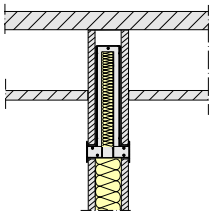
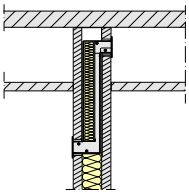
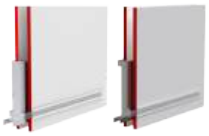
Design options
with perforated sheet cover
or
slot diffuser face



T-style construction, for lightweight partition walls



Z-style construction, for lightweight partition walls



Installation in lightweight partition walls
with metal support structure

Wall diffusers

CFE

Crossflow element for lightweight partition walls

Crossflow elements offer building owners and architects with special requirements additional design options for air distribution

- With recess for air diffusers – with fronts of different optics
- Without recess for air diffusers – for free design options depending on the chosen wall opening
- With integrated cross talk silencer and insulating strips for sound insulation
- Nominal lengths from 550 – 1175 mm, in increments of 1 mm
- Nominal heights from 290 – 440 mm, in increments of 1 mm
- The wide range of dimensions allows a large selection of different installation situations, with low pressure loss and high sound insulation values
- Installation in lightweight partition walls with 50 mm or 75 mm stud frame width and 100 mm or 125 mm wall thickness
- with neck extension Wall thicknesses up to 300 mm

Optional equipment

- Diffuser face powder-coated in RAL CLASSIC colours

General information

Application
- Crossflow elements are suitable as cross talk silencers for air transfer flows in comfort zones
- Due to their diversity of variants and high flexibility, they can be used for many applications

Special characteristics
- Different construction styles allow individual adaptation to local conditions
- Low differential pressure
- Crossflow elements in T- and Z-design without recess for an air diffuser are suitable for (system) partition walls
- Cross talk silencers reduce noise transmission to adjacent rooms
- To prevent sound transmission via the casing, insulation strips are attached to the crossflow element
- Tool-free assembly of the diffuser face enables quick installation after completion of the drywall work
- High-quality appearance of diffuser face due to powder coating according to RAL-CLASSIC colour scale
- Crossflow elements without recess: free design options of the wall openings for builders and architects while maintaining the free cross-section ≥ 51 %
- Nominal length and nominal heights selectable in mm steps

Nominal sizes
Nominal length L_N:
- 550 - 1175 mm (in increments of 1mm)

Nominal height H_N:
- 290 - 440 mm (in increments of 1mm)

Unit depth or wall thickness:
Construction style Z
- 100 - 300 mm (in increments of 1mm)

Construction style T
- 125 - 300 mm (in increments of 1mm)

Variants
CFE-...:
- -*: in Z or T design
- -*: with or without recess for diffuser face
- -PP: Perforated sheet cover
- -SC: Slot diffuser face

Construction
Surface finish of diffuser faces:
- Powder-coated RAL 9010, pure white, GE 50
- P1: powder-coated RAL 9006, white aluminium, GE 30
- P1: powder-coated in other RAL CLASSIC colours, GE 70

Construction features
- With or without recess for diffuser face
- A diffuser face requires a construction with recess for the diffuser face
- Nominal lengths from 550 - 1175 mm and nominal heights from 290 - 440 mm available in mm steps
- The perforated sheet cover PP has a free cross-section of approx. 51 %, the hole diameter is 6 mm, and the rows of holes are arranged offset to each other
- The slot diffuser face SC offers the largest possible free cross-section for very low pressure loss

Material and surfaces
- Casings and diffuser faces made of galvanised sheet steel
- Acoustic lining made of mineral wool
- Insulation strips on the casing made of closed cell PE foam
- Diffuser faces powder-coated RAL9010, GE 50
- P1: powder-coated colour according to RAL CLASSIC

