

CISTEP®

Sound insulation stair bearing for effective impact sound insulation

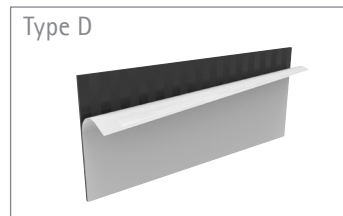
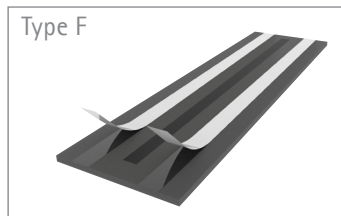
SOUND INSULATION IN STAIRCASES

ENHANCING LIVING COMFORT WITH CALENBERG

Calenberg Cistep® stair bearings can be used to construct sound-insulating connections between in-situ concrete and pre-fabricated flights of stairs.

Cistep® bearings provide a sound-bridge-free separation between the flight of stairs and the landing and staircase wall, thus ensuring high impact sound insulation and a high degree of living comfort.

Cistep® as a sound insulation solution for stairs



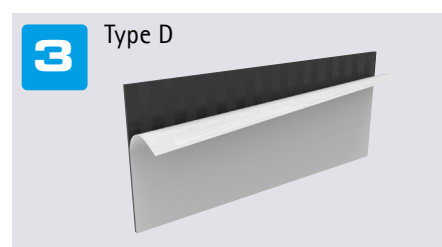
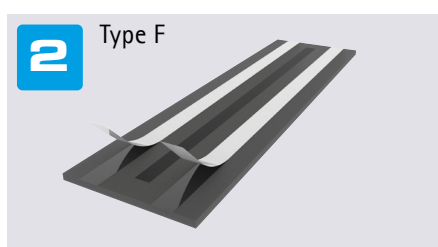
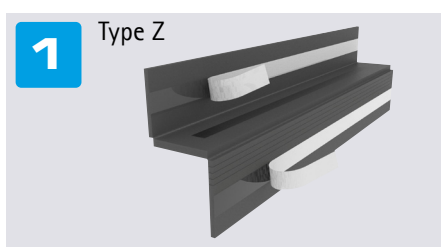
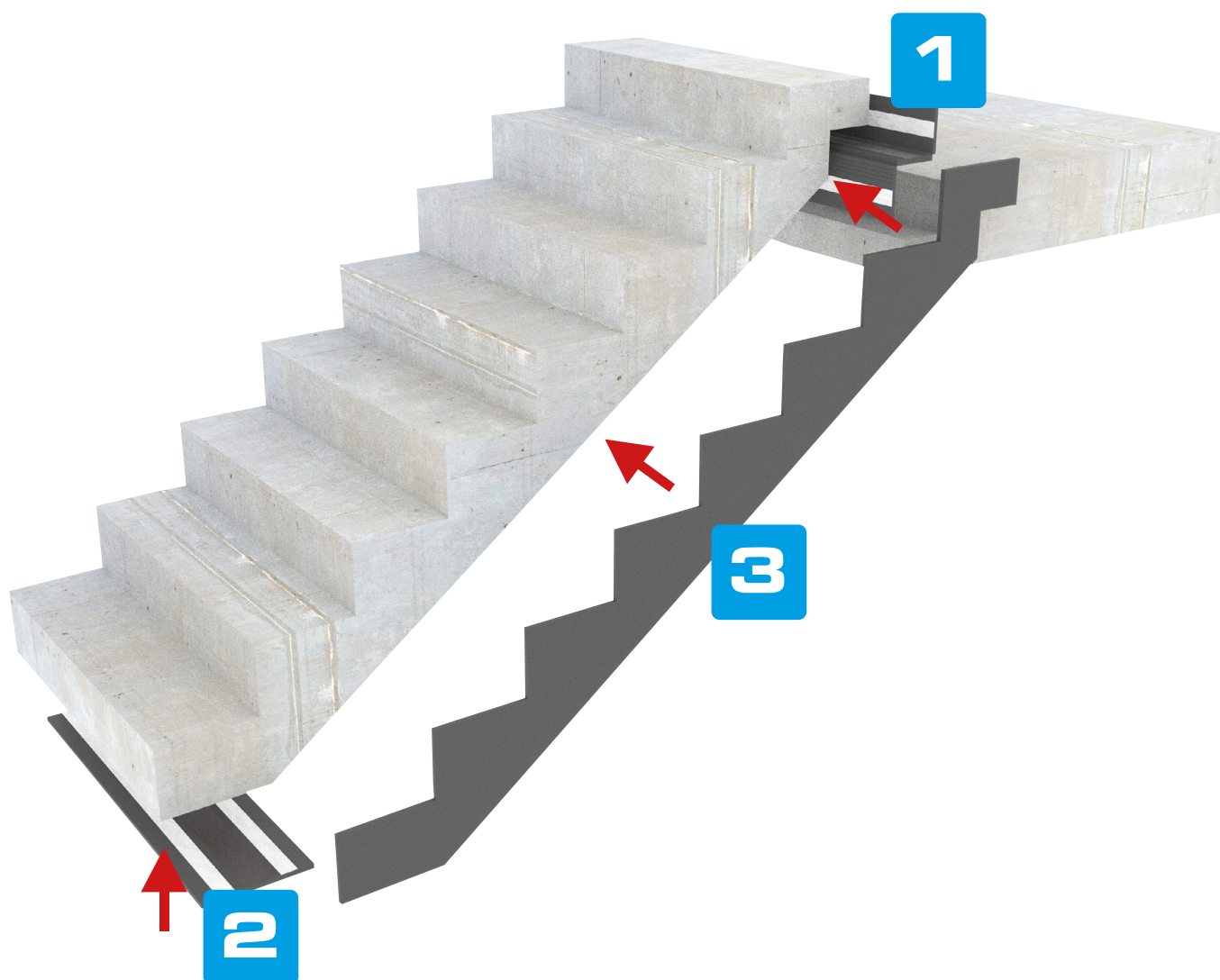
VERSIONS	
Bearing type	Application
Type Z	Stair flight bearings on the landing
Type F	Stair flight anchor point bearing on the foundation slab
Type D	Dividing plate in the joint between stair flight and staircase wall

