.

In addition to the allowable compression stresses HALFEN also specifies the optimal compression stress yield for the HTF und HBB range to facilitate the best possible sound insulation for your project.

It should be noted that, depending on the application, the service load for stairwells according to DIN 1055-3 are 3.0 and 5.0 kN/m² respectively, however, these very high values are only attained in exceptional cases.

HALFEN recommends assuming a significantly lower value for the service load (0.5 to 1.0 kN/m²) when verifying sound insulation, as the standard experienced load values are typically within this range.

Impact sound insulation

Table: bi-Trapez bearing® of 10 and 15 mm

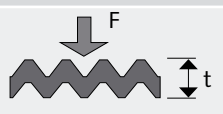
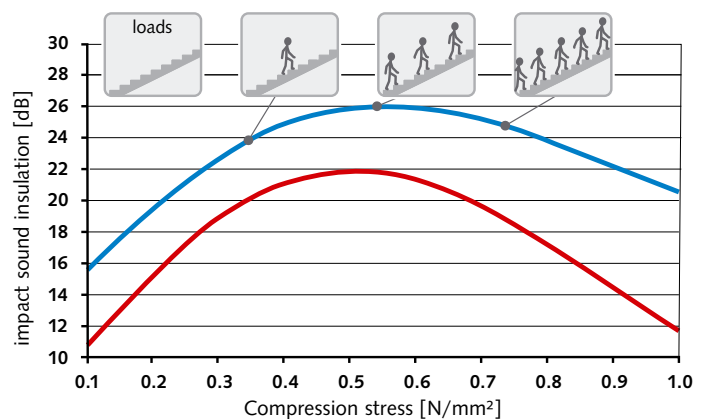
Bearing thickness t [mm]		10	15
Allowable average compression stress req. σ [N/mm ²]		10.00	7.00

Diagram: Insulation properties of the bi-Trapez bearings®



Thickness of the bi-Trapez bearing®: — t = 10 mm — t = 15 mm

CONTACT HALFEN WORLDWIDE

HALFEN is represented by subsidiaries in the following countries, please contact us!

Austria	HALFEN Gesellschaft m.b.H. Leonard-Bernstein-Str. 10 1220 Wien	Phone: +43-1-259 6770 E-Mail: office@halfen.at Internet: www.halfen.at	Fax: +43-1-259-677099
Belgium / Luxembourg	HALFEN N.V. Borkelstraat 131 2900 Schoten	Phone: +32-3-658 07 20 E-Mail: info@halfen.be Internet: www.halfen.be	Fax: +32-3-658 15 33
China	HALFEN Construction Accessories Distribution Co.Ltd. Room 601 Tower D, Vantone Centre No. A6 Chao Yang Men Wai Street Chaoyang District Beijing · P.R. China 100020	Phone: +86-10 5907 3200 E-Mail: info@halfen.cn Internet: www.halfen.cn	Fax: +86-10 5907 32 18
Czech Republic	HALFEN s.r.o. Business Center Šafránkova Šafránkova 1238/1 155 00 Praha 5	Phone: +420 - 311-690 060 E-Mail: info@halfen.cz Internet: www.halfen.cz	Fax: +420-235-314 308
France	HALFEN S.A.S. 18, rue Goubet 75019 Paris	Phone: +33-1- 445231 00 E-Mail: halfen@halfen.fr Internet: www.halfen.fr	Fax: +33-1-445231 52
Germany	HALFEN Vertriebsgesellschaft mbH Liebigstr. 14 40764 Langenfeld	Phone: +49-2173-970-0 E-Mail: info@halfen.de Internet: www.halfen.de	Fax: +49-2173-970 225
Italy	HALFEN S.r.l. Soc. Unipersonale Via F.lli Bronzetti N° 28 24124 Bergamo	Phone: +39-035-0760711 E-Mail: tecnico@halfen.it Internet: www.halfen.it	Fax: +39-035-0760799
Netherlands	HALFEN b.v. Oostermaat 3 7623 CS Borne	Phone: +31-74-267 14 49 E-Mail: info@halfen.nl Internet: www.halfen.nl	Fax: +31-74-267 26 59
Norway	HALFEN AS Postboks 2080 4095 Stavanger	Phone: +47-51 82 34 00 E-Mail: post@halfen.no Internet: www.halfen.no	
Poland	HALFEN Sp. z o.o. Ul. Obornicka 287 60-691 Poznan	Phone: +48-61-622 14 14 E-Mail: info@halfen.pl Internet: www.halfen.pl	Fax: +48-61-622 14 15
Spain	HALFEN Spain PLAKABETON S.L. Polígono Industrial Santa Ana c/ Ignacio Zuloaga 20 28522 Rivas-Vaciamadrid	Phone: +34 916 669 181 E-Mail: info@halfen.es Internet: www.halfen.es	Fax: +34 916 669 661
Sweden	Halfen AB Vädursgatan 5 412 50 Göteborg	Phone: +46-31-98 58 00 E-Mail: info@halfen.se Internet: www.halfen.se	Fax: +46-31-98 58 01
Switzerland	HALFEN Swiss AG Hertistrasse 25 8304 Wallisellen	Phone: +41-44-849 78 78 E-Mail: info@halfen.ch Internet: www.halfen.ch	Fax: +41-44-849 78 79
United Kingdom / Ireland	HALFEN Ltd. A1/A2 Portland Close Houghton Regis LU5 5AW	Phone: +44 -1582- 47 03 00 E-Mail: info@halfen.co.uk Internet: www.halfen.co.uk	Fax: +44- 1582-47 03 04
United States of America	HALFEN USA Inc. PO Box 18687 San Antonio TX 78218	Phone: +1 800.423.91 40 E-Mail: info@halfenusa.com Internet: www.halfenusa.com	Fax: +1 877.683.4910
For countries not listed HALFEN International	HALFEN International GmbH Liebigstr. 14 40764 Langenfeld / Germany	Phone: +49 -2173-970-0 E-Mail: info@halfen.com Internet: www.halfen.com	Fax: +49-2173-970-849

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