Mineral wool:
- Mineral wool on surfaces in contact with air are laminated with glass fibre fabric, abrasion-resistant up to 20 m/s
- Acc. to EN 13501, fire rating class A1, non-combustible
- RAL quality mark RAL-GZ 388
- Non-hazardous thanks to high biosolubility according to the German Ordinance on Hazardous Substances and Note Q of the European Regulation (EC) No 1272/2008
- Inert to fungal and bacterial growth

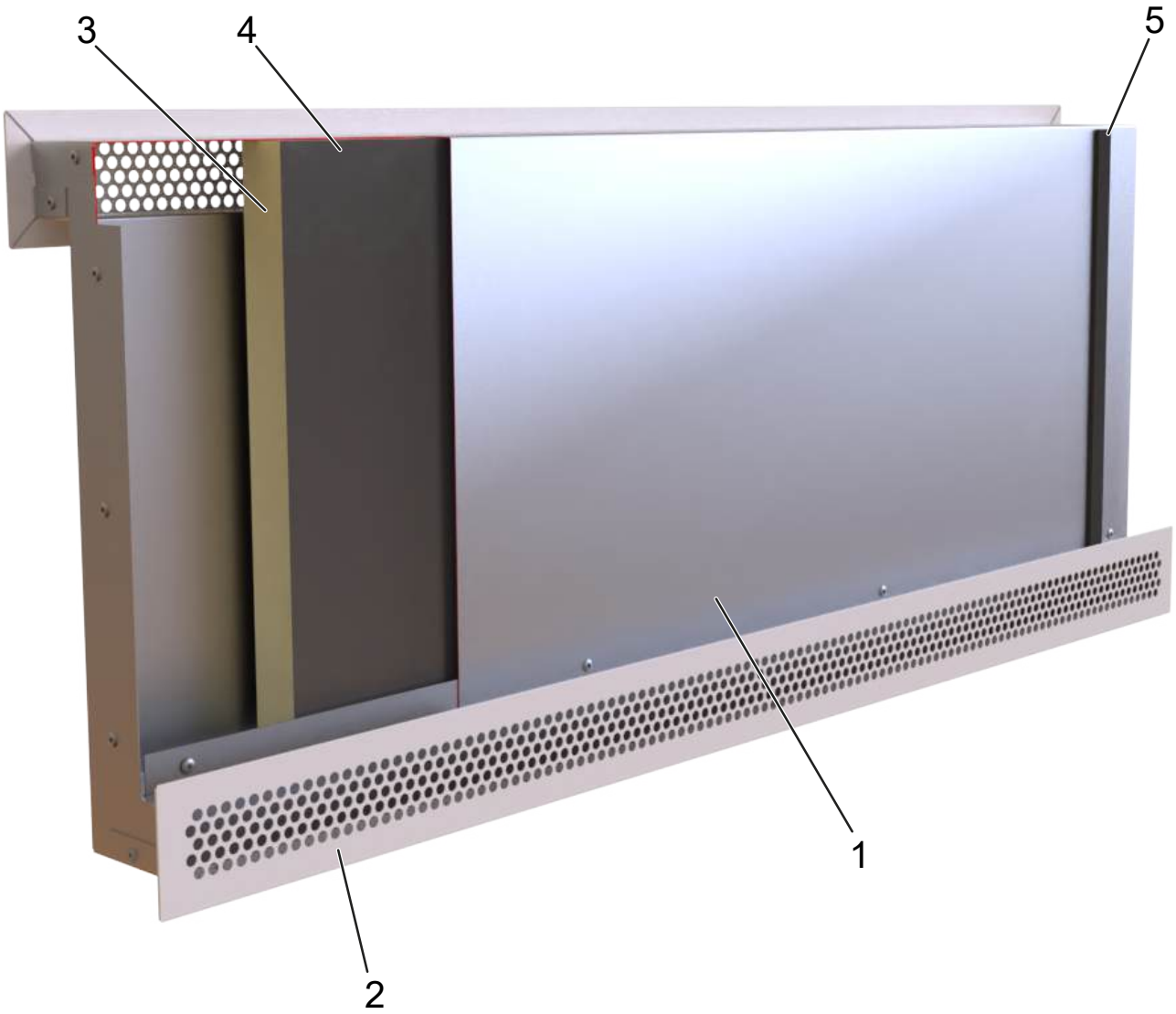
Standards and guidelines
- Sound power level of air-regenerated noise measured according to DIN EN ISO 5135
- Conforms to VDI 6022
- Sound reduction index according to DIN EN ISO 10140 and DIN EN ISO 717-1