The different designs can be combined with one another to meet requirements and guarantee effective impact sound protection for all types of stairways.

Benefits

- Soundproofing values tested to the latest version of DIN 7396
- Compliance with increased sound insulation requirements up to sound insulation level III as per VDI 4100 and up to DEGA Class A
- Rated impact sound level difference
Cistep: $\Delta L_{n,w}^* \geq 33$ dB for load range C1 and $\Delta L_{n,w}^* \geq 31$ dB for load range C2
Cistep 1700: $\Delta L_{n,w}^* \geq 27$ dB
- Rated flight impact sound level difference
Cistep: $\Delta L_{w,flight}^* \geq 28$ dB for load range C1 and $\Delta L_{w,flight}^* \geq 26$ dB for load range C2
Cistep 1700: $\Delta L_{w,flight}^* \geq 23$ dB
- Suitable for F90 structures as per DIN 4102
- Simple installation with integrated adhesive tapes
- Easy trimming to size on site
- 5 standard lengths

Cistep® for different applications



Impact sound levels* and load ranges



IMPACT SOUND LEVELS* AND LOAD RANGES							
Bearing type	Version	Load range	max. G_k	$F_{R,d}$	$\Delta L^*_{n,w}$	$\Delta L_{w,flight}$	$\Delta L^*_{w,flight}$
Cistep	Z, F	C1	23 KN/m	75 KN/m	≥ 33 dB	≥ 30 dB	≥ 28 dB
Cistep	Z, F	C2	From 23 KN/m to 27 KN/m	75 KN/m	≥ 31 dB	≥ 28 dB	≥ 26 dB
Cistep 1700	Z, F		27 KN/m	63 KN/m	≥ 27 dB	≥ 24 dB	≥ 23 dB

LEGEND

max. G_k	Vertical load due to dead load (characteristic)
$F_{R,d}$	Rated value for load capacity, vertical (design)
$\Delta L^*_{n,w}$	Rated impact sound level difference as per DIN 7396 ($\Delta L^*_{n,w} = L_{n0,w,flight} - L_{n,w,flight}$), Decisive for impact sound insulation (Product parameter)
$\Delta L^*_{w,flight}$	Rated flight impact sound level difference as per DIN 7396 for certification in compliance with DIN 4109-2
$\Delta L_{w,flight}$	Rated flight impact sound level difference as per DIN 7396 for certification in compliance with ISO 12354-2

*The values indicated in the table are only valid if the stair flight is supported at the top and bottom with a Type Z or Type F element and the stair flight has no rigid connection to the staircase wall (joint sealed with Cistep D or designed as an air gap).