Maintenance
- Low maintenance, as there is no wear and tear due to design and materials used
- Inspection and cleaning according to VDI 6022

Function

Type CFE crossflow elements can be installed in lightweight partition walls. Due to the pressure difference, the air flows e.g. from the office area as exhaust air into the hallway, into indoor zones or neighbouring areas with suspended ceilings. A central exhaust air system can be used there. Integrated acoustic lining reduces noise transmission into adjacent rooms. To avoid sound transmission on lightweight walls, insulation strips are attached to the casing for sound decoupling.

Schematic illustration, CFE-Z-PP



1 Casing
2 Perforated sheet metal cover
3 Mineral wool
4 Glass silk nonwoven
5 Sealing strips

Technical data

Nominal lengths	550 - 1175 in mm increments
Nominal height	290 - 440 in mm increments
maximum volume flow at Δpt = 5 Pa, T-style construction, with slot cover	124 m³/h
maximum volume flow at Δpt = 5 Pa, Z-style construction, with slot cover	120 m³/h
maximum volume flow at Δpt = 10 Pa, T-style construction, with slot cover	175 m³/h
maximum volume flow at Δpt = 10 Pa, Z-style construction, with slot cover	169 m³/h

Quick sizing

Quick sizing tables provide a good overview of the volume flow rates and corresponding sound power levels and differential pressures.
Exact values for all parameters can be determined with our Easy Product Finder design program.

Reference areas

	H_N	L_N = 550	L_N = 850	L_N = 1000	L_N = 1175
Opening area	-	0.02	0.03	0.04	0.04
Unit area	290	0.16	0.25	0.29	0.34
Unit area	340	0.19	0.29	0.34	0.40
Unit area	440	0.24	0.37	0.44	0.52

Weighted sound reduction index, standard sound pressure level and sound power level, L_N = 550

Variant	H_N	$R_{w,o}$ [dB]	$R_{w,u}$ [dB]	D_{new} [dB]	Δp_t = 5 Pa		Δp_t = 10 Pa	
					q_v [m³/h]	L_{wa} [dB(A)]	q_v [m³/h]	L_{wa} [dB(A)]
CFE-T-SC	290	14	23	41	58	<15	82	16
CFE-T-SC	340	16	26	43	57	<15	80	15
CFE-T-SC	440	19	30	46	54	<15	77	<15
CFE-T-PP	290	14	23	41	49	<15	70	<15
CFE-T-PP	340	17	26	44	48	<15	68	<15
CFE-T-PP	440	19	30	47	47	<15	66	<15
CFE-Z-SC	290	13	23	41	56	<15	79	19
CFE-Z-SC	340	15	25	42	55	<15	78	19
CFE-Z-SC	440	21	32	48	53	<15	75	18
CFE-Z-PP	290	13	23	40	47	<15	66	17
CFE-Z-PP	340	15	25	42	46	<15	65	17
CFE-Z-PP	440	21	32	48	45	<15	63	16

Weighted sound reduction index, standard sound pressure level and sound power level, L_N = 850