Example of the sound insulation certificate in compliance with DIN 4109 Part 2

For apartment buildings:

Single-skin, bend-proof staircase wall

Stair flight on a single-skin, bend-proof staircase wall as per DIN 4109-32: $L_{n,eq,0,w} \leq 60$ dB

Rated flight impact sound level difference
Cistep Z-C1 and F-C1, measured as per DIN 7396: $\Delta L^*_{w,flight} \geq 28$ dB

Certificate

$$L'_{n,w} = L_{n,eq,0,w} - \Delta L^*_{w,flight} = 60 \text{ dB} - 28 \text{ dB}$$

$$L'_{n,w} + u_{Prog} = 32 \text{ dB} + 3 \text{ dB} = 35 \text{ dB}$$

The following requirements are thus met:

DIN 4109, strict requirement $L'_{n,w} \leq 47$ dB

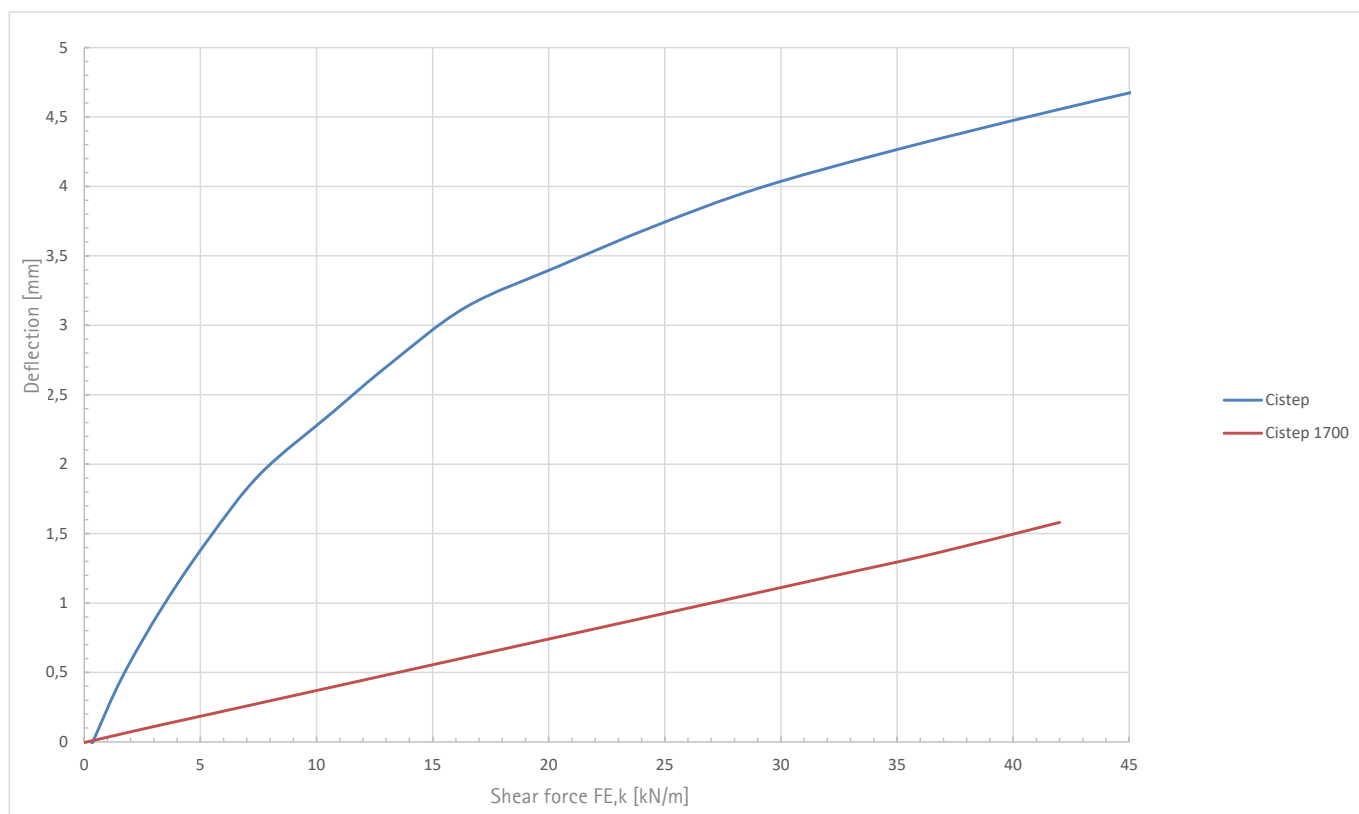
VDI 4100, sound insulation level III $L'_{nT,w} \leq 37$ dB

DEGA, Class A $L'_{n,w} \leq 38$ dB

LEGEND

$L'_{nT,w}$	Rated standard impact sound level (certificate as per DIN 4109-2)
$L_{n,eq,0,w}$	Rated normative impact sound level for staircase (DIN 4109-32, Table 6)
u_{Prog}	Uncertainty of the prediction (DIN 4109-2:2018-01 Section 5.3.2)

Deflection in Cistep® and Cistep® 1700



Permitted load (characteristic)

Cistep: FE,k (dead load + live load) = 45 kN/m

Cistep 1700: FE,k (dead load + live load) = 42 kN/m

Rated value for load capacity (design)

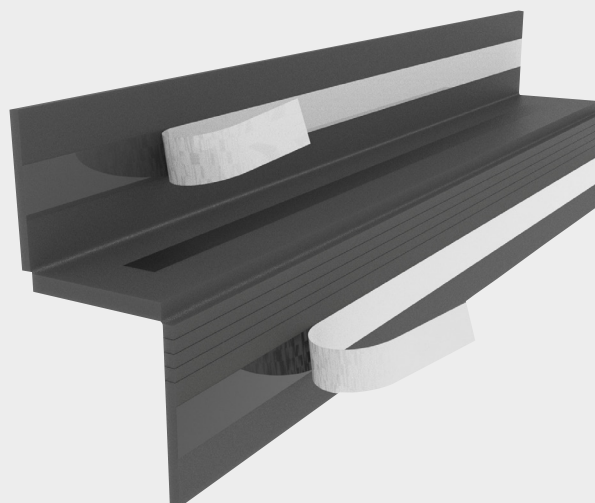
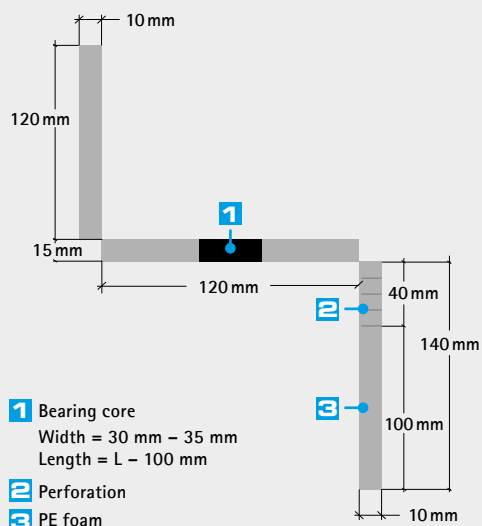
Cistep: FR,k (dead load + live load) = 75 kN/m

Cistep 1700: FR,k (dead load + live load) = 63 kN/m

Cistep® Z



CROSS SECTION



Product description and application

The Calenberg sound insulation step bearing is used to decouple flights of stairs. The bearing comprises an elastomer bearing core and a polyethylene foam liner. The vertical limbs feature self-adhesive strips for easy installation.

Fire rating

Building Material Class B2 is rated as per DIN 4102-1 (normal combustibility) and is suitable for F90 constructions (according to expert report no. 23312/2021 and no. 7192/2021 by MPA Braunschweig).