Variant	H_N	$R_{w,o}$ [dB]	$R_{w,u}$ [dB]	D_{new} [dB]	Δp_t = 5 Pa		Δp_t = 10 Pa	
					q_v [m³/h]	L_{wa} [dB(A)]	q_v [m³/h]	L_{wa} [dB(A)]
CFE-T-SC	290	14	23	39	90	<15	127	18
CFE-T-SC	340	16	26	41	88	<15	124	17
CFE-T-SC	440	19	30	44	84	<15	119	16
CFE-T-PP	290	14	23	39	76	<15	108	<15
CFE-T-PP	340	17	26	42	74	<15	105	<15
CFE-T-PP	440	19	30	45	73	<15	103	<15
CFE-Z-SC	290	13	23	39	87	<15	123	21
CFE-Z-SC	340	15	25	40	85	<15	121	21

Variant	H_N	$R_{w,o}$ [dB]	$R_{w,u}$ [dB]	D_{new} [dB]	Δp_t = 5 Pa		Δp_t = 10 Pa	
					q_v [m³/h]	L_{wa} [dB(A)]	q_v [m³/h]	L_{wa} [dB(A)]
CFE-Z-SC	440	21	32	46	82	<15	116	19
CFE-Z-PP	290	13	23	39	72	<15	102	19
CFE-Z-PP	340	15	25	40	71	<15	100	19
CFE-Z-PP	440	21	32	46	69	<15	98	18

Weighted sound reduction index, standard sound pressure level and sound power level, L_N = 1000

Variant	H_N	$R_{w,o}$ [dB]	$R_{w,u}$ [dB]	D_{new} [dB]	Δp_t = 5 Pa		Δp_t = 10 Pa	
					q_v [m³/h]	L_{wa} [dB(A)]	q_v [m³/h]	L_{wa} [dB(A)]
CFE-T-SC	290	14	23	38	105	<15	149	18
CFE-T-SC	340	16	26	41	103	<15	146	18
CFE-T-SC	440	19	30	44	99	<15	140	17
CFE-T-PP	290	14	23	38	90	<15	127	15
CFE-T-PP	340	17	26	41	87	<15	124	<15
CFE-T-PP	440	19	30	44	85	<15	121	<15
CFE-Z-SC	290	13	23	38	102	<15	144	22
CFE-Z-SC	340	15	25	39	100	<15	142	21
CFE-Z-SC	440	21	32	45	96	<15	136	20
CFE-Z-PP	290	13	23	38	85	<15	120	20
CFE-Z-PP	340	15	25	40	83	<15	117	19
CFE-Z-PP	440	21	32	45	81	<15	115	19

Weighted sound reduction index, standard sound pressure level and sound power level, L_N = 1175

Variant	H_N	$R_{w,o}$ [dB]	$R_{w,u}$ [dB]	D_{new} [dB]	Δp_t = 5 Pa		Δp_t = 10 Pa	
					q_v [m³/h]	L_{wa} [dB(A)]	q_v [m³/h]	L_{wa} [dB(A)]
CFE-T-SC	290	14	23	37	124	<15	175	19
CFE-T-SC	340	16	26	40	121	<15	171	18
CFE-T-SC	440	19	30	43	116	<15	164	17
CFE-T-PP	290	14	23	37	105	<15	149	16
CFE-T-PP	340	17	26	40	103	<15	145	15
CFE-T-PP	440	19	30	43	100	<15	142	<15
CFE-Z-SC	290	13	23	37	120	<15	169	22
CFE-Z-SC	340	15	25	39	118	<15	167	22
CFE-Z-SC	440	21	32	45	113	<15	160	21
CFE-Z-PP	290	13	23	37	100	<15	141	21
CFE-Z-PP	340	15	25	39	98	<15	138	20
CFE-Z-PP	440	21	32	45	95	<15	135	19

Specification text

This specification text describes the general properties of the product. Texts for variants can be generated with our Easy Product Finder design programme.

Specification text

Crossflow elements with cross talk silencers are used for air transfer flow into adjacent rooms and are suitable for comfort areas.
The crossflow element is available in rectangular Z or T design. The nominal height and nominal length are variable within the limits in mm steps. Therefore, the crossflow element can be optimally adapted to project-specific requirements.
The design without recess for an air diffuser offers builders and architects, in compliance with the free cross section of ≥ 51%, various design options. For the version with recess for an air diffuser, a choice can be made between different diffuser fronts.
The perforated diffuser face -PP has a free area of approx. 51%. The hole diameter is 6 mm, staggered pitch.
Fixing a diffuser face to the crossflow element after the drywalling has been completed is quick and easy.
The crossflow element includes a cross talk silencer with acoustic lining that reduces noise transmission to adjacent rooms. To prevent sound transmission via the casing, sealing strips are attached to the crossflow element.
Suitable for the space saving or concealed installation in lightweight partition walls with different stand widths.
Sound power level of the air-regenerated noise measured according to EN ISO 5135.
Sound reduction index according to DIN EN ISO 10140 and DIN EN ISO 717-1.
Crossflow element and diffuser face made of galvanised sheet steel.
Sound insulation material made of mineral wool.
Mineral wool:

- Mineral wool on surfaces in contact with air are laminated with glass fibre fabric, abrasion-resistant up to 20 m/s
- Acc. to EN 13501, fire rating class A1, non-combustible
- RAL quality mark RAL-GZ 388
- Non-hazardous thanks to high biosolubility according to the German Ordinance on Hazardous Substances and Note Q of the European Regulation (EC) No 1272/2008
- Inert to fungal and bacterial growth

Equivalence criteria

- Different construction styles and sizes allow for meeting local and project-specific requirements
- Low differential pressure
- The crossflow element in Z-style construction without a recess for the diffuser face is suitable for thin lightweight partition walls with metal support structure
- An integrated cross talk silencer reduces noise transmission into adjacent rooms.
- Sealing strips on the casing minimise noise transmission
- Diffuser face powder-coated in a RAL CLASSIC colour scale

Variants

Surface finish of diffuser faces:

- Powder-coated RAL 9010, pure white, GU 50
- P1: powder-coated RAL 9006, white aluminium, GU30
- P1: powder-coated in other RAL CLASSIC colours, GU 70

Technical data

- Nominal length: 550 to 1175 mm (in increments of 1 mm)
- Nominal height: 290 to 440 mm (in increments of 1 mm)
- Wall thicknesses: 100/125 - 300 mm (in increments of 1 mm)
- Maximum volume flow rate Δp_t = 5 Pa: 124 m³/h
- Maximum volume flow rate Δp_t = 10 Pa: 175 m³/h

Sizing data

- L_{WA} [dB(A)]
- q_v [m³/h]
- Δp_t [Pa]
- $D_{n,e,w}$ [dB]
- R_w [dB]

Order code

CFE – T – SC – A / 850 × 340 / 300 × 27 × 203 / P1 - RAL 9016
1 2 3 4 5 6 7

1 Type
CFE Crossflow element

2 Construction
Z Construction style Z
T Construction style T
D Pair of diffuser faces

3 Air diffuser
No entry: without recess for air diffuser

With recess for air diffuser
PP Perforated metal diffuser faces
SC Slot diffuser faces

4 Construction style
Only with air diffuser (PP, SC)
No entry: symmetrical neck lengths
A asymmetrical neck lengths

5 Nominal size [mm]
Nominal length × nominal height

Nominal length (L_N)
550 – 1175

Nominal height (H_N)
290 – 440 (standard height 340)

6 Device depth [mm]
Nominal depth (T_N) × neck length left (T_L) × neck length right (T_R) must be specified

Nominal depth (T_N)
100 – 300

Neck length left (T_L)
27 – 203

Neck length right (T_R)
27 – 203

7 Diffuser face surface
No entry: powder-coated, RAL 9010 (pure white)
P1 powder-coated; specify RAL CLASSIC colour

Gloss level
RAL 9010 GU 50
RAL 9006 GU 30
All other RAL colours GU 70

Order example: CFE-T-SC-A/850×300/300×27×203/P1-RAL9016

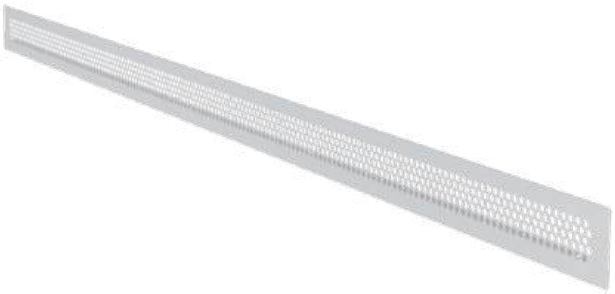
Type	CFE - Crossflow element
Construction	Construction style T
Air diffuser	Slot diffuser faces
Construction style	asymmetrical neck lengths
Nominal size [mm]	Nominal length 850, nominal height 300
Device depth [mm]	Nominal depth 300, neck length left 27, neck length right 203
Diffuser face surface	powder-coated, RAL 9016 (traffic white)

Order example: CFE-Z-PP/1000×340/201×78×78/P1-RAL9016

Type	CFE – Crossflow element
Construction	Construction style Z
Air diffuser	perforated metal diffuser faces
Construction style	symmetrical neck lengths
Nominal size [mm]	Nominal length 1000, nominal height 340
Device depth [mm]	Nominal depth 201, neck length left 78, neck length right 78
Diffuser face surface	powder-coated, RAL 9016 (traffic white)

Variants

Perforated sheet cover PP



Slot diffuser face SC

CFE-T-PP

CFE-T-SC

CFE-Z-PP

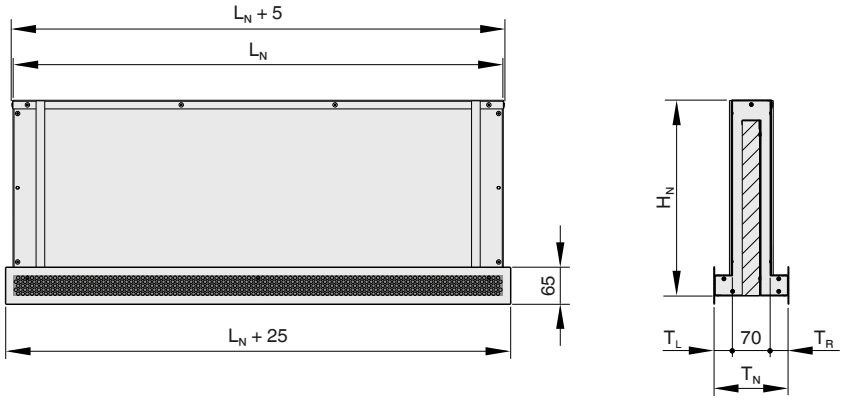
CFE-Z-SC

CFE-T

CFE-Z

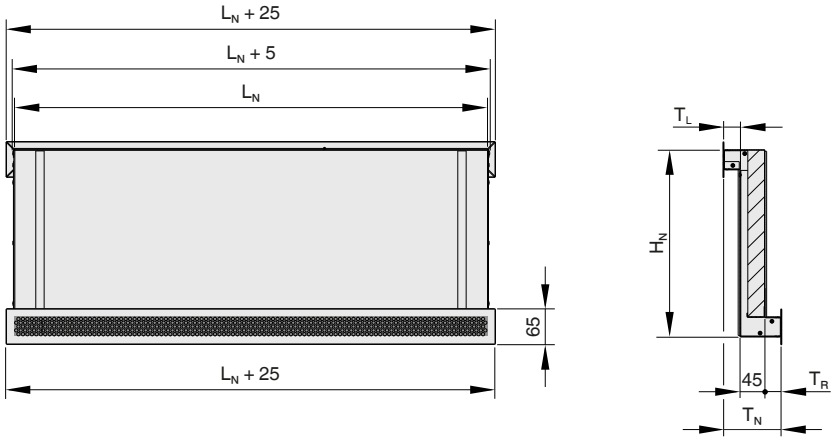
Dimensions

CFE-T-PP/SC, with recess and front cover



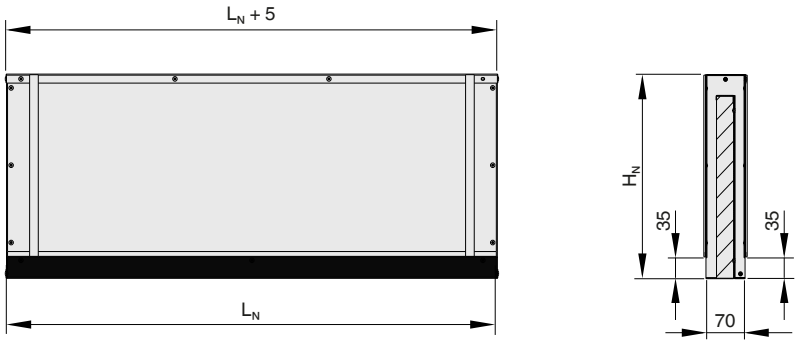
T_N: 125 mm up to 300 mm
Symmetrical:
$T_L = T_R = (T_N - 70\ mm)/2$
Asymmetrical:
T_L: 27 mm up to 203 mm
$T_R = T_N - T_L - 70$ mm
$L_N \geq 1000$ with 3 insulating strips

CFE-Z-PP/SC, with recess and front cover



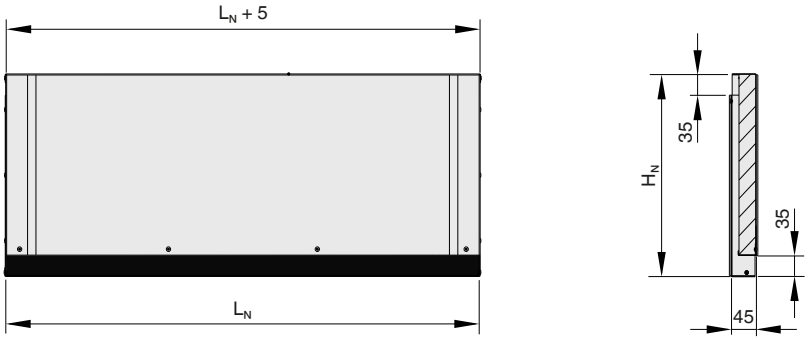
T_N: 100 mm up to 300 mm
Symmetrical:
$T_L = T_R = (T_N - 45\ mm)/2$
Asymmetrical:
T_L: 27 mm up to 228 mm
$T_R = T_N - T_L - 45$ mm
$L_N \geq 1000$ with 3 insulating strips

CFE-T, without recess



$L_N \geq 1000$ with 3 sealing strips

CFE-Z, without recess



$L_N \geq 1000$ with 3 sealing strips

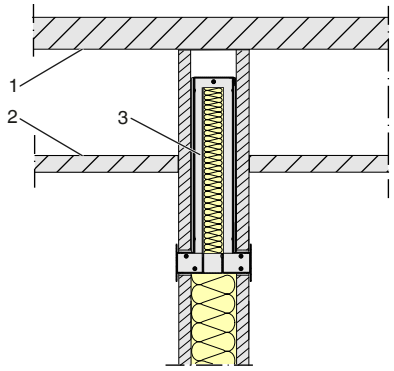
Product details

Installation and commissioning

- Preferably for rooms with a clear height up to 4.0 m
- Installation in lightweight partition walls
- Construction lengths partly suitable for the common distances of the metal stud frame; some change may be required for the CW profiles
- Suitable fixing material and additional material to prevent noise transmission is to be provided on site

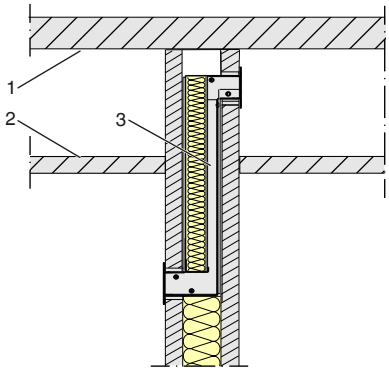
The schematic diagrams are provided to illustrate installation details.

CFE-T-PP/SC, installation in lightweight partition wall



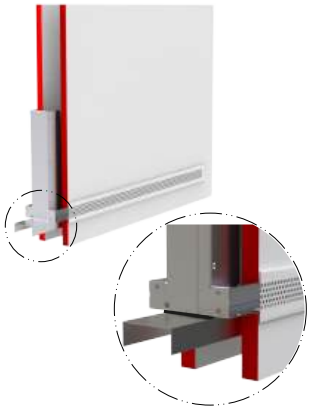
1 Ceiling slab
2 Suspended ceiling
3 Crossflow element

CFE-Z-PP/SC, installation in lightweight partition wall



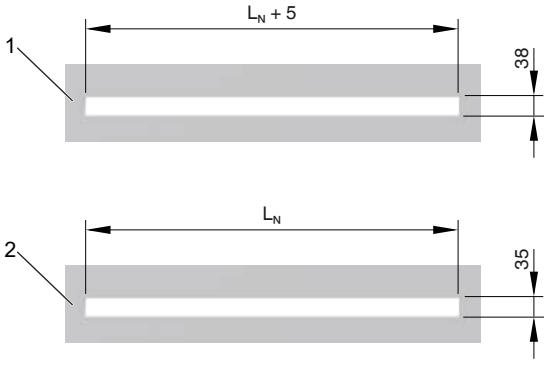
1 Ceiling slab
2 Suspended ceiling
3 Crossflow element

Installation on a C-section



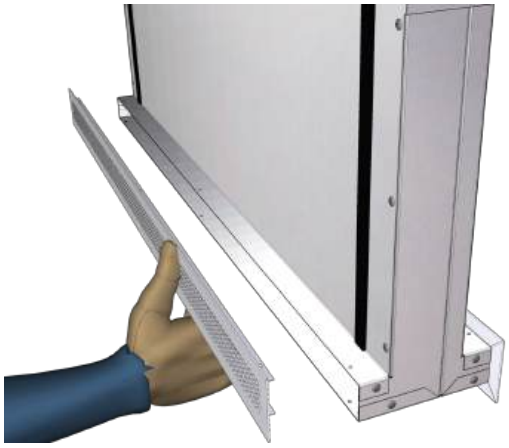
Installation in lightweight walls with metal stud frame
Noise insulation between C-section and crossflow element on site

Wall opening



1 With recess for air diffuser
2 Without recess for diffuser face, maximum wall opening

Fitting of the diffuser face



Indentation in the casing

The diffuser face has to lock into the indentations. Make sure that it sits correctly and firmly.

Nomenclature

m [kg]
Weight

H_N [mm]
Nominal height

L_N [mm]
Nominal length

L_{WA} [dB(A)]
A-weighted sound power level of air-regenerated noise

$D_{n,e,w}$ [dB]
Standard sound power level difference

R_w [dB]
Weighted sound reduction index

$R_{w,o}$ [dB]
Weighted sound reduction index, related to the opening area

$R_{w,u}$ [dB]
Weighted sound reduction index, in relation to the unit area

q_v [m³/h]; [l/s]
Volume flow rate

Δp_t [Pa]
Total differential pressure

Lengths
All lengths are given in millimetres [mm] unless stated otherwise.