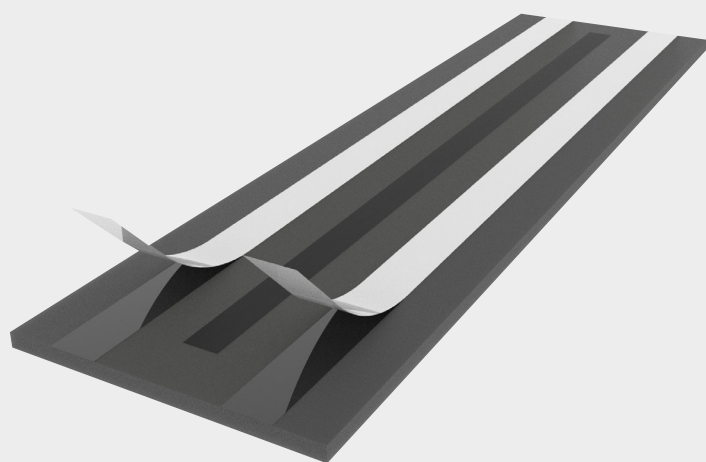
CISTEP® Z

Dimensions		Colour	Order code
Length L	1000 mm, 1100 mm, 1200 mm, 1300 mm, 1500 mm	Black	Cistep® Z-L

CISTEP® 1700 Z

Dimensions		Colour	Order code
Length L	1000 mm, 1100 mm, 1200 mm, 1300 mm, 1500 mm	Black	Cistep® 1700 Z-L

Cistep® F



Product description and application

The Calenberg sound insulation step bearing is used to decouple flights of stairs.

This bearing comprises an elastomer bearing core and a polyethylene foam embedment.

The vertical limbs feature self-adhesive strips for easy installation.

The dimensions of the bearing core are: width 30 – 35 mm, length L – 100 mm.

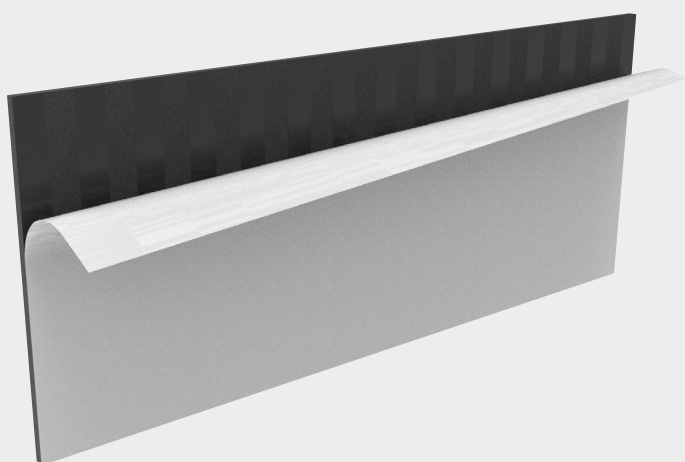
Fire rating

Building Material Class B2 is rated as per DIN 4102-1 (normal combustibility) and is suitable for F90 constructions (according to expert report no. 23312/2021 and no. 7192/2021 by MPA Braunschweig).

CISTEP® F			
Dimensions		Colour	Order code
Length L	1000 mm, 1100 mm, 1200 mm, 1300 mm, 1500 mm	Black	Cistep® F-L-B
Width W	350 mm and 600 mm		
Thickness T	15 mm		

CISTEP® 1700 F			
Dimensions		Colour	Order code
Length L	1000 mm, 1100 mm, 1200 mm, 1300 mm, 1500 mm	Black	Cistep® 1700 F-L-B
Width W	350 mm and 600 mm		
Thickness T	15 mm		

Cistep® D



Product description and application

The Calenberg partition wall panel made of polyethylene foam is used to close the gap between the staircase wall and the flight of stairs. The product is self-adhesive on one side.

Fire rating

Building Material Class B2 is rated as per DIN 4102-1 (normal combustibility) and is suitable for F90 constructions (according to expert report no. 23312/2021 by MPA Braunschweig).

CISTEP® D			
Dimensions		Colour	Order code
Length L	1000 mm	Black	Cistep® D
Width W	250 mm and 420 mm		
Thickness T	15 mm		